

Machining Data for MULTI-MASTER Groove Milling Heads																
ISO	Material		Condition	Tensile Strength [N/mm2]	Hardness HB	Material No.	MM-TS			MM-GRIT K-TYPE			MM-GRIT P-TYPE			
							Speed V m/ min	Feed mm/t		Speed V m/ min	Feed mm/t		Speed V m/ min	Feed mm/t		
								Fz (min)	Fz (max)		Fz (min)	Fz (max)		Fz (min)	Fz (max)	
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	110-140	0.08	0.20	110-160	0.05	0.15	-	-	-	
		>= 0.25 %C	Annealed	650	190	2	100-120	0.08	0.18	100-150	0.05	0.15	-	-	-	
		< 0.55 %C	Quenched and tempered	850	250	3	70-100	0.08	0.15	80-100	0.05	0.15	-	-	-	
		>= 0.55 %C	Annealed	750	220	4	70-100	0.08	0.15	80-100	0.05	0.15	-	-	-	
			Quenched and tempered	1000	300	5	60-80	0.08	0.15	60-80	0.05	0.15	-	-	-	
	Low alloy steel and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	100-120	0.08	0.15	110-150	0.05	0.15	-	-	-	
		Quenched and tempered		930	275	7	90-120	0.08	0.15	100-120	0.05	0.15	-	-	-	
				1000	300	8	80-110	0.08	0.15	70-110	0.05	0.15	-	-	-	
				1200	350	9	70-100	0.05	0.12	70-100	0.05	0.15	-	-	-	
	High alloyed steel, cast steel, and tool steel		Annealed	680	200	10	60-80	0.05	0.18	60-80	0.05	0.15	-	-	-	
			Quenched and tempered	1100	325	11	55-70	0.08	0.15	55-70	0.05	0.15	-	-	-	
	Stainless steel and cast steel		Ferritic/martensitic.	680	200	12	100-130	0.06	0.12	100-130	0.03	0.15	100-130	0.03	0.10	
			Martensitic.	820	240	13	100-120	0.08	0.15	100-130	0.03	0.15	100-130	0.03	0.10	
M	Stainless steel		Austenitic	600	180	14	80-120	0.05	0.10	90-120	0.03	0.12	90-120	0.03	0.10	
K	Grey cast iron (GG)		Ferritic/pearlitic		180	15	160-220	0.10	0.20	160-220	0.03	0.12	-	-	-	
			Pearlitic		260	16	120-200	0.10	0.15	120-200	0.03	0.12	-	-	-	
	Cast iron nodular (GGG)		Ferritic		160	17	100-140	0.10	0.20	-	-	-	-	-	-	
			Pearlitic		250	18	80-100	0.10	0.15	-	-	-	-	-	-	
	Malleable cast iron		Ferritic		130	19	180-250	0.10	0.20	180-250	0.03	0.15	-	-	-	
			Pearlitic		230	20	160-220	0.10	0.15	160-220	0.03	0.15	-	-	-	
N	Aluminum- wrought alloy		Not cureable		60	21	800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15	
			Cured		100	22	800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15	
	Aluminum-cast, alloyed	<=12% Si		Not cureable		75	23	-	-	-	-	-	600-1000	0.05	0.15	
				Cured		90	24	-	-	-	-	-	500-1000	0.05	0.15	
		>12% Si		High temperature		130	25	-	-	-	-	-	200-400	0.05	0.15	
	Copper alloys	>1% Pb		Free cutting		110	26	-	-	-	-	-	-	-	-	
				Brass		90	27	-	-	-	-	-	-	-	-	
				Electrolytic copper		100	28	-	-	-	-	-	-	-	-	
	Non-metallic		Duroplastics, fiber plastics			29	-	-	-	-	-	-	-	-	-	
		Hard rubber			30	-	-	-	-	-	-	-	-	-		
S	High temp. alloys	Fe based		Annealed		200	31	-	-	-	30-40	0.02	0.12	-	-	
				Cured		280	32	25-35	0.05	0.12	25-40	0.02	0.12	-	-	
		Ni or Co based		Annealed		250	33	25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
				Cured		350	34	25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
				Cast		320	35	40-60	0.05	0.12	25-40	-	-	-	0.01	0.12
	Titanium Ti alloys			RM 400		36	40-60	0.05	0.12	40-60	-	-	-	0.05	0.12	
				Alpha+beta alloys cured	RM 1050		37	40-60	0.05	0.10	40-60	-	-	-	0.05	0.10
H	Hardened steel		Hardened			55 HRC	38									
			Hardened			60 HRC	39									
	Chilled cast iron		Cast			400	40									
	Cast iron		Hardened			55 HRC	41									