

Material Group	SAPPHIRE TOOLS	Material Example	Hardness	D.O.C		Feed		Amax [mm <sup>2</sup> ]	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	0.3	3	0.11	0.23	0.6	180	330	2	0.18	300	
			190 HB	0.3	2.5	0.11	0.22	0.52	180	280	2	0.18	260	
			250 HB	0.3	2.5	0.11	0.2	0.48	180	250	2	0.18	240	
	Low Alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	230 HB	0.3	2.5	0.1	0.2	0.48	120	250	2	0.14	240
				280 HB	0.3	2	0.1	0.18	0.4	120	210	2	0.13	200
				180 HB	0.3	2.5	0.1	0.2	0.5	120	280	2	0.14	260
				350 HB	0.3	2	0.1	0.18	0.36	120	180	2	0.13	180
	High Alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.3	2.5	0.09	0.18	0.4	70	190	1.7	0.1	180
				280 HB	0.3	2.5	0.09	0.16	0.4	70	150	1.7	0.1	140
				320 HB	0.3	2	0.09	0.14	0.32	70	130	1.7	0.1	120
				350 HB	0.3	2	0.09	0.14	0.26	70	110	1.7	0.1	110
	Stainless Steel	Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.3	2.5	0.08	0.18	0.32	170	270	2	0.09
240 HB					0.3	2.5	0.08	0.18	0.26	160	220	2	0.08	210
Duplex		5	X2CrNiN23-4, S31500	290 HB	0.3	2	0.08	0.14	0.2	80	150	1.7	0.08	140
				310 HB	0.3	2	0.08	0.14	0.2	70	140	1.7	0.08	140
Ferritic & Martensitic		6	410, X6Cr17, 17-4 PH, 430	200 HB	0.3	2.5	0.08	0.18	0.32	170	250	1.7	0.09	240
				42 HRc	0.3	2	0.08	0.16	0.26	120	190	1.5	0.08	180
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, N030B	150 HB	0.3	3	0.08	0.2	0.64	170	250	2	0.18	240
				200 HB	0.3	3	0.08	0.2	0.6	160	230	2	0.18	220
				250 HB	0.3	3	0.08	0.2	0.6	150	210	2	0.18	200
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.3	2.5	0.08	0.18	0.48	120	250	2	0.13	240
				200 HB	0.3	2.5	0.08	0.18	0.4	120	230	2	0.13	220
				250 HB	0.3	2.5	0.08	0.18	0.4	120	190	2	0.13	180
NITI Alloy	Fe, Ni & Co Based	9	Incoloy 800	240 HB	0.3	2	0.09	0.15	0.26	30	50	1.3	0.1	40
			Inconel 700	250 HB	0.3	2	0.09	0.15	0.26	30	50	1.3	0.1	40
			Stellite 21	350 HB	0.3	2	0.09	0.15	0.26	20	50	1.3	0.1	35
	Ti Based	10	T40	-	0.3	2	0.09	0.14	0.26	40	60	1.3	0.1	50
TiAl6V4			-	0.3	2	0.09	0.16	0.32	50	70	1.3	0.14	60	
Hardened Materials	Steel Chilled Cast Iron White Cast Iron	11	G-X300CrMo15	55 HRc	0.3	1.4	0.05	0.09	0.13	30	50	0.9	0.06	40
			Ni-Hard 2	400 HB	0.3	1.6	0.05	0.12	0.17	40	60	1.1	0.1	50
			X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.3	1.8	0.05	0.12	0.2	50	100	1.4	0.1	90
				50 HRc	0.3	1.5	0.05	0.1	0.17	40	90	1.1	0.08	80
				55 HRc	0	1.4	0.05	0.09	0.13	40	80	0.9	0.06	70
Aluminium	Al (>8%Si)	12	AlSi12	130 HB	0.3	4	0.1	0.3	0.7	200	400	2	0.23	350