



MACHINING CONDITIONS

CPMT 060204 NN LT 1000

FT003088

Material Group	SAPPHIRE TOOLS	Material Example	Hardness	D.O.C		Feed		Amax	Vc		Advised D.O.C	Advised Feed	Advised Vc	
				min[mm]	max[mm]	min[mm/t]	max[mm/t]	[mm^2]	min[m/min]	max [m/min]	[mm]	[mm/t]	[m/min]	
Steel	Non Alloyed	1	C35, Ck45, 1020, 1045, 1060, 28Mn6	125 HB	0.4	2.1	0.08	0.2	0.37	180	330	1	0.16	240
				190 HB	0.4	1.8	0.08	0.19	0.32	180	280	1	0.16	220
				250 HB	0.4	1.8	0.08	0.17	0.3	180	250	1	0.16	200
	Low Alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	230 HB	0.4	1.8	0.08	0.17	0.3	120	250	1	0.14	180
				280 HB	0.4	1.4	0.08	0.15	0.25	120	210	1	0.14	150
				180 HB	0.4	1.8	0.08	0.17	0.31	120	280	1	0.14	200
				350 HB	0.4	1.4	0.08	0.15	0.22	120	180	1	0.14	130
	High Alloyed	3	X40CrMOV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.4	1.8	0.07	0.15	0.25	70	190	1	0.11	140
				280 HB	0.4	1.8	0.07	0.14	0.25	70	150	1	0.11	120
				320 HB	0.4	1.4	0.07	0.12	0.2	70	130	1	0.11	100
				350 HB	0.4	1.4	0.07	0.12	0.16	70	110	1	0.11	90
	Stainless Steel	Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.4	1.8	0.08	0.15	0.2	170	270	1	0.11
240 HB					0.4	1.8	0.08	0.15	0.16	160	220	1	0.11	190
Duplex		5	X2CrNiN23-4, S31500	290 HB	0.4	1.4	0.07	0.12	0.12	80	150	1	0.11	100
				310 HB	0.4	1.4	0.07	0.12	0.12	70	140	1	0.11	90
Ferritic & Martensitic	6	410, X6Cr17, 17-4 PH, 430	200 HB	0.4	1.8	0.08	0.15	0.2	170	250	0.9	0.14	210	
			42 HRc	0.4	1.4	0.08	0.14	0.16	120	190	0.9	0.11	140	
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, N030B	150 HB	0.4	2.1	0.06	0.17	0.4	170	250	1	0.16	200
				200 HB	0.4	2.1	0.06	0.17	0.37	160	230	1	0.16	180
				250 HB	0.4	2.1	0.06	0.17	0.37	150	210	1	0.16	160
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.4	1.8	0.06	0.15	0.3	120	250	1	0.14	180
				200 HB	0.4	1.8	0.06	0.15	0.25	120	230	1	0.14	160
250 HB	0.4	1.8	0.06	0.15	0.25	120	190	1	0.14	140				
NiTi Alloy	Fe, Ni & Co Based	9	Incoloy 800	240 HB	0.4	1.4	0.08	0.13	0.16	30	50	1	0.11	33
			Inconel 700	250 HB	0.4	1.4	0.08	0.13	0.16	30	50	1	0.11	30
			Stellite 21	350 HB	0.4	1.4	0.08	0.13	0.16	20	40	1	0.11	28
	Ti Based	10	T40	-	0.4	1.4	0.08	0.12	0.16	40	60	1	0.11	45
TIAl6V4			-	0.4	1.4	0.08	0.14	0.2	50	70	1	0.13	55	
Hardened Materials	Steel Chilled Cast Iron White Cast Iron	11	G-X300CrMo15	55 HRc	0.4	1	0.04	0.08	0.08	30	50	0.5	0.06	40
			Ni-Hard 2	400 HB	0.4	1.1	0.04	0.1	0.11	40	60	0.6	0.1	50
			X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.4	1.3	0.04	0.1	0.12	50	100	0.8	0.1	80
				50 HRc	0.4	1.1	0.04	0.09	0.11	40	90	0.6	0.08	70
				55 HRc	0.4	1	0.04	0.08	0.08	40	80	0.5	0.06	60
Aluminium	Al (>8%Si)	12	AlSi12	130 HB	0.4	2.8	0.08	0.26	0.43	200	400	1	0.18	280