

RECOMMENDED CUTTING CONDITIONS

Internal Profile Milling, Undercut Machining (L/D=3)

Material		P		N		M		S		S									
		Pre-hardened steel, Carbon steel, Alloy steel, Mild steel, Copper alloys										Austenitic stainless steel, Ferritic and martensitic stainless steel, Cobalt chromium alloy, Titanium alloy					Heat resistant alloys		
Dia. DC (mm)	RE (mm)	Cutting Speed (m/min)	Main Spindle Revolution (min ⁻¹)	Feed per Tooth (mm/t.)	Table Feed per Min. (mm/min)	Cutting Width ae (mm)	Cutting Speed (m/min)	Main Spindle Revolution (min ⁻¹)	Feed per Tooth (mm/t.)	Table Feed per Min. (mm/min)	Cutting Width ae (mm)	Cutting Speed (m/min)	Main Spindle Revolution (min ⁻¹)	Feed per Tooth (mm/t.)	Table Feed per Min. (mm/min)	Cutting Width ae (mm)			
12	6	100	2700	0.090	970	0.45	80	2100	0.075	630	0.45	30	800	0.040	130	0.36			
16	8	100	2000	0.100	800	0.60	80	1600	0.080	510	0.60	30	600	0.045	110	0.48			
20	10	100	1600	0.100	640	0.75	80	1300	0.090	470	0.75	30	480	0.050	96	0.60			
Depth of Cut																			

Internal Profile Milling, Undercut Machining (L/D=5)

Material		P		N		M		S		S									
		Pre-hardened steel, Carbon steel, Alloy steel, Mild steel, Copper alloys										Austenitic stainless steel, Ferritic and martensitic stainless steel, Cobalt chromium alloy, Titanium alloy					Heat resistant alloys		
Dia. DC (mm)	RE (mm)	Cutting Speed (m/min)	Main Spindle Revolution (min ⁻¹)	Feed per Tooth (mm/t.)	Table Feed per Min. (mm/min)	Cutting Width ae (mm)	Cutting Speed (m/min)	Main Spindle Revolution (min ⁻¹)	Feed per Tooth (mm/t.)	Table Feed per Min. (mm/min)	Cutting Width ae (mm)	Cutting Speed (m/min)	Main Spindle Revolution (min ⁻¹)	Feed per Tooth (mm/t.)	Table Feed per Min. (mm/min)	Cutting Width ae (mm)			
12	6	70	1900	0.070	530	0.30	50	1300	0.050	260	0.30	20	530	0.030	64	0.24			
16	8	70	1400	0.080	450	0.40	50	990	0.060	240	0.40	20	400	0.040	64	0.32			
20	10	70	1100	0.080	350	0.50	50	800	0.070	220	0.50	20	320	0.040	51	0.40			
Depth of Cut																			

Internal Profile Milling, Undercut Machining (L/D=7)

Material		P		N		M		S		S									
		Pre-hardened steel, Carbon steel, Alloy steel, Mild steel, Copper alloys										Austenitic stainless steel, Ferritic and martensitic stainless steel, Cobalt chromium alloy, Titanium alloy							
Dia. DC (mm)	RE (mm)	Cutting Speed (m/min)	Main Spindle Revolution (min ⁻¹)	Feed per Tooth (mm/t.)	Table Feed per Min. (mm/min)	Cutting Width ae (mm)	Cutting Speed (m/min)	Main Spindle Revolution (min ⁻¹)	Feed per Tooth (mm/t.)	Table Feed per Min. (mm/min)	Cutting Width ae (mm)	Cutting Speed (m/min)	Main Spindle Revolution (min ⁻¹)	Feed per Tooth (mm/t.)	Table Feed per Min. (mm/min)	Cutting Width ae (mm)			
12	6	50	1300	0.030	160	0.15	30	800	0.025	80	0.15								
16	8	50	990	0.035	140	0.20	30	600	0.030	72	0.20								
20	10	50	800	0.040	130	0.25	30	480	0.035	67	0.25								
Depth of Cut																			

Note 1) Vibration may occur if the rigidity of the machine or workpiece is low.

In this case, please reduce the revolution and the feed rate proportionately, or set a lower depth of cut.

Note 2) If the depth of cut is smaller, the revolution and the feed rate can be increased.

Note 3) In case of L/D > 5, It is recommended to use taper neck type holder.

Note 4) For stainless steels, titanium alloys and heat resistant alloys, the use of water-soluble coolant is effective.

INDEXABLE HEAD END MILLS

SQUARE

BALL

RADIUS

TAPER

CHAMFER

ROUGHING