



# MACHINING CONDITIONS

DNMG 150612 NN LT 10

FT000672

Material Group	SAPPHIRE TOOLS	Material Example	Hardness	D.O.C		Feed		Amax [mm <sup>2</sup> ]	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	0.7	6	0.26	0.68	3.06	180	330	4	0.5	240	
				190 HB	0.7	6	0.26	0.68	3.06	180	280	4	0.46	220	
				250 HB	0.7	6	0.26	0.61	2.55	180	250	4	0.44	200	
	Low Alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	230 HB	0.7	4.8	0.26	0.61	2.04	120	250	4	0.42	180	
				280 HB	0.7	4.8	0.23	0.54	2.04	120	210	4	0.4	150	
				180 HB	0.7	6	0.26	0.61	2.04	120	280	4	0.42	200	
	High Alloyed	3	X40CrMOV5, H13, M42, D3, S6-5-2, 12Ni19	350 HB	0.7	4.2	0.23	0.54	1.7	120	180	3.6	0.4	130	
				220 HB	0.7	4.8	0.23	0.54	2.04	70	190	3.4	0.4	140	
				280 HB	0.7	4.8	0.23	0.54	2.04	70	150	3.4	0.4	120	
				320 HB	0.7	3.6	0.23	0.47	1.36	70	130	3.4	0.37	100	
	Stainless Steel	Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.7	6	0.25	0.54	2.04	170	270	4	0.33	190
					240 HB	0.7	6	0.25	0.54	1.7	160	220	4	0.29	170
Duplex		5	X2CrNiN23-4, S31500	290 HB	0.7	4.8	0.23	0.47	1.36	80	150	3.4	0.32	100	
				310 HB	0.7	4.8	0.23	0.47	1.36	70	140	3.4	0.32	90	
Ferritic & Martensitic		6	410, X6Cr17, 17-4 PH, 430	200 HB	0.7	6	0.23	0.54	1.19	170	250	3.4	0.26	190	
				42 HRc	0.7	4.8	0.23	0.54	1.19	120	190	2.9	0.26	130	
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, N030B	150 HB	0.7	6	0.19	0.81	3.4	170	250	4	0.46	200	
				200 HB	0.7	6	0.19	0.81	3.06	160	230	4	0.46	180	
				250 HB	0.7	6	0.19	0.74	3.06	150	210	4	0.46	160	
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.7	6	0.19	0.68	2.55	120	250	4	0.4	180	
				200 HB	0.7	6	0.19	0.68	2.21	120	230	4	0.4	160	
NiTi Alloy	Fe, Ni & Co Based	9	Incoloy 800	240 HB	0.7	3.6	0.25	0.47	1.19	30	50	2.7	0.37	32	
			Inconel 700	250 HB	0.7	3.6	0.25	0.47	1.19	30	50	2.7	0.37	30	
			Stellite 21	350 HB	0.7	3.6	0.25	0.47	1.19	20	40	2.7	0.37	28	
	Ti Based	10	T40	-	0.7	3.6	0.25	0.47	1.19	40	60	2.7	0.4	45	
			TiAl6V4	-	0.7	4.2	0.25	0.54	1.36	50	70	2.7	0.44	55	
	Hardened Materials	Steel Chilled Cast Iron White Cast Iron	11	G-X300CrMo15	55 HRc	0.7	1.8	0.14	0.27	0.51	30	50	1.3	0.2	40
Ni-Hard 2				400 HB	0.7	2.4	0.14	0.34	0.68	40	60	2	0.24	50	
X100CrMo13, 440C, G-X260NiCr42				45 HRc	0.7	3	0.14	0.41	1.02	50	100	2.7	0.33	80	
50 HRc				0.7	2.4	0.14	0.34	0.68	40	90	2	0.26	70		
55 HRc				0.7	1.8	0.14	0.27	0.51	40	80	1.3	0.24	60		
Aluminium	Al (>8%Si)	12	AlSi12	130 HB	0.7	7.2	0.25	0.81	3.06	200	400	4	0.53	280	