

## Identification

Use by multiplying the recommended cutting condition on the next page by the correction factor by overhang length.

Refer to each recommended condition for the long cutting and offset type.

L/D	Carbon steel, Alloy steel, Mild Steel, Copper, Copper alloys				Pre-hardened steel, Carbon steel, Alloy steel, Alloy tool steel				Austenitic stainless steel, Ferritic, Precipitation hardening stainless steel, Titanium alloy			
	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	ae (mm)	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	ae (mm)	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	ae (mm)
2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4	80%	80%	90%	70%	80%	80%	90%	70%	80%	80%	90%	70%
5	60%	60%	80%	40%	60%	60%	80%	40%	60%	60%	80%	40%
6	50%	50%	70%	30%	50%	50%	70%	30%	50%	50%	70%	30%
7	40%	40%	70%	20%	40%	40%	70%	20%	30%	30%	60%	20%
8	40%	40%	60%	10%	40%	40%	60%	10%	30%	30%	50%	10%
9	30%	30%	60%	10%	30%	30%	60%	10%	20%	20%	50%	10%

L/D	Precipitation hardening stainless steel, Cobalt chromium alloy				Heat resistant alloys			
	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	ae (mm)	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	ae (mm)
2	100%	100%	100%	100%	100%	100%	100%	100%
3	100%	100%	100%	100%	100%	100%	100%	100%
4	80%	80%	90%	70%	80%	80%	90%	70%
5	60%	60%	80%	40%	60%	60%	80%	40%
6	50%	50%	70%	30%	50%	50%	70%	30%
7	30%	30%	60%	20%	30%	30%	60%	20%
8	30%	30%	50%	10%	30%	30%	50%	10%
9	20%	20%	50%	10%	20%	20%	50%	10%

## Recommended Cutting Conditions

### Side milling

Work material		Carbon steel, Alloy steel, Gray Cast Iron						Alloy tool steel, Carbon steel, Alloy steel, Pre-hardened steel						Austenitic stainless steel, Alloy steel					
DC (mm)	Flutes	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)
12	6	100	2700	0.05	810	2.4	2.4	70	1900	0.05	510	2.4	2.4	60	1600	0.04	380	2.4	2.4
16	6	100	2000	0.05	600	2.7	2.7	70	1400	0.05	380	2.7	2.7	60	1200	0.04	290	2.7	2.7
20	6	100	1600	0.05	480	3.2	3.2	70	1100	0.05	300	3.2	3.2	60	950	0.04	230	3.2	3.2

Work material		Hardened steel (45—55HRC)						Heat resistant alloys					
DC (mm)	Flutes	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)
12	6	50	1300	0.03	230	2.4	2.4	30	800	0.04	190	2.4	2.4
16	6	50	990	0.03	180	2.7	2.7	30	600	0.04	140	2.7	2.7
20	6	50	800	0.03	140	3.2	3.2	30	480	0.04	120	3.2	3.2

- 1) The use of water-soluble coolant is recommended.
- 2) Vibration may occur if the rigidity of machine or workpiece is low.  
In this case, please reduce the revolution and feed rate proportionately.

## Side milling

Work material		Carbon steel, Alloy steel, Gray Cast Iron						Alloy tool steel, Carbon steel, Alloy steel, Pre-hardened steel						Austenitic stainless steel, Alloy steel					
DC (mm)	Flutes	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)
10	3	40	1300	0.04	160	1.8	1.8	40	1300	0.03	120	1.8	1.8	30	950	0.03	86	1.8	1.8
12	3	40	1100	0.04	130	2.2	2.2	40	1100	0.03	99	2.2	2.2	30	800	0.03	72	2.2	2.2
16	3	40	800	0.04	96	2.4	2.4	40	800	0.03	72	2.4	2.4	30	600	0.03	54	2.4	2.4
20	3	40	640	0.04	77	2.6	2.6	40	640	0.03	58	2.6	2.6	30	480	0.03	43	2.6	2.6

Work material		Hardened steel (45–55HRC)						Heat resistant alloys					
DC (mm)	Flutes	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)	Vc (m/min)	n (min <sup>-1</sup> )	fz (mm/tooth)	Vf (mm/min)	ap (mm)	ae (mm)
10	3	30	950	0.02	57	1.8	1.8	30	950	0.04	110	1.8	1.8
12	3	30	800	0.02	48	2.2	2.2	30	800	0.04	96	2.2	2.2
16	3	30	600	0.02	36	2.4	2.4	30	600	0.04	72	2.4	2.4
20	3	30	480	0.02	29	2.6	2.6	30	480	0.04	58	2.6	2.6

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