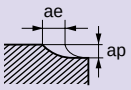
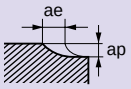
RECOMMENDED CUTTING CONDITIONS

High depth of cut conditions

Work material		Carbon steel, Alloy steel, Gray Cast Iron						Pre-hardened steel, Alloy tool steel						Hardened steel (45－55HRC)					
Dia. (mm)	R (mm)	Cutting speed (m/min)	Revolution (min^{-1})	Feed (mm/tooth)	Feed rate (mm/min)	Depth of cut ap (mm)	Depth of cut ae (mm)	Cutting speed (m/min)	Revolution (min^{-1})	Feed (mm/tooth)	Feed rate (mm/min)	Depth of cut ap (mm)	Depth of cut ae (mm)	Cutting speed (m/min)	Revolution (min^{-1})	Feed (mm/tooth)	Feed rate (mm/min)	Depth of cut ap (mm)	Depth of cut ae (mm)
10	2	90	2900	0.25	2900	1.2	4.5	75	2400	0.21	2000	1	4.5	60	1900	0.22	1700	0.7	4.5
12	2	90	2400	0.25	2400	1.8	6	75	2000	0.21	1700	1.4	6	60	1600	0.22	1400	0.9	6
16	3	90	1800	0.25	1800	1.8	7.5	75	1500	0.2	1200	1.4	7.5	60	1200	0.22	1100	0.9	7.5
20	3	90	1400	0.25	1400	1.8	9	75	1200	0.2	1000	1.4	9	60	950	0.22	850	0.9	9
25	4	90	1100	0.25	1100	2.4	11.5	75	950	0.2	750	1.8	11.5	60	750	0.22	650	1.2	11.5
Depth of cut																			

High speed milling

Work material		Carbon steel, Alloy steel, Gray Cast Iron						Pre-hardened steel, Alloy tool steel						Hardened steel (45－55HRC)					
Dia. (mm)	R (mm)	Cutting speed (m/min)	Revolution (min^{-1})	Feed (mm/tooth)	Feed rate (mm/min)	Depth of cut ap (mm)	Depth of cut ae (mm)	Cutting speed (m/min)	Revolution (min^{-1})	Feed (mm/tooth)	Feed rate (mm/min)	Depth of cut ap (mm)	Depth of cut ae (mm)	Cutting speed (m/min)	Revolution (min^{-1})	Feed (mm/tooth)	Feed rate (mm/min)	Depth of cut ap (mm)	Depth of cut ae (mm)
10	2	150	4800	0.51	9800	0.6	4.5	125	4000	0.43	6900	0.46	4.5	100	3200	0.43	5500	0.36	4.5
12	2	150	4000	0.56	9000	0.9	6	125	3300	0.48	6400	0.7	6	100	2700	0.47	5100	0.45	6
16	3	150	3000	0.6	7200	0.9	7.5	125	2500	0.53	5300	0.7	7.5	100	2000	0.54	4300	0.45	7.5
20	3	150	2400	0.6	5800	0.9	9	125	2000	0.37	3000	0.7	9	100	1600	0.39	2500	0.45	9
25	4	150	1900	0.6	4500	1.2	11.5	125	1600	0.39	2500	0.9	11.5	100	1300	0.39	2000	0.6	11.5
Depth of cut																			

1) If the depth of cut is shallow, the revolution and feed rate can be increased.
2) Air blow or oil mist is recommended for good chip evacuation.
3) For profile machining such as moulds, machining conditions may differ considerably depending on the workpiece geometry, machining methods and depth of cut.
   Reduce the feed rate especially when machining the corner sections of a workpiece.
4) The irregular helix flute end mill has a larger effect on controlling vibration when compared to standard end mills.
   However, if the rigidity of the machine or the workpiece installation is poor, vibration or abonrmal sound can occur.
   In this case, please reduce the revolution and feed rate proportionately, or set a lower depth of cut.