

Material Group	SAPPHIRE TOOLS	Material Example	Hardness	D.O.C		Feed		Amax [mm^2]	Vc		Advised D.O.C [mm]	Advised Feed [mm/t]	Advised Vc [m/min]	
				min[mm]	max[mm]	min[mm/t]	max [mm/t]		min [m/min]	max [m/min]				
Steel	Non Alloyed	C35, Ck45, 1020, 1045, 1060, 28Mn6	125 HB	0.5	5	0.21	0.6	2.16	180	330	3	0.42	240	
			190 HB	0.5	5	0.21	0.6	2.16	180	280	3	0.42	220	
			250 HB	0.5	5	0.21	0.54	1.8	180	250	3	0.42	200	
	Low Alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	230 HB	0.5	4	0.21	0.54	1.44	120	250	3	0.38	180
				280 HB	0.5	4	0.18	0.48	1.44	120	210	3	0.36	150
				180 HB	0.5	5	0.21	0.54	1.44	120	280	3	0.38	200
				350 HB	0.5	3.5	0.18	0.48	1.2	120	180	3	0.36	130
	High Alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.5	4	0.18	0.48	1.44	70	190	2.5	0.36	140
				280 HB	0.5	4	0.18	0.48	1.44	70	150	2.5	0.36	120
				320 HB	0.5	3	0.18	0.42	0.96	70	130	2.5	0.34	100
				350 HB	0.5	3	0.18	0.42	0.96	70	110	2.5	0.34	90
	Stainless Steel	Austenitic	304, 316, X5CrNi18-9	180 HB	0.5	5	0.2	0.48	1.44	170	270	3	0.3	190
240 HB				0.5	5	0.2	0.48	1.2	160	220	3	0.26	170	
Duplex		5	X2CrNiN23-4, S31500	290 HB	0.5	4	0.18	0.42	0.96	80	150	2.5	0.29	100
				310 HB	0.5	4	0.18	0.42	0.96	70	140	2.5	0.29	90
Ferritic & Martensitic		6	410, X6Cr17, 17-4 PH, 430	200 HB	0.5	5	0.18	0.48	0.84	170	250	2.5	0.24	190
				42 HRc	0.5	4	0.18	0.48	0.84	120	190	2.2	0.24	130
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, N030B	150 HB	0.5	5	0.15	0.72	2.4	170	250	3	0.42	200
				200 HB	0.5	5	0.15	0.72	2.16	160	230	3	0.42	180
				250 HB	0.5	5	0.15	0.66	2.16	150	210	3	0.42	160
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.5	5	0.15	0.6	1.8	120	250	3	0.36	180
				200 HB	0.5	5	0.15	0.6	1.56	120	230	3	0.36	160
				250 HB	0.5	5	0.15	0.6	1.44	120	190	3	0.36	140
NITI Alloy	Fe, Ni & Co Based	9	Incoloy 800	240 HB	0.5	3	0.2	0.42	0.84	30	50	2	0.34	32
			Inconel 700	250 HB	0.5	3	0.2	0.42	0.84	30	50	2	0.34	30
			Stellite 21	350 HB	0.5	3	0.2	0.42	0.84	20	40	2	0.34	28
	Ti Based	10	T40	-	0.5	3	0.2	0.42	0.84	40	60	2	0.36	45
			TiAl6V4	-	0.5	4	0.2	0.48	0.96	50	70	2	0.4	55
Hardened Materials	Steel Chilled Cast Iron White Cast Iron	11	G-X300CrMo15	55 HRc	0.5	1.5	0.11	0.24	0.36	30	50	1	0.18	40
			Ni-Hard 2	400 HB	0.5	2	0.11	0.3	0.48	40	60	1.5	0.22	50
			X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.5	2.5	0.11	0.36	0.72	50	100	2	0.3	80
				50 HRc	0.5	2	0.11	0.3	0.48	40	90	1.5	0.24	70
				55 HRc	0.5	1.5	0.11	0.24	0.36	40	80	1	0.22	60
Aluminium	Al (>8%Si)	12	AlSi12	130 HB	0.5	6	0.2	0.72	2.16	200	400	3	0.48	280