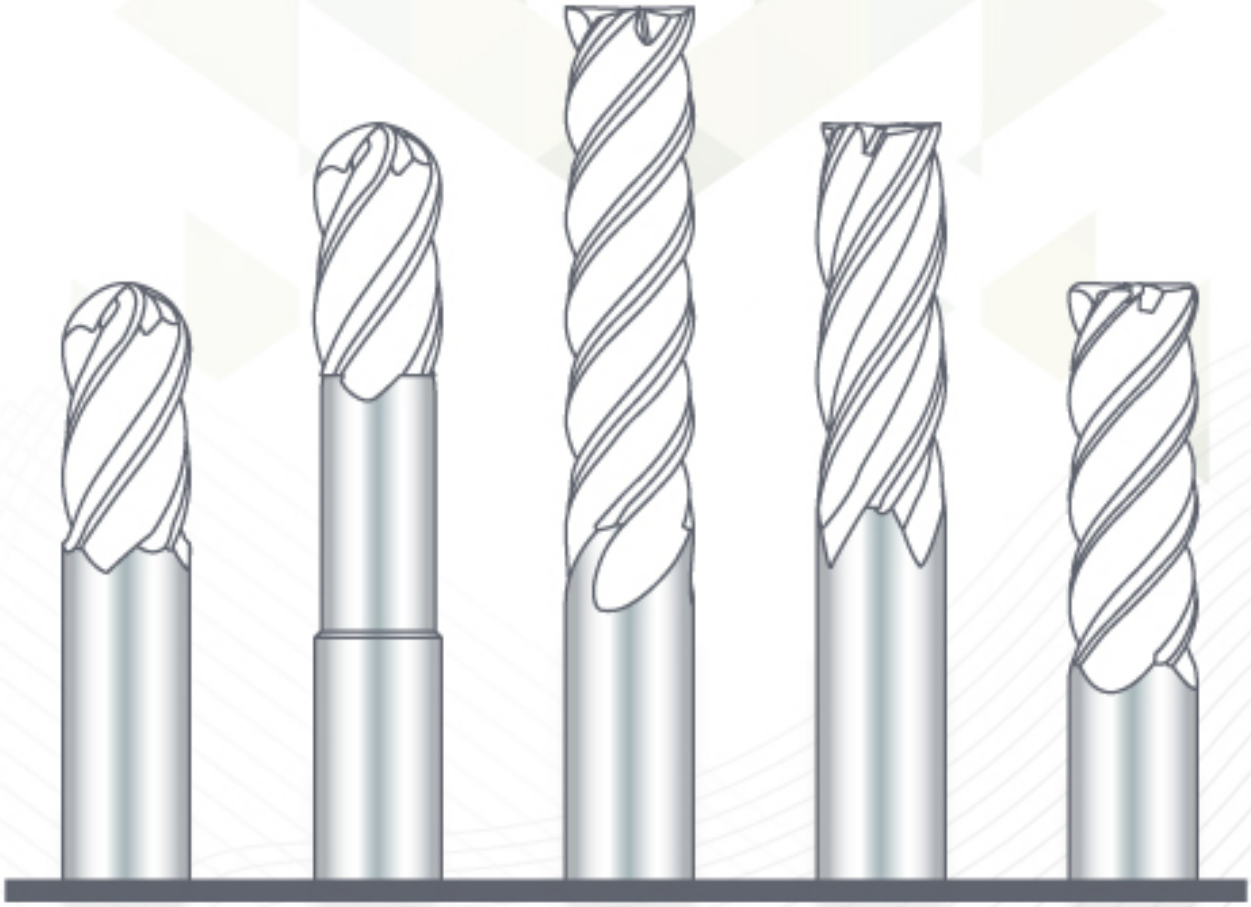
ZUQ®

S500+ Series Solid Carbide

End Mills



Guide Page

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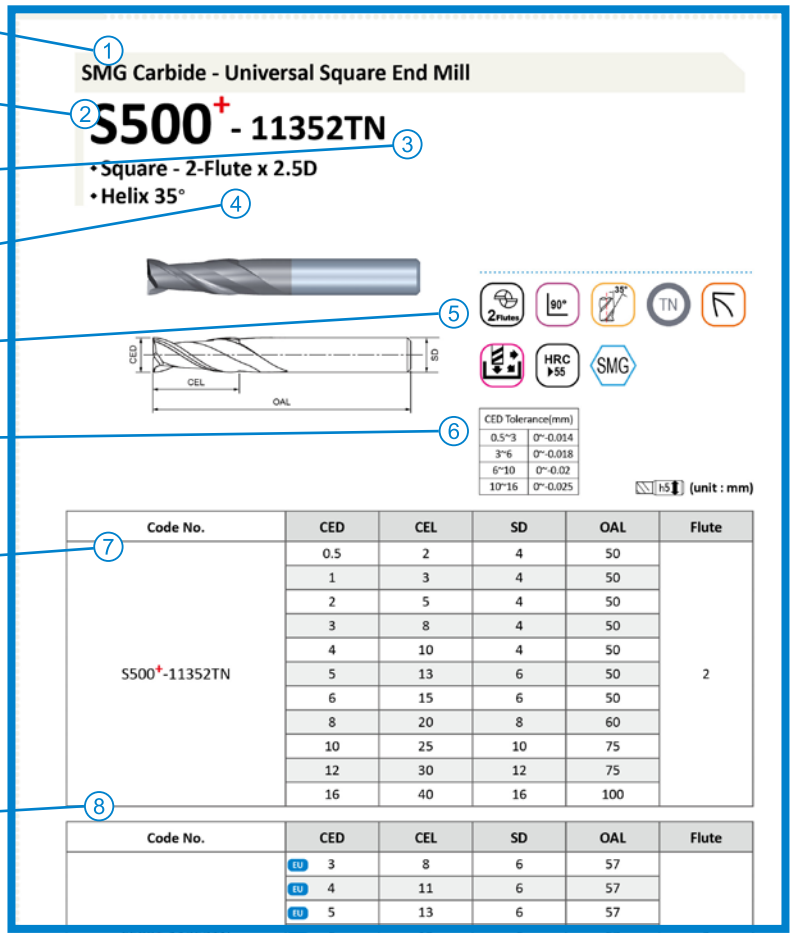


SMG Carbide - Universal Square End Mill

S500+ - 11352TN

- Square - 2-Flute x 2.5D
- Helix 35°

CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025

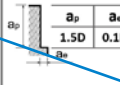
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500+-11352TN	0.5	2	4	50	2
	1	3	4	50	
	2	5	4	50	
	3	8	4	50	
	4	10	4	50	
	5	13	6	50	
	6	15	6	50	
	8	20	8	60	
	10	25	10	75	
	12	30	12	75	
	16	40	16	100	

Code No.	CED	CEL	SD	OAL	Flute
	EU 3	8	6	57	
	EU 4	11	6	57	
	EU 5	13	6	57	

10	2,400	360	1,900	180	1,700	110	2,400	360
12	2,000	330	1,560	165	1,400	95	2,000	330
16	1,500	290	1,200	145	1,050	80	1,500	290

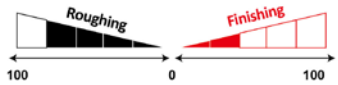
Depth of cut



ap	ae
1.5D	0.1D
1.5D	0.05D
1.5D	0.03D
1.5D	0.1D

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
•	•	•	•	•	•	•



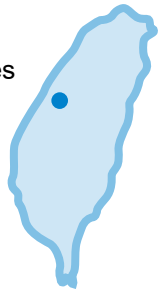
1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

About Us

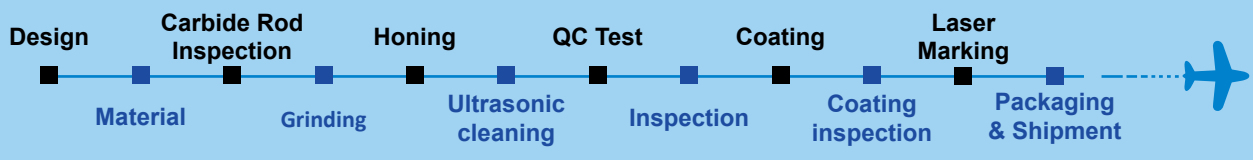
Founded in **1986**, **CITY TOOLS** is a leading solid carbide cutting tool manufacturer located in Taiwan.

ISO900 1:2000 certified, our products are widely used in Aerospace, Medical, Automotive, Electronic industry, Mechanical parts, Molds & Die, Woodworking, Plastic and all kinds of Metal / Non-Metal processing industrial.

In order to improve our production quality, we imported advanced CNC grinding machines from Germany. We use advanced inspection equipment to conduct 100% inspections at every stage of production to ensure quality and provide customers with perfect service.



Manufacturing



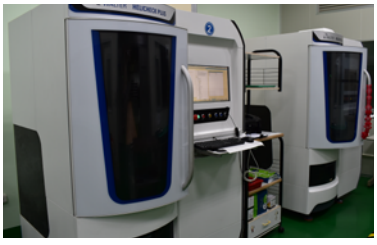
Walter Grinding Machine

Production ***Ensure accuracy quality tools and Increase productivity***

Quality Management

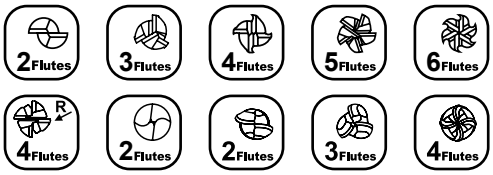
Full inspection on each tool with precised accuracy

100% comprehensive inspection with precised accuracy

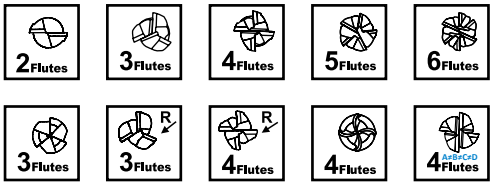


Icon Guide

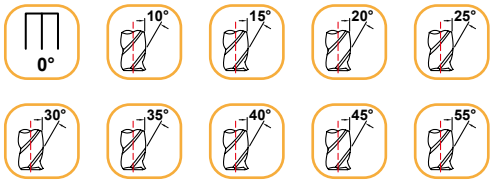
Type of Flute



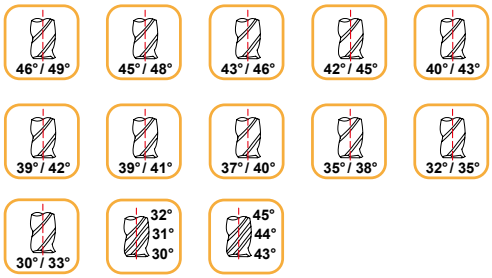
Type of Uneven Flute



Helix angle



Variable helix angle



Honing Process


with honing


without honing

Type of cutting edge


with gashland protection


sharp corner

IE

Best Seller IE Series
Uneven Flute, Variable Helix Angle

Processing direction

Work piece material hardness

Angle & Type of Cutting Edge

Drill bit point angle

Drill bit point angle

Flat-Bottom Drill

Square

Corner Radius

Ball Nose

Spherical Ball End Mill

Chamfering

Corner C

Corner rounding

Front / Back chamfer

Fine tooth rough milling


Fine tooth sharp edge

Roughing

Icon Guide

Type of Coating

Code	Name	Oxidation Temperature	Surface Hardness(Hv)	Coefficient of Friction	Coating Thickness(μm)
TA	AlTiCrN	900℃	3200	0.5	0.1~0.4
TN	TiAlN	800℃	2600	0.4	0.1~0.4
TB	AlTiSiN-B	1100℃	3500	0.45	0.1~0.4
TO	AlTiSiN	1000℃	3200	0.45	0.1~0.4
Z3	AlTiSiZrN	1000℃	3000	0.4	0.1~0.4
DLC	Diamod	550℃	2500	0.1	0.8
TS	TA-C	1100℃	5500	0.1	0.1~1

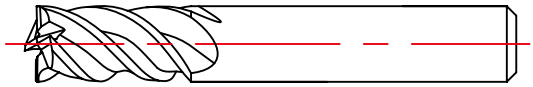
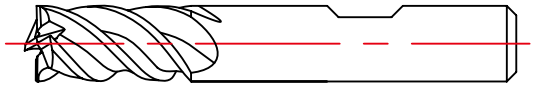
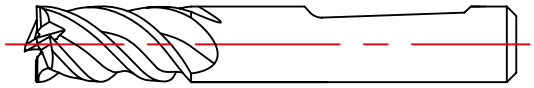
※ **Actual coating color may have slight difference due to coating temperature.**

Solid Carbide Material

icon	Grade	Grain size	Cobalt	Hardness
UFMG	**Ultrafine Micro Grain Carbide**	0.2um~0.3um	8.2%	HRA93.7
UMG	**Ultra Micro Grain Carbide**	0.4um~0.5um	12%	HRA92.7
SMG	**Super Micro Grain Carbide**	0.6um~0.8um	10%	HRA92.3
HSS	**High Speed Steel**	---	8%	HRC66~68

Icon Guide

Optional Weldon Shank HB, HE Service

Form HA, plain	
Form HB, with drive flat	
Form HE, with whistle notch flat	

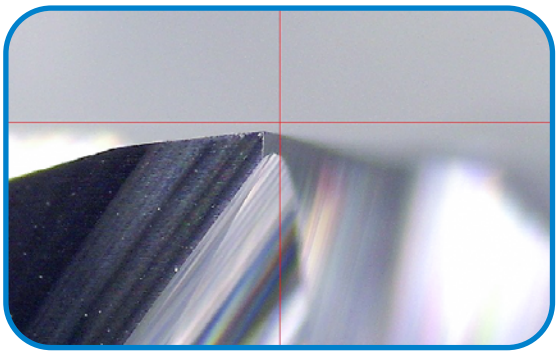
Type of cutting edge

	**Gashland Edge:** **The tools with Gashland Edge have reduced corner sharpness, increasing strength and preventing chipping to enhance tool life.**
	**Sharp Edge:** **The sharp edge blade is used for cleaning pin corners on the workpiece, which are left uncleaned by tools with Gashland Edge.**

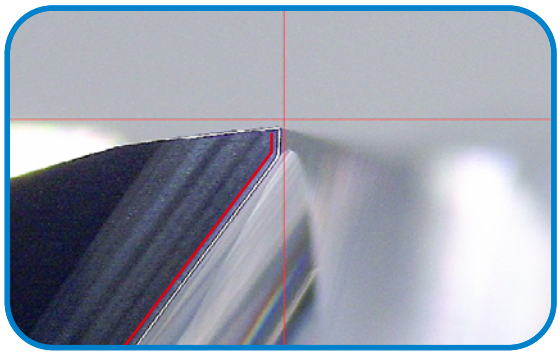
Honing Process

The honing process creates a micro R on the edge, it's enable to reduce chipping, enhancing coating adhesion and prolonging tool life.

 **without honing**



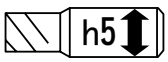
 **with honing**



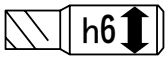
Material CHART

ISO	Group	Material	Tensile Strength N/mm2	Hardness HB
P	G1	Non-alloyed Steel, cast steel, free cutting steel	420 - 848	125 -300
	G2	<24HRC Low-alloyed Steel, cast steel	600 - 1200	200 - 300
	G3	<30HRC Hi-alloyed Steel, cast steel, tool steel	680-1100	200- 325
M	G4	Stainless Steel, cast steel	600 - 820	180 - 240
K	G5	Gray Cast Iron, Ductile cast iron, Malleable cast iron		130 - 260
N	G6	Aluminium		60 - 130
	G7	Copper		90 - 110
	G8	Plastics, Hard rubber		
	G9	FRP CFRP Composite Material		
	G10	Graphite		
S	G11	High Temp Alloys		200 - 280
	G12	Nickel		320 - 350
	G13	Titanium	400 - 1,050	
H	G14	30-38HRC Hardened Steel		
	G15	38-48HRC Hardened Steel		
	G16	48-56HRC Hardened Steel		
	G17	56-65HRC Hardened Steel		

High Precision Shank Tolerance

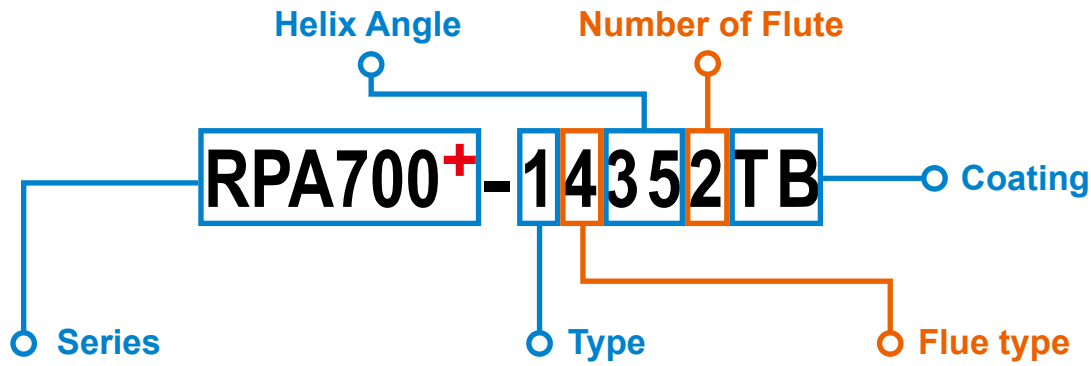


The h5 high precision tolerance, optimum concentricity and runout for precision chucks.



h6 high precision tolerance for HSS series, optimum concentricity and runout for precision chucks.

Coding Principle



Series

- **RP** = Long Neck
- **RT** = Taper Neck
- **AC** = Aluminum Series
- **CS** = Stainless Steel Series
- **TI** = Titanium Series
- **RF** = Roughing Series
- **DR** = Drill Series
- **CF** = Chamfering Series
- **IR** = Corner Radius Series
- **VF** = Grooving Series
- **HS** = High Speed Steel Series

Type

- **1** = Square
- **2** = Corner Radius
- **4** = Drill
- **5** = Reammer
- **8** = Ball nose

Flue type

- **1** = Standard Flute
- **2** = Long Flute
- **3** = Long shank
- **4** = Stub Flute

A700IE+-11384TH

- **I** = Uneven flute
- **E** = Variable helix angle

S500M+-11302TN

- **M** = Miniature

AC100RN+-11403

- **R** = Heavy Duty Operation
- **N** = Sharp edge

S500+ Series

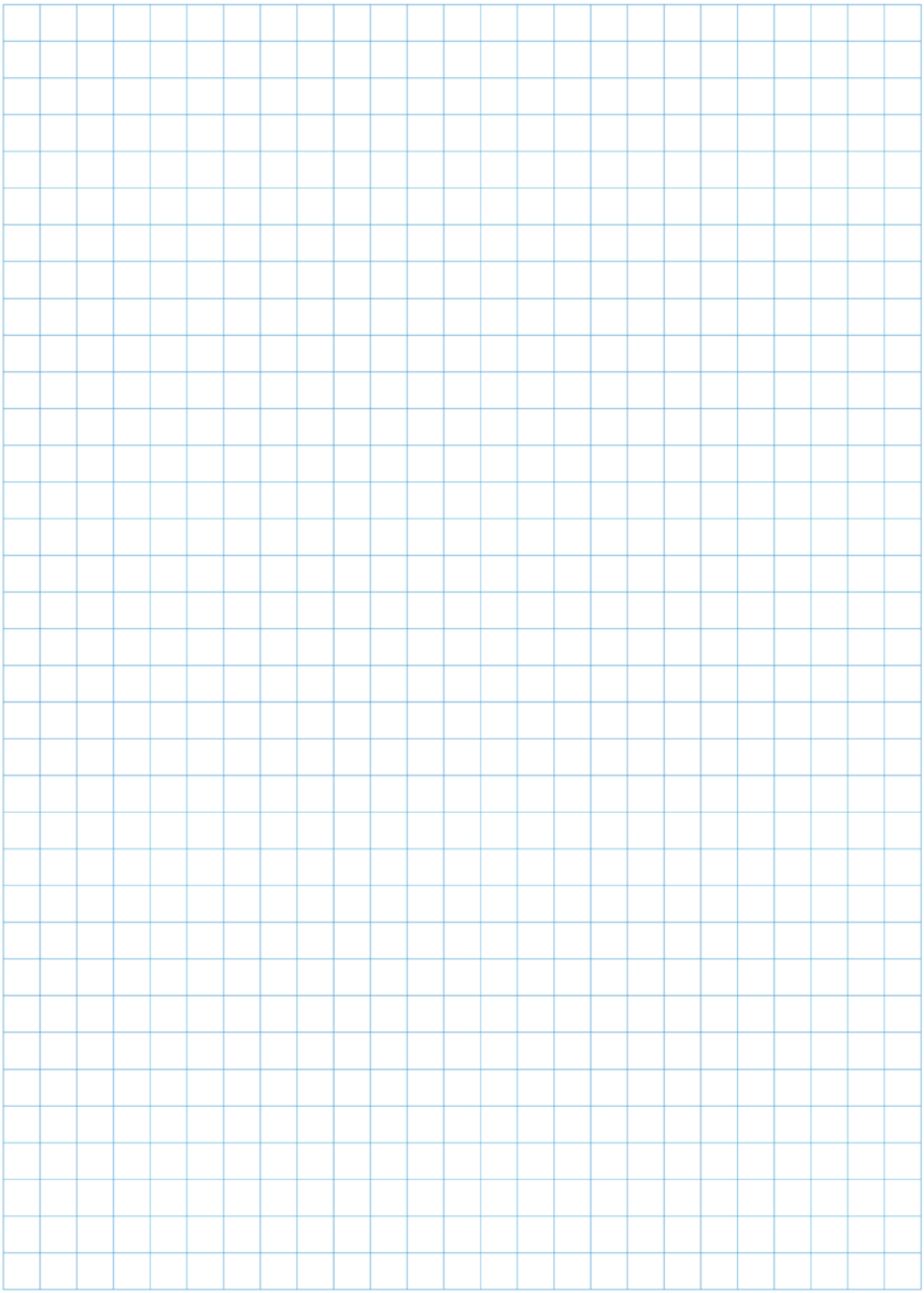
Parts Processing & General Processing

Appearance	Code No	Description	Size	Pg
	S500+-11352TN	Square - 2-Flute x 2.5D / Helix 35°	Ø0.5~Ø16	13
	S500+-11354TN	Square - 4-Flute x 2.5D / Helix 35°	Ø0.5~Ø16	15
	S500+-11354TN	Square - 4-Flute x 3D / Helix 35°	Ø0.5~Ø16	17
	S500+-11454TN	Square - 4-Flute x 2.5D / Helix 45°	Ø0.5~Ø2	19
	S500+-11454TN	Square - 4-Flute x 3D / Helix 45°	Ø0.5~Ø20	21
	S500+-11506TN	Square - 6-Flute x 3D / Multi-Flute Helix 50°	Ø6~Ø20	23
	S500+-12354TN	Square - 4-Flute x 4D / Long Flute Helix 35°	Ø0.5~Ø20	25
	S500+-12454TN	Square - 4-Flute x 4D / Long Flute Helix 45°	Ø0.5~Ø20	27
	RPS500+-14354TN	Square - 4-Flute x 1D / Stub Flute Long Neck / Helix 35°	Ø0.5~Ø6	29
	S500+-81302TN	Ball Nose - 2-Flute x 2D / Helix 30°	0.5R~8R	31
	S500+-81354TN	Ball Nose - 4-Flute x 2D / Helix 35°	0.5R~10R	33
	S500+-83302TN	Ball Nose - 2-Flute x 2D / Helix 30°	0.5R~6R	35
	S500+-83354TN	Ball Nose - 4-Flute x 2D / Helix 35°	3R~10R	37
	RPS500+-84352TN	Ball Nose - 2-Flute x 1D / Stub Flute Long Neck / Helix 35°	0.25R~3R	39
	S500+-21354TN	Corner Radius - 4-Flute x 3D / Helix 35°	Ø1~Ø12	41
	S500IE+-11324TA	Square - 4-Flute x 3D Uneven Flute / Variable Helix Angle 32°/35°	Ø6~Ø16	43
	S500IE+-11354TA	Square - 4-Flute x 2.5D Uneven Flute / Variable Helix 35°/38°	Ø1~Ø16	45
	S500IE+-11374TA	Square - 4-Flute x 2.5D Uneven Flute / Variable Helix 37°/40°	Ø1~Ø16	47
	S500IE+-11434TA	Square - 4-Flute x 2.5D Uneven Flute / Variable Helix 43°/46°	Ø4~Ø20	49
	S500IE+-11434TA	Square - 4-Flute x 3D Uneven Flute / Variable Helix 43°/46°	Ø1~Ø16	51

S500+ Series

Parts Processing & General Processing

Appearance	Code No	Description	Size	Pg
	S500IE+-12434TA	Square - 4-Flute x 4D / Long Flute Uneven Flute / Variable Helix 43°/46°	Ø4~Ø20	53
	S500IE+-12434TA	Square - 4-Flute x 5D / Long Flute Uneven Flute / Variable Helix Angle 43°/46°	Ø6~Ø16	55
	S500IE+-12424TA	Square - 4-Flute / Long Flute Uneven Flute / Variable Helix Angle 42°/45°	Ø6~Ø16	57
	S500IE+-13424TA	Square - 4-Flute / Long Shank Uneven Flute / Variable Helix Angle 42°/45°	Ø6~Ø16	59
	S500IE+-12435TA	Square - 5-Flute x 4D / Long Flute Uneven Flute / Variable Helix 43°/46°	Ø6~Ø16	61
	S500IE+-12436TA	Square - 6-Flute x 4D / Long Flute Uneven Flute / Variable Helix 43°/46°	Ø6~Ø16	63
	S500IE+-81354TA	Ball Nose - 4-Flute x 2D Uneven Flute / Variable Helix 35°/38°	3R~10R	65
	S500IE+-83354TA	Ball Nose - 4-Flute x 2D / Long Shank Uneven Flute / Variable Helix 35°/38°	3R~10R	67
	S500IE+-21434TA	Corner Radius - 4-Flute x 3D Uneven Flute / Variable Helix 43°/46°	Ø1~Ø12	69
	S500E+-11302TA	Square - 2-Flute x 2.5D Variable Helix Angle 30°/33°	Ø1~Ø16	71
	S500E+-81302TA	Ball Nose - 2-Flute x 2.5D Variable Helix Angle 30°/33°	0.5R~8R	73
	S500E+-11303TA	Square - 3-Flute x 2.5D Variable Helix Angle 30°/31°/32°	Ø1~Ø16	75
	S500E+-81303TA	Ball Nose - 3-Flute x 2.5D Variable Helix Angle 30°/31°/32°	0.5R~8R	77



S500+ Series

Machinery Parts & General Process

Types of Flute

2Flutes 3Flutes 4Flutes 5Flutes 6Flutes

4Flutes(R) 2Flutes 3Flutes 4Flutes

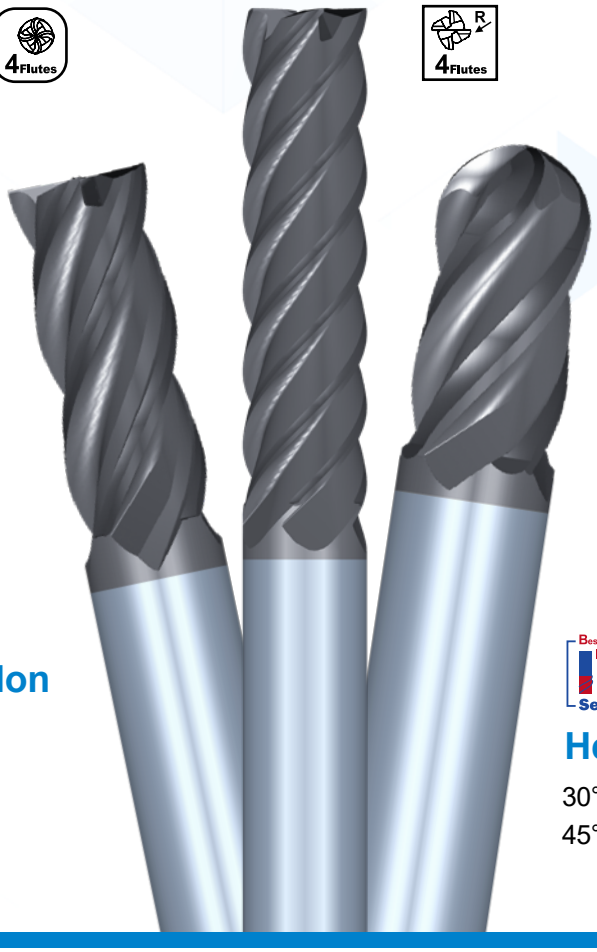
Types of Uneven Flute

4Flutes 4Flutes(A≠B≠C≠D) 5Flutes 6Flutes 4Flutes

4Flutes(R)

Honing Process

- with honing
- without honing



Cutting edge

with gashland protection

Solid Carbide Material

SMG — Super Micro Grain Carbide

HRC 55 — Applicable for material HRC 55

Coating Type

TN TA

Optional DIN Weldon Shank

DIN 6535 HA DIN 6535 HB DIN 6535 HE

Best Seller IE Series

Helix angle

30° / 32° / 35° / 37° / 42° / 43° / 45°

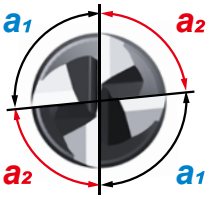
This series is mainly focus on high speed cutting in roughing and semi-finishing process on hardness material <HRC55.

Special & Custom Tooling Services

Customized acceptable !
From Coating, flute, Helix angle, cutting length, to total length.

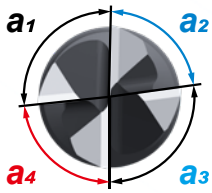
High Speed & Anti-Vibration

Ideal for Mild steels, Cast Irons, Hardened steels with extended tool life.



$a_1 \neq a_2$

Unvevn Flute



$a_1 \neq a_2 \neq a_3 \neq a_4$

Available Make to Order!

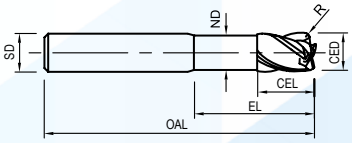
Best Seller IE Series

Variable Helix Angle

Anti-Vibration, Providing smooth and steady chip evaluation.

Unique coating for wear reduction and heat resistance.

Short Flute Provide	Multiple flute design provide	Heavy Duty Cutter design



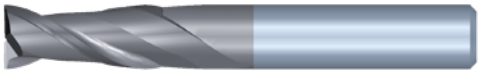
Ideal for cutting different hard metals.

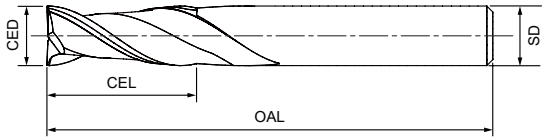
Ideal for high hardness metals andfinishing applications.

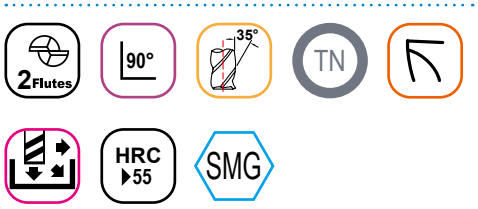
Ideal for heavy duty cutting operation.

S500+ - 11352TN

- Square - 2-Flute x 2.5D
- Helix 35°







CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025

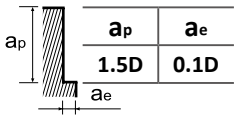
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500+-11352TN	0.5	2	4	50	2
	1	3	4	50	
	2	5	4	50	
	3	8	4	50	
	4	10	4	50	
	5	13	6	50	
	6	15	6	50	
	8	20	8	60	
	10	25	10	75	
	12	30	12	75	
	16	40	16	100	

Code No.	CED	CEL	SD	OAL	Flute
S500+-11352TN	EU 3	8	6	57	2
	EU 4	11	6	57	
	EU 5	13	6	57	
	EU 6	13	6	57	
	EU 8	19	8	63	
	EU 10	22	10	72	
	EU 12	26	12	83	

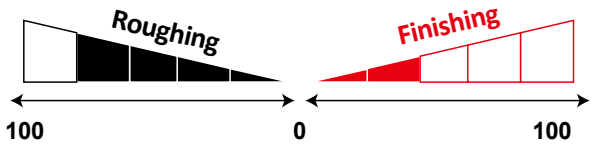
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
0.5	30,000	160	23,000	90	20,000	60	30,000	160
1	24,000	240	19,200	130	15,360	75	24,000	240
2	12,000	260	9,600	150	7,680	90	12,000	260
3	8,200	320	6,500	160	5,600	100	8,200	320
4	6,200	340	4,900	170	4,200	110	6,200	340
5	4,600	360	3,600	180	3,300	120	4,600	360
6	4,100	370	3,200	185	2,800	120	4,100	370
8	3,100	370	2,400	185	2,100	120	3,100	370
10	2,400	360	1,900	180	1,700	110	2,400	360
12	2,000	330	1,560	165	1,400	95	2,000	330
16	1,500	290	1,200	145	1,050	80	1,500	290
Depth of cut		a_p 1.5D, a_e 0.1D		a_p 1.5D, a_e 0.05D		a_p 1.5D, a_e 0.03D		a_p 1.5D, a_e 0.1D

Work Material

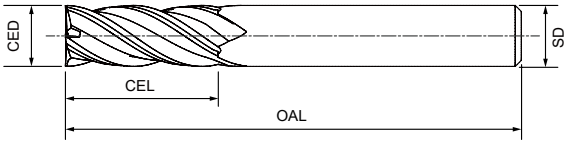
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	●

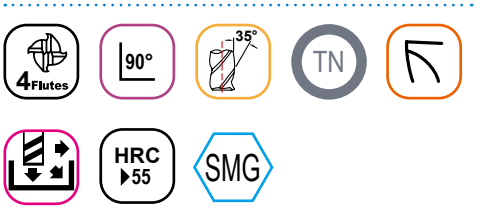


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 11354TN

- Square - 4-Flute x 2.5D
- Helix 35°





CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025

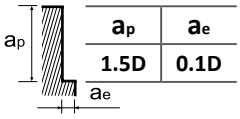
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500+-11354TN	0.5	2	4	50	4
	1	3	4	50	
	2	5	4	50	
	3	8	4	50	
	4	10	4	50	
	5	13	6	50	
	6	15	6	50	
	8	20	8	60	
	10	25	10	75	
	12	30	12	75	
	16	40	16	100	

Code No.	CED	CEL	SD	OAL	Flute
S500+-11354TN	EU 3	8	6	57	4
	EU 4	11	6	57	
	EU 5	13	6	57	
	EU 6	13	6	57	
	EU 8	19	8	63	
	EU 10	22	10	72	
	EU 12	26	12	83	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
0.5	30,000	160	23,000	70	20,000	50	30,000	160
1	24,000	190	14,000	85	12,500	60	24,000	190
2	12,000	270	7,000	120	6,350	85	12,000	270
3	8,000	380	5,300	140	4,240	100	8,000	380
4	6,000	410	4,250	150	3,700	105	6,000	410
5	4,800	470	3,550	160	3,150	110	4,800	470
6	4,000	470	2,950	175	2,650	120	4,000	470
8	3,000	460	2,200	170	1,950	130	3,000	460
10	2,400	460	1,750	160	1,550	120	2,400	460
12	2,000	460	1,470	160	1,300	115	2,000	460
16	1,500	430	1,100	145	975	110	1,500	430
Depth of cut								

a_p	a_e
1.5D	0.1D

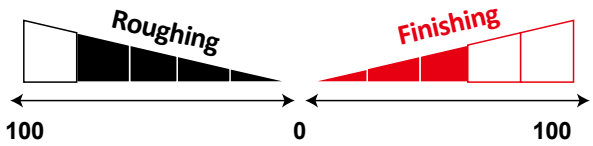
a_p	a_e
1.5D	0.05D

a_p	a_e
1.5D	0.03D

a_p	a_e
1.5D	0.1D

Work Material

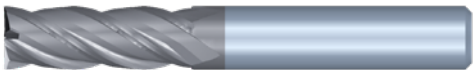
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	●

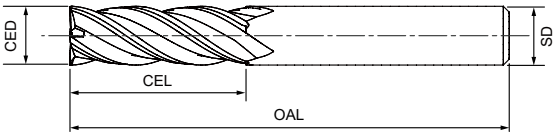


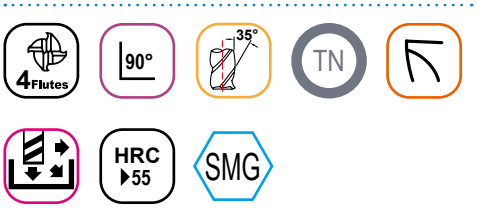
1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 11354TN

- Square - 4-Flute x 3D
- Helix 35°







CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025
16~20	0~-0.03

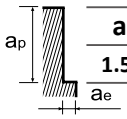
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500+-11354TN	0.5	2	4	50	4
	1	3	4	50	
	2	6	4	50	
	3	9	4	50	
	4	12	4	50	
	5	15	6	50	
	6	18	6	50	
	8	24	8	65	
	10	30	10	75	
	12	36	12	80	
	16	48	16	100	
	20	60	20	125	

Code No.	CED	CEL	SD	OAL	Flute
S500+-11354TN	EU 3	9	6	57	4
	EU 4	12	6	65	
	EU 5	15	6	65	
	EU 6	18	6	65	
	EU 8	24	8	75	
	EU 10	30	10	80	
	EU 12	36	12	93	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
0.5	30,000	160	23,000	70	20,000	50	30,000	160
1	24,000	190	14,000	85	12,500	60	24,000	190
2	12,000	270	7,000	120	6,350	85	12,000	270
3	8,000	380	5,300	140	4,240	100	8,000	380
4	6,000	410	4,250	150	3,700	105	6,000	410
5	4,800	470	3,550	160	3,150	110	4,800	470
6	4,000	470	2,950	175	2,650	120	4,000	470
8	3,000	460	2,200	170	1,950	130	3,000	460
10	2,400	460	1,750	160	1,550	120	2,400	460
12	2,000	460	1,470	160	1,300	115	2,000	460
16	1,500	430	1,100	145	975	110	1,500	430
20	1,200	400	890	145	800	105	1,200	400
Depth of cut								

a_p	a_e
1.5D	0.1D

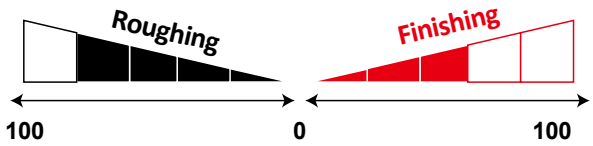
a_p	a_e
1.5D	0.05D

a_p	a_e
1.5D	0.03D

a_p	a_e
1.5D	0.1D

Work Material

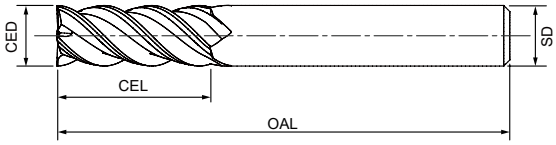
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

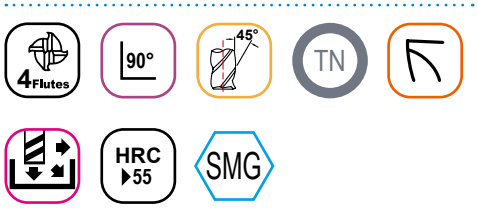


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 11454TN

- Square - 4-Flute x 2.5D
- Helix 45°





CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025

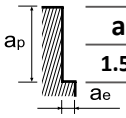
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500+-11454TN	0.5	2	4	50	4
	1	3	4	50	
	2	5	4	50	
	3	8	4	50	
	4	10	4	50	
	5	13	6	50	
	6	15	6	50	
	8	20	8	60	
	10	25	10	75	
	12	30	12	75	
	16	40	16	100	

Code No.	CED	CEL	SD	OAL	Flute
S500+-11454TN	EU 3	8	6	57	4
	EU 4	11	6	57	
	EU 5	13	6	57	
	EU 6	13	6	57	
	EU 8	19	8	63	
	EU 10	22	10	72	
	EU 12	26	12	83	

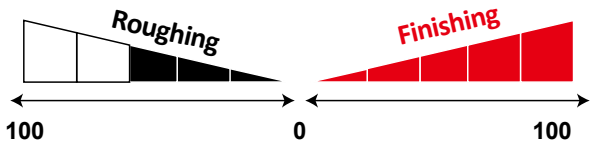
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
0.5	30,000	160	23,000	70	20,000	50	30,000	160
1	24,000	190	14,000	85	12,500	60	24,000	190
2	12,000	270	7,000	120	6,350	85	12,000	270
3	8,000	380	5,300	140	4,240	100	8,000	380
4	6,000	410	4,250	150	3,700	105	6,000	410
5	4,800	470	3,550	160	3,150	110	4,800	470
6	4,000	470	2,950	175	2,650	120	4,000	470
8	3,000	460	2,200	170	1,950	130	3,000	460
10	2,400	460	1,750	160	1,550	120	2,400	460
12	2,000	460	1,470	160	1,300	115	2,000	460
16	1,500	430	1,100	145	975	110	1,500	430
Depth of cut		a_p 1.5D, a_e 0.1D		a_p 1.5D, a_e 0.05D		a_p 1.5D, a_e 0.03D		a_p 1.5D, a_e 0.1D

Work Material

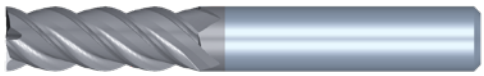
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	●

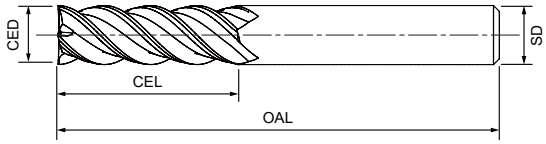


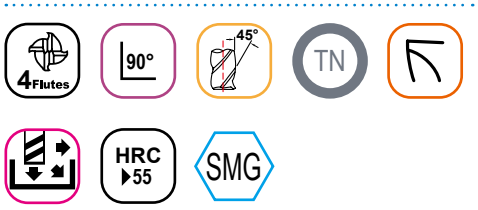
1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 11454TN

- Square - 4-Flute x 3D
- Helix 45°







CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025
16~20	0~-0.03

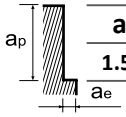
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500+-11454TN	0.5	2	4	50	4
	1	3	4	50	
	2	6	4	50	
	3	9	4	50	
	4	12	4	50	
	5	15	6	50	
	6	18	6	50	
	8	24	8	65	
	10	30	10	75	
	12	36	12	80	
	16	48	16	100	
	20	60	20	125	

Code No.	CED	CEL	SD	OAL	Flute
S500+-11454TN	EU 3	9	6	57	4
	EU 4	12	6	65	
	EU 5	15	6	65	
	EU 6	18	6	65	
	EU 6	18	6	65	
	EU 8	24	8	75	
	EU 10	30	10	80	
	EU 12	36	12	93	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
0.5	30,000	160	23,000	70	20,000	50	30,000	160
1	24,000	190	14,000	85	12,500	60	24,000	190
2	12,000	270	7,000	120	6,350	85	12,000	270
3	8,000	380	5,300	140	4,240	100	8,000	380
4	6,000	410	4,250	150	3,700	105	6,000	410
5	4,800	470	3,550	160	3,150	110	4,800	470
6	4,000	470	2,950	175	2,650	120	4,000	470
8	3,000	460	2,200	170	1,950	130	3,000	460
10	2,400	460	1,750	160	1,550	120	2,400	460
12	2,000	460	1,470	160	1,300	115	2,000	460
16	1,500	430	1,100	145	975	110	1,500	430
20	1,200	400	890	145	800	105	1,200	400
Depth of cut								

a_p	a_e
1.5D	0.1D

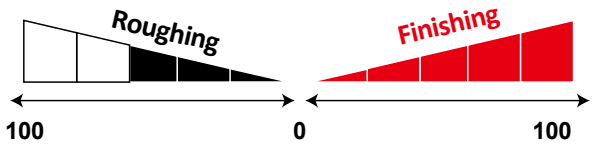
a_p	a_e
1.5D	0.05D

a_p	a_e
1.5D	0.03D

a_p	a_e
1.5D	0.1D

Work Material

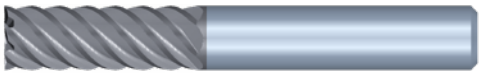
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	●

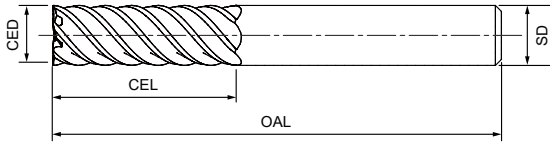


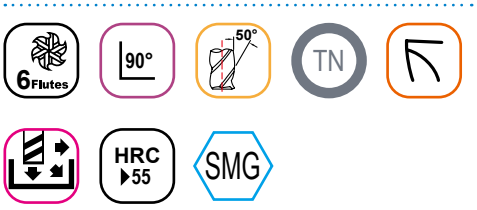
1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 11506TN

- Square - 6-Flute x 3D / Multi-Flute
- Helix 50°







CED Tolerance(mm)	
6~10	0~-0.02
10~16	0~-0.025
16~20	0~-0.03

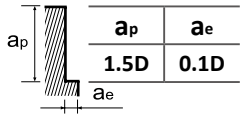
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500+-11506TN	6	18	6	50	6
	8	24	8	65	
	10	30	10	75	
	12	36	12	80	
	16	48	16	100	
	20	60	20	125	

Code No.	CED	CEL	SD	OAL	Flute
S500+-11506TN	EU 6	18	6	65	6
	EU 8	24	8	75	
	EU 10	30	10	80	
	EU 12	36	12	93	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D
6	7,450	1,270	6,650	1,010	6,300	810
8	5,550	1,270	4,900	1,010	4,000	810
10	4,450	1,100	4,000	880	3,200	700
12	3,700	1,050	3,300	840	2,650	670
16	2,700	920	2,600	740	1,650	590
20	2,200	850	1,950	680	1,550	540
Depth of cut						

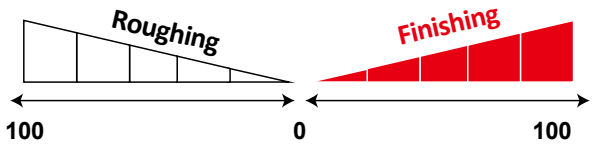
a_p	a_e
1.5D	0.1D

a_p	a_e
1.5D	0.05D

a_p	a_e
1.5D	0.03D

Work Material

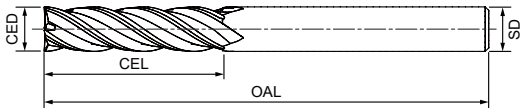
P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●

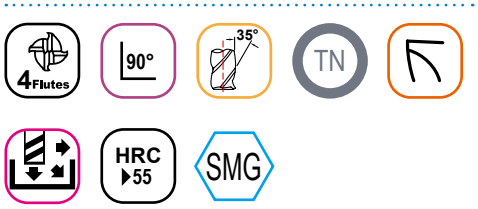


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 12354TN

- Square - 4-Flute x 4D / Long Flute
- Helix 35°





CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025
16~20	0~-0.03

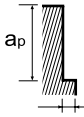
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500+-12354TN	0.5	2	4	50	4
	1	4	4	50	
	2	8	4	50	
	3	12	4	50	
	4	16	4	50	
	5	20	6	60	
	6	24	6	65	
	8	32	8	90	
	10	40	10	100	
	12	48	12	110	
	16	64	16	140	
	20	80	20	160	

Code No.	CED	CEL	SD	OAL	Flute
S500+-12354TN	EU 3	12	6	57	4
	EU 4	16	6	65	
	EU 5	20	6	65	
	EU 6	24	6	65	
	EU 8	32	8	80	
	EU 10	40	10	90	
	EU 12	48	12	100	

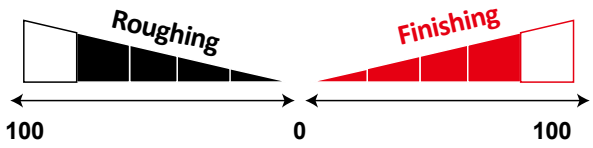
※ **Customized Special sizes, Coating type and Inches are available to order.**

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 2.5D	a_e: 0.05D	a_p: 2.5D	a_e: 0.03D	a_p: 2.5D	a_e: 0.02D	a_p: 2.5D	a_e: 0.05D
0.5	40,000	200	36,000	160	35,000	130	40,000	200
1	21,000	250	19,700	220	19,100	155	21,000	250
2	10,500	360	9,800	230	9,550	235	10,500	360
3	7,000	455	6,600	410	6,350	430	7,000	455
4	5,250	455	4,950	415	4,700	300	5,250	455
5	4,200	480	3,950	430	3,800	310	4,200	480
6	3,500	660	2,100	480	1,500	270	3,500	660
8	2,650	705	1,800	500	1,200	285	2,650	705
10	2,100	750	1,600	520	1,150	220	2,100	750
12	1,750	720	1,350	470	960	260	1,750	720
16	1,300	630	1,000	420	720	215	1,300	630
20	1,050	520	800	340	580	200	1,050	520
Depth of cut		a_p 2.5D, a_e 0.05D		a_p 2.5D, a_e 0.03D		a_p 2.5D, a_e 0.02D		a_p 2.5D, a_e 0.05D

Work Material

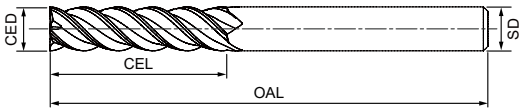
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

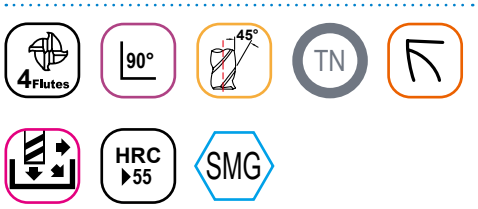


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 12454TN

- Square - 4-Flute x 4D / Long Flute
- Helix 45°





CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025
16~20	0~-0.03

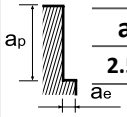
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500+-12454TN	0.5	2	4	50	4
	1	4	4	50	
	2	8	4	50	
	3	12	4	50	
	4	16	4	50	
	5	20	6	60	
	6	24	6	65	
	8	32	8	90	
	10	40	10	100	
	12	48	12	110	
	16	64	16	140	
	20	80	20	160	

Code No.	CED	CEL	SD	OAL	Flute
S500+-12454TN	EU 3	12	6	57	4
	EU 4	16	6	65	
	EU 5	20	6	65	
	EU 6	24	6	65	
	EU 8	32	8	80	
	EU 10	40	10	90	
	EU 12	48	12	100	

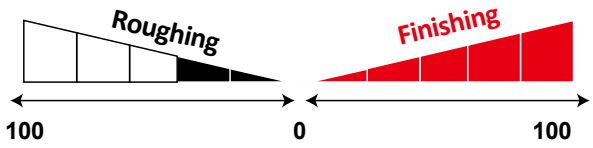
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 2.5D	a_e: 0.05D	a_p: 2.5D	a_e: 0.03D	a_p: 2.5D	a_e: 0.02D	a_p: 2.5D	a_e: 0.05D
0.5	40,000	200	36,000	160	35,000	130	40,000	200
1	21,000	250	19,700	220	19,100	155	21,000	250
2	10,500	360	9,800	230	9,550	235	10,500	360
3	7,000	455	6,600	410	6,350	430	7,000	455
4	5,250	455	4,950	415	4,700	300	5,250	455
5	4,200	480	3,950	430	3,800	310	4,200	480
6	3,500	660	2,100	480	1,500	270	3,500	660
8	2,650	705	1,800	500	1,200	285	2,650	705
10	2,100	750	1,600	520	1,150	220	2,100	750
12	1,750	720	1,350	470	960	260	1,750	720
16	1,300	630	1,000	420	720	215	1,300	630
20	1,050	520	800	340	580	200	1,050	520
Depth of cut		a_p 2.5D, a_e 0.05D		a_p 2.5D, a_e 0.03D		a_p 2.5D, a_e 0.02D		a_p 2.5D, a_e 0.05D

Work Material

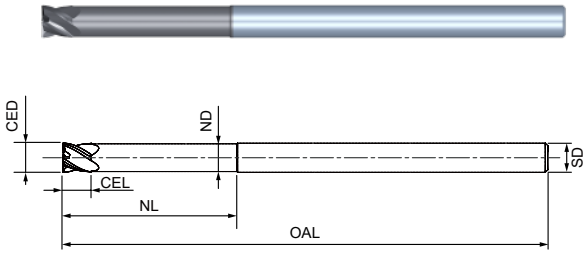
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	●

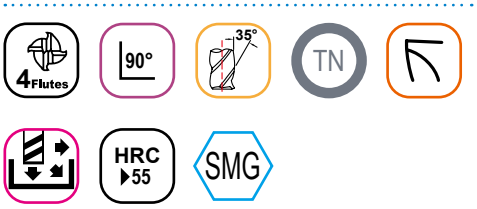


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

RPS500+ - 14354TN

- Square - 4-Flute x 1D / Stub Flute - Long Neck
- Helix 35°





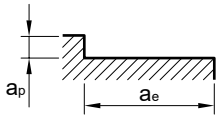
CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	NL	ND	Flute
RPS500+-14354TN	0.5	0.5	4	50	3	0.45	4
	1	1	4	50	6	0.95	
	1.5	1.5	4	50	9	1.45	
	2	2	4	50	12	1.95	
	3	3	6	75	18	2.85	
	4	4	6	75	24	3.85	
	5	5	6	100	30	4.85	
	6	6	6	100	36	5.85	

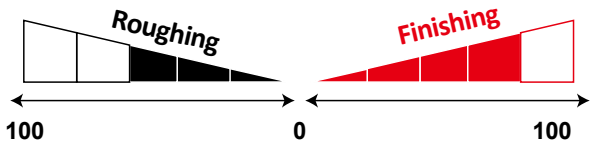
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 0.05D	a_e: 0.5D	a_p: 0.04D	a_e: 0.5D	a_p: 0.03D	a_e: 0.5D	a_p: 0.05D	a_e: 0.5D
0.5	28,800	315	28,800	200	26,100	160	28,800	315
1	27,000	540	27,000	390	19,800	250	27,000	540
1.5	15,300	550	15,300	450	11,700	270	15,300	550
2	13,500	720	12,600	630	9,900	380	13,500	720
3	9,000	720	9,000	630	7,200	390	9,000	720
4	6,300	720	6,300	600	5,400	400	6,300	720
5	5,400	540	4,950	520	4,500	450	5,400	540
6	4,500	480	4,140	440	3,600	370	4,500	480
Depth of cut	 a_p 0.05D, a_e 0.5D		a_p 0.04D, a_e 0.5D		a_p 0.03D, a_e 0.5D		a_p 0.05D, a_e 0.5D	

Work Material

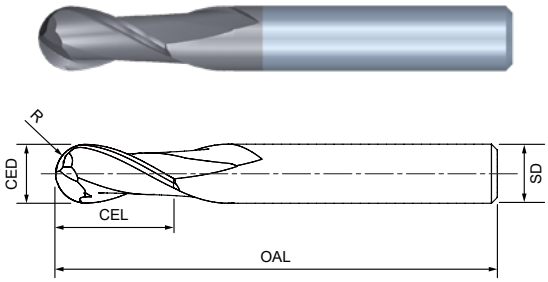
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

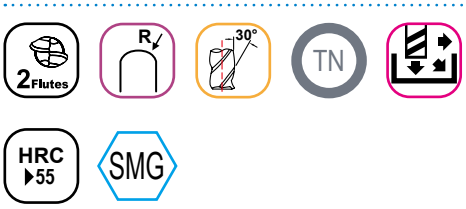


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 81302TN

- Ball Nose - 2-Flute x 2D
- Helix 30°





CED Tolerance(mm)	
R	±0.02

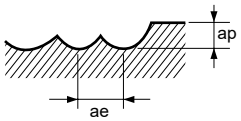
h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute
S500+-81302TN	0.5R	2	4	50	2
	1R	4	4	50	
	1.5R	6	4	50	
	2R	8	4	50	
	2.5R	10	6	50	
	3R	12	6	50	
	4R	16	8	60	
	5R	20	10	75	
	6R	24	12	75	
	8R	32	16	100	

Code No.	Radius	CEL	SD	OAL	Flute
S500+-81302TN	EU 1.5R	6	6	57	2
	EU 2R	8	6	57	
	EU 2.5R	10	6	57	
	EU 3R	12	6	57	
	EU 4R	16	8	63	
	EU 5R	20	10	72	
	EU 6R	24	12	83	

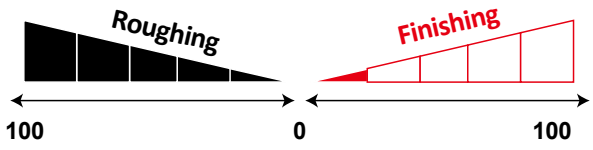
※ Customized Special sizes, Coating type and Inches are available to order.

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
R	a_p: 0.05D	a_e: 0.1D	a_p: 0.03D	a_e: 0.1D	a_p: 0.03D	a_e: 0.05D	a_p: 0.05D	a_e: 0.1D
0.5R	30,000	700	28,000	420	24,000	290	30,000	700
1.0R	21,600	870	17,000	520	13,800	350	21,600	870
1.5R	14,000	840	11,700	540	10,100	432	14,000	840
2R	10,800	840	9,000	520	7,700	410	10,800	840
2.5R	8,600	830	7,200	510	6,100	430	8,600	830
3R	7,200	830	5,800	490	5,100	460	7,200	830
4R	5,400	810	5,000	560	3,800	550	5,400	810
5R	4,300	810	3,500	560	3,000	510	4,300	810
6R	3,600	810	2,900	510	2,500	390	3,600	810
8R	2,700	800	2,200	490	1,900	360	2,700	800
Depth of cut	 a_p 0.05D, a_e 0.1D		a_p 0.03D, a_e 0.1D		a_p 0.03D, a_e 0.05D		a_p 0.05D, a_e 0.1D	

Work Material

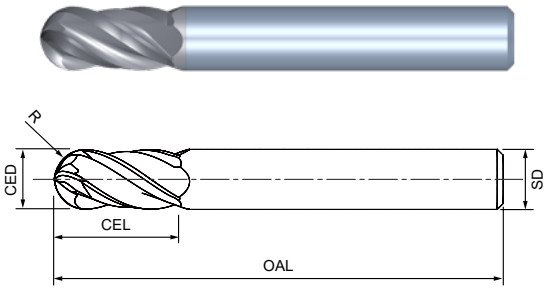
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

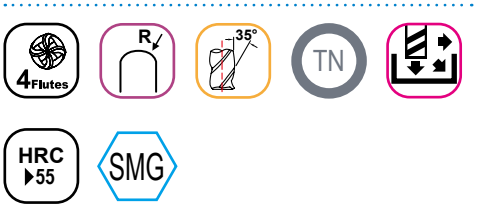


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 81354TN

- Ball Nose - 4-Flute x 2D
- Helix 35°





CED Tolerance(mm)	
R	±0.02

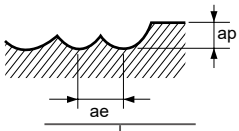
h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute
S500+-81354TN	0.5R	2	4	50	4
	1R	4	4	50	
	1.5R	6	4	50	
	2R	8	4	50	
	2.5R	10	6	50	
	3R	12	6	50	
	4R	16	8	60	
	5R	20	10	75	
	6R	24	12	75	
	8R	32	16	100	
	10R	40	20	100	

Code No.	Radius	CEL	SD	OAL	Flute
S500+-81354TN	EU 1.5R	6	6	57	4
	EU 2R	8	6	57	
	EU 2.5R	10	6	57	
	EU 3R	12	6	57	
	EU 4R	16	8	63	
	EU 5R	20	10	72	
	EU 6R	24	12	83	

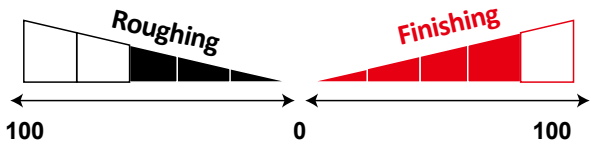
※ Customized Special sizes, Coating type and Inches are available to order.

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
R	a_p: 0.05D	a_e: 0.1D	a_p: 0.03D	a_e: 0.1D	a_p: 0.03D	a_e: 0.05D	a_p: 0.05D	a_e: 0.1D
0.5R	28,800	960	28,800	760	28,800	600	28,800	960
1.0R	22,500	1,520	21,420	1,210	17,000	960	22,500	1,520
1.5R	15,030	2,300	14,310	1,600	11,400	1,280	15,030	2,300
2R	11,250	2,100	13,410	1,710	8,600	1,360	11,250	2,100
2.5R	9,000	1,900	8,550	1,530	6,800	1,220	9,000	1,900
3R	7,560	2,100	7,200	1,680	5,700	1,300	7,560	2,100
4R	5,670	2,160	5,360	1,700	7,300	1,360	5,670	2,160
5R	4,600	2,080	4,320	1,600	3,420	1,280	4,600	2,080
6R	3,780	1,900	3,600	1,900	2,880	1,300	3,780	1,900
8R	2,800	1,440	2,700	1,530	2,160	1,220	2,800	1,440
10R	2,250	1,150	2,160	1,260	1,710	1,010	2,250	1,150
Depth of cut	 a_p 0.05D, a_e 0.1D		a_p 0.03D, a_e 0.1D		a_p 0.03D, a_e 0.05D		a_p 0.05D, a_e 0.1D	

Work Material

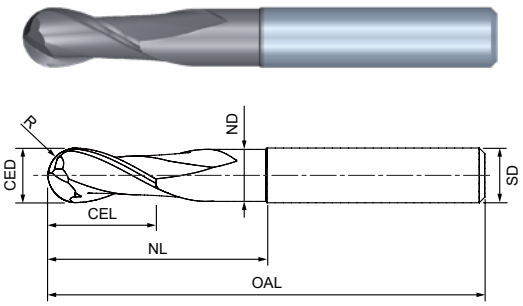
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

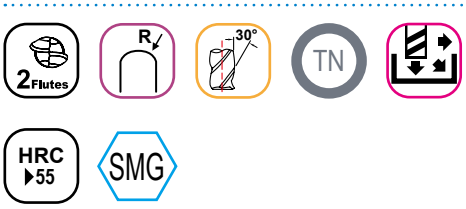


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 83302TN

- Ball Nose - 2-Flute x 2D / Long Shank with Neck
- Helix 30°





CED Tolerance(mm)	
R	±0.02

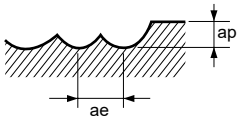
h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	NL	ND	Flute
S500+-83302TN	0.5R	2	4	75	5	0.95	2
	1R	4	4	75	10	1.95	
	1.5R	6	4	75	15	2.85	
	2R	8	4	75	20	3.85	
	2.5R	10	6	75	25	4.85	
	3R	12	6	75	30	5.7	
	4R	16	8	100	35	7.6	
	5R	20	10	100	45	9.5	
	6R	24	12	100	50	11.4	

Code No.	Radius	CEL	SD	OAL	NL	ND	Flute
S500+-83302TN	EU 1.5R	6	6	80	15	2.85	2
	EU 2R	8	6	80	20	3.85	
	EU 2.5R	10	6	80	25	4.85	
	EU 3R	12	6	100	30	5.7	
	EU 4R	16	8	100	35	7.6	
	EU 5R	20	10	100	45	9.5	
	EU 6R	24	12	150	50	11.4	

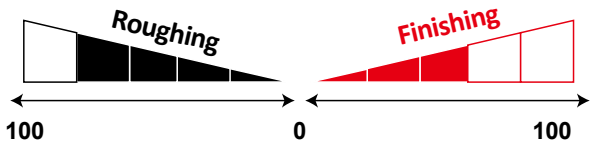
※ **Customized Special sizes, Coating type and Inches are available to order.**

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
R	a_p: 0.05D	a_e: 0.1D	a_p: 0.03D	a_e: 0.1D	a_p: 0.03D	a_e: 0.05D	a_p: 0.05D	a_e: 0.1D
0.5R	25,900	680	24,000	430	22,000	340	25,900	680
1.0R	25,900	1,720	19,440	960	16,200	760	25,900	1,720
1.5R	17,000	1,550	12,960	1,040	10,930	830	17,000	1,550
2R	12,900	1,430	9,720	1,080	8,060	860	12,900	1,430
2.5R	10,100	1,280	7,700	1,090	6,440	870	10,100	1,280
3R	8,500	1,110	6,440	1,000	5,380	800	8,500	1,110
4R	6,440	1,090	4,800	870	4,010	700	6,440	1,090
5R	5,140	980	3,890	740	3,240	600	5,140	980
6R	4,290	980	3,240	610	2,670	490	4,290	980
Depth of cut	 a_p 0.05D, a_e 0.1D		a_p 0.03D, a_e 0.1D		a_p 0.03D, a_e 0.05D		a_p 0.05D, a_e 0.1D	

Work Material

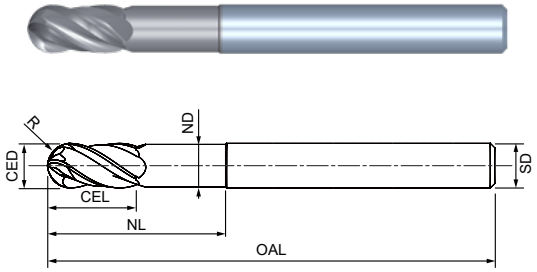
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

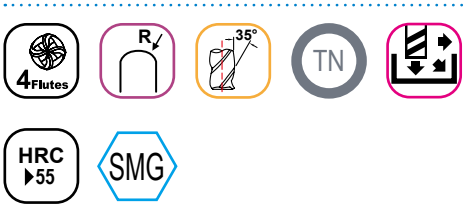


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500+ - 83354TN

- Ball Nose - 4-Flute x 2D / Long Shank with Neck
- Helix 35°





CED Tolerance(mm)	
R	±0.02

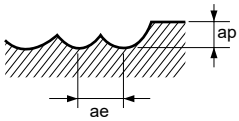
h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	NL	ND	Flute
S500+-83354TN	3R	12	6	75	18	5.7	4
	4R	16	8	100	32	7.6	
	5R	20	10	100	40	9.5	
	6R	24	12	100	48	11.4	
	8R	32	16	150	64	15.5	
	10R	40	20	150	80	19.5	

Code No.	Radius	CEL	SD	OAL	NL	ND	Flute
S500+-83354TN	EU 3R	12	6	100	30	5.7	4
	EU 4R	16	8	100	35	7.6	
	EU 5R	20	10	100	45	9.5	
	EU 6R	24	12	150	50	11.4	

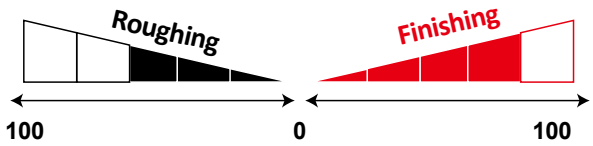
※ Customized Special sizes, Coating type and Inches are available to order.

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
R	a_p: 0.05D	a_e: 0.1D	a_p: 0.03D	a_e: 0.1D	a_p: 0.03D	a_e: 0.05D	a_p: 0.05D	a_e: 0.1D
3R	7,560	1,680	7,150	1,340	5,710	1,070	7,560	1,680
4R	5,670	1,650	5,350	1,320	4,270	1,055	5,670	1,650
5R	5,140	1,480	4,320	1,060	3,420	950	5,140	1,480
6R	4,290	1,480	3,600	1,060	2,880	950	4,290	1,480
8R	3,240	1,430	2,700	1,030	2,160	980	3,240	1,430
10R	2,590	1,340	2,160	960	1,710	890	2,590	1,340
Depth of cut	 a_p 0.05D, a_e 0.1D		a_p 0.03D, a_e 0.1D		a_p 0.03D, a_e 0.05D		a_p 0.05D, a_e 0.1D	

Work Material

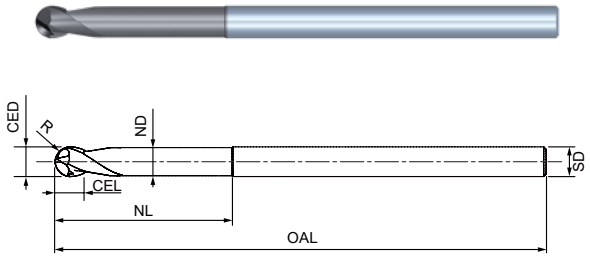
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○



1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

RPS500+ - 84352TN

- Ball Nose - 2-Flute x 1D / Stub Flute - Long Neck
- Helix 35°



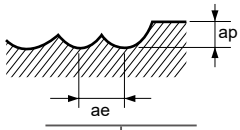
CED Tolerance(mm)	
R	±0.02

h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	NL	ND	Flute
RPS500+-84352TN	0.25R	0.5	4	50	3	0.45	2
	0.5R	1	4	50	6	0.95	
	0.75R	1.5	4	50	9	1.45	
	1R	2	4	50	12	1.95	
	1.5R	3	6	75	18	2.85	
	2R	4	6	75	24	3.85	
	2.5R	5	6	100	30	4.85	
	3R	6	6	100	36	5.85	

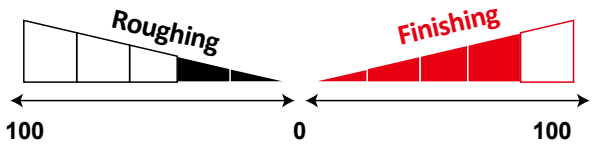
※ Customized Special sizes, Coating type and Inches are available to order.

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
R	a_p: 0.05D	a_e: 0.1D	a_p: 0.03D	a_e: 0.05D	a_p: 0.02D	a_e: 0.03D	a_p: 0.05D	a_e: 0.1D
0.25R	36,000	420	36,000	310	36,000	280	36,000	420
0.5R	36,000	980	27,000	580	22,500	420	36,000	980
0.75R	27,000	1,200	27,000	860	22,500	650	27,000	1,200
1.0R	22,500	1,420	22,500	1,150	18,000	860	22,500	1,420
1.5R	18,000	1,800	16,200	1,150	12,600	860	18,000	1,800
2R	18,000	2,160	14,400	1,300	10,800	980	18,000	2,160
2.5R	16,200	2,100	10,800	1,080	8,280	870	16,200	2,100
3R	14,400	1,900	7,200	860	6,300	720	14,400	1,900
Depth of cut	 a_p 0.05D, a_e 0.1D		a_p 0.03D, a_e 0.05D		a_p 0.02D, a_e 0.03D		a_p 0.05D, a_e 0.1D	

Work Material

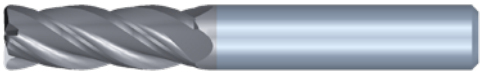
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

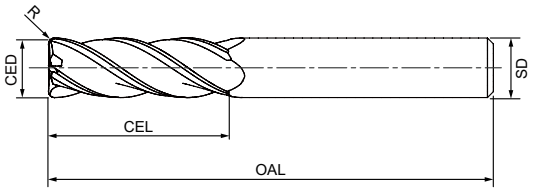


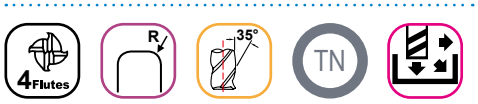
1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

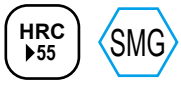
S500+ - 21354TN

- Corner Radius - 4-Flute x 3D
- Helix 35°









CED Tolerance(mm)	
1~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~12	0~-0.025

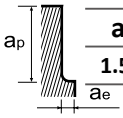
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Radius	Flute
S500+-21354TN	1	3	4	50	0.2R	4
	2	6	4	50	0.2R	
	3	9	4	50	0.2R	
	4	12	4	50	0.2R	
	5	15	6	50	0.2R	
	6	18	6	50	0.2R	
	8	24	8	65	0.2R	
					0.5R	
	10	30	10	75	0.2R	
					0.5R	
	12	36	12	80	0.2R	
					0.5R	

Code No.	CED	CEL	SD	OAL	Radius	Flute
S500+-21354TN	EU 3	9	6	57	0.2R	4
	EU 4	12	6	65	0.2R	
	EU 5	15	6	65	0.2R	
	EU 6	18	6	65	0.2R	
	EU 8	24	8	75	0.2R	
					0.5R	
	EU 10	30	10	80	0.2R	
					0.5R	
	EU 12	36	12	93	0.2R	
					0.5R	

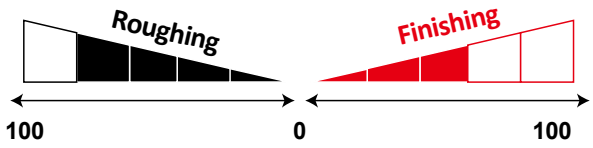
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
1	24,000	190	14,000	85	12,500	60	24,000	190
2	12,000	270	7,000	120	6,350	85	12,000	270
3	8,000	380	5,300	135	4,240	100	8,000	380
4	6,000	410	4,250	145	3,700	105	6,000	410
5	4,800	470	3,550	150	3,150	110	4,800	470
6	4,000	470	2,950	175	2,650	115	4,000	470
8	3,000	460	2,200	170	1,950	115	3,000	460
10	2,400	460	1,750	160	1,550	115	2,400	460
12	2,000	460	1,470	160	1,300	115	2,000	460
Depth of cut		a_p: 1.5D, a_e: 0.1D		a_p: 1.5D, a_e: 0.05D		a_p: 1.5D, a_e: 0.03D		a_p: 1.5D, a_e: 0.1D

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

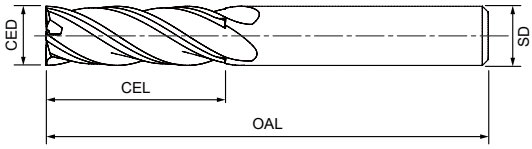


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 11324TA

- Square - 4-Flute x 3D
- Uneven Flute / Variable Helix Angle 32° /35°

a1 ≠ a2



CED Tolerance(mm)	
6~10	0~-0.02
10~16	0~-0.025

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11324TA	6	18	6	50	4
	8	24	8	65	
	10	30	10	75	
	12	36	12	80	
	16	48	16	100	

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11324TA	EU 6	18	6	65	4
	EU 8	24	8	75	
	EU 10	30	10	80	
	EU 12	36	12	93	

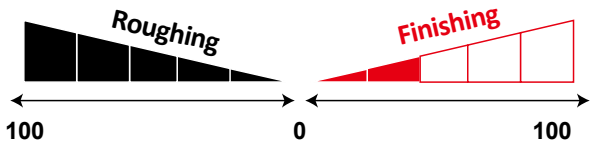
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
6	6,400	910	5,400	700	5,100	560	6,400	910
8	4,800	900	4,200	690	3,800	550	4,800	900
10	3,800	890	3,400	650	3,000	520	3,800	890
12	3,200	830	2,900	500	2,500	400	3,200	830
16	2,200	680	1,800	400	1,700	320	2,200	680
Depth of cut		a_p: 1.5D, a_e: 0.1D	a_p: 1.5D, a_e: 0.05D		a_p: 1.5D, a_e: 0.03D		a_p: 1.5D, a_e: 0.1D	

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	○

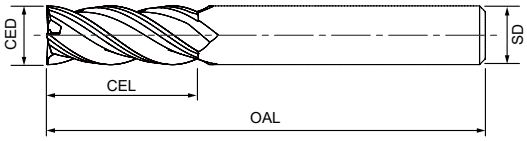


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 11354TA

- Square - 4-Flute x 2.5D
- Uneven Flute / Variable Helix 35° /38°

a1 ≠ a2



Best Seller IE Series

4 Flutes | 90° | 35° / 38° | TA

HRC 55 | SMG

CED Tolerance(mm)	
1~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025

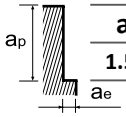
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11354TA	1	3	4	50	4
	2	5	4	50	
	3	8	4	50	
	4	10	4	50	
	5	13	6	50	
	6	15	6	50	
	8	20	8	60	
	10	25	10	75	
	12	30	12	75	
	16	40	16	100	

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11354TA	EU 3	8	6	57	4
	EU 4	11	6	57	
	EU 5	13	6	57	
	EU 6	13	6	57	
	EU 8	19	8	63	
	EU 10	22	10	72	
	EU 12	26	12	83	

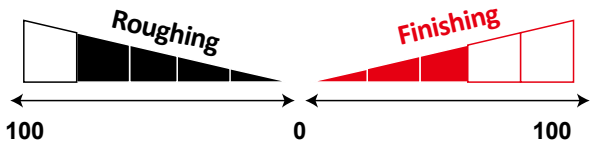
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
1	28,000	480	25,400	360	22,400	290	28,000	480
2	17,300	590	14,200	440	13,800	350	17,300	590
3	12,700	700	10,800	500	10,100	400	12,700	700
4	9,600	750	8,000	520	7,700	410	9,600	750
5	7,600	800	6,600	590	6,100	470	7,600	800
6	6,400	1,000	5,400	700	5,100	560	6,400	1,000
8	4,800	1,000	4,200	690	3,800	550	4,800	1,000
10	3,800	890	3,400	650	3,000	520	3,800	890
12	3,200	830	2,900	500	2,500	400	3,200	830
16	2,400	620	2,200	400	1,900	320	2,400	620
Depth of cut		a_p 1.5D / a_e 0.1D		a_p 1.5D / a_e 0.05D		a_p 1.5D / a_e 0.03D		a_p 1.5D / a_e 0.1D

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

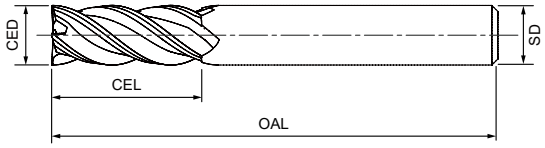


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 11374TA

- Square - 4-Flute x 2.5D
- Uneven Flute / Variable Helix 37° /40°

a1 ≠ a2



Best Seller IE Series

4 Flutes | 90° | 37° / 40° | TA

HRC 55 | SMG

CED Tolerance(mm)	
1~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025

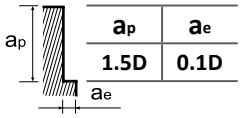
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11374TA	1	3	4	50	4
	2	5	4	50	
	3	8	4	50	
	4	10	4	50	
	5	13	6	50	
	6	15	6	50	
	8	20	8	65	
	10	25	10	75	
	12	30	12	75	
	16	40	16	100	

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11374TA	EU 3	8	6	57	4
	EU 4	11	6	57	
	EU 5	13	6	57	
	EU 6	13	6	57	
	EU 8	19	8	63	
	EU 10	22	10	72	
	EU 12	26	12	83	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
1	28,000	480	25,400	360	22,400	290	28,000	480
2	17,300	590	14,200	440	13,800	350	17,300	590
3	12,700	700	10,800	500	10,100	400	12,700	700
4	9,600	750	8,000	520	7,700	410	9,600	750
5	7,600	800	6,600	590	6,100	470	7,600	800
6	6,400	1,000	5,400	700	5,100	560	6,400	1,000
8	4,800	1,000	4,200	690	3,800	550	4,800	1,000
10	3,800	890	3,400	650	3,000	520	3,800	890
12	3,200	830	2,900	500	2,500	400	3,200	830
16	2,400	620	2,200	400	1,900	320	2,400	620
Depth of cut								

a_p	a_e
1.5D	0.1D

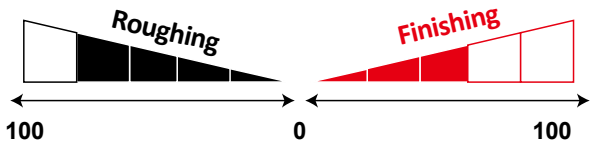
a_p	a_e
1.5D	0.05D

a_p	a_e
1.5D	0.03D

a_p	a_e
1.5D	0.1D

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

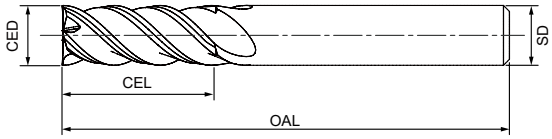


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 11434TA

- Square - 4-Flute x 2.5D
- Uneven Flute / Variable Helix 43° /46°

$a_1 \neq a_2$



Best Seller IE Series

4 Flutes | 90° | 43° / 46° | TA

HRC 55 | SMG

CED Tolerance(mm)	
4~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025
16~20	0~-0.03

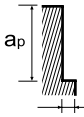
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11434TA	4	10	4	50	4
	5	13	6	50	
	6	15	6	50	
	8	20	8	75	
	10	25	10	75	
	12	30	12	75	
	16	40	16	100	
	20	50	20	110	

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11434TA	EU 4	11	6	57	4
	EU 5	13	6	57	
	EU 6	13	6	57	
	EU 8	19	8	63	
	EU 10	22	10	72	
	EU 12	26	12	83	

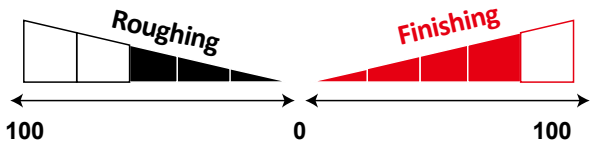
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
4	9,600	750	8,000	520	7,700	410	9,600	750
5	7,600	800	6,600	590	6,100	470	7,600	800
6	6,400	1,000	5,400	700	5,100	560	6,400	1,000
8	4,800	1,000	4,200	690	3,800	550	4,800	1,000
10	3,800	890	3,400	650	3,000	520	3,800	890
12	3,200	830	2,900	500	2,500	400	3,200	830
16	2,400	620	2,200	400	1,900	320	2,400	620
20	1,900	500	1,800	280	1,500	220	1,900	500
Depth of cut	 a_p 1.5D, a_e 0.1D		a_p 1.5D, a_e 0.05D		a_p 1.5D, a_e 0.03D		a_p 1.5D, a_e 0.1D	

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	●

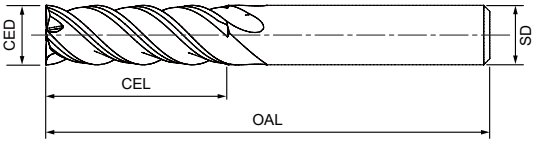


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 11434TA

- Square - 4-Flute x 3D
- Uneven Flute / Variable Helix 43° /46°

$a_1 \neq a_2$



Best Seller IE Series

4 Flutes | 90° | 43° / 46° | TA

HRC 55 | SMG

CED Tolerance(mm)	
1~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025

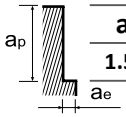
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11434TA	1	3	4	50	4
	2	6	4	50	
	3	9	4	50	
	4	12	4	50	
	5	15	6	50	
	6	18	6	50	
	8	24	8	65	
	10	30	10	75	
	12	36	12	80	
	16	48	16	100	

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-11434TA	EU 3	9	6	57	4
	EU 4	12	6	65	
	EU 5	15	6	65	
	EU 6	18	6	65	
	EU 8	24	8	75	
	EU 10	30	10	80	
	EU 12	36	12	93	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
1	28,000	480	25,400	360	22,400	290	28,000	480
2	17,300	590	14,200	440	13,800	350	17,300	590
3	12,700	700	10,800	500	10,100	400	12,700	700
4	9,600	750	8,000	520	7,700	410	9,600	750
5	7,600	800	6,600	590	6,100	470	7,600	800
6	6,400	1,000	5,400	700	5,100	560	6,400	1,000
8	4,800	1,000	4,200	690	3,800	550	4,800	1,000
10	3,800	890	3,400	650	3,000	520	3,800	890
12	3,200	830	2,900	500	2,500	400	3,200	830
16	2,400	620	2,200	400	1,900	320	2,400	620
Depth of cut								

a_p	a_e
1.5D	0.1D

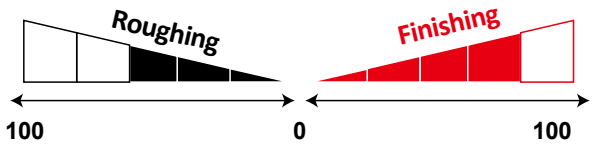
a_p	a_e
1.5D	0.05D

a_p	a_e
1.5D	0.03D

a_p	a_e
1.5D	0.1D

Work Material

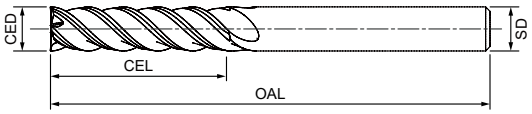
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	●



1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 12434TA

- Square - 4-Flute x 4D / Long Flute
- Uneven Flute / Variable Helix 43° /46°



CED Tolerance(mm)	
4~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025
16~20	0~-0.03

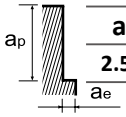
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-12434TA	4	16	4	50	4
	5	20	6	60	
	6	24	6	65	
	8	32	8	90	
	10	40	10	100	
	12	48	12	100	
	16	64	16	140	
	20	80	20	160	

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-12434TA	EU 4	16	6	65	4
	EU 5	20	6	65	
	EU 6	24	6	65	
	EU 8	32	8	80	
	EU 10	40	10	90	
	EU 12	48	12	100	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 2.5D	a_e: 0.05D	a_p: 2.5D	a_e: 0.03D	a_p: 2.5D	a_e: 0.02D	a_p: 2.5D	a_e: 0.05D
4	5,750	500	5,400	450	4,700	300	5,750	500
5	4,620	530	4,340	470	3,820	310	4,620	530
6	3,850	730	2,300	530	1,500	270	3,850	730
8	2,900	770	1,980	550	1,200	280	2,900	770
10	2,300	830	1,760	570	1,150	220	2,300	830
12	1,900	790	1,480	520	1,000	260	1,900	790
16	1,430	690	1,090	460	720	220	1,430	690
20	1,150	570	870	380	580	200	1,150	570
Depth of cut								

a_p	a_e
2.5D	0.05D

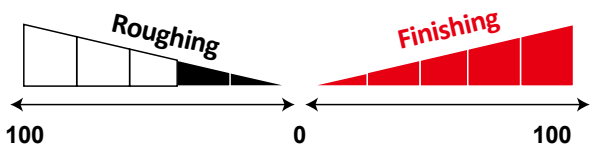
a_p	a_e
2.5D	0.03D

a_p	a_e
2.5D	0.02D

a_p	a_e
2.5D	0.05D

Work Material

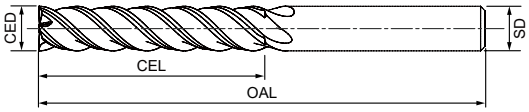
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	●



1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 12434TA

- Square - 4-Flute x 5D / Long Flute
- Uneven Flute / Variable Helix Angle 43° /46°



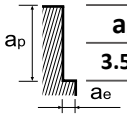
CED Tolerance(mm)	
6~10	0~-0.02
10~16	0~-0.025

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-12434TA	6	30	6	75	4
	8	40	8	90	
	10	50	10	100	
	12	60	12	110	
	16	80	16	160	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 3.5D	a_e: 0.05D	a_p: 3.5D	a_e: 0.03D	a_p: 3.5D	a_e: 0.02D	a_p: 3.5D	a_e: 0.05D
6	3,800	500	2,800	300	1,680	160	3,800	500
8	2,900	520	2,200	320	1,320	170	2,900	520
10	2,300	520	1,760	310	1,050	170	2,300	520
12	1,900	510	1,480	300	890	170	1,900	510
16	1,400	500	1,100	290	660	160	1,400	500
Depth of cut								

a_p	a_e
3.5D	0.05D

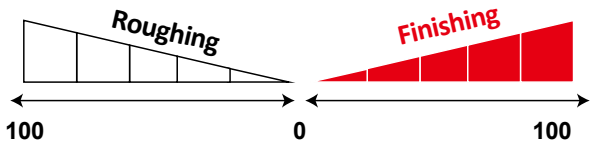
a_p	a_e
3.5D	0.03D

a_p	a_e
3.5D	0.02D

a_p	a_e
3.5D	0.05D

Work Material

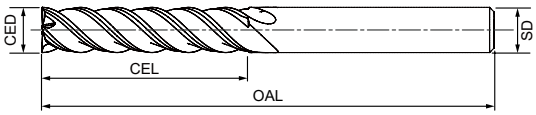
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	○



1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 12424TA

- Square - 4-Flute / Long Flute / Long Shank
- Uneven Flute / Variable Helix Angle 42° /45°



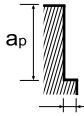
CED Tolerance(mm)	
6~10	0~-0.02
10~16	0~-0.025

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-12424TA	6	45	6	100	4
	8	38	8	100	
	10	45	10	100	
	12	55	12	100	
	16	90	16	150	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 3.5D	a_e: 0.05D	a_p: 3.5D	a_e: 0.03D	a_p: 3.5D	a_e: 0.02D	a_p: 3.5D	a_e: 0.05D
6	3,800	500	2,800	300	1,680	160	3,800	500
8	2,900	520	2,200	320	1,320	170	2,900	520
10	2,300	520	1,760	310	1,050	170	2,300	520
12	1,900	510	1,480	300	890	170	1,900	510
16	1,400	500	1,100	290	660	160	1,400	500
Depth of cut								

a_p	a_e
3.5D	0.05D

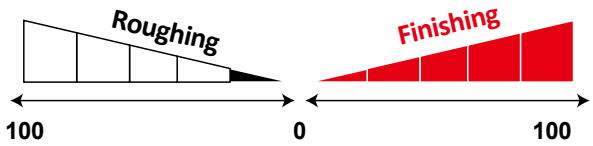
a_p	a_e
3.5D	0.03D

a_p	a_e
3.5D	0.02D

a_p	a_e
3.5D	0.05D

Work Material

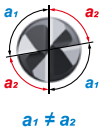
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

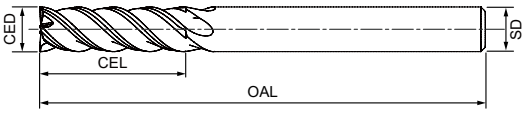


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 13424TA

- Square - 4-Flute / Long Shank
- Uneven Flute / Variable Helix Angle 42° /45°





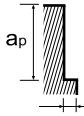
CED Tolerance(mm)	
6~10	0~-0.02
10~16	0~-0.025

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-13424TA	6	16	6	75	4
	8	20	8	100	
	10	32	10	100	
	12	32	12	100	
	16	45	16	150	

※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
6	3,800	500	2,800	300	1,680	160	3,800	500
8	2,900	520	2,200	320	1,320	170	2,900	520
10	2,300	520	1,760	310	1,050	170	2,300	520
12	1,900	510	1,480	300	890	170	1,900	510
16	1,400	500	1,100	290	660	160	1,400	500
Depth of cut								

a_p	a_e
1.5D	0.1D

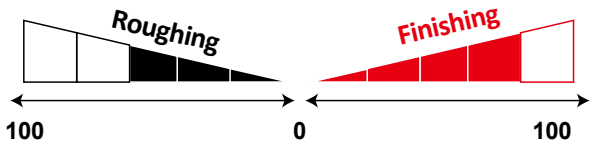
a_p	a_e
1.5D	0.05D

a_p	a_e
1.5D	0.03D

a_p	a_e
1.5D	0.1D

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	○

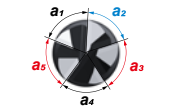


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

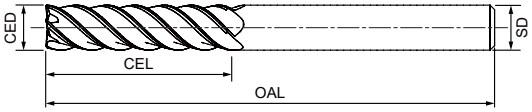
SMG Carbide - Anti-Vibration Finishing Long Flute End Mill

S500IE+ - 12435TA

- Square - 5-Flute x 4D / Multi-Flute / Long Flute Type
- Uneven Flute / Variable Helix 43° /46°



$a_1 \neq a_2 \neq a_3 \neq a_4 \neq a_5$



Best Seller IE Series

5 Flutes | 90° | 43° / 46° | TA

HRC 55 | SMG

CED Tolerance(mm)	
6~10	0~-0.02
10~16	0~-0.025

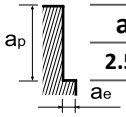
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-12435TA	6	24	6	65	5
	8	32	8	90	
	10	40	10	100	
	12	48	12	110	
	16	64	16	140	

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-12435TA	EU 6	24	6	65	5
	EU 8	32	8	80	
	EU 10	40	10	90	
	EU 12	48	12	100	

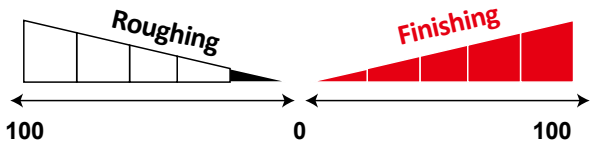
※ **Customized Special sizes, Coating type and Inches are available to order.**

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 2.5D	a_e: 0.05D	a_p: 2.5D	a_e: 0.03D	a_p: 2.5D	a_e: 0.02D
6	3,850	730	2,300	530	1,500	270
8	2,900	770	1,980	550	1,200	280
10	2,300	830	1,760	570	1,150	220
12	1,900	790	1,480	520	1,000	260
16	1,430	690	1,090	460	720	220
Depth of cut		a_p: 2.5D, a_e: 0.05D		a_p: 2.5D, a_e: 0.03D		a_p: 2.5D, a_e: 0.02D

Work Material

P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●

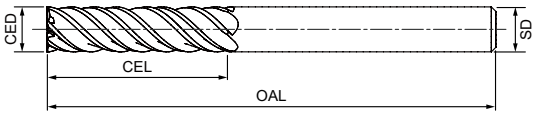


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 12436TA

- Square - 6-Flute x 4D / Multi-Flute / Long Flute Type
- Uneven Flute / Variable Helix 43°/46°

a1 ≠ a2 ≠ a3



Best Seller IE Series

6 Flutes | 90° | 43° / 46° | TA

HRC 55 | SMG

CED Tolerance(mm)	
6~10	0~-0.02
10~16	0~-0.025

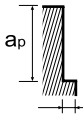
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-12436TA	6	24	6	65	6
	8	32	8	90	
	10	40	10	100	
	12	48	12	110	
	16	64	16	140	

Code No.	CED	CEL	SD	OAL	Flute
S500IE+-12436TA	EU 6	24	6	65	6
	EU 8	32	8	80	
	EU 10	40	10	90	
	EU 12	48	12	100	

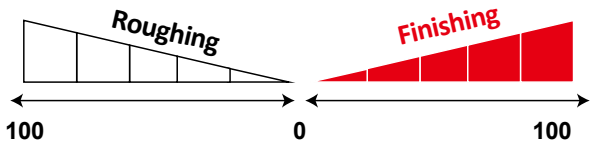
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 2.5D	a_e: 0.05D	a_p: 2.5D	a_e: 0.03D	a_p: 2.5D	a_e: 0.02D
6	3,850	730	2,300	530	1,500	270
8	2,900	770	1,980	550	1,200	280
10	2,300	830	1,760	570	1,150	220
12	1,900	790	1,480	520	1,000	260
16	1,430	690	1,090	460	720	220
Depth of cut		a_p: 2.5D, a_e: 0.05D		a_p: 2.5D, a_e: 0.03D		a_p: 2.5D, a_e: 0.02D

Work Material

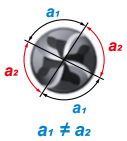
P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●

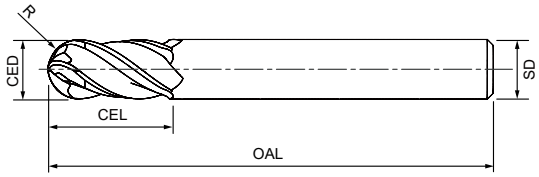


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 81354TA

- Ball Nose - 4-Flute x 2D
- Uneven Flute / Variable Helix 35°/38°





CED Tolerance(mm)	
R	±0.02

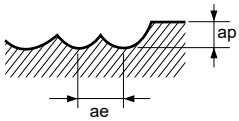
h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute
S500IE+-81354TA	3R	12	6	50	4
	4R	16	8	60	
	5R	20	10	75	
	6R	24	12	75	
	8R	32	16	100	
	10R	40	20	100	

Code No.	Radius	CEL	SD	OAL	Flute
S500IE+-81354TA	EU 3R	12	6	57	4
	EU 4R	16	8	63	
	EU 5R	20	10	72	
	EU 6R	24	12	83	

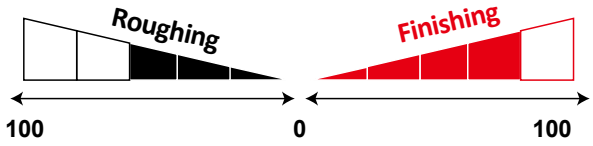
※ Customized Special sizes, Coating type and Inches are available to order.

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
R	a_p: 0.05D	a_e: 0.1D	a_p: 0.03D	a_e: 0.1D	a_p: 0.03D	a_e: 0.05D	a_p: 0.05D	a_e: 0.1D
3R	8,400	2,300	7,950	1,600	6,350	1,280	8,400	2,300
4R	6,300	2,400	5,950	1,600	4,750	1,280	6,300	2,400
5R	5,050	2,320	4,800	1,560	3,800	1,250	5,050	2,320
6R	4,200	2,120	4,000	1,720	3,200	1,370	4,200	2,120
8R	3,150	1,600	3,000	1,360	2,400	1,200	3,150	1,600
10R	2,500	1,280	2,400	1,120	1,900	970	2,500	1,280
Depth of cut								
	a_p	a_e	a_p	a_e	a_p	a_e	a_p	a_e
	0.05D	0.1D	0.03D	0.1D	0.03D	0.05D	0.05D	0.1D

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

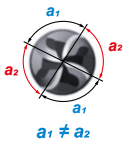


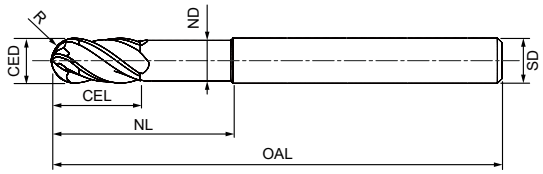
1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

SMG Carbide - Anti-Vibration Long Shank Type Ball End Mill

S500IE+ - 83354TA

- Ball Nose - 4-Flute x 2D / Long Shank with Neck
- Uneven Flute / Variable Helix 35°/38°





Best Seller IE Series

4 Flutes | R | 35° / 38° | TA | HRC 55 | SMG

CED Tolerance(mm)	
R	±0.02

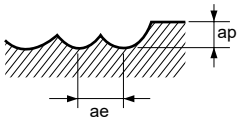
h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	NL	ND	Flute
S500IE+-83354TA	3R	12	6	75	18	5.7	4
	4R	16	8	100	32	7.6	
	5R	20	10	100	40	9.5	
	6R	24	12	100	48	11.4	
	8R	32	16	150	64	15.5	
	10R	40	20	150	80	19.5	

Code No.	Radius	CEL	SD	OAL	NL	ND	Flute
S500IE+-83354TA	EU 3R	12	6	100	30	5.7	4
	EU 4R	16	8	100	35	7.6	
	EU 5R	20	10	100	45	9.5	
	EU 6R	24	12	150	50	11.4	

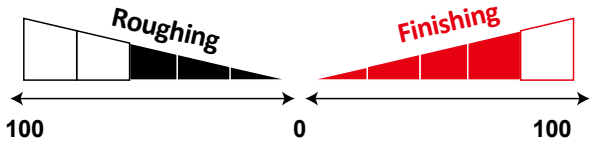
※ Customized Special sizes, Coating type and Inches are available to order.

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
R	a_p: 0.05D	a_e: 0.1D	a_p: 0.03D	a_e: 0.1D	a_p: 0.03D	a_e: 0.05D	a_p: 0.05D	a_e: 0.1D
3R	8,400	2,300	7,950	1,600	6,350	1,280	8,400	2,300
4R	6,300	2,400	5,950	1,600	4,750	1,280	6,300	2,400
5R	5,050	2,320	4,800	1,560	3,800	1,250	5,050	2,320
6R	4,200	2,120	4,000	1,720	3,200	1,370	4,200	2,120
8R	3,150	1,600	3,000	1,360	2,400	1,200	3,150	1,600
10R	2,500	1,280	2,400	1,120	1,900	970	2,500	1,280
Depth of cut								
	a_p	a_e	a_p	a_e	a_p	a_e	a_p	a_e
	0.05D	0.1D	0.03D	0.1D	0.03D	0.05D	0.05D	0.1D

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

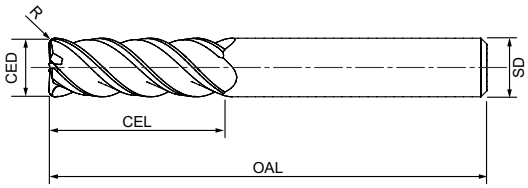


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500IE+ - 21434TA

- Corner Radius - 4-Flute x 3D
- Uneven Flute / Variable Helix 43°/46°

$a_1 \neq a_2$



Best Seller IE Series

4 Flutes | R | R | 43° / 46° | TA

HRC ▶55 | SMG

CED Tolerance(mm)	
1~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~12	0~-0.025

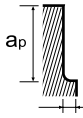
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Radius	Flute
S500IE+-24134TA	1	3	4	50	0.2R	4
	2	6	4	50	0.2R	
	3	9	4	50	0.2R	
	4	12	4	50	0.2R	
	5	15	6	50	0.2R	
	6	18	6	50	0.2R	
	8	24	8	65	0.2R	
					0.5R	
	10	30	10	75	0.2R	
					0.5R	
	12	36	12	80	0.2R	
					0.5R	

Code No.	CED	CEL	SD	OAL	Radius	Flute
S500IE+-24134TA	EU 3	9	6	57	0.2R	4
	EU 4	12	6	65	0.2R	
	EU 5	15	6	65	0.2R	
	EU 6	18	6	65	0.2R	
	EU 8	24	8	75	0.2R	
					0.5R	
	EU 10	30	10	80	0.2R	
					0.5R	
	EU 12	36	12	93	0.2R	
					0.5R	

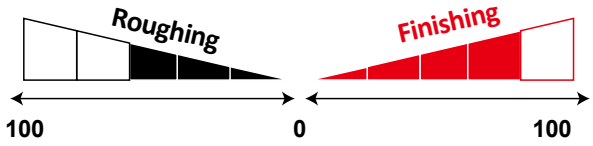
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
1	28,000	480	25,400	360	22,400	290	28,000	480
2	17,300	590	14,200	440	13,800	350	17,300	590
3	12,700	700	10,800	500	10,100	400	12,700	700
4	9,600	750	8,000	520	7,700	410	9,600	750
5	7,600	800	6,600	590	6,100	470	7,600	800
6	6,400	1,000	5,400	700	5,100	560	6,400	1,000
8	4,800	1,000	4,200	690	3,800	550	4,800	1,000
10	3,800	890	3,400	650	3,000	520	3,800	890
12	3,200	830	2,900	500	2,500	400	3,200	830
Depth of cut		a_p: 1.5D, a_e: 0.1D	a_p: 1.5D, a_e: 0.05D		a_p: 1.5D, a_e: 0.03D		a_p: 1.5D, a_e: 0.1D	

Work Material

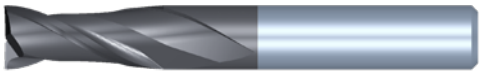
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	○	●	●	●

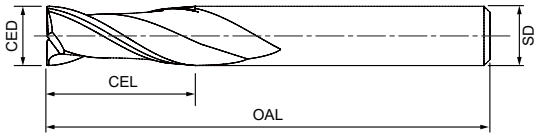


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500E+ - 11302TA

- Square - 2-Flute x 2.5D
- Variable Helix Angle 30°/33°





Best Seller IE Series

2 Flutes | 90° | 30° / 33° | TA

HRC 55 | SMG

CED Tolerance(mm)	
1~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025

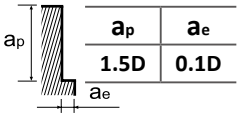
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500E+-11302TA	1	3	4	50	2
	2	5	4	50	
	3	8	4	50	
	4	10	4	50	
	5	13	6	50	
	6	15	6	50	
	8	20	8	60	
	10	25	10	75	
	12	30	12	75	
	16	40	16	100	

Code No.	CED	CEL	SD	OAL	Flute
S500E+-11302TA	EU 3	8	6	57	2
	EU 4	11	6	57	
	EU 5	13	6	57	
	EU 6	13	6	57	
	EU 8	19	8	63	
	EU 10	22	10	72	
	EU 12	26	12	83	

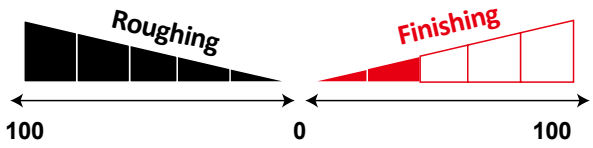
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
1	24,000	280	19,200	130	15,360	90	24,000	280
2	12,000	310	9,600	180	7,680	120	12,000	310
3	8,200	380	6,500	250	5,600	170	8,200	380
4	6,200	390	4,900	270	4,200	180	6,200	390
5	4,600	430	3,600	300	3,300	210	4,600	430
6	4,100	440	3,200	310	2,800	220	4,100	440
8	3,100	440	2,400	310	2,100	220	3,100	440
10	2,400	430	1,900	320	1,700	250	2,400	430
12	2,000	400	1,560	300	1,400	210	2,000	400
16	1,500	350	1,200	240	1,050	170	1,500	350
Depth of cut		a_p 1.5D / a_e 0.1D		a_p 1.5D / a_e 0.05D		a_p 1.5D / a_e 0.03D		a_p 1.5D / a_e 0.1D

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○



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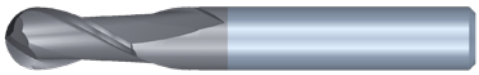
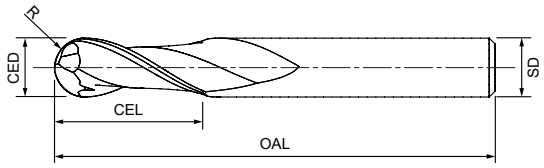
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500E+ - 81302TA

- Ball Nose - 2-Flute x 2.5D
- Variable Helix Angle 30°/33°





CED Tolerance(mm)	
R	±0.02

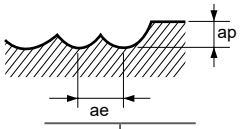
h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute
S500E+-81302TA	0.5R	3	4	50	2
	1R	5	4	50	
	1.5R	8	4	50	
	2R	10	4	50	
	2.5R	13	6	50	
	3R	15	6	50	
	4R	20	8	60	
	5R	25	10	75	
	6R	30	12	75	
	8R	40	16	100	

Code No.	Radius	CEL	SD	OAL	Flute
S500E+-81302TA	EU 1.5R	8	6	57	2
	EU 2R	11	6	57	
	EU 2.5R	13	6	57	
	EU 3R	13	6	57	
	EU 4R	19	8	63	
	EU 5R	22	10	72	
	EU 6R	26	12	83	

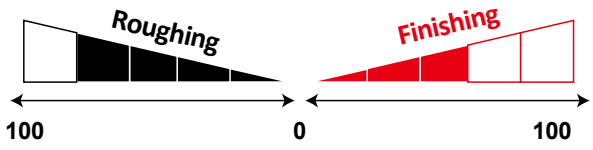
※ Customized Special sizes, Coating type and Inches are available to order.

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
R	a_p: 0.05D	a_e: 0.1D	a_p: 0.03D	a_e: 0.1D	a_p: 0.03D	a_e: 0.05D	a_p: 0.05D	a_e: 0.1D
0.5R	30,000	700	28,000	420	24,000	290	30,000	700
1.0R	21,600	870	17,000	520	13,800	350	21,600	870
1.5R	14,000	840	11,700	540	10,100	432	14,000	840
2R	10,800	840	9,000	520	7,700	410	10,800	840
2.5R	8,600	830	7,200	510	6,100	430	8,600	830
3R	7,200	830	5,800	490	5,100	460	7,200	830
4R	5,400	810	5,000	560	3,800	550	5,400	810
5R	4,300	810	3,500	560	3,000	510	4,300	810
6R	3,600	810	2,900	510	2,500	390	3,600	810
8R	2,700	800	2,200	490	1,900	360	2,700	800
Depth of cut	 a_p 0.05D, a_e 0.1D		a_p 0.03D, a_e 0.1D		a_p 0.03D, a_e 0.05D		a_p 0.05D, a_e 0.1D	

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○



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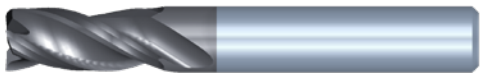
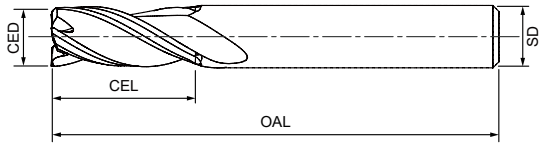
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only.Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500E+ - 11303TA

- Square - 3-Flute x 2.5D
- Variable Helix Angle 30° /31° /32°





CED Tolerance(mm)	
1~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025

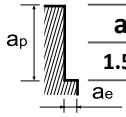
h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
S500E+-11303TA	1	3	4	50	3
	2	5	4	50	
	3	8	4	50	
	4	10	4	50	
	5	13	6	50	
	6	15	6	50	
	8	20	8	60	
	10	25	10	75	
	12	30	12	75	
	16	40	16	100	

Code No.	CED	CEL	SD	OAL	Flute
S500E+-11303TA	EU 3	8	6	57	3
	EU 4	11	6	57	
	EU 5	13	6	57	
	EU 6	13	6	57	
	EU 8	19	8	63	
	EU 10	22	10	72	
	EU 12	26	12	83	

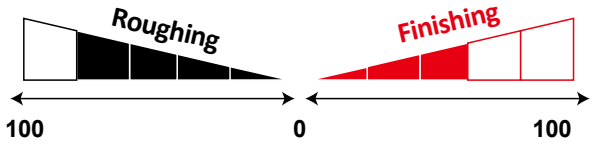
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
CED	a_p: 1.5D	a_e: 0.1D	a_p: 1.5D	a_e: 0.05D	a_p: 1.5D	a_e: 0.03D	a_p: 1.5D	a_e: 0.1D
1	28,000	480	25,400	360	22,400	290	28,000	480
2	17,300	590	14,200	440	13,800	350	17,300	590
3	12,700	700	10,800	500	10,100	400	12,700	700
4	9,600	750	8,000	520	7,700	410	9,600	750
5	7,600	800	6,600	590	6,100	470	7,600	800
6	6,400	1,000	5,400	700	5,100	560	6,400	1,000
8	4,800	1,000	4,200	690	3,800	550	4,800	1,000
10	3,800	890	3,400	650	3,000	520	3,800	890
12	3,200	830	2,900	500	2,500	400	3,200	830
16	2,400	620	2,200	400	1,900	320	2,400	620
Depth of cut		a_p: 1.5D, a_e: 0.1D		a_p: 1.5D, a_e: 0.05D		a_p: 1.5D, a_e: 0.03D		a_p: 1.5D, a_e: 0.1D

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○



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3. For dry cutting, please use air blow for chip removal and cooling.
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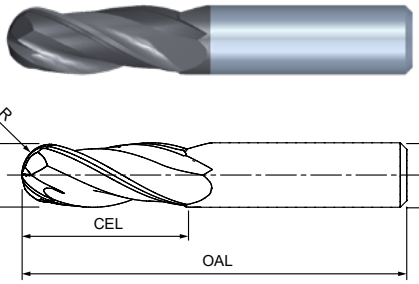
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

S500E+ - 81303TA

- Ball Nose - 3-Flute x 2.5D
- Variable Helix Angle 30° /31° /32°



CED Tolerance(mm)	
R	±0.02

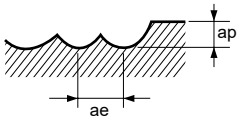
h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute
S500E+-81303TA	0.5R	3	4	50	3
	1R	5	4	50	
	1.5R	8	4	50	
	2R	10	4	50	
	2.5R	13	6	50	
	3R	15	6	50	
	4R	20	8	60	
	5R	25	10	75	
	6R	30	12	75	
	8R	40	16	100	

Code No.	Radius	CEL	SD	OAL	Flute
S500E+-81303TA	EU 1.5R	8	6	57	3
	EU 2R	11	6	57	
	EU 2.5R	13	6	57	
	EU 3R	13	6	57	
	EU 4R	19	8	63	
	EU 5R	22	10	72	
	EU 6R	26	12	83	

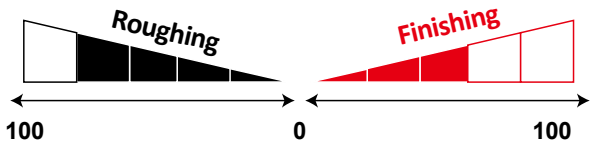
※ Customized Special sizes, Coating type and Inches are available to order.

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min	Speed RPM/ min	Feed mm/ min
R	a_p: 0.05D	a_e: 0.1D	a_p: 0.03D	a_e: 0.1D	a_p: 0.03D	a_e: 0.05D	a_p: 0.05D	a_e: 0.1D
0.5R	33,000	1,100	30,800	650	26,400	450	33,000	1,100
1.0R	23,760	1,360	18,700	800	15,180	560	23,760	1,360
1.5R	15,400	1,320	12,870	930	11,110	540	15,400	1,320
2R	11,880	1,320	9,900	930	8,470	540	11,880	1,320
2.5R	9,460	1,300	7,920	760	6,710	530	9,460	1,300
3R	7,920	1,300	6,380	760	5,610	530	7,920	1,300
4R	5,940	1,280	5,500	750	4,180	525	5,940	1,280
5R	4,730	1,280	3,850	750	3,300	525	4,730	1,280
6R	3,960	1,280	3,190	750	2,750	525	3,960	1,280
8R	2,970	1,270	2,420	740	2,090	520	2,970	1,270
Depth of cut	 a_p 0.05D, a_e 0.1D		a_p 0.03D, a_e 0.1D		a_p 0.03D, a_e 0.05D		a_p 0.05D, a_e 0.1D	

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○



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