YE-VP24 EUROPE

fit INDUSTRIAL TOOLS

YG V7 Plus

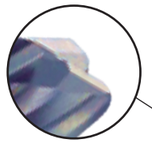
HIGH PERFORMANCE SOLID CARBIDE END MILLS

For Steels, Cast Iron and Stainless Steels

PRODUCT FEATURES

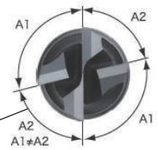
- Chatter and Harmonics Reduced for Improved Stability and Better Finishing
- Special Design of Flute Geometry for Optimal Chip Formation and Chip Evacuation
- Engineered Coating Technology to Reduced Wear and Increase Heat Resistance
- Enhanced Corner Geometry for Longer Tool Life

PRODUCT GEOMETRY



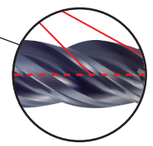
Corner Geometries

YG-1's High Performance
Corner Geometries Including Corner Radius,
applied for Longer Tool Life
with Higher Cutting Speed and Heavy Cutting



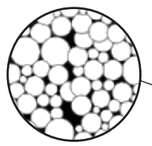
Unequal Index

Exclusively Designed Unique Geometry
applied to Reduce Vibration
and also to achieve Excellent Chip Evacuation
with Better Surface Finish



Multiple Helix

Multiple Helix Designed for
Optimal Chip Formation and Chip Evacuation
Concluding Faster and Heavier Cutting
making Higher Productivity



Ultra Micro grain Carbide

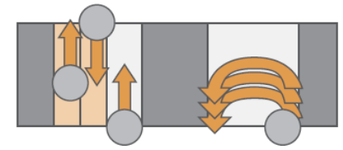
Premium Carbide Substrate
Achieving Exceptional Wear Resistance

V7 PLUS 6 FLUTE END MILLS

THE BEST CHATTER FREE TOOL FOR HIGH SPEED

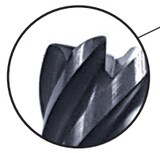
- Unique geometry of the variable pitch provides the best chatter free tool for high speed and also trochoidal milling
- Several slot widths can be used with the same tool diameter in an efficient way
- Provides longer tool life and higher productivity on most materials
- Trochoidal milling is a programming technique applying a small radial width of cut with also higher cutting speed and feed per tooth

Trochoidal Milling performs better than conventional ways because it has..,



- Lower Cutting Force
  from smaller arc engagement
- Longer Tool Life
  from more flutes, and deeper cutting depth
- Higher Stability, Lower Vibration and Excellent Chip Evacuation

V7 PLUS 6 FLUTE CHIP SPLITTER



Corner Geometries

YG-1's High Performance
Corner Geometries Including
Corner Radius, applied for
Longer Tool Life with Higher
Cutting Speed

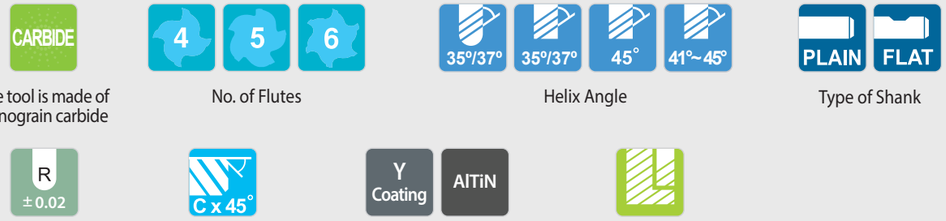
Unequal Index

Exclusively Designed Unique
Geometry applied to Reduce
Vibration and also to achieve
Excellent Surface Finish

Chip Splitters

Special Chip Splitter Design
Shorter Chip Length at High Axial
Machining, improving Chip Removal from
both the Component and the Machine

GUIDE TO ICONS

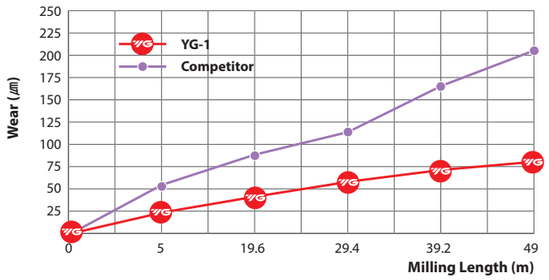


The tool is made of Nanograin carbide | No. of Flutes | Helix Angle | Type of Shank

Tolerance of Ball Radius | Chamfer Angle | Type of Coating | Cutting Condition

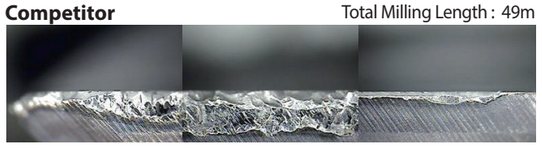
CASE STUDY

TEST I 4 Flute



V7 Plus Total Milling Length : 49m

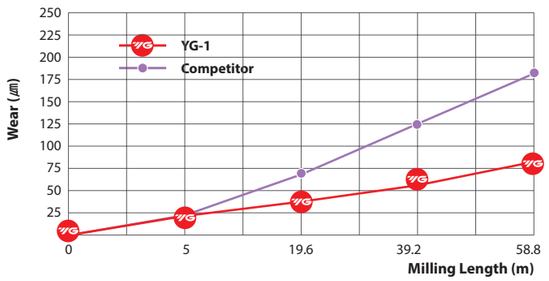
Competitor Total Milling Length : 49m



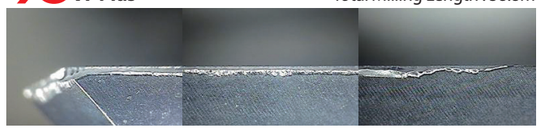
Cutting Condition (Side Cutting)

Tool	V7 Plus	Competitor
Size	Ø10 x Ø10 x 22 x 72	
Work Material	- DIN : C45 - WR : 1.0503 - JIS : S45C(HRc30)	
Vc (m/min.)	230.09	
RPM (rev./min.)	7,324	
Feed (mm/min.)	1,464	
Feed per tooth (mm/tooth)	0.05	
Milling Depth (mm)	Axial : 10 / Radial : 3	
Coolant	Wet Cut	
Overhang (mm)	34	
Machine	Machining Center	

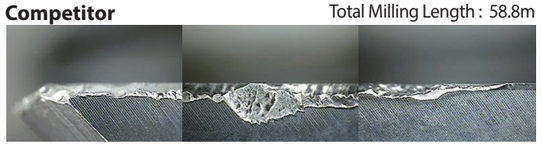
TEST II 4 Flute



V7 Plus Total Milling Length : 58.8m



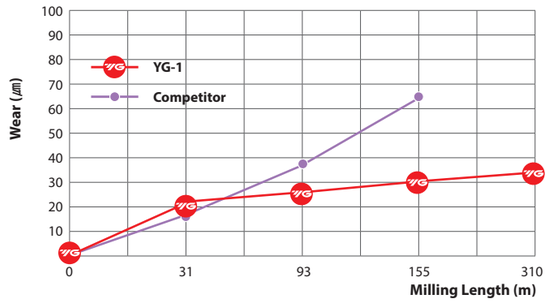
Competitor Total Milling Length : 58.8m



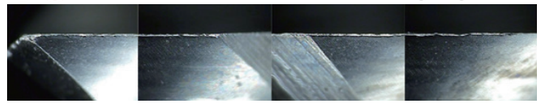
Cutting Condition (Side Cutting)

Tool	V7 Plus	Competitor
Size	Ø16 x Ø16 x 32 x 92	
Work Material	-DIN: C45 -WR: 1.0503 -JIS: S45C (HRc 30 / HB 286)	
Vc (m/min.)	160.00	
RPM (rev./min.)	3,183	
Feed (mm/min.)	573	
Feed per tooth (mm/tooth)	0.05	
Milling Depth (mm)	Axial: 14, Radial: 3	
Coolant	Wet Cut	
Overhang (mm)	45	
Machine	Machining Center	

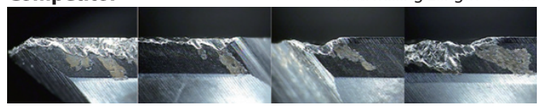
TEST III 6 Flute Chip Splitter



V7 Plus Total Milling Length : 310m



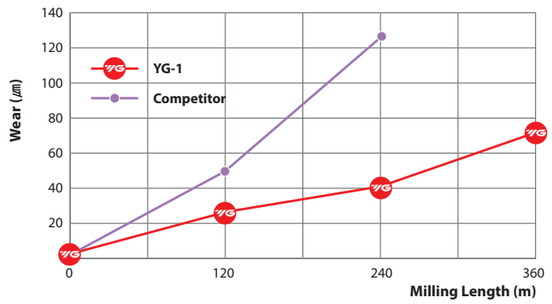
Competitor Total Milling Length : 155m



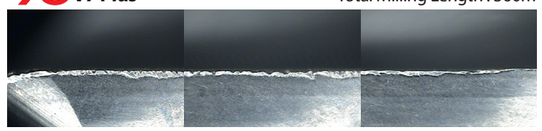
Cutting Condition (Trochoidal Cutting)

Tool	V7 Plus Chip Splitter	Competitor
Size	Ø12 x Ø12 x 48 x 120	
Work Material	-DIN: C45 -WR: 1.0503 -JIS: S45C (HRc 30 /HB 286)	
Vc (m/min.)	220.01	
RPM (rev./min.)	5,836	
Feed (mm/min.)	3,151	
Feed per tooth (mm/tooth)	Trochoidal Cutting	
Milling Depth (mm)	Axial : 36 Radial : 0.6	
Coolant	Wet Cut	
Overhang (mm)	56	
Machine	Machining Center	

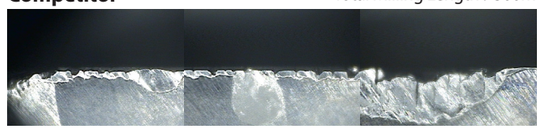
TEST IV 6 Flute



V7 Plus Total Milling Length : 360m



Competitor Total Milling Length : 300m



Cutting Condition (Trochoidal Cutting)

Tool	V7 Plus	Competitor
Size	Ø12(R1) x Ø12 x 26 x 83	
Work Material	- DIN : C45 - WR : 1.0503 - JIS : S45C(HRc30)	
Vc (m/min.)	278.67	
RPM (rev./min.)	7,392	
Feed (mm/min.)	7,495	
Feed per tooth (mm/tooth)	0.17	
Milling Depth (mm)	Axial : 24(2D) Radial : 0.6(0.05D)	
Coolant	Wet Cut	
Overhang (mm)	36	
Machine	Machining Center	

SELECTION GUIDE METRIC

SOLID CARBIDE
V7 Plus
END MILLS

High performance carbide end mills
for Steels, Cast Iron and Stainless Steels

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. 27

SERIES	GMG55 GMG56	GMF54 GMF55	GMF58 GMF59	GMF62 GMF63	GMF52 GMF53	GMF56 GMF57	GMF60 GMF61	GMG16 GMG17	GMG18 GMG19	GMH58 GMH59	GMG12 GMG13	GMG14 GMG15	GMH56 GMH57	EMB72 EMB73
FLUTE	4	4	4	4	4	4	4	6	6	6	6	6	6	5
HELIX ANGLE	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	45°	45°	45°	45°	45°	45°	41°~ 45°
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	R1.5	D3.0	D3.0	D3.0	D3.0	D3.0	D3.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0
SIZE MAX	R12.5	D20.0	D25.0	D20.0	D20.0	D25.0	D20.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0
PAGE	8	9	10	11	14	15	16	18	19	21	23	24	25	26
	LONG LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH with NECK	SHORT LENGTH	LONG LENGTH	LONG LENGTH with NECK	LONG LENGTH	EXTRA LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH	EXTRA LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH
	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	AlTiN
										CHIP SPLITTER			CHIP SPLITTER	V7 INOX

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	GMG55 GMG56	GMF54 GMF55	GMF58 GMF59	GMF62 GMF63	GMF52 GMF53	GMF56 GMF57	GMF60 GMF61	GMG16 GMG17	GMG18 GMG19	GMH58 GMH59	GMG12 GMG13	GMG14 GMG15	GMH56 GMH57	EMB72 EMB73	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	1
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	2
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	3
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	4
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	5
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	6
	7			Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	7
	8			Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	8
	9			Quenched & Tempered	350	38	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	9
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	10
	11			Quenched & Tempered	325	35	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	11
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	12
	13		Martensitic	Quenched & Tempered	240	23	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	13
	14		Austenitic		180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	14
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	15
	16		Pearlitic (Martensitic)		260	26	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	16
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	17
	18		Pearlitic		250	25	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	18
	19	Malleable cast iron	Ferritic		130		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	19
	20		Pearlitic		230	21	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	20
N	21	Aluminum-wrought alloy	Not Curable		60																21
	22		Curable	Hardened	100																22
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75																23
	24		≤ 12% Si, Curable	Hardened	90																24
	25		> 12% Si, Not Curable		130																25
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110																26
	27		CuZn, CuSnZn (Brass)		90																27
	28		CuSn, lead-free copper and electrolytic copper		100																28
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic																		29
	30		Rubber, Wood, etc.																		30
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○	○	○	○	○	○	○	○	○	○	○	○	31
	32			Cured	280	30	○	○	○	○	○	○	○	○	○	○	○	○	○	○	32
	33		Ni or Co Based	Annealed	250	25	○	○	○	○	○	○	○	○	○	○	○	○	○	○	33
	34			Cured	350	38	○	○	○	○	○	○	○	○	○	○	○	○	○	○	34
	35			Cast	320	34	○	○	○	○	○	○	○	○	○	○	○	○	○	○	35
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○	○	○	○	○	○	○	○	○	○	○	◎	36
	37		Alpha + Beta Alloys	Hardened	1050 Rm		○	○	○	○	○	○	○	○	○	○	○	○	○	◎	37
H	38	Hardened steel		Hardened	550	55															38
	39			Hardened	630	60															39
	40	Chilled Cast Iron		Cast	400	42															40
	41	Hardened Cast Iron		Hardened	550	55															41

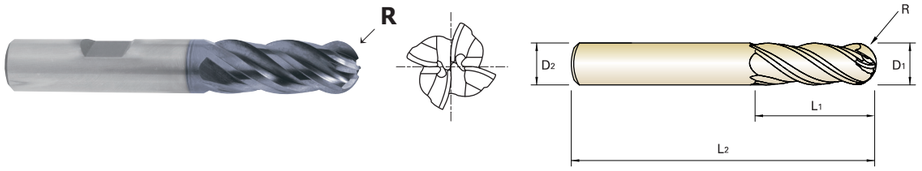
SERIES

PLAIN SHANK **GMG55**

FLAT SHANK **GMG56**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE BALL NOSE LONG LENGTH

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



CARBIDE | 4 | 35°/37° | R ±0.02 | PLAIN | FLAT | Y Coating

p.27

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D1	D2	L1	L2
GMG55030	**GMG56030**	R1.5	**3.0**	6	8	57
GMG55040	**GMG56040**	R2.0	**4.0**	6	11	57
GMG55050	**GMG56050**	R2.5	**5.0**	6	13	57
GMG55060	**GMG56060**	R3.0	**6.0**	6	13	57
GMG55080	**GMG56080**	R4.0	**8.0**	8	19	63
GMG55100	**GMG56100**	R5.0	**10.0**	10	22	72
GMG55120	**GMG56120**	R6.0	**12.0**	12	26	83
GMG55160	**GMG56160**	R8.0	**16.0**	16	32	92
GMG55200	**GMG56200**	R10.0	**20.0**	20	38	104
GMG55250	**GMG56250**	R12.5	**25.0**	25	38	104

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

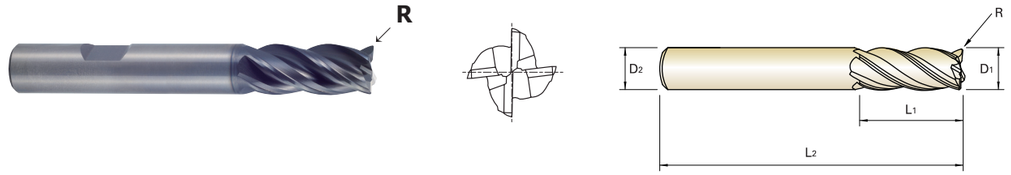
SERIES

PLAIN SHANK **GMF54**

FLAT SHANK **GMF55**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE CORNER RADIUS SHORT LENGTH

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating

p.28

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D1	D2	L1	L2
GMF54030	**GMF55030**	R0.3	**3.0**	6	7	54
GMF54901	**GMF55901**	R0.5	**3.0**	6	7	54
GMF54040	**GMF55040**	R0.3	**4.0**	6	8	54
GMF54902	**GMF55902**	R0.5	**4.0**	6	8	54
GMF54050	**GMF55050**	R0.3	**5.0**	6	10	54
GMF54903	**GMF55903**	R0.5	**5.0**	6	10	54
GMF54060	**GMF55060**	R0.3	**6.0**	6	10	54
GMF54904	**GMF55904**	R0.5	**6.0**	6	10	54
GMF54905	**GMF55905**	R1.0	**6.0**	6	10	54
GMF54080	**GMF55080**	R0.5	**8.0**	8	12	58
GMF54906	**GMF55906**	R1.0	**8.0**	8	12	58
GMF54100	**GMF55100**	R0.5	**10.0**	10	14	66
GMF54907	**GMF55907**	R1.0	**10.0**	10	14	66
GMF54120	**GMF55120**	R0.5	**12.0**	12	16	73
GMF54908	**GMF55908**	R1.0	**12.0**	12	16	73
GMF54909	**GMF55909**	R2.0	**12.0**	12	16	73
GMF54140	**GMF55140**	R0.5	**14.0**	14	18	75
GMF54160	**GMF55160**	R1.0	**16.0**	16	22	82
GMF54912	**GMF55912**	R2.0	**16.0**	16	22	82
GMF54913	**GMF55913**	R3.0	**16.0**	16	22	82
GMF54180	**GMF55180**	R1.0	**18.0**	18	24	84
GMF54200	**GMF55200**	R1.0	**20.0**	20	26	92
GMF54916	**GMF55916**	R2.0	**20.0**	20	26	92
GMF54917	**GMF55917**	R3.0	**20.0**	20	26	92

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

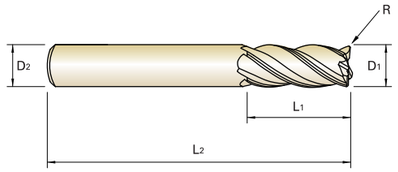
SERIES

PLAIN SHANK **GMF58**

FLAT SHANK **GMF59**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE CORNER RADIUS LONG LENGTH

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating

p.28

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D1	D2	L1	L2
GMF58030	**GMF59030**	R0.3	**3.0**	6	8	57
GMF58901	**GMF59901**	R0.5	**3.0**	6	8	57
GMF58040	**GMF59040**	R0.3	**4.0**	6	11	57
GMF58902	**GMF59902**	R0.5	**4.0**	6	11	57
GMF58050	**GMF59050**	R0.3	**5.0**	6	13	57
GMF58903	**GMF59903**	R0.5	**5.0**	6	13	57
GMF58060	**GMF59060**	R0.3	**6.0**	6	13	57
GMF58904	**GMF59904**	R0.5	**6.0**	6	13	57
GMF58905	**GMF59905**	R1.0	**6.0**	6	13	57
GMF58080	**GMF59080**	R0.5	**8.0**	8	19	63
GMF58906	**GMF59906**	R1.0	**8.0**	8	19	63
GMF58100	**GMF59100**	R0.5	**10.0**	10	22	72
GMF58907	**GMF59907**	R1.0	**10.0**	10	22	72
GMF58120	**GMF59120**	R0.5	**12.0**	12	26	83
GMF58908	**GMF59908**	R1.0	**12.0**	12	26	83
GMF58909	**GMF59909**	R2.0	**12.0**	12	26	83
GMF58140	**GMF59140**	R0.5	**14.0**	14	26	83
GMF58160	**GMF59160**	R1.0	**16.0**	16	32	92
GMF58912	**GMF59912**	R2.0	**16.0**	16	32	92
GMF58913	**GMF59913**	R3.0	**16.0**	16	32	92
GMF58180	**GMF59180**	R1.0	**18.0**	18	32	92
GMF58200	**GMF59200**	R1.0	**20.0**	20	38	104
GMF58916	**GMF59916**	R2.0	**20.0**	20	38	104
GMF58917	**GMF59917**	R3.0	**20.0**	20	38	104
GMF58250	**GMF59250**	R1.0	**25.0**	25	38	104

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

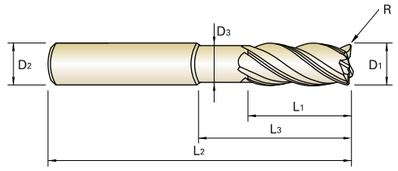
SERIES

PLAIN SHANK **GMF62**

FLAT SHANK **GMF63**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE CORNER RADIUS WITH EXTENDED NECK

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating

p.28

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3
GMF62030	**GMF63030**	R0.3	**3.0**	6	7	12	54	2.7
GMF62901	**GMF63901**	R0.5	**3.0**	6	7	12	54	2.7
GMF62902	**GMF63902**	R0.3	**3.0**	6	7	17	57	2.7
GMF62903	**GMF63903**	R0.5	**3.0**	6	7	17	57	2.7
GMF62040	**GMF63040**	R0.3	**4.0**	6	8	15	57	3.7
GMF62904	**GMF63904**	R0.5	**4.0**	6	8	15	57	3.7
GMF62905	**GMF63905**	R0.3	**4.0**	6	8	22	63	3.7
GMF62906	**GMF63906**	R0.5	**4.0**	6	8	22	63	3.7
GMF62050	**GMF63050**	R0.3	**5.0**	6	10	17	57	4.7
GMF62907	**GMF63907**	R0.5	**5.0**	6	10	17	57	4.7
GMF62908	**GMF63908**	R0.3	**5.0**	6	10	27	67	4.7
GMF62909	**GMF63909**	R0.5	**5.0**	6	10	27	67	4.7
GMF62060	**GMF63060**	R0.3	**6.0**	6	10	15	57	5.5
GMF62910	**GMF63910**	R0.5	**6.0**	6	10	15	57	5.5
GMF62911	**GMF63911**	R1.0	**6.0**	6	10	15	57	5.5
GMF62912	**GMF63912**	R0.3	**6.0**	6	10	20	62	5.5
GMF62913	**GMF63913**	R0.5	**6.0**	6	10	20	62	5.5
GMF62914	**GMF63914**	R1.0	**6.0**	6	10	20	62	5.5
GMF62915	**GMF63915**	R0.3	**6.0**	6	10	32	74	5.5
GMF62916	**GMF63916**	R0.5	**6.0**	6	10	32	74	5.5
GMF62917	**GMF63917**	R1.0	**6.0**	6	10	32	74	5.5
GMF62080	**GMF63080**	R0.5	**8.0**	8	12	20	63	7.5
GMF62918	**GMF63918**	R1.0	**8.0**	8	12	20	63	7.5
GMF62919	**GMF63919**	R0.5	**8.0**	8	12	30	73	7.5

▶ NEXT PAGE

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

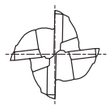
SERIES

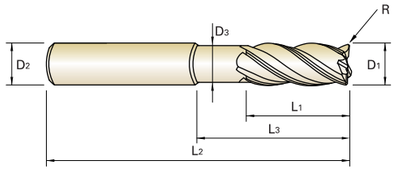
PLAIN SHANK **GMF62**

FLAT SHANK **GMF63**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE CORNER RADIUS WITH EXTENDED NECK

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40





CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating p.28

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3
GMF62920	**GMF63920**	R1.0	**8.0**	8	12	30	73	7.5
GMF62921	**GMF63921**	R0.5	**8.0**	8	12	46	90	7.5
GMF62922	**GMF63922**	R1.0	**8.0**	8	12	46	90	7.5
GMF62100	**GMF63100**	R0.5	**10.0**	10	14	25	72	9.2
GMF62923	**GMF63923**	R1.0	**10.0**	10	14	25	72	9.2
GMF62924	**GMF63924**	R0.5	**10.0**	10	14	35	82	9.2
GMF62925	**GMF63925**	R1.0	**10.0**	10	14	35	82	9.2
GMF62926	**GMF63926**	R0.5	**10.0**	10	14	55	102	9.2
GMF62927	**GMF63927**	R1.0	**10.0**	10	14	55	102	9.2
GMF62120	**GMF63120**	R0.5	**12.0**	12	16	30	83	11.0
GMF62928	**GMF63928**	R1.0	**12.0**	12	16	30	83	11.0
GMF62929	**GMF63929**	R2.0	**12.0**	12	16	30	83	11.0
GMF62930	**GMF63930**	R0.5	**12.0**	12	16	40	93	11.0
GMF62931	**GMF63931**	R1.0	**12.0**	12	16	40	93	11.0
GMF62932	**GMF63932**	R2.0	**12.0**	12	16	40	93	11.0
GMF62933	**GMF63933**	R0.5	**12.0**	12	16	64	117	11.0
GMF62934	**GMF63934**	R1.0	**12.0**	12	16	64	117	11.0
GMF62935	**GMF63935**	R2.0	**12.0**	12	16	64	117	11.0
GMF62160	**GMF63160**	R1.0	**16.0**	16	22	38	92	15.0
GMF62936	**GMF63936**	R2.0	**16.0**	16	22	38	92	15.0
GMF62937	**GMF63937**	R3.0	**16.0**	16	22	38	92	15.0
GMF62938	**GMF63938**	R1.0	**16.0**	16	22	55	109	15.0
GMF62939	**GMF63939**	R2.0	**16.0**	16	22	55	109	15.0
GMF62940	**GMF63940**	R3.0	**16.0**	16	22	55	109	15.0

▶ NEXT PAGE

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

SERIES

PLAIN SHANK **GMF62**

FLAT SHANK **GMF63**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE CORNER RADIUS WITH EXTENDED NECK

- ▶ Special flute geometry and multiple helix eliminate vibrations
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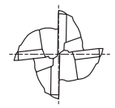
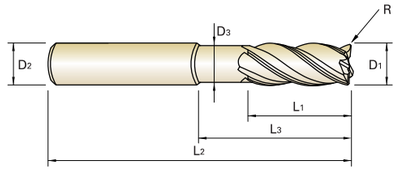




CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating p.28

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3
GMF62941	**GMF63941**	R1.0	**16.0**	16	22	87	141	15.0
GMF62942	**GMF63942**	R2.0	**16.0**	16	22	87	141	15.0
GMF62943	**GMF63943**	R3.0	**16.0**	16	22	87	141	15.0
GMF62200	**GMF63200**	R1.0	**20.0**	20	26	50	104	19.0
GMF62944	**GMF63944**	R2.0	**20.0**	20	26	50	104	19.0
GMF62945	**GMF63945**	R3.0	**20.0**	20	26	50	104	19.0
GMF62946	**GMF63946**	R1.0	**20.0**	20	26	70	124	19.0
GMF62947	**GMF63947**	R2.0	**20.0**	20	26	70	124	19.0
GMF62948	**GMF63948**	R3.0	**20.0**	20	26	70	124	19.0
GMF62949	**GMF63949**	R1.0	**20.0**	20	26	110	164	19.0
GMF62950	**GMF63950**	R2.0	**20.0**	20	26	110	164	19.0
GMF62951	**GMF63951**	R3.0	**20.0**	20	26	110	164	19.0

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

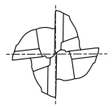
SERIES

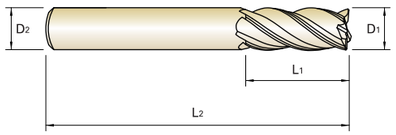
PLAIN SHANK **GMF52**

FLAT SHANK **GMF53**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE SHORT LENGTH

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



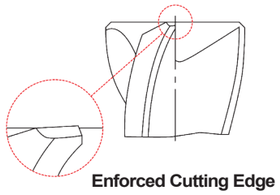


CARBIDE | 4 | 35°/37° | PLAIN | FLAT | C x 45° | Y Coating p.28

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D1	D2	L1	L2	
GMF52030	**GMF53030**	**3.0**	6	7	54	0.10
GMF52040	**GMF53040**	**4.0**	6	8	54	0.15
GMF52050	**GMF53050**	**5.0**	6	10	54	0.15
GMF52060	**GMF53060**	**6.0**	6	10	54	0.20
GMF52080	**GMF53080**	**8.0**	8	12	58	0.20
GMF52100	**GMF53100**	**10.0**	10	14	66	0.30
GMF52120	**GMF53120**	**12.0**	12	16	73	0.35
GMF52140	**GMF53140**	**14.0**	14	18	75	0.40
GMF52160	**GMF53160**	**16.0**	16	22	82	0.40
GMF52180	**GMF53180**	**18.0**	18	24	84	0.50
GMF52200	**GMF53200**	**20.0**	20	26	92	0.50

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6



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	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

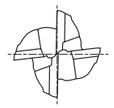
SERIES

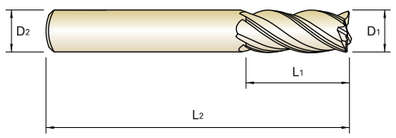
PLAIN SHANK **GMF56**

FLAT SHANK **GMF57**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE LONG LENGTH

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



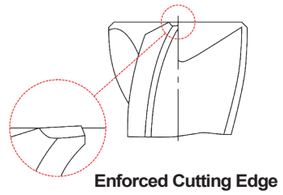


CARBIDE | 4 | 35°/37° | PLAIN | FLAT | C x 45° | Y Coating p.28

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D1	D2	L1	L2	
GMF56030	**GMF57030**	**3.0**	6	8	57	0.10
GMF56040	**GMF57040**	**4.0**	6	11	57	0.15
GMF56050	**GMF57050**	**5.0**	6	13	57	0.15
GMF56060	**GMF57060**	**6.0**	6	13	57	0.20
GMF56080	**GMF57080**	**8.0**	8	19	63	0.20
GMF56100	**GMF57100**	**10.0**	10	22	72	0.30
GMF56120	**GMF57120**	**12.0**	12	26	83	0.35
GMF56140	**GMF57140**	**14.0**	14	26	83	0.40
GMF56160	**GMF57160**	**16.0**	16	32	92	0.40
GMF56180	**GMF57180**	**18.0**	18	32	92	0.50
GMF56200	**GMF57200**	**20.0**	20	38	104	0.50
GMF56250	**GMF57250**	**25.0**	25	38	104	0.50

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6



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	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

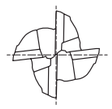
SERIES

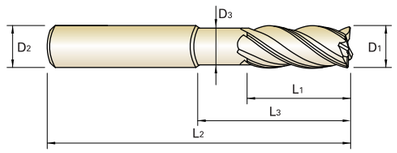
PLAIN SHANK **GMF60**

FLAT SHANK **GMF61**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE WITH EXTENDED NECK

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40





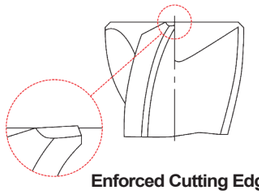
CARBIDE | 4 | 35°/37° | PLAIN | FLAT | C x 45° | Y Coating | p.28

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_3	L_2	D_3	
GMF60030	**GMF61030**	**3.0**	6	7	12	54	2.7	0.10
GMF60901	**GMF61901**	**3.0**	6	7	17	57	2.7	0.10
GMF60902	**GMF61902**	**3.0**	6	8	14	57	2.7	0.10
GMF60040	**GMF61040**	**4.0**	6	8	15	57	3.7	0.15
GMF60903	**GMF61903**	**4.0**	6	8	22	63	3.7	0.15
GMF60904	**GMF61904**	**4.0**	6	11	16	57	3.7	0.15
GMF60050	**GMF61050**	**5.0**	6	10	17	57	4.7	0.15
GMF60905	**GMF61905**	**5.0**	6	10	27	67	4.7	0.15
GMF60906	**GMF61906**	**5.0**	6	13	18	57	4.7	0.15
GMF60060	**GMF61060**	**6.0**	6	10	15	57	5.5	0.20
GMF60907	**GMF61907**	**6.0**	6	10	20	62	5.5	0.20
GMF60908	**GMF61908**	**6.0**	6	10	32	74	5.5	0.20
GMF60909	**GMF61909**	**6.0**	6	13	21	57	5.5	0.20
GMF60080	**GMF61080**	**8.0**	8	12	20	63	7.5	0.20
GMF60910	**GMF61910**	**8.0**	8	12	30	73	7.5	0.20
GMF60911	**GMF61911**	**8.0**	8	12	46	90	7.5	0.20
GMF60912	**GMF61912**	**8.0**	8	19	27	63	7.5	0.20
GMF60100	**GMF61100**	**10.0**	10	14	25	72	9.2	0.30
GMF60913	**GMF61913**	**10.0**	10	14	35	82	9.2	0.30
GMF60914	**GMF61914**	**10.0**	10	14	55	102	9.2	0.30
GMF60915	**GMF61915**	**10.0**	10	22	32	72	9.2	0.30

▶ NEXT PAGE

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6



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	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

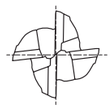
SERIES

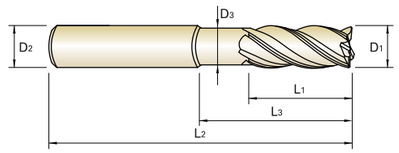
PLAIN SHANK **GMF60**

FLAT SHANK **GMF61**

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE WITH EXTENDED NECK

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



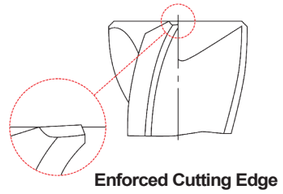


CARBIDE | 4 | 35°/37° | PLAIN | FLAT | C x 45° | Y Coating | p.28

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_3	L_2	D_3	
GMF60120	**GMF61120**	**12.0**	12	16	30	83	11.0	0.35
GMF60916	**GMF61916**	**12.0**	12	16	40	93	11.0	0.35
GMF60917	**GMF61917**	**12.0**	12	16	64	117	11.0	0.35
GMF60918	**GMF61918**	**12.0**	12	26	38	83	11.0	0.35
GMF60160	**GMF61160**	**16.0**	16	22	38	92	15.0	0.40
GMF60919	**GMF61919**	**16.0**	16	22	55	109	15.0	0.40
GMF60920	**GMF61920**	**16.0**	16	22	87	141	15.0	0.40
GMF60921	**GMF61921**	**16.0**	16	32	44	92	15.0	0.40
GMF60200	**GMF61200**	**20.0**	20	26	50	104	19.0	0.50
GMF60922	**GMF61922**	**20.0**	20	26	70	124	19.0	0.50
GMF60923	**GMF61923**	**20.0**	20	26	110	164	19.0	0.50
GMF60924	**GMF61924**	**20.0**	20	38	54	104	19.0	0.50

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6



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	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

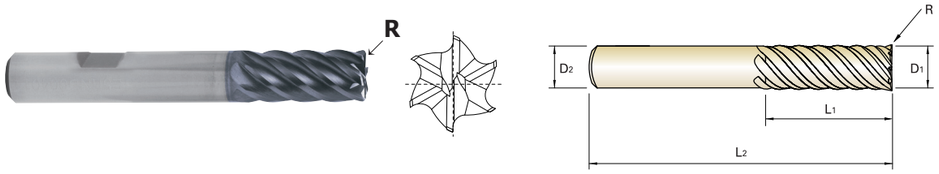
SERIES

PLAIN SHANK **GMG16**

FLAT SHANK **GMG17**

Y-COATED SOLID CARBIDE END MILLS
6 FLUTE CORNER RADIUS LONG LENGTH

▶ The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



CARBIDE 6 45° PLAIN FLAT Y Coating p.29

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMG16060	GMG17060	R0.5	6.0	6	13	57
GMG16901	GMG17901	R1.0	6.0	6	13	57
GMG16080	GMG17080	R0.5	8.0	8	19	63
GMG16902	GMG17902	R1.0	8.0	8	19	63
GMG16100	GMG17100	R0.5	10.0	10	22	72
GMG16903	GMG17903	R1.0	10.0	10	22	72
GMG16904	GMG17904	R1.5	10.0	10	22	72
GMG16905	GMG17905	R2.0	10.0	10	22	72
GMG16120	GMG17120	R0.5	12.0	12	26	83
GMG16906	GMG17906	R1.0	12.0	12	26	83
GMG16907	GMG17907	R1.5	12.0	12	26	83
GMG16908	GMG17908	R2.0	12.0	12	26	83
GMG16909	GMG17909	R3.0	12.0	12	26	83
GMG16160	GMG17160	R1.0	16.0	16	32	92
GMG16910	GMG17910	R1.5	16.0	16	32	92
GMG16911	GMG17911	R2.0	16.0	16	32	92
GMG16912	GMG17912	R3.0	16.0	16	32	92
GMG16200	GMG17200	R1.0	20.0	20	38	104
GMG16913	GMG17913	R1.5	20.0	20	38	104
GMG16914	GMG17914	R2.0	20.0	20	38	104
GMG16915	GMG17915	R3.0	20.0	20	38	104
GMG16250	GMG17250	R1.0	25.0	25	44	104
GMG16916	GMG17916	R1.5	25.0	25	44	104
GMG16917	GMG17917	R2.0	25.0	25	44	104
GMG16918	GMG17918	R3.0	25.0	25	44	104

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

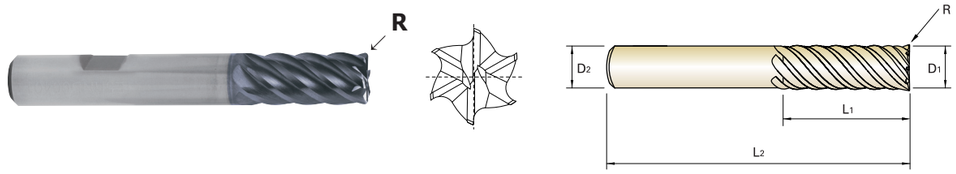
SERIES

PLAIN SHANK **GMG18**

FLAT SHANK **GMG19**

Y-COATED SOLID CARBIDE END MILLS
6 FLUTE CORNER RADIUS EXTRA LONG LENGTH

▶ The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



CARBIDE 6 45° PLAIN FLAT Y Coating p.29

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMG18060	GMG19060	R0.5	6.0	6	24	75
GMG18901	GMG19901	R1.0	6.0	6	24	75
GMG18080	GMG19080	R0.5	8.0	8	32	75
GMG18902	GMG19902	R1.0	8.0	8	32	75
GMG18903	GMG19903	R2.0	8.0	8	32	75
GMG18100	GMG19100	R0.5	10.0	10	40	100
GMG18904	GMG19904	R1.0	10.0	10	40	100
GMG18905	GMG19905	R1.5	10.0	10	40	100
GMG18906	GMG19906	R2.0	10.0	10	40	100
GMG18120	GMG19120	R0.5	12.0	12	48	120
GMG18907	GMG19907	R1.0	12.0	12	48	120
GMG18908	GMG19908	R1.5	12.0	12	48	120
GMG18909	GMG19909	R2.0	12.0	12	48	120
GMG18910	GMG19910	R3.0	12.0	12	48	120
GMG18160	GMG19160	R1.0	16.0	16	64	140
GMG18911	GMG19911	R1.5	16.0	16	64	140
GMG18912	GMG19912	R2.0	16.0	16	64	140
GMG18913	GMG19913	R3.0	16.0	16	64	140
GMG18200	GMG19200	R1.0	20.0	20	80	150
GMG18914	GMG19914	R1.5	20.0	20	80	150
GMG18915	GMG19915	R2.0	20.0	20	80	150
GMG18916	GMG19916	R3.0	20.0	20	80	150
GMG18917	GMG19917	R4.0	20.0	20	80	150
GMG18918	GMG19918	R5.0	20.0	20	80	150

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

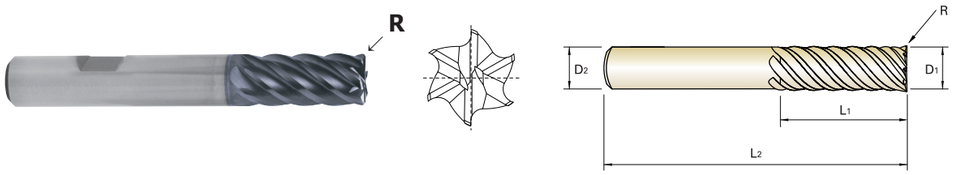
SERIES

PLAIN SHANK **GMG18**

FLAT SHANK **GMG19**

Y-COATED SOLID CARBIDE END MILLS
6 FLUTE CORNER RADIUS EXTRA LONG LENGTH

- ▶ The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating

p.29

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMG18250	**GMG19250**	R1.0	**25.0**	25	100	170
GMG18919	**GMG19919**	R1.5	**25.0**	25	100	170
GMG18920	**GMG19920**	R2.0	**25.0**	25	100	170
GMG18921	**GMG19921**	R3.0	**25.0**	25	100	170
GMG18922	**GMG19922**	R4.0	**25.0**	25	100	170
GMG18923	**GMG19923**	R5.0	**25.0**	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

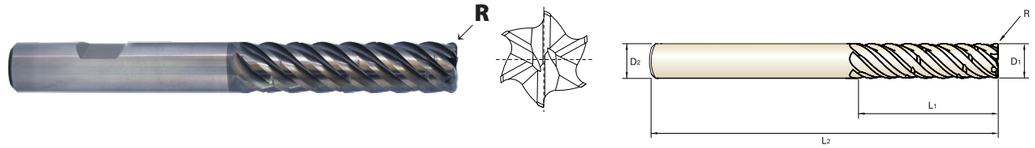
SERIES

PLAIN SHANK **GMH58**

FLAT SHANK **GMH59**

Y-COATED SOLID CARBIDE END MILLS
6 FLUTE CORNER RADIUS EXTRA LONG LENGTH CHIP SPLITTER

- ▶ Special chip splitter design for better chip removal shortened chip length at high axial machining
- ▶ High Performance for Steels, Stainless Steels and Cast Iron



CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating

p.30

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMH58060	**GMH59060**	R0.5	**6.0**	6	24	75
GMH58901	**GMH59901**	R1.0	**6.0**	6	24	75
GMH58080	**GMH59080**	R0.5	**8.0**	8	32	75
GMH58902	**GMH59902**	R1.0	**8.0**	8	32	75
GMH58903	**GMH59903**	R2.0	**8.0**	8	32	75
GMH58100	**GMH59100**	R0.5	**10.0**	10	40	100
GMH58904	**GMH59904**	R1.0	**10.0**	10	40	100
GMH58905	**GMH59905**	R1.5	**10.0**	10	40	100
GMH58906	**GMH59906**	R2.0	**10.0**	10	40	100
GMH58120	**GMH59120**	R0.5	**12.0**	12	48	120
GMH58907	**GMH59907**	R1.0	**12.0**	12	48	120
GMH58908	**GMH59908**	R1.5	**12.0**	12	48	120
GMH58909	**GMH59909**	R2.0	**12.0**	12	48	120
GMH58910	**GMH59910**	R3.0	**12.0**	12	48	120
GMH58160	**GMH59160**	R1.0	**16.0**	16	64	140
GMH58911	**GMH59911**	R1.5	**16.0**	16	64	140
GMH58912	**GMH59912**	R2.0	**16.0**	16	64	140
GMH58913	**GMH59913**	R3.0	**16.0**	16	64	140

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

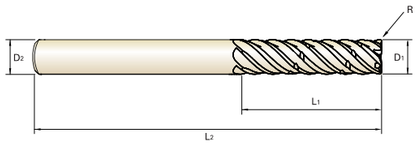
SERIES

PLAIN SHANK **GMH58**

FLAT SHANK **GMH59**

Y-COATED SOLID CARBIDE END MILLS
6 FLUTE CORNER RADIUS EXTRA LONG LENGTH CHIP SPLITTER

- Special chip splitter design for better chip removal shortened chip length at high axial machining
- High Performance for Steels, Stainless Steels and Cast Iron



CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating

p.30

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT		D1	D2	L1	L2
GMH58200	**GMH59200**	R1.0	**20.0**	20	80	150
GMH58914	**GMH59914**	R1.5	**20.0**	20	80	150
GMH58915	**GMH59915**	R2.0	**20.0**	20	80	150
GMH58916	**GMH59916**	R3.0	**20.0**	20	80	150
GMH58917	**GMH59917**	R4.0	**20.0**	20	80	150
GMH58918	**GMH59918**	R5.0	**20.0**	20	80	150
GMH58250	**GMH59250**	R1.0	**25.0**	25	100	170
GMH58919	**GMH59919**	R1.5	**25.0**	25	100	170
GMH58920	**GMH59920**	R2.0	**25.0**	25	100	170
GMH58921	**GMH59921**	R3.0	**25.0**	25	100	170
GMH58922	**GMH59922**	R4.0	**25.0**	25	100	170
GMH58923	**GMH59923**	R5.0	**25.0**	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

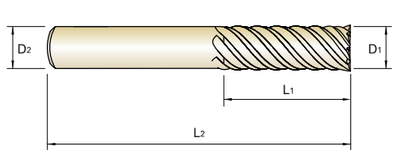
SERIES

PLAIN SHANK **GMG12**

FLAT SHANK **GMG13**

Y-COATED SOLID CARBIDE END MILLS
6 FLUTE LONG LENGTH

- The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
- Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



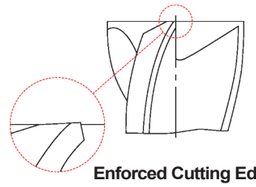
CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating

p.29

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GMG12060	**GMG13060**	**6.0**	6	13	57
GMG12080	**GMG13080**	**8.0**	8	19	63
GMG12100	**GMG13100**	**10.0**	10	22	72
GMG12120	**GMG13120**	**12.0**	12	26	83
GMG12160	**GMG13160**	**16.0**	16	32	92
GMG12200	**GMG13200**	**20.0**	20	38	104
GMG12250	**GMG13250**	**25.0**	25	44	104

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5 * Shank Dia.≥Ø12 : h6
Over Ø12	0 ~ - 0.03	



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	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

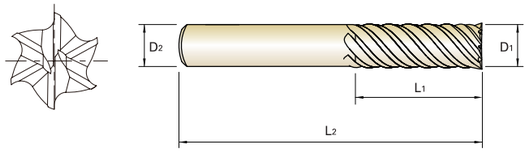
SERIES

PLAIN SHANK **GMG14**

FLAT SHANK **GMG15**

Y-COATED SOLID CARBIDE END MILLS
6 FLUTE EXTRA LONG LENGTH

▶ The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

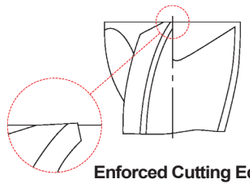


CARBIDE 6 45° PLAIN FLAT Y Coating p.29

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GMG14060	**GMG15060**	**6.0**	6	24	75
GMG14080	**GMG15080**	**8.0**	8	32	75
GMG14100	**GMG15100**	**10.0**	10	40	100
GMG14120	**GMG15120**	**12.0**	12	48	120
GMG14160	**GMG15160**	**16.0**	16	64	140
GMG14200	**GMG15200**	**20.0**	20	80	150
GMG14250	**GMG15250**	**25.0**	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6



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	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

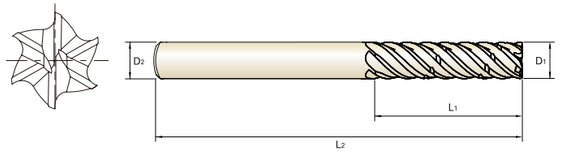
SERIES

PLAIN SHANK **GMH56**

FLAT SHANK **GMH57**

Y-COATED SOLID CARBIDE END MILLS
6 FLUTE EXTRA LONG LENGTH CHIP SPLITTER

▶ Special chip splitter design for better chip removal shortened chip length at high axial machining
▶ High Performance for Steels, Stainless Steels and Cast Iron

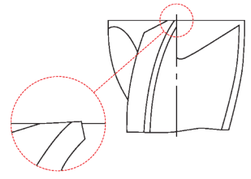


CARBIDE 6 45° PLAIN FLAT Y Coating p.30

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GMH56060	**GMH57060**	**6.0**	6	24	75
GMH56080	**GMH57080**	**8.0**	8	32	75
GMH56100	**GMH57100**	**10.0**	10	40	100
GMH56120	**GMH57120**	**12.0**	12	48	120
GMH56160	**GMH57160**	**16.0**	16	64	140
GMH56200	**GMH57200**	**20.0**	20	80	150
GMH56250	**GMH57250**	**25.0**	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6



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	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

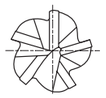
SERIES

PLAIN SHANK **EMB72**

FLAT SHANK **EMB73**

AlTiN-COATED SOLID CARBIDE END MILLS
5 FLUTE LONG LENGTH

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶ Excellent finished work piece
- ▶ Higher speeds, deeper cuts and excellent metal removal rates

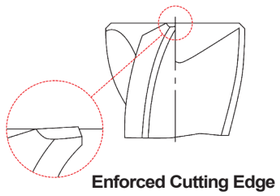


CARBIDE | 5 | 41°~45° | PLAIN | FLAT | C x 45° | AlTiN p.31

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
EMB72060	EMB73060	6.0	6	13	57	0.1
EMB72080	EMB73080	8.0	8	19	63	0.1
EMB72100	EMB73100	10.0	10	22	72	0.1
EMB72120	EMB73120	12.0	12	26	83	0.1
EMB72140	EMB73140	14.0	14	26	83	0.2
EMB72160	EMB73160	16.0	16	32	92	0.2
EMB72180	EMB73180	18.0	18	32	92	0.2
EMB72200	EMB73200	20.0	20	38	104	0.2
EMB72250	EMB73250	25.0	25	38	104	0.2

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

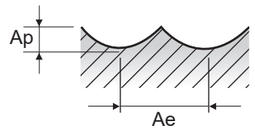
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	○	○	○	◎	○	○	○	◎	○	◎	◎	◎	○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

GMG55, GMG56 SERIES 4 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	5.0	6.0	8.0	10.0	12.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.5D	1.0D	Vc	162	162	162	162	162	162	162	162	162	162	162
					fz	0.025	0.027	0.03	0.04	0.06	0.065	0.07	0.075	0.08	0.09	0.099
					RPM	17189	12892	10313	8594	6446	5157	4297	3223	2865	2578	2063
					FEED	1719	1392	1238	1375	1547	1341	1203	967	917	928	817
	5	Low alloy steel	0.5D	1.0D	Vc	113	113	113	113	113	113	113	113	113	113	113
					fz	0.025	0.027	0.03	0.04	0.06	0.065	0.07	0.074	0.079	0.09	0.099
					RPM	11990	8992	7194	5995	4496	3597	2997	2248	1998	1798	1439
					FEED	1199	971	863	959	1079	935	839	665	631	647	570
	6-7		0.5D	1.0D	Vc	162	162	162	162	162	162	162	162	162	162	162
					fz	0.025	0.027	0.03	0.04	0.06	0.065	0.07	0.075	0.08	0.09	0.099
					RPM	17189	12892	10313	8594	6446	5157	4297	3223	2865	2578	2063
					FEED	1719	1392	1238	1375	1547	1341	1203	967	917	928	817
	8-9		0.5D	1.0D	Vc	113	113	113	113	113	113	113	113	113	113	113
					fz	0.025	0.027	0.03	0.04	0.06	0.065	0.07	0.074	0.079	0.09	0.099
					RPM	11990	8992	7194	5995	4496	3597	2997	2248	1998	1798	1439
					FEED	1199	971	863	959	1079	935	839	665	631	647	570
	10-11.1	High alloyed steel, and tool steel	0.5D	1.0D	Vc	68	68	68	68	68	68	68	68	68	68	68
					fz	0.017	0.019	0.021	0.028	0.042	0.045	0.049	0.052	0.056	0.063	0.07
					RPM	7215	5411	4329	3608	2706	2165	1804	1353	1203	1082	866
					FEED	491	411	364	404	455	390	354	281	269	273	242
M	12-13	Stainless steel	0.5D	1.0D	Vc	77	77	77	77	77	77	77	77	77	77	77
					fz	0.015	0.015	0.025	0.03	0.04	0.045	0.05	0.054	0.059	0.058	0.059
					RPM	8170	6127	4902	4085	3064	2451	2042	1532	1362	1225	980
					FEED	490	368	490	490	490	441	408	331	321	284	231
	14.1		0.5D	1.0D	Vc	85	85	85	85	85	85	85	85	85	85	85
					fz	0.02	0.02	0.025	0.041	0.045	0.05	0.055	0.06	0.064	0.065	0.068
					RPM	9019	6764	5411	4509	3382	2706	2255	1691	1503	1353	1082
					FEED	722	541	541	740	609	541	496	406	385	352	294
	14.2		0.5D	1.0D	Vc	77	77	77	77	77	77	77	77	77	77	77
					fz	0.02	0.02	0.025	0.041	0.045	0.05	0.055	0.06	0.064	0.065	0.068
					RPM	8170	6127	4902	4085	3064	2451	2042	1532	1362	1225	980
					FEED	654	490	490	670	551	490	449	368	349	319	267
K	15-20	Grey cast iron	0.5D	1.0D	Vc	119	119	119	119	119	119	119	119	119	119	119
					fz	0.031	0.033	0.037	0.05	0.074	0.081	0.087	0.093	0.099	0.112	0.124
					RPM	12626	9470	7576	6313	4735	3788	3157	2367	2104	1894	1515
					FEED	1566	1250	1121	1263	1402	1227	1098	881	833	848	752
S	31-35	Heat Resistant Super Alloys	0.2D	0.3D	Vc	21	21	21	21	21	21	21	21	21	21	21
					fz	0.014	0.014	0.017	0.028	0.031	0.035	0.038	0.042	0.045	0.045	0.048
					RPM	2228	1671	1337	1114	836	668	557	418	371	334	267
					FEED	125	94	91	125	104	94	85	70	67	60	51
	36-37	Titanium Alloys	0.5D	0.3D	Vc	47	47	47	47	47	47	47	47	47	47	47
					fz	0.018	0.018	0.022	0.037	0.04	0.045	0.049	0.054	0.058	0.058	0.061
					RPM	4987	3740	2992	2493	1870	1496	1247	935	831	748	598
					FEED	359	269	263	369	299	269	244	202	193	174	146

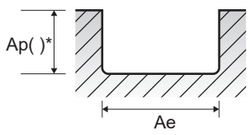


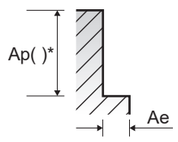
GMF52 GMF53 | GMF54 GMF55 | GMF56 GMF57 | GMF58 GMF59 | GMF60 GMF61 | GMF62 GMF63 — 4 FLUTE - SIDE & SLOTTING

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

ISO	VDI 3323	Material Description	Ae Side	Ae Slotting	Ap Side	Ap Slotting	Parameter	Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	152	152	152	152	152	168	168	168	168	168	168	168
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064
							RPM	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139
							FEED	323	387	426	516	653	813	838	749	709	701	695	548
	5	Low alloy steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	107	107	107	107	107	117	117	117	117	117	117	117
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064
							RPM	11353	8515	6812	5677	4257	3724	3104	2660	2328	2069	1862	1490
							FEED	227	272	300	363	460	566	583	521	493	488	484	381
	6-7		0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	152	152	152	152	152	168	168	168	168	168	168	168
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064
							RPM	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139
							FEED	323	387	426	516	653	813	838	749	709	701	695	548
	8-9		0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	107	107	107	107	107	117	117	117	117	117	117	117
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064
							RPM	11353	8515	6812	5677	4257	3724	3104	2660	2328	2069	1862	1490
							FEED	227	272	300	363	460	566	583	521	493	488	484	381
	10-11.1	High alloyed steel, and tool steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	64	64	64	64	64	70	70	70	70	70	70	70
							fz	0.003	0.006	0.008	0.011	0.019	0.027	0.032	0.034	0.037	0.041	0.045	0.045
							RPM	6791	5093	4074	3395	2546	2228	1857	1592	1393	1238	1114	891
							FEED	81	122	130	149	194	241	238	216	206	203	201	160
M	12-13	Stainless steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	148	148	148	148	148	148	148	148	148	148	148	148
							fz	0.004	0.006	0.009	0.013	0.022	0.034	0.039	0.042	0.045	0.05	0.055	0.055
							RPM	15703	11777	9422	7852	5889	4711	3926	3365	2944	2617	2355	1884
							FEED	251	283	339	408	518	641	612	565	530	523	518	415
	14.1		0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	106	106	106	106	106	106	106	106	106	106	106	106
							fz	0.005	0.008	0.013	0.018	0.028	0.048	0.055	0.059	0.062	0.07	0.077	0.077
							RPM	11247	8435	6748	5623	4218	3374	2812	2410	2109	1874	1687	1350
							FEED	225	270	351	405	472	648	619	569	523	525	520	416
	14.2		0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	95	95	95	95	95	95	95	95	95	95	95	95
							fz	0.005	0.008	0.013	0.018	0.028	0.048	0.055	0.059	0.062	0.069	0.076	0.076
							RPM	10080	7560	6048	5040	3780	3024	2520	2160	1890	1680	1512	1210
							FEED	202	242	314	363	423	581	554	510	469	464	460	368
K	15-20	Grey cast iron	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	112	112	112	112	112	123	123	123	123	123	123	123
							fz	0.006	0.01	0.014	0.02	0.034	0.048	0.058	0.061	0.065	0.073	0.081	0.079
							RPM	11884	8913	7130	5942	4456	3915	3263	2797	2447	2175	1958	1566
							FEED	285	357	399	475	606	752	757	682	636	635	634	495
S	31-35	Heat Resistant Super Alloys	0.25D	1.0D	1.0D	0.5D	Vc	26	26	26	26	26	26	26	26	26	26	26	26
							fz	0.005	0.007	0.008	0.012	0.019	0.033	0.038	0.04	0.043	0.048	0.054	0.052
							RPM	2759	2069	1655	1379	1035	828	690	591	517	460	414	331
							FEED	55	58	53	66	79	109	105	95	89	88	89	69
	36-37	Titanium Alloys	0.4D	1.0D	1.0D	0.5D	Vc	58	58	58	58	58	58	58	58	58	58	58	58
							fz	0.004	0.007	0.011	0.016	0.025	0.042	0.05	0.053	0.055	0.062	0.068	0.069
							RPM	6154	4615	3692	3077	2308	1846	1538	1319	1154	1026	923	738
							FEED	98	129	162	197	231	310	308	280	254	254	251	204

*( ) : Short length & Neck type



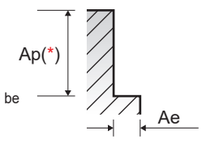


GMG16 GMG17 | GMG18 GMG19 | GMG12 GMG13 | GMG14 GMG15 — 6 FLUTE - SIDE CUTTING

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	2.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	5	Low alloy steel	0.05D	2.0D	Vc	205	205	205	205	205	205	205
					fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174
					RPM	10876	8157	6525	5438	4078	3263	2610
					FEED	3263	4160	4150	4176	3646	3269	2725
	6-7		0.05D	2.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	8-9		0.05D	2.0D	Vc	205	205	205	205	205	205	205
					fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174
					RPM	10876	8157	6525	5438	4078	3263	2610
					FEED	3263	4160	4150	4176	3646	3269	2725
	10-11.1	High alloyed steel, and tool steel	0.05D	2.0D	Vc	100	100	100	100	100	100	100
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.144
					RPM	5305	3979	3183	2653	1989	1592	1273
					FEED	1305	1695	1681	1671	1468	1308	1100
M	12-13	Stainless steel	0.05D	2.0D	Vc	215	215	215	215	215	215	215
					fz	0.049	0.084	0.104	0.125	0.146	0.162	0.168
					RPM	11406	8555	6844	5703	4277	3422	2737
					FEED	3353	4312	4270	4277	3747	3326	2759
	14.1		0.05D	2.0D	Vc	145	145	145	145	145	145	145
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.143
					RPM	7692	5769	4615	3846	2885	2308	1846
					FEED	1892	2458	2437	2423	2129	1897	1584
	14.2		0.05D	2.0D	Vc	135	135	135	135	135	135	135
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.142
					RPM	7162	5371	4297	3581	2686	2149	1719
					FEED	1762	2288	2269	2256	1982	1766	1464
K	15-20	Grey cast iron	0.05D	2.0D	Vc	225	225	225	225	225	225	225
					fz	0.082	0.139	0.173	0.208	0.242	0.270	0.278
					RPM	11937	8952	7162	5968	4476	3581	2865
					FEED	5844	7477	7426	7434	6510	5801	4785
S	31-35	Heat Resistant Super Alloys	0.05D	2.0D	Vc	35	35	35	35	35	35	35
					fz	0.033	0.055	0.070	0.082	0.097	0.112	0.115
					RPM	1857	1393	1114	928	696	557	446
					FEED	368	460	468	457	405	374	307
	36-37	Titanium Alloys	0.05D	2.0D	Vc	115	115	115	115	115	115	115
					fz	0.033	0.055	0.070	0.083	0.097	0.113	0.117
					RPM	6101	4576	3661	3050	2288	1830	1464
					FEED	1208	1510	1537	1519	1332	1241	1028

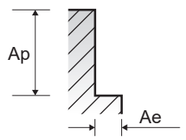
(*) : If product's Length of Cut(L.O.C) is below 2D, it must be applied with L.O.C x 90%



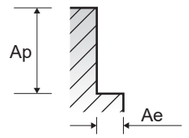
GMH58 GMH59 GMH56 GMH57 6 FLUTE CHIP SPLITTER - SIDE CUTTING

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	3.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	5	Low alloy steel	0.05D	3.0D	Vc	205	205	205	205	205	205	205
					fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174
					RPM	10876	8157	6525	5438	4078	3263	2610
					FEED	3263	4160	4150	4176	3646	3269	2725
	6-7		0.05D	3.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	8-9		0.05D	3.0D	Vc	205	205	205	205	205	205	205
					fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174
					RPM	10876	8157	6525	5438	4078	3263	2610
					FEED	3263	4160	4150	4176	3646	3269	2725
	10-11.1	High alloyed steel, and tool steel	0.05D	3.0D	Vc	100	100	100	100	100	100	100
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.144
					RPM	5305	3979	3183	2653	1989	1592	1273
					FEED	1305	1695	1681	1671	1468	1308	1100
M	12-13	Stainless steel	0.05D	3.0D	Vc	215	215	215	215	215	215	215
					fz	0.049	0.084	0.104	0.125	0.146	0.162	0.168
					RPM	11406	8555	6844	5703	4277	3422	2737
					FEED	3353	4312	4270	4277	3747	3326	2759
	14.1		0.05D	3.0D	Vc	145	145	145	145	145	145	145
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.143
					RPM	7692	5769	4615	3846	2885	2308	1846
					FEED	1892	2458	2437	2423	2129	1897	1584
	14.2		0.05D	3.0D	Vc	135	135	135	135	135	135	135
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.142
					RPM	7162	5371	4297	3581	2686	2149	1719
					FEED	1762	2288	2269	2256	1982	1766	1464
K	15-20	Grey cast iron	0.05D	3.0D	Vc	225	225	225	225	225	225	225
					fz	0.082	0.139	0.173	0.208	0.242	0.270	0.278
					RPM	11937	8952	7162	5968	4476	3581	2865
					FEED	5844	7477	7426	7434	6510	5801	4785
S	31-35	Heat Resistant Super Alloys	0.05D	3.0D	Vc	35	35	35	35	35	35	35
					fz	0.033	0.055	0.070	0.082	0.097	0.112	0.115
					RPM	1857	1393	1114	928	696	557	446
					FEED	368	460	468	457	405	374	307
	36-37	Titanium Alloys	0.05D	3.0D	Vc	115	115	115	115	115	115	115
					fz	0.033	0.055	0.070	0.083	0.097	0.113	0.117
					RPM	6101	4576	3661	3050	2288	1830	1464
					FEED	1208	1510	1537	1519	1332	1241	1028



EMB72, EMB73 SERIES 5 FLUTE - SIDE CUTTING

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1-2	Non-alloy steel	0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
	6		0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
	10	High alloyed steel, and tool steel	0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
M	12-13	Stainless steel	0.25D	1.25D	Vc	105	105	105	145	105	105	105
					fz	0.030	0.032	0.038	0.043	0.064	0.068	0.076
					RPM	5570	4178	3342	3846	2387	2089	1671
					FEED	836	668	635	827	764	710	635
	14.1		0.25D	1.25D	Vc	115	115	115	115	115	115	115
					fz	0.030	0.032	0.038	0.063	0.065	0.069	0.076
					RPM	6101	4576	3661	3050	2615	2288	1830
					FEED	915	732	696	961	850	789	696
K	15-20	Grey cast iron	0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
S	31-35	Heat Resistant Super Alloys	0.25D	1.0D	Vc	25	25	25	25	25	25	25
					fz	0.017	0.020	0.025	0.036	0.045	0.048	0.060
					RPM	1326	995	796	663	568	497	398
					FEED	113	99	99	119	128	119	119
	36-37	Titanium Alloys	0.25D	1.25D	Vc	85	85	85	85	85	85	85
					fz	0.030	0.031	0.038	0.050	0.057	0.063	0.075
					RPM	4509	3382	2706	2255	1933	1691	1353
					FEED	676	524	514	564	551	533	507