YE-EV26 EUROPE



YG EV MILLS

Economical High-Performance Solid Carbide End Mills

- Chatter free design for High-Speed Milling
- Short plain and from Flat adapted shank to save material
- Short 1xD Length-of-Cut to cover most applications and to maintain stability

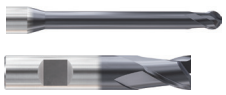
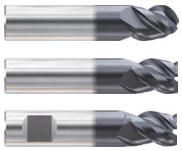
EXPANSION Take advantage of expanded length and diameter options to fully realize the benefits of EV Mill's multi-material capabilities.



EV MILLS

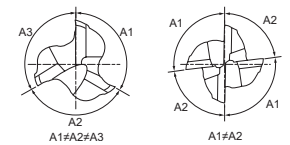
- Extremely stable due to short design addressing also the growing market of mill-turn machines
- Environmentally friendly design minimizes raw material and grinding costs
- Soft cut to support mill-turn machines as well driven units in lathe tooling
- Radius transition created between floor and wall (according DIN) with undersize end mills increases durability of machined shafts
- Instead of regrinding use a new EV MILL with 100% performance

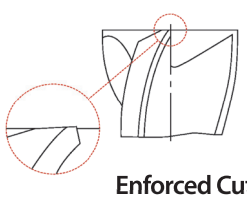
PRODUCT FEATURES & LINE UP

	2 Flute	Ball Nose Square	Ø0.3mm – Ø12mm	Ensures smooth chip evacuation and easy programming
	3 Flute	Ball Nose Square Corner Radius	Ø0.3mm – Ø12mm	Low cutting forces and corner radius diameters for key-way cutting
	4 Flute	Ball Nose Corner Radius Square	Ø1mm – Ø12mm	Highest metal removal rates and tool life

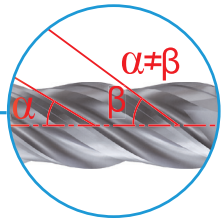
PRODUCT GEOMETRY

Unequal Index
Unique geometry applied to reduce vibration and also to achieve excellent chip evacuation for better surface finish

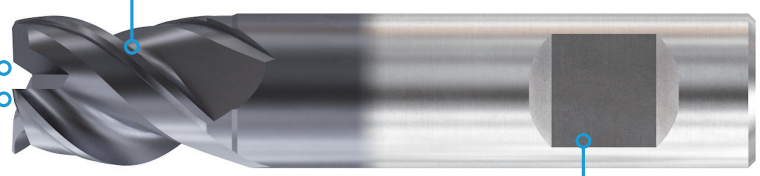




Enforced Cutting Edge
Increasing corner stability at square end mills to enable higher tool life



Multiple Helix
For optimal chip formation and chip evacuation concluding faster and heavier cutting providing higher productivity





Ultra Fine Grain Carbide
Premium carbide substrate achieving exceptional wear resistance

Adapted Straight Shank
Common clamping adaptors are applicable, only hydraulic chucks require use of a sleeve to avoid vibrations

CASE STUDY

TEST I SLOTTING

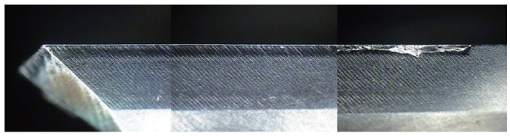
Ø10mm 3 Flute End Mill

Cutting Condition

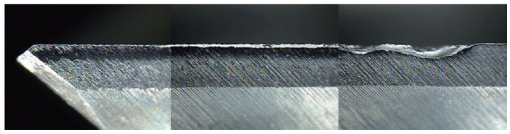
Tool	Ø10mm
Work Material	- DIN: C45 (1.0503) - JIS: S45C - AISI: 1045
RPM (rev./min.)	6,400 rev./min.
Feed (mm/min.)	1,150 mm/min.
Milling Depth (mm)	10.0mm (1xD) (Axial Depth) 10.0mm (1xD) (Radial Depth)
Coolant	Water Soluble
Machine	Machining Center

Wear after 21.4m in cut

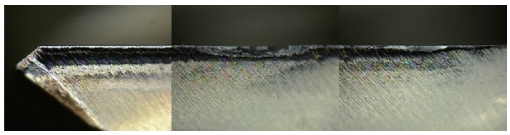
YG



Competitor 1



Competitor 2



TEST II SIDE MILLING

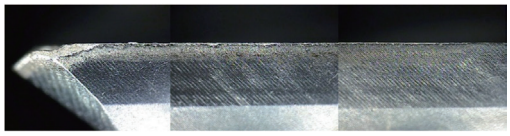
Ø10mm 3 Flute End Mill

Cutting Condition

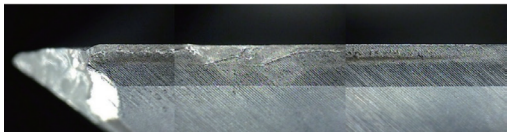
Tool	Ø10mm
Work Material	- DIN: X2CrNiMo17-12-2 (1.4404) - JIS: SUS316L - AISI: 316L
RPM (rev./min.)	3,500 rev./min.
Feed (mm/min.)	630 mm/min.
Milling Depth (mm)	10.0mm (1xD) (Axial Depth) 5.0mm (0.5xD) (Radial Depth)
Coolant	Water Soluble
Machine	Machining Center

Wear after 8.4m in cut

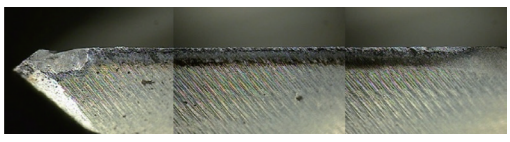
YG (After Cutting 8.4m)



Competitor 1 (Broken At 3.2m)



Competitor 2 (After Cutting 8.4m)



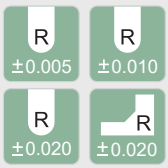
GUIDE TO ICONS



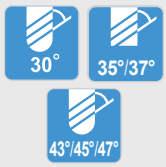
The tool is made of Ultra Fine Grain carbide



No. of Flutes



Tolerance of Radius



Helix Angle



Type of Shank

Chamfer Angle



Type of Coating



Cutting Conditions

SOLID CARBIDE END MILL
EV MILLS

Please visit globalyg1.com/mat for material search

Recommended cutting conditions : p.19-31

◎ : Excellent ○ : Good

SERIES	GMK57	GMK62	GMK65	GMK60 GMK61
FLUTE	2	3	4	3
HELIX ANGLE	30°	43°/45°/47° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	43°/45°/47° (MULTIPLE HELIX)
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS
SIZE MIN	R1.0	R1.0	R1.0	D1.8
SIZE MAX	R6.0	R6.0	R6.0	D11.7
PAGE	6	7	8	9
	Y-Coating			



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	GMK57	GMK62	GMK65	GMK60 GMK61
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	◎	◎	◎	◎
	11.1			Quenched & Tempered	325	35	◎	◎	◎	◎
	11.2			Quenched & Tempered	409	44	◎			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		○	○	○
	13		Martensitic	Quenched & Tempered	240	23		○	○	○
	14.1			Austenitic	180	10		○	○	○
	14.2			PH Stainless steel	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					
	29.1	Non Metallic Materials	Duroplastic							
	29.2		GRAPHITE							
	29.3		CFRP, GFRP							
	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	38.1	Hardened steel		Hardened	421-469	45-49	○			
	38.2			Hardened	481-560	50-55				
	39.1			Hardened	577-654	56-60				
	39.2			Hardened	670-739	61-65				
	39.3			Hardened		66-70				
	40	Chilled Cast Iron		Cast	400	42	○			
	41	Hardened Cast Iron		Hardened	550	55				

GML17 GML18	GMK55 GMK56	GMK58 GMK59	GMK63 GMK64	GMK31	GMK49	GMK51	GMK32	GMK33		
4	2	3	4	2	2	4	2	4		
35°/37° (MULTIPLE HELIX)	30°	43°/45°/47° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	30°	30°	30°, 30°/33° (MULTIPLE HELIX)	30°	37°, 35°/38° (MULTIPLE HELIX)		
CORNER RADIUS	SQUARE	SQUARE	SQUARE	BALL NOSE	BALL NOSE LONG NECK	CORNER RADIUS	SQUARE	SQUARE		
D1.0	D0.3	D0.3	D1.0	R0.5	R1.5	D1.0	D1.0	D1.0		
D12.0	D12.0	D12.0	D12.0	R6.0	R6.0	D12.0	D12.0	D12.0		
10	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**		
Y-Coating										
										
◎	◎	◎	◎	◎	◎	◎	◎	◎	1	P
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◎	◎	◎	◎	◎	◎	◎	◎	◎	9	
◎	◎	◎	◎	◎	◎	◎	◎	◎	10	
◎	◎	◎	◎	◎	◎	◎	◎	◎	11.1	
	◎			◎	◎	◎	◎	◎	11.2	
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○		○	○			○		○	13	
○	○	○	○			○	○	○	14.1	
○		○	○			○		○	14.2	
○	○	○	○	○	○	○	○	○	15	K
○	○	○	○	○	○	○	○	○	16	
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				○	○	○		○	38.1	H
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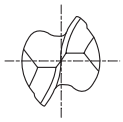
				○	○	○		○	40	
									41	

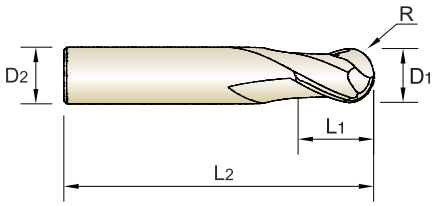
SOLID CARBIDE END MILLS
2 FLUTE BALL NOSE

SERIES
PLAIN SHANK **GMK57**

- For precision finishing applications providing higher accuracy than 3&4 Flute Ball Nose tools
- Wide flutes allow for smooth chip evacuation
- Short overhang for applications on Mill-Turn machines or with Driven Tooling at Lathes







CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.19

R1.0~R3.0 R4.0~R6.0

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
GMK57020	R1.0	**2.0**	6	4.5	38
GMK57030	R1.5	**3.0**	6	5.5	38
GMK57040	R2.0	**4.0**	6	7.5	43
GMK57050	R2.5	**5.0**	6	9	43
GMK57060	R3.0	**6.0**	6	9	43
GMK57080	R4.0	**8.0**	8	12	50
GMK57100	R5.0	**10.0**	10	14	55
GMK57120	R6.0	**12.0**	12	16.5	60

▶ Note: Use of hydraulic chucks requires reducer sleeves to ensure stable clamping

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h5
over R3	±0.010	0~-0.015	

◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					○	○	○	○	○	○

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	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended																		○					○	

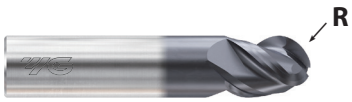
SOLID CARBIDE END MILLS

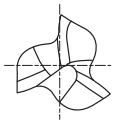
3 FLUTE BALL NOSE

SERIES

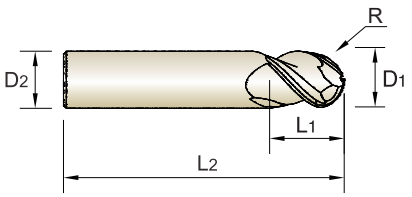
PLAIN SHANK **GMK62**

▶ For roughing and semi-finishing applications having one edge to center
▶ Smooth cutting action, unequal flute geometry and multiple helix eliminate vibrations
▶ Short overhang for applications on Mill-Turn machines or with Driven Tooling at Lathes





Unequal Index





p.20

D1<Ø3, 45° HELIX

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
GMK62020	R1.0	**2.0**	6	4.5	38
GMK62030	R1.5	**3.0**	6	5.5	38
GMK62040	R2.0	**4.0**	6	7.5	38
GMK62050	R2.5	**5.0**	6	9	38
GMK62060	R3.0	**6.0**	6	9	38
GMK62080	R4.0	**8.0**	8	12	43
GMK62100	R5.0	**10.0**	10	14	50
GMK62120	R6.0	**12.0**	12	16.5	55

▶ Note: Use of hydraulic chucks requires reducer sleeves to ensure stable clamping

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
±0.020	0~-0.020	h5

◎ : Excellent ○ : Good

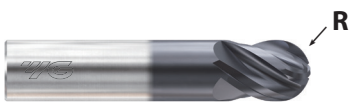
ISO	P												M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel			Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	○	○	○	○	○

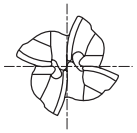
ISO	N										S							H					
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys			Hardened steel					Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended											○	○	○	○	○	○	○							

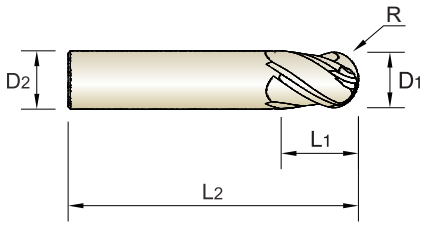
SOLID CARBIDE END MILLS
4 FLUTE BALL NOSE

SERIES
PLAIN SHANK **GMK65**

- For roughing and finishing applications having two edges to center
- Unequal flute geometry and multiple helix eliminate vibrations
- Excellent performance in Steels under HRc40 and other materials
- Short overhang for applications on Mill-Turn machines or with Driven Tooling at Lathes







CARBIDE | 4 | 35°/37° | R ±0.020 | PLAIN | Y Coating | p.21

D1<Ø3, 37° HELIX

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
GMK65020	R1.0	**2.0**	6	4.5	38
GMK65030	R1.5	**3.0**	6	5.5	38
GMK65040	R2.0	**4.0**	6	7.5	38
GMK65050	R2.5	**5.0**	6	9	38
GMK65060	R3.0	**6.0**	6	9	38
GMK65080	R4.0	**8.0**	8	12	43
GMK65100	R5.0	**10.0**	10	14	50
GMK65120	R6.0	**12.0**	12	16.5	55

▶ Note: Use of hydraulic chucks requires reducer sleeves to ensure stable clamping

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
±0.020	0~-0.020	h5

◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	○	○	○	○	○

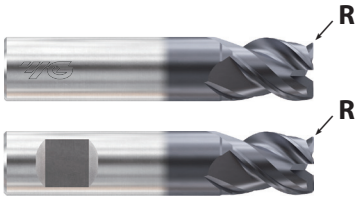
ISO	N										S							H						
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel					Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended											○	○	○	○	○	○	○							

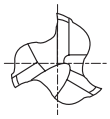
SOLID CARBIDE END MILLS

3 FLUTE CORNER RADIUS for KEYWAY MILLING

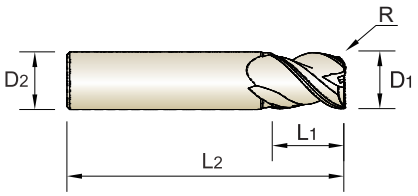
PLAIN SHANK **GMK60**
FLAT SHANK **GMK61**

▶ Special undersize design for key-way slots to comply with DIN 6885 while ramping, slotting and finishing with one tool
▶ Smooth cutting action, unequal flute geometry and multiple helix eliminate vibrations
▶ Short overhang for applications on Mill-Turn machines or with Driven Tooling at Lathes





Unequal Index



CARBIDE | 3 | 43°/45°/47° | R ±0.020 | PLAIN | FLAT | Y Coating | p.23

D1<Ø3, 45° HELIX

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_2
GMK60018	**GMK61018**	R0.12	**1.8**	6	4.5	38
GMK60028	**GMK61028**	R0.12	**2.8**	6	5.5	38
GMK60038	**GMK61038**	R0.2	**3.8**	6	7.5	38
GMK60048	**GMK61048**	R0.2	**4.8**	6	9	38
GMK600575	**GMK610575**	R0.2	**5.75**	6	9	38
GMK600775	**GMK610775**	R0.2	**7.75**	8	12	43
GMK60097	**GMK61097**	R0.33	**9.7**	10	14	50
GMK60117	**GMK61117**	R0.33	**11.7**	12	16.5	55

▶ Note: Use of hydraulic chucks requires reducer sleeves to ensure stable clamping

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
±0.020	0~-0.020	h5

◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	○	○	○	○	○

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	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended											○	○	○	○	○	○	○							

SERIES

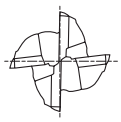
NEW PLAIN SHANK **GML17**

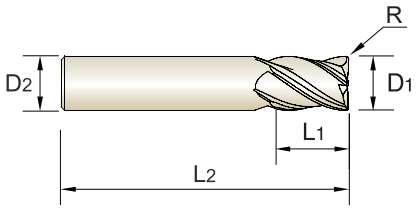
NEW FLAT SHANK **GML18**

SOLID CARBIDE END MILLS
4 FLUTE CORNER RADIUS

▶Reduces vibration during machining, ensuring superior surface finish and tool life
▶Highest metal removal rates and tool life







CARBIDE | 4 | 35°/37° | R ±0.020 | PLAIN | FLAT | Y Coating

p.24-25

D1<Ø3, 37° HELIX

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_2
GML17010	-	R0.3	**1.0**	3	2	38
GML17020	**GML18020**	R0.3	**2.0**	6	4.5	38
GML17030	**GML18030**	R0.3	**3.0**	6	5.5	38
GML17040	**GML18040**	R0.3	**4.0**	6	7.5	38
GML17050	**GML18050**	R0.3	**5.0**	6	9	38
GML17060	**GML18060**	R0.3	**6.0**	6	9	38
GML17901	**GML18901**	R0.5	**6.0**	6	9	38
GML17080	**GML18080**	R0.5	**8.0**	8	12	43
GML17100	**GML18100**	R0.5	**10.0**	10	14	50
GML17120	**GML18120**	R0.5	**12.0**	12	16.5	55
GML17902	**GML18902**	R1.0	**12.0**	12	16.5	55

▶ Note: Use of hydraulic chucks requires reducer sleeves to ensure stable clamping

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
±0.020	0~-0.020	h5

◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	○	○	○	○	○

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	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended											○	○	○	○	○	○	○							

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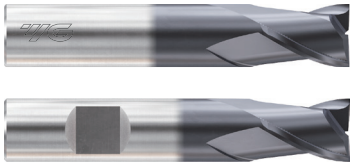
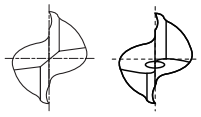
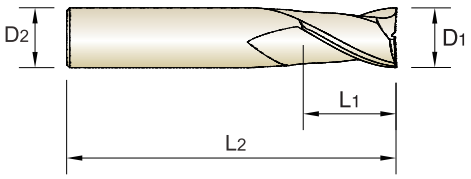
SOLID CARBIDE END MILLS
2 FLUTE SQUARE

PLAIN SHANK **GMK55**
FLAT SHANK **GMK56**

▶ Wide flutes allow for smooth chip evacuation with difficult to machine materials
▶ Short overhang and lower cutting forces for applications on Mill-Turn machines or with Driven Tooling at Lathes







CARBIDE | 2 | 30° | PLAIN | FLAT | Y Coating

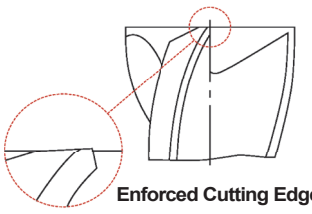
p.26-27

✻ NEW SIZE Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
✻ **GMK55003**	-	**0.3**	3	1	38
✻ **GMK55004**	-	**0.4**	3	1	38
✻ **GMK55901**	-	**0.5**	3	1.5	38
✻ **GMK55902**	-	**0.6**	3	1.5	38
✻ **GMK55903**	-	**0.8**	3	2	38
✻ **GMK55904**	-	**1.0**	3	2	38
✻ **GMK55905**	-	**1.2**	3	2	38
✻ **GMK55906**	-	**1.5**	3	2	38
✻ **GMK55907**	-	**1.8**	3	2	38
GMK55020	**GMK56020**	**2.0**	6	4.5	38
✻ **GMK55025**	✻ **GMK56025**	**2.5**	6	5	38
GMK55030	**GMK56030**	**3.0**	6	5.5	38
GMK55040	**GMK56040**	**4.0**	6	7.5	43
GMK55050	**GMK56050**	**5.0**	6	9	43
GMK55060	**GMK56060**	**6.0**	6	9	43
GMK55080	**GMK56080**	**8.0**	8	12	50
GMK55100	**GMK56100**	**10.0**	10	14	55
GMK55120	**GMK56120**	**12.0**	12	16.5	60

▶ Note: Use of hydraulic chucks requires reducer sleeves to ensure stable clamping

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~-0.012	h5
over Ø6	0~-0.015	



◎ : Excellent ○ : Good

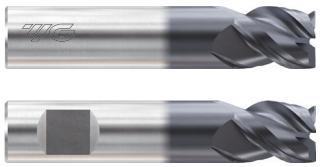
ISO	P												M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel			Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			○		○	○	○	○	○	○

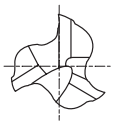
ISO	N										S							H						
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel					Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended																								

SERIES
PLAIN SHANK **GMK58**
FLAT SHANK **GMK59**

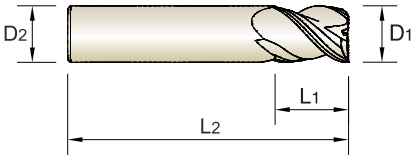
SOLID CARBIDE END MILLS
3 FLUTE SQUARE

- For roughing and finishing applications having one edge to center
- Unequal flute geometry and multiple helix eliminate vibrations
- Excellent performance in Steels under HRc40 and other materials
- Short overhang for applications on Mill-Turn machines or with Driven Tooling at Lathes





D1< 1 : Equal Index
D1≥ 1 : Unequal Index



CARBIDE | 3 | 43°/45°/47° | PLAIN | FLAT | Y Coating

p.28-29

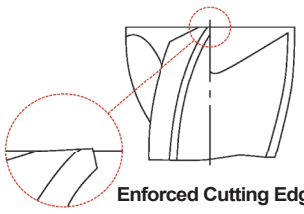
D1<Ø3, 45° HELIX

✻ NEW SIZE Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
✻ GMK58003	-	0.3	3	1	38
✻ GMK58004	-	0.4	3	1	38
✻ GMK58901	-	0.5	3	1.5	38
✻ GMK58902	-	0.6	3	1.5	38
✻ GMK58903	-	0.8	3	2	38
✻ GMK58904	-	1.0	3	2	38
✻ GMK58905	-	1.2	3	2	38
✻ GMK58906	-	1.5	3	2	38
✻ GMK58907	-	1.8	3	2	38
GMK58020	GMK59020	2.0	6	4.5	38
✻ GMK58025	✻ GMK59025	2.5	6	5	38
GMK58030	GMK59030	3.0	6	5.5	38
GMK58040	GMK59040	4.0	6	7.5	38
GMK58050	GMK59050	5.0	6	9	38
GMK58060	GMK59060	6.0	6	9	38
GMK58080	GMK59080	8.0	8	12	43
GMK58100	GMK59100	10.0	10	14	50
GMK58120	GMK59120	12.0	12	16.5	55

▶ Note: Use of hydraulic chucks requires reducer sleeves to ensure stable clamping

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0~-0.020	h5



◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	○	○	○	○	○

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	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended											○	○	○	○	○	○	○							

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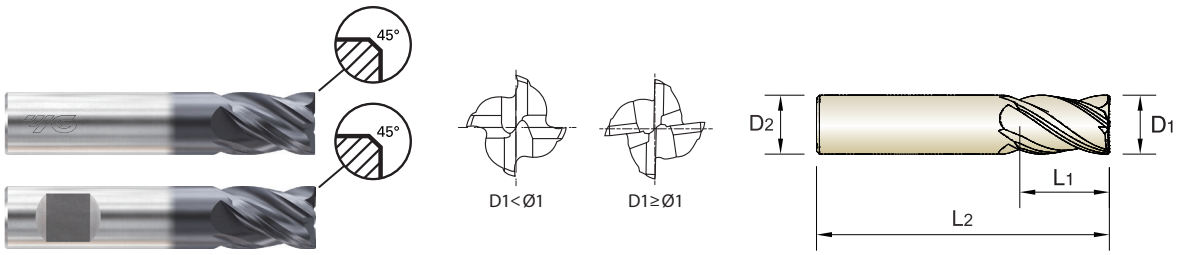
SOLID CARBIDE END MILLS
4 FLUTE SQUARE

PLAIN SHANK **GMK63**
FLAT SHANK **GMK64**

- For roughing and finishing applications having two edges to center
- Unequal flute geometry and multiple helix eliminate vibrations
- Excellent performance in Steels under HRc40 and other materials
- Short overhang for applications on Mill-Turn machines or with Driven Tooling at Lathes



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | C x 45° | Y Coating

p.24-25

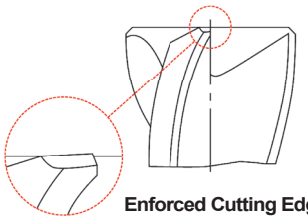
D1<Ø3, 37° HELIX

* NEW SIZE Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer Size
PLAIN	FLAT	D1	D2	L1	L2	
* **GMK63901**	-	**1.0**	3	2	38	0.03
* **GMK63902**	-	**1.2**	3	2	38	0.03
* **GMK63903**	-	**1.5**	3	2	38	0.05
* **GMK63904**	-	**1.8**	3	2	38	0.05
GMK63020	**GMK64020**	**2.0**	6	4.5	38	0.1
* **GMK63025**	* **GMK64025**	**2.5**	6	5	38	0.1
GMK63030	**GMK64030**	**3.0**	6	5.5	38	0.1
GMK63040	**GMK64040**	**4.0**	6	7.5	38	0.15
GMK63050	**GMK64050**	**5.0**	6	9	38	0.15
GMK63060	**GMK64060**	**6.0**	6	9	38	0.2
GMK63080	**GMK64080**	**8.0**	8	12	43	0.2
GMK63100	**GMK64100**	**10.0**	10	14	50	0.3
GMK63120	**GMK64120**	**12.0**	12	16.5	55	0.35

▶ Note: Use of hydraulic chucks requires reducer sleeves to ensure stable clamping

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0~-0.020	h5



◎ : Excellent ○ : Good

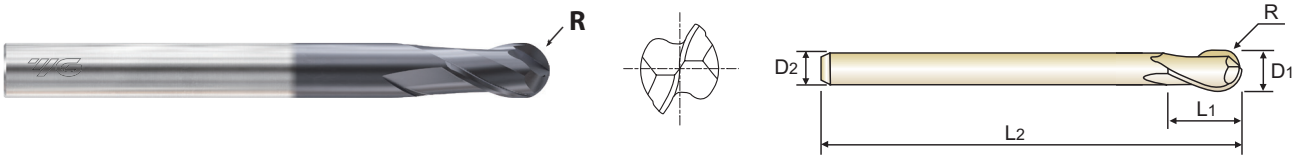
ISO	P												M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel			Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	○	○	○	○	○

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	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended											○	○	○	○	○	○	○							

SOLID CARBIDE END MILLS
2 FLUTE BALL NOSE

NEW SERIES
PLAIN SHANK **GMK31**

▶Ensures smooth chip evacuation and enhanced cutting performance at the ball tip



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating

p.19

R0.5~R3.0 R4.0~R6.0

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
GMK31010	R0.5	**1.0**	6	2.5	50
GMK31012	R0.6	**1.2**	6	3	50
GMK31015	R0.75	**1.5**	6	4	50
GMK31015070	R0.75	**1.5**	6	4	70
GMK31020	R1.0	**2.0**	6	5	50
GMK31020080	R1.0	**2.0**	6	5	80
GMK31025	R1.25	**2.5**	6	6	60
GMK31030	R1.5	**3.0**	6	6	60
GMK31030080	R1.5	**3.0**	6	6	80
GMK31040	R2.0	**4.0**	6	8	70
GMK31040100	R2.0	**4.0**	6	8	100
GMK31050	R2.5	**5.0**	6	10	80
GMK31060	R3.0	**6.0**	6	12	90
GMK31060075	R3.0	**6.0**	6	12	75
GMK31060150	R3.0	**6.0**	6	12	150
GMK31080	R4.0	**8.0**	8	14	100
GMK31080075	R4.0	**8.0**	8	14	75
GMK31080150	R4.0	**8.0**	8	14	150
GMK31100	R5.0	**10.0**	10	18	100
GMK31100150	R5.0	**10.0**	10	18	150
GMK31120	R6.0	**12.0**	12	22	110
GMK31120150	R6.0	**12.0**	12	22	150

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.005	0~-0.012	h5
over Ø6	±0.010	0~-0.015	

◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					○	○	○	○	○	○

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	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended																		○					○	

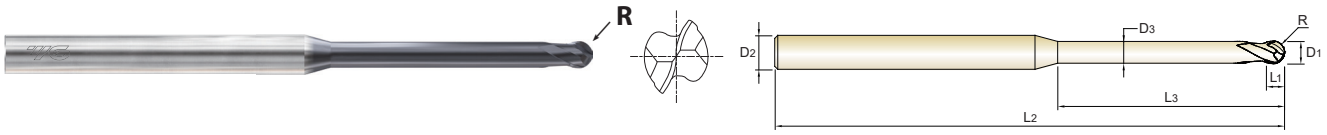
SOLID CARBIDE END MILLS

2 FLUTE BALL NOSE WITH LONG NECK

NEW SERIES

PLAIN SHANK **GMK49**

▶Ensures smooth chip evacuation and enhanced cutting performance at the ball tip



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.22

R1.5~R3.0 R3.5~R6.0

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
GMK4903006	R1.5	**3.0**	6	2.4	6	50	2.85
GMK4903010	R1.5	**3.0**	6	2.4	10	50	2.85
GMK4903012	R1.5	**3.0**	6	2.4	12	50	2.85
GMK4903018	R1.5	**3.0**	6	2.4	18	60	2.85
GMK4904008	R2.0	**4.0**	6	3.2	8	50	3.85
GMK4904012	R2.0	**4.0**	6	3.2	12	50	3.85
GMK4904016	R2.0	**4.0**	6	3.2	16	60	3.85
GMK4904026	R2.0	**4.0**	6	3.2	26	65	3.85
GMK4905015	R2.5	**5.0**	6	6	15	60	4.85
GMK4905030	R2.5	**5.0**	6	6	30	70	4.85
GMK4906020	R3.0	**6.0**	6	8	20	60	5.85
GMK4906020090	R3.0	**6.0**	6	12	20	90	5.85
GMK4906030090	R3.0	**6.0**	6	12	30	90	5.85
GMK4908025	R4.0	**8.0**	8	10	25	70	7.70
GMK4908035100	R4.0	**8.0**	8	14	35	100	7.70
GMK4910030	R5.0	**10.0**	10	12	30	75	9.70
GMK4910040100	R5.0	**10.0**	10	18	40	100	9.70
GMK4912032	R6.0	**12.0**	12	14	32	80	11.70
GMK4912045110	R6.0	**12.0**	12	22	45	110	11.70

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h5
over R3	±0.010	0~-0.015	

◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					○	○	○	○	○	○

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	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended																		○					○	

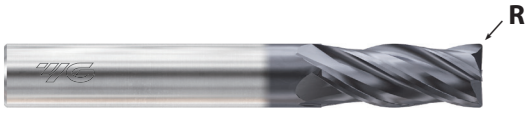
SOLID CARBIDE END MILLS

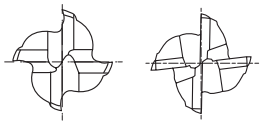
4 FLUTE CORNER RADIUS

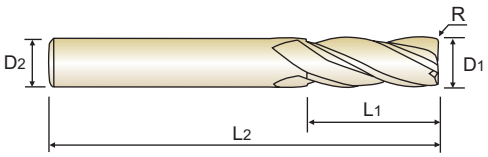
NEW SERIES

PLAIN SHANK **GMK51**

▶Reduces vibration during machining, ensuring superior surface finish and tool life
▶Highest metal removal rates and tool life







CARBIDE | 4 | 30°/33° | R ±0.020 | PLAIN | Y Coating | p.30

D1<Ø3, 30° HELIX

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
GMK5101003	R0.3	**1.0**	6	2.5	50
GMK5102003	R0.3	**2.0**	6	6	50
GMK5103003	R0.3	**3.0**	6	8	60
GMK5104003060	R0.3	**4.0**	6	10	60
GMK5105003070	R0.3	**5.0**	6	13	70
GMK5106003075	R0.3	**6.0**	6	13	75
GMK5106005075	R0.5	**6.0**	6	13	75
GMK5108005075	R0.5	**8.0**	8	19	75
GMK5110005080	R0.5	**10.0**	10	22	80
GMK5112005090	R0.5	**12.0**	12	26	90
GMK5112010090	R1.0	**12.0**	12	26	90

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
±0.020	0~-0.020	h5

◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

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	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended																		○					○	

Phone: +82-32-526-0909, www.yg1.solutions, E-mail: yg1@yg1.solutions

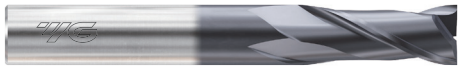
SOLID CARBIDE END MILLS

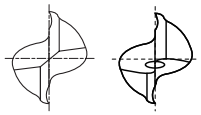
2 FLUTE SQUARE

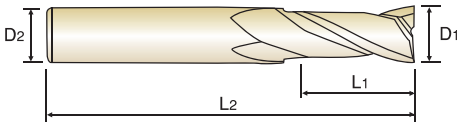
NEW SERIES

PLAIN SHANK **GMK32**

▶Strengthens the cutting edge by incorporating bottom land touch for improved durability







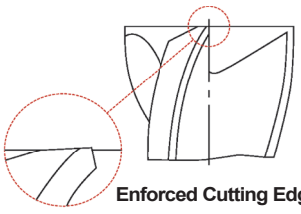
CARBIDE | 2 | 30° | PLAIN | Y Coating

p.26-27

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D_1	D_2	L_1	L_2
GMK32010	**1.0**	6	2.5	50
GMK32012	**1.2**	6	3	50
GMK32015	**1.5**	6	4	50
GMK3202004	**2.0**	6	4	50
GMK3203006	**3.0**	6	6	50
GMK32040	**4.0**	6	10	50
GMK3205013	**5.0**	6	13	60
GMK32060	**6.0**	6	15	60
GMK32080	**8.0**	8	20	70
GMK32100	**10.0**	10	25	75
GMK32120	**12.0**	12	30	80

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~-0.012	h5
over Ø6	0~-0.015	



◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			○		○	○	○	○	○	○

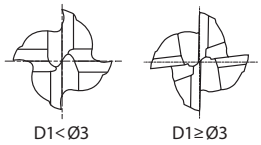
ISO	N										S							H						
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel					Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended																								

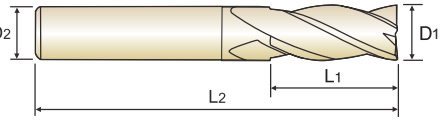
SOLID CARBIDE END MILLS
4 FLUTE SQUARE

NEW SERIES
PLAIN SHANK **GMK33**

▶Strengthens the cutting edge by incorporating bottom land touch for improved durability







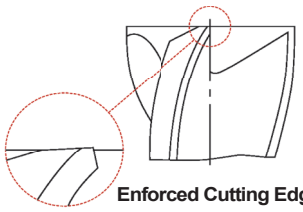
CARBIDE | 4 | 35°/38° | PLAIN | Y Coating | p.31

D1<Ø3, 37° HELIX

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMK33010	**1.0**	6	2.5	50
GMK33012	**1.2**	6	3	50
GMK33015	**1.5**	6	4	50
GMK33020	**2.0**	6	6	50
GMK33025	**2.5**	6	7	50
GMK33030	**3.0**	6	8	50
GMK33040	**4.0**	6	10	50
GMK3305013	**5.0**	6	13	60
GMK33060	**6.0**	6	15	60
GMK33080	**8.0**	8	20	70
GMK33100	**10.0**	10	25	75
GMK33120	**12.0**	12	30	80

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0~-0.020	h5



Enforced Cutting Edge

◎ : 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	11.1	11.2	12	13	14.1	14.2	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	44	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	409	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○

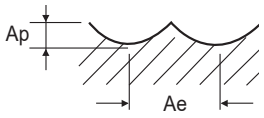
ISO	N										S							H						
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel					Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38.1	38.2	39.1	39.2	39.3	40	41
HRc											15	30	25	38	34			45-49	50-55	56-60	61-65	66-70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	421-469	481-560	577-654	670-739		400	550
Recommended											○	○	○	○	○	○	○	○					○	

GMK57, GMK31 SERIES

2 FLUTE BALL NOSE

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

ISO	VDI 3323	Material Description	Ae	Ap	Para-meter	Diameter (Ø)													
						0.5	0.6	0.8	1	1.2	1.5	1.8	2	3	4	5	6	8	10	12
P	1-4	Non-alloy steel	0.2D	0.1D	Vc	47	47	48	49	60	72	80	87	119	128	140	155	175	194	213
					fz	0.004	0.005	0.006	0.008	0.009	0.011	0.018	0.026	0.026	0.035	0.045	0.060	0.090	0.120	0.150
					RPM	29921	24934	19099	15600	15915	15280	14147	13850	12630	10190	8910	8220	6960	6180	5650
					FEED	239	249	229	250	286	340	509	720	660	710	800	990	1250	1480	1700
	5		0.2D	0.1D	Vc	37	37	38	39	45	55	60	65	91	103	112	126	141	155	170
					fz	0.004	0.005	0.006	0.008	0.009	0.011	0.018	0.026	0.026	0.035	0.045	0.060	0.090	0.120	0.150
					RPM	23555	19629	15120	12410	11937	11670	10610	10350	9660	8200	7130	6680	5610	4930	4510
					FEED	188	196	181	200	215	260	382	540	500	570	640	800	1010	1180	1350
	6-7	Low alloy steel	0.2D	0.1D	Vc	47	47	48	49	60	72	80	87	119	128	140	155	175	194	213
					fz	0.004	0.005	0.006	0.008	0.009	0.011	0.018	0.026	0.026	0.035	0.045	0.060	0.090	0.120	0.150
					RPM	29921	24934	19099	15600	15915	15280	14147	13850	12630	10190	8910	8220	6960	6180	5650
					FEED	239	249	229	250	286	340	509	720	660	710	800	990	1250	1480	1700
	8-9		0.2D	0.1D	Vc	37	37	38	39	45	55	60	65	91	103	112	126	141	155	170
					fz	0.004	0.005	0.006	0.008	0.009	0.011	0.018	0.026	0.026	0.035	0.045	0.060	0.090	0.120	0.150
					RPM	23555	19629	15120	12410	11937	11670	10610	10350	9660	8200	7130	6680	5610	4930	4510
					FEED	188	196	181	200	215	260	382	540	500	570	640	800	1010	1180	1350
	10	High alloyed steel, and tool steel	0.2D	0.1D	Vc	47	47	48	49	60	72	80	87	119	128	140	155	175	194	213
					fz	0.004	0.005	0.006	0.008	0.009	0.011	0.018	0.026	0.026	0.035	0.045	0.060	0.090	0.120	0.150
					RPM	29921	24934	19099	15600	15915	15280	14147	13850	12630	10190	8910	8220	6960	6180	5650
					FEED	239	249	229	250	286	340	509	720	660	710	800	990	1250	1480	1700
	11.1		0.2D	0.1D	Vc	37	37	38	39	45	55	60	65	91	103	112	126	141	155	170
					fz	0.004	0.005	0.006	0.008	0.009	0.011	0.018	0.026	0.026	0.035	0.045	0.060	0.090	0.120	0.150
					RPM	23555	19629	15120	12410	11937	11670	10610	10350	9660	8200	7130	6680	5610	4930	4510
					FEED	188	196	181	200	215	260	382	540	500	570	640	800	1010	1180	1350
	11.2		0.1D	0.1D	Vc	15	15	16	17	20	24	26	28	42	51	56	58	60	62	64
					fz	0.004	0.005	0.006	0.008	0.009	0.011	0.018	0.026	0.026	0.035	0.045	0.060	0.090	0.120	0.150
					RPM	9549	7958	6366	5410	5305	5090	4598	4460	4460	4060	3570	3080	2390	1970	1700
					FEED	76	80	76	90	95	110	166	230	230	280	320	370	430	470	510

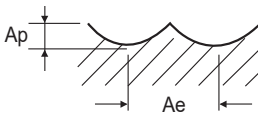


GMK62 SERIES

3 FLUTE BALL NOSE

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

ISO	VDI 3323	Material Description	Ae	Ap	Para-meter	Diameter (Ø)													
						0.5	0.6	0.8	1	1.2	1.5	1.8	2	3	4	5	6	8	10	12
P	1-4	Non-alloy steel	0.5D	0.8D	Vc	130	130	130	145	145	145	145	145	162	162	162	162	162	162	162
					fz	0.005	0.006	0.008	0.011	0.013	0.016	0.019	0.022	0.025	0.027	0.030	0.040	0.060	0.065	0.070
					RPM	82761	68967	51725	46155	38462	30770	25642	23077	17189	12892	10313	8594	6446	5157	4297
					FEED	1241	1241	1241	1523	1500	1477	1462	1523	1289	1044	928	1031	1160	1006	902
	5		0.5D	0.8D	Vc	90	90	90	101	101	101	101	101	113	113	113	113	113	113	113
					fz	0.005	0.006	0.008	0.011	0.013	0.016	0.019	0.022	0.025	0.027	0.030	0.040	0.060	0.065	0.070
					RPM	57296	47746	35810	32149	26791	21433	17861	16075	11990	8992	7194	5995	4496	3597	2997
					FEED	859	859	859	1061	1045	1029	1018	1061	899	728	647	719	809	701	629
	6-7	Low alloy steel	0.5D	0.8D	Vc	130	130	130	145	145	145	145	145	162	162	162	162	162	162	162
					fz	0.005	0.006	0.008	0.011	0.013	0.016	0.019	0.022	0.025	0.027	0.030	0.040	0.060	0.065	0.070
					RPM	82761	68967	51725	46155	38462	30770	25642	23077	17189	12892	10313	8594	6446	5157	4297
					FEED	1241	1241	1241	1523	1500	1477	1462	1523	1289	1044	928	1031	1160	1006	902
	8-9		0.5D	0.8D	Vc	90	90	90	101	101	101	101	101	113	113	113	113	113	113	113
					fz	0.005	0.006	0.008	0.011	0.013	0.016	0.019	0.022	0.025	0.027	0.030	0.040	0.060	0.065	0.070
					RPM	57296	47746	35810	32149	26791	21433	17861	16075	11990	8992	7194	5995	4496	3597	2997
					FEED	859	859	859	1061	1045	1029	1018	1061	899	728	647	719	809	701	629
	10 - 11.1	High alloyed steel, and tool steel	0.5D	0.8D	Vc	55	55	55	61	61	61	61	61	68	68	68	68	68	68	68
					fz	0.004	0.005	0.007	0.007	0.009	0.011	0.012	0.014	0.017	0.019	0.021	0.028	0.042	0.045	0.049
					RPM	35014	29178	21884	19417	16181	12945	10787	9708	7215	5411	4329	3608	2706	2165	1804
					FEED	420	438	460	408	437	427	388	408	368	308	273	303	341	292	265
M	12 - 13	Stainless steel	0.5D	0.8D	Vc	62	62	62	69	69	69	69	69	77	77	77	77	77	77	77
					fz	0.003	0.004	0.006	0.006	0.007	0.009	0.011	0.013	0.015	0.015	0.025	0.030	0.040	0.045	0.050
					RPM	39470	32892	24669	21963	18303	14642	12202	10982	8170	6127	4902	4085	3064	2451	2042
					FEED	355	395	444	395	384	395	403	428	368	276	368	368	368	331	306
	14.1		0.5D	0.8D	Vc	68	68	68	76	76	76	76	76	85	85	85	85	85	85	85
					fz	0.004	0.005	0.007	0.008	0.010	0.012	0.013	0.015	0.020	0.020	0.025	0.041	0.045	0.050	0.055
					RPM	43290	36075	27056	24192	20160	16128	13440	12096	9019	6764	5411	4509	3382	2706	2255
					FEED	519	541	568	581	605	581	524	544	541	406	406	555	457	406	372
	14.2		0.5D	0.8D	Vc	62	62	62	69	69	69	69	69	77	77	77	77	77	77	77
					fz	0.004	0.005	0.007	0.008	0.010	0.012	0.013	0.015	0.020	0.020	0.025	0.041	0.045	0.050	0.055
					RPM	39470	32892	24669	21963	18303	14642	12202	10982	8170	6127	4902	4085	3064	2451	2042
					FEED	474	493	518	527	549	527	476	494	490	368	368	502	414	368	337
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	0.8D	Vc	96	96	96	107	107	107	107	107	119	119	119	119	119	119	119
					fz	0.007	0.008	0.010	0.014	0.017	0.021	0.024	0.028	0.031	0.033	0.037	0.050	0.074	0.081	0.087
					RPM	61115	50930	38197	34059	28383	22706	18922	17030	12626	9470	7576	6313	4735	3788	3157
					FEED	1283	1222	1146	1430	1448	1430	1362	1431	1174	938	841	947	1051	920	824
S	31 - 35	Heat Resistant Super Alloys	0.2D	0.3D	Vc	17	17	17	19	19	19	19	19	21	21	21	21	21	21	21
					fz	0.002	0.003	0.005	0.005	0.006	0.007	0.008	0.010	0.014	0.014	0.017	0.028	0.031	0.035	0.038
					RPM	10823	9019	6764	6048	5040	4032	3360	3024	2228	1671	1337	1114	836	668	557
					FEED	65	81	101	91	91	85	81	91	94	70	68	94	78	70	63
	36 - 37	Titanium Alloys	0.5D	0.3D	Vc	38	38	38	42	42	42	42	42	47	47	47	47	47	47	47
					fz	0.003	0.004	0.006	0.007	0.009	0.011	0.012	0.014	0.018	0.018	0.022	0.037	0.040	0.045	0.049
					RPM	24192	20160	15120	13369	11141	8913	7427	6685	4987	3740	2992	2493	1870	1496	1247
					FEED	218	242	272	281	301	294	267	281	269	202	197	277	224	202	183

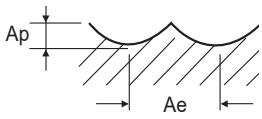


GMK65 SERIES

4 FLUTE BALL NOSE

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

ISO	VDI 3323	Material Description	Ae	Ap	Para-meter	Diameter (Ø)													
						0.5	0.6	0.8	1	1.2	1.5	1.8	2	3	4	5	6	8	10	12
P	1-4	Non-alloy steel	0.5D	0.8D	Vc	130	130	130	145	145	145	145	145	162	162	162	162	162	162	162
					fz	0.005	0.006	0.008	0.011	0.013	0.016	0.019	0.022	0.025	0.027	0.030	0.040	0.060	0.065	0.070
					RPM	82761	68967	51725	46155	38462	30770	25642	23077	17189	12892	10313	8594	6446	5157	4297
					FEED	1655	1655	1655	2031	2000	1969	1949	2031	1719	1392	1238	1375	1547	1341	1203
	5		0.5D	0.8D	Vc	90	90	90	101	101	101	101	101	113	113	113	113	113	113	113
					fz	0.005	0.006	0.008	0.011	0.013	0.016	0.019	0.022	0.025	0.027	0.030	0.040	0.060	0.065	0.070
					RPM	57296	47746	35810	32149	26791	21433	17861	16075	11990	8992	7194	5995	4496	3597	2997
					FEED	1146	1146	1146	1415	1393	1372	1357	1415	1199	971	863	959	1079	935	839
	6-7	Low alloy steel	0.5D	0.8D	Vc	130	130	130	145	145	145	145	145	162	162	162	162	162	162	162
					fz	0.005	0.006	0.008	0.011	0.013	0.016	0.019	0.022	0.025	0.027	0.030	0.040	0.060	0.065	0.070
					RPM	82761	68967	51725	46155	38462	30770	25642	23077	17189	12892	10313	8594	6446	5157	4297
					FEED	1655	1655	1655	2031	2000	1969	1949	2031	1719	1392	1238	1375	1547	1341	1203
	8-9		0.5D	0.8D	Vc	90	90	90	101	101	101	101	101	113	113	113	113	113	113	113
					fz	0.005	0.006	0.008	0.011	0.013	0.016	0.019	0.022	0.025	0.027	0.030	0.040	0.060	0.065	0.070
					RPM	57296	47746	35810	32149	26791	21433	17861	16075	11990	8992	7194	5995	4496	3597	2997
					FEED	1146	1146	1146	1415	1393	1372	1357	1415	1199	971	863	959	1079	935	839
	10 - 11.1	High alloyed steel, and tool steel	0.5D	0.8D	Vc	55	55	55	61	61	61	61	61	68	68	68	68	68	68	68
					fz	0.004	0.005	0.007	0.007	0.009	0.011	0.012	0.014	0.017	0.019	0.021	0.028	0.042	0.045	0.049
					RPM	35014	29178	21884	19417	16181	12945	10787	9708	7215	5411	4329	3608	2706	2165	1804
					FEED	560	584	613	544	583	570	518	544	491	411	364	404	455	390	354
M	12 - 13	Stainless steel	0.5D	0.8D	Vc	62	62	62	69	69	69	69	69	77	77	77	77	77	77	77
					fz	0.003	0.004	0.006	0.006	0.007	0.009	0.011	0.013	0.015	0.015	0.025	0.030	0.040	0.045	0.050
					RPM	39470	32892	24669	21963	18303	14642	12202	10982	8167	6127	4902	4085	3064	2451	2042
					FEED	474	526	592	527	512	527	537	571	490	368	490	490	490	441	408
	14.1		0.5D	0.8D	Vc	68	68	68	76	76	76	76	76	85	85	85	85	85	85	85
					fz	0.004	0.005	0.007	0.008	0.010	0.012	0.013	0.015	0.020	0.020	0.025	0.041	0.045	0.050	0.055
					RPM	43290	36075	27056	24192	20160	16128	13440	12096	9019	6764	5411	4509	3382	2706	2255
					FEED	693	722	758	774	806	774	699	726	722	541	541	740	609	541	496
	14.2		0.5D	0.8D	Vc	62	62	62	69	69	69	69	69	77	77	77	77	77	77	77
					fz	0.004	0.005	0.007	0.008	0.010	0.012	0.013	0.015	0.020	0.020	0.025	0.041	0.045	0.050	0.055
					RPM	39470	32892	24669	21963	18303	14642	12202	10982	8167	6127	4902	4085	3064	2451	2042
					FEED	632	658	691	703	732	703	635	659	654	490	490	670	551	490	449
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	0.8D	Vc	96	96	96	107	107	107	107	107	119	119	119	119	119	119	119
					fz	0.007	0.008	0.010	0.014	0.017	0.021	0.024	0.028	0.031	0.033	0.037	0.050	0.074	0.081	0.087
					RPM	61115	50930	38197	34059	28383	22706	18922	17030	12626	9470	7576	6313	4735	3788	3157
					FEED	1711	1630	1528	1907	1930	1907	1817	1907	1566	1250	1121	1263	1402	1227	1098
S	31 - 35	Heat Resistant Super Alloys	0.2D	0.3D	Vc	17	17	17	19	19	19	19	19	21	21	21	21	21	21	21
					fz	0.002	0.003	0.005	0.005	0.006	0.007	0.008	0.010	0.014	0.014	0.017	0.028	0.031	0.035	0.038
					RPM	10823	9019	6764	6048	5040	4032	3360	3024	2228	1671	1337	1114	836	668	557
					FEED	87	108	135	121	121	113	108	121	125	94	91	125	104	94	85
	36 - 37	Titanium Alloys	0.5D	0.3D	Vc	38	38	38	42	42	42	42	42	47	47	47	47	47	47	47
					fz	0.003	0.004	0.006	0.007	0.009	0.011	0.012	0.014	0.018	0.018	0.022	0.037	0.040	0.045	0.049
					RPM	24192	20160	15120	13369	11141	8913	7427	6685	4987	3740	2992	2493	1870	1496	1247
					FEED	290	323	363	374	401	392	356	374	359	269	263	369	299	269	244

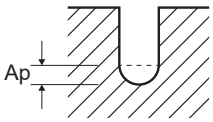


GMK49 SERIES

2 FLUTE BALL NOSE with LONG NECK

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

ISO	VDI 3323	Material Description	Para-meter	Diameter (Ø)																	
				3	3	3	3	4	4	4	4	5	5	6	6	8	8	10	10	12	12
			LBS	6	10	12	18	8	12	16	26	15	30	20	30	25	35	30	40	32	45
P	1-4	Non-alloy steel	Vc	119	119	119	107	128	128	128	115	140	126	155	155	175	175	194	194	213	213
			fz	0.026	0.026	0.026	0.023	0.035	0.035	0.035	0.032	0.045	0.041	0.060	0.060	0.090	0.090	0.120	0.120	0.150	0.150
			RPM	12630	12630	12630	11367	10190	10190	10190	9171	8910	8019	8220	8220	6960	6960	6180	6180	5650	5650
			FEED	657	657	657	523	713	713	713	587	802	658	986	986	1253	1253	1483	1483	1695	1695
			Ap	0.300	0.210	0.210	0.120	0.400	0.400	0.280	0.160	0.500	0.200	0.420	0.420	0.560	0.560	1.000	0.700	1.200	0.840
	5		Vc	91	91	91	82	103	103	103	93	112	101	126	126	141	141	155	155	170	170
			fz	0.026	0.026	0.026	0.023	0.035	0.035	0.035	0.032	0.045	0.041	0.060	0.060	0.090	0.090	0.120	0.120	0.150	0.150
			RPM	9660	9660	9660	8694	8200	8200	8200	7380	7130	6417	6680	6680	5610	5610	4930	4930	4510	4510
			FEED	502	502	502	400	574	574	574	472	642	526	802	802	1010	1010	1183	1183	1353	1353
			Ap	0.300	0.210	0.210	0.120	0.400	0.400	0.280	0.160	0.500	0.200	0.420	0.420	0.560	0.560	1.000	0.700	1.200	0.840
	6-7	Low alloy steel	Vc	119	119	119	107	128	128	128	115	140	126	155	155	175	175	194	194	213	213
			fz	0.026	0.026	0.026	0.023	0.035	0.035	0.035	0.032	0.045	0.041	0.060	0.060	0.090	0.090	0.120	0.120	0.150	0.150
			RPM	12630	12630	12630	11367	10190	10190	10190	9171	8910	8019	8220	8220	6960	6960	6180	6180	5650	5650
			FEED	657	657	657	523	713	713	713	587	802	658	986	986	1253	1253	1483	1483	1695	1695
			Ap	0.300	0.210	0.210	0.120	0.400	0.400	0.280	0.160	0.500	0.200	0.420	0.420	0.560	0.560	1.000	0.700	1.200	0.840
	8-9		Vc	91	91	91	82	103	103	103	93	112	101	126	126	141	141	155	155	170	170
			fz	0.026	0.026	0.026	0.023	0.035	0.035	0.035	0.032	0.045	0.041	0.060	0.060	0.090	0.090	0.120	0.120	0.150	0.150
			RPM	9660	9660	9660	8694	8200	8200	8200	7380	7130	6417	6680	6680	5610	5610	4930	4930	4510	4510
			FEED	502	502	502	400	574	574	574	472	642	526	802	802	1010	1010	1183	1183	1353	1353
			Ap	0.300	0.210	0.210	0.120	0.400	0.400	0.280	0.160	0.500	0.200	0.420	0.420	0.560	0.560	1.000	0.700	1.200	0.840
	10	High alloyed steel, and tool steel	Vc	119	119	119	107	128	128	128	115	140	126	155	155	175	175	194	194	213	213
			fz	0.026	0.026	0.026	0.023	0.035	0.035	0.035	0.032	0.045	0.041	0.060	0.060	0.090	0.090	0.120	0.120	0.150	0.150
			RPM	12630	12630	12630	11367	10190	10190	10190	9171	8910	8019	8220	8220	6960	6960	6180	6180	5650	5650
			FEED	657	657	657	523	713	713	713	587	802	658	986	986	1253	1253	1483	1483	1695	1695
			Ap	0.300	0.210	0.210	0.120	0.400	0.400	0.280	0.160	0.500	0.200	0.420	0.420	0.560	0.560	1.000	0.700	1.200	0.840
	11.1		Vc	91	91	91	82	103	103	103	93	112	101	126	126	141	141	155	155	170	170
			fz	0.026	0.026	0.026	0.023	0.035	0.035	0.035	0.032	0.045	0.041	0.060	0.060	0.090	0.090	0.120	0.120	0.150	0.150
			RPM	9660	9660	9660	8694	8200	8200	8200	7380	7130	6417	6680	6680	5610	5610	4930	4930	4510	4510
			FEED	502	502	502	400	574	574	574	472	642	526	802	802	1010	1010	1183	1183	1353	1353
			Ap	0.300	0.210	0.210	0.120	0.400	0.400	0.280	0.160	0.500	0.200	0.420	0.420	0.560	0.560	1.000	0.700	1.200	0.840
	11.2		Vc	42	42	42	38	51	51	51	46	56	50	58	58	60	60	62	62	64	64
			fz	0.026	0.026	0.026	0.023	0.035	0.035	0.035	0.032	0.045	0.041	0.060	0.060	0.090	0.090	0.120	0.120	0.150	0.150
			RPM	4460	4460	4460	4014	4060	4060	4060	3654	3570	3213	3080	3080	2390	2390	1970	1970	1700	1700
			FEED	232	232	232	185	284	284	284	234	321	263	370	370	430	430	473	473	510	510
			Ap	0.300	0.210	0.210	0.120	0.400	0.400	0.280	0.160	0.500	0.200	0.420	0.420	0.560	0.560	1.000	0.700	1.200	0.840

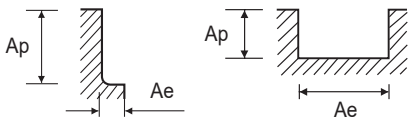


GMK60, GMK61 SERIES

3 FLUTE CORNER RADIUS - SIDE CUTTING & SLOTTING

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

ISO	VDI 3323	Material Description	Side		Slotting		Para-meter	Diameter (Ø)							
			Ae	Ap	Ae	Ap		1.8	2.8	3.8	4.8	5.75	7.75	9.7	11.7
P	1-4	Non-alloy steel	0.5D	1.0D	1.0D	0.8D	Vc	152	152	152	152	152	152	168	168
							fz	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
							RPM	26880	17280	12732	10080	8414	6243	5513	4571
							FEED	242	259	306	333	404	506	628	645
	5		0.5D	1.0D	1.0D	0.8D	Vc	107	107	107	107	107	107	117	117
							fz	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
							RPM	18922	12164	8963	7096	5923	4395	3839	3183
							FEED	170	182	215	234	284	356	438	449
	6-7	Low alloy steel	0.5D	1.0D	1.0D	0.8D	Vc	152	152	152	152	152	152	168	168
							fz	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
							RPM	26880	17280	12732	10080	8414	6243	5513	4571
							FEED	242	259	306	333	404	506	628	645
	8-9		0.5D	1.0D	1.0D	0.8D	Vc	107	107	107	107	107	107	117	117
							fz	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
							RPM	18922	12164	8963	7096	5923	4395	3839	3183
							FEED	170	182	215	234	284	356	438	449
	10 - 11.1	High alloyed steel, and tool steel	0.5D	1.0D	1.0D	0.8D	Vc	64	64	64	64	64	64	70	70
							fz	0.001	0.003	0.006	0.008	0.011	0.019	0.027	0.032
							RPM	11318	7276	5361	4244	3543	2629	2297	1904
							FEED	34	65	96	102	117	150	186	183
M	12 - 13	Stainless steel	0.5D	1.0D	1.0D	0.8D	Vc	148	148	148	148	148	148	148	148
							fz	0.002	0.004	0.006	0.009	0.013	0.022	0.034	0.039
							RPM	26172	16825	12397	9815	8193	6079	4857	4026
							FEED	157	202	223	265	320	401	495	471
	14.1		0.5D	1.0D	1.0D	0.8D	Vc	106	106	106	106	106	106	106	106
							fz	0.003	0.005	0.008	0.013	0.018	0.028	0.048	0.055
							RPM	18745	12050	8879	7029	5868	4354	3478	2884
							FEED	169	181	213	274	317	366	501	476
	14.2		0.5D	1.0D	1.0D	0.8D	Vc	95	95	95	95	95	95	95	95
							fz	0.003	0.005	0.008	0.013	0.018	0.028	0.048	0.055
							RPM	16800	10800	7958	6300	5259	3902	3117	2585
							FEED	151	162	191	246	284	328	449	427
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.0D	1.0D	0.8D	Vc	112	112	112	112	112	112	123	123
							fz	0.004	0.006	0.01	0.014	0.02	0.034	0.048	0.058
							RPM	19806	12732	9382	7427	6200	4600	4036	3346
							FEED	238	229	281	312	372	469	581	582
S	31 - 35	Heat Resistant Super Alloys	0.25D	1.0D	1.0D	0.5D	Vc	26	26	26	26	26	26	26	26
							fz	0.003	0.005	0.007	0.008	0.012	0.019	0.033	0.038
							RPM	4598	2956	2178	1724	1439	1068	853	707
							FEED	41	44	46	41	52	61	84	81
	36 - 37	Titanium Alloys	0.35D	1.0D	1.0D	0.5D	Vc	58	58	58	58	58	58	58	58
							fz	0.002	0.004	0.007	0.011	0.016	0.025	0.042	0.050
							RPM	10257	6594	4858	3846	3211	2382	1903	1578
							FEED	62	79	102	127	154	179	240	237



GML17, GML18, GMK63, GMK64 SERIES

4 FLUTE CORNER RADIUS & SQUARE - SIDE CUTTING & SLOTTING

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

ISO	VDI 3323	Material Description	Side		Slotting		Para-meter	Diameter (Ø)					
			Ae	Ap	Ae	Ap		0.5	0.6	0.8	1	1.2	1.5
P	1-4	Non-alloy steel	0.5D	1.0D	1.0D	0.8D	Vc	73	73	73	92	92	116
							fz	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	46473	38728	2	29285	24404	24616
							FEED	93	93	0	117	146	197
	5		0.5D	1.0D	1.0D	0.8D	Vc	53	53	53	66	66	82
							fz	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	33741	28117	21088	21008	17507	17401
							FEED	67	67	67	84	105	139
	6-7	Low alloy steel	0.5D	1.0D	1.0D	0.8D	Vc	73	73	73	92	92	116
							fz	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	46473	38728	2	29285	24404	24616
							FEED	93	93	0	117	146	197
	8-9		0.5D	1.0D	1.0D	0.8D	Vc	53	53	53	66	66	82
							fz	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	33741	28117	21088	21008	17507	17401
							FEED	67	67	67	84	105	139
	10 - 11.1	High alloyed steel, and tool steel	0.5D	1.0D	1.0D	0.8D	Vc	31	31	31	39	39	49
							fz	0.001	0.001	0.001	0.001	0.001	0.001
							RPM	19735	16446	12335	12414	10345	10398
							FEED	39	39	39	50	41	42
M	12 - 13	Stainless steel	0.5D	1.0D	1.0D	0.8D	Vc	72	72	72	90	90	113
							fz	0.001	0.001	0.001	0.001	0.001	0.001
							RPM	45837	38197	28648	28648	23873	23979
							FEED	92	92	92	115	95	96
	14.1		0.5D	1.0D	1.0D	0.8D	Vc	52	52	52	65	65	81
							fz	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	33104	27587	20690	20690	17242	17189
							FEED	66	66	66	83	103	138
	14.2		0.5D	1.0D	1.0D	0.8D	Vc	46	46	46	58	58	72
							fz	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	29285	24404	18303	18462	15385	15279
							FEED	59	59	59	74	92	122
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.0D	1.0D	0.8D	Vc	55	55	55	69	69	86
							fz	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	35014	29178	21884	21963	18303	18250
							FEED	70	70	70	88	110	146
S	31 - 35	Heat Resistant Super Alloys	0.25D	1.0D	1.0D	0.5D	Vc	13	13	13	16	16	20
							fz	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	8276	6897	5173	5093	4244	4244
							FEED	17	17	17	20	25	34
	36 - 37	Titanium Alloys	0.35D	1.0D	1.0D	0.5D	Vc	46	46	46	58	58	72
							fz	0.001	0.001	0.001	0.001	0.001	0.001
							RPM	29285	24404	18303	18462	15385	15279
							FEED	59	59	59	74	62	61

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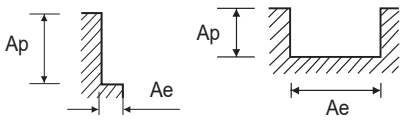

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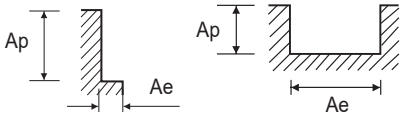
GML17, GML18, GMK63, GMK64 SERIES

4 FLUTE CORNER RADIUS & SQUARE - SIDE CUTTING & SLOTTING

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

ISO	VDI 3323	Para-meter	Diameter (Ø)								
			1.8	2	3	4	5	6	8	10	12
P	1-4	Vc	137	137	152	152	152	152	152	168	168
		fz	0.003	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
		RPM	24227	21804	16128	12096	9677	8064	6048	5348	4456
		FEED	242	262	323	387	426	516	653	813	838
	5	Vc	96	96	107	107	107	107	107	117	117
		fz	0.003	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
		RPM	16977	15279	11353	8515	6812	5677	4257	3724	3104
		FEED	170	183	227	272	300	363	460	566	583
	6-7	Vc	137	137	152	152	152	152	152	168	168
		fz	0.003	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
		RPM	24227	21804	16128	12096	9677	8064	6048	5348	4456
		FEED	242	262	323	387	426	516	653	813	838
	8-9	Vc	96	96	107	107	107	107	107	117	117
		fz	0.003	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
		RPM	16977	15279	11353	8515	6812	5677	4257	3724	3104
		FEED	170	183	227	272	300	363	460	566	583
	10 - 11.1	Vc	58	58	64	64	64	64	64	70	70
		fz	0.002	0.002	0.003	0.006	0.008	0.011	0.019	0.027	0.032
		RPM	10257	9231	6791	5093	4074	3395	2546	2228	1857
		FEED	62	74	81	122	130	149	194	241	238
M	12 - 13	Vc	133	133	148	148	148	148	148	148	148
		fz	0.002	0.002	0.004	0.006	0.009	0.013	0.022	0.034	0.039
		RPM	23520	21168	15703	11777	9422	7852	5889	4711	3926
		FEED	141	169	251	283	339	408	518	641	612
	14.1	Vc	95	95	106	106	106	106	106	106	106
		fz	0.003	0.003	0.005	0.008	0.013	0.018	0.028	0.048	0.055
		RPM	16800	15120	11247	8435	6748	5623	4218	3374	2812
		FEED	168	181	225	270	351	405	472	648	619
	14.2	Vc	85	85	95	95	95	95	95	95	95
		fz	0.003	0.003	0.005	0.008	0.013	0.018	0.028	0.048	0.055
		RPM	15031	13528	10080	7560	6048	5040	3780	3024	2520
		FEED	150	162	202	242	314	363	423	581	554
K	15 - 20	Vc	101	101	112	112	112	112	112	123	123
		fz	0.003	0.004	0.006	0.010	0.014	0.020	0.034	0.048	0.058
		RPM	17861	16075	11884	8913	7130	5942	4456	3915	3263
		FEED	214	257	285	357	399	475	606	752	757
S	31 - 35	Vc	23	23	26	26	26	26	26	26	26
		fz	0.003	0.003	0.005	0.007	0.008	0.012	0.019	0.033	0.038
		RPM	4067	3661	2759	2069	1655	1379	1035	828	690
		FEED	41	44	55	58	53	66	79	109	105
	36 - 37	Vc	52	52	58	58	58	58	58	58	58
		fz	0.002	0.002	0.004	0.007	0.011	0.016	0.025	0.042	0.050
		RPM	9196	8276	6154	4615	3692	3077	2308	1846	1538
		FEED	55	66	98	129	162	197	231	310	308



GMK55, GMK56, GMK32 SERIES

2 FLUTE SQUARE - SLOTTING

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

ISO	VDI 3323	Material Description	Slotting Ae	Slotting Ap	Para-meter	Diameter (Ø) 0.3	0.5	0.6	0.8	1	1.2	1.5
P	1-4	Non-alloy steel	1.0D	0.5D D≤3 : 0.2D D<1 : 0.15D	Vc	47	55	58	61	66	67	68
					fz	0.001	0.002	0.002	0.003	0.004	0.005	0.006
					RPM	49869	35200	30880	24320	21010	17772	14430
					FEED	100	140	120	145	170	178	173
	5		1.0D	0.5D D≤3 : 0.2D D<1 : 0.15D	Vc	30	33	35	37	40	41	43
					fz	0.001	0.002	0.002	0.003	0.004	0.005	0.006
					RPM	31831	21000	18530	14670	12730	10876	9125
					FEED	64	80	75	85	100	109	110
	6-7	Low alloy steel	1.0D	0.5D D≤3 : 0.2D D<1 : 0.15D	Vc	47	55	58	61	66	67	68
					fz	0.001	0.002	0.002	0.003	0.004	0.005	0.006
					RPM	49869	35200	30880	24320	21010	17772	14430
					FEED	100	140	120	145	170	178	173
	8-9		1.0D	0.5D D≤3 : 0.2D D<1 : 0.15D	Vc	30	33	35	37	40	41	43
					fz	0.001	0.002	0.002	0.003	0.004	0.005	0.006
					RPM	31831	21000	18530	14670	12730	10876	9125
					FEED	64	80	75	85	100	109	110
	10	High alloyed steel, and tool steel	1.0D	0.5D D≤3 : 0.2D D<1 : 0.15D	Vc	47	55	58	61	66	67	68
					fz	0.001	0.002	0.002	0.003	0.004	0.005	0.006
					RPM	49869	35200	30880	24320	21010	17772	14430
					FEED	100	140	120	145	170	178	173
	11.1 - 11.2		1.0D	0.5D D≤3 : 0.2D D<1 : 0.15D	Vc	30	33	35	37	40	41	43
					fz	0.001	0.002	0.002	0.003	0.004	0.005	0.006
					RPM	31831	21000	18530	14670	12730	10876	9125
					FEED	64	80	75	85	100	109	110
M	14.1	Stainless steel	1.0D	0.5D D≤3 : 0.2D D<1 : 0.15D	Vc	25	27	29	30	33	35	36
					fz	0.001	0.002	0.002	0.003	0.004	0.005	0.006
					RPM	26526	17300	15440	11970	10500	9284	7639
					FEED	53	70	65	75	80	93	92
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D D≤3 : 0.2D D<1 : 0.15D	Vc	47	55	58	61	66	67	68
					fz	0.001	0.002	0.002	0.003	0.004	0.005	0.006
					RPM	49869	35200	30880	24320	21010	17772	14430
					FEED	100	140	120	145	170	171	173

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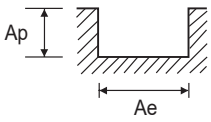
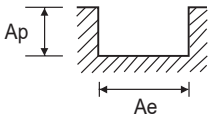


GMK55, GMK56, GMK32 SERIES

2 FLUTE SQUARE - SLOTTING

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

ISO	VDI 3323	Para-meter	Diameter (Ø)								
			1.8	2	3	4	5	6	8	10	12
P	1-4	Vc	69	71	81	92	96	102	103	99	100
		fz	0.007	0.008	0.012	0.020	0.025	0.031	0.045	0.051	0.051
		RPM	12202	11300	8590	7320	6110	5410	4100	3150	2650
		FEED	171	180	210	290	310	340	370	320	270
	5	Vc	45	47	50	56	57	61	61	61	61
		fz	0.007	0.008	0.013	0.019	0.025	0.033	0.040	0.040	0.039
		RPM	7958	7480	5310	4460	3630	3240	2430	1940	1620
		FEED	111	120	140	170	180	210	190	160	130
	6-7	Vc	69	71	81	92	96	102	103	99	100
		fz	0.007	0.008	0.012	0.020	0.025	0.031	0.045	0.051	0.051
		RPM	12202	11300	8590	7320	6110	5410	4100	3150	2650
		FEED	171	180	210	290	310	340	370	320	270
	8-9	Vc	45	47	50	56	57	61	61	61	61
		fz	0.007	0.008	0.013	0.019	0.025	0.033	0.040	0.040	0.039
		RPM	7958	7480	5310	4460	3630	3240	2430	1940	1620
		FEED	111	120	140	170	180	210	190	160	130
	10	Vc	69	71	81	92	96	102	103	99	100
		fz	0.007	0.008	0.012	0.020	0.025	0.031	0.045	0.051	0.051
		RPM	12202	11300	8590	7320	6110	5410	4100	3150	2650
		FEED	171	180	210	290	310	340	370	320	270
	11.1 - 11.2	Vc	45	47	50	56	57	61	61	61	61
		fz	0.007	0.008	0.013	0.019	0.025	0.033	0.040	0.040	0.039
		RPM	7958	7480	5310	4460	3630	3240	2430	1940	1620
		FEED	111	120	140	170	180	210	190	160	130
M	14.1	Vc	38	39	43	48	49	52	51	51	49
		fz	0.006	0.007	0.013	0.019	0.025	0.032	0.043	0.048	0.048
		RPM	6720	6210	4560	3820	3120	2760	2030	1620	1300
		FEED	81	90	120	150	160	180	170	160	120
K	15 - 20	Vc	69	71	81	92	96	102	103	99	100
		fz	0.007	0.008	0.012	0.020	0.025	0.031	0.045	0.051	0.051
		RPM	12202	11300	8590	7320	6110	5410	4100	3150	2650
		FEED	176	180	210	290	310	340	370	320	270



GMK58, GMK59 SERIES

3 FLUTE SQUARE - SIDE CUTTING & SLOTTING

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

ISO	VDI 3323	Material Description	Side		Slotting		Para-meter	Diameter (Ø)						
			Ae	Ap	Ae	Ap		0.3	0.5	0.6	0.8	1	1.2	1.5
P	1-4	Non-alloy steel	0.5D	1.0D	1.0D	0.8D	Vc	51	73	73	73	92	92	116
							fz	0.001	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	54113	46473	38728	29046	29285	24404	24616
							FEED	65	70	70	70	88	110	148
	5		0.5D	1.0D	1.0D	0.8D	Vc	37	53	53	53	66	66	82
							fz	0.001	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	39258	33741	28117	21088	21008	17507	17401
							FEED	47	51	51	51	63	79	104
	6-7	Low alloy steel	0.5D	1.0D	1.0D	0.8D	Vc	51	73	73	73	92	92	116
							fz	0.001	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	54113	46473	38728	29046	29285	24404	24616
							FEED	65	70	70	70	88	110	148
	8-9		0.5D	1.0D	1.0D	0.8D	Vc	37	53	53	53	66	66	82
							fz	0.001	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	39258	33741	28117	21088	21008	17507	17401
							FEED	47	51	51	51	63	79	104
	10 - 11.1	High alloyed steel, and tool steel	0.5D	1.0D	1.0D	0.8D	Vc	22	31	31	31	39	39	49
							fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001
							RPM	23343	19735	16446	12335	12414	10345	10398
							FEED	28	30	30	30	37	31	31
M	12 - 13	Stainless steel	0.5D	1.0D	1.0D	0.8D	Vc	50	72	72	72	90	90	113
							fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001
							RPM	53052	45837	38197	28648	28648	23873	23979
							FEED	64	69	69	69	86	72	72
	14.1		0.5D	1.0D	1.0D	0.8D	Vc	36	52	52	52	65	65	81
							fz	0.001	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	38197	33104	27587	20690	20690	17242	17189
							FEED	46	50	50	50	62	78	103
	14.2		0.5D	1.0D	1.0D	0.8D	Vc	32	46	46	46	58	58	72
							fz	0.001	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	33953	29285	24404	18303	18462	15385	15279
							FEED	41	44	44	44	55	69	92
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.0D	1.0D	0.8D	Vc	39	55	55	55	69	69	86
							fz	0.001	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	41380	35014	29178	21884	21963	18303	18250
							FEED	50	53	53	53	66	82	110
S	31 - 35	Heat Resistant Super Alloys	0.25D	1.0D	1.0D	0.5D	Vc	9	13	13	13	16	16	20
							fz	0.001	0.001	0.001	0.001	0.001	0.002	0.002
							RPM	9549	8276	6897	5173	5093	4244	4244
							FEED	11	12	12	12	15	19	25
	36 - 37	Titanium Alloys	0.35D	1.0D	1.0D	0.5D	Vc	32	46	46	46	58	58	72
							fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001
							RPM	33953	29285	24404	18303	18462	15385	15279
							FEED	41	44	44	44	55	46	46

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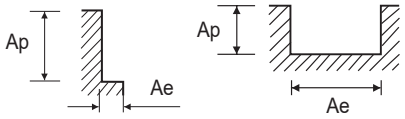

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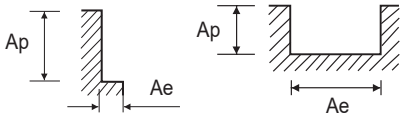
GMK58, GMK59 SERIES

3 FLUTE SQUARE - SIDE CUTTING & SLOTTING

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

ISO	VDI 3323	Para-meter	Diameter (Ø)								
			1.8	2	3	4	5	6	8	10	12
P	1-4	Vc	137	137	152	152	152	152	152	168	168
		fz	0.003	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
		RPM	24227	21804	16128	12096	9677	8064	6048	5348	4456
		FEED	182	196	242	290	319	387	490	610	628
	5	Vc	96	96	107	107	107	107	107	117	117
		fz	0.003	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
		RPM	16977	15279	11353	8515	6812	5677	4257	3724	3104
		FEED	127	138	170	204	225	272	345	425	438
	6-7	Vc	137	137	152	152	152	152	152	168	168
		fz	0.003	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
		RPM	24227	21804	16128	12096	9677	8064	6048	5348	4456
		FEED	182	196	242	290	319	387	490	610	628
	8-9	Vc	96	96	107	107	107	107	107	117	117
		fz	0.003	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
		RPM	16977	15279	11353	8515	6812	5677	4257	3724	3104
		FEED	127	138	170	204	225	272	345	425	438
	10 - 11.1	Vc	58	58	64	64	64	64	64	70	70
		fz	0.002	0.002	0.003	0.006	0.008	0.011	0.019	0.027	0.032
		RPM	10257	9231	6791	5093	4074	3395	2546	2228	1857
		FEED	46	55	61	92	98	112	145	180	178
M	12 - 13	Vc	133	133	148	148	148	148	148	148	148
		fz	0.002	0.002	0.004	0.006	0.009	0.013	0.022	0.034	0.039
		RPM	23520	21168	15703	11777	9422	7852	5889	4711	3926
		FEED	106	127	188	212	254	306	389	481	459
	14.1	Vc	95	95	106	106	106	106	106	106	106
		fz	0.003	0.003	0.005	0.008	0.013	0.018	0.028	0.048	0.055
		RPM	16800	15120	11247	8435	6748	5623	4218	3374	2812
		FEED	126	136	169	202	263	304	354	486	464
	14.2	Vc	85	85	95	95	95	95	95	95	95
		fz	0.003	0.003	0.005	0.008	0.013	0.018	0.028	0.048	0.055
		RPM	15031	13528	10080	7560	6048	5040	3780	3024	2520
		FEED	113	122	151	181	236	272	318	435	416
K	15 - 20	Vc	101	101	112	112	112	112	112	123	123
		fz	0.003	0.004	0.006	0.010	0.014	0.020	0.034	0.048	0.058
		RPM	17861	16075	11884	8913	7130	5942	4456	3915	3263
		FEED	161	193	214	267	299	357	455	564	568
S	31 - 35	Vc	23	23	26	26	26	26	26	26	26
		fz	0.003	0.003	0.005	0.007	0.008	0.012	0.019	0.033	0.038
		RPM	4067	3661	2759	2069	1655	1379	1035	828	690
		FEED	31	33	41	43	40	50	59	82	79
	36 - 37	Vc	52	52	58	58	58	58	58	58	58
		fz	0.002	0.002	0.004	0.007	0.011	0.016	0.025	0.042	0.050
		RPM	9196	8276	6154	4615	3692	3077	2308	1846	1538
		FEED	41	50	74	97	122	148	173	233	231

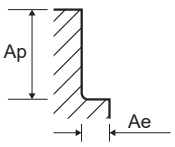


GMK51 SERIES

4 FLUTE CORNER RADIUS - SIDE CUTTING

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

ISO	VDI 3323	Material Description	Ae	Ap	Para-meter	Diameter (Ø)								
						1	2	3	4	5	6	8	10	12
P	1-4	Non-alloy steel	0.05D	2.0D	Vc	78	102	112	121	129	134	136	143	140
					fz	0.003	0.004	0.006	0.010	0.012	0.014	0.019	0.023	0.022
					RPM	24840	16200	11916	9648	8244	7110	5400	4536	3708
					FEED	270	288	306	378	387	387	414	414	324
	5		0.05D	2.0D	Vc	57	73	81	86	91	95	96	103	105
					fz	0.003	0.005	0.008	0.011	0.016	0.018	0.024	0.027	0.029
					RPM	16200	10404	7704	6138	5220	4536	3420	2952	2502
					FEED	198	216	234	270	324	324	324	324	288
	6-7	Low alloy steel	0.05D	2.0D	Vc	78	102	112	121	129	134	136	143	140
					fz	0.003	0.004	0.006	0.010	0.012	0.014	0.019	0.023	0.022
					RPM	24840	16200	11916	9648	8244	7110	5400	4536	3708
					FEED	270	288	306	378	387	387	414	414	324
	8-9		0.05D	2.0D	Vc	57	73	81	86	91	95	96	103	105
					fz	0.003	0.005	0.008	0.011	0.016	0.018	0.024	0.027	0.029
					RPM	16200	10404	7704	6138	5220	4536	3420	2952	2502
					FEED	198	216	234	270	324	324	324	324	288
	10	High alloyed steel, and tool steel	0.05D	2.0D	Vc	78	102	112	121	129	134	136	143	140
					fz	0.003	0.004	0.006	0.010	0.012	0.014	0.019	0.023	0.022
					RPM	24840	16200	11916	9648	8244	7110	5400	4536	3708
					FEED	270	288	306	378	387	387	414	414	324
	11.1 - 11.2		0.05D	2.0D	Vc	57	73	81	86	91	95	96	103	105
					fz	0.003	0.005	0.008	0.011	0.016	0.018	0.024	0.027	0.029
					RPM	16200	10404	7704	6138	5220	4536	3420	2952	2502
					FEED	198	216	234	270	324	324	324	324	288
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	2.0D	Vc	78	102	112	121	129	134	136	143	140
					fz	0.003	0.004	0.006	0.010	0.012	0.014	0.019	0.023	0.022
					RPM	24840	16200	11916	9648	8244	7110	5400	4536	3708
					FEED	270	288	306	378	387	387	414	414	324

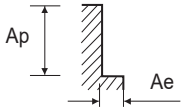


GMK33 SERIES

4 FLUTE SQUARE - SIDE CUTTING

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

ISO	VDI 3323	Material Description	Ae	Ap	Para-meter	Diameter (Ø)								
						1	2	3	4	5	6	8	10	12
P	1-4	Non-alloy steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	91	122	122	122	122	122	122	134	134
					fz	0.002	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
					RPM	28966	19417	12945	9708	7767	6472	4854	4265	3554
					FEED	174	233	259	311	342	414	524	648	668
	5		D≤3 : 0.1D D>3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	64	86	86	86	86	86	86	94	94
					fz	0.002	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
					RPM	20372	13687	9125	6844	5475	4562	3422	2992	2493
					FEED	122	164	183	219	241	292	370	455	469
	6-7	Low alloy steel	D≤3 : 0.1D D>3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	91	122	122	122	122	122	122	134	134
					fz	0.002	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
					RPM	28966	19417	12945	9708	7767	6472	4854	4265	3554
					FEED	174	233	259	311	342	414	524	648	668
	8-9		D≤3 : 0.1D D>3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	64	86	86	86	86	86	86	94	94
					fz	0.002	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
					RPM	20372	13687	9125	6844	5475	4562	3422	2992	2493
					FEED	122	164	183	219	241	292	370	455	469
	10	High alloyed steel, and tool steel	D≤3 : 0.1D D>3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	91	122	122	122	122	122	122	134	134
					fz	0.002	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
					RPM	28966	19417	12945	9708	7767	6472	4854	4265	3554
					FEED	174	233	259	311	342	414	524	648	668
	11.1		D≤3 : 0.1D D>3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	64	86	86	86	86	86	86	94	94
					fz	0.002	0.003	0.005	0.008	0.011	0.016	0.027	0.038	0.047
					RPM	20372	13687	9125	6844	5475	4562	3422	2992	2493
					FEED	122	164	183	219	241	292	370	455	469
	11.2		D≤3 : 0.1D D>3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	38	51	51	51	51	51	51	56	56
					fz	0.001	0.002	0.003	0.006	0.008	0.011	0.019	0.027	0.032
					RPM	12096	8117	5411	4058	3247	2706	2029	1783	1485
					FEED	48	65	65	97	104	119	154	193	190
M	12 - 13	Stainless steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	97	129	129	129	129	129	129	129	129
					fz	0.001	0.003	0.004	0.006	0.009	0.013	0.022	0.034	0.040
					RPM	30876	20531	13687	10265	8212	6844	5133	4106	3422
					FEED	124	205	219	246	296	356	452	558	548
	14.1		D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	69	92	92	92	92	92	92	92	92
					fz	0.002	0.003	0.005	0.008	0.013	0.018	0.028	0.048	0.056
					RPM	21963	14642	9762	7321	5857	4881	3661	2928	2440
					FEED	132	176	195	234	305	351	410	562	547
	14.2		D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	62	83	83	83	83	83	83	83	83
					fz	0.002	0.003	0.005	0.008	0.013	0.018	0.028	0.048	0.055
					RPM	19735	13210	8807	6605	5284	4403	3302	2642	2202
					FEED	118	159	176	211	275	317	370	507	484
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	Vc	67	90	90	90	90	90	90	98	98
					fz	0.002	0.004	0.006	0.010	0.014	0.020	0.034	0.048	0.058
					RPM	21327	14324	9549	7162	5730	4775	3581	3119	2600
					FEED	171	229	229	286	321	382	487	599	603
S	31 - 35	Heat Resistant Super Alloys	D<3 : 0.1D D≥3 : 0.2D	1.0D	Vc	18	25	25	25	25	25	25	25	25
					fz	0.002	0.003	0.005	0.007	0.012	0.018	0.031	0.047	0.055
					RPM	5730	3979	2653	1989	1592	1326	995	796	663
					FEED	34	48	53	56	76	95	123	150	146
	36 - 37	Titanium Alloys	D<3 : 0.1D D≥3 : 0.3D	1.0D	Vc	49	65	65	65	65	65	65	65	65
					fz	0.001	0.002	0.004	0.007	0.011	0.016	0.025	0.043	0.050
					RPM	15597	10345	6897	5173	4138	3448	2586	2069	1724
					FEED	62	83	110	145	182	221	259	356	345



EV MILLS

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