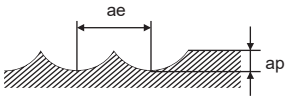


RECOMMENDED CUTTING CONDITIONS

■ Shoulder milling (L/D=3)

(mm)

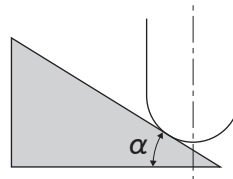
Workpiece Material		Carbon steel, Alloy steel, Mild steel, Pre-hardened steel AISI 1045, AISI 4140, AISI 4340, ASTM A36, AISI 1010, AISI P21, AISI P20								Austenitic stainless steel, Ferritic and Martensitic stainless steels, Cobalt chromium alloy, Titanium alloy AISI 304, AISI 316, AISI 431, AISI 420J2, AISI 630, AISI 631, Ti-6Al-4V											
		$\alpha \leq 15^\circ$				$\alpha > 15^\circ$				Depth of Cut ap	Width of Cut ae	$\alpha \leq 15^\circ$				$\alpha > 15^\circ$				Depth of Cut ap	Width of Cut ae
Dia DC	Radius of Ball Nose RE	Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed per Tooth (mm/t)	Feed rate (mm/min)	Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed per Tooth (mm/t)	Feed rate (mm/min)			Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed per Tooth (mm/t)	Feed rate (mm/min)	Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed per Tooth (mm/t)	Feed rate (mm/min)		
10	5	300	9500	0.106	4000	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																					

Note 1) For stainless steel, titanium alloy and heat resistant alloy, the use of water-soluble coolant is effective.

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

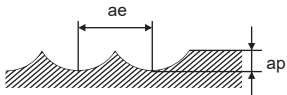
Note 3) Vibration may occur if there is poor rigidity of the machine or workpiece material. In that case, please adjust the revolution, feed rate and depth of cut.

Note 4) α is the inclination angle of the machined surface.



■ Shoulder milling (L/D=3)

(mm)

Workpiece Material		Heat resistant alloys Inconel718									
Inclination angle		$\alpha \leq 15^\circ$				$\alpha > 15^\circ$				Depth of Cut ap	Width of Cut ae
Dia DC	Radius of Ball Nose RE	Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed per Tooth (mm/t)	Feed rate (mm/min)	Cutting Speed (m/min)	Revolution (min ⁻¹)	Feed per Tooth (mm/t)	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	950	0.062	240	40	640	0.04	100	1	2
25	12.5	60	760	0.062	190	40	510	0.04	82	1.2	2.5
Depth of cut											

Note 1) For stainless steel, titanium alloy and heat resistant alloy, the use of water-soluble coolant is effective.

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

Note 3) Vibration may occur if there is poor rigidity of the machine or workpiece material. In that case, please adjust the revolution, feed rate and depth of cut.

Note 4) α is the inclination angle of the machined surface.

