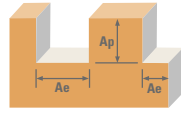


Series 66M, 66MCR	Hardness	Ae x DC	Ap x DC	Vc (m/min)	DC • mm								
					6	8	10	12	16	20	25		
<b>P</b>	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	Profile 	≤ 0.05	≤ 1	194	RPM	10260	7695	6156	5130	3847	3078	2462
					(155-232)	Fz	0.029	0.047	0.059	0.072	0.095	0.101	0.105
					Feed (mm/min)	2068	2528	2528	3324	3280	3431	2844	
		Finish 	≤ 0.02	≤ 2	232	RPM	12312	9234	7387	6156	4617	3693	2955
					(186-279)	Fz	0.023	0.038	0.047	0.058	0.076	0.081	0.084
					Feed (mm/min)	1985	2427	2427	3191	3149	3294	2730	
	<b>ALLOY STEELS</b> 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	Profile 	≤ 0.05	≤ 1	110	RPM	5816	4362	3490	2908	2181	1745	1396
					(88-132)	Fz	0.022	0.036	0.045	0.055	0.074	0.080	0.080
					Feed (mm/min)	879	1108	1107	1445	1457	1536	1229	
		Finish 	≤ 0.02	≤ 2	132	RPM	6980	5235	4188	3490	2617	2094	1675
					(105-158)	Fz	0.017	0.029	0.036	0.044	0.059	0.064	0.064
					Feed (mm/min)	844	1063	1063	1387	1399	1474	1179	
<b>M</b>	<b>STAINLESS STEELS (FREE MACHINING)</b> 303, 416, 420F, 430F, 440F	Profile 	≤ 0.05	≤ 1	171	RPM	9048	6786	5429	4524	3393	2714	2171
					(137-205)	Fz	0.022	0.036	0.045	0.055	0.074	0.080	0.080
					Feed (mm/min)	1368	1723	1723	2247	2267	2389	1911	
		Finish 	≤ 0.02	≤ 2	137	RPM	7238	5429	4343	3619	2714	2171	1737
					(109-164)	Fz	0.017	0.029	0.036	0.044	0.059	0.064	0.064
					Feed (mm/min)	875	1103	1103	1438	1451	1529	1223	
	<b>STAINLESS STEELS (DIFFICULT)</b> 304, 304L, 316, 316L	Profile 	≤ 0.05	≤ 1	117	RPM	6220	4665	3732	3110	2333	1866	1493
					(94-141)	Fz	0.017	0.030	0.037	0.043	0.059	0.064	0.065
					Feed (mm/min)	731	975	975	1209	1236	1314	1067	
		Finish 	≤ 0.02	≤ 2	141	RPM	7465	5598	4479	3732	2799	2239	1791
					(113-169)	Fz	0.013	0.024	0.030	0.035	0.047	0.051	0.052
					Feed (mm/min)	702	17	936	1161	1187	1261	1025	
<b>STAINLESS STEELS (PH)</b> 13-8 PH, 15-5 PH, 17-4 PH, Custom 450	Profile 	≤ 0.05	≤ 1	108	RPM	5736	4302	3441	2868	2151	1721	1377	
				(87-130)	Fz	0.017	0.030	0.037	0.043	0.059	0.064	0.065	
				Feed (mm/min)	674	899	899	1115	1140	1211	984		
	Finish 	≤ 0.02	≤ 2	130	RPM	6883	5162	4130	3441	2581	2065	1652	
				(104-156)	Fz	0.013	0.024	0.030	0.035	0.047	0.051	0.052	
				Feed (mm/min)	647	863	863	1070	1094	1163	945		
<b>K</b>	<b>CAST IRONS (LOW &amp; MEDIUM ALLOY)</b> Gray, Malleable, Ductile	Profile 	≤ 0.05	≤ 1	215	RPM	11391	8543	6834	5695	4271	3417	2734
					(172-258)	Fz	0.029	0.047	0.059	0.072	0.095	0.101	0.105
					Feed (mm/min)	2296	2807	2807	3690	3641	3809	3158	
		Finish 	≤ 0.02	≤ 2	258	RPM	13669	10252	8201	6834	5126	4101	3281
					(206-309)	Fz	0.023	0.038	0.047	0.058	0.076	0.081	0.084
					Feed (mm/min)	2204	2695	2694	3543	3496	3657	3031	

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# Multi-Carb



Series	Hardness	Ae x DC	Ap x DC	Vc (m/min)	DC • mm									
					6	8	10	12	16	20	25			
<b>K</b> <b>CAST IRONS (HIGH ALLOY)</b> Gray, Malleable, Ductile	≤ 260 Bhn or ≤ 26 HRc	Profile 	≤ 0.05	≤ 1	165	RPM	8725	6544	5235	4362	3272	2617	2094	
					(132-198)	Fz	0.022	0.036	0.045	0.055	0.074	0.080	0.080	
					Feed (mm/min)	1319	1661	1661	2167	2186	2303	1843		
		Finish 	≤ 0.02	≤ 2	198	RPM	10470	7852	6282	5235	3926	3141	2513	
					(158-237)	Fz	0.017	0.029	0.036	0.044	0.059	0.064	0.064	
					Feed (mm/min)	1266	1595	1595	2080	2099	2211	1769		
	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy, Monel 400	≤ 300 Bhn or ≤ 32 HRc	Profile 	≤ 0.05	≤ 1	32	RPM	1696	1272	1018	848	636	509	407
						(26-38)	Fz	0.017	0.030	0.037	0.043	0.059	0.064	0.065
						Feed (mm/min)	199	266	213	330	337	358	291	
			Finish 	≤ 0.02	≤ 2	38	RPM	2036	1527	1221	1018	763	611	489
						(31-46)	Fz	0.013	0.024	0.030	0.035	0.047	0.051	0.052
						Feed (mm/min)	192	255	255	317	324	344	279	
SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene	≤ 400 Bhn or ≤ 43 HRc	Profile 	≤ 0.05	≤ 1	26	RPM	1373	1030	824	687	515	412	330	
					(21-31)	Fz	0.012	0.019	0.024	0.026	0.036	0.040	0.040	
					Feed (mm/min)	115	138	138	163	166	181	145		
		Finish 	≤ 0.02	≤ 2	31	RPM	1648	1236	989	824	618	494	396	
					(25-37)	Fz	0.010	0.015	0.019	0.021	0.029	0.032	0.032	
					Feed (mm/min)	111	133	133	157	159	174	139		
S TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	Profile 	≤ 0.05	≤ 1	119	RPM	6301	4726	3781	3151	2363	1890	1512	
					(95-143)	Fz	0.019	0.032	0.040	0.050	0.067	0.072	0.073	
					Feed (mm/min)	847	1059	1059	1429	1415	1497	1206		
		Finish 	≤ 0.02	≤ 2	143	RPM	7561	5671	4537	3781	2836	2268	1815	
					(114-171)	Fz	0.015	0.026	0.032	0.040	0.053	0.058	0.058	
					Feed (mm/min)	813	1016	1016	1372	1359	1437	1158		
TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al	≤ 440 Bhn or ≤ 47 HRc	Profile 	≤ 0.05	≤ 1	43	RPM	2262	1696	1357	1131	848	679	543	
					(34-51)	Fz	0.019	0.032	0.040	0.050	0.067	0.072	0.073	
					Feed (mm/min)	304	380	380	513	508	537	433		
		Finish 	≤ 0.02	≤ 2	51	RPM	2714	2036	1629	1357	1018	814	651	
					(41-61)	Fz	0.015	0.026	0.032	0.040	0.053	0.058	0.058	
					Feed (mm/min)	292	365	365	492	488	516	416		
H TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 Bhn or ≤ 40 HRc	Profile 	≤ 0.05	≤ 1	88	RPM	4686	3514	2811	2343	1757	1406	1125	
					(71-106)	Fz	0.014	0.026	0.032	0.038	0.051	0.056	0.055	
					Feed (mm/min)	472	630	630	810	810	866	680		
		Finish 	≤ 0.02	≤ 2	106	RPM	5623	4217	3374	2811	2108	1687	1349	
					(85-127)	Fz	0.012	0.020	0.026	0.031	0.041	0.045	0.044	
					Feed (mm/min)	453	605	605	777	777	831	653		

Bhn (Brinell)      HRc (Rockwell C)  
 rpm = (Vc x 1000) / (DC x 3.14)  
 mm/min = Fz x number of flutes x rpm  
 reduce speed and feed for materials harder than listed  
 feed rates listed have chip thinning adjustments included where applicable  
 refer to the SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)