







Speed & Feed Recommendations

33MCR Metric	CUT			FEED (mm/flute)									
		Type	Ap x D1	Ae x D1			3	6	8	10	12	16	20
 STAINLESS STEEL (PH) 13-8 PH, 15-5P PH, 17-4 PH, Custom 450	Profile	1,5	0,5	94	rpm	10031	5015	3761	3009	2508	1881	1505	
				(76-113)	Fz	0,0064	0,0169	0,0288	0,0360	0,0432	0,0506	0,0562	
				Feed (mm/min)	193	254	325	325	325	285	254		
	Slot	1	1	76	rpm	8089	4045	3033	2427	2022	1517	1213	
				(61-91)	Fz	0,0064	0,0169	0,0288	0,0360	0,0432	0,0506	0,0562	
				Feed (mm/min)	156	205	262	262	262	230	205		
 NICKEL, COBALT AND IRON BASED SUPERALLOYS Inconell 601, 617, 625, Incoloy 800, Monel 400	Profile	1,5	0,5	24	rpm	2524	1262	946	757	631	473	379	
				(19-29)	Fz	0,0061	0,0160	0,0273	0,0341	0,0409	0,0479	0,0532	
				Feed (mm/min)	46	61	78	77	77	68	60		
	Slot	1	1	19	rpm	2038	1019	764	612	510	382	306	
				(15-23)	Fz	0,0061	0,0160	0,0273	0,0341	0,0409	0,0479	0,0532	
				Feed (mm/min)	37	49	63	63	63	55	49		
 NICKEL, COBALT AND IRON BASED SUPERALLOYS (DIFFICULT) Inconel (718, 750X, Incoloy 925, Waspaloy, Hastelloy, Rene	Profile	1,5	0,5	19	rpm	2006	1003	752	602	502	376	301	
				(15-23)	Fz	0,0042	0,0111	0,0190	0,0237	0,0284	0,0332	0,0370	
				Feed (mm/min)	25	33	43	43	43	38	33		
	Slot	1	1	15	rpm	1585	793	595	476	396	297	238	
				(12-18)	Fz	0,0042	0,0111	0,0190	0,0237	0,0284	0,0332	0,0370	
				Feed (mm/min)	20	26	34	34	34	30	26		
 TITANIUM BASE ALLOY Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	Profile	1,5	0,5	66	rpm	6957	3478	2609	2087	1739	1304	1044	
				(52-79)	Fz	0,0071	0,0188	0,0320	0,0400	0,0480	0,0562	0,0625	
				Feed (mm/min)	149	196	251	251	250	220	196		
	Slot	1	1	52	rpm	5501	2750	2063	1650	1375	1031	825	
				(41-62)	Fz	0,0071	0,0188	0,0320	0,0400	0,0480	0,0562	0,0625	
				Feed (mm/min)	118	155	198	198	198	174	155		
 TITANIUM BASE ALLOY (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3	Profile	1,5	0,5	24	rpm	2589	1294	971	777	647	485	388	
				(20-29)	Fz	0,0071	0,0188	0,0320	0,0400	0,0480	0,0562	0,0625	
				Feed (mm/min)	55	73	93	93	93	82	73		
	Slot	1	1	18	rpm	1941	971	728	582	485	364	291	
				(15-22)	Fz	0,0071	0,0188	0,0320	0,0400	0,0480	0,0562	0,0625	
				Feed (mm/min)	42	55	70	70	70	61	55		

- Maximum recommended depth shown
- For High Speed Machining with a Radial Width of Cut 5%-7% of D1 please refer for the SGS Website Calculators and Tool Wizard to compensate for chip thinning in the Feed Rate parameters
- Finish cuts typically require reduced Feed; also the Radial Width of Cut recommended is not more than 2% x D1
- Reduce Speed & Feed for material harder than listed
- Above recommendations are based on ideal conditions; For smaller taper machining centers or less rigid conditions please adjust parameters accordingly on diameters greater than 12,0 mm

$$\text{rpm} = (1000 \times \text{m/min}) / (3.14 \times D_1)$$

$$\text{mm/min} = (\text{mm/flute}) \times \text{rpm}$$

- maximum recommended depths shown
- reduce speed and feed for materials harder than listed
- * finish cuts typically require reduced feed and cutting depths of 0.02 x D₁ maximum
- refer to the SGS Tool Wizard for more complete technical information (available at)
- Ramp angle = 4° (feed rate = 100%)
Ramp angle = 6° (feed rate = 30 – 50%)
Max. ramp angle = 1xD