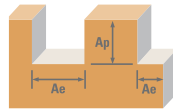


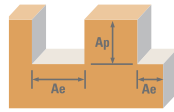
FRACTIONAL Series M032



Series M032 Fractional	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in				
					1/32	5/64	7/64		
P CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 Bhn or ≤ 28 HRC	Profile 	≤ 0.25	≤ 1	790	RPM	96570	38628	27591
					(632-948)	Fz	0.00009	0.00022	0.00031
						Feed (ipm)	26.0	26.0	26.0
		Slot 	1	≤ .5	630	RPM	77011	30804	22003
					(504-756)	Fz	0.00009	0.00022	0.00031
						Feed (ipm)	20.5	20.5	20.5
		Finish 	≤ .02	1	1565	RPM	191306	76522	54659
					(1252-1878)	Fz	0.00017	0.00041	0.00058
						Feed (ipm)	95.0	95.0	95.0
P ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 375 Bhn or ≤ 40 HRC	Profile 	≤ 0.25	≤ 1	450	RPM	55008	22003	15717
					(360-540)	Fz	0.00007	0.00017	0.00023
						Feed (ipm)	11.0	11.0	11.0
		Slot 	1	≤ .5	360	RPM	44006	17603	12573
					(288-432)	Fz	0.00007	0.00017	0.00024
						Feed (ipm)	8.9	8.9	8.9
		Finish 	≤ .02	1	895	RPM	109405	43762	31259
					(716-1074)	Fz	0.00012	0.00030	0.00043
						Feed (ipm)	40.0	40.0	40.0
P ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 560 Bhn or ≤ 55 HRC	Profile 	≤ 0.25	≤ 1	93	RPM	11368	4547	3248
					(74-112)	Fz	0.00003	0.00007	0.00010
						Feed (ipm)	0.9	0.9	0.9
		Slot 	1	≤ .5	65	RPM	7946	3178	2270
					(52-78)	Fz	0.00003	0.00006	0.00009
						Feed (ipm)	0.6	0.6	0.6
		Finish 	≤ .02	1	167	RPM	20414	8166	5833
					(134-200)	Fz	0.00004	0.00011	0.00016
						Feed (ipm)	2.8	2.8	2.8
H TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 Bhn or ≤ 40 HRC	Profile 	≤ 0.25	≤ 1	69	RPM	8435	3374	2410
					(55-83)	Fz	0.00003	0.00007	0.00010
						Feed (ipm)	0.8	0.8	0.8
		Slot 	1	≤ .5	50	RPM	6112	2445	1746
					(40-60)	Fz	0.00002	0.00006	0.00009
						Feed (ipm)	0.5	0.5	0.5
		Finish 	≤ .02	1	124	RPM	15158	6063	4331
					(99-149)	Fz	0.00005	0.00012	0.00017
						Feed (ipm)	2.2	2.2	2.2
K CAST IRONS (LOW & MEDIUM ALLOY) Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRC	Profile 	≤ 0.25	≤ 1	620	RPM	75789	30316	21654
					(496-744)	Fz	0.00011	0.00028	0.00039
						Feed (ipm)	25.5	25.5	25.5
		Slot 	1	≤ .5	450	RPM	55008	22003	15717
					(360-540)	Fz	0.00010	0.00024	0.00034
						Feed (ipm)	16.0	16.0	16.0
		Finish 	≤ .02	1	1115	RPM	136298	54519	38942
					(892-1338)	Fz	0.00018	0.00045	0.00062
						Feed (ipm)	73.0	73.0	73.0

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FRACTIONAL Series M032



Series M032 Fractional	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in				
					1/32	5/64	7/64		
M STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 Bhn or ≤ 28 HRc	Profile 	≤ 0.25	≤ 1	335	RPM	40950	16380	11700
					(268-402)	Fz	0.00008	0.00020	0.00028
						Feed (ipm)	9.9	9.9	9.9
		Slot 	1	≤ .5	245	RPM	29949	11980	8557
					(196-294)	Fz	0.00007	0.00017	0.00023
						Feed (ipm)	6.0	6.0	6.0
		Finish 	≤ .02	1	605	RPM	73955	29582	21130
					(484-726)	Fz	0.00012	0.00031	0.00043
						Feed (ipm)	27.5	27.5	27.5
M STAINLESS STEELS (PH) 13-8 PH, 15-5 PH, 17-4 PH, Custom 450	≤ 325 Bhn or ≤ 35 HRc	Profile 	≤ 0.25	≤ 1	310	RPM	37894	15158	10827
					(248-372)	Fz	0.00008	0.00020	0.00028
						Feed (ipm)	9.0	9.0	9.0
		Slot 	1	≤ .5	225	RPM	27504	11002	7858
					(180-270)	Fz	0.00007	0.00017	0.00023
						Feed (ipm)	5.5	5.5	5.5
		Finish 	≤ .02	1	555	RPM	67843	27137	19384
					(444-666)	Fz	0.00013	0.00031	0.00044
						Feed (ipm)	25.5	25.5	25.5
S SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene	≤ 400 Bhn or ≤ 43 HRc	Profile 	≤ 0.5	≤ 1.5	200	RPM	24448	9779	6985
					(160-240)	Fz	0.00007	0.00017	0.00024
						Feed (ipm)	5.1	5.1	5.1
		Slot 	1	≤ 1	145	RPM	17725	7090	5064
					(116-174)	Fz	0.00006	0.00015	0.00021
						Feed (ipm)	3.2	3.2	3.2
		Finish 	≤ .02	1	360	RPM	44006	17603	12573
					(288-432)	Fz	0.00011	0.00027	0.00038
						Feed (ipm)	14.5	14.5	14.5
S TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	Profile 	≤ 0.5	≤ 1.5	245	RPM	29949	11980	8557
					(196-294)	Fz	0.00007	0.00018	0.00025
						Feed (ipm)	6.3	6.3	6.3
		Slot 	1	≤ 1	180	RPM	22003	8801	6287
					(144-216)	Fz	0.00006	0.00015	0.00021
						Feed (ipm)	3.9	3.9	3.9
		Finish 	≤ .02	1	440	RPM	53786	21514	15367
					(352-528)	Fz	0.00011	0.00028	0.00039
						Feed (ipm)	18.0	18.0	18.0

Bhn (Brinell) HRc (Rockwell C)

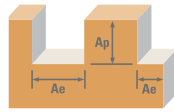
rpm = Vc x 3.82 / DC

ipm = Fz x 3 x rpm (Fz x 3 x max available rpm when recommendation exceeds machine limit)

ramp up to 5 degrees using slotting speed and feed rates. Do not plunge.

reduce speed and feed for materials harder than listed

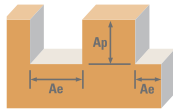
refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



Series M032 Metric	Hardness	Ae x DC	Ap x DC	Vc (m/min)	DC • mm				
					1	2	3		
P CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 Bhn or ≤ 28 HRc	Profile 	≤ 0.25	≤ 1	241	RPM	76584	38292	25528
					(193-289)	Fz	0.0029	0.0057	0.0086
						Feed (mm/min)	660	660	660
	Slot 	1	≤ .5	192	(154-230)	RPM	61073	30537	20358
						Fz	0.0028	0.0057	0.0085
						Feed (ipm)	521	521	521
	Finish 	≤ .02	1	477	(382-572)	RPM	151714	75857	50571
						Fz	0.0053	0.0106	0.0159
						Feed (ipm)	2413	2413	2413
P ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 375 Bhn or ≤ 40 HRc	Profile 	≤ 0.25	≤ 1	137	RPM	43624	21812	14541
					(110-165)	Fz	0.0021	0.0043	0.0064
						Feed (ipm)	279	279	279
	Slot 	1	≤ .5	110	(88-132)	RPM	34899	17449	11633
						Fz	0.0022	0.0043	0.0065
						Feed (ipm)	226	226	226
	Finish 	≤ .02	1	273	(218-327)	RPM	86763	43381	28921
						Fz	0.0039	0.0078	0.0117
						Feed (ipm)	1016	1016	1016
P ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 560 Bhn or ≤ 55 HRc	Profile 	≤ 0.25	≤ 1	28	RPM	9016	4508	3005
					(23-34)	Fz	0.0009	0.0018	0.0026
						Feed (ipm)	24	24	24
	Slot 	1	≤ .5	20	(16-24)	RPM	6301	3151	2100
						Fz	0.0008	0.0016	0.0025
						Feed (ipm)	15	15	15
	Finish 	≤ .02	1	51	(41-61)	RPM	16189	8095	5396
						Fz	0.0014	0.0029	0.0043
						Feed (ipm)	70	70	70
H TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 Bhn or ≤ 40 HRc	Profile 	≤ 0.25	≤ 1	21	RPM	6689	3344	2230
					(17-25)	Fz	0.0009	0.0019	0.0028
						Feed (ipm)	19	19	19
	Slot 	1	≤ .5	15	(12-18)	RPM	4847	2424	1616
						Fz	0.0008	0.0016	0.0024
						Feed (ipm)	11	11	11
	Finish 	≤ .02	1	38	(30-45)	RPM	12021	6010	4007
						Fz	0.0015	0.0031	0.0046
						Feed (ipm)	56	56	56
K CAST IRONS (LOW & MEDIUM ALLOY) Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	Profile 	≤ 0.25	≤ 1	189	RPM	60104	30052	20035
					(151-227)	Fz	0.0036	0.0072	0.0108
						Feed (ipm)	648	648	648
	Slot 	1	≤ .5	137	(110-165)	RPM	43624	21812	14541
						Fz	0.0031	0.0062	0.0093
						Feed (ipm)	406	406	406
	Finish 	≤ .02	1	340	(272-408)	RPM	108090	54045	36030
						Fz	0.0057	0.0114	0.0172
						Feed (ipm)	1854	1854	1854

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Series M032



Series M032 Metric	Hardness	Ae x DC	Ap x DC	Vc (m/min)	DC • mm				
					1	2	3		
M	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L ≤ 275 Bhn or ≤ 28 HRc	Profile 	≤ 0.25	≤ 1	102	RPM	32475	16238	10825
					(82-123)	Fz	0.0026	0.0052	0.0077
						Feed (ipm)	251	251	251
		Slot 	1	≤ .5	75	RPM	23751	11875	7917
					(60-90)	Fz	0.0021	0.0043	0.0064
						Feed (ipm)	152	152	152
		Finish 	≤ .02	1	184	RPM	58650	29325	19550
					(148-221)	Fz	0.0040	0.0079	0.0119
						Feed (ipm)	699	699	699
M	STAINLESS STEELS (PH) 13-8 PH, 15-5 PH, 17-4 PH, Custom 450 ≤ 325 Bhn or ≤ 35 HRc	Profile 	≤ 0.25	≤ 1	94	RPM	30052	15026	10017
					(76-113)	Fz	0.0025	0.0051	0.0076
						Feed (ipm)	229	229	229
		Slot 	1	≤ .5	69	RPM	21812	10906	7271
					(55-82)	Fz	0.0021	0.0043	0.0064
						Feed (ipm)	140	140	140
		Finish 	≤ .02	1	169	RPM	53803	26901	17934
					(135-203)	Fz	0.0040	0.0080	0.0120
						Feed (ipm)	648	648	648
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene ≤ 400 Bhn or ≤ 43 HRc	Profile 	≤ 0.5	≤ 1.5	61	RPM	19388	9694	6463
					(49-73)	Fz	0.0022	0.0045	0.0067
						Feed (ipm)	130	130	130
		Slot 	1	≤ 1	44	RPM	14057	7028	4686
					(35-53)	Fz	0.0019	0.0039	0.0058
						Feed (ipm)	81	81	81
		Finish 	≤ .02	1	110	RPM	34899	17449	11633
					(88-132)	Fz	0.0035	0.0070	0.0106
						Feed (ipm)	368	368	368
S	TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si ≤ 350 Bhn or ≤ 38 HRc	Profile 	≤ 0.5	≤ 1.5	75	RPM	23751	11875	7917
					(60-90)	Fz	0.0022	0.0045	0.0067
						Feed (ipm)	160	160	160
		Slot 	1	≤ 1	55	RPM	17449	8725	5816
					(44-66)	Fz	0.0019	0.0038	0.0057
						Feed (ipm)	99	99	99
		Finish 	≤ .02	1	134	RPM	42654	21327	14218
					(107-161)	Fz	0.0036	0.0071	0.0107
						Feed (ipm)	457	457	457

Bhn (Brinell) HRc (Rockwell C)
 rpm = (Vc x 1000) / (DC x 3.14)
 mm/min = Fz x 3 x rpm (Fz x 3 x max available rpm when recommendation exceeds machine limit)
 reduce speed and feed for materials harder than listed
 refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)