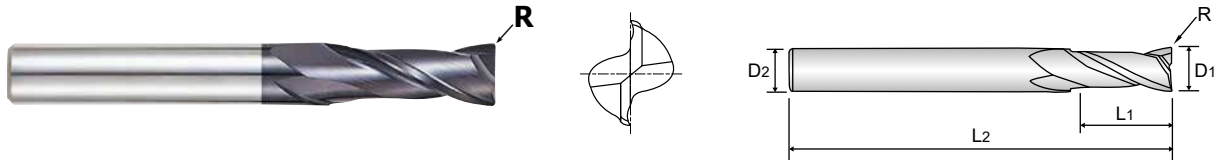


CARBIDE, 2 FLUTE LONG LENGTH CORNER RADIUS

- **VOLLHARTMETALL, 2 SCHNEIDEN LANG ECKENRADIUS**
- **Fraise carbure, 2 dents, torique, longue**
- **2 TAGLIENTI, TORICA, SERIE LUNGA**

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschubwerte.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
GM818911	R0.5	4.0	6	15	50
GM818060	R0.5	6.0	6	20	60
GM818901	R1.0	6.0	6	20	60
GM818080	R0.5	8.0	8	25	70
GM818902	R1.0	8.0	8	25	70
GM818100	R0.5	10.0	10	30	90
GM818905	R1.0	10.0	10	30	90
GM818908	R1.0	12.0	12	30	90

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

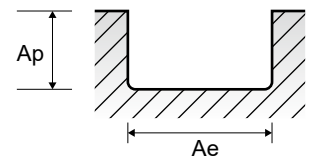
ISO Material Description	P										M			K							
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	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																		○		◎	○

GM818 SERIES

2 FLUTE CORNER RADIUS - SLOTTING

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						4.0	5.0	6.0	8.0	10.0	12.0	
P	1-4	Non-alloy steel	1.0D	0.3D	Vc	75	80	80	85	85	85	
					fz	0.016	0.023	0.032	0.045	0.053	0.051	
	5	Non-alloy steel	1.0D	0.3D	RPM	5968	5093	4244	3382	2706	2255	
					FEED	191	234	272	304	287	230	
	6-7	Low alloy steel	1.0D	0.3D	Vc	45	50	50	55	55	60	
					fz	0.013	0.017	0.025	0.033	0.039	0.041	
	8-9	Low alloy steel	1.0D	0.3D	RPM	3581	3183	2653	2188	1751	1592	
					FEED	93	108	133	144	137	131	
	10	High alloyed steel, and tool steel	1.0D	0.3D	Vc	75	80	80	85	85	85	
					fz	0.016	0.023	0.032	0.045	0.053	0.051	
11.1 - 11.2	High alloyed steel, and tool steel	1.0D	0.3D	RPM	5968	5093	4244	3382	2706	2255		
				FEED	191	234	272	304	287	230		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.3D	Vc	45	50	50	55	55	60	
					fz	0.013	0.017	0.025	0.033	0.039	0.041	
	38.1 - 38.2	Hardened steel	1.0D	0.3D	RPM	3581	3183	2653	2188	1751	1592	
					FEED	93	108	133	144	137	131	
	40	Chilled Cast Iron	1.0D	0.3D	Vc	75	80	80	85	85	85	
					fz	0.016	0.023	0.032	0.045	0.053	0.051	
	41	Hardened Cast Iron	1.0D	0.3D	RPM	5968	5093	4244	3382	2706	2255	
					FEED	191	234	272	304	287	230	
	H	38.1 - 38.2	Hardened steel	1.0D	0.3D	Vc	30	35	35	35	35	35
						fz	0.006	0.008	0.010	0.013	0.016	0.019
40	Chilled Cast Iron	1.0D	0.3D	RPM	2387	2228	1857	1393	1114	928		
				FEED	29	36	37	36	36	35		
41	Hardened Cast Iron	1.0D	0.3D	Vc	45	50	50	55	55	60		
				fz	0.013	0.017	0.025	0.033	0.039	0.041		
H	40	Chilled Cast Iron	1.0D	0.3D	RPM	3581	3183	2653	2188	1751	1592	
					FEED	93	108	133	144	137	131	
41	Hardened Cast Iron	1.0D	0.3D	Vc	30	35	35	35	35	35		
				fz	0.006	0.008	0.01	0.013	0.016	0.019		
H	41	Hardened Cast Iron	1.0D	0.3D	RPM	2387	2228	1857	1393	1114	928	
					FEED	29	36	37	36	36	35	



SELECTION GUIDE



SERIES	GM876	GM813	GM886	GM902
FLUTE	2	2	2	2
HELIX ANGLE	30°	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R0.5	R0.5	R0.25	R0.5
SIZE MAX	R8.0	R10.0	R3.0	R4.0
PAGE	350	351	352	354

SOLID CARBIDE X-POWER PRO END MILLS

for Pre-Hardened Steels up to HRC55,
Mold & Die, Dry & Wet Cutting



◎ : Excellent ○ : Good

Recommended cutting conditions : P 372

SHORT LENGTH	LONG LENGTH	RIB PROCESSING	TAPER NECK
Y-Coating	Y-Coating	Y-Coating	Y-Coating

- 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

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	Malleable cast iron	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		Cured	280	30	
	33		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	

GM815	GM818	GM8A1	GM839	GM819	GM810	GM883	GM895	GM811	GM817	GM812	GM834	GM814
4	2	2	4	4	2	2	3	4	4	6&8	6	3&4
30°	30°	30°	30°	30°	30°	30°	38°	30°	30°	45°	45°	20°
BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING
R1.0	D4.0	D1.0	D2.0	D3.0	D0.4	D0.4	D1.0	D2.0	D2.0	D6.0	D6.0	D6.0
R8.0	D12.0	D6.0	D12.0	D20.0	D20.0	D6.0	D16.0	D25.0	D20.0	D20.0	D25.0	D20.0
355	356	357	359	360	361	363	366	367	368	369	370	371
LONG LENGTH	LONG LENGTH	RIB PROCESSING	STUB LENGTH	LONG LENGTH	SHORT LENGTH	RIB PROCESSING	SHORT LENGTH	SHORT LENGTH	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	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating



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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

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D-POWER CFRP END MILLS

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ONLY ONE COATED PM60 END MILLS

TANK-POWER END MILLS

GENERAL HSS END MILLS

MILLING CUTTERS

TECHNICAL DATA