



MACHINING CONDITIONS

DNMG 110408 NN LT 10

FT000675

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	1 C35, Ck45, 1020, 1045, 1060, 28Mn6	125 HB	0.5	5	0.21	0.5	1.8	180	330	3	0.38	240	
			190 HB	0.5	5	0.21	0.5	1.8	180	280	3	0.35	220	
			250 HB	0.5	5	0.21	0.45	1.5	180	250	3	0.33	200	
	Low Alloyed	2 42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	230 HB	0.5	4	0.21	0.45	1.2	120	250	3	0.32	180	
			280 HB	0.5	4	0.18	0.4	1.2	120	210	3	0.3	150	
			180 HB	0.5	5	0.21	0.45	1.2	120	280	3	0.32	200	
	High Alloyed	3 X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	350 HB	0.5	3.5	0.18	0.4	1	120	180	2.7	0.3	130	
			220 HB	0.5	4	0.18	0.4	1.2	70	190	2.5	0.3	140	
			280 HB	0.5	4	0.18	0.4	1.2	70	150	2.5	0.3	120	
320 HB			0.5	3	0.18	0.35	0.8	70	130	2.5	0.28	100		
Stainless Steel	Austentic	4 304, 316, X5CrNi18-9	180 HB	0.5	5	0.2	0.4	1.2	170	270	3	0.25	190	
			240 HB	0.5	5	0.2	0.4	1	160	220	3	0.22	170	
	Duplex	5 X2CrNiN23-4, S31500	290 HB	0.5	4	0.18	0.35	0.8	80	150	2.5	0.24	100	
			310 HB	0.5	4	0.18	0.35	0.8	70	140	2.5	0.24	90	
	Ferritic & Martensitic	6 410, X6Cr17, 17-4 PH, 430	200 HB	0.5	5	0.18	0.4	0.7	170	250	2.5	0.2	190	
			42 HRC	0.5	4	0.18	0.4	0.7	120	190	2.2	0.2	130	
Cast Iron	Grey	7 GG20, GG40, EN-GJL-250, N030B	150 HB	0.5	5	0.15	0.6	2	170	250	3	0.35	200	
			200 HB	0.5	5	0.15	0.6	1.8	160	230	3	0.35	180	
			250 HB	0.5	5	0.15	0.55	1.8	150	210	3	0.35	160	
	Malleable & Nodular	8 GGG40, GGG70, 50005	150 HB	0.5	5	0.15	0.5	1.5	120	250	3	0.3	180	
			200 HB	0.5	5	0.15	0.5	1.3	120	230	3	0.3	160	
NTI Alloy	Fe, Ni & Co Based	9	Incoloy 800	240 HB	0.5	3	0.2	0.35	0.7	30	50	2	0.28	32
			Inconel 700	250 HB	0.5	3	0.2	0.35	0.7	30	50	2	0.28	30
			Stellite 21	350 HB	0.5	3	0.2	0.35	0.7	20	40	2	0.28	28
	Ti Based	10	T40	-	0.5	3	0.2	0.35	0.7	40	60	2	0.3	45
			TiAl6V4	-	0.5	3.5	0.2	0.4	0.8	50	70	2	0.33	55
Hardened Materials	Steel Chilled Cast Iron White Cast Iron	11	G-X300CrMo15	55 HRC	0.5	1.5	0.11	0.2	0.3	30	50	1	0.15	40
			Ni-Hard 2	400 HB	0.5	2	0.11	0.25	0.4	40	60	1.5	0.18	50
			X100CrMo13, 440C, G- X260NiCr42	45 HRC	0.5	2.5	0.11	0.3	0.6	50	100	2	0.25	80
				50 HRC	0.5	2	0.11	0.25	0.4	40	90	1.5	0.2	70
				55 HRC	0.5	1.5	0.11	0.2	0.3	40	80	1	0.18	60
Aluminium	Al (>8%Si)	12	AlSi12	130 HB	0.5	6	0.2	0.6	1.8	200	400	3	0.4	280