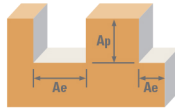





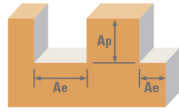


Series
51, 51CR, 51L,
51LC, 51B, 51LB
Fractional













Material	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in							
					1/4	3/8	1/2	5/8	3/4	1		
P CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 Bhn or ≤ 28 HRc	Profile 	≤ 0.1	≤ 1	720	RPM	11002	7334	5501	4401	3667	2750
					(576-864)	Fz	0.0020	0.0035	0.0050	0.0055	0.0061	0.0071
						Feed (ipm)	132	154	165	145	134	117
					915	RPM	13981	9321	6991	5592	4660	3495
					(732-1098)	Fz	0.0028	0.0053	0.0070	0.0077	0.0085	0.0100
						Feed (ipm)	235	296	294	258	238	210
	≤ 375 Bhn or ≤ 40 HRc	Profile 	≤ 0.1	≤ 1	490	RPM	7487	4991	3744	2995	2496	1872
					(392-588)	Fz	0.0015	0.0029	0.0038	0.0042	0.0046	0.0054
						Feed (ipm)	67	87	85	75	69	61
					620	RPM	9474	6316	4737	3789	3158	2368
					(496-744)	Fz	0.0021	0.0039	0.0052	0.0057	0.0062	0.0073
						Feed (ipm)	119	148	148	130	117	104
M STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	Profile 	≤ 0.1	≤ 1	510	RPM	7793	5195	3896	3117	2598	1948
					(459-561)	Fz	0.0015	0.0028	0.0038	0.0041	0.0045	0.0053
						Feed (ipm)	70	87	89	77	70	62
					650	RPM	9932	6621	4966	3973	3311	2483
					(585-715)	Fz	0.0021	0.0038	0.0051	0.0056	0.0061	0.0072
						Feed (ipm)	125	151	152	133	121	107
	≤ 275 Bhn or ≤ 28 HRc	Profile 	≤ 0.1	≤ 1	350	RPM	5348	3565	2674	2139	1783	1337
					(315-385)	Fz	0.0012	0.0023	0.0030	0.0033	0.0036	0.0042
						Feed (ipm)	39	49	48	42	39	34
					450	RPM	6876	4584	3438	2750	2292	1719
					(405-495)	Fz	0.0017	0.0032	0.0042	0.0046	0.0050	0.0059
						Feed (ipm)	70	88	87	76	69	61
≤ 325 Bhn or ≤ 35 HRc	Profile 	≤ 0.1	≤ 1	325	RPM	4966	3311	2483	1986	1655	1242	
				(293-358)	Fz	0.0012	0.0023	0.0030	0.0033	0.0036	0.0042	
					Feed (ipm)	36	46	45	39	36	31	
				410	RPM	6265	4177	3132	2506	2088	1566	
				(369-451)	Fz	0.0017	0.0032	0.0042	0.0046	0.0050	0.0059	
					Feed (ipm)	64	80	79	69	63	55	

continued on next page



Series
51, 51CR, 51L,
51LC, 51B, 51LB
Fractional

Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in							
				1/4	3/8	1/2	5/8	3/4	1		
SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy, Monel 400 Profile  HSM 	≤ 300 Bhn or ≤ 32 HRc	≤ 0.1	≤ 1	105	RPM	1604	1070	802	642	535	401
				(84-126)	Fz	0.0014	0.0027	0.0036	0.0039	0.0043	0.0050
	≤ 300 Bhn or ≤ 32 HRc	≤ 0.05	≤ 2	130	RPM	1986	1324	993	795	662	497
					(104-156)	Fz	0.0016	0.0036	0.0048	0.0053	0.0058
	Feed (ipm)					13	17	17	15	14	12
						19	29	29	25	23	20
SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene Profile  HSM 	≤ 400 Bhn or ≤ 43 HRc	≤ 0.1	≤ 1	80	RPM	1222	815	611	489	407	306
				(64-96)	Fz	0.0010	0.0018	0.0025	0.0027	0.0029	0.0034
	≤ 400 Bhn or ≤ 43 HRc	≤ 0.05	≤ 2	100	RPM	1528	1019	764	611	509	382
					(80-120)	Fz	0.0013	0.0025	0.0034	0.0037	0.0041
	Feed (ipm)					7	9	9	8	7	6
						12	15	16	14	13	11
TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si Profile  HSM 	≤ 350 Bhn or ≤ 38 HRc	≤ 0.1	≤ 1	280	RPM	4278	2852	2139	1711	1426	1070
				(224-336)	Fz	0.0010	0.0018	0.0025	0.0027	0.0029	0.0034
	≤ 350 Bhn or ≤ 38 HRc	≤ 0.05	≤ 2	355	RPM	5424	3616	2712	2170	1808	1356
					(284-426)	Fz	0.0013	0.0025	0.0034	0.0037	0.0041
	Feed (ipm)					26	31	32	28	25	22
						42	54	55	48	44	38
TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al Profile  HSM 	≤ 440 Bhn or ≤ 47 HRc	≤ 0.1	≤ 1	155	RPM	2368	1579	1184	947	789	592
				(124-186)	Fz	0.0010	0.0018	0.0025	0.0027	0.0029	0.0034
	≤ 440 Bhn or ≤ 47 HRc	≤ 0.05	≤ 2	200	RPM	3056	2037	1528	1222	1019	764
					(160-240)	Fz	0.0013	0.0025	0.0034	0.0037	0.0041
	Feed (ipm)					14	17	18	15	14	12
						24	31	31	27	25	22
TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 Profile  HSM 	≤ 375 Bhn or ≤ 40 HRc	≤ 0.1	≤ 1	240	RPM	3667	2445	1834	1467	1222	917
				(192-288)	Fz	0.0012	0.0023	0.0030	0.0034	0.0037	0.0043
	≤ 375 Bhn or ≤ 40 HRc	≤ 0.05	≤ 2	305	RPM	4660	3107	2330	1864	1553	1165
					(244-366)	Fz	0.0017	0.0032	0.0042	0.0046	0.0050
	Feed (ipm)					26	34	33	30	27	24
						48	60	59	51	47	41

T-Carb® Speed & Feed Recommendations

Note:

- Bhn (Brinell) HRc (Rockwell C) HSM (High Speed Machining)
- rpm = Vc x 3.82 / DC
- ipm = Fz x 6 x rpm
- reduce speed and feed for materials harder than listed
- reduce feed and Ae when finish milling (.02 x DC maximum)
- feed rates listed have chip thinning adjustments included where applicable
- refer to the SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

