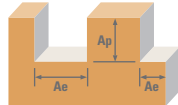
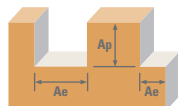


FRACTIONAL & METRIC Z-Carb-MD



Series ZD1CR Fractional	Hardness	Ae x DC	Ap x DC	Vc (sfm)	Diameter (DC) (inch)							
					1/8	1/4	3/8	1/2	5/8	3/4		
P TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 Bhn or ≤ 40 HRc	Profile 	≤ 0.4	≤ 1	405	RPM	12377	6188	4126	3094	2475	2063
					(324-486)	Fz	0.0005	0.0012	0.0023	0.0030	0.0039	0.0042
						Feed (ipm)	24.8	29.7	38.0	37.1	38.6	34.7
	≤ 475 Bhn or ≤ 50 HRc	Slot 	1	≤ 0.4	320	RPM	9779	4890	3260	2445	1956	1630
					(256-384)	Fz	0.0005	0.0012	0.0023	0.0030	0.0039	0.0042
						Feed (ipm)	19.6	23.5	30.0	29.3	30.5	27.4
H TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	Profile 	≤ 0.4	≤ 1	210	RPM	6418	3209	2139	1604	1284	1070
					(168-252)	Fz	0.0004	0.0010	0.0019	0.0025	0.0032	0.0035
						Feed (ipm)	10.3	12.8	16.3	16.0	16.4	15.0
	≤ 655 Bhn or ≤ 60 HRc	Slot 	1	≤ 0.4	170	RPM	5195	2598	1732	1299	1039	866
					(136-204)	Fz	0.0004	0.0010	0.0019	0.0025	0.0032	0.0035
						Feed (ipm)	8.3	10.4	13.2	13.0	13.3	12.1
≤ 655 Bhn or ≤ 60 HRc	Profile 	≤ 0.4	≤ 1	90	RPM	2750	1375	917	688	550	458	
				(72-108)	Fz	0.0002	0.0005	0.0010	0.0013	0.0017	0.0018	
					Feed (ipm)	2.2	2.8	3.7	3.6	3.7	3.3	
≤ 655 Bhn or ≤ 60 HRc	Slot 	1	≤ 0.4	70	RPM	2139	1070	713	535	428	357	
				(56-84)	Fz	0.0002	0.0005	0.0010	0.0013	0.0017	0.0018	
					Feed (ipm)	1.7	2.1	2.9	2.8	2.9	2.6	

Bhn (Brinell) HRc (Rockwell C)
 $rpm = Vc \times 3.82 / DC$
 $ipm = Fz \times 4 \times rpm$
 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)



Series ZD1MCR Metric	Hardness	Ae x DC	Ap x DC	Vc (m/min)	Diameter (DC) (mm)								
					3	6	8	10	12	16	20		
P TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 Bhn or ≤ 40 HRc	Profile 	≤ 0.4	≤ 1	123	RPM	13087	6544	4908	3926	3272	2454	1963
					(99-148)	Fz	0.012	0.029	0.049	0.061	0.072	0.083	0.112
						Feed (mm/min)	628	754	963	963	942	817	879
	≤ 475 Bhn or ≤ 50 HRc	Slot 	1	≤ 0.4	98	RPM	10340	5170	3878	3102	2585	1939	1551
					(78-117)	Fz	0.012	0.029	0.049	0.061	0.072	0.083	0.112
						Feed (mm/min)	496	596	761	761	744	645	695
H TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	Profile 	≤ 0.4	≤ 1	64	RPM	6786	3393	2545	2036	1696	1272	1018
					(51-77)	Fz	0.010	0.024	0.041	0.051	0.060	0.068	0.093
						Feed (mm/min)	261	326	413	413	407	347	380
	≤ 655 Bhn or ≤ 60 HRc	Slot 	1	≤ 0.4	52	RPM	5493	2747	2060	1648	1373	1030	824
					(41-62)	Fz	0.010	0.024	0.041	0.051	0.060	0.068	0.093
						Feed (mm/min)	211	264	334	334	330	281	308
≤ 655 Bhn or ≤ 60 HRc	Profile 	≤ 0.4	≤ 1	27	RPM	2908	1454	1091	872	727	545	436	
				(22-33)	Fz	0.005	0.012	0.021	0.027	0.031	0.036	0.048	
					Feed (mm/min)	56	70	93	93	91	79	84	
≤ 655 Bhn or ≤ 60 HRc	Slot 	1	≤ 0.4	21	RPM	2262	1131	848	679	565	424	339	
				(17-26)	Fz	0.005	0.012	0.021	0.027	0.031	0.036	0.048	
					Feed (mm/min)	43	54	72	72	71	62	65	

Bhn (Brinell) HRc (Rockwell C)
 $rpm = (Vc \times 1000) / (DC \times 3.14)$
 $ipm = Fz \times 4 \times rpm$
 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)