



YG
V7 Plus

**HIGH PERFORMANCE
SOLID CARBIDE END MILLS**
For Steels, Cast Iron and Stainless Steels

高性能
硬质合金 立铣刀
适用于钢件, 铸铁和不锈钢

YG-1 CO., LTD.

HEAD OFFICE

211, Sewolcheon-ro, Bupyeong-gu, Incheon, South Korea

Phone: +82-32-526-0909

E-mail: yg1@yg1.kr

www.yg1.kr

Note The information is provided for reference only. Tool specifications are subject to change without prior notice.
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TO SEE V7 PLUS AT WORK



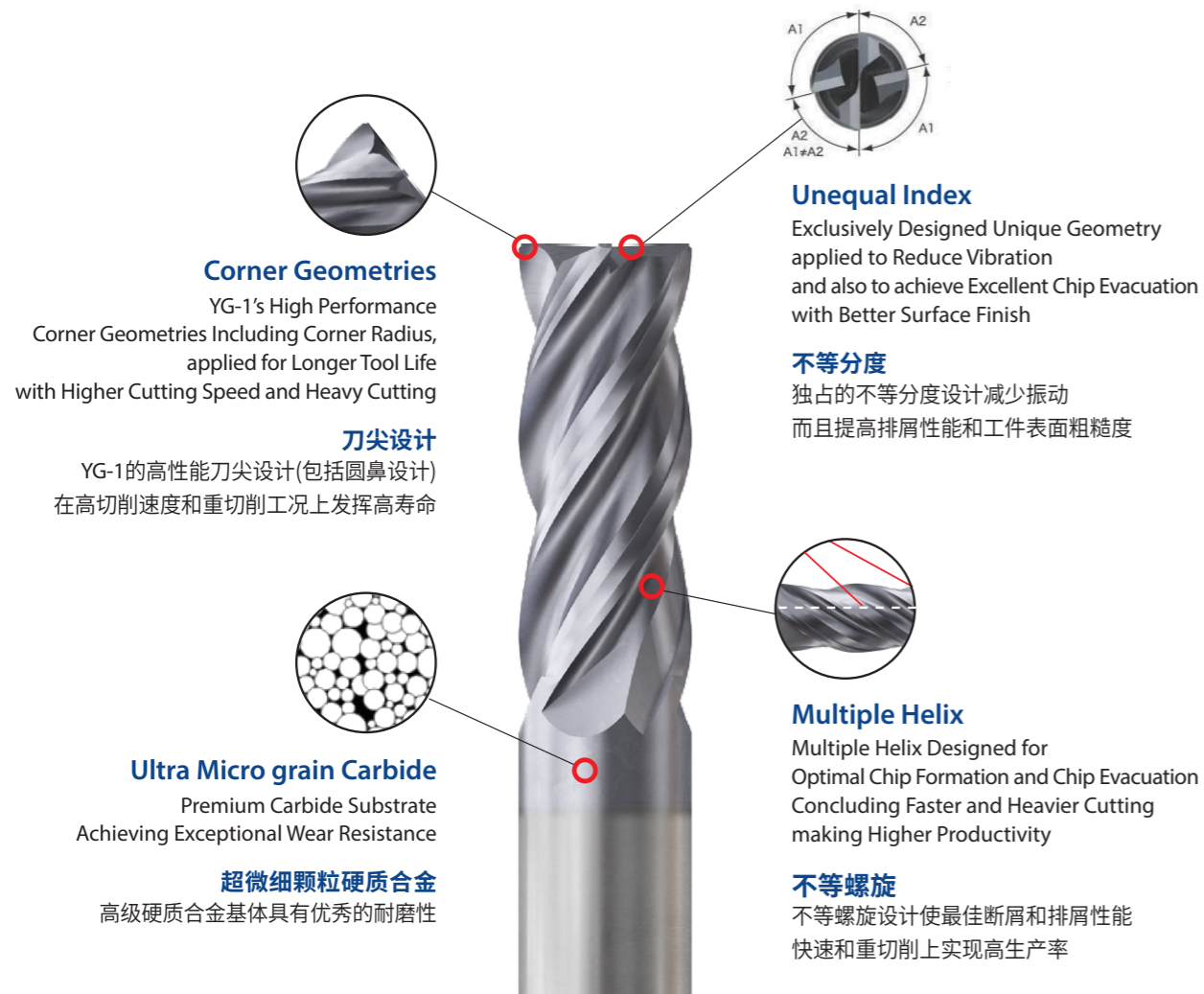
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PRODUCT FEATURES 产品特点



- Chatter and Harmonics Reduced for Improved Stability and Better Finishing**
 由于改善稳定性和卓越表面处理,减少振动和加工噪音
- Special Design of Flute Geometry for Optimal Chip Formation and Chip Evacuation**
 为了最佳排屑及断屑处理,采用特殊沟槽几何形状设计
- Engineered Coating Technology to Reduced Wear and Increase Heat Resistance**
 先进涂层技术减少磨损而提高耐热性
- Enhanced Corner Geometry for Longer Tool Life**
 增强刀尖几何形状提高刀具寿命

PRODUCT GEOMETRY 产品设计



V7 PLUS 6 FLUTE END MILLS V7 Plus 6刃 铣刀



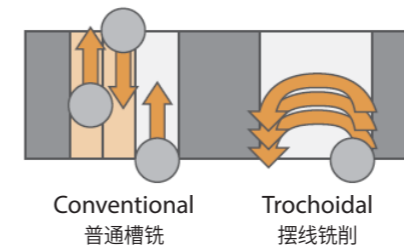
THE BEST CHATTER FREE TOOL FOR HIGH SPEED

- 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

在高速加工上最好的无振动刀具

- 独特的可变间距设计在高速和摆线铣削工况上,提供最好无振动刀具
- 在不同槽宽工况上,可以用相同直径的刀具
- 在大部分的工件材料上,提供长寿命和高生产率
- 摆线铣削是一种编程技术,用较小的直径切削大宽度,同时可用更高切削速度和更高每齿进给量

Trochoidal Milling performs better than conventional ways because it has...
 摆线铣削比普通方式高效率,因为...



- 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
- 低切削阻力 更小的圆弧工作
- 长寿命 更多刃数和更大切深
- 高稳定性,低振动和卓越排屑性能

GUIDE LINE TO ICONS 图标指南

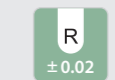
Tool Raw Material
 刀具材质



Type of Shank
 柄部类型



Tolerance of Ball Radius
 圆弧角精度



No. of Flutes
 刃数



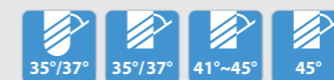
Chamfer Angle
 倒角度



Cutting Condition Pages
 切削参数页



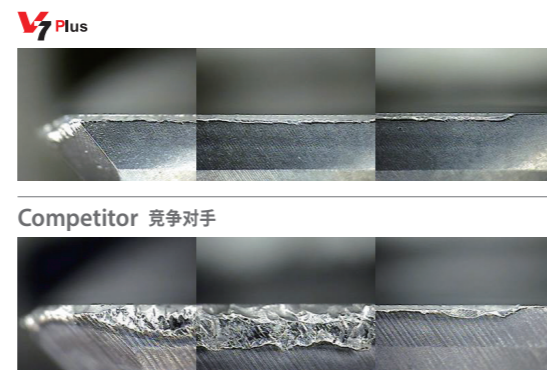
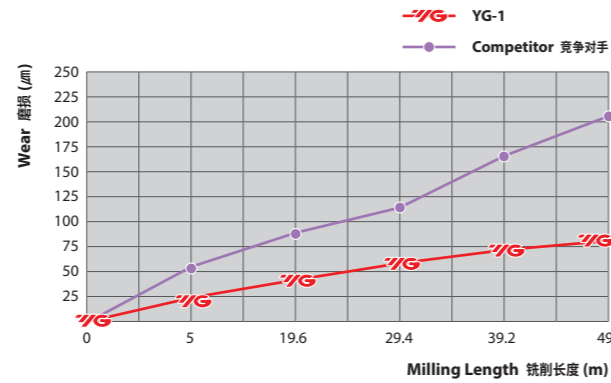
Helix Angle
 螺旋角度



CASE STUDY 案例分析

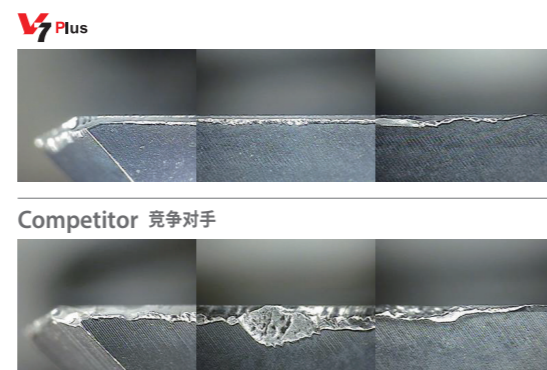
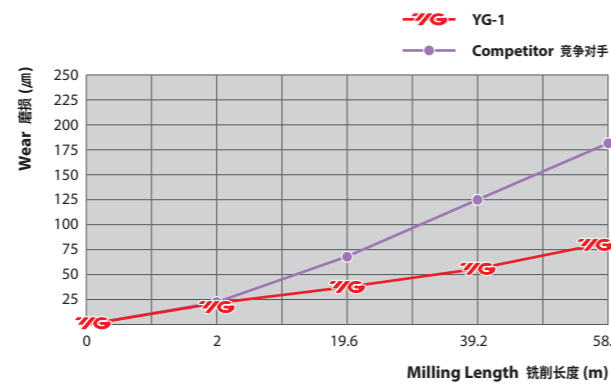
▶ V7 Plus 4 Flute vs Competitor 4刃 vs 竞争对手

	V7 Plus	Competitor
Wear 磨损(μm)	83.518	203.381
Milling Length 铣削长度(m)	49	49
Size 尺寸(mm)	Ø10 x Ø10 x 22 x 72	
Work Material 工件材料	- JIS: S45C - DIN: C45 - WR: 1.0503 (HRC 30 /HB 286)	
Cutting Speed 切削速度	230.09 m/min.	
RPM 转速	7,324 rev./min.	
Feed 进给	1,464 mm/min.	
Feed per tooth 每齿进给	0.05 mm/tooth	
Milling Method 铣削方式	Down & Side Cutting 插铣侧铣削	
Milling Depth 铣削深度	Axial 轴向: 10 mm, Radial 径向: 3 mm	
Coolant 冷却	Wet Cut 湿切	
Overhang 悬深	34 mm	
Machine 设备	Machining Center 加工中心	



▶ V7 Plus 4 Flute vs Competitor 4刃 vs 竞争对手

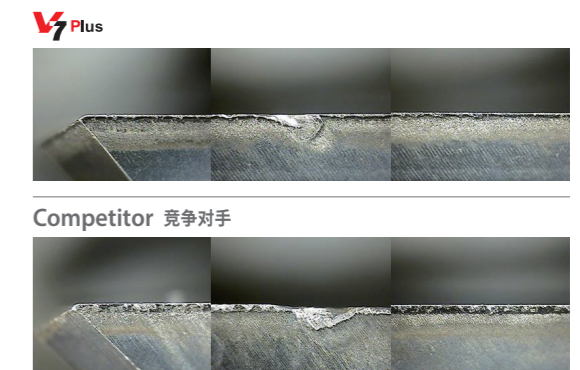
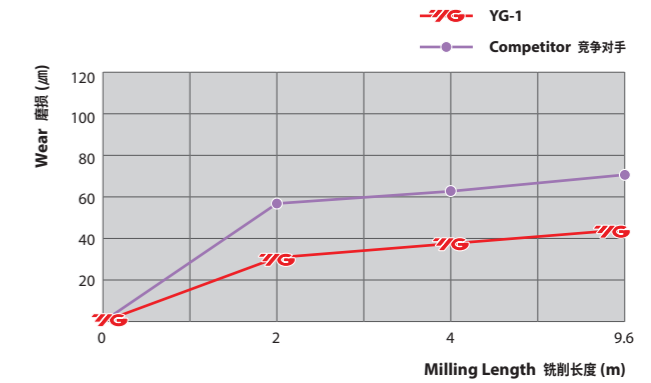
	V7 Plus	Competitor
Wear 磨损(μm)	81.485	183.296
Milling Length 铣削长度(m)	58.8	58.8
Size 尺寸(mm)	Ø16 x Ø16 x 32 x 92	
Work Material 工件材料	- JIS: S45C - DIN: C45 - WR: 1.0503 (HRC 30 /HB 286)	
Cutting Speed 切削速度	160.00 m/min.	
RPM 转速	3,183 rev./min.	
Feed 进给	573 mm/min.	
Feed per tooth 每齿进给	0.05 mm/tooth	
Milling Method 铣削方式	Down & Side Cutting 插铣侧铣削	
Milling Depth 铣削深度	Axial: 14 mm, Radial: 3 mm	
Coolant 冷却	Wet Cut 湿切	
Overhang 悬深	45 mm	
Machine 设备	Machining Center 加工中心	



CASE STUDY 案例分析

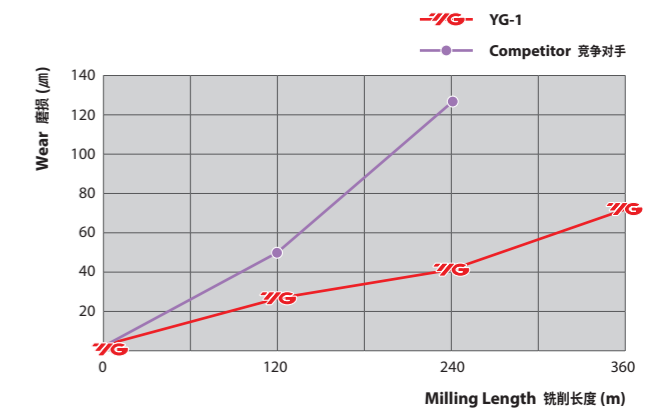
▶ V7 Plus 4 Flute vs Competitor 4刃 vs 竞争对手

	V7 Plus	Competitor
Wear 磨损(μm)	43.535	72.683
Milling Length 铣削长度(m)	9.6	9.6
Size 尺寸(mm)	Ø16 x Ø16 x 32 x 92	
Work Material 工件材料	- JIS: SUS304 - DIN: X5CrNi18 10 - WR: 1.4303 (HRC 10 /HB180)	
Cutting Speed 切削速度	100.03 m/min.	
RPM 转速	1,990 rev./min.	
Feed 进给	557 mm/min.	
Feed per tooth 每齿进给	0.02 mm/tooth	
Milling Method 铣削方式	Slotting 槽铣	
Milling Depth 铣削深度	Axial 轴向: 16 mm	
Coolant 冷却	Wet Cut 湿切	
Overhang 悬深	45 mm	
Machine 设备	Machining Center 加工中心	



▶ V7 Plus 6 Flute vs Competitor 6刃 vs 竞争对手

	V7 Plus	Competitor
Milling Length 铣削长度(m)	360	300
Size 尺寸(mm)	Ø12(R1) x Ø12 x 26 x 83	
Work Material 工件材料	- JIS: S45C - DIN: C45 - WR: 1.0503 (HRC 30 /HB 286)	
Cutting Speed 切削速度	278.67 m/min.	
RPM 转速	7,392 rev./min.	
Feed 进给	7,495 mm/min.	
Feed per tooth 每齿进给	0.17 mm/tooth	
Milling Method 铣削方式	Trochoidal Cutting 摆线铣削	
Milling Depth 铣削深度	Axial 轴向: 24 mm(2D), Radial 径向: 0.6 mm(0.05D)	
Coolant 冷却	Wet Cut 湿切	
Overhang 悬深	36 mm	
Machine 设备	Machining Center 加工中心	



SELECTION GUIDE

选择指南



HIGH PERFORMANCE
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高性能
硬质合金 立铣刀
适用于 钢件, 铸铁和 不锈钢

◎ : Excellent(优秀) ○ : Good(良好)

ISO	VDI 3323	Material Description 工件材料	Composition / Structure / Heat Treatment 组成 / 结构 / 热处理	HB	HRc	GMH66	GMH65
P	1	Non-alloy steel 非合金钢	About 含碳约 0.15% C Annealed 热处理	125		◎	◎
	2		About 含碳约 0.45% C Annealed 热处理	190	13	◎	◎
	3		About 含碳约 0.45% C Quenched & tempered 淬火 & 回火	250	25	◎	◎
	4		About 含碳约 0.75% C Annealed 热处理	270	28	◎	◎
	5		About 含碳约 0.75% C Quenched & tempered 淬火 & 回火	300	32	◎	◎
	6	Low alloy steel 低合金钢	Annealed 热处理	180	10	◎	◎
	7		Quenched & tempered 淬火 & 回火	275	29	◎	◎
	8		Quenched & tempered 淬火 & 回火	300	32	◎	◎
	9		Quenched & tempered 淬火 & 回火	350	38	◎	◎
	10		High alloyed steel, and tool steel 高合金钢和刀具钢	Annealed 热处理	200	15	◎
	11	Quenched & tempered 淬火 & 回火		325	35	◎	◎
M	12	Stainless steel 不锈钢	Ferritic / Martensitic 铁素体 / 马氏体 Annealed 热处理	200	15	◎	◎
	13		Martensitic 马氏体 Quenched & tempered 淬火 & 回火	240	23	◎	◎
	14		Austenitic 奥氏体	180	10	◎	◎
K	15	Grey cast iron 灰铸铁	Pearlitic / ferritic 珠光体 / 铁素体	180	10	◎	◎
	16		Pearlitic (Martensitic) 珠光体 (马氏体)	260	26	◎	◎
	17	Nodular cast iron 球墨铸铁	Ferritic 铁素体	160	3	◎	◎
	18		Pearlitic 珠光体	250	25	◎	◎
	19	Malleable cast iron 可锻铸铁	Ferritic 铁素体	130		◎	◎
20	Pearlitic 珠光体		230	21	◎	◎	
N	21	Aluminum-wrought alloy 铝-加工用合金	Not Curable 非硬化性	60			
	22		Curable 硬化性 Hardened 硬化	100			
	23	Aluminum-cast, alloyed 铝-铸造合金	≤ 12% Si, Not Curable 非硬化性	75			
	24		≤ 12% Si, Curable 硬化性 Hardened 硬化	90			
	25		> 12% Si, Not Curable 非硬化性	130			
	26	Copper and Copper Alloys (Bronze / Brass) 铜和铜合金(青铜/黄铜)	Cutting Alloys 切削合金, PB>1%	110			
	27		CuZn, CuSnZn (Brass 黄铜)	90			
	28		CuSn, lead-free copper and electrolytic copper 无铅铜及电解铜	100			
	29		Non Metallic Materials 非铁金属	Duroplastic, Fiber Reinforced Plastic 硬质塑料, 纤维增强塑料 Rubber, Wood, etc. 橡胶, 木材, 等.			
	S	31	Heat Resistant Super Alloys 超耐热合金	Fe Based 基于 Fe Annealed 热处理	200	15	○
32		Cured 时效		280	30	○	○
33		Annealed 热处理		250	25	○	○
34		Ni or Co Based 基于 Ni或Co Cured 时效		350	38	○	○
35		Cast 铸造		320	34	○	○
36		Titanium Alloys 钛合金	Pure Titanium 纯钛	400		○	○
37			Alpha + Beta Alloys 合金	1050		○	○
H	38	Hardened steel 硬化钢	Hardened 硬化	550	55		
	39		Hardened 硬化	630	60		
	40	Chilled Cast Iron 冷硬铸铁	Cast 铸造	400	42		
	41		Hardened 硬化	550	55		

GMF66	GMH67	GMH68	GMH69	GMH71	GMH70	EMB72 EMB73
4	4	4	6	6	6	5
35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	45°	45°	45°	41°~45°
Chamfer 倒角	SQUARE 平头	Chamfer 倒角	CORNER RADIUS 圆鼻	SQUARE 平头	SQUARE 平头	Chamfer 倒角
D3.0	D1.0	D1.0	D6.0	D6.0	D6.0	D6.0
D20.0	D20.0	D20.0	D25.0	D25.0	D25.0	D25.0
11	12	13	14	16	17	18
SHORT LENGTH 短刃	LONG LENGTH 长刃	LONG LENGTH 长刃	-	-	LONG LENGTH 长刃	LONG LENGTH 长刃
Y-Coating Y-涂层	Y-Coating Y-涂层	Y-Coating Y-涂层	Y-Coating Y-涂层	Y-Coating Y-涂层	Y-Coating Y-涂层	AlTiN



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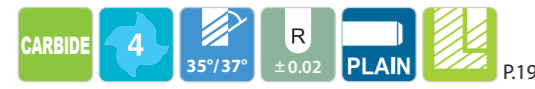
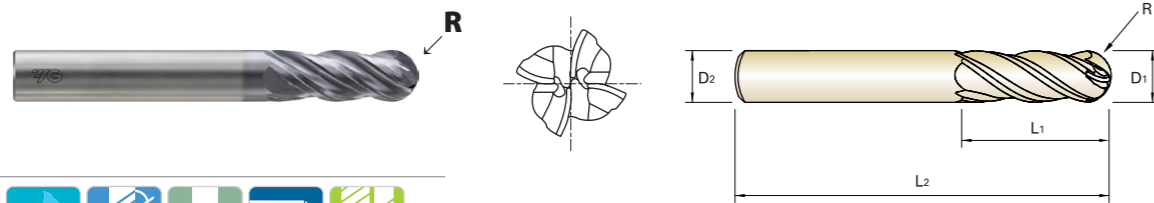
HIGH PERFORMANCE SOLID CARBIDE END MILLS

CARBIDE, 4 FLUTE BALL NOSE LONG LENGTH

高性能整体硬质合金铣刀 4刃 球头 加长

GMH66 PLAIN SHANK

- Special flute geometry and multiple helix eliminate vibrations
- Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40
- 特殊沟槽设计和不等螺旋减少振动
- 卓越性能在不锈钢, 软钢, 铸铁, 低/中硬度材料(~HRC 40)



Unit(单位) : mm

EDP No.	Radius of Ball Nose 圆弧角	Mill Diameter 直径	Shank Diameter 柄径	Length of Cut 刃长	Overall Length 全长
	R	D1	D2	L1	L2
GMH66030	R1.5	3.0	6	8	50
GMH66040	R2.0	4.0	6	10	50
GMH66050	R2.5	5.0	6	15	60
GMH66060	R3.0	6.0	6	15	60
GMH66080	R4.0	8.0	8	20	70
GMH66100	R5.0	10.0	10	25	75
GMH66120	R6.0	12.0	12	30	80
GMH66160	R8.0	16.0	16	40	100
GMH66200	R10.0	20.0	20	45	100
GMH66250	R12.5	25.0	25	50	120

Size 尺寸	Mill Dia. Tolerance (mm) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
up to Ø12 Ø12以下	0 ~ -0.02	h5
over Ø12 超过Ø12	0 ~ -0.03	* Shank Dia. ≥ Ø12: h6

◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P									M				K						
	Non-alloy steel 非合金钢			Low alloy steel 低合金钢			High alloyed steel, and tool steel 高合金钢和刀具钢			Stainless steel 不锈钢		Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁					
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
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description 工件材料	N						S					H									
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金		Copper and Copper Alloys (Bronze / Brass) 铜和铜合金(青铜/黄铜)		Non Metallic Materials 非金属材料		Heat Resistant Super Alloys 超耐热合金			Titanium Alloys 钛合金		Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁					
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
Recommended 推荐的											○	○	○	○	○	○	○	○	○	○	○

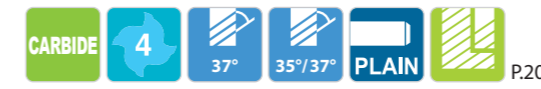
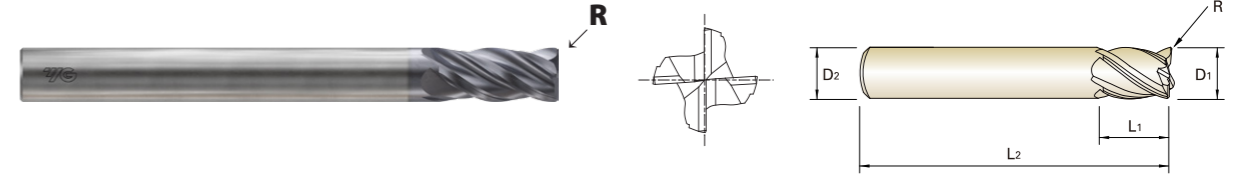
HIGH PERFORMANCE SOLID CARBIDE END MILLS

CARBIDE, 4 FLUTE CORNER RADIUS LONG LENGTH

高性能整体硬质合金铣刀 4刃 圆鼻 加长

GMH65 PLAIN SHANK

- Special flute geometry and multiple helix eliminate vibrations
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Unit(单位) : mm

EDP No.	Radius of Ball Nose 圆弧角	Mill Diameter 直径	Shank Diameter 柄径	Length of Cut 刃长	Overall Length 全长
	R	D1	D2	L1	L2
GMH65010	R0.1	1.0	6	2.5	50
GMH65015	R0.1	1.5	6	4	50
GMH65020	R0.1	2.0	6	6	50
GMH65030	R0.2	3.0	6	8	50
GMH6503003	R0.3	3.0	6	8	50
GMH6503005	R0.5	3.0	6	8	50
GMH65040	R0.2	4.0	6	10	50
GMH6504003	R0.3	4.0	6	10	50
GMH6504005	R0.5	4.0	6	10	50
GMH65050	R0.2	5.0	6	15	60
GMH6505003	R0.3	5.0	6	15	60
GMH6505005	R0.5	5.0	6	15	60
GMH65060	R0.3	6.0	6	15	60
GMH6506005	R0.5	6.0	6	15	60
GMH6506010	R1.0	6.0	6	15	60
GMH65080	R0.3	8.0	8	20	70
GMH6508005	R0.5	8.0	8	20	70
GMH6508010	R1.0	8.0	8	20	70
GMH65100	R0.3	10.0	10	25	75
GMH6510005	R0.5	10.0	10	25	75

Size 尺寸	Mill Dia. Tolerance (mm) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
up to Ø12 Ø12以下	0 ~ -0.02	h5
over Ø12 超过Ø12	0 ~ -0.03	* Shank Dia. ≥ Ø12: h6

► NEXT PAGE 下页

◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P									M				K						
	Non-alloy steel 非合金钢			Low alloy steel 低合金钢			High alloyed steel, and tool steel 高合金钢和刀具钢			Stainless steel 不锈钢		Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁					
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
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

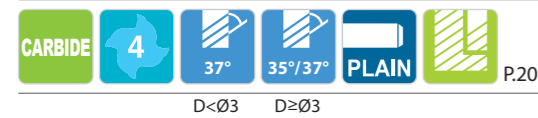
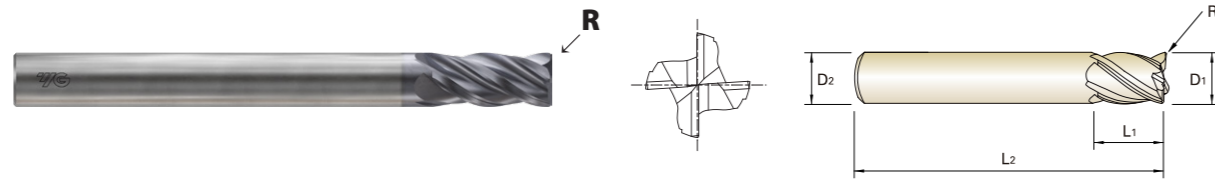
ISO Material Description 工件材料	N						S					H									
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金		Copper and Copper Alloys (Bronze / Brass) 铜和铜合金(青铜/黄铜)		Non Metallic Materials 非金属材料		Heat Resistant Super Alloys 超耐热合金			Titanium Alloys 钛合金		Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁					
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
Recommended 推荐的											○	○	○	○	○	○	○	○	○	○	○

HIGH PERFORMANCE SOLID CARBIDE END MILLS CARBIDE, 4 FLUTE CORNER RADIUS LONG LENGTH

高性能整体硬质合金铣刀 4刃 圆鼻 加长

GMH65 PLAIN SHANK

- Special flute geometry and multiple helix eliminate vibrations
- Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40
- 特殊沟槽设计和不等螺旋减少振动
- 卓越性能在不锈钢, 软钢, 铸铁, 低/中硬度材料 (~HRC 40)



EDP No.	Radius of Ball Nose 圆弧角	Mill Diameter 直径	Shank Diameter 柄径	Length of Cut 刃长	Overall Length 全长
	R	D1	D2	L1	L2
GMH6510010	R1.0	10.0	10	25	75
GMH65120	R0.5	12.0	12	30	80
GMH6512010	R1.0	12.0	12	30	80
GMH6512020	R2.0	12.0	12	30	80
GMH65160	R0.5	16.0	16	40	100
GMH6516010	R1.0	16.0	16	40	100
GMH6516020	R2.0	16.0	16	40	100
GMH6516030	R3.0	16.0	16	40	100
GMH65200	R0.5	20.0	20	45	100
GMH6520010	R1.0	20.0	20	45	100
GMH6520020	R2.0	20.0	20	45	100
GMH6520030	R3.0	20.0	20	45	100
GMH6525010	R1.0	25.0	25	50	120

Size 尺寸	Mill Dia. Tolerance (mm) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
up to Ø12 Ø12以下	0 ~ -0.02	h5
over Ø12 超过Ø12	0 ~ -0.03	* Shank Dia. ≥ Ø12: h6

◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P										M				K					
	Non-alloy steel 非合金钢					Low alloy steel 低合金钢					High alloyed steel, and tool steel 高合金钢和刀具钢				Stainless steel 不锈钢		Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁
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
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

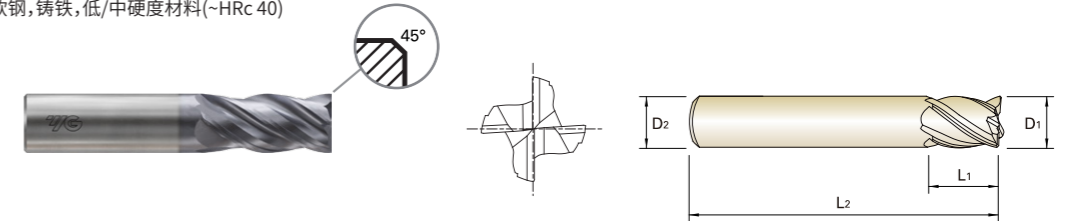
ISO Material Description 工件材料	N										S					H					
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials 非铁金属		Heat Resistant Super Alloys 超耐热合金					Titanium Alloys 钛合金	Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁		
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
Recommended 推荐的											○	○	○	○	○	○	○	○	○	○	○

HIGH PERFORMANCE SOLID CARBIDE END MILLS CARBIDE, 4 FLUTE SHORT LENGTH

高性能整体硬质合金铣刀 4刃 短刃

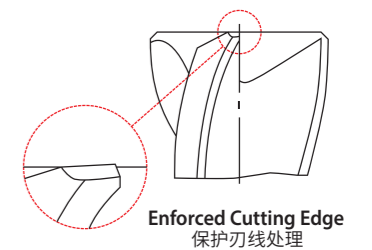
GMF66 PLAIN SHANK

- Special flute geometry and multiple helix eliminate vibrations
- Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40
- 特殊沟槽设计和不等螺旋减少振动
- 卓越性能在不锈钢, 软钢, 铸铁, 低/中硬度材料 (~HRC 40)



EDP No.	Mill Diameter 直径	Shank Diameter 柄径	Length of Cut 刃长	Overall Length 全长	Chamfer 倒角
	D1	D2	L1	L2	D1
GMF66030	3.0	6	6	50	0.10
GMF66901	3.0	4	6	50	0.10
GMF66040	4.0	6	8	50	0.15
GMF66902	4.0	4	8	50	0.15
GMF66050	5.0	6	10	50	0.15
GMF66060	6.0	6	12	50	0.20
GMF66080	8.0	8	16	60	0.20
GMF66100	10.0	10	20	75	0.30
GMF66120	12.0	12	24	75	0.35
GMF66160	16.0	16	32	100	0.40
GMF66200	20.0	20	40	100	0.50

Size 尺寸	Mill Dia. Tolerance (mm) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
up to Ø12 Ø12以下	0 ~ -0.02	h5
over Ø12 超过Ø12	0 ~ -0.03	* Shank Dia. ≥ Ø12: h6



◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P										M				K					
	Non-alloy steel 非合金钢					Low alloy steel 低合金钢					High alloyed steel, and tool steel 高合金钢和刀具钢				Stainless steel 不锈钢		Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁
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
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

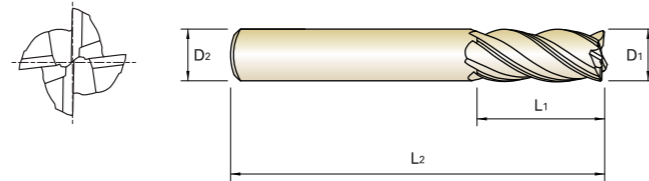
ISO Material Description 工件材料	N										S					H					
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials 非铁金属		Heat Resistant Super Alloys 超耐热合金					Titanium Alloys 钛合金	Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁		
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
Recommended 推荐的											○	○	○	○	○	○	○	○	○	○	○

HIGH PERFORMANCE SOLID CARBIDE END MILLS CARBIDE, 4 FLUTE LONG LENGTH

高性能整体硬质合金铣刀 4刃 加长

GMH67 PLAIN SHANK

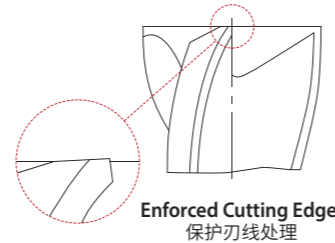
- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40
- ▶ 特殊沟槽设计和不等螺旋减少振动
- ▶ 卓越性能在不锈钢, 软钢, 铸铁, 低/中硬度材料 (~HRC 40)



CARBIDE 4 37° 35°/37° PLAIN P.20
D < Ø3 D ≥ Ø3

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	直径	柄径	刃长	全长
	D1	D2	L1	L2
GMH67010	1.0	6	2.5	50
GMH67015	1.5	6	4	50
GMH67020	2.0	6	6	50
GMH67030	3.0	6	8	50
GMH67040	4.0	6	10	50
GMH67050	5.0	6	15	60
GMH67060	6.0	6	15	60
GMH67080	8.0	8	20	70
GMH67100	10.0	10	25	75
GMH67120	12.0	12	30	80
GMH67160	16.0	16	40	100
GMH67200	20.0	20	45	100

Size 尺寸	Mill Dia. Tolerance (mm) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
up to Ø12 Ø12以下	0 ~ -0.02	h5
over Ø12 超过Ø12	0 ~ -0.03	* Shank Dia. ≥ Ø12: h6



◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P										M				K					
	Non-alloy steel 非合金钢					Low alloy steel 低合金钢					High alloyed steel, and tool steel 高合金钢和刀具钢				Stainless steel 不锈钢		Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁
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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

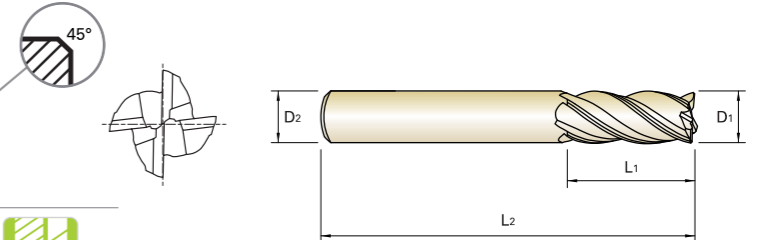
ISO Material Description 工件材料	N					S					H										
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials 非金属材料			Heat Resistant Super Alloys 超耐热合金					Titanium Alloys 钛合金	Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HIGH PERFORMANCE SOLID CARBIDE END MILLS CARBIDE, 4 FLUTE LONG LENGTH

高性能整体硬质合金铣刀 4刃 加长

GMH68 PLAIN SHANK

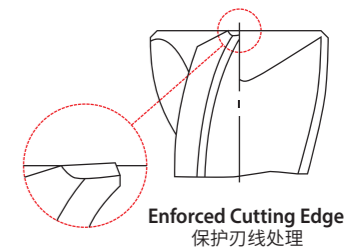
- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40
- ▶ 特殊沟槽设计和不等螺旋减少振动
- ▶ 卓越性能在不锈钢, 软钢, 铸铁, 低/中硬度材料 (~HRC 40)



CARBIDE 4 37° 35°/37° PLAIN C x 45° P.20
D < Ø3 D ≥ Ø3

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer 倒角
	直径	柄径	刃长	全长	
	D1	D2	L1	L2	
GMH68010	1.0	6	2.5	50	0.03
GMH68015	1.5	6	4	50	0.05
GMH68020	2.0	6	6	50	0.075
GMH68030	3.0	6	8	50	0.1
GMH68040	4.0	6	10	50	0.15
GMH68050	5.0	6	15	60	0.15
GMH68060	6.0	6	15	60	0.2
GMH68080	8.0	8	20	70	0.2
GMH68100	10.0	10	25	75	0.3
GMH68120	12.0	12	30	80	0.35
GMH68140	14.0	16	35	100	0.4
GMH68160	16.0	16	40	100	0.4
GMH68180	18.0	16	45	100	0.5
GMH68200	20.0	20	45	100	0.5

Size 尺寸	Mill Dia. Tolerance (mm) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
up to Ø12 Ø12以下	0 ~ -0.02	h5
over Ø12 超过Ø12	0 ~ -0.03	* Shank Dia. ≥ Ø12: h6



◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P										M				K					
	Non-alloy steel 非合金钢					Low alloy steel 低合金钢					High alloyed steel, and tool steel 高合金钢和刀具钢				Stainless steel 不锈钢		Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁
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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

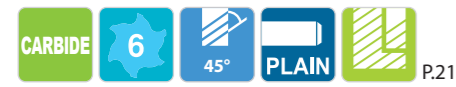
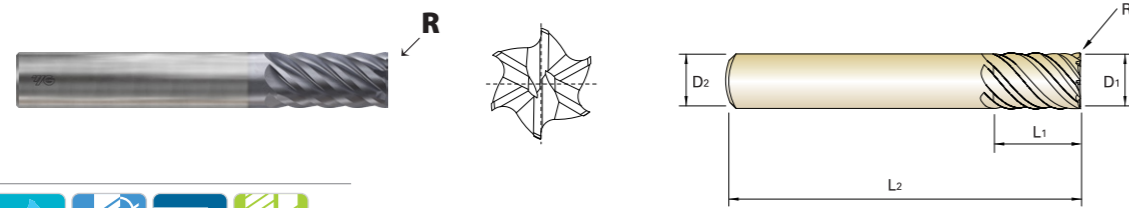
ISO Material Description 工件材料	N					S					H										
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials 非金属材料			Heat Resistant Super Alloys 超耐热合金					Titanium Alloys 钛合金	Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HIGH PERFORMANCE SOLID CARBIDE END MILLS CARBIDE, 6 FLUTE CORNER RADIUS

高性能整体硬质合金铣刀 6刃 圆鼻

GMH69 PLAIN SHANK

- 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
- 特有的可变间距设计在高速和摆线铣削工况上, 提供最好无振动刀具
- 卓越性能在不锈钢, 软钢, 铸铁, 低/中硬度材料(~HRC 40)



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	圆弧角 R	直径 D1	柄径 D2	刃长 L1	全长 L2
GMH6906005	R0.5	6.0	6	15	60
GMH6906010	R1.0	6.0	6	15	60
GMH6908005	R0.5	8.0	8	20	70
GMH6908010	R1.0	8.0	8	20	70
GMH6910005	R0.5	10.0	10	25	75
GMH6910010	R1.0	10.0	10	25	75
GMH6910015	R1.5	10.0	10	25	75
GMH6910020	R2.0	10.0	10	25	75
GMH6912005	R0.5	12.0	12	30	80
GMH6912010	R1.0	12.0	12	30	80
GMH6912015	R1.5	12.0	12	30	80
GMH6912020	R2.0	12.0	12	30	80
GMH6912030	R3.0	12.0	12	30	80
GMH6916010	R1.0	16.0	16	40	100
GMH6916015	R1.5	16.0	16	40	100
GMH6916020	R2.0	16.0	16	40	100
GMH6916030	R3.0	16.0	16	40	100
GMH6920010	R1.0	20.0	20	45	100
GMH6920015	R1.5	20.0	20	45	100
GMH6920020	R2.0	20.0	20	45	100

Unit(单位): mm

Size 尺寸	Mill Dia. Tolerance (mm) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
up to Ø12 Ø12以下	0 ~ -0.02	h5
over Ø12 超过Ø12	0 ~ -0.03	* Shank Dia. ≥ Ø12: h6

► NEXT PAGE 下页

◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P									M			K							
	Non-alloy steel 非合金钢			Low alloy steel 低合金钢			High alloyed steel, and tool steel 高合金钢和刀具钢			Stainless steel 不锈钢			Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁				
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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

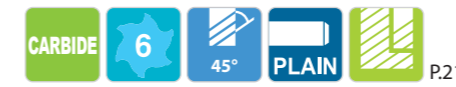
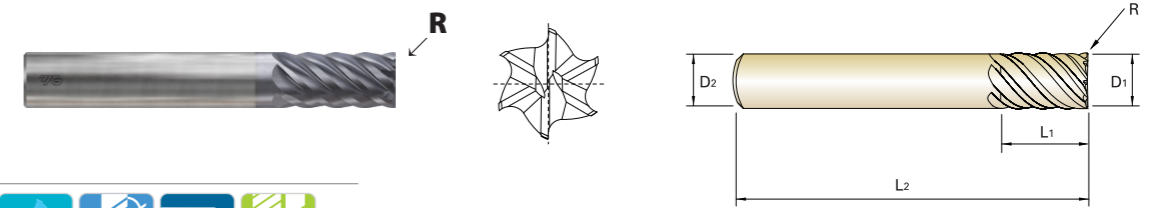
ISO Material Description 工件材料	N					S					H										
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金		Copper and Copper Alloys (Bronze / Brass) 铜和铜合金(青铜/黄铜)	Non Metallic Materials 非铁金属	Heat Resistant Super Alloys 超耐热合金					Titanium Alloys 钛合金	Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁						
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	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended 推荐的						○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HIGH PERFORMANCE SOLID CARBIDE END MILLS CARBIDE, 6 FLUTE CORNER RADIUS

高性能整体硬质合金铣刀 6刃 圆鼻

GMH69 PLAIN SHANK

- 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
- 特有的可变间距设计在高速和摆线铣削工况上, 提供最好无振动刀具
- 卓越性能在不锈钢, 软钢, 铸铁, 低/中硬度材料(~HRC 40)



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	圆弧角 R	直径 D1	柄径 D2	刃长 L1	全长 L2
GMH6920030	R3.0	20.0	20	45	100
GMH6925010	R1.0	25.0	25	50	120
GMH6925015	R1.5	25.0	25	50	120
GMH6925020	R2.0	25.0	25	50	120
GMH6925030	R3.0	25.0	25	50	120

Unit(单位): mm

Size 尺寸	Mill Dia. Tolerance (mm) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
up to Ø12 Ø12以下	0 ~ -0.02	h5
over Ø12 超过Ø12	0 ~ -0.03	* Shank Dia. ≥ Ø12: h6

◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P									M			K							
	Non-alloy steel 非合金钢			Low alloy steel 低合金钢			High alloyed steel, and tool steel 高合金钢和刀具钢			Stainless steel 不锈钢			Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁				
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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

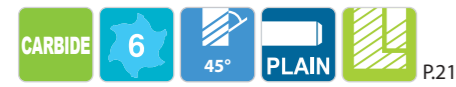
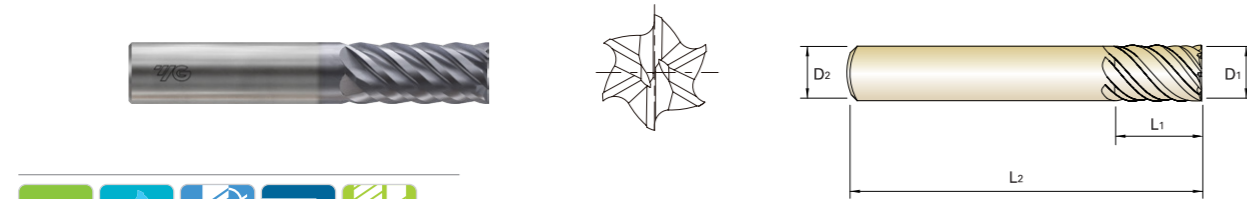
ISO Material Description 工件材料	N					S					H										
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金		Copper and Copper Alloys (Bronze / Brass) 铜和铜合金(青铜/黄铜)	Non Metallic Materials 非铁金属	Heat Resistant Super Alloys 超耐热合金					Titanium Alloys 钛合金	Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁						
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	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended 推荐的						○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HIGH PERFORMANCE SOLID CARBIDE END MILLS CARBIDE, 6 FLUTE

高性能整体硬质合金铣刀 6刃

GMH71 PLAIN SHANK

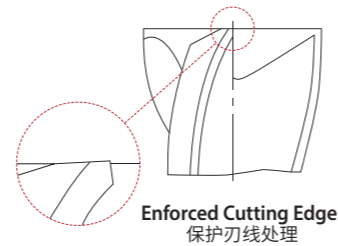
- The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
- Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40
- 特有的可变间距设计在高速和摆线铣削工况上, 提供最好无振动刀具
- 卓越性能在不锈钢, 软钢, 铸铁, 低/中硬度材料(~HRC 40)



Unit(单位) : mm

EDP No.	Mill Diameter 直径 D1	Shank Diameter 柄径 D2	Length of Cut 刃长 L1	Overall Length 全长 L2
GMH71060	6.0	6	15	60
GMH71080	8.0	8	20	70
GMH71100	10.0	10	25	75
GMH71120	12.0	12	30	80
GMH71160	16.0	16	40	100
GMH71200	20.0	20	45	100
GMH71250	25.0	25	50	120

Size 尺寸	Mill Dia. Tolerance (mm) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
up to Ø12 Ø12以下	0 ~ - 0.02	h5
over Ø12 超过Ø12	0 ~ - 0.03	* Shank Dia. ≥ Ø12: h6



◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P										M				K					
	Non-alloy steel 非合金钢					Low alloy steel 低合金钢					High alloyed steel, and tool steel 高合金钢和刀具钢				Stainless steel 不锈钢		Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁
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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

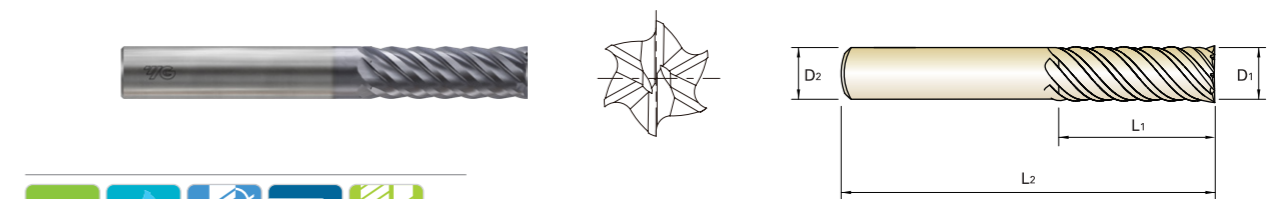
ISO Material Description 工件材料	N					S					H										
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials 非铁金属	Heat Resistant Super Alloys 超耐热合金					Titanium Alloys 钛合金		Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁					
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
Recommended 推荐的											○	○	○	○	○	○	○	○	○	○	○

HIGH PERFORMANCE SOLID CARBIDE END MILLS CARBIDE, 6 FLUTE LONG LENGTH

高性能整体硬质合金铣刀 6刃 加长

GMH70 PLAIN SHANK

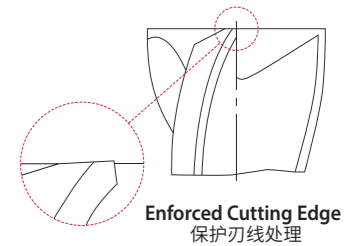
- The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
- Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40
- 特有的可变间距设计在高速和摆线铣削工况上, 提供最好无振动刀具
- 卓越性能在不锈钢, 软钢, 铸铁, 低/中硬度材料(~HRC 40)



Unit(单位) : mm

EDP No.	Mill Diameter 直径 D1	Shank Diameter 柄径 D2	Length of Cut 刃长 L1	Overall Length 全长 L2
GMH70060	6.0	6	24	75
GMH70080	8.0	8	32	75
GMH70100	10.0	10	40	100
GMH70120	12.0	12	48	120
GMH70160	16.0	16	64	140
GMH70200	20.0	20	80	150
GMH70250	25.0	25	100	170

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



◎ : Excellent(优秀) ○ : Good(良好)

ISO Material Description 工件材料	P										M				K					
	Non-alloy steel 非合金钢					Low alloy steel 低合金钢					High alloyed steel, and tool steel 高合金钢和刀具钢				Stainless steel 不锈钢		Grey cast iron 灰铸铁		Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁
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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended 推荐的	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

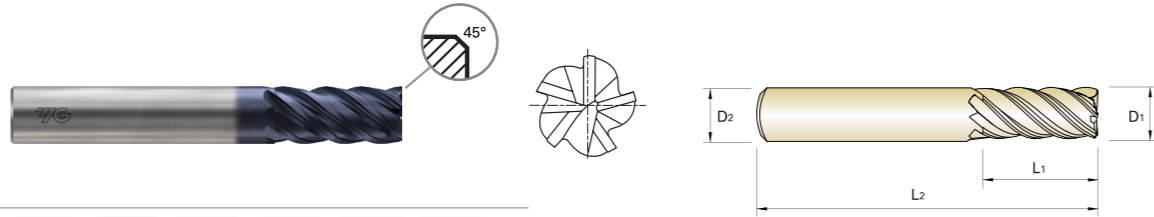
ISO Material Description 工件材料	N					S					H										
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials 非铁金属	Heat Resistant Super Alloys 超耐热合金					Titanium Alloys 钛合金		Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁					
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
Recommended 推荐的											○	○	○	○	○	○	○	○	○	○	○

HIGH PERFORMANCE SOLID CARBIDE END MILLS CARBIDE, 5 FLUTE LONG LENGTH 高性能整体硬质合金铣刀 5刃 加长

EMB72 PLAIN SHANK
EMB73 FLAT SHANK

- ▶ 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

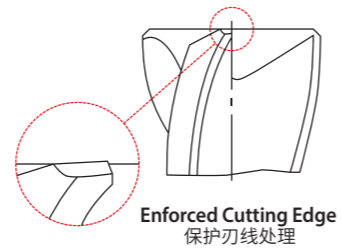
- ▶ 独特沟槽设计减少振动
- ▶ 设计于软钢, 不锈钢, 铸铁, 刀具钢, 钛合金, 预硬钢和低硬度工件材料(~HRC40)
- ▶ 卓越工件表面粗糙度
- ▶ 更高切速, 更深切深和优秀切削率(~HRC 40)



Unit(单位) : mm

EDP No.		Mill Diameter 直径	Shank Diameter 柄径	Length of Cut 刃长	Overall Length 全长	Chamfer 倒角
PLAIN	FLAT	D1	D2	L1	L2	
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) 直径精度 (mm)	Shank Dia. Tolerance 柄径精度
0 ~ -0.03	h5 * Shank Dia. ≥ Ø12: h6



◎ : Excellent(优秀) ○ : Good(良好)

ISO	P										M				K					
	Non-alloy steel 非合金钢					Low alloy steel 低合金钢					High alloy steel, and tool steel 高合金钢和刀具钢				Stainless steel 不锈钢		Grey cast iron 灰铸铁	Nodular cast iron 球墨铸铁	Malleable cast iron 可锻铸铁	
Material Description 工件材料	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	38	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
Recommended 推荐的	◎	◎	○	○	○	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N					S					H										
	Aluminum-wrought alloy 铝-加工用合金		Aluminum-cast, alloyed 铝-铸造合金			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials 非铁金属			Heat Resistant Super Alloys 超耐热合金		Titanium Alloys 钛合金	Hardened steel 硬化钢	Chilled Cast Iron 冷硬铸铁	Hardened Cast Iron 硬化铸铁					
Material Description 工件材料	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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
Recommended 推荐的											○	○	○	○	○	◎	◎				

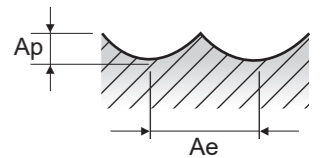
RECOMMENDED CUTTING CONDITIONS 推荐加工参数

GMH66 SERIES

4 FLUTE BALL NOSE 4刃 球头

Vc(切削速度) = m/min.
fz(每齿进给) = mm/tooth
RPM(转速) = rev./min.
FEED(进给) = mm/min.

ISO	VDI 3323	Material Description 工件材料	Ae 切削宽度	Ap 切削深度	Parameter 参数	Diameter 直径 (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 非合金钢	0.5D	1.0D	Vc	162	162	162	162	162	162	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	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099		
					RPM	17189	12892	10313	8594	6446	5157	4297	3223	2865	2578	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063	
	5	Low alloy steel 低合金钢	0.5D	1.0D	Vc	113	113	113	113	113	113	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	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099		
					RPM	11990	8992	7194	5995	4496	3597	2997	2248	1998	1798	1439	1439	1439	1439	1439	1439	1439	1439	1439	1439	
	6-7	High alloy steel, and tool steel 高合金钢和刀具钢	0.5D	1.0D	Vc	162	162	162	162	162	162	162	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	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099	
					RPM	17189	12892	10313	8594	6446	5157	4297	3223	2865	2578	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063	2063
	8-9	Stainless steel 不锈钢	0.5D	1.0D	Vc	113	113	113	113	113	113	113	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	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099	
					RPM	11990	8992	7194	5995	4496	3597	2997	2248	1998	1798	1439	1439	1439	1439	1439	1439	1439	1439	1439	1439	1439
10-11.1	Grey cast iron 灰铸铁	0.5D	1.0D	Vc	68	68	68	68	68	68	68	68	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	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07		
				RPM	7215	5411	4329	3608	2706	2165	1804	1353	1203	1082	866	866	866	866	866	866	866	866	866	866	866	
M	12-13	Stainless steel 不锈钢	0.5D	1.0D	Vc	77	77	77	77	77	77	77	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	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	
					RPM	8170	6127	4902	4085	3064	2451	2042	1532	1362	1225	980	980	980	980	980	980	980	980	980	980	980
	14.1	Titanium Alloys 钛合金	0.5D	1.0D	Vc	85	85	85	85	85	85	85	85	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	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	
					RPM	9019	6764	5411	4509	3382	2706	2255	1691	1503	1353	1082	1082	1082	1082	1082	1082	1082	1082	1082	1082	1082
	14.2	Heat Resistant Super Alloys 超耐热合金	0.5D	1.0D	Vc	77	77	77	77	77	77	77	77	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	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	
					RPM	8170	6127	4902	4085	3064	2451	2042	1532	1362	1225	980	980	980	980	980	980	980	980	980	980	980
	K	15-20	Grey cast iron 灰铸铁	0.5D	1.0D	Vc	119	119	119	119	119	119	119	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	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124
						RPM	12626	9470	7576	6313	4735	3788	3157	2367	2104	1894	1515	1515	1515	1515	1515	1515	1515	1515	1515	1515
31-35		Heat Resistant Super Alloys 超耐热合金	0.2D	0.3D	Vc	21	21	21	21	21	21	21	21	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	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	
					RPM	2228	1671	1337	1114	836	668	557	418	371	334	267	267	267	267	267	267	267	267	267	267	267
36-37		Titanium Alloys 钛合金	0.5D	0.3D	Vc	47	47	47	47	47	47	47	47	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	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	
					RPM	4987	3740	2992	2493	1870	1496	1247	935	831	748	598	598	598	598	598	598	598	598	598	598	598
S		Hardened steel 硬化钢	0.5D	0.3D	Vc	359	269	263	369	299	269	244	202	193	174	146	146	146	146	146	146	146	146	146		
					fz	0.018	0.018	0.022	0.037	0.04	0.045	0.049	0.054	0.058	0.058	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	
					RPM	4987	3740	2992	2493	1870	1496	1247	935	831	748	598	598	598	598	598	598	598	598	598	598	598



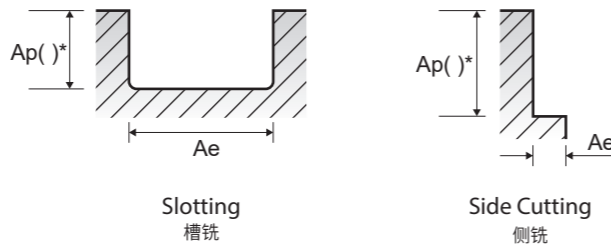
GMH65, GMF66, GMH67, GMH68 SERIES

4 FLUTE - SIDE & SLOTTING
4刃 - 侧铣削&槽铣

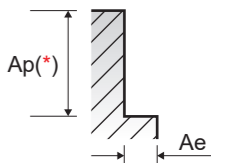
Vc(切削速度) = m/min.
fz(每齿进给) = mm/tooth
RPM(转速) = rev./min.
FEED(进给) = mm/min.

ISO	VDI 3323	Material Description 工件材料	Ae		Ap		Parameter 参数	Diameter 直径 (Ø)																				
			Side 侧铣	Slotting 槽铣	Side 侧铣	Slotting 槽铣		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 非合金钢	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	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	701	695	548										
	5	Low alloy steel 低合金钢	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	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	Low alloy steel 低合金钢	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	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	701	695	548										
8-9	High alloyed steel, and tool steel 高合金钢和刀具钢	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	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 高合金钢和刀具钢	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	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 不锈钢	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	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	Stainless steel 不锈钢	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	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	Stainless steel 不锈钢	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	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 灰铸铁	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	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 超耐热合金	0.25D	1.0D	1.0D	0.5D	Vc	26	26	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									
S	36-37	Titanium Alloys 钛合金	0.4D	1.0D	1.0D	0.5D	Vc	58	58	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	251	204										

*(): Short length
*(): 短刃



(*) : If product's Length of Cut(L.O.C) is below 2D, it must be applied L.O.C x 90%
(*) : 如果工件切深(L.O.C)是2D一下, Ap应该做L.O.C x 90%



GMH69, GMH71, GMH70 SERIES

6 FLUTE - SIDE CUTTING
6刃 - 侧铣削

Vc(切削速度) = m/min.
fz(每齿进给) = mm/tooth
RPM(转速) = rev./min.
FEED(进给) = mm/min.

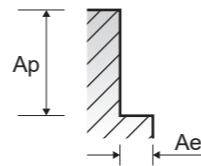
ISO	VDI 3323	Material Description 工件材料	Ae	Ap	Parameter 参数	Diameter 直径 (Ø)							
						6.0	8.0	10.0	12.0	16.0	20.0	25.0	
P	1-4	Non-alloy steel 非合金钢	0.05D	2.0D	Vc	300	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232	
					RPM	15915	11937	9549	7958	5968	4775	3820	
					FEED	6494	8308	8251	8260	7234	6446	5317	
	5	Low alloy steel 低合金钢	0.05D	2.0D	Vc	203	203	203	203	203	203	203	
					fz	0.05	0.085	0.106	0.128	0.149	0.167	0.174	
					RPM	10769	8077	6462	5385	4039	3231	2585	
					FEED	3231	4119	4110	4135	3610	3237	2698	
	6-7	Low alloy steel 低合金钢	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	High alloyed steel, and tool steel 高合金钢和刀具钢	0.05D	2.0D	Vc	203	203	203	203	203	203	203		
				fz	0.05	0.085	0.106	0.128	0.149	0.167	0.174		
				RPM	10769	8077	6462	5385	4039	3231	2585		
				FEED	3231	4119	4110	4135	3610	3237	2698		
10-11.1	High alloyed steel, and tool steel 高合金钢和刀具钢	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 不锈钢	0.05D	2.0D	Vc	213	213	213	213	213	213	213	
					fz	0.049	0.084	0.104	0.125	0.146	0.162	0.168	
					RPM	11300	8475	6780	5650	4238	3390	2712	
					FEED	3322	4271	4231	4238	3712	3295	2734	
	14.1	Stainless steel 不锈钢	0.05D	2.0D	Vc	147	147	147	147	147	147	147	
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.143	
					RPM	7799	5849	4679	3899	2924	2340	1872	
					FEED	1918	2492	2471	2457	2158	1923	1606	
	14.2	Stainless steel 不锈钢	0.05D	2.0D	Vc	134	134	134	134	134	134	134	
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.142	
					RPM	7109	5332	4265	3554	2666	2133	1706	
					FEED	1749	2271	2252	2239	1967	1753	1454	
K	15-20	Grey cast iron 灰铸铁	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					

EMB72, EMB73 SERIES

5 FLUTE - SIDE CUTTING
5刃 - 侧铣削

Vc(切削速度) = m/min.
fz(每齿进给) = mm/tooth
RPM(转速) = rev./min.
FEED(进给) = mm/min.

ISO	VDI 3323	Material Description 工件材料	Ae	Ap	Parameter 参数	Diameter 直径 (Ø)							
						6.0	8.0	10.0	12.0	14.0	16.0	20.0	
P	1-2	Non-alloy steel 非合金钢	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	
	6	Low alloy steel 低合金钢	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	
	10	High alloyed steel, and tool steel 高合金钢和刀具钢	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	
M	12-13	Stainless steel 不锈钢	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	
	14.1	Stainless steel 不锈钢	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	
	K	15-20	Grey cast iron 灰铸铁	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
31-35		Heat Resistant Super Alloys 超耐热合金	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	
36-37		Titanium Alloys 钛合金	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	
S	Titanium Alloys 钛合金	0.25D	1.25D	Vc	676	524	514	564	551	533	507		
				fz	0.030	0.031	0.038	0.050	0.057	0.063	0.075		
				RPM	4509	3382	2706	2255	1933	1691	1353		



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YG-1 HEAD OFFICE

211, Sewolcheon-ro, Bupyeong-gu, Incheon, South Korea
Phone: +82-32-526-0909
E-mail: yg1@yg1.kr
www.yg1.kr