

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	0.3	1.5	0.3	1.5	190	330	1.1	1.3	250	
			190 HB	0.3	1.5	0.3	1.5	190	300	1	1.3	220	
			250 HB	0.3	1.5	0.3	1.5	190	250	1	1.3	200	
Low Alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	230 HB	0.3	1.3	0.3	1.36	150	210	0.8	1.1	180	
			280 HB	0.3	1.3	0.3	1.36	130	190	0.8	1	150	
			180 HB	0.3	1.3	0.3	1.36	150	240	0.8	1.1	200	
			350 HB	0.3	1.3	0.3	1.36	130	170	0.8	1	140	
High Alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.3	1.3	0.3	1.2	90	150	0.7	0.9	130	
			280 HB	0.3	1.2	0.3	1.2	90	130	0.7	0.9	120	
			320 HB	0.3	1.1	0.3	1.2	60	110	0.7	0.7	100	
			350 HB	0.3	1.1	0.3	1.2	60	90	0.7	0.7	80	
Cast Iron	Grey	GG20, GG40, EN-GJL-250, N030B	150 HB	0.3	1.5	0.3	2.26	150	240	1.2	1.3	200	
			200 HB	0.3	1.5	0.3	1.5	150	220	1.2	1.3	180	
			250 HB	0.3	1.5	0.3	1.5	150	190	1.2	1.3	160	
Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.3	1.5	0.3	1.36	100	200	1.2	1.1	180	
			200 HB	0.3	1.5	0.3	1.36	100	180	1.2	1.1	150	
			250 HB	0.3	1.5	0.3	1.36	100	150	1.2	1.1	130	
Hardened Materials	Steel Chilled Cast Iron White Cast Iron	11	G-X300CrMo15	55 HRc	0.3	0.5	0.3	0.6	30	60	0.4	0.4	40
			Ni-Hard 2	400 HB	0.3	0.6	0.3	0.6	40	80	0.4	0.5	50
			X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.3	0.6	0.3	0.9	40	80	0.6	0.6	60
				50 HRc	0.3	0.6	0.3	0.76	40	70	0.5	0.5	55
				55 HRc	0.3	0.5	0.3	0.6	40	60	0.4	0.4	50