

Material Group	SAPPHIRE CUTTING TOOLS Group	Material Example	Hardness	D.O.C		Feed		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]			
Non Alloyed	1	C35, Ck45, 1020, 1045, 1060, 28Mn6	125 HB	0.5	9	0.07	0.17	190	330	2.4	0.15	250
			190 HB	0.5	9	0.06	0.15	190	300	2.4	0.13	220
			250 HB	0.5	9	0.06	0.15	190	250	2.4	0.13	200
Low Alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	230 HB	0.5	9	0.06	0.15	150	210	2.4	0.13	180
			280 HB	0.5	9	0.05	0.13	130	190	2.4	0.11	150
			180 HB	0.5	9	0.07	0.17	150	240	2.4	0.15	200
			350 HB	0.5	9	0.05	0.13	130	170	2.4	0.11	140
High Alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.5	9	0.07	0.15	90	150	1.8	0.13	130
			280 HB	0.5	9	0.05	0.13	90	130	1.8	0.11	120
			320 HB	0.5	9	0.05	0.1	60	110	1.8	0.08	100
			350 HB	0.5	9	0.05	0.1	60	90	1.8	0.08	80
Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.5	9	0.07	0.12	190	250	2.4	0.1	220
			240 HB	0.5	9	0.05	0.1	160	210	2.4	0.08	190
Duplex	5	X2CrNiN23-4, S31500	290 HB	0.5	9	0.05	0.1	70	130	1.8	0.08	100
			310 HB	0.5	9	0.05	0.08	70	120	1.8	0.07	90
Ferritic & Martensitic	6	410, X6Cr17, 17-4 PH, 430	200 HB	0.5	9	0.05	0.08	150	210	2.4	0.07	190
			42 HRc	0.5	9	0.05	0.08	90	150	1.8	0.07	130
Grey	7	GG20, GG40, EN-GJL-250, N030B	150 HB	0.5	9	0.06	0.22	150	240	2.4	0.18	200
			200 HB	0.5	9	0.06	0.22	150	220	2.4	0.18	180
			250 HB	0.5	9	0.06	0.2	150	190	2.4	0.16	160
Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.5	9	0.06	0.22	100	200	2.4	0.18	180
			200 HB	0.5	9	0.05	0.22	100	180	2.4	0.18	150
			250 HB	0.5	9	0.05	0.2	100	150	2.4	0.16	130
Fe, Ni & Co Based	9	Incoloy 800	240 HB	0.5	9	0.04	0.12	30	50	1.8	0.1	32
		Inconel 700	250 HB	0.5	9	0.04	0.12	30	50	1.8	0.1	30
		Stellite 21	350 HB	0.5	9	0.04	0.12	30	50	1.8	0.1	30
Ti Based	10	T40	-	0.5	9	0.04	0.12	30	60	1.8	0.1	40
		TiAl6V4	-	0.5	9	0.04	0.12	40	70	1.8	0.1	55
Steel Chilled Cast Iron White Cast Iron	11	G-X300CrMo15	55 HRc	0.5	9	0.04	0.08	30	60	0.6	0.06	40
		Ni-Hard 2	400 HB	0.5	9	0.04	0.08	40	80	0.9	0.06	50
		X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.5	9	0.04	0.12	40	80	1.2	0.1	60
			50 HRc	0.5	9	0.04	0.1	40	70	0.9	0.08	55
55 HRc	0.5	9	0.04	0.08	40	60	0.6	0.06	50			
Aluminum	12	AlSi12	130 HB	0.5	9	0.08	0.16	200	400	2.4	0.13	280