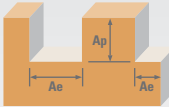


Speed & Feed Recommendations

							Diameter (D ₁) (mm)												
Series 1M, 3M, 5M, 14M, 15M, 16M, 17M, 59M	Hardness BRINELL	Flutes	Ae x D ₁	Ap x D ₁	Vc (m/min)		0.4	0.75	1.5	3	6	10	12	20	25				
S SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, 718, Incoly 800, Monel 400,Rene, Waspalloy	≤ 300		Profile	2 3 4	≤ 0.50 ≤ 0.25 ≤ 0.25	≤ 1.5 ≤ 1.5 ≤ 1.5	20	RPM	15753	8402	4201	2100	1050	630	525	315	252		
							(16-24)	Fz	0.0005	0.0007	0.0014	0.004	0.010	0.021	0.024	0.032	0.035		
								Feed (mm/ min)	16	12	12	17	21	26	25	20	18		
									24	18	18	25	32	40	38	30	26		
		(11-16)		Slot	2 3 4	1 1 1	≤ 1 ≤ 0.5 ≤ 0.4	14	RPM	10906	5816	2908	1454	727	436	364	218	174	
								Fz	0.0005	0.0007	0.0014	0.004	0.010	0.021	0.024	0.032	0.035		
								Feed (mm/ min)	11	8	8	12	15	18	17	14	12		
									16	12	12	17	22	27	26	21	18		
		S TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti10Al2Fe3Al, Ti5Al53Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti152 Cr3Sn3Al	≤ 350		Profile	2 3 4	≤ 0.50 ≤ 0.25 ≤ 0.25	≤ 1.5 ≤ 1.5 ≤ 1.5	55	RPM	43624	23266	11633	5816	2908	1745	1454	872	698
									(44-66)	Fz	0.0005	0.0010	0.0019	0.004	0.012	0.024	0.029	0.037	0.042
Feed (mm/ min)	44									47	44	47	70	84	84	65	59		
	65									70	66	70	105	126	127	97	88		
(32-48)				Slot	2 3 4	1 1 1	≤ 1 ≤ 0.5 ≤ 0.4	40	RPM	31506	16803	8402	4201	2100	1260	1050	630	504	
								Fz	0.0005	0.0010	0.0019	0.004	0.012	0.024	0.029	0.037	0.042		
								Feed (mm/ min)	32	34	32	34	50	60	61	47	42		
									47	50	48	50	76	91	91	70	64		
N ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 150				Profile	2 3	≤ 0.50 ≤ 0.25	≤ 1.5 ≤ 1.5	268	RPM	213272	113745	56872	28436	14218	8531	7109	4265	3412
									(215-322)	Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140
		Feed (mm/min)	640							728	682	796	1081	1365	1365	1092	955		
			960							1092	1024	1194	1621	2047	2047	1638	1433		
		(156-234)		Slot	2 3 4	1 1 1	≤ 1 ≤ 0.5 ≤ 0.5	195	RPM	155107	82724	41362	20681	10340	6204	5170	3102	2482	
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140		
								Feed (mm/ min)	465	529	496	579	786	993	993	794	695		
									698	794	745	869	1179	1489	1489	1191	1042		
		N COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140		Profile	2 3 4	≤ 0.50 ≤ 0.25 ≤ 0.25	≤ 1.5 ≤ 1.5 ≤ 1.5	148	RPM	117542	62689	31344	15672	7836	4702	3918	2351	1881
									(118-177)	Fz	0.0008	0.0015	0.0031	0.007	0.019	0.040	0.048	0.064	0.070
Feed (mm/ min)	188									188	194	219	298	376	376	301	263		
	282									282	292	329	447	564	564	451	395		
(118-177)				Slot	2 3 4	1 1 1	≤ 1 ≤ 0.5 ≤ 0.4		RPM	84824	45239	22620	11310	5655	3393	2827	1696	1357	
								Fz	0.0008	0.0015	0.0031	0.007	0.019	0.040	0.048	0.064	0.070		
								Feed (mm/ min)	136	136	140	158	215	271	271	217	190		
									204	204	210	238	322	407	407	326	285		
PLASTICS Polycarbonate, PVC, Polypropylene					Profile	2 3 4	≤ 0.50 ≤ 0.25 ≤ 0.25	≤ 1.5 ≤ 1.5 ≤ 1.5	268	RPM	213272	113745	56872	28436	14218	8531	7109	4265	3412
									(215-322)	Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140
		Feed (mm/ min)	640							728	682	796	1081	1365	1365	1092	955		
			960							1092	1024	1194	1621	2047	2047	1638	1433		
		(156-234)		Slot	2 3 4	1 1 1	≤ 1 ≤ 0.5 ≤ 0.4	195	RPM	155107	82724	41362	20681	10340	6204	5170	3102	2482	
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140		
								Feed (mm/ min)	465	529	496	579	786	993	993	794	695		
									698	794	745	869	1179	1489	1489	1191	1042		
		GRAPHITE			Profile	2 3 4	≤ 0.50 ≤ 0.25 ≤ 0.25	≤ 1.5 ≤ 1.5 ≤ 1.5	201	RPM	159954	85309	42654	21327	10664	6398	5332	3199	2559
									(161-241)	Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140
Feed (mm/ min)	480									546	512	597	810	1024	1024	819	717		
	720									819	768	896	1216	1536	1536	1228	1075		
(117-176)				Slot	2 3 4	1 1 1	≤ 1 ≤ 0.5 ≤ 0.4	146	RPM	116330	62043	31021	15511	7755	4653	3878	2327	1861	
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140		
								Feed (mm/ min)	349	397	372	434	589	745	745	596	521		
									523	596	558	651	884	1117	1117	893	782		
(117-176)				Slot	2 3 4	1 1 1	≤ 1 ≤ 0.5 ≤ 0.4		RPM	116330	62043	31021	15511	7755	4653	3878	2327	1861	
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140		
		Feed (mm/ min)	349					397	372	434	589	745	745	596	521				
			523					596	558	651	884	1117	1117	893	782				

rpm = (1000 x m/min) / (3.14 x D₁)

mm / min = (mm / flute) x number of flutes x rpm

reduce speed and feed for materials harder than listed

for tapered end mills, base the speed on the largest diameter contacting the workpiece and the feed on the smallest diameter

limit cut depths of long and extra long flute mills to .05 x D₁ when slotting or profilingreduce feed and Ae when finish milling (.02 x D₁ maximum)

refer to the SGS Tool Wizard for complete technical information (I)