

FRACTIONAL & METRIC
Straight Flute Drills

Series 106 Fractional	Hardness	Vc (sfm)	DC • in						
			1/16	1/8	3/16	1/4	3/8	1/2	
P ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 500 Bhn or ≤ 52 HRc	60	RPM	3667	1834	1222	917	611	458
		(48-72)	Fr	0.0004	0.0007	0.0011	0.0014	0.0021	0.0028
			Feed (ipm)	1.3	1.3	1.3	1.3	1.3	1.3
	≤ 615 Bhn or ≤ 58 HRc	50	RPM	3056	1528	1019	764	509	382
		(40-60)	Fr	0.0004	0.0008	0.0012	0.0016	0.0024	0.0031
			Feed (ipm)	1.2	1.2	1.2	1.2	1.2	1.2
K CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	250	RPM	15280	7640	5093	3820	2547	1910
		(200-300)	Fr	0.0010	0.0020	0.0030	0.0041	0.0061	0.0081
			Feed (ipm)	15.5	15.5	15.5	15.5	15.5	15.5
	≤ 330 Bhn or ≤ 36 HRc	195	RPM	11918	5959	3973	2980	1986	1490
		(156-234)	Fr	0.0010	0.0020	0.0030	0.0040	0.0060	0.0081
			Feed (ipm)	12.0	12.0	12.0	12.0	12.0	12.0
H TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 500 Bhn or ≤ 52 HRc	60	RPM	3667	1834	1222	917	611	458
		(48-72)	Fr	0.0004	0.0007	0.0011	0.0014	0.0021	0.0028
			Feed (ipm)	1.3	1.3	1.3	1.3	1.3	1.3
	≤ 615 Bhn or ≤ 58 HRc	50	RPM	3056	1528	1019	764	509	382
		(40-60)	Fr	0.0004	0.0008	0.0012	0.0016	0.0024	0.0031
			Feed (ipm)	1.2	1.2	1.2	1.2	1.2	1.2

Bhn (Brinell) HRc (Rockwell C)
 $rpm = Vc \times 3.82 / DC$
 $ipm = Fr \times rpm$
 reduce speed and feed 30 percent when using uncoated drills
 refer to the SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

Series 106M Metric	Hardness	Vc (m/min)	DC • mm						
			1	3	6	8	10	12	
P ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 500 Bhn or ≤ 52 HRc	18	RPM	5816	1939	969	727	582	485
		(15-22)	Fr	0.006	0.018	0.035	0.047	0.058	0.070
			Feed (mm/min)	34	34	34	34	34	34
	≤ 615 Bhn or ≤ 58 HRc	15	RPM	4847	1616	808	606	485	404
		(12-18)	Fr	0.006	0.017	0.033	0.045	0.056	0.067
			Feed (mm/min)	27	27	27	27	27	27
K CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	76	RPM	24235	8078	4039	3029	2424	2020
		(61-91)	Fr	0.016	0.048	0.096	0.128	0.160	0.192
			Feed (mm/min)	395	395	395	395	395	395
	≤ 330 Bhn or ≤ 36 HRc	59	RPM	18904	6301	3151	2363	1890	1575
		(48-71)	Fr	0.016	0.048	0.096	0.128	0.160	0.192
			Feed (mm/min)	305	305	305	305	305	305
H TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 500 Bhn or ≤ 52 HRc	18	RPM	5816	1939	969	727	582	485
		(15-22)	Fr	0.006	0.018	0.035	0.047	0.058	0.070
			Feed (mm/min)	34	34	34	34	34	34
	≤ 615 Bhn or ≤ 58 HRc	15	RPM	4847	1616	808	606	485	404
		(12-18)	Fr	0.006	0.017	0.033	0.045	0.056	0.067
			Feed (mm/min)	27	27	27	27	27	27

Bhn (Brinell) HRc (Rockwell C)
 $rpm = (Vc \times 1000) / (DC \times 3.14)$
 $mm/min = Fr \times rpm$
 reduce speed and feed 30 percent when using uncoated drills
 refer to the SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)