

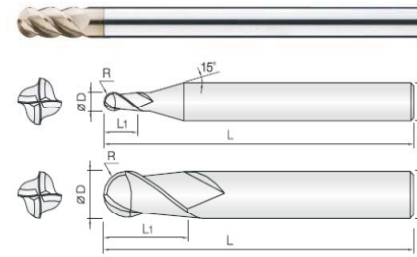
400 Series FOR STAINLESS STEEL



Tool Selection Index

Hardness	EDP. NO	Appearance	Flutes	Types	Page
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4 Flutes 45° Helix Ball End Mills for SUS



Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.
Excellent work surface finish by 4 flute and deep chip pocket.
Minimize fracturing at high feed by high TRS ultra fine WC grade.

Cutting Data
P126

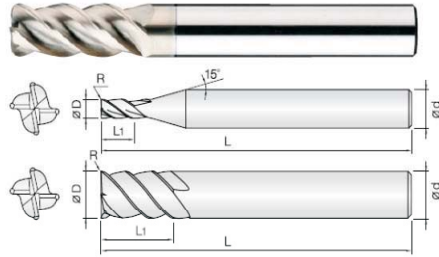
Size	D Tolerance
D ≤ Φ5	+0~ -0.01mm
D > Φ5	+0~ -0.02mm

Type	Part Number	Dimensions in mm					d
		R X D	L1	L2	L		
4	440030080H06Z4-TIN	1.5R X 3	8		60	6	
	440040080H06Z4-TIN	2R X 4	8		70	6	
	440050100H06Z4-TIN	2.5R X 5	10		80	6	
	440060120H06Z4-TIN	3R X 6	12		90	6	
	440080140H08Z4-TIN	4R X 8	14		100	8	
	440100180H10Z4-TIN	5R X 10	18		100	10	
	440120220H12Z4-TIN	6R X 12	22		110	12	
	440160300H16Z4-TIN	8R X 16	30		130	16	
UWC							
TISIN Coating							
R ±0.005 1.5R - 3R							
R ±0.01 4R - 8R							
45° Helix Angle							

400 Series

400 Series

4 Flutes Non Symmetry Corner Radius End Mills for SUS



Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.
 Minimize chattering by unequal flute spacing design.
 Preventing bottom edge chipping by corner R.
 Minimize fracturing at high feed by high TRS ultra fine WC grade.

Cutting Data
P127

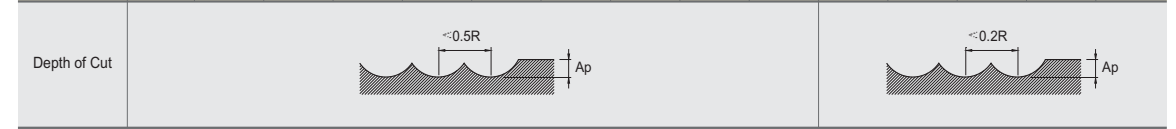
Size	D Tolerance
D ≤ Φ5	+0~ -0.01mm
D > Φ5.5	+0~ -0.02mm

Type	Part Number	Dimensions in mm					d
		D X R	L1	L2	L		
4	480030002H06Z4-TIN	3 X R0.2	10		60	6	
	480030005H06Z4-TIN	3 X R0.5	10		60	6	
	480035002H06Z4-TIN	3.5 X R0.2	10		60	6	
	480040002H06Z4-TIN	4 X R0.2	12		60	6	
	480040005H06Z4-TIN	4 X R0.5	12		60	6	
	480045002H06Z4-TIN	4.5 X R0.2	14		60	6	
	480050002H06Z4-TIN	5 X R0.2	15		60	6	
	480050005H06Z4-TIN	5 X R0.5	15		60	6	
	480055002H06Z4-TIN	5.5 X R0.2	15		60	6	
	480060003H06Z4-TIN	6 X R0.3	15		60	6	
	480060005H06Z4-TIN	6 X R0.5	15		60	6	
	480060010H06Z4-TIN	6 X R1	15		60	6	
	480065003H08Z4-TIN	6.5 X R0.3	18		60	8	
	480070003H08Z4-TIN	7 X R0.3	20		80	8	
	480080003H08Z4-TIN	8 X R0.3	20		80	8	
	480080005H08Z4-TIN	8 X R0.5	20		80	8	
	480080010H08Z4-TIN	8 X R1	20		80	8	
	480085003H10Z4-TIN	8.5 X R0.3	22		80	10	
	480090003H10Z4-TIN	9 X R0.3	25		80	10	
	480100003H10Z4-TIN	10 X R0.3	25		80	10	
480100005H10Z4-TIN	10 X R0.5	25		80	10		
480100010H10Z4-TIN	10 X R1	25		80	10		
480100015H10Z4-TIN	10 X R1.5	25		80	10		
480100020H10Z4-TIN	10 X R2	25		80	10		
480120005H12Z4-TIN	12 X R0.5	30		100	12		
480120010H12Z4-TIN	12 X R1	30		100	12		
480120015H12Z4-TIN	12 X R1.5	30		100	12		
480120020H12Z4-TIN	12 X R2	30		100	12		
480120025H12Z4-TIN	12 X R2.5	30		100	12		
480120030H12Z4-TIN	12 X R3	30		100	12		
480160005H16Z4-TIN	16 X R0.5	42		110	16		
480160010H16Z4-TIN	16 X R1	42		110	16		
480200005H20Z4-TIN	20 X R0.5	48		110	20		
480200010H20Z4-TIN	20 X R1	48		110	20		

440

· RPM : rev./min · Feed : mm/min

Material	Alloy steels / Tool Steels / Prehardened Steels SKD11 / SKD61 / NAK					Prehardened Steels SUS304 / SUS316 / Ti-6Al-4V					Inconel718				
	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		Ap Axial Depth	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		Ap Axial Depth	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		Ap Axial Depth
	RPM	FEED	RPM	FEED		RPM	FEED	RPM	FEED		RPM	FEED	RPM	FEED	
R3	16,000	4,800	10,600	2,100	0.50	12,000	3,200	8,000	1,400	0.50	3,200	500	2,100	210	0.25
R4	12,000	4,300	8,000	1,900	0.80	9,000	3,200	6,000	1,400	0.80	2,400	430	1,600	190	0.40
R5	9,600	4,100	6,400	1,800	1.00	7,200	3,000	4,800	1,300	1.00	2,000	420	1,300	180	0.50
R6	8,000	4,000	5,300	1,800	1.20	6,000	3,000	4,000	1,300	1.20	700	350	1,100	150	0.60
R8	6,000	3,200	4,000	1,400	1.60	4,500	2,500	3,000	1,100	1.60	1,200	300	800	130	0.80

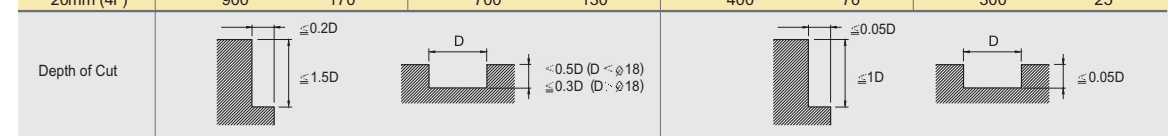


450 / 460

■ Apply 10% up values of below condition for 450

· RPM : rev./min · Feed : mm/min

Material	Carbon Steels / Alloy Steels SS400 / S50C / SCM		Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6Al-4V		Hardened Steels SKD61		Superhit resistance / Inconel	
	~ 45HRc				45 ~ 55HRc			
	Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM
0.8mm (3F)	7,200	80	6,400	60	3,900	30	2,000	10
1mm (3F)	6,400	100	5,600	70	3,500	30	1,700	15
2mm (3F)	5,600	110	4,800	80	2,900	34	1,400	20
3mm (3F)	4,800	200	4,000	90	2,200	45	1,400	25
4mm (3F)	4,000	200	3,300	140	1,800	70	1,200	35
5mm (3F)	3,200	230	2,700	170	1,500	90	1,000	45
6mm (3F)	2,900	250	2,400	180	1,400	90	900	45
8mm (3F)	2,200	270	1,800	190	1,000	100	720	40
10mm (3F)	1,700	260	1,400	190	900	110	600	40
12mm (3F)	1,400	230	1,200	150	700	90	500	35
16mm (3F)	1,000	160	900	120	550	60	360	30
20mm (4F)	900	170	700	130	400	70	300	25

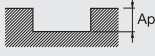


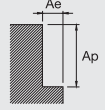
In case of slotting, 80~100% of speed and 60~80% of feed on the table.

400 Series

480

• RPM : rev./min • Feed : mm/min

Slotting										
Material	Alloy Steels / Tool Steels SKD11 / SKD61 / NAK		Hardened Steels / Prehardened Steels SKT / SKD / NAK55 / HPM1		Hardened Steels / Stainless Steels SUS304 / SKD		Hardened Steels / Titanium Alloy Steels		Superhit resistance / Inconel	
Hardness	~ 30HRc		30 ~ 38HRc		38 ~ 45HRc		45 ~ 55HRc			
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	7,700	620	7,100	470	6,700	420	6,500	400	2,300	110
4mm	5,800	700	5,300	470	5,000	460	4,900	440	1,700	120
5mm	4,600	680	4,200	490	4,000	490	3,900	480	1,300	130
6mm	3,800	570	3,600	520	3,300	510	3,200	490	1,100	130
8mm	2,900	500	2,700	500	2,500	470	2,400	450	850	140
10mm	2,300	490	2,100	430	2,000	430	2,000	410	690	130
12mm	1,900	430	1,800	410	1,700	400	1,600	400	570	130
16mm	1,400	400	1,400	330	1,300	330	1,200	330	420	100
20mm	1,200	340	1,100	320	1,000	300	1,000	300	340	100
Depth of Cut	 $\frac{A_p}{<1D}$ $A_p \text{ Max}=12\text{mm}$		$\frac{A_p}{<0.5D}$		$\frac{A_p}{<0.2D}$					

Side Milling										
Material	Alloy Steels / Tool Steels SKD11 / SKD61 / NAK		Hardened Steels / Prehardened Steels SKT / SKD / NAK55 / HPM1		Hardened Steels / Stainless Steels SUS304 / SKD		Hardened Steels / Titanium Alloy Steels		Superhit resistance / Inconel	
Hardness	~ 30HRc		30 ~ 38HRc		38 ~ 45HRc		45 ~ 55HRc			
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	8,600	800	7,300	560	6,900	550	6,700	490	3,400	200
4mm	6,700	900	5,800	610	5,400	640	5,300	570	2,700	220
5mm	7,200	1,200	5,500	950	4,700	650	4,500	700	4,300	600
6mm	4,700	1,100	4,000	800	3,800	750	3,600	630	1,900	230
8mm	3,600	1,000	3,000	730	2,800	730	2,700	600	1,400	200
10mm	2,900	950	2,400	650	2,300	640	2,200	570	1,100	190
12mm	2,400	900	2,000	650	1,900	600	1,800	550	1,000	190
16mm	1,800	850	1,500	570	1,400	500	1,400	450	700	190
20mm	1,400	680	1,200	530	1,100	460	1,100	410	600	180
Depth of Cut	 $\frac{A_p}{<1.5D} \quad \frac{A_e}{<0.2D}$		$\frac{A_p}{<1.5D} \quad \frac{A_e}{<0.1D}$		$\frac{A_p}{<1.5D} \quad \frac{A_e}{<0.05D}$					

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