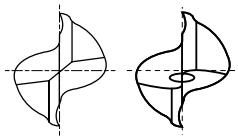
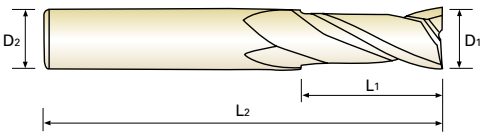
PM60, 2 FLUTE SHORT LENGTH

PM60, 2 Schneiden, kurz, Zentrumschnitt
Revêtue YG-AlCrN - PM60, 2 dents, série courte (Coupe au centre)
Rivestita PM60, 2 TAGLIENTI SERIE CORTA (Tagliente al centro)





PM 60 | 2 | 30° | PLAIN | FLAT

P.629

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
GYG72010	GYF99010	1.0	6	2.5	47
GYG72020	GYF99020	2.0	6	4	48
GYG72030	GYF99030	3.0	6	5	49
GYG72040	GYF99040	4.0	6	7	51
GYG72050	GYF99050	5.0	6	8	52
GYG72060	GYF99060	6.0	6	8	52
GYG72070	GYF99070	7.0	8	10	60
GYG72080	GYF99080	8.0	8	11	61
GYG72090	GYF99090	9.0	10	11	61
GYG72100	GYF99100	10.0	10	13	63
GYG72120	GYF99120	12.0	12	16	73
GYG72140	GYF99140	14.0	12	16	73
GYG72160	GYF99160	16.0	16	19	79
GYG72180	GYF99180	18.0	16	19	79
GYG72200	GYF99200	20.0	20	22	88
GYG72220	GYF99220	22.0	20	22	88
GYG72250	GYF99250	25.0	25	26	102

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	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	N										S							H			
Material Description	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						○	○	○												○	

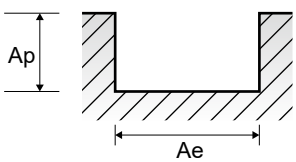
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYG72 , GYF99 SERIES

2 FLUTE - SLOTTING

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)													
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	53	57	65	74	79	78	79	81	84	81	78	72	70	71
					fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.099	0.105	0.116	0.109	0.103
					RPM	8435	6048	5173	4711	4191	3104	2515	2149	1910	1611	1379	1146	1013	904
					FEED	135	194	279	311	319	329	357	327	317	319	290	266	221	186
	2		1.0D	0.5D	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112
					RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764
					FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171
	3-4		1.0D	0.5D	Vc	37	38	48	49	52	54	55	52	53	54	54	53	50	46
					fz	0.008	0.017	0.025	0.035	0.042	0.056	0.079	0.091	0.098	0.1	0.1	0.107	0.104	0.119
					RPM	5889	4032	3820	3119	2759	2149	1751	1379	1205	1074	955	844	723	586
					FEED	94	137	191	218	232	241	277	251	236	215	191	181	150	139
	5		1.0D	0.5D	Vc	24	26	30	32	33	35	34	34	33	34	34	33	33	34
					fz	0.011	0.017	0.023	0.029	0.037	0.051	0.069	0.079	0.086	0.09	0.1	0.104	0.099	0.105
					RPM	3820	2759	2387	2037	1751	1393	1082	902	750	676	601	525	477	433
					FEED	84	94	110	118	130	142	149	142	129	122	120	109	95	91
	6	Low alloy steel	1.0D	0.5D	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112
					RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764
					FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171
	7		1.0D	0.5D	Vc	37	38	48	49	52	54	55	52	53	54	54	53	50	46
					fz	0.008	0.017	0.025	0.035	0.042	0.056	0.079	0.091	0.098	0.1	0.1	0.107	0.104	0.119
					RPM	5889	4032	3820	3119	2759	2149	1751	1379	1205	1074	955	844	723	586
					FEED	94	137	191	218	232	241	277	251	236	215	191	181	150	139
	8		1.0D	0.5D	Vc	24	26	30	32	33	35	34	34	33	34	34	33	33	34
					fz	0.011	0.017	0.023	0.029	0.037	0.051	0.069	0.079	0.086	0.09	0.1	0.104	0.099	0.105
					RPM	3820	2759	2387	2037	1751	1393	1082	902	750	676	601	525	477	433
					FEED	84	94	110	118	130	142	149	142	129	122	120	109	95	91
	9		1.0D	0.3D	Vc	15	20	24	25	26	27	26	26	26	27	27	27	26	24
					fz	0.01	0.017	0.023	0.028	0.036	0.047	0.071	0.071	0.079	0.09	0.094	0.099	0.086	0.1
					RPM	2387	2122	1910	1592	1379	1074	828	690	591	537	477	430	376	306
					FEED	48	72	88	89	99	101	118	98	93	97	90	85	65	61
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112
					RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764
					FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171
	11.1		1.0D	0.5D	Vc	24	26	30	32	33	35	34	34	33	34	34	33	33	34
					fz	0.011	0.017	0.023	0.029	0.037	0.051	0.069	0.079	0.086	0.09	0.1	0.104	0.099	0.105
					RPM	3820	2759	2387	2037	1751	1393	1082	902	750	676	601	525	477	433
					FEED	84	94	110	118	130	142	149	142	129	122	120	109	95	91
	11.2		1.0D	0.3D	Vc	11	14	17	18	18	19	19	18	18	19	19	19	19	16
					fz	0.01	0.018	0.024	0.029	0.036	0.047	0.072	0.071	0.077	0.088	0.096	0.1	0.083	0.095
					RPM	1751	1485	1353	1146	955	756	605	477	409	378	336	302	275	204
					FEED	35	53	65	66	69	71	87	68	63	67	65	60	46	39
M	14.1	Stainless steel	1.0D	0.5D	Vc	17	22	27	28	29	30	29	29	29	29	30	30	29	26
					fz	0.01	0.018	0.024	0.028	0.036	0.047	0.071	0.071	0.08	0.091	0.094	0.101	0.083	0.098
					RPM	2706	2334	2149	1783	1538	1194	923	769	659	577	531	477	420	331
					FEED	54	84	103	100	111	112	131	109	105	105	100	96	70	65
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112
					RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764
					FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171
H	40	Chilled Cast Iron	1.0D	0.3D	Vc	11	14	17	18	18	19	19	18	18	19	19	19	19	16
					fz	0.01	0.018	0.024	0.029	0.036	0.047	0.072	0.071	0.077	0.088	0.096	0.1	0.083	0.095
					RPM	1751	1485	1353	1146	955	756	605	477	409	378	336	302	275	204
					FEED	35	53	65	66	69	71	87	68	63	67	65	60	46	39



SELECTION GUIDE

YG MILLING TOOLS

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

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
	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 (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		Ni or Co Based	Annealed	250	25			
	34			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			