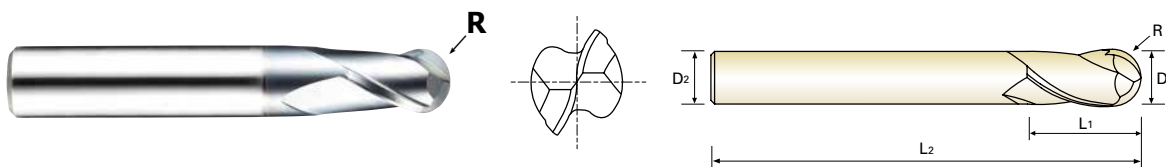


PM60, 2 FLUTE BALL NOSE SHORT LENGTH

- **PM60, 2 Schneiden, Stirnradius kurz**
- **Revêtue YG-AlCrN - PM60, 2 dents, série courte, hémisphérique**
- **Rivestita PM60, 2 TAGLIENTE SERIE CORTA SEMISFERICA**



PM 60
2
30°
R ±0.02
PLAIN
FLAT
P.628

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R(±0.02)	D1	D2	L1	L2
GYG77010	GYF97010	R0.5	1.0	6	2.5	47
GYG77020	GYF97020	R1.0	2.0	6	4	48
GYG77030	GYF97030	R1.5	3.0	6	5	49
GYG77040	GYF97040	R2.0	4.0	6	7	51
GYG77050	GYF97050	R2.5	5.0	6	8	52
GYG77060	GYF97060	R3.0	6.0	6	8	52
GYG77070	GYF97070	R3.5	7.0	8	10	60
GYG77080	GYF97080	R4.0	8.0	8	11	61
GYG77090	GYF97090	R4.5	9.0	10	11	61
GYG77100	GYF97100	R5.0	10.0	10	13	63
GYG77120	GYF97120	R6.0	12.0	12	16	73
GYG77140	GYF97140	R7.0	14.0	12	16	73
GYG77160	GYF97160	R8.0	16.0	16	19	79
GYG77180	GYF97180	R9.0	18.0	16	19	79
GYG77200	GYF97200	R10.0	20.0	20	22	88
GYG77250	GYF97250	R12.5	25.0	25	26	102

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

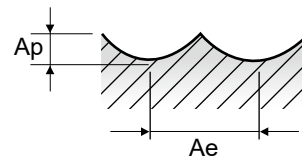
YG ONLY ONE COATED PM60 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYG77 , GYF97 SERIES 2 FLUTE BALL NOSE

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0	
P	1	Non-alloy steel	0.5D	0.2D	Vc	83	90	100	101	104	104	103	102	90	
					fz	0.023	0.036	0.054	0.079	0.109	0.115	0.141	0.156	0.162	
					RPM	8807	7162	5305	4019	3310	2759	2049	1623	1146	
					FEED	405	516	573	635	722	634	578	506	371	
	2		0.5D	0.2D	Vc	66	70	79	78	79	81	78	75	70	
					fz	0.020	0.032	0.046	0.067	0.095	0.097	0.123	0.140	0.140	
					RPM	7003	5570	4191	3104	2515	2149	1552	1194	891	
					FEED	280	357	386	416	478	417	382	334	250	
	3-4		0.5D	0.2D	Vc	44	45	52	54	53	54	54	52	44	
					fz	0.016	0.026	0.039	0.056	0.082	0.083	0.1	0.11	0.125	
					RPM	4669	3581	2759	2149	1687	1432	1074	828	560	
					FEED	149	186	215	241	277	238	215	182	140	
5	0.5D	0.2D	Vc	23	24	27	27	26	26	27	27	24			
			fz	0.014	0.023	0.035	0.047	0.073	0.071	0.090	0.099	0.100			
			RPM	2440	1910	1432	1074	828	690	537	430	306			
			FEED	68	88	100	101	121	98	97	85	61			
6	0.5D	0.2D	Vc	66	70	79	78	79	81	78	75	70			
			fz	0.020	0.032	0.046	0.067	0.095	0.097	0.123	0.140	0.140			
			RPM	7003	5570	4191	3104	2515	2149	1552	1194	891			
			FEED	280	357	386	416	478	417	382	334	250			
7	0.5D	0.2D	Vc	44	45	52	54	53	54	54	52	44			
			fz	0.016	0.026	0.039	0.056	0.082	0.083	0.1	0.11	0.125			
			RPM	4669	3581	2759	2149	1687	1432	1074	828	560			
			FEED	149	186	215	241	277	238	215	182	140			
8-9	0.5D	0.2D	Vc	23	24	27	27	26	26	27	27	24			
			fz	0.014	0.023	0.035	0.047	0.073	0.071	0.090	0.099	0.100			
			RPM	2440	1910	1432	1074	828	690	537	430	306			
			FEED	68	88	100	101	121	98	97	85	61			
10	0.5D	0.2D	Vc	66	70	79	78	79	81	78	75	70			
			fz	0.020	0.032	0.046	0.067	0.095	0.097	0.123	0.140	0.140			
			RPM	7003	5570	4191	3104	2515	2149	1552	1194	891			
			FEED	280	357	386	416	478	417	382	334	250			
11.1	0.5D	0.2D	Vc	23	24	27	27	26	26	27	27	24			
			fz	0.014	0.023	0.035	0.047	0.073	0.071	0.090	0.099	0.100			
			RPM	2440	1910	1432	1074	828	690	537	430	306			
			FEED	68	88	100	101	121	98	97	85	61			
11.2	0.3D	0.2D	Vc	16	17	19	19	18	18	19	19	16			
			fz	0.013	0.024	0.035	0.047	0.075	0.071	0.088	0.1	0.095			
			RPM	1698	1353	1008	756	573	477	378	302	204			
			FEED	44	65	71	71	86	67	67	60	39			
M	14.1	Stainless steel	0.5D	0.2D	Vc	25	27	30	30	28	29	30	30	26	
					fz	0.013	0.023	0.036	0.049	0.072	0.075	0.093	0.099	0.098	
					RPM	2653	2149	1592	1194	891	769	597	477	331	
					FEED	69	99	115	117	128	115	111	95	65	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	0.2D	Vc	66	70	79	78	79	81	78	75	70	
					fz	0.02	0.032	0.046	0.067	0.095	0.097	0.123	0.14	0.14	
					RPM	7003	5570	4191	3104	2515	2149	1552	1194	891	
					FEED	280	357	386	416	478	417	382	334	250	
H	40	Chilled Cast Iron	0.3D	0.2D	Vc	16	17	19	19	18	18	19	19	16	
					fz	0.013	0.024	0.035	0.047	0.075	0.071	0.088	0.1	0.095	
					RPM	1698	1353	1008	756	573	477	378	302	204	
					FEED	44	65	71	71	86	68	67	60	39	



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

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



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	YG77	YG72	YG01	
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 (PB>1%)	110		○	○	○	
	27	Copper and Copper Alloys (Bronze / Brass)	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				