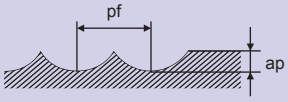
MIRACLE SIGMA

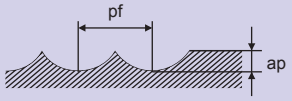
iMX-B4HV/iMX-B4HV-E

Ball nose head, 4 flute, Irregular curve (With/Without coolant hole)

RECOMMENDED CUTTING CONDITIONS

Shoulder milling

Work material	Carbon steel, Alloy steel, Mild Steel, Pre-hardened steel, Copper, Copper alloys										Austenitic stainless steel, Ferritic, Precipitation hardening stainless steel, Cobalt chromium alloy, Titanium alloy									
Inclination angle	α≤15°				α>15°				Depth of cut ap (mm)	Pick Feed pf (mm)	α≤15°				α>15°				Depth of cut ap (mm)	Pick Feed pf (mm)
Dia. (mm)	R (mm)	Cutting speed (m/min)	Revolution (min-1)	Feed (mm/tooth)	Feed rate (mm/min)	Cutting speed (m/min)	Revolution (min-1)	Feed (mm/tooth)	Feed rate (mm/min)			Cutting speed (m/min)	Revolution (min-1)	Feed (mm/tooth)	Feed rate (mm/min)	Cutting speed (m/min)	Revolution (min-1)	Feed (mm/tooth)	Feed rate (mm/min)		
10	5	300	9600	0.106	4100	200	6400	0.07	1800	1	2.5	225	7200	0.105	3000	150	4800	0.067	1300	1	2.5
12	6	300	8000	0.125	4000	200	5300	0.085	1800	1.2	3	225	6000	0.125	3000	150	4000	0.08	1300	1.2	3
16	8	300	6000	0.134	3200	200	4000	0.088	1400	1.6	4	225	4500	0.14	2500	150	3000	0.09	1100	1.6	4
20	10	300	4800	0.156	3000	200	3200	0.1	1300	2	5	225	3600	0.16	2300	150	2400	0.105	1000	2	5
25	12.5	300	3800	0.16	2400	200	2500	0.1	1000	2.5	6	225	2900	0.16	1900	150	1900	0.105	800	2.5	6
Depth of cut																				

Work material	Heat resistant alloys Inconel718									
Inclination angle	α≤15°				α>15°				Depth of cut ap (mm)	Pick Feed pf (mm)
Dia. (mm)	R (mm)	Cutting speed (m/min)	Revolution (min-1)	Feed (mm/tooth)	Feed rate (mm/min)	Cutting speed (m/min)	Revolution (min-1)	Feed (mm/tooth)	Feed rate (mm/min)		
10	5	60	1900	0.055	420	40	1300	0.035	180	0.5	1
12	6	60	1600	0.055	350	40	1100	0.035	150	0.6	1.2
16	8	60	1200	0.062	300	40	800	0.04	130	0.8	1.6
20	10	60	1000	0.062	250	40	640	0.04	100	1	2
25	12.5	60	760	0.062	190	40	510	0.04	80	1.2	2.5
Depth of cut										

1) For stainless steel, titanium alloy and heat resistant alloy, the use of water-soluble coolant is effective.
2) If the depth of cut is shallow, the revolution and feed rate can be increased.
3) The irregular helix flute end mill has a large 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 abnormal sound can occur.
   In this case, please reduce the revolution and feed rate proportionately, or set a lower depth of cut.
4) α is the inclination angle of the machined surface.