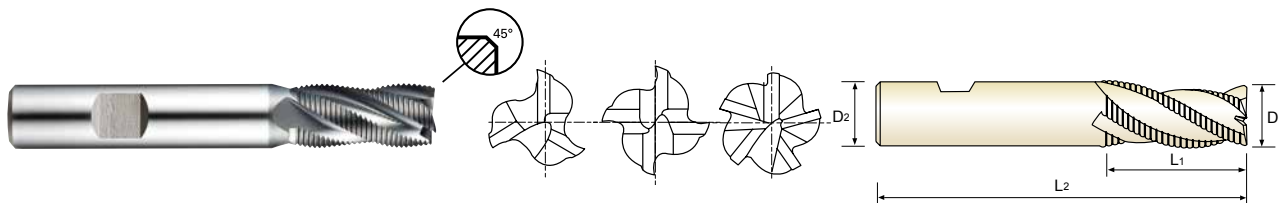


PM60, MULTI FLUTE SHORT LENGTH ROUGHING - FINE (Center Cut)

- **PM60, Mehrschneiden, kurz, Feinkordel-Schuppfräser, Zentrumschnitt**
- **Revêtue YG-AlCrN - PM60, multi-dents, série courte, ravageuse, pas fins (Coupe au centre)**
- **Rivestita PM60, MULTI TAGLIENTE SERIE CORTA PER SGROSSATURA - BOMBATO FINE (Tagliante al centro)**

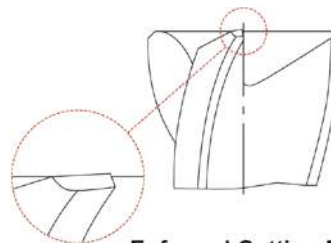


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	D1(js12)	D2(h6)	L1	L2		
GYF94060	6.0	6	13	57	3	0.18
GYF94070	7.0	10	16	66	3	0.18
GYF94080	8.0	10	19	69	3	0.18
GYF94090	9.0	10	19	69	3	0.18
GYF94100	10.0	10	22	72	4	0.18
GYF94120	12.0	12	26	83	4	0.18
GYF94140	14.0	12	26	83	4	0.25
GYF94160	16.0	16	32	92	4	0.25
GYF94180	18.0	16	32	92	4	0.25
GYF94200	20.0	20	38	104	4	0.25
GYF94250	25.0	25	45	121	5	0.36

Tolerances according to DIN 7160 & 7161

Tolerance range in μm			
Nominal-Diameter in mm			
	over 6 to 10	over 10 to 18	over 18 to 30
js12	± 75	± 90	± 105
h6	0 - 9	0 - 11	0 - 13


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	10	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			15	30	25	38	34	55	60	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						○	○	○												○	



ONLY ONE
COATED PM60 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOLHENE SCHNEIDPARAMETER

GYF94, GYF98, GYG03 SERIES MULTI FLUTE ROUGHING - SIDE CUTTING

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																																						
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0																														
P	1	Non-alloy steel	0.5D	1.5D	Vc	63	72	72	72	74	72	71	72	75	fz	0.027	0.041	0.055	0.065	0.074	0.087	0.099	0.111	0.105	RPM	3342	2865	2292	1910	1682	1432	1256	1146	955	FEED	271	352	504	497	498	498	509	501	
					Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385
					Vc	36	42	40	41	40	41	40	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263
					Vc	29	32	34	34	33	33	33	33	34	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1	RPM	1538	1273	1082	902	750	657	584	525	433	FEED	125	153	190	216	213	213	212	212	216
	2		0.5D	1.5D	Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385
					Vc	36	42	40	41	40	41	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263	
					Vc	29	32	34	34	33	33	33	34	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1	RPM	1538	1273	1082	902	750	657	584	525	433	FEED	125	153	190	216	213	213	212	212	216	
	3-4		0.5D	1.5D	Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385
					Vc	36	42	40	41	40	41	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263	
					Vc	29	32	34	34	33	33	33	34	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1	RPM	1538	1273	1082	902	750	657	584	525	433	FEED	125	153	190	216	213	213	212	212	216	
	5		0.5D	1.5D	Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385
					Vc	36	42	40	41	40	41	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263	
Vc		29			32	34	34	33	33	33	34	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1	RPM	1538	1273	1082	902	750	657	584	525	433	FEED	125	153	190	216	213	213	212	212	216			
6	0.5D	1.5D	Vc	29	32	34	34	33	33	33	33	34	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1	RPM	1538	1273	1082	902	750	657	584	525	433	FEED	125	153	190	216	213	213	212	212	216		
			Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385		
			Vc	36	42	40	41	40	41	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263			
7	0.5D	1.5D	Vc	29	32	34	34	33	33	33	33	34	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1	RPM	1538	1273	1082	902	750	657	584	525	433	FEED	125	153	190	216	213	213	212	212	216		
			Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385		
			Vc	36	42	40	41	40	41	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263			
8-9	0.5D	1.5D	Vc	29	32	34	34	33	33	33	33	34	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1	RPM	1538	1273	1082	902	750	657	584	525	433	FEED	125	153	190	216	213	213	212	212	216		
			Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385		
			Vc	36	42	40	41	40	41	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263			
10	0.5D	1.5D	Vc	29	32	34	34	33	33	33	33	34	fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1	RPM	1538	1273	1082	902	750	657	584	525	433	FEED	125	153	190	216	213	213	212	212	216		
			Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385		
			Vc	36	42	40	41	40	41	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263			
11.1	0.5D	1.5D	Vc	21	22	24	23	23	23	23	23	24	fz	0.028	0.04	0.045	0.06	0.071	0.082	0.091	0.101	0.1	RPM	1114	875	764	610	523	458	407	366	306	FEED	94	105	138	146	149	150	148	148	153		
			Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385		
			Vc	36	42	40	41	40	41	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263			
11.2	0.3D	1.5D	Vc	33	36	36	36	37	36	37	36	37	fz	0.025	0.039	0.045	0.064	0.074	0.085	0.093	0.106	0.102	RPM	1751	1432	1146	955	841	716	654	573	471	FEED	131	168	206	244	249	244	243	243	240		
			Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385		
			Vc	36	42	40	41	40	41	40	39	fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106	RPM	1910	1671	1273	1088	909	796	725	637	497	FEED	138	191	239	278	276	277	273	272	263			
M	14.1	Stainless steel	0.5D	1.5D	Vc	33	36	36	36	37	36	37	36	37	fz	0.025	0.039	0.045	0.064	0.074	0.085	0.093	0.106	0.102	RPM	1751	1432	1146	955	841	716	654	573	471	FEED	131	168	206	244	249	244	243	243	240
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	50	57	57	54	55	57	61	57	57	fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106	RPM	2653	2268	1814	1432	1251	1134	1079	907	726	FEED	215	272	385	395	390	395	397	396	385
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	21	22	24	23	23	23	23	24	fz	0.028	0.04	0.045	0.06	0.071	0.082	0.091	0.101	0.1	RPM	1114	875	7																	

SELECTION GUIDE



SERIES	GYG77 GYF97	GYG72 GYF99	GYG01
FLUTE	2	2	3
HELIX ANGLE	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	SQUARE	SQUARE
SIZE MIN	R0.5	D1.0	D1.0
SIZE MAX	R12.5	D25.0	D25.0
PAGE	618	619	620

- 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

COATED PM60 ONLY ONE END MILLS

Perfect solution to protect Carbide chipping problems under vibrations



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P 628

SHORT LENGTH	SHORT LENGTH	SHORT LENGTH (Center Cut)
Y-Coating	Y-Coating	Y-Coating



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	Malleable cast iron	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	Cutting Alloys, PB>1%	110		○	○	○
	27		CuZn, CuSnZn (Brass)	90		○	○	○
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100		○	○	○
	29		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			

GYG74 GYF96	GYG52	GYG76 GYG02	GYF95	GYF94	GYF98	GYG03
4	4	4	Multi Flute	Multi Flute	Multi Flute	Multi Flute
30°	35°/37°	30°	4F: 44°/45° 5F: 44°/44.5°/45°	30°	30°	30°
SQUARE	SQUARE	SQUARE	CORNER RADIUS ROUGHING	ROUGHING	ROUGHING	ROUGHING
D1.0	D3.0	D2.0	D6.0	D6.0	D6.0	D6.0
D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0
621	622	623	624	625	626	627
SHORT LENGTH (Center Cut)	SHORT LENGTH (Center Cut)	LONG LENGTH (Center Cut)	SHORT LENGTH (Center Cut)	SHORT LENGTH (Center Cut)	LONG LENGTH (Center Cut)	SHORT LENGTH (Center Cut)
Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating

⊙	⊙	⊙	⊙	⊙	⊙	⊙	1
⊙	⊙	⊙	⊙	⊙	⊙	⊙	2
⊙	⊙	⊙	⊙	⊙	⊙	⊙	3
⊙	⊙	⊙	⊙	⊙	⊙	⊙	4
⊙	⊙	⊙	⊙	⊙	⊙	⊙	5
⊙	⊙	⊙	⊙	⊙	⊙	⊙	6 P
⊙	⊙	⊙	⊙	⊙	⊙	⊙	7
⊙	⊙	⊙	⊙	⊙	⊙	⊙	8
○	○	○	○	○	○	○	9
⊙	⊙	⊙	⊙	⊙	⊙	⊙	10
○	○	○	○	○	○	○	11
⊙	⊙	⊙	⊙	⊙	⊙	⊙	12
⊙	⊙	⊙	⊙	⊙	⊙	⊙	13 M
⊙	⊙	⊙	⊙	⊙	⊙	⊙	14
⊙	⊙	⊙	⊙	⊙	⊙	⊙	15
⊙	⊙	⊙	⊙	⊙	⊙	⊙	16
⊙	⊙	⊙	⊙	⊙	⊙	⊙	17 K
⊙	⊙	⊙	⊙	⊙	⊙	⊙	18
⊙	⊙	⊙	⊙	⊙	⊙	⊙	19
⊙	⊙	⊙	⊙	⊙	⊙	⊙	20
							21
							22
							23
							24
							25
○	○	○	○	○	○	○	26 N
○	○	○	○	○	○	○	27
○	○	○	○	○	○	○	28
							29
							30
							31
							32
							33
							34 S
							35
							36
							37
							38
○	○	○	○	○	○	○	39 H
							40
							41

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