



- Endmills for various work materials (~HRC52), pre-hardened steel, carbon steel, mold steel, SUS, Ti/Ni-base alloy, Inconel.
- Good wear resistance by high quality Si-based PVD coating.
- Excellent work surface finish by 3 flute and deep chip pocket.
- Minimize fracturing by high TRS fine(0.5 μm) WC grade.

E series



D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01 mm
Ø6 ~ 12	-0.01 ~ -0.025 mm

: mm

### 3NSE / 4NSE

■ Use the same RPM and raise up the feed up to 50% for 4NSE.

• RPM: rev./min • Feed: mm/min

Slotting													
Material	Alloy Steels				Prehardened Steels				Hardened Steels				
Hardness	30 ~ 40HRC				40 ~ 50HRC				50 ~ 52HRC				
Outside Diameter	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	
Ø1	13,000	60	0.10	1.0	9,000	40	0.10	1.0	5,700	15	0.05	0.50	
Ø1.5	10,000	60	0.15	1.5	6,000	50	0.15	1.5	4,500	15	0.08	0.75	
Ø2	6,400	60	0.20	2.0	4,800	50	0.20	2.0	3,000	15	0.10	1.00	
Ø3	4,200	65	0.30	3.0	3,400	60	0.30	3.0	2,100	20	0.15	1.50	
Ø4	3,400	65	0.40	4.0	2,700	33	0.40	4.0	1,700	20	0.20	2.00	
Ø5	2,900	65	0.50	5.0	2,300	44	0.50	5.0	1,500	20	0.25	2.50	
Ø6	2,500	70	0.60	6.0	2,000	55	0.60	6.0	1,300	28	0.30	3.00	
Ø8	1,900	70	0.80	8.0	1,500	55	0.80	8.0	1,000	28	0.40	4.00	
Ø10	1,600	70	1.00	10.0	1,300	55	1.00	10.0	800	28	0.50	5.00	
Ø12	1,300	65	1.20	12.0	1,100	50	1.20	12.0	670	22	0.60	6.00	

~ 50HRC

50HRC ~

Side Cutting													
Material	Alloy Steels				Prehardened Steels				Hardened Steels				
Hardness	30 ~ 40HRC				40 ~ 50HRC				50 ~ 52HRC				
Outside Diameter	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	
Ø1	13,000	60	1	0.030	9,000	35	1	0.030	5,700	20	0.50	0.02	
Ø1.5	10,000	60	2	0.045	6,000	45	2	0.045	4,500	35	0.75	0.03	
Ø2	6,400	60	2	0.060	4,800	45	2	0.060	3,000	30	1.00	0.04	
Ø3	4,200	65	3	0.090	3,400	55	3	0.090	2,100	40	1.50	0.06	
Ø4	3,400	80	4	0.120	2,700	65	4	0.120	1,700	50	2.00	0.08	
Ø5	2,900	100	5	0.150	2,300	80	5	0.150	1,500	60	2.50	0.10	
Ø6	2,500	120	6	0.180	2,000	100	6	0.180	1,300	75	3.00	0.12	
Ø8	1,900	130	8	0.240	1,500	100	8	0.240	1,000	85	4.00	0.16	
Ø10	1,600	130	10	0.300	1,300	100	10	0.300	800	75	5.00	0.20	
Ø12	1,300	120	12	0.360	1,100	90	12	0.360	670	60	6.00	0.24	

~ 50HRC

50HRC ~

- The edge of the flute precisely grinded. If you want to measure the tool, and to avoid damaging on the flutes, use non-contact measuring method.
- When milling workpiece HRC over 55 hardened steel, reduce 20% of the RPM and feed compared to the same diameter.
- The parameters on the table is based on 3flutes. For using 4flutes, use the same RPM and raise up the feed up to 50% in stable milling condition.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- If the table over the maximum RPM and feed of your machine, or found red heat on the material, adjust RPM and feed in the same proportion.
- Air blow or mist coolants are recommended and note for chip emission, heat, or ignition.