

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	0.65	2.7	180	330	3.6	0.42	240	
			190 HB	0.5	5	0.21	0.65	2.7	180	280	3.6	0.42	220	
			250 HB	0.5	5	0.21	0.58	2.25	180	250	3.6	0.42	200	
	Low Alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	230 HB	0.5	4	0.21	0.58	1.8	120	250	3.6	0.38	180
				280 HB	0.5	4	0.18	0.52	1.8	120	210	3.6	0.36	150
				180 HB	0.5	5	0.21	0.58	1.8	120	280	3.6	0.38	200
				350 HB	0.5	3.5	0.18	0.52	1.5	120	180	3.2	0.36	130
	High Alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.5	4	0.18	0.52	1.8	70	190	3	0.36	140
				280 HB	0.5	4	0.18	0.52	1.8	70	150	3	0.36	120
				320 HB	0.5	3	0.18	0.46	1.2	70	130	3	0.34	100
				350 HB	0.5	3	0.18	0.46	1.2	70	110	3	0.34	90
	Stainless Steel	Austenitic	304, 316, X5CrNi18-9	180 HB	0.5	5	0.2	0.52	1.8	170	270	3.6	0.3	190
240 HB				0.5	5	0.2	0.52	1.5	160	220	3.6	0.26	170	
Duplex		5	X2CrNiN23-4, S31500	290 HB	0.5	4	0.18	0.46	1.2	80	150	3	0.29	100
				310 HB	0.5	4	0.18	0.46	1.2	70	140	3	0.29	90
Ferritic & Martensitic		6	410, X6Cr17, 17-4 PH, 430	200 HB	0.5	5	0.18	0.52	1.05	170	250	3	0.24	190
				42 HRc	0.5	4	0.18	0.52	1.05	120	190	2.6	0.24	130
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, N030B	150 HB	0.5	5	0.15	0.78	3	170	250	3.6	0.42	200
				200 HB	0.5	5	0.15	0.78	2.7	160	230	3.6	0.42	180
				250 HB	0.5	5	0.15	0.71	2.7	150	210	3.6	0.42	160
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.5	5	0.15	0.65	2.25	120	250	3.6	0.36	180
				200 HB	0.5	5	0.15	0.65	1.95	120	230	3.6	0.36	160
				250 HB	0.5	5	0.15	0.65	1.8	120	190	3.6	0.36	140
NITI Alloy	Fe, Ni & Co Based	9	Incoloy 800	240 HB	0.5	3	0.2	0.46	1.05	30	50	2.4	0.34	32
			Inconel 700	250 HB	0.5	3	0.2	0.46	1.05	30	50	2.4	0.34	30
			Stellite 21	350 HB	0.5	3	0.2	0.46	1.05	20	40	2.4	0.34	28
	Ti Based	10	T40	-	0.5	3	0.2	0.46	1.05	40	60	2.4	0.36	45
TiAl6V4			-	0.5	4	0.2	0.52	1.2	50	70	2.4	0.4	55	
Hardened Materials	Steel Chilled Cast Iron White Cast Iron	11	G-X300CrMo15	55 HRc	0.5	1.5	0.11	0.26	0.45	30	50	1.2	0.18	40
			Ni-Hard 2	400 HB	0.5	2	0.11	0.32	0.6	40	60	1.8	0.22	50
			X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.5	2.5	0.11	0.39	0.9	50	100	2.4	0.3	80
				50 HRc	0.5	2	0.11	0.32	0.6	40	90	1.8	0.24	70
				55 HRc	0.5	1.5	0.11	0.26	0.45	40	80	1.2	0.22	60
Aluminium	Al (>8%Si)	12	AlSi12	130 HB	0.5	6	0.2	0.78	2.7	200	400	3.6	0.48	280