



MACHINING CONDITIONS

DNMG 150412 NN LT 1000

T0001909

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	0.7	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
			350 HB	0.7	4.2	0.23	0.54	1.7	120	180	3.6	0.4	130
	High Alloyed	3 X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	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
			350 HB	0.7	3.6	0.23	0.47	1.36	70	110	3.4	0.37	90
	Stainless Steel	Austentic	4 304, 316, X5CrNi18-9	180 HB	0.7	6	0.25	0.54	2.04	170	270	4	0.33
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
			250 HB	0.7	6	0.19	0.68	2.04	120	190	4	0.4	140
NiTi Alloy	Fe, Ni & Co Based	9 Incoloy 800 Inconel 700 Stellite 21	240 HB	0.7	3.6	0.25	0.47	1.19	30	50	2.7	0.37	32
			250 HB	0.7	3.6	0.25	0.47	1.19	30	50	2.7	0.37	30
			350 HB	0.7	3.6	0.25	0.47	1.19	20	40	2.7	0.37	28
	Ti Based	10 T40 TiAl6V4	-	0.7	3.6	0.25	0.47	1.19	40	60	2.7	0.4	45
			-	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 Ni-Hard 2 X100CrMo13, 440C, G-X260NiCr42	55 HRc	0.7	1.8	0.14	0.27	0.51	30	50	1.3	0.2	40
			400 HB	0.7	2.4	0.14	0.34	0.68	40	60	2	0.24	50
			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