

# Series M814 8xD

Series M814 8xD	Hardness	Vc (m/min)	DC • mm					
			1	2	3	4		
<b>P</b>	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	125 (100-150)	RPM	39746	19873	13249	9937
				Fr	0.023	0.046	0.069	0.092
				Feed (mm/min)	909	909	909	909
	<b>ALLOY STEELS</b> 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	94 (76-113)	RPM	30052	15026	10017	7513
				Fr	0.022	0.043	0.065	0.086
				Feed (mm/min)	648	648	648	648
<b>M</b>	<b>STAINLESS STEELS</b> (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 250 Bhn or ≤ 24 HRc	64 (51-77)	RPM	20358	10179	6786	5089
				Fr	0.018	0.036	0.054	0.071
				Feed (mm/min)	363	363	363	363
	<b>STAINLESS STEELS</b> (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 275 Bhn or ≤ 28 HRc	38 (30-46)	RPM	12118	6059	4039	3029
				Fr	0.014	0.028	0.042	0.056
				Feed (mm/min)	170	170	170	170
<b>K</b>	<b>CAST IRONS</b> Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	130 (104-155)	RPM	41200	20600	13733	10300
				Fr	0.032	0.063	0.095	0.127
				Feed (mm/min)	1308	1308	1308	1308
<b>N</b>	<b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	130 (104-155)	RPM	41200	20600	13733	10300
				Fr	0.039	0.079	0.118	0.158
				Feed (mm/min)	1626	1626	1626	1626
	<b>COPPER ALLOYS</b> Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	99 (79-119)	RPM	31506	15753	10502	7877
				Fr	0.011	0.023	0.034	0.045
				Feed (mm/min)	356	356	356	356
<b>PLASTICS</b> Polycarbonate, PVC		152 (122-183)	RPM	48471	24235	16157	12118	
			Fr	0.024	0.047	0.071	0.094	
			Feed (mm/min)	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	27 (22-33)	RPM	8725	4362	2908	2181
				Fr	0.010	0.019	0.029	0.038
				Feed (mm/min)	84	84	84	84
	<b>TITANIUM ALLOYS</b> Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	46 (37-55)	RPM	14541	7271	4847	3635
				Fr	0.010	0.020	0.030	0.041
				Feed (mm/min)	147	147	147	147
<b>H</b>	<b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	46 (37-55)	RPM	14541	7271	4847	3635
				Fr	0.010	0.020	0.030	0.041
				Feed (mm/min)	147	147	147	147

**Note:**

- Bhn (Brinell)    HRc (Rockwell C)    HRb (Rockwell B)
- rpm = (Vc x 1000) / (DC x 3.14)
- mm/min = Fr x rpm (Fr x maximum available rpm when recommendation exceeds machine limit)
- 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))

## Series M814 15xD

Series M815 15xD	Hardness	Vc (m/min)	DC • mm					
			1	2	3	4		
<b>P</b> <b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	125 (100-150)	RPM	39746	19873	13249	9937	
			Fr	0.016	0.032	0.048	0.064	
			Feed (mm/min)	635	635	635	635	
	≤ 275 Bhn or ≤ 28 HRc	94 (76-113)	RPM	30052	15026	10017	7513	
			Fr	0.014	0.028	0.042	0.056	
			Feed (mm/min)	419	419	419	419	
<b>M</b> <b>STAINLESS STEELS</b> (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	65 (51-77)	RPM	20358	10179	6786	5089	
			Fr	0.012	0.024	0.036	0.047	
			Feed (mm/min)	241	241	241	241	
	≤ 325 Bhn or ≤ 35 HRc	38 (30-46)	RPM	12118	6059	4039	3029	
			Fr	0.009	0.019	0.028	0.038	
			Feed (mm/min)	114	114	114	114	
<b>K</b> <b>CAST IRONS</b> Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	130 (104-155)	RPM	41200	20600	13733	10300	
			Fr	0.022	0.043	0.065	0.086	
			Feed (mm/min)	889	889	889	889	
	<b>N</b> <b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	130 (104-155)	RPM	41200	20600	13733	10300
				Fr	0.029	0.057	0.086	0.115
				Feed (mm/min)	1181	1181	1181	1181
≤ 140 Bhn or ≤ 3 HRc		99 (79-119)	RPM	31506	15753	10502	7877	
			Fr	0.029	0.057	0.086	0.114	
			Feed (mm/min)	902	902	902	902	
<b>PLASTICS</b> Polycarbonate, PVC		152 (122-183)	RPM	48471	24235	16157	12118	
			Fr	0.017	0.033	0.050	0.066	
			Feed (mm/min)	800	800	800	800	
<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	27 (22-33)	RPM	8725	4362	2908	2181	
			Fr	0.006	0.012	0.017	0.023	
			Feed (mm/min)	51	51	51	51	
	≤ 350 Bhn or ≤ 38 HRc	46 (37-55)	RPM	14541	7271	4847	3635	
			Fr	0.007	0.014	0.021	0.028	
			Feed (mm/min)	102	102	102	102	
<b>H</b> <b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	46 (37-55)	RPM	14541	7271	4847	3635	
			Fr	0.007	0.014	0.021	0.028	
			Feed (mm/min)	102	102	102	102	

**Note:**

- Bhn (Brinell)    HRc (Rockwell C)    HRb (Rockwell B)
- rpm = (Vc x 1000) / (DC x 3.14)
- mm/min = Fr x rpm (Fr x maximum available rpm when recommendation exceeds machine limit)
- reduce speed and feed 30% when using uncoated drills
- reduce speed and feed for materials harder than listed
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