

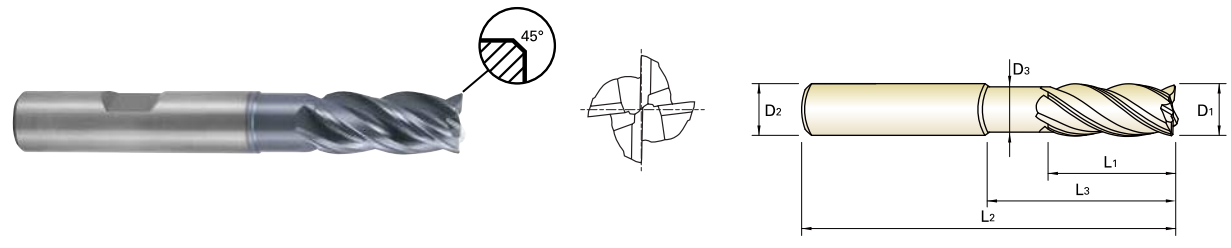


CARBIDE, 4 FLUTE with EXTENDED NECK

- **VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM HALS**
- **CARBURE, 4 DENTS, DÉTALONNÉE**
- **MD, 4 TAGLIENTI CON SCARICO ESTESO**

▶Special flute geometry and multiple helix eliminate vibrations
 ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40

▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
 ▶Exzellente Leistung in Edelmetallen, Baustählen, Guss und Stählen unter 40HRc

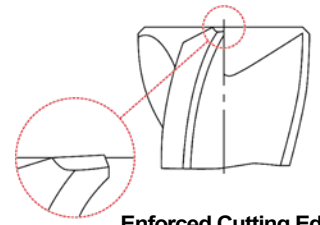


EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Chamfer
PLAIN	FLAT	D1	D2	L1	L3	L2	D3	
GMF60030	GMF61030	3.0	6	7	12	54	2.7	0.10
GMF60901	GMF61901	3.0	6	7	17	57	2.7	0.10
GMF60902	GMF61902	3.0	6	8	14	57	2.7	0.10
GMF60040	GMF61040	4.0	6	8	15	57	3.7	0.15
GMF60903	GMF61903	4.0	6	8	22	63	3.7	0.15
GMF60904	GMF61904	4.0	6	11	16	57	3.7	0.15
GMF60050	GMF61050	5.0	6	10	17	57	4.7	0.15
GMF60905	GMF61905	5.0	6	10	27	67	4.7	0.15
GMF60906	GMF61906	5.0	6	13	18	57	4.7	0.15
GMF60060	GMF61060	6.0	6	10	15	57	5.5	0.20
GMF60907	GMF61907	6.0	6	10	20	62	5.5	0.20
GMF60908	GMF61908	6.0	6	10	32	74	5.5	0.20
GMF60909	GMF61909	6.0	6	13	21	57	5.5	0.20
GMF60080	GMF61080	8.0	8	12	20	63	7.5	0.20
GMF60910	GMF61910	8.0	8	12	30	73	7.5	0.20
GMF60911	GMF61911	8.0	8	12	46	90	7.5	0.20
GMF60912	GMF61912	8.0	8	19	27	63	7.5	0.20
GMF60100	GMF61100	10.0	10	14	25	72	9.2	0.30
GMF60913	GMF61913	10.0	10	14	35	82	9.2	0.30
GMF60914	GMF61914	10.0	10	14	55	102	9.2	0.30
GMF60915	GMF61915	10.0	10	22	32	72	9.2	0.30

Unit : mm

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02
Over Ø12	0 ~ - 0.03

* Shank Dia. ≥ Ø12 : h6



▶ NEXT PAGE

Enforced Cutting Edge ◎ : Excellent ○ : Good

ISO Material Description	P											M				K				
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

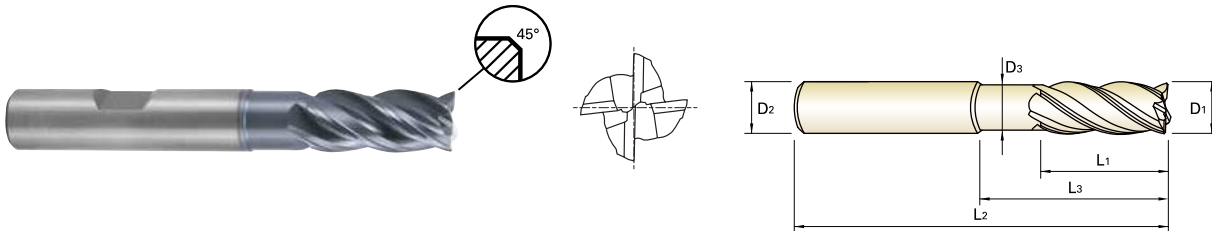
ISO Material Description	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

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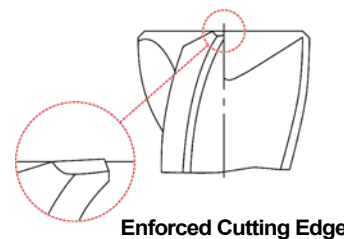
▶ Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
 ▶ Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRC



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Chamfer
PLAIN	FLAT	D1	D2	L1	L3	L2	D3	
GMF60120	GMF61120	12.0	12	16	30	83	11.0	0.35
GMF60916	GMF61916	12.0	12	16	40	93	11.0	0.35
GMF60917	GMF61917	12.0	12	16	64	117	11.0	0.35
GMF60918	GMF61918	12.0	12	26	38	83	11.0	0.35
GMF60160	GMF61160	16.0	16	22	38	92	15.0	0.40
GMF60919	GMF61919	16.0	16	22	55	109	15.0	0.40
GMF60920	GMF61920	16.0	16	22	87	141	15.0	0.40
GMF60921	GMF61921	16.0	16	32	44	92	15.0	0.40
GMF60200	GMF61200	20.0	20	26	50	104	19.0	0.50
GMF60922	GMF61922	20.0	20	26	70	124	19.0	0.50
GMF60923	GMF61923	20.0	20	26	110	164	19.0	0.50
GMF60924	GMF61924	20.0	20	38	54	104	19.0	0.50

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02 h5
Over Ø12	0 ~ - 0.03 * Shank Dia. ≥ Ø12 : h6



◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	42	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

ISO Material Description	N					S										H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100							200	280	55	60	42	55	
HB	60	100	75	90	130	110	90	100							200	280	550	630	400	550	
Recommend											○	○	○	○	○	○	○				

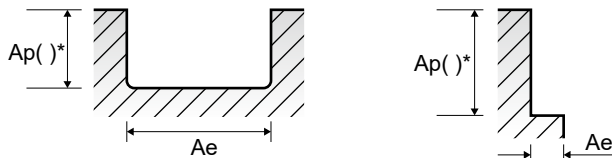
GMF52	GMF54	GMF56	GMF58	GMF60	GMF62
GMF53	GMF55	GMF57	GMF59	GMF61	GMF63

4 FLUTE - SIDE & SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae		Ap		Parameter	Diameter (Ø)																																			
			Side	Slotting	Side	Slotting		3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0																								
								Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED												
P	1-4	Non-alloy steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	152	152	152	152	152	168	168	168	168	168	168	168	168	168	168	168	168																			
	5	Low alloy steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064	0.064	0.064	0.064	0.064	0.064	0.064																		
							RPM	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139												
							FEED	323	387	426	516	653	813	838	749	709	701	695	548	107	107	107	107	107	117	117	117	117	117	117	117	117											
							Vc	107	107	107	107	107	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117											
6-7	Low alloy steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064															
						RPM	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139													
						FEED	227	272	300	363	460	566	583	521	493	488	484	381	107	107	107	107	107	117	117	117	117	117	117	117	117												
						Vc	152	152	152	152	152	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168												
8-9	Low alloy steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064															
						RPM	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139													
						FEED	227	272	300	363	460	566	583	521	493	488	484	381	107	107	107	107	107	117	117	117	117	117	117	117	117												
						Vc	107	107	107	107	107	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117												
10-11.1	High alloyed steel, and tool steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	fz	0.003	0.006	0.008	0.011	0.019	0.027	0.032	0.034	0.037	0.041	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045															
						RPM	6791	5093	4074	3395	2546	2228	1857	1592	1393	1238	1114	891	6791	5093	4074	3395	2546	2228	1857	1592	1393	1238	1114	891													
						FEED	81	122	130	149	194	241	238	216	206	203	201	160	64	64	64	64	64	70	70	70	70	70	70	70	70												
						Vc	64	64	64	64	64	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70												
M	12-13	Stainless steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	fz	0.004	0.006	0.009	0.013	0.022	0.034	0.039	0.042	0.045	0.05	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055															
	RPM						15703	11777	9422	7852	5889	4711	3926	3365	2944	2617	2355	1884	15703	11777	9422	7852	5889	4711	3926	3365	2944	2617	2355	1884													
	FEED						251	283	339	408	518	641	612	565	530	523	518	415	106	106	106	106	106	106	106	106	106	106	106	106	106												
	Vc						106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106												
	fz						0.005	0.008	0.013	0.018	0.028	0.048	0.055	0.059	0.062	0.07	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077												
	RPM						11247	8435	6748	5623	4218	3374	2812	2410	2109	1874	1687	1350	11247	8435	6748	5623	4218	3374	2812	2410	2109	1874	1687	1350	11247												
K	15-20	Grey cast iron	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	fz	0.006	0.01	0.014	0.02	0.034	0.048	0.058	0.061	0.065	0.073	0.081	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079																
	S	31-35	Heat Resistant Super Alloys	0.25D	1.0D	1.0D	0.5D	RPM	2759	2069	1655	1379	1035	828	690	591	517	460	414	331	2759	2069	1655	1379	1035	828	690	591	517	460	414	331											
		36-37	Titanium Alloys	0.4D	1.0D	1.0D	0.5D	FEED	55	58	53	66	79	109	105	95	89	88	89	69	55	58	53	66	79	109	105	95	89	88	89	69											
S	36-37	Titanium Alloys	0.4D	1.0D	1.0D	0.5D	Vc	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58										
							fz	0.004	0.007	0.011	0.016	0.025	0.042	0.05	0.053	0.055	0.062	0.068	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069							
							RPM	6154	4615	3692	3077	2308	1846	1538	1319	1154	1026	923	738	6154	4615	3692	3077	2308	1846	1538	1319	1154	1026	923	738	6154	4615	3692	3077	2308	1846	1538	1319	1154	1026	923	738
							FEED	98	129	162	197	231	310	308	280	254	254	251	204	98	129	162	197	231	310	308	280	254	254	251	204	98	129	162	197	231	310	308	280	254	254	251	204

*() : Short length & Neck type



SELECTION GUIDE



SERIES	GMG55 GMG56	GMF54 GMF55	GMF58 GMF59
FLUTE	4	4	4
HELIX ANGLE	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS	CORNER RADIUS
SIZE MIN	R1.5	D3.0	D3.0
SIZE MAX	R12.5	D20.0	D25.0
PAGE	442	443	444

SOLID CARBIDE
V7 PLUS
END MILLS

High performance carbide end mills for Steels, Cast Iron and Stainless Steels



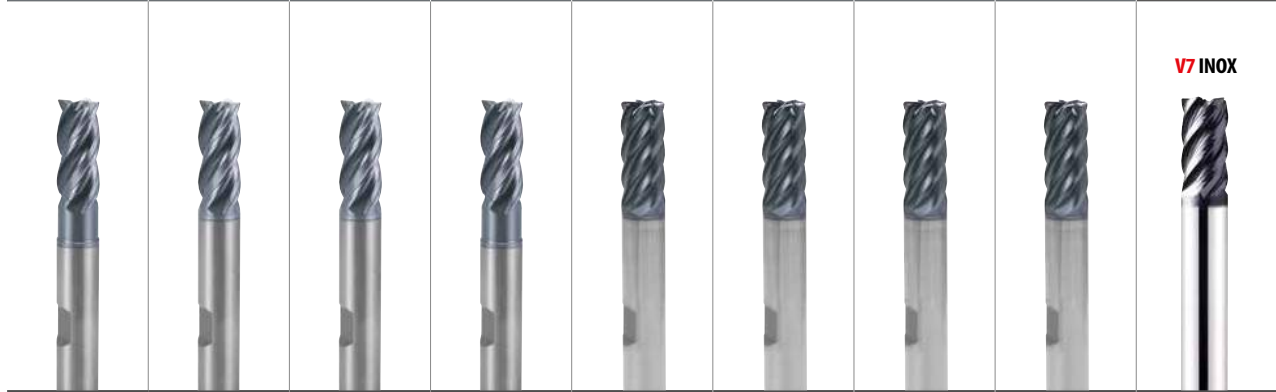
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P 458

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc				
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	
	2		About 0.45% C Annealed	190	13	◎	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	
	4		About 0.75% C Annealed	270	28	◎	◎	◎	
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	
	7		Quenched & Tempered	275	29	◎	◎	◎	
	8		Quenched & Tempered	300	32	◎	◎	◎	
	9		Quenched & Tempered	350	38	◎	◎	◎	
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎
	11			Quenched & Tempered	325	35	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	◎	
	13		Martensitic Quenched & Tempered	240	23	◎	◎	◎	
	14		Austenitic	180	10	◎	◎	◎	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	◎	
	16		Pearlitic (Martensitic)	260	26	◎	◎	◎	
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎	
	18		Pearlitic	250	25	◎	◎	◎	
	19		Ferritic	130		◎	◎	◎	
	20		Pearlitic	230	21	◎	◎	◎	
N	21	Aluminum-wrought alloy	Not Curable	60					
	22		Curable Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75					
	24		≤ 12% Si, Curable Hardened	90					
	25		> 12% Si, Not Curable	130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110					
	27		CuZn, CuSnZn (Brass)	90					
	28		CuSn, lead-free copper and electrolytic copper	100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	○	○	○	
	32		Fe Based Cured	280	30	○	○	○	
	33		Ni or Co Based Annealed	250	25	○	○	○	
	34		Ni or Co Based Cured	350	38	○	○	○	
	35	Cast	320	34	○	○	○		
	36	Titanium Alloys	Pure Titanium	400 Rm		○	○	○	
	37		Alpha + Beta Alloys Hardened	1050 Rm		○	○	○	
H	38	Hardened steel	Hardened	550	55				
	39		Hardened	630	60				
	40	Chilled Cast Iron	Cast	400	42				
	41	Hardened Cast Iron	Hardened	550	55				

GMF62 GMF63	GMF52 GMF53	GMF56 GMF57	GMF60 GMF61	GMG16 GMG17	GMG18 GMG19	GMG12 GMG13	GMG14 GMG15	EMB72 EMB73
4	4	4	4	6	6	6	6	5
35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	45°	45°	45°	45°	41°~45°
CORNER RADIUS	SQUARE	SQUARE	SQUARE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE
D3.0	D3.0	D3.0	D3.0	D6.0	D6.0	D6.0	D6.0	D6.0
D20.0	D20.0	D25.0	D20.0	D25.0	D25.0	D25.0	D25.0	D25.0
445	448	449	450	452	453	455	456	457
LONG LENGTH with NECK	SHORT LENGTH	LONG LENGTH	LONG LENGTH with NECK	LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH
Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	AlTiN



⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	1
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	2
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	3
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	4
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	5
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	6 P
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	7
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	8
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	9
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	10
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	11
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	12
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	13 M
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	14
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	15
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	16
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	17 K
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	18
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	19
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	20
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○	○	○	○	○	○	○	○	○	35
○	○	○	○	○	○	○	○	⊙	36
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									39 H
									40
									41

HSS

CBN
END MILLS

i-Xmill
END MILLS

i-SMART
MODULAR
END MILLS

X5070
END MILLS

4G MILL
END MILLS

X-POWER
PRO
END MILLS

TitaNox-
POWER
END MILLS

JET-POWER
END MILLS

V7 PLUS
END MILLS

ALU-POWER
HPC
END MILLS

ALU-
POWER
END MILLS

D-POWER
GRAPHITE
END MILLS

D-POWER
CFRP
END MILLS

ROUTERS

CRX S
END MILLS

K-2
END MILLS

ONLY ONE
COATED PM60
END MILLS

TANK-
POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA