

# Series M081

Series M081	Hardness	Vc (m/min)	DC • mm							
			0.15	0.25	0.5	1	2	3		
<b>P</b>	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	85 (68-102)	RPM	180958	108575	54287	27144	13572	9048
				Fr	0.003	0.005	0.010	0.021	0.041	0.062
				Feed (mm/min)	559	559	559	559	559	559
	<b>ALLOY STEELS</b> 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	55 (44-66)	RPM	116330	69798	34899	17449	8725	5816
				Fr	0.003	0.005	0.010	0.019	0.039	0.058
				Feed (mm/min)	338	338	338	338	338	338
<b>M</b>	<b>STAINLESS STEELS</b> (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 250 Bhn or ≤ 24 HRc	64 (51-77)	RPM	135718	81431	40715	20358	10179	6786
				Fr	0.003	0.005	0.011	0.021	0.042	0.064
				Feed (mm/min)	432	432	432	432	432	432
	<b>STAINLESS STEELS</b> (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 275 Bhn or ≤ 28 HRc	55 (44-66)	RPM	116330	69798	34899	17449	8725	5816
				Fr	0.003	0.005	0.010	0.019	0.039	0.058
				Feed (mm/min)	338	338	338	338	338	338
<b>K</b>	<b>CAST IRONS</b> Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	85 (68-102)	RPM	180958	108575	54287	27144	13572	9048
				Fr	0.002	0.004	0.007	0.015	0.030	0.044
				Feed (mm/min)	401	401	401	401	401	401
<b>N</b>	<b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	183 (146-219)	RPM	387767	232660	116330	58165	29082	19388
				Fr	0.004	0.006	0.012	0.024	0.047	0.071
				Feed (mm/min)	1372	1372	1372	1372	1372	1372
	<b>COPPER ALLOYS</b> Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	58 (46-69)	RPM	122793	73676	36838	18419	9209	6140
				Fr	0.003	0.005	0.010	0.019	0.039	0.058
				Feed (mm/min)	358	358	358	358	358	358
<b>PLASTICS</b> Polycarbonate, PVC		152 (122-183)	RPM	323139	193883	96942	48471	24235	16157	
			Fr	0.004	0.006	0.012	0.024	0.047	0.071	
			Feed (mm/min)	1143	1143	1143	1143	1143	1143	
<b>S</b>	<b>HIGH TEMP ALLOYS</b> (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspaloy	≤ 320 Bhn or ≤ 34 HRc	21 (17-26)	RPM	45239	27144	13572	6786	3393	2262
				Fr	0.002	0.003	0.006	0.012	0.024	0.036
				Feed (mm/min)	81	81	81	81	81	81
<b>H</b>	<b>TITANIUM ALLOYS</b> Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	37 (29-44)	RPM	77553	46532	23266	11633	5816	3878
				Fr	0.002	0.003	0.006	0.012	0.024	0.037
				Feed (mm/min)	142	142	142	142	142	142
<b>H</b>	<b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	21 (17-26)	RPM	45239	27144	13572	6786	3393	2262
				Fr	0.001	0.002	0.004	0.008	0.016	0.024
				Feed (mm/min)	53	53	53	53	53	53

- Note:**
- Bhn (Brinell)    HRc (Rockwell C)    HRb (Rockwell B)
  - rpm = (Vc x 1000) / (DC x 3.14)
  - mm/min = Fr x rpm
  - reduce speed and feed 30% when using uncoated drills
  - reduce speed and feed for materials harder than listed
  - refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))