



Leading Through Innovation



**SOLID CARBIDE**

# **X5070 END MILLS**

## **X5070 NANO-VHM - FRÄSER**

- For High Hardened Steels (HRc45 to HRc70)  
High Speed Machining and Dry Cutting
- Für hochgehärtete Stähle (HRc45 bis HRc70)  
Hochgeschwindigkeitsbearbeitung und Trockenbearbeitung

SELECTION GUIDE



SOLID CARBIDE  
**X5070**  
END MILLS

High Hardened Steels HRC45 to HRC70,  
High Speed Machining, Dry Cutting



◎ : Excellent ○ : Good

Recommended cutting conditions : P 139

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	G8B59	G8B54	G8A46	G8A54	
P	1	Non-alloy steel	About 0.15% C Annealed	125	13					
	2		About 0.45% C Annealed	190	13					
	3		About 0.45% C Quenched & Tempered	250	25					
	4		About 0.75% C Annealed	270	28					
	5	Low alloy steel	About 0.75% C Quenched & Tempered	300	32	○		○		
	6		Annealed	180	10		○		○	
	7		Quenched & Tempered	275	29					
	8		Quenched & Tempered	300	32	○	○	○	○	
	9		Quenched & Tempered	350	38	○	○	○	○	
	10		High alloyed steel, and tool steel	Annealed	200	15				
	11		Quenched & Tempered	325	35	○	○	○	○	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15					
	13		Martensitic Quenched & Tempered	240	23					
K	14	Grey cast iron	Austenitic	180	10					
	15		Pearlitic / ferritic	180	10					
	16		Pearlitic (Martensitic)	260	26					
	17		Ferritic	160	3					
	18		Nodular cast iron	Pearlitic	250	25				
	19		Malleable cast iron	Ferritic	130	13				
N	20	Aluminum-wrought alloy	Pearlitic	230	21					
	21		Not Curable	60						
	22		Curable	100						
	23		≤ 12% Si, Not Curable	75						
	24		Aluminum-cast, alloyed	≤ 12% Si, Curable	90					
	25		> 12% Si, Not Curable	130						
	26		Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110					
	27			CuZn, CuSnZn (Brass)	90					
	28			CuSn, Lead-free copper and electrolytic copper	100					
	29			Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.					
S	30	Heat Resistant Super Alloys								
	31		Fe Based	Annealed	200	15				
	32		Cured	280	30					
	33		Annealed	250	25					
	34		Ni or Co Based	Cured	350	38				
	35		Cast	320	34					
H	36	Titanium Alloys	Pure Titanium	400 Rm						
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
	38		Hardened steel	Hardened	550	55	◎	◎	◎	◎
	39		Hardened	Hardened	630	60	◎	◎	◎	◎
	40		Chilled Cast Iron	Cast	400	42	○	○	○	○
	41	Hardened Cast Iron	Hardened	550	55	◎	◎	◎	◎	

SERIES	G8A28	G8A38	G8A53	G8A59	G8D62	G8A60	G8A36	G8A52	G8A50	G8A47	G8A37	G8B08	G8A39
FLUTE	2	2	2	3	4	2	2	2	2	4	4	4	6
HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	45°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
SIZE MIN	R0.05	R0.5	R0.2	R1.5	R1.5	D0.5	D0.3	D0.5	D0.3	D3.0	D1.0	D6.0	D6.0
SIZE MAX	R6.0	R12.5	R1.0	R10.0	R10.0	D12.0	D20.0	D2.0	D2.0	D12.0	D20.0	D12.0	D20.0
PAGE	112	114	115	116	117	118	123	125	126	127	128	129	130
	-	EXTENDED NECK	MINIATURE	Center Match	Center Match	RIB PROCESSING	EXTENDED NECK	RIB PROCESSING	MINIATURE	EXTENDED NECK	EXTENDED NECK	EXTENDED NECK	EXTENDED NECK
	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating



SELECTION GUIDE



SOLID CARBIDE X5070 END MILLS

High Hardened Steels HRC45 to HRC70, High Speed Machining, Dry Cutting

Please visit [global.yg1.com/mat](http://global.yg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P 139

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

SERIES	G8A45	G8A01	G8A02	G8D63	G8D64
FLUTE	2	2	4	6&8	6&8
HELIX ANGLE	30°	30°	30°	45°	45°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D0.1	D0.1	D1.0	D6.0	D6.0
SIZE MAX	D4.0	D20.0	D20.0	D25.0	D25.0
PAGE	131	135	136	137	138
RIB PROCESSING	Blue Coating	EXTENDED NECK Blue Coating	EXTENDED NECK Blue Coating	LONG LENGTH Blue Coating	EXTRA LONGLENGTH Blue Coating



X5070 END MILLS

PLAIN SHANK G8B59 SERIES

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS HIGH FEED

VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB  
 (1) Fraise carbure, 4 dents, torique, grande avance, extra-courte  
 (1) 4 TAGLIANTI, TORICA

- ▶ Excellent wear resistance at heavy feed rates on high hardened material.
- ▶ Designed with reduced clearance angles and short flutes for strength.
- ▶ High hardness & heat resistance coating for long life in dry applications.
- ▶ Hervorragende Verschleißigenschaften bei hohen Schnittwerten in gehärteten Materialien
- ▶ Mit reduzierten Freiwinkeln und kurzen Spannuten für hohe Festigkeiten konstruiert.
- ▶ Große Härte u. hitzebeständige Beschichtung für lange Lebensdauer bei Trockenbearbeitung



CARBIDE 4 BLUE 0° ±0.005 PLAIN P.139

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8B5902005	R0.5	2.0	6	1	6	50	1.8
G8B5903005	R0.5	3.0	6	1.2	8	50	2.8
G8B5904005	R0.5	4.0	6	1.5	10	50	3.8
G8B5906005	R0.5	6.0	6	2.5	12	60	5.4
G8B5906010	R1.0	6.0	6	2.5	12	60	5.4
G8B5908010	R1.0	8.0	8	3.5	16	60	7.2
G8B5908020	R2.0	8.0	8	3.5	16	60	7.2
G8B5910010	R1.0	10.0	10	4	20	70	9
G8B5910020	R2.0	10.0	10	4	20	70	9
G8B5912020	R2.0	12.0	12	5	25	80	11
G8B5912030	R3.0	12.0	12	5	25	80	11

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Comparison of the endteeth shape

- Reduced clearance angles and short flutes strengthens corner radius and reduces chattering
- Extra-short flute length for high rigidity
- Heavy core with reduced diameter allows greater depths and maximum rigidity

◎ : Excellent ○ : Good

ISO	P											M				K				
	Non-alloy steel					Low alloy steel						High alloyed steel and tool steel		Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	19	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					I										
	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	29	30	29	30	31	15	30	25	38	34	55	60	42	55	42	55
HB	60	100	75	90	130	110	90	100	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	550
Recommend																					



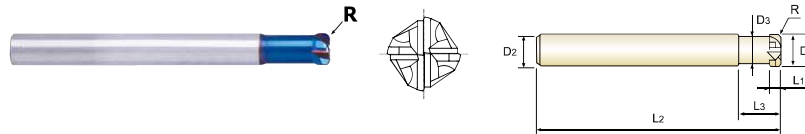


PLAIN SHANK **G8B54** SERIES

**CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS HIGH FEED (long shank)**

**VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB**  
 (1) Fraise carbure, 4 dents, torique, grande avance, extra-courte  
 (2) 4 TAGLIENTI, TORICA EXTRA LUNGA

- ▶ Excellent wear resistance at heavy feed rates on high hardened material.
- ▶ Designed with reduced clearance angles and short flutes for strength.
- ▶ High hardness & heat resistance coating for long life in dry applications.
- ▶ Hervorragende Verschleißigenschaften bei hohen Schnittwerten in gehärteten Materialien
- ▶ Mit reduzierten Freiwinkeln und kurzen Spannuten für hohe Festigkeiten konstruiert.
- ▶ Große Härte u. hitzebeständige Beschichtung für lange Lebensdauer bei Trockenbearbeitung

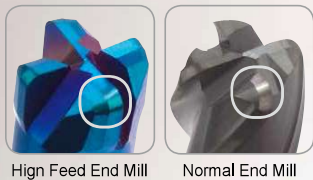


EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8B5402005	R0.5	2.0	6	1	6	70	1.8
G8B5403005	R0.5	3.0	6	1.2	8	70	2.8
G8B5404005	R0.5	4.0	6	1.5	10	70	3.8
G8B5405005	R0.5	5.0	6	2	10	70	4.6
G8B5406005	R0.5	6.0	6	2.5	12	90	5.4
G8B5406010	R1.0	6.0	6	2.5	12	90	5.4
G8B5408010	R1.0	8.0	8	3.5	16	100	7.2
G8B5408020	R2.0	8.0	8	3.5	16	100	7.2
G8B5410010	R1.0	10.0	10	4	20	100	9
G8B5410020	R2.0	10.0	10	4	20	100	9
G8B5412020	R2.0	12.0	12	5	25	110	11
G8B5412030	R3.0	12.0	12	5	25	110	11
G8B5416030	R3.0	16.0	16	6.5	30	130	15

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Corner Radius Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.02	± 0.005	h5

**Comparison of the endteeth shape**



◎ : Excellent ○ : Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	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
Recommend																				

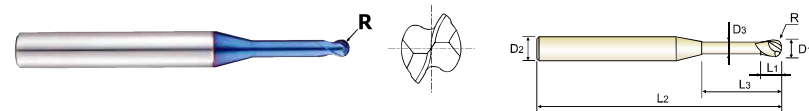


PLAIN SHANK **G8A46** SERIES

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

**VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN**  
 (1) Fraise carbure, 2 dents, hémisphérique pour usinage de rainure  
 (2) TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.
- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46805	R0.05	0.1	4	0.1	0.3	45	0.085
G8A46806	R0.05	0.1	4	0.1	0.5	45	0.085
G8A46002	R0.1	0.2	4	0.2	0.5	45	0.17
G8A46977	R0.1	0.2	4	0.2	1	45	0.17
G8A46958	R0.1	0.2	4	0.2	1.5	45	0.17
G8A46003	R0.15	0.3	4	0.3	1	45	0.27
G8A46959	R0.15	0.3	4	0.3	2	45	0.27
G8A46986	R0.15	0.3	4	0.3	3	45	0.27
G8A46004	R0.2	0.4	4	0.4	1	45	0.37
G8A46960	R0.2	0.4	4	0.4	2	45	0.37
G8A46961	R0.2	0.4	4	0.4	3	45	0.37
G8A46981	R0.2	0.4	4	0.4	4	45	0.37
G8A46987	R0.2	0.4	4	0.4	5	45	0.37
G8A46005	R0.25	0.5	4	0.4	2	45	0.45
G8A46804	R0.25	0.5	4	0.4	2.5	45	0.45
G8A46962	R0.25	0.5	4	0.4	4	45	0.45
G8A46963	R0.25	0.5	4	0.4	6	45	0.45
G8A46964	R0.25	0.5	4	0.4	8	45	0.45
G8A46957	R0.3	0.6	4	0.5	2	45	0.55
G8A46988	R0.3	0.6	4	0.5	3	45	0.55
G8A46915	R0.3	0.6	4	0.5	4	45	0.55
G8A46989	R0.3	0.6	4	0.5	5	45	0.55

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.012	h5

◎ : Excellent ○ : Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	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
Recommend																				



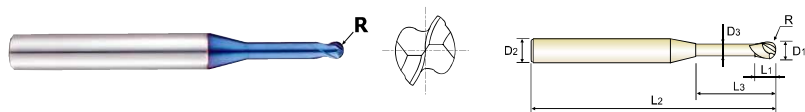


PLAIN SHANK **G8A46** SERIES

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

**VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN**  
 (1) Fraise carbure, 2 dents, hémisphérique pour usinage de rainure  
 (2) 2 TAGLIANTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finishes.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.
- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Exzellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46916	R0.3	0.6	4	0.5	6	45	0.55
G8A46917	R0.3	0.6	4	0.5	8	45	0.55
G8A46990	R0.3	0.6	4	0.5	10	45	0.55
G8A46918	R0.4	0.8	4	0.6	2	45	0.75
G8A46919	R0.4	0.8	4	0.6	4	45	0.75
G8A46008	R0.4	0.8	4	0.6	6	45	0.75
G8A46901	R0.4	0.8	4	0.6	8	45	0.75
G8A46965	R0.4	0.8	4	0.6	10	45	0.75
G8A46920	R0.5	1.0	4	0.8	3	45	0.95
G8A46921	R0.5	1.0	4	0.8	4	45	0.95
G8A46923	R0.5	1.0	4	0.8	5	45	0.95
G8A46010	R0.5	1.0	4	0.8	6	45	0.95
G8A46924	R0.5	1.0	4	0.8	7	45	0.95
G8A46902	R0.5	1.0	4	0.8	8	45	0.95
G8A46925	R0.5	1.0	4	0.8	9	45	0.95
G8A46903	R0.5	1.0	4	0.8	10	45	0.95
G8A46904	R0.5	1.0	4	0.8	12	45	0.95
G8A46926	R0.5	1.0	4	0.8	14	50	0.95
G8A46927	R0.5	1.0	4	0.8	16	50	0.95
G8A46966	R0.5	1.0	4	0.8	20	55	0.95
G8A46982	R0.6	1.2	4	1.0	6	45	1.15
G8A46012	R0.6	1.2	4	1.0	8	45	1.15

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.012	h5

ISO	P									M				K							
Material Description	Non-alloy steel			Low alloy steel			High alloyed steel and tool steel			Stainless steel		Grey cast iron		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	30	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	
Recommend	○			○			○			○		○		○		○		○		○	

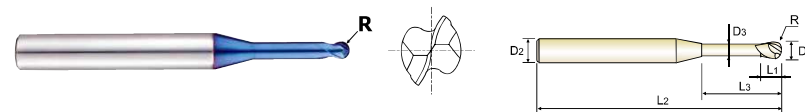


PLAIN SHANK **G8A46** SERIES

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

**VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN**  
 (1) Fraise carbure, 2 dents, hémisphérique pour usinage de rainure  
 (2) 2 TAGLIANTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.
- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Exzellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46983	R0.6	1.2	4	1.0	10	45	1.15
G8A46905	R0.6	1.2	4	1.0	12	45	1.15
G8A46930	R0.75	1.5	4	1.2	6	45	1.45
G8A46015	R0.75	1.5	4	1.2	8	45	1.45
G8A46931	R0.75	1.5	4	1.2	10	45	1.45
G8A46906	R0.75	1.5	4	1.2	12	45	1.45
G8A46992	R0.75	1.5	4	1.2	14	50	1.45
G8A46907	R0.75	1.5	4	1.2	16	50	1.45
G8A46932	R0.75	1.5	4	1.2	20	55	1.45
G8A46939	R1.0	2.0	4	1.6	4	45	1.95
G8A46940	R1.0	2.0	4	1.6	6	45	1.95
G8A46020	R1.0	2.0	4	1.6	8	45	1.95
G8A46941	R1.0	2.0	4	1.6	10	45	1.95
G8A46942	R1.0	2.0	4	1.6	12	50	1.95
G8A46943	R1.0	2.0	4	1.6	14	50	1.95
G8A46909	R1.0	2.0	4	1.6	16	50	1.95
G8A46993	R1.0	2.0	4	1.6	18	55	1.95
G8A46910	R1.0	2.0	4	1.6	20	55	1.95
G8A46944	R1.0	2.0	4	1.6	22	60	1.95
G8A46945	R1.0	2.0	4	1.6	25	60	1.95
G8A46967	R1.0	2.0	4	1.6	30	70	1.95
G8A46948	R1.5	3.0	6	2.4	12	50	2.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.012	h5

ISO	P									M				K							
Material Description	Non-alloy steel			Low alloy steel			High alloyed steel and tool steel			Stainless steel		Grey cast iron		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	30	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	
Recommend	○			○			○			○		○		○		○		○		○	

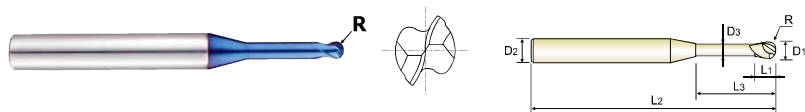


PLAIN SHANK **G8A46** SERIES

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
- ① Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
- ② 2 TAGLIANTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.
- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46984	R1.5	3.0	6	2.4	14	55	2.85
G8A46030	R1.5	3.0	6	2.4	16	55	2.85
G8A46985	R1.5	3.0	6	2.4	18	60	2.85
G8A46911	R1.5	3.0	6	2.4	20	60	2.85
G8A46968	R1.5	3.0	6	2.4	25	65	2.85
G8A46969	R1.5	3.0	6	2.4	30	70	2.85
G8A46970	R1.5	3.0	6	2.4	35	80	2.85
G8A46950	R2.0	4.0	6	3.2	12	60	3.85
G8A46040	R2.0	4.0	6	3.2	16	60	3.85
G8A46912	R2.0	4.0	6	3.2	20	65	3.85
G8A46913	R2.0	4.0	6	3.2	25	70	3.85
G8A46971	R2.0	4.0	6	3.2	30	70	3.85
G8A46972	R2.0	4.0	6	3.2	35	80	3.85
G8A46973	R2.0	4.0	6	3.2	40	90	3.85
G8A46974	R2.0	4.0	6	3.2	45	90	3.85
G8A46975	R2.0	4.0	6	3.2	50	100	3.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniform. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.012	h5

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	18	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					T										
	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	60	100	75	90	130	110	90	100			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																					

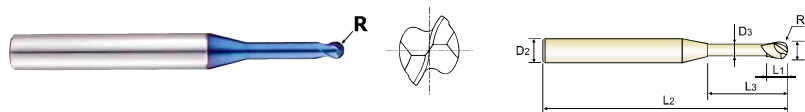


PLAIN SHANK **G8A54** SERIES

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
- ① Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
- ② 2 TAGLIANTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.
- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A54005	R0.25	0.5	6	0.5	1.5	50	0.45
G8A54901	R0.25	0.5	6	0.5	3.3	50	0.45
G8A54006	R0.3	0.6	6	0.6	2	50	0.55
G8A54902	R0.3	0.6	6	0.6	4	50	0.55
G8A54008	R0.4	0.8	6	0.8	2.5	50	0.75
G8A54903	R0.4	0.8	6	0.8	5.5	50	0.75
G8A54010	R0.5	1.0	6	1	3.3	50	0.95
G8A54904	R0.5	1.0	6	1	6.7	50	0.95
G8A54905	R0.5	1.0	6	1	12	50	0.95
G8A54012	R0.6	1.2	6	1.2	4.4	50	1.15
G8A54906	R0.6	1.2	6	1.2	8	50	1.15
G8A54015	R0.75	1.5	6	1.5	5	50	1.45
G8A54907	R0.75	1.5	6	1.5	9.7	50	1.45
G8A54908	R0.75	1.5	6	1.5	15	50	1.45
G8A54020	R1.0	2.0	6	2	6	50	1.95
G8A54909	R1.0	2.0	6	2	13	50	1.95
G8A54910	R1.0	2.0	6	2	20	60	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniform. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.012	h5

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	18	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					T										
	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	60	100	75	90	130	110	90	100			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																					



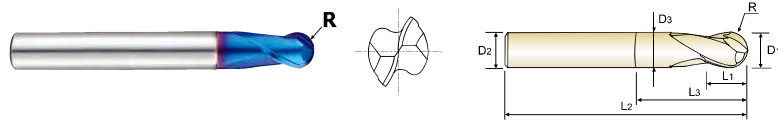
PLAIN SHANK **G8A28** SERIES

**CARBIDE, 2 FLUTE BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
- (1) Fraise carbure, 2 dents, hémisphérique
- (1) 2 TAGLIENTI, SEMISFERICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A28001	R0.05	0.1	4	0.2	-	40	-
G8A28002	R0.1	0.2	4	0.3	-	40	-
G8A28003	R0.15	0.3	4	0.5	-	40	-
G8A28004	R0.2	0.4	4	0.6	-	40	-
G8A28005	R0.25	0.5	4	0.7	-	40	-
G8A28006	R0.3	0.6	4	0.9	-	40	-
G8A28007	R0.35	0.7	4	1.1	-	40	-
G8A28008	R0.4	0.8	4	1.2	-	40	-
G8A28009	R0.45	0.9	4	1.4	-	40	-
G8A280104S	R0.5	1.0	4	1.5	3	50	0.95
G8A28010	R0.5	1.0	6	1.5	3	50	0.95
G8A280154S	R0.75	1.5	4	2	4	50	1.45
G8A28015	R0.75	1.5	6	2	4	50	1.45
G8A280204S	R1.0	2.0	4	2.5	5	50	1.95
G8A28020	R1.0	2.0	6	2.5	5	50	1.95
G8A280254S	R1.25	2.5	4	3	7	50	2.4
G8A28025	R1.25	2.5	6	3	7	50	2.4
G8A28030	R1.5	3.0	6	4	10	60	2.85
G8A28035	R1.75	3.5	6	4.5	10	60	3.35
G8A28040	R2.0	4.0	6	5	10	60	3.85
G8A28045	R2.25	4.5	6	5.5	10	60	4.35
G8A28050	R2.5	5.0	6	6	12	60	4.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

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

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	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
Recommend																				



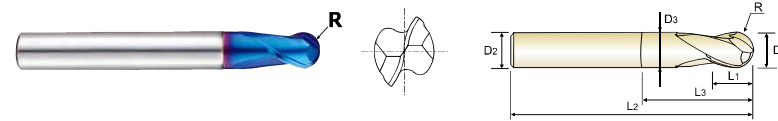
PLAIN SHANK **G8A28** SERIES

**CARBIDE, 2 FLUTE BALL NOSE**

- VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
- (1) Fraise carbure, 2 dents, hémisphérique
- (1) 2 TAGLIENTI, SEMISFERICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (± 0.005)	D1	D2	L1	L3	L2	D3
G8A28055	R2.75	5.5	6	6.5	12	60	5.35
G8A28060	R3.0	6.0	6	7	15	60	5.85
G8A28903	R3.0	6.0	6	9	30	90	5.85
G8A28901	R4.0	8.0	8	9	15	60	7.7
G8A28080	R4.0	8.0	8	9	15	80	7.7
G8A28904	R4.0	8.0	8	12	30	100	7.7
G8A28902	R5.0	10.0	10	11	25	60	9.7
G8A28100	R5.0	10.0	10	11	25	80	9.7
G8A28905	R5.0	10.0	10	15	30	100	9.7
G8A28120	R6.0	12.0	12	14	25	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	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
Recommend																				



# YG X5070 END MILLS

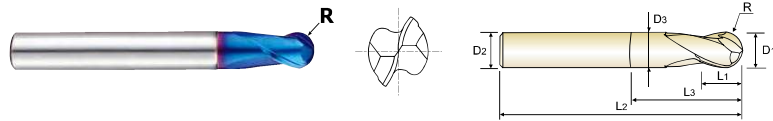
PLAIN SHANK **G8A38** SERIES

## CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE with EXTENDED NECK

- VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ STIRNRADIUS mit ABGESETZTEM SCHAFFTEIL
- (1) Fraise carbure, 2 dents, hémisphérique, détalonnée, extra-courte
- (2) TAGLIANTI, SEMISFERICA TAGLIENTE CORTO CON SCARICO ESTESO

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



CARBIDE 2 BLUE 30° ±0.005 ±0.010 PLAIN P.142-143

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A38010	R0.5	1.0	4	1	2.2	50	0.95
G8A38012	R0.6	1.2	4	1.2	2.6	50	1.15
G8A38015	R0.75	1.5	4	1.5	3	50	1.45
G8A380204S	R1.0	2.0	4	2	4	50	1.95
G8A38020	R1.0	2.0	6	2	4	50	1.95
G8A38030	R1.5	3.0	6	3	6	60	2.85
G8A38040	R2.0	4.0	6	4	8	70	3.85
G8A38050	R2.5	5.0	6	5	10	80	4.85
G8A38060	R3.0	6.0	6	6	12	90	5.85
G8A38070	R3.5	7.0	8	7	14	90	6.7
G8A38080	R4.0	8.0	8	8	16	100	7.7
G8A38090	R4.5	9.0	10	9	18	100	8.7
G8A38100	R5.0	10.0	10	10	20	100	9.7
G8A38120	R6.0	12.0	12	12	24	110	11.7
G8A38140	R7.0	14.0	14	14	28	110	13.7
G8A38160	R8.0	16.0	16	16	32	140	15.7
G8A38180	R9.0	18.0	18	18	36	140	17.7
G8A38200	R10.0	20.0	20	20	40	160	19.7
G8A38250	R12.5	25.0	25	25	50	180	24.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

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

# YG X5070 END MILLS

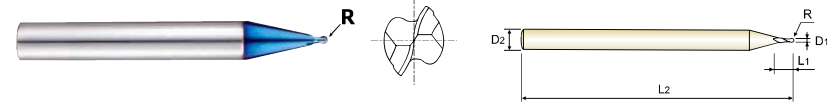
PLAIN SHANK **G8A53** SERIES

## CARBIDE, 2 FLUTE MINIATURE BALL NOSE

- VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS
- (1) Fraise carbure, 2 dents, hémisphérique, micro-fraise
- (2) TAGLIANTI, SEMISFERICA MINI

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



CARBIDE 2 BLUE 30° ±0.005 PLAIN P.142-143

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.005)	D1	D2	L1	L2
G8A53004	R0.2	0.4	6	0.4	50
G8A53005	R0.25	0.5	6	0.5	50
G8A53006	R0.3	0.6	6	0.6	50
G8A53008	R0.4	0.8	6	0.8	50
G8A53010	R0.5	1.0	6	1.0	50
G8A53012	R0.6	1.2	6	1.2	50
G8A53015	R0.75	1.5	6	1.5	50
G8A53020	R1.0	2.0	6	2.0	50

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

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





PLAIN SHANK **G8A60** SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN**
- Fraise carbure, 2 dents, torique pour usinage de rainure**
- 2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE**

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Deep slotting is possible by reduced neck.
- Corner radius for preventing the chipping in high speed machining.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Exzellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



P.146-147

Ø0.5-Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60936	R0.05	0.5	4	0.7	1.5	45	0.45
G8A60932	R0.05	0.5	4	0.7	2.5	45	0.45
G8A60935	R0.05	0.5	4	0.7	4	45	0.45
G8A60931	R0.05	0.6	4	0.9	2	45	0.55
G8A60933	R0.05	0.6	4	0.9	3	45	0.55
G8A60934	R0.05	0.6	4	0.9	4	45	0.55
G8A600060102	R0.1	0.6	4	0.9	2	45	0.55
G8A600070104	R0.1	0.7	4	1	4	45	0.65
G8A600080102	R0.1	0.8	4	1.2	2	45	0.75
G8A60008	R0.1	0.8	4	1.2	4	45	0.75
G8A60924	R0.1	0.8	4	1.2	6	45	0.75
G8A609254S	R0.1	1.0	4	1.5	4	50	0.95
G8A609264S	R0.1	1.0	4	1.5	6	50	0.95
G8A600100204	R0.2	1.0	4	1.5	4	50	0.95
G8A600100206	R0.2	1.0	4	1.5	6	50	0.95
G8A609114S	R0.2	1.0	4	1.5	8	50	0.95
G8A600100304	R0.3	1.0	4	1.5	4	50	0.95
G8A600100306	R0.3	1.0	4	1.5	6	50	0.95
G8A60980	R0.3	1.0	4	1.5	8	50	0.95
G8A60925	R0.1	1.0	6	1.5	4	50	0.95
G8A60926	R0.1	1.0	6	1.5	6	50	0.95
G8A60010	R0.2	1.0	6	1.5	4	50	0.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniform. However, it doesn't affect the performance of the tool. **NEXT PAGE**

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

◎ : Excellent ○ : Good

ISO	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel and tool steel			Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	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
Recommend	○									○				○						

ISO	N					S					T											
	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	60	100	75	90	130	110	90	100			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	400	550	
Recommend	○					○					○			◎	◎	○	◎					



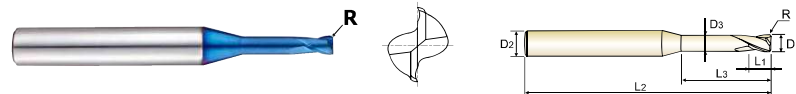
PLAIN SHANK **G8A60** SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN**
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- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Exzellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



P.146-147

Ø0.5-Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60910	R0.2	1.0	6	1.5	6	50	0.95
G8A60911	R0.2	1.0	6	1.5	8	50	0.95
G8A60912	R0.3	1.0	6	1.5	4	50	0.95
G8A60930	R0.3	1.0	6	1.5	6	50	0.95
G8A600100308	R0.3	1.0	6	1.5	8	50	0.95
G8A600154S	R0.2	1.5	4	2.5	4	50	1.45
G8A6001502064S	R0.2	1.5	4	2.5	6	50	1.45
G8A6001502084S	R0.2	1.5	4	2.5	8	50	1.45
G8A609134S	R0.2	1.5	4	2.5	10	50	1.45
G8A609144S	R0.2	1.5	4	2.5	12	50	1.45
G8A609154S	R0.3	1.5	4	2.5	4	50	1.45
G8A6001503064S	R0.3	1.5	4	2.5	6	50	1.45
G8A6001503084S	R0.3	1.5	4	2.5	8	50	1.45
G8A60015	R0.2	1.5	6	2.5	4	50	1.45
G8A600150206	R0.2	1.5	6	2.5	6	50	1.45
G8A600150208	R0.2	1.5	6	2.5	8	50	1.45
G8A60913	R0.2	1.5	6	2.5	10	50	1.45
G8A60914	R0.2	1.5	6	2.5	12	50	1.45
G8A60915	R0.3	1.5	6	2.5	4	50	1.45
G8A600150306	R0.3	1.5	6	2.5	6	50	1.45
G8A600150308	R0.3	1.5	6	2.5	8	50	1.45
G8A609274S	R0.2	2.0	4	3	6	50	1.95

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

◎ : Excellent ○ : Good

ISO	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel and tool steel			Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	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
Recommend	○									○				○						

ISO	N					S					T											
	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	60	100	75	90	130	110	90	100			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	400	550	
Recommend	○					○					○			◎	◎	○	◎					





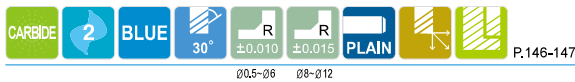
PLAIN SHANK **G8A60** SERIES

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- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Exzellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



P.146-147

Ø0.5-Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60020020845	R0.2	2.0	4	3	8	50	1.95
G8A60020021045	R0.2	2.0	4	3	10	55	1.95
G8A60020021245	R0.2	2.0	4	3	12	55	1.95
G8A6091645	R0.3	2.0	4	3	6	50	1.95
G8A60020030845	R0.3	2.0	4	3	8	50	1.95
G8A60020031045	R0.3	2.0	4	3	10	55	1.95
G8A60020031245	R0.3	2.0	4	3	12	55	1.95
G8A60020031645	R0.3	2.0	4	3	16	55	1.95
G8A6091745	R0.5	2.0	4	3	6	50	1.95
G8A6002045	R0.5	2.0	4	3	10	55	1.95
G8A6091845	R0.5	2.0	4	3	12	55	1.95
G8A60927	R0.2	2.0	6	3	6	50	1.95
G8A600200208	R0.2	2.0	6	3	8	50	1.95
G8A600200210	R0.2	2.0	6	3	10	55	1.95
G8A600200212	R0.2	2.0	6	3	12	55	1.95
G8A60916	R0.3	2.0	6	3	6	50	1.95
G8A600200308	R0.3	2.0	6	3	8	50	1.95
G8A600200310	R0.3	2.0	6	3	10	55	1.95
G8A600200312	R0.3	2.0	6	3	12	55	1.95
G8A600200316	R0.3	2.0	6	3	16	55	1.95
G8A60917	R0.5	2.0	6	3	6	50	1.95
G8A60020	R0.5	2.0	6	3	10	55	1.95

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

◎ : Excellent ○ : Good

ISO	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel and tool steel			Stainless steel		Grey cast iron	Notular cast iron	Malleable cast iron						
Material Description	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	30	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
Recommend																				

ISO	N						S					T									
	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						
Material Description	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	60	100	75	90	130	110	90	100	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100	200	280	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																					



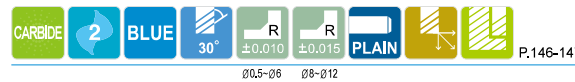
PLAIN SHANK **G8A60** SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN**
- Fraise carbure, 2 dents, torique pour usinage de rainure**
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- Designed to machine high hardened materials.
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- Excellent workpiece finish.
- Deep slotting is possible by reduced neck.
- Corner radius for preventing the chipping in high speed machining.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Exzellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



P.146-147

Ø0.5-Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60918	R0.5	2.0	6	3	12	55	1.95
G8A600300208	R0.2	3.0	6	4	8	55	2.85
G8A600300210	R0.2	3.0	6	4	10	55	2.85
G8A600300212	R0.2	3.0	6	4	12	55	2.85
G8A600300216	R0.2	3.0	6	4	16	55	2.85
G8A600300308	R0.3	3.0	6	4	8	55	2.85
G8A60919	R0.3	3.0	6	4	10	55	2.85
G8A600300312	R0.3	3.0	6	4	12	55	2.85
G8A600300316	R0.3	3.0	6	4	16	55	2.85
G8A60030	R0.5	3.0	6	4	10	55	2.85
G8A600300512	R0.5	3.0	6	4	12	55	2.85
G8A60901	R0.5	3.0	6	4	16	55	2.85
G8A60902	R0.5	3.0	6	4	20	55	2.85
G8A600400212	R0.2	4.0	6	5	12	55	3.85
G8A600400216	R0.2	4.0	6	5	16	55	3.85
G8A600400220	R0.2	4.0	6	5	20	55	3.85
G8A600400310	R0.3	4.0	6	5	10	55	3.85
G8A60920	R0.3	4.0	6	5	12	55	3.85
G8A600400316	R0.3	4.0	6	5	16	55	3.85
G8A600400320	R0.3	4.0	6	5	20	55	3.85
G8A60040	R0.5	4.0	6	5	12	55	3.85
G8A60903	R0.5	4.0	6	5	16	55	3.85

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

◎ : Excellent ○ : Good

ISO	P									M				K						
	Non-alloy steel			Low alloy steel			High alloyed steel and tool steel			Stainless steel		Grey cast iron	Notular cast iron	Malleable cast iron						
Material Description	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	30	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
Recommend																				

ISO	N						S					T									
	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						
Material Description	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	60	100	75	90	130	110	90	100	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100	200	280	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																					



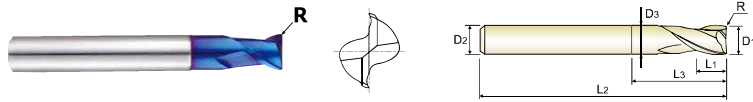
PLAIN SHANK **G8A60** SERIES

**CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING**

- **VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN**
- (1) **Fraise carbure, 2 dents, torique pour usinage de rainure**
- (2) **TAGLIANTI, TORICA, SCARICATA PER ENRVATURE**

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- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



P.146-147

Ø0.5-Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60904	R0.5	4.0	6	5	20	55	3.85
G8A600401012	R1.0	4.0	6	5	12	55	3.85
G8A600401016	R1.0	4.0	6	5	16	55	3.85
G8A60921	R0.3	6.0	6	7	20	60	5.85
G8A60060	R0.5	6.0	6	7	20	60	5.85
G8A60905	R1.0	6.0	6	7	20	60	5.85
G8A60906	R1.5	6.0	6	7	20	60	5.85
G8A600602020	R2.0	6.0	6	7	20	60	5.85
G8A60922	R0.3	8.0	8	9	25	60	7.7
G8A60929	R0.5	8.0	8	9	25	60	7.7
G8A60080	R1.0	8.0	8	9	25	60	7.7
G8A60907	R1.5	8.0	8	9	25	60	7.7
G8A600802025	R2.0	8.0	8	9	25	60	7.7
G8A60923	R0.3	10.0	10	11	32	70	9.7
G8A601000532	R0.5	10.0	10	11	32	70	9.7
G8A60100	R1.0	10.0	10	11	32	70	9.7
G8A60908	R1.5	10.0	10	11	32	70	9.7
G8A601002032	R2.0	10.0	10	11	32	70	9.7
G8A601200538	R0.5	12.0	12	12	38	80	11.7
G8A60120	R1.0	12.0	12	12	38	80	11.7
G8A60909	R1.5	12.0	12	12	38	80	11.7
G8A601202038	R2.0	12.0	12	12	38	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

◎ : Excellent ○ : Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	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	30	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
Recommend	○								○				○							



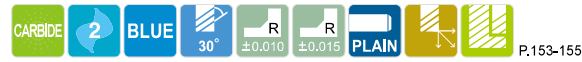
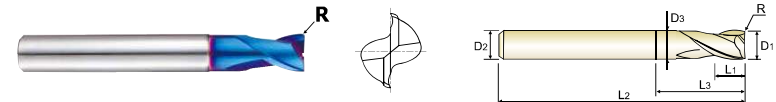
PLAIN SHANK **G8A36** SERIES

**CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK**

- **VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL**
- (1) **Fraise carbure, 2 dents, torique, détalonnée, extra-courte**
- (2) **TAGLIANTI, TORICA, TAGLIENTE CORTO CON SARICO ESTESO**

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



P.153-155

Ø0.3-Ø6 Ø8-Ø20

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A36003	-	0.3	3	0.45	-	40	-
G8A36004	-	0.4	3	0.6	-	40	-
G8A36005	R0.05	0.5	3	0.7	-	40	-
G8A36907	R0.05	0.5	4	1	-	40	-
G8A36006	R0.05	0.6	3	0.9	-	40	-
G8A36908	R0.05	0.6	4	1.2	-	40	-
G8A36909	R0.05	0.7	4	1.4	-	40	-
G8A36008	R0.05	0.8	3	1.2	-	40	-
G8A36910	R0.05	0.8	4	1.6	-	40	-
G8A36911	R0.05	0.9	4	2	-	40	-
G8A36010	R0.1	1.0	3	1.5	-	40	-
G8A36901	R0.1	1.0	4	1.5	-	40	-
G8A36903	R0.1	1.0	6	1.5	-	40	-
G8A36015	R0.1	1.5	3	2.2	-	40	-
G8A36904	R0.1	1.5	6	2.2	-	40	-
G8A36020	R0.1	2.0	3	3	6	40	1.95
G8A36902	R0.1	2.0	4	3	6	40	1.95
G8A36905	R0.1	2.0	6	3	6	40	1.95
G8A36025	R0.1	2.5	3	4	6	40	2.4
G8A36906	R0.1	2.5	6	4	6	40	2.4
G8A36030	R0.1	3.0	6	4	7	45	2.85
G8A36035	R0.1	3.5	6	5	9	45	3.35

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

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

◎ : Excellent ○ : Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	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	30	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
Recommend	○								○				○							

# YG X5070 END MILLS

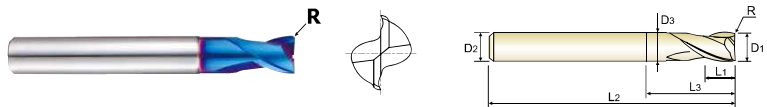
PLAIN SHANK **G8A36** SERIES

## CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK

- VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFFTEIL
- (1) Fraise carbure, 2 dents, torique, détalonnée, extra-courte
- (2) 2 TAGLIANTI, TORICA, TAGLIENTE CORTO CON SARICO ESTESO

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Deep slotting is possible by reduced neck.
- Corner radius for preventing the chipping in high speed machining.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantenschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



CARBIDE 2 BLUE 30° ±0.010 ±0.015 PLAIN P.153-155

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D <sub>1</sub>	D <sub>2</sub>	L <sub>1</sub>	L <sub>3</sub>	L <sub>2</sub>	D <sub>3</sub>
G8A36040	R0.1	4.0	6	5	9	45	3.85
G8A36045	R0.1	4.5	6	6	10	45	4.35
G8A36050	R0.2	5.0	6	6	11	50	4.85
G8A36060	R0.2	6.0	6	7	14	50	5.85
G8A36080	R0.2	8.0	8	9	18	60	7.7
G8A36100	R0.2	10.0	10	12	25	75	9.7
G8A36120	R0.3	12.0	12	15	30	75	11.7
G8A36160	R0.3	16.0	16	18	38	90	15.7
G8A36200	R0.3	20.0	20	24	45	100	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

◎ : Excellent ○ : Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	19	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					T										
	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					
Material Description	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	200	280	250	350	320	400 Rm / 1050 Rm
Recommend																					

# YG X5070 END MILLS

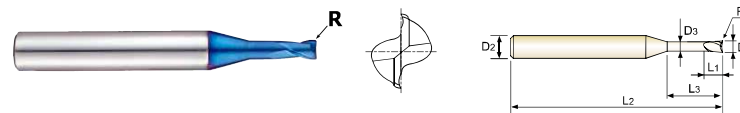
PLAIN SHANK **G8A52** SERIES

## CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

- VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
- (1) Fraise carbure, 2 dents, torique pour usinage de rainure
- (2) 2 TAGLIANTI, TORICA, SCARIATA PER NERVATURE

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Deep slotting is possible by reduced neck.
- Corner radius for preventing the chipping in high speed machining.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantenschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



CARBIDE 2 BLUE 30° ±0.010 PLAIN P.148

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D <sub>1</sub>	D <sub>2</sub>	L <sub>1</sub>	L <sub>3</sub>	L <sub>2</sub>	D <sub>3</sub>
G8A52005	R0.05	0.5	6	0.7	1.5	50	0.45
G8A52901	R0.05	0.5	6	0.7	3.3	50	0.45
G8A52006	R0.05	0.6	6	0.9	2	50	0.55
G8A52902	R0.05	0.6	6	0.9	4	50	0.55
G8A52008	R0.05	0.8	6	1.2	2.5	50	0.75
G8A52903	R0.05	0.8	6	1.2	5.5	50	0.75
G8A52010	R0.10	1.0	6	1.5	3.3	50	0.95
G8A52904	R0.10	1.0	6	1.5	6.7	50	0.95
G8A52012	R0.10	1.2	6	1.8	4.4	50	1.15
G8A52905	R0.10	1.2	6	1.8	8	50	1.15
G8A52015	R0.15	1.5	6	2.2	5	50	1.45
G8A52906	R0.15	1.5	6	2.2	9.7	50	1.45
G8A52020	R0.15	2.0	6	2.2	6	50	1.95
G8A52907	R0.15	2.0	6	2.2	13	50	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	19	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					T										
	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					
Material Description	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	200	280	250	350	320	400 Rm / 1050 Rm
Recommend																					





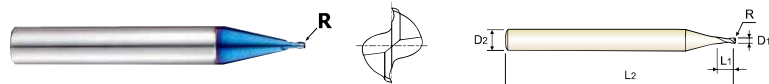
PLAIN SHANK **G8A50** SERIES

**CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS**

- VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS**
- Fraise carbure, 2 dents, torique, micro-fraise
- 2 TAGLIANTI, TORICA MINI

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Deep slotting is possible by reduced neck.
- Corner radius for preventing the chipping in high speed machining.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Exzellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantenschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
G8A50003	-	0.3	6	0.45	50
G8A50004	-	0.4	6	0.6	50
G8A50005	R0.05	0.5	6	0.7	50
G8A50006	R0.05	0.6	6	0.9	50
G8A50008	R0.05	0.8	6	1.2	50
G8A50010	R0.10	1.0	6	1.5	50
G8A50012	R0.10	1.2	6	1.8	50
G8A50015	R0.15	1.5	6	2.2	50
G8A50020	R0.15	2.0	6	2.2	50

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎: Excellent ○: Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	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	30	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
Recommend																				

ISO	N					S					I										
	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												
Material Description	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	550	550
Recommend																					



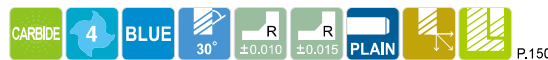
PLAIN SHANK **G8A47** SERIES

**CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL**
- Fraise carbure, 2 dents, torique, micro-fraise
- 4 TAGLIANTI, TORICA

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Deep slotting is possible by reduced neck.
- Corner radius for preventing the chipping in high speed machining.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Exzellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantenschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8A47916	R0.3	3.0	6	4	12	55	2.85
G8A47917	R0.3	3.0	6	4	16	55	2.85
G8A47918	R0.3	3.0	6	4	20	55	2.85
G8A47030	R0.5	3.0	6	4	10	55	2.85
G8A47901	R0.5	3.0	6	4	16	55	2.85
G8A47902	R0.5	3.0	6	4	20	55	2.85
G8A47919	R0.3	4.0	6	5	12	55	3.85
G8A47920	R0.3	4.0	6	5	16	55	3.85
G8A47921	R0.3	4.0	6	5	20	55	3.85
G8A47040	R0.5	4.0	6	5	12	55	3.85
G8A47903	R0.5	4.0	6	5	16	55	3.85
G8A47904	R0.5	4.0	6	5	20	55	3.85
G8A47922	R1.0	4.0	6	5	12	55	3.85
G8A47060	R0.5	6.0	6	7	20	60	5.85
G8A47905	R1.0	6.0	6	7	20	60	5.85
G8A47906	R1.5	6.0	6	7	20	60	5.85
G8A47910	R0.5	8.0	8	9	25	60	7.7
G8A47080	R1.0	8.0	8	9	25	60	7.7
G8A47907	R1.5	8.0	8	9	25	60	7.7
G8A47913	R2.0	8.0	8	9	25	60	7.7
G8A47911	R0.5	10.0	10	11	32	70	9.7
G8A47100	R1.0	10.0	10	11	32	70	9.7
G8A47908	R1.5	10.0	10	11	32	70	9.7
G8A47914	R2.0	10.0	10	11	32	70	9.7
G8A47912	R0.5	12.0	12	12	38	80	11.7
G8A47120	R1.0	12.0	12	12	38	80	11.7
G8A47909	R1.5	12.0	12	12	38	80	11.7
G8A47915	R2.0	12.0	12	12	38	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

◎: Excellent ○: Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	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	30	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
Recommend																				

ISO	N					S					I										
	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												
Material Description	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	550	550
Recommend																					

**YG X5070 END MILLS**

PLAIN SHANK **G8A37** SERIES

**CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- (1) Fraise carbure, 4 dents, torique, détalonnée, extra-courte
- (1) 4 TAGLIANTI, TORICA, TAGLIENTE CORTO CON SCARICO ESTESO

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Deep slotting is possible by reduced neck.
- Corner radius for preventing the chipping in high speed machining.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantenschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



CARBIDE 4 BLUE 30° ±0.010 ±0.015 PLAIN P.156

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D <sub>1</sub>	D <sub>2</sub>	L <sub>1</sub>	L <sub>3</sub>	L <sub>2</sub>	D <sub>3</sub>
G8A37010	R0.1	1.0	3	1.5	-	40	-
G8A37901	R0.1	1.0	6	1.5	-	40	-
G8A37015	R0.1	1.5	3	2.2	-	40	-
G8A37902	R0.1	1.5	6	2.2	-	40	-
G8A37020	R0.1	2.0	3	3	6	40	1.95
G8A37903	R0.1	2.0	6	3	6	40	1.95
G8A37025	R0.1	2.5	3	4	6	40	2.4
G8A37904	R0.1	2.5	6	4	6	40	2.4
G8A37030	R0.1	3.0	6	4	7	45	2.85
G8A37035	R0.1	3.5	6	5	9	45	3.35
G8A37040	R0.1	4.0	6	5	9	45	3.85
G8A37045	R0.1	4.5	6	6	10	45	4.35
G8A37050	R0.2	5.0	6	6	11	50	4.85
G8A37060	R0.2	6.0	6	7	14	50	5.85
G8A37080	R0.2	8.0	8	9	18	60	7.7
G8A37100	R0.2	10.0	10	12	25	75	9.7
G8A37120	R0.3	12.0	12	15	30	75	11.7
G8A37160	R0.3	16.0	16	18	38	90	15.7
G8A37200	R0.3	20.0	20	24	45	100	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

ISO	P								M				K								
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	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	
Recommend	○								○				○	○	○	○	○	○	○	○	○

**YG X5070 END MILLS**

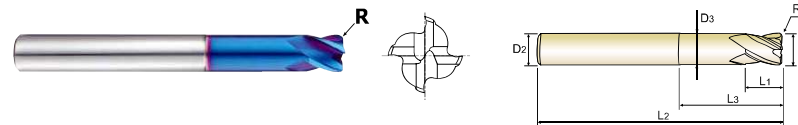
PLAIN SHANK **G8B08** SERIES

**CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- (1) Fraise carbure, 4 dents, torique, détalonnée
- (1) 4 TAGLIANTI, TORICA, TAGLIENTE CORTO CON SCARICO ESTESO

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Deep slotting is possible by reduced neck.
- Corner radius for preventing the chipping in high speed machining.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Abgesetzter Schaft für größere Reichweite.
- Schneidkantenschutz durch definierten Radius.
- Höhere Verschleißfestigkeit.



CARBIDE 4 BLUE 30° ±0.010 ±0.015 PLAIN P.150

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D <sub>1</sub>	D <sub>2</sub>	L <sub>1</sub>	L <sub>3</sub>	L <sub>2</sub>	D <sub>3</sub>
G8B0806005090	R0.5	6.0	6	9	20	90	5.85
G8B0806010090	R1.0	6.0	6	9	20	90	5.85
G8B0808005100	R0.5	8.0	8	12	25	100	7.7
G8B0808010100	R1.0	8.0	8	12	25	100	7.7
G8B0810005100	R0.5	10.0	10	15	32	100	9.7
G8B0810010100	R1.0	10.0	10	15	32	100	9.7
G8B0810020100	R2.0	10.0	10	15	32	100	9.7
G8B0812005110	R0.5	12.0	12	18	38	110	11.7
G8B0812010110	R1.0	12.0	12	18	38	110	11.7
G8B0812020110	R2.0	12.0	12	18	38	110	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

ISO	P								M				K								
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel	Grey cast iron	Nodular cast iron	Malleable cast iron					
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	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	
Recommend	○								○				○	○	○	○	○	○	○	○	○



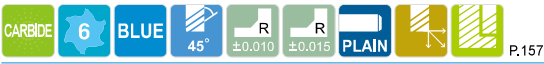
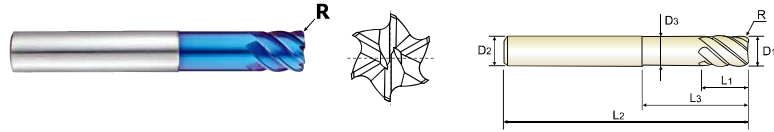
PLAIN SHANK **G8A39** SERIES

**CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS with EXTENDED NECK**

- VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- (1) Fraise carbure, 6 dents, torique, hélice 45°, détalonnée
- (2) 6 TAGLIANTI, TORICA, ELICA 45°, SCARICATA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8A39916	R0.25	6.0	6	6	14	50	5.85
G8A39060	R0.5	6.0	6	6	14	50	5.85
G8A39901	R0.5	6.0	6	13	-	70	-
* G8A39910	R0.5	6.0	6	26	-	70	-
G8A39080	R0.5	8.0	8	8	24	60	7.7
G8A39902	R0.5	8.0	8	19	-	90	-
* G8A39911	R0.5	8.0	8	36	-	90	-
G8A39903	R0.5	10.0	10	22	-	100	-
G8A39100	R1.0	10.0	10	10	30	70	9.7
G8A39904	R1.0	10.0	10	22	-	100	-
* G8A39912	R1.0	10.0	10	46	-	100	-
G8A39905	R0.5	12.0	12	26	-	110	-
G8A39120	R1.0	12.0	12	12	30	75	11.7
G8A39906	R1.0	12.0	12	26	-	110	-
* G8A39913	R1.0	12.0	12	56	-	110	-
G8A39160	R1.0	16.0	16	32	-	130	-
G8A39907	R1.5	16.0	16	32	-	130	-
* G8A39914	R1.5	16.0	16	66	-	130	-
G8A39200	R1.0	20.0	20	38	-	140	-
G8A39908	R1.5	20.0	20	38	-	140	-
G8A39909	R2.0	20.0	20	38	-	140	-
* G8A39915	R2.0	20.0	20	76	-	140	-

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

\* Mill Dia. Tolerance(mm) for Extra Long Type : 0~-0.03

◎ : Excellent ○ : Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	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
Recommend	○				○				○				○		○					



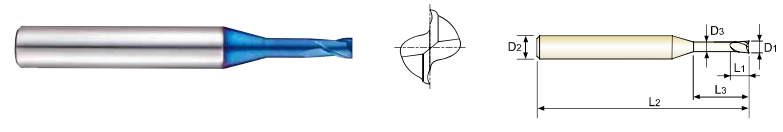
PLAIN SHANK **G8A45** SERIES

**CARBIDE, 2 FLUTE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
- (1) Fraise carbure, 2 dents pour usage de rainure
- (2) 2 TAGLIANTI PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A45863	0.1	4	0.15	0.3	45	0.085
G8A45864	0.1	4	0.15	0.5	45	0.085
G8A45002	0.2	4	0.3	0.5	45	0.17
G8A45815	0.2	4	0.3	1	45	0.17
G8A45816	0.2	4	0.3	1.5	45	0.17
G8A45003	0.3	4	0.45	1	45	0.27
G8A45844	0.3	4	0.45	1.5	45	0.27
G8A45817	0.3	4	0.45	2	45	0.27
G8A45818	0.3	4	0.45	3	45	0.27
G8A45842	0.3	4	0.45	4	45	0.27
G8A45843	0.4	4	0.6	1	45	0.37
G8A45004	0.4	4	0.6	2	45	0.37
G8A45984	0.4	4	0.6	3	45	0.37
G8A45985	0.4	4	0.6	4	45	0.37
G8A45986	0.4	4	0.6	5	45	0.37
G8A45005	0.5	4	0.7	2	45	0.45
G8A45861	0.5	4	0.7	2.5	45	0.45
G8A45988	0.5	4	0.7	4	45	0.45
G8A45989	0.5	4	0.7	6	45	0.45
G8A45990	0.5	4	0.7	8	45	0.45
G8A45006	0.6	4	0.9	2	45	0.55
G8A45860	0.6	4	0.9	3	45	0.55

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P								M				K							
	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	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
Recommend	○				○				○				○		○					





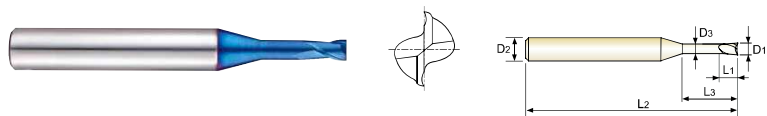
PLAIN SHANK **G8A45** SERIES

**CARBIDE, 2 FLUTE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
- (1) Fraise carbure, 2 dents pour usinage de rainure
- (2) 2 TAGLIANTI PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A45991	0.6	4	0.9	4	45	0.55
G8A45992	0.6	4	0.9	6	45	0.55
G8A45993	0.6	4	0.9	8	45	0.55
G8A45819	0.6	4	0.9	10	45	0.55
G8A45862	0.8	4	1.2	2	45	0.75
G8A45008	0.8	4	1.2	4	45	0.75
G8A45908	0.8	4	1.2	6	45	0.75
G8A45909	0.8	4	1.2	8	45	0.75
G8A45994	0.8	4	1.2	10	45	0.75
G8A45995	0.8	4	1.2	12	45	0.75
G8A45996	1.0	4	1.5	4	45	0.95
G8A45010	1.0	4	1.5	6	45	0.95
G8A45912	1.0	4	1.5	8	45	0.95
G8A45913	1.0	4	1.5	10	45	0.95
G8A45914	1.0	4	1.5	12	45	0.95
G8A45997	1.0	4	1.5	16	50	0.95
G8A45998	1.0	4	1.5	20	55	0.95
G8A45012	1.2	4	1.8	6	45	1.15
G8A45915	1.2	4	1.8	8	45	1.15
G8A45916	1.2	4	1.8	10	45	1.15
G8A45917	1.2	4	1.8	12	45	1.15
G8A45999	1.2	4	1.8	16	50	1.15

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.012	h5

◎: Excellent ○: Good

ISO	P								M				K							
Material Description	Non-alloy steel			Low alloy steel					High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	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
Recommend						○														

ISO	N				S							T									
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	60	100	75	90	130	110	90	100			15	30	25	38	34		55	60	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
Recommend																		◎	◎	○	◎



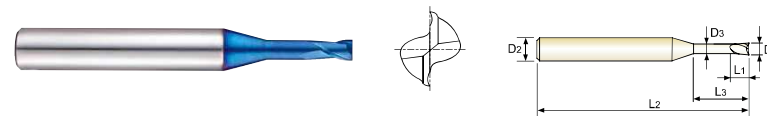
PLAIN SHANK **G8A45** SERIES

**CARBIDE, 2 FLUTE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
- (1) Fraise carbure, 2 dents pour usinage de rainure
- (2) 2 TAGLIANTI PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A45015	1.5	4	2.3	6	45	1.45
G8A45923	1.5	4	2.3	8	45	1.45
G8A45924	1.5	4	2.3	10	45	1.45
G8A45925	1.5	4	2.3	12	45	1.45
G8A45926	1.5	4	2.3	14	50	1.45
G8A45927	1.5	4	2.3	16	50	1.45
G8A45928	1.5	4	2.3	18	55	1.45
G8A45810	1.5	4	2.3	20	55	1.45
G8A45958	2.0	4	3.0	6	45	1.95
G8A45020	2.0	4	3.0	8	45	1.95
G8A45959	2.0	4	3.0	10	45	1.95
G8A45960	2.0	4	3.0	12	45	1.95
G8A45961	2.0	4	3.0	14	50	1.95
G8A45962	2.0	4	3.0	16	50	1.95
G8A45963	2.0	4	3.0	18	55	1.95
G8A45964	2.0	4	3.0	20	55	1.95
G8A45966	2.0	4	3.0	25	60	1.95
G8A45814	2.0	4	3.0	30	70	1.95
G8A45975	3.0	6	4.5	10	45	2.85
G8A45976	3.0	6	4.5	12	45	2.85
G8A45977	3.0	6	4.5	14	50	2.85
G8A45978	3.0	6	4.5	16	55	2.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool. ▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.012	h5

◎: Excellent ○: Good

ISO	P								M				K							
Material Description	Non-alloy steel			Low alloy steel					High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	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
Recommend						○														

ISO	N				S							T									
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	60	100	75	90	130	110	90	100			15	30	25	38	34		55	60	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
Recommend																		◎	◎	○	◎



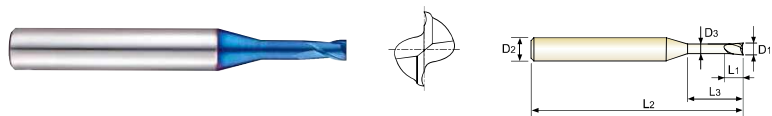
PLAIN SHANK **G8A45** SERIES

**CARBIDE, 2 FLUTE for RIB PROCESSING**

- VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
- (1) Fraise carbure, 2 dents pour usinage de rainure
- (2) 2 TAGLIANTI PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut		Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L3	L2	D3
G8A45979	3.0	6	4.5	18	18	55	2.85
G8A45980	3.0	6	4.5	20	20	60	2.85
G8A45981	3.0	6	4.5	25	25	65	2.85
G8A45832	3.0	6	4.5	30	30	70	2.85
G8A45833	3.0	6	4.5	35	35	80	2.85
G8A45983	3.0	6	4.5	40	40	90	2.85
G8A45040	4.0	6	6	12	12	50	3.85
G8A45801	4.0	6	6	16	16	60	3.85
G8A45802	4.0	6	6	20	20	60	3.85
G8A45803	4.0	6	6	25	25	70	3.85
G8A45834	4.0	6	6	30	30	70	3.85
G8A45835	4.0	6	6	35	35	80	3.85
G8A45836	4.0	6	6	40	40	90	3.85
G8A45837	4.0	6	6	45	45	90	3.85
G8A45838	4.0	6	6	50	50	100	3.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.012	h5

◎ : Excellent ○ : Good

ISO	P								M				K								
Material Description	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	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					T										
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	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
HB	60	100	75	90	130	110	90	100													
Recommend																					



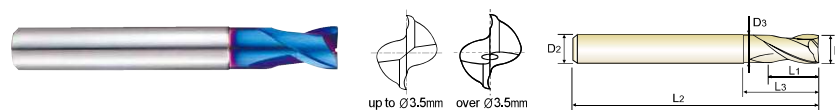
PLAIN SHANK **G8A01** SERIES

**CARBIDE, 2 FLUTE with EXTENDED NECK**

- VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL
- (1) Fraise carbure, 2 dents, détalonné
- (2) 2 TAGLIANTI CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut		Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L3	L2	D3
G8A01001	0.1	4	0.2	-	-	40	-
G8A01002	0.2	4	0.4	-	-	40	-
G8A01003	0.3	4	0.6	-	-	40	-
G8A01004	0.4	4	0.8	-	-	40	-
G8A01005	0.5	4	1	-	-	40	-
G8A01006	0.6	4	1.2	-	-	40	-
G8A01007	0.7	4	1.4	-	-	40	-
G8A01008	0.8	4	1.6	-	-	40	-
G8A01009	0.9	4	2	-	-	40	-
G8A010104S	1.0	4	1.5	3	3	50	0.95
G8A01010	1.0	6	1.5	3	3	50	0.95
G8A010154S	1.5	4	1.7	4	4	50	1.45
G8A01015	1.5	6	1.7	4	4	50	1.45
G8A010204S	2.0	4	2	5	5	50	1.95
G8A01020	2.0	6	2	5	5	50	1.95
G8A010254S	2.5	4	2.5	6	6	55	2.4
G8A01025	2.5	6	2.5	6	6	55	2.4
G8A01030	3.0	6	3	8	8	55	2.85
G8A01035	3.5	6	3.5	9	9	55	3.35
G8A01040	4.0	6	4	10	10	55	3.85
G8A01050	5.0	6	5	13	13	55	4.85
G8A01060	6.0	6	6	15	15	55	5.85
G8A01080	8.0	8	8	20	20	65	7.7
G8A01100	10.0	10	10	25	25	75	9.7
G8A01120	12.0	12	12	28	28	85	11.7
G8A01160	16.0	16	16	32	32	90	15.7
G8A01200	20.0	20	20	40	40	105	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

◎ : Excellent ○ : Good

ISO	P								M				K								
Material Description	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	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					T										
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	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
HB	60	100	75	90	130	110	90	100													
Recommend																					

# YG X5070 END MILLS

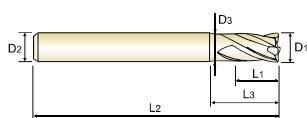
PLAIN SHANK **G8A02** SERIES

## CARBIDE, 4 FLUTE with EXTENDED NECK

- VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL
- (1) Fraise carbure, 4 dents, détalonnée
- (1) 4 TAGLIANTI CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Exzellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut		Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L3	L2	D3
G8A02010	1.0	6	1.5	3	3	50	0.95
G8A02020	2.0	6	2	5	5	50	1.95
G8A02030	3.0	6	3	8	8	55	2.85
G8A02040	4.0	6	4	10	10	55	3.85
G8A02050	5.0	6	5	13	13	55	4.85
G8A02060	6.0	6	6	15	15	55	5.85
G8A02080	8.0	8	8	20	20	65	7.7
G8A02100	10.0	10	10	25	25	75	9.7
G8A02120	12.0	12	12	28	28	85	11.7
G8A02160	16.0	16	16	32	32	90	15.7
G8A02200	20.0	20	20	40	40	105	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

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

◎ : Excellent ○ : Good

ISO	P								M				K							
Material Description	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	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	19	21	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				T								
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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	550	550
Recommend																					

# YG X5070 END MILLS

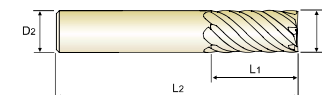
PLAIN SHANK **G8D63** SERIES

## CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH

- VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG
- (1) Fraise carbure, 6&8 dents, hélice 45°, longue
- (1) 6&8 TAGLIANTI, ELICA 45°, TAGLIENTE LUNGO

- ▶ Designed to machine high hardened materials.
- ▶ Designed for high abrasion resistance thanks to negative rake angle.
- ▶ Excellent side-cutting of press mold field.

- ▶ Speziell ausgelegt für die Hartbearbeitung
- ▶ Ausgelegt für hohe Abriebfestigkeit dank der negativen Spanwinkel.
- ▶ hervorragend geeignet für die Seitenbearbeitung im Formenbau

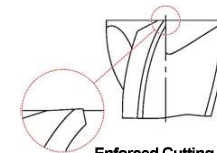


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	D1	D2	L1	L2	
G8D63060	6.0	6	13	57	6
G8D63080	8.0	8	19	63	6
G8D63100	10.0	10	22	72	6
G8D63120	12.0	12	26	83	6
G8D63140	14.0	14	26	83	6
G8D63160	16.0	16	32	92	6
G8D63180	18.0	18	32	92	8
G8D63200	20.0	20	38	104	8
G8D63250	25.0	25	44	104	8

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P								M				K							
Material Description	Non-alloy steel				Low alloy steel				High alloyed steel and tool steel				Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	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	19	21	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				T								
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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	550	550
Recommend																					

# YG X5070 END MILLS

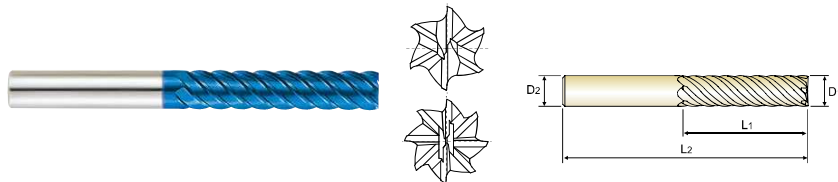
PLAIN SHANK **G8D64** SERIES

## CARBIDE, 6&8 FLUTE 45° HELIX EXTRA LONG LENGTH

- VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG
- ( ) Fraise carbure, 6&8 dents, hélice 45°, extra-longue
- ( ) 6&8 TAGLIANTI, ELICA 45°, TAGLIENTE EXTRA LUNGO

- ▶ Designed to machine high hardened materials.
- ▶ Designed for high abrasion resistance thanks to negative rake angle.
- ▶ Excellent side-cutting of press mold field.

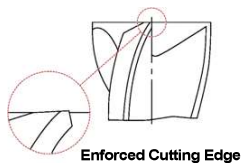
- ▶ Speziell ausgelegt für die Hartbearbeitung
- ▶ Ausgelegt für hohe Abriebfestigkeit dank der negativen Spanwinkel.
- ▶ Hervorragend geeignet für die Seitenbearbeitung im Formenbau



EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	D1	D2	L1	L2	
G8D64060	6.0	6	26	70	6
G8D64080	8.0	8	36	90	6
G8D64100	10.0	10	46	100	6
G8D64120	12.0	12	56	110	6
G8D64160	16.0	16	66	130	6
G8D64200	20.0	20	76	140	8
G8D64250	25.0	25	92	180	8

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniform. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h5



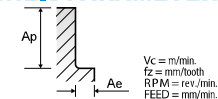
ISO	P										M					K									
	Non-alloy steel					Low alloy steel					High alloyed steel and tool steel					Stainless steel		Grey cast iron		Nodular cast iron	Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HRc	13	25	28	32	30	10	29	32	38	15	35	15	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					
Recommend																									

# YG X5070 END MILLS

## RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDPARAMETER

### G8B59, G8B54 SERIES

4 FLUTE CORNER RADIUS - SIDE CUTTING



ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0			
P	5	Non-alloy steel	0.3D	0.1R	Vc	180	205	215	235	255	250	250	250	250	250	250	
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925	0.925	0.925	0.925
					RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974	4974	4974	4974
					FEED	14782	15835	17588	17953	18561	18422	18398	18595	18402	18402	18402	18402
					Vc	180	205	215	235	255	250	250	250	250	250	250	250
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925	0.925	0.925	0.925
	8-9	Low alloy steel	0.3D	0.1R	Vc	28648	21751	17109	14961	13528	9947	7958	6631	4974	4974	4974	
					fz	14782	15835	17588	17953	18561	18422	18398	18595	18402	18402	18402	
					RPM	180	205	215	235	255	250	250	250	250	250	250	250
					FEED	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925	0.925	0.925	0.925
					Vc	28648	21751	17109	14961	13528	9947	7958	6631	4974	4974	4974	4974
					fz	14782	15835	17588	17953	18561	18422	18398	18595	18402	18402	18402	18402
H	38.1	High alloyed steel, and tool steel	0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195	195	195	
					fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897	0.897	0.897	
					RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879	3879	3879	
					FEED	9893	9982	12132	12656	13963	13942	13929	14006	13919	13919	13919	
					Vc	140	160	165	175	200	200	200	200	195	195	195	
					fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897	0.897	0.897	
	38.2	Hardened steel	0.3D	0.1R	Vc	95	200	140	155	170	170	170	170	170	170		
					fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833	0.833	0.833	
					RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283	3283	3283	
					FEED	7923	13581	9314	9868	11039	10931	11017	11021	10938	10938	10938	
					Vc	95	200	140	155	170	170	170	170	170	170	170	
					fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833	0.833	0.833	
39.1	Chilled Cast Iron	0.3D	0.1R	Vc	101	121	172	214	225	349	447	547	729	729			
				fz	1141	9549	7958	7003	6366	4775	3820	3183	2387	2387	2387		
				RPM	4501	4622	5475	5994	6366	6665	6830	6965	6965	6965	6965		
				FEED	55	65	70	75	85	85	85	85	85	85	85		
				Vc	101	121	172	214	225	349	447	547	729	729	729		
				fz	1141	9549	7958	7003	6366	4775	3820	3183	2387	2387	2387		
39.2	Hardened Cast Iron	0.3D	0.05R	Vc	55	65	70	75	85	85	85	85	85	85			
				fz	0.07	0.091	0.129	0.158	0.2	0.301	0.352	0.4	0.5	0.5	0.5		
				RPM	8754	6897	5570	4775	4509	3382	2706	2255	1691	1691	1691		
				FEED	2451	2510	2874	3018	3608	4072	3810	3608	3382	3382	3382		
				Vc	140	160	165	175	200	200	200	200	195	195	195		
				fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897	0.897	0.897		

### NORMAL SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0		
P	5	Non-alloy steel	0.5D	0.2R	Vc	85	90	100	100	110	110	110	110	110	110	110
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	0.869	0.869
					RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188	2188	2188
					FEED	6494	6494	7003	7156	7703	7703	7647	7691	7607	7607	7607
					Vc	85	90	100	100	110	110	110	110	110	110	110
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	0.869	0.869
	8-9	Low alloy steel	0.5D	0.2R	Vc	13528	9549	7958	6366	5836	4377	3501	2918	2188	2188	
					fz	6494	6494	7003	7156	7703	7703	7647	7691	7607	7607	7607
					RPM	85	90	100	100	110	110	110	110	110	110	110
					FEED	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	0.869	0.869
					Vc	85	90	100	100	110	110	110	110	110	110	110
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	0.869	0.869
H	38.1	High alloyed steel, and tool steel	0.5D	0.2R	Vc	13528	9549	7958	6366	5836	4377	3501	2918	2188	2188	
					fz	6494	6494	7003	7156	7703	7703	7647	7691	7607	7607	7607
					RPM	60	65	70	75	75	75	75	75	75	75	75
					FEED	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79	0.79	0.79
					Vc	60	65	70	75	75	75	75	75	75	75	75
					fz	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79	0.79	0.79
	38.2	Hardened steel	0.5D	0.2R	Vc	35	45	50	55	55	55	55	55	55	55	
					fz	0.1	0.151	0.2	0.235	0.302	0.398	0.5	0.603	0.795	0.795	0.795
					RPM	5570	4775	3979	3501	2918	2188	1751	1459	1094	1094	1094
					FEED	2228	2884	3183	3291	3525	3484	3501	3519	3480	3480	3480
					Vc	35	45	50	55	55	55	55	55	55	55	55
					fz	0.1	0.151	0.2	0.235	0.302	0.398	0.5	0.603	0.795	0.795	0.795
39.1	Chilled Cast Iron	0.5D	0.1R	Vc	20	25	30	35	35	35	35	35	35	35		
				fz	0.078	0.101	0.132	0.182	0.25	0.33	0.42	0.5	0.661	0.661	0.661	
				RPM	3183	2653	2387	2228	1857	1393	1114	928	696	696	696	
				FEED	993	1072	1261	1622	1837	1837	1822	1857	1841	1841	1841	
				Vc	15	20	20	25	25	25	25	25	25	25	25	
				fz	0.063	0.08	0.1	0.117	0.147	0.2	0.25	0.299	0.398	0.398	0.398	
39.2	Hardened Cast Iron	0.5D	0.1R	Vc	2387	2122	1592	1592	1326	995	796	663	497	497		
				fz	602	679	637	745	780	796	796	793	792	792	792	
				RPM	60	65	70	75	75	75	75	75	75	75	75	
				FEED	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79	0.79	0.79	
				Vc	60	65	70	75	75	75	75	75	75	75	75	
				fz	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79	0.79	0.79	
41	Hardened Cast Iron	0.5D	0.2R	Vc	35	45	50	55	55	55	55	55	55	55		
				fz	0.1	0.151	0.2	0.235	0.302	0.398	0.5	0.603	0.795	0.795	0.795	
				RPM	5570	4775	3979	3501	2918	2188	1751	1459	1094	1094	1094	
				FEED	2228	2884	3183	3291	3525	3484	3501	3519	3480	3480	3480	
				Vc	35	45</										





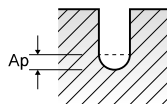
RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

G8A46, G8A54 SERIES 2 FLUTE BALL NOSE FOR RIB PROCESSING

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

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)				
				0.2	0.3	0.4	0.5	0.6
P	5	Non-alloy steel	Vc	31	45-47	60-63	50-55	50-56
			fz	0.003-0.004	0.005-0.005	0.007-0.008	0.006-0.013	0.007-0.015
			RPM	5000	4800-5000	4800-5000	31900-35200	26400-29700
			FEED	265-310	440-460	450-550	450-540	440-540
			Ap	0.006-0.016	0.010-0.017	0.013-0.032	0.007-0.028	0.007-0.034
			Ap	0.006-0.016	0.010-0.017	0.013-0.032	0.007-0.028	0.007-0.034
	8-9	Low alloy steel	Vc	31	45-47	60-63	54-78	54-77
			fz	0.003-0.004	0.005-0.005	0.007-0.008	0.006-0.013	0.007-0.015
			RPM	5000	4800-5000	4800-5000	34100-49500	28600-40700
			FEED	300-350	480-520	720-790	600-870	590-850
			Ap	0.006-0.016	0.010-0.017	0.013-0.032	0.007-0.028	0.007-0.034
			Ap	0.006-0.016	0.010-0.017	0.013-0.032	0.007-0.028	0.007-0.034
11.1 - 11.2	High alloyed steel, and tool steel	Vc	31	45-47	60-63	54-78	54-77	
		fz	0.003-0.004	0.005-0.005	0.007-0.008	0.006-0.013	0.007-0.015	
		RPM	5000	4800-5000	4800-5000	34100-49500	28600-40700	
		FEED	300-350	480-520	720-790	600-870	590-850	
		Ap	0.006-0.016	0.010-0.017	0.013-0.032	0.007-0.028	0.007-0.034	
		Ap	0.006-0.016	0.010-0.017	0.013-0.032	0.007-0.028	0.007-0.034	
H	38.1 - 38.2	Titanium-POWER END MILLS	Vc	31	45-47	60-63	50-55	50-56
			fz	0.003-0.003	0.004-0.005	0.005-0.006	0.006-0.008	0.007-0.010
			RPM	5000	4800-5000	4800-5000	31900-35200	26400-29700
			FEED	265-310	440-460	450-550	440-540	440-540
			Ap	0.005-0.013	0.008-0.014	0.011-0.026	0.005-0.023	0.006-0.028
			Ap	0.005-0.013	0.008-0.014	0.011-0.026	0.005-0.023	0.006-0.028
	39.1	Hardened steel	Vc	31	43-47	58-63	50-55	50-56
			fz	0.009-0.011	0.017-0.017	0.017-0.018	0.028-0.027	0.030-0.032
			RPM	5000	4600-5000	4600-5000	31900-35200	26400-29700
			FEED	225-265	390-420	400-460	440-480	400-480
			Ap	0.005-0.012	0.007-0.013	0.010-0.024	0.005-0.021	0.006-0.025
			Ap	0.005-0.012	0.007-0.013	0.010-0.024	0.005-0.021	0.006-0.025
	39.2	Hardened steel	Vc	31	43-47	58-63	50-55	50-56
			fz	0.009-0.011	0.017-0.017	0.017-0.018	0.028-0.027	0.030-0.032
			RPM	5000	4600-5000	4600-5000	31900-35200	26400-29700
			FEED	225-265	390-420	400-460	440-480	400-480
			Ap	0.005-0.012	0.007-0.013	0.010-0.024	0.005-0.021	0.006-0.025
			Ap	0.005-0.012	0.007-0.013	0.010-0.024	0.005-0.021	0.006-0.025
	40	Chilled Cast Iron	Vc	31	45-47	60-63	54-78	54-77
			fz	0.003-0.004	0.005-0.005	0.007-0.008	0.006-0.013	0.007-0.015
			RPM	5000	4800-5000	4800-5000	34100-49500	28600-40700
			FEED	300-350	480-520	720-790	600-870	590-850
			Ap	0.006-0.016	0.010-0.017	0.013-0.032	0.007-0.028	0.007-0.034
			Ap	0.006-0.016	0.010-0.017	0.013-0.032	0.007-0.028	0.007-0.034
41	Hardened Cast Iron	Vc	31	45-47	60-63	50-55	50-56	
		fz	0.003-0.003	0.004-0.005	0.005-0.006	0.006-0.008	0.007-0.010	
		RPM	5000	4800-5000	4800-5000	31900-35200	26400-29700	
		FEED	265-310	440-460	450-550	450-540	440-540	
		Ap	0.005-0.013	0.008-0.014	0.011-0.026	0.005-0.023	0.006-0.028	
		Ap	0.005-0.013	0.008-0.014	0.011-0.026	0.005-0.023	0.006-0.028	

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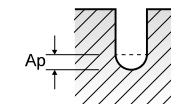


RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

G8A46, G8A54 SERIES 2 FLUTE BALL NOSE FOR RIB PROCESSING

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

VDI 3323	Parameter	Diameter (Ø)							
		0.8	1.0	1.2	1.5	2.0	3.0	4.0	
5	Vc	50-55	48-55	45-53	47-54	50-55	50-55	50-55	
	fz	0.010-0.020	0.012-0.024	0.016-0.027	0.020-0.035	0.027-0.047	0.045-0.088	0.055-0.115	
	RPM	19800-22000	15400-17600	12000-14000	10000-11500	7900-8800	5300-5800	3950-4400	
	FEED	460-550	470-540	460-540	440-540	470-530	590-650	550-620	
	Ap	0.016-0.064	0.008-0.080	0.024-0.032	0.031-0.048	0.024-0.160	0.064-0.240	0.080-0.320	
	Ap	0.016-0.064	0.008-0.080	0.024-0.032	0.031-0.048	0.024-0.160	0.064-0.240	0.080-0.320	
8-9	Vc	55-77	55-76	54-70	52-67	53-69	54-77	54-78	
	fz	0.010-0.020	0.012-0.024	0.016-0.027	0.020-0.035	0.027-0.047	0.045-0.088	0.055-0.115	
	RPM	22000-30800	17600-24200	14300-18700	11000-14300	8500-11000	5700-8200	4300-6200	
	FEED	640-890	600-850	590-780	580-760	590-800	730-1000	680-990	
	Ap	0.016-0.064	0.008-0.080	0.024-0.032	0.031-0.048	0.024-0.160	0.064-0.240	0.080-0.320	
	Ap	0.016-0.064	0.008-0.080	0.024-0.032	0.031-0.048	0.024-0.160	0.064-0.240	0.080-0.320	
11.1 - 11.2	Vc	55-77	55-76	54-70	52-67	53-69	54-77	54-78	
	fz	0.010-0.020	0.012-0.024	0.016-0.027	0.020-0.035	0.027-0.047	0.045-0.088	0.055-0.115	
	RPM	22000-30800	17600-24200	14300-18700	11000-14300	8500-11000	5700-8200	4300-6200	
	FEED	640-890	600-850	590-780	580-760	590-800	730-1000	680-990	
	Ap	0.016-0.064	0.008-0.080	0.024-0.032	0.031-0.048	0.024-0.160	0.064-0.240	0.080-0.320	
	Ap	0.016-0.064	0.008-0.080	0.024-0.032	0.031-0.048	0.024-0.160	0.064-0.240	0.080-0.320	
38.1 - 38.2	Vc	50-55	48-55	45-53	47-54	50-55	50-55	50-55	
	fz	0.010-0.014	0.013-0.018	0.016-0.023	0.019-0.027	0.027-0.034	0.051-0.061	0.063-0.078	
	RPM	19800-22000	15400-17600	12000-14000	10000-11500	7900-8800	5300-5800	3950-4400	
	FEED	460-550	470-540	460-540	440-540	470-530	590-650	550-620	
	Ap	0.013-0.052	0.007-0.065	0.020-0.026	0.025-0.039	0.020-0.130	0.052-0.195	0.065-0.260	
	Ap	0.013-0.052	0.007-0.065	0.020-0.026	0.025-0.039	0.020-0.130	0.052-0.195	0.065-0.260	
39.1	Vc	50-55	48-55	45-53	47-54	50-55	50-55	48-55	
	fz	0.044-0.045	0.057-0.057	0.070-0.069	0.084-0.083	0.111-0.109	0.208-0.214	0.275-0.259	
	RPM	19800-22000	15400-17600	12000-14000	10000-11500	7900-8800	5300-5800	3850-4400	
	FEED	440-500	440-500	420-480	420-480	440-480	550-620	530-570	
	Ap	0.012-0.048	0.006-0.060	0.018-0.024	0.023-0.036	0.018-0.120	0.048-0.120	0.060-0.240	
	Ap	0.012-0.048	0.006-0.060	0.018-0.024	0.023-0.036	0.018-0.120	0.048-0.120	0.060-0.240	
39.2	Vc	50-55	48-55	45-53	47-54	50-55	50-55	48-55	
	fz	0.044-0.045	0.057-0.057	0.070-0.069	0.084-0.083	0.111-0.109	0.208-0.214	0.275-0.259	
	RPM	19800-22000	15400-17600	12000-14000	10000-11500	7900-8800	5300-5800	3850-4400	
	FEED	440-500	440-500	420-480	420-480	440-480	550-620	530-570	
	Ap	0.012-0.048	0.006-0.060	0.018-0.024	0.023-0.036	0.018-0.120	0.048-0.120	0.060-0.240	
	Ap	0.012-0.048	0.006-0.060	0.018-0.024	0.023-0.036	0.018-0.120	0.048-0.120	0.060-0.240	
40	Vc	55-77	55-76	54-70	52-67	53-69	54-77	54-78	
	fz	0.010-0.020	0.012-0.024	0.016-0.027	0.020-0.035	0.027-0.047	0.045-0.088	0.055-0.115	
	RPM	22000-30800	17600-24200	14300-18700	11000-14300	8500-11000	5700-8200	4300-6200	
	FEED	640-890	600-850	590-780	580-760	590-800	730-1000	680-990	
	Ap	0.016-0.064	0.008-0.080	0.024-0.032	0.031-0.048	0.024-0.160	0.064-0.240	0.080-0.320	
	Ap	0.016-0.064	0.008-0.080	0.024-0.032	0.031-0.048	0.024-0.160	0.064-0.240	0.080-0.320	
41	Vc	50-55	48-55	45-53	47-54	50-55	50-55	50-55	
	fz	0.010-0.014	0.013-0.018	0.016-0.023	0.019-0.027	0.027-0.034	0.051-0.061	0.063-0.078	
	RPM	19800-22000	15400-17600	12000-14000	10000-11500	7900-8800	5300-5800	3950-4400	
	FEED	460-550	470-540	460-540	440-540	470-530	590-650	550-620	
	Ap	0.013-0.052	0.007-0.065	0.020-0.026	0.025-0.039	0.020-0.130	0.052-0.195	0.065-0.260	
	Ap	0.013-0.052	0.007-0.065	0.020-0.026	0.025-0.039	0.020-0.130	0.052-0.195	0.065-0.260	



**YG X5070 END MILLS**

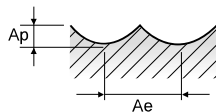
**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A28, G8A38, G8A53 SERIES 2 FLUTE BALL NOSE**

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																															
						0.2	0.3	0.4	0.5	0.6	0.8	1.0																									
P	5	Non-alloy steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155	fz	0.012	0.015	0.019	0.024	0.029	0.039	0.048	RPM	47746	47746	51725	50930	50399	49736	49338	FEED	1146	1432	1966	2445	2923	3879	4736	
					Vc	30	45	65	80	95	125	155	fz	0.012	0.015	0.019	0.024	0.029	0.039	0.048	RPM	47746	47746	51725	50930	50399	49736	49338	FEED	1146	1432	1966	2445	2923	3879	4736	
					Vc	30	45	65	80	95	125	155	fz	0.012	0.015	0.019	0.024	0.029	0.039	0.048	RPM	47746	47746	51725	50930	50399	49736	49338	FEED	1146	1432	1966	2445	2923	3879	4736	
					Vc	30	45	65	80	95	125	155	fz	0.011	0.014	0.017	0.021	0.025	0.033	0.042	RPM	47746	47746	51725	50930	50399	49736	49338	FEED	1050	1337	1759	2139	2520	3283	4144	
					Vc	30	45	65	80	95	125	155	fz	0.011	0.013	0.017	0.021	0.025	0.033	0.042	RPM	47746	42441	43768	44563	45757	44563	4042	FEED	1050	1103	1488	1872	2165	3020	3743	
					Vc	25	40	50	65	75	100	125	fz	0.01	0.012	0.015	0.019	0.023	0.03	0.038	RPM	39789	42441	43768	44563	45757	44563	4042	FEED	796	1019	1194	1572	1830	2387	3024	
	H	39.1	Hardened steel	0.05D	0.02D	Vc	20	35	45	55	65	90	110	fz	0.01	0.012	0.015	0.019	0.023	0.03	0.037	RPM	31831	37136	35810	35014	34484	35810	35014	FEED	637	891	1074	1331	1586	2149	2591
						Vc	20	30	40	50	60	80	110	fz	0.009	0.011	0.014	0.017	0.022	0.029	0.033	RPM	31831	31831	31831	31831	31831	31831	35014	FEED	573	700	891	1082	1401	1846	2311
						Vc	20	30	40	50	60	80	110	fz	0.011	0.014	0.017	0.021	0.025	0.033	0.042	RPM	47746	47746	51725	50930	50399	49736	49338	FEED	1050	1337	1759	2139	2520	3283	4144
						Vc	30	40	55	70	85	115	140	fz	0.011	0.013	0.017	0.021	0.025	0.033	0.042	RPM	47746	47746	51725	50930	50399	49736	49338	FEED	1050	1337	1759	2139	2520	3283	4144
						Vc	30	40	55	70	85	115	140	fz	0.011	0.013	0.017	0.021	0.025	0.033	0.042	RPM	47746	47746	51725	50930	50399	49736	49338	FEED	1050	1337	1759	2139	2520	3283	4144
						Vc	30	40	55	70	85	115	140	fz	0.011	0.013	0.017	0.021	0.025	0.033	0.042	RPM	47746	47746	51725	50930	50399	49736	49338	FEED	1050	1337	1759	2139	2520	3283	4144

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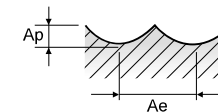
**YG X5070 END MILLS**

**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A28, G8A38, G8A53 SERIES 2 FLUTE BALL NOSE**

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

VDI 3323	Parameter	Diameter (Ø)																																																			
		1.2	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0																																								
5	Vc	190	235	310	310	315	290	260	280	290	260	280	280	280	fz	0.051	0.054	0.057	0.091	0.12	0.156	0.174	0.189	0.199	0.212	0.238	0.264	RPM	50399	49869	49338	32892	25067	18462	13793	11141	9231	6897	5570	4456	FEED	5141	5386	5625	5986	6016	5760	4800	4211	3674	2924	2652	2353
	Vc	190	235	310	310	315	290	260	280	290	260	280	280	280	fz	0.051	0.054	0.057	0.091	0.12	0.156	0.174	0.189	0.199	0.212	0.238	0.264	RPM	50399	49869	49338	32892	25067	18462	13793	11141	9231	6897	5570	4456	FEED	5141	5386	5625	5986	6016	5760	4800	4211	3674	2924	2652	2353
	Vc	190	235	310	310	315	290	260	280	290	260	280	280	280	fz	0.051	0.054	0.057	0.091	0.12	0.156	0.174	0.189	0.199	0.212	0.238	0.264	RPM	50399	49869	49338	32892	25067	18462	13793	11141	9231	6897	5570	4456	FEED	5141	5386	5625	5986	6016	5760	4800	4211	3674	2924	2652	2353
	Vc	180	225	300	300	300	280	255	270	280	250	270	270	270	fz	0.045	0.047	0.05	0.083	0.111	0.138	0.153	0.164	0.174	0.187	0.206	0.227	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951
	Vc	180	225	300	300	300	280	255	270	280	250	270	270	270	fz	0.045	0.047	0.05	0.083	0.111	0.138	0.153	0.164	0.174	0.187	0.206	0.227	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951
	Vc	160	205	250	250	250	235	205	225	235	210	225	225	225	fz	0.045	0.047	0.05	0.075	0.1	0.125	0.141	0.15	0.16	0.17	0.189	0.208	RPM	42441	43502	39789	26526	19894	14961	10876	8952	7480	5570	4476	3581	FEED	3820	4089	3979	3979	3740	3067	2686	2394	1894	1692	1490	
38.1	Vc	145	175	220	220	220	210	190	200	205	190	200	200	fz	0.039	0.042	0.045	0.067	0.09	0.113	0.125	0.134	0.144	0.155	0.169	0.188	RPM	38462	37136	35014	23343	17507	13369	10080	7958	6525	5040	3979	3183	FEED	3000	3119	3151	3128	3151	3021	2520	2133	1879	1562	1345	1197	
	Vc	130	155	200	200	200	180	165	175	180	165	175	175	fz	0.04	0.041	0.044	0.067	0.088	0.111	0.122	0.132	0.142	0.142	0.143	0.143	RPM	34484	32892	31831	21221	15915	11459	8754	6963	5730	4377	3482	2785	FEED	2759	2697	2801	2844	2801	2544	2136	1838	1627	1243	996	797	
	Vc	115	140	180	180	180	165	150	165	165	150	160	160	fz	0.038	0.039	0.04	0.061	0.079	0.1	0.109	0.119	0.13	0.131	0.133	0.129	RPM	30505	29709	28648	19099	14324	10504	7958	6565	5252	3979	3183	2546	FEED	2318	2317	2292	2330	2263	2101	1735	1562	1366	1042	847	657	
	Vc	180	225	300	300	300	280	255	270	280	250	270	270	fz	0.045	0.047	0.05	0.083	0.111	0.138	0.153	0.164	0.174	0.187	0.206	0.227	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951	
	Vc	160	205	250	250	250	235	205	225	235	210	225	225	fz	0.045	0.047	0.05	0.075	0.1	0.125	0.141	0.15	0.16	0.17	0.189	0.208	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951	
	Vc	160	205	250	250	250	235	205	225	235	210	225	225	fz	0.045	0.047	0.05	0.075	0.1	0.125	0.141	0.15	0.16	0.17	0.189	0.208	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951	



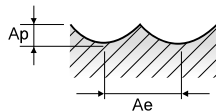


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**G8A59 SERIES 3 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	20.0																														
<b>P</b>	5	Non-alloy steel	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
					Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
					Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
	8-9	Low alloy steel	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
					Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
					Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
	11.1 - 11.2	High alloyed steel, and tool steel	0.05D	0.02D	Vc	255	255	265	285	285	285	285	285	285	fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613
					Vc	185	185	195	230	230	230	230	230	230	fz	0.072	0.087	0.099	0.123	0.144	0.156	0.173	0.18	0.18	RPM	19629	14722	12414	12202	9151	7321	6101	4576	3661	FEED	4240	3842	3687	4502	3953	3426	3166	2471	1977
					Vc	175	180	185	210	210	210	210	210	210	210	fz	0.072	0.086	0.099	0.115	0.134	0.144	0.145	0.144	0.145	RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263	FEED	4011	3696	3498	3844	3359	2888	2423	1805
	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	120	120	125	145	145	145	145	145	145	fz	0.072	0.087	0.099	0.108	0.125	0.144	0.144	0.144	0.143	RPM	12732	9549	7958	7692	5769	4615	3846	2885	2308	FEED	2750	2492	2363	2492	2164	1994	1662	1246	990
					Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
					Vc	255	255	265	285	285	285	285	285	285	fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613
39.1	Hardened steel	0.05D	0.02D	Vc	185	185	195	230	230	230	230	230	230	fz	0.072	0.087	0.099	0.123	0.144	0.156	0.173	0.18	0.18	RPM	19629	14722	12414	12202	9151	7321	6101	4576	3661	FEED	4240	3842	3687	4502	3953	3426	3166	2471	1977	
				Vc	175	180	185	210	210	210	210	210	210	fz	0.072	0.086	0.099	0.115	0.134	0.144	0.145	0.144	0.145	RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263	FEED	4011	3696	3498	3844	3359	2888	2423	1805	1419	
				Vc	120	120	125	145	145	145	145	145	145	fz	0.072	0.087	0.099	0.108	0.125	0.144	0.144	0.144	0.143	RPM	12732	9549	7958	7692	5769	4615	3846	2885	2308	FEED	2750	2492	2363	2492	2164	1994	1662	1246	990	
39.2	Hardened steel	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604	
				Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604	
				Vc	255	255	265	285	285	285	285	285	285	fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613	
39.3	Hardened steel	0.05D	0.02D	Vc	120	120	125	145	145	145	145	145	145	fz	0.072	0.087	0.099	0.108	0.125	0.144	0.144	0.144	0.143	RPM	12732	9549	7958	7692	5769	4615	3846	2885	2308	FEED	2750	2492	2363	2492	2164	1994	1662	1246	990	
				Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604	
				Vc	255	255	265	285	285	285	285	285	285	fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613	
40	Chilled Cast Iron	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604	
				Vc	300	305	315	340	340	340	340	335	340	fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222	RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411	FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604	
				Vc	255	255	265	285	285	285	285	285	285	fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613	
41	Hardened Cast Iron	0.05D	0.02D	Vc	255	255	265	285	285	285	285	285	285	fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613	
				Vc	255	255	265	285	285	285	285	285	285	fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613	
				Vc	255	255	265	285	285	285	285	285	285	fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192	RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536	FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613	



**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**G8D62 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	20.0																														
<b>P</b>	5	Non-alloy steel	0.05D	0.02D	Vc	340	340	340	340	340	340	340	340	340	fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144	RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411	FEED	10245	8658	7792	7287	6277	5541	5231	3896	3117
					Vc	340	340	340	340	340	340	340	340	340	fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144	RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411	FEED	10245	8658	7792	7287	6277	5541	5231	3896	3117
					Vc	3																																						

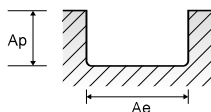


**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A60 SERIES 2 FLUTE CORNER RADIUS - SLOTTING**

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						0.5	0.6	0.8	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	5	Non-alloy steel	1.0D	0.05D	VC	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.001	0.002	0.002	0.006	0.01	0.015	0.021	0.026	0.029	0.037	0.043	0.051
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	102	202	199	573	668	653	702	811	754	736	671	676
	8-9	Low alloy steel	1.0D	0.05D	VC	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.001	0.002	0.002	0.006	0.01	0.015	0.021	0.026	0.029	0.037	0.043	0.051
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	102	202	199	573	668	653	702	811	754	736	671	676
	11.1	High alloyed steel, and tool steel	1.0D	0.05D	VC	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.001	0.002	0.002	0.006	0.01	0.015	0.021	0.026	0.029	0.037	0.043	0.051
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	102	202	199	573	668	653	702	811	754	736	671	676
11.2	High alloyed steel, and tool steel	1.0D	0.05D	VC	70	85	100	120	165	165	165	195	195	195	195	200	
				fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.044	0.051	
				RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305	
				FEED	89	180	159	458	525	560	551	646	621	574	546	541	
H	38.1		1.0D	0.05D	VC	70	85	100	120	165	165	165	195	195	195	195	200
					fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.044	0.051
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305
					FEED	89	180	159	458	525	560	551	646	621	574	546	541
	38.2		1.0D	0.05D	VC	65	75	75	80	110	110	130	130	130	130	130	
					fz	0.001	0.001	0.002	0.006	0.01	0.015	0.02	0.024	0.028	0.034	0.04	0.047
					RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448
					FEED	83	80	119	306	350	350	397	386	352	331	324	
	39.1	Hardened steel	1.0D	0.05D	VC	50	55	65	65	90	90	100	100	100	100	100	
					fz	0.001	0.001	0.001	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036
					RPM	31831	29178	25863	20690	14324	9549	7162	6366	5305	3979	3183	2653
					FEED	64	58	52	166	201	210	215	229	223	207	191	191
39.2		1.0D	0.05D	VC	40	45	50	50	70	70	80	80	80	80	80		
				fz	0.001	0.001	0.001	0.003	0.006	0.009	0.012	0.014	0.017	0.02	0.024	0.029	
				RPM	25465	23873	19894	15915	11141	7427	5570	5093	4244	3183	2546	2122	
				FEED	51	48	40	95	134	134	143	144	127	122	122	123	
39.3		1.0D	0.02D	VC	30	40	40	40	60	60	60	70	70	70	70		
				fz	0.001	0.001	0.001	0.003	0.005	0.007	0.01	0.012	0.014	0.017	0.021	0.024	
				RPM	19099	21221	15915	12732	9549	6366	4775	4456	3714	2785	2228	1857	
				FEED	19	25	29	71	90	89	96	105	100	95	91	90	
40	Chilled Cast Iron	1.0D	0.05D	VC	70	85	100	120	165	165	165	195	195	195	200		
				fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.044	0.051	
				RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305	
				FEED	89	180	159	458	525	560	551	646	621	574	546	541	
41	Hardened Cast Iron	1.0D	0.05D	VC	65	75	75	80	110	110	130	130	130	130	130		
				fz	0.001	0.001	0.002	0.006	0.01	0.015	0.02	0.024	0.028	0.034	0.04	0.047	
				RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448	
				FEED	83	80	119	306	350	350	397	386	352	331	324		



**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A60 SERIES 2 FLUTE CORNER RADIUS - SIDE CUTTING**

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						0.5	0.6	0.8	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	5	Non-alloy steel	0.03D	1.0D	VC	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	204	302	298	859	936	957	1003	1154	1066	1054	967	955
	8-9	Low alloy steel	0.03D	1.0D	VC	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	204	302	298	859	936	957	1003	1154	1066	1054	967	955
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	VC	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	204	302	298	859	936	957	1003	1154	1066	1054	967	955
11.2	High alloyed steel, and tool steel	0.03D	1.0D	VC	70	85	100	120	165	165	165	195	195	195	195	200	
				fz	0.002	0.002	0.003	0.009	0.015	0.022	0.03	0.037	0.043	0.053	0.063	0.074	
				RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305	
				FEED	178	180	239	688	788	770	788	919	890	822	782	785	
H	38.1		0.03D	1.0D	VC	70	85	100	120	165	165	165	195	195	195	195	200
					fz	0.002	0.002	0.003	0.009	0.015	0.022	0.03	0.037	0.043	0.053	0.063	0.074
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305
					FEED	178	180	239	688	788	770	788	919	890	822	782	785
	38.2		0.03D	1.0D	VC	65	75	75	80	110	110	130	130	130	130	130	
					fz	0.002	0.002	0.003	0.008	0.014	0.021	0.028	0.034	0.04	0.049	0.058	0.067
					RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448
					FEED	166	159	179	407	490	490	490	563	552	507	480	462
	39.1	Hardened steel	0.03D	1.0D	VC	50	55	65	65	90	90	100	100	100	100	100	
					fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.043	0.051
					RPM	31831	29178	25863	20690	14324	9549	7162	6366	5305	3979	3183	2653
					FEED	64	58	52	166	201	210	215	229	223	207	191	191
39.2		0.03D	1.0D	VC	40	45	50	50	70	70	80	80	80	80	80		
				fz	0.001	0.001	0.002	0.005	0.008	0.012	0.014	0.017	0.02	0.024	0.029	0.034	
				RPM	25465	23873	19894	15915	11141	7427	5570	5093	4244	3183	2546	2122	
				FEED	51	48	40	95	134	134	143	144	127	122	122	123	
39.3		0.03D	1.0D	VC	30	40	40	40	60	60	60	70	70	70	70		
				fz	0.001	0.001	0.001	0.004	0.007	0.01	0.012	0.014	0.017	0.021	0.024	0.029	
				RPM	19099	21221	15915	12732	9549	6366	4775	4456	3714	2785	2228	1857	
				FEED	38	42	32	102	134	127	134	127	134	127	124	129	
40	Chilled Cast Iron	0.03D	1.0D	VC	70	85	100	120	165	165	165	195	195	195	200		
				fz	0.002	0.002	0.003	0.009	0.015	0.022	0.03	0.037	0.043	0.053	0.063	0.074	
				RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305	
				FEED	178	180	239	688	788	770	788	919	890	822	782	785	
41	Hardened Cast Iron	0.03D	1.0D	VC	65	75	75	80	110	110	130	130	130	130	130		
				fz	0.002	0.002	0.003	0.008	0.014	0.021	0.028	0.034					





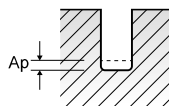
**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A52 SERIES**

**2 FLUTE CORNER RADIUS FOR RIB PROCESSING - SLOTTING**

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

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)						
				0.5	0.6	0.8	1.0	1.2	1.5	2.0
P	5	Non-alloy steel	Vc	40-52	39-66	41-66	39-59	39-66	43-83	40-66
			fz	0.006-0.009	0.005-0.013	0.007-0.018	0.009-0.022	0.010-0.028	0.012-0.046	0.016-0.045
			RPM	25650-33000	20900-35200	16150-26400	12300-18700	10450-17600	9100-17600	6350-10550
			FEED	370-470	330-560	360-590	350-540	350-590	430-830	340-570
			Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400
			Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400
	8-9	Low alloy steel	Vc	40-52	39-66	41-66	39-59	39-66	43-83	40-66
			fz	0.006-0.009	0.005-0.013	0.007-0.018	0.009-0.022	0.010-0.028	0.012-0.046	0.016-0.045
			RPM	25650-33000	20900-35200	16150-26400	12300-18700	10450-17600	9100-17600	6350-10550
			FEED	370-470	330-560	360-590	350-540	350-590	430-830	340-570
			Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400
			Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400
11.1 - 11.2	High alloyed steel, and tool steel	Vc	40-52	39-66	41-66	39-59	39-66	43-83	40-66	
		fz	0.006-0.009	0.005-0.013	0.007-0.018	0.009-0.022	0.010-0.028	0.012-0.046	0.016-0.045	
		RPM	25650-33000	20900-35200	16150-26400	12300-18700	10450-17600	9100-17600	6350-10550	
		FEED	370-470	330-560	360-590	350-540	350-590	430-830	340-570	
		Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400	
		Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400	
H	38.1 - 38.2	Hardened steel	Vc	37-41	38-41	38-42	33-36	34-38	33-38	38-42
			fz	0.005-0.007	0.004-0.007	0.006-0.010	0.008-0.013	0.009-0.015	0.011-0.020	0.015-0.025
			RPM	23750-26000	19900-22000	15200-16700	10500-11500	9100-10000	7000-8000	6100-6700
			FEED	285-315	190-290	210-310	190-280	180-280	200-300	200-300
			Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000
			Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000
	39.1 - 39.3	Hardened steel	Vc	22-28	22-29	23-29	20-25	20-26	20-26	23-30
			fz	0.016-0.014	0.017-0.015	0.024-0.021	0.032-0.029	0.037-0.033	0.047-0.042	0.056-0.051
			RPM	14200-18000	11900-15500	9000-11700	6300-8050	5400-7000	4300-5500	3600-4700
			FEED	115-130	100-120	110-125	100-115	100-115	100-120	100-120
			Ap	0.016-0.014	0.017-0.015	0.024-0.021	0.032-0.029	0.037-0.033	0.047-0.042	0.056-0.051
			Ap	0.016-0.014	0.017-0.015	0.024-0.021	0.032-0.029	0.037-0.033	0.047-0.042	0.056-0.051
40	Chilled Cast Iron	Vc	40-52	39-66	41-66	39-59	39-66	43-83	40-66	
		fz	0.006-0.009	0.005-0.013	0.007-0.018	0.009-0.022	0.010-0.028	0.012-0.046	0.016-0.045	
		RPM	25650-33000	20900-35200	16150-26400	12300-18700	10450-17600	9100-17600	6350-10550	
		FEED	370-470	330-560	360-590	350-540	350-590	430-830	340-570	
		Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400	
		Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400	
41	Hardened Cast Iron	Vc	37-41	38-41	38-42	33-36	34-38	33-38	38-42	
		fz	0.005-0.007	0.004-0.007	0.006-0.010	0.008-0.013	0.009-0.015	0.011-0.020	0.015-0.025	
		RPM	23750-26000	19900-22000	15200-16700	10500-11500	9100-10000	7000-8000	6100-6700	
		FEED	285-315	190-290	210-310	190-280	180-280	200-300	200-300	
		Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000	
		Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000	



**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A50 SERIES**

**2 FLUTE CORNER RADIUS - SLOTTING**

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.5	2.0
P	5	Non-alloy steel	1.0D	0.05D	Vc	45	65	80	95	125	150	160	175	210
					fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013
					RPM	47746	51725	50930	50399	49736	47746	42441	37136	33423
					FEED	191	207	407	504	597	764	764	817	869
					Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400		
					Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400		
	8-9	Low alloy steel	1.0D	0.05D	Vc	45	65	80	95	125	150	160	175	210
					fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013
					RPM	47746	51725	50930	50399	49736	47746	42441	37136	33423
					FEED	191	207	407	504	597	764	764	817	869
					Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400		
					Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400		
11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	45	65	80	95	125	150	160	175	210	
				fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013	
				RPM	47746	51725	50930	50399	49736	47746	42441	37136	33423	
				FEED	191	207	407	504	597	764	764	817	869	
				Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400			
				Ap	0.0056-0.0350	0.0063-0.0294	0.0084-0.0392	0.0105-0.0280	0.0245-0.0700	0.0161-0.0770	0.0210-0.1400			
11.2	High alloyed steel, and tool steel	1.0D	0.05D	Vc	40	55	70	85	100	120	130	145	165	
				fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013	
				RPM	42441	43768	44563	45094	39789	38197	34484	30770	26261	
				FEED	170	175	267	361	477	611	621	677	683	
				Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000			
				Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000			
H	38.1	Hardened steel	1.0D	0.05D	Vc	40	55	70	85	100	120	130	145	165
					fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013
					RPM	42441	43768	44563	45094	39789	38197	34484	30770	26261
					FEED	170	175	267	361	477	611	621	677	683
					Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000		
					Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000		
	38.2	Hardened steel	1.0D	0.05D	Vc	40	50	65	75	85	100	110	110	
					fz	0.001	0.002	0.003	0.004	0.005	0.007	0.008	0.01	0.012
					RPM	42441	39789	41380	39789	29842	25465	22547	21221	17507
					FEED	85	159	248	318	298	357	361	424	420
					Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000		
					Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000		
39.1	Hardened steel	1.0D	0.02D	Vc	30	40	50	55	65	75	80	90		
				fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007		
				RPM	31831	31831	31831	29178	25863	20690	19894	16977		
				FEED	64	64	127	175	207	239	238			
				Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000			
				Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000			
39.2	Hardened steel	1.0D	0.02D	Vc	25	30	40	45	50	55	60	70		
				fz	0.001	0.001	0.002	0.002	0.003	0.004	0.005	0.006		
				RPM	26526	23873	25465	23873	19894	15915	14589	12732		
				FEED	53	48	102	95	119	127	146			
				Ap	0.0040-0.0250	0.0450-0.0210	0.0060-0.0280	0.0075-0.0200	0.0150-0.0420	0.0115-0.0550	0.0150-0.1000			
				Ap										



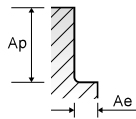
**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A47, G8B08 SERIES**

**4 FLUTE CORNER RADIUS - SIDE CUTTING**

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)														
						1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0				
P	5	Non-alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	245	245		
					fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067	0.074	0.081	0.087	
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	3104	2400	1915	1515
					FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045	915	782	678	591
	8-9	Low alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	245	245		
					fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067	0.074	0.081	0.087	
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	3104	2400	1915	1515
					FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045	915	782	678	591
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	245	245		
					fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067	0.074	0.081	0.087	
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	3104	2400	1915	1515
					FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045	915	782	678	591
11.2	High alloyed steel, and tool steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195	195	195	195		
				fz	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063	0.07	0.077	0.084	0.091	
				RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	2400	1915	1515	1215	
				FEED	917	1050	980	1050	1192	1117	1086	1018	1019	869	782	678	591	511	441	
H	38.1	Hardened steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195	195	195		
					fz	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063	0.07	0.077	0.084	0.091
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	2400	1915	1515	1215
					FEED	917	1050	980	1050	1192	1117	1086	1018	1019	869	782	678	591	511	441
	38.2	Hardened steel	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130	130	130	130	
					fz	0.006	0.01	0.015	0.02	0.024	0.028	0.035	0.041	0.048	0.056	0.063	0.07	0.077	0.084	0.091
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069	1615	1215	915	715
					FEED	611	700	700	700	794	772	724	679	662	579	521	463	405	347	289
	39.1	Hardened steel	0.03D	1.0D	Vc	65	90	90	90	100	100	100	100	100	100	100	100	100	100	
					fz	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036	0.042	0.048	0.054	0.06	0.066	0.072
					RPM	20690	14324	9549	7162	6366	5305	3979	3183	2653	1989	1592	1215	915	715	515
					FEED	331	401	420	430	458	446	414	382	382	334	306	278	250	222	194
39.2	Hardened steel	0.03D	1.0D	Vc	50	70	70	70	80	80	80	80	80	80	80	80	80	80		
				fz	0.003	0.006	0.009	0.012	0.015	0.017	0.021	0.024	0.029	0.034	0.038	0.043	0.047	0.051	0.055	
				RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273	1015	757	599	441	
				FEED	191	267	267	267	306	289	267	244	246	217	193	169	145	121	97	
39.3	Hardened steel	0.03D	1.0D	Vc	40	60	60	60	70	70	70	70	70	70	70	70	70	70		
				fz	0.003	0.005	0.007	0.01	0.012	0.014	0.017	0.02	0.024	0.029	0.033	0.038	0.043	0.047	0.051	
				RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114	835	657	521	405	
				FEED	153	191	178	191	214	208	189	178	178	162	147	131	115	100	85	
40	Chilled Cast Iron	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195	195	195	195		
				fz	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063	0.07	0.077	0.084	0.091	
				RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	2400	1915	1515	1215	
				FEED	917	1050	980	1050	1192	1117	1086	1018	1019	869	782	678	591	511	441	
41	Hardened Cast Iron	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130	130	130	130		
				fz	0.006	0.01	0.015	0.02	0.024	0.028	0.035	0.041	0.048	0.056	0.063	0.07	0.077	0.084	0.091	
				RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069	1615	1215	915	715	
				FEED	611	700	700	700	794	772	724	679	662	579	521	463	405	347	289	



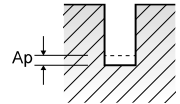
**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A45 SERIES**

**2 FLUTE for RIB PROCESSING - SLOTTING**

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

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)					
				0.2	0.3	0.4	0.5	0.6	0.8
P	5	Non-alloy steel	Vc	31	41-47	39-63	40-52	39-66	41-66
			fz	0.003-0.004	0.004-0.004	0.006-0.006	0.007-0.007	0.008-0.008	0.011-0.011
			RPM	50000	43000-50000	31400-50000	25650-33000	20900-35200	16150-26400
			FEED	300-350	330-420	350-590	270-470	330-560	360-590
	8-9	Low alloy steel	Vc	31	41-47	39-63	40-52	39-66	41-66
			fz	0.003-0.004	0.004-0.004	0.006-0.006	0.007-0.007	0.008-0.008	0.011-0.011
			RPM	50000	43000-50000	31400-50000	25650-33000	20900-35200	16150-26400
			FEED	300-350	330-420	350-590	270-470	330-560	360-590
	11.1 - 11.2	High alloyed steel, and tool steel	Vc	31	41-47	39-63	40-52	39-66	41-66
			fz	0.003-0.004	0.004-0.004	0.006-0.006	0.007-0.007	0.008-0.008	0.011-0.011
			RPM	50000	43000-50000	31400-50000	25650-33000	20900-35200	16150-26400
			FEED	300-350	330-420	350-590	270-470	330-560	360-590
H	38.1 - 38.2	Hardened steel	Vc	31	38-44	38-44	37-41	38-41	38-42
			fz	0.003-0.003	0.003-0.003	0.005-0.005	0.006-0.006	0.007-0.007	0.009-0.009
			RPM	50000	39900-46200	30500-35200	23750-26000	19900-22000	15200-16700
			FEED	265-310	265-310	295-340	285-315	260-290	280-310
	39.1 - 39.2	Hardened steel	Vc	31	23-30	23-31	22-28	22-29	23-29
			fz	0.002-0.002	0.002-0.003	0.003-0.004	0.004-0.004	0.004-0.004	0.006-0.005
			RPM	50000	23900-32300	18300-24600	14200-18000	11900-15500	9000-11700
			FEED	225-265	105-185	120-200	115-130	100-120	110-125
	40	Chilled Cast Iron	Vc	31	41-47	39-63	40-52	39-66	41-66
			fz	0.003-0.004	0.004-0.004	0.006-0.006	0.007-0.007	0.008-0.008	0.011-0.011
			RPM	50000	43000-50000	31400-50000	25650-33000	20900-35200	16150-26400
			FEED	300-350	330-420	350-590	270-470	330-560	360-590
41	Hardened Cast Iron	Vc	31	38-44	38-44	37-41	38-41	38-42	
		fz	0.003-0.003	0.003-0.003	0.005-0.005	0.006-0.006	0.007-0.007	0.009-0.009	
		RPM	50000	39900-46200	30500-35200	23750-26000	19900-22000	15200-16700	
		FEED	265-310	265-310	295-340	285-315	260-290	280-310	



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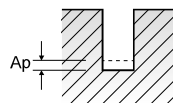
**YG X5070 END MILLS**

**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A45 SERIES 2 FLUTE for RIB PROCESSING - SLOTTING**

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

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)					
				1.0	1.2	1.5	2.0	3.0	4.0
P	5	Non-alloy steel	Vc	39-59	39-66	43-83	40-66	41-66	40-67
			fz	0.014-0.014	0.017-0.017	0.024-0.024	0.027-0.027	0.064-0.064	0.063-0.064
			RPM	12300-18700	10450-17600	9100-17600	6350-10550	4300-7050	3200-5300
			FEED	350-540	350-590	430-830	340-570	550-900	400-675
			Ap	0.011-0.028	0.025-0.070	0.017-0.077	0.021-0.140	0.056-0.210	0.074-0.280
			Ap	0.011-0.028	0.025-0.070	0.017-0.077	0.021-0.140	0.056-0.210	0.074-0.280
	8-9	Low alloy steel	Vc	39-59	39-66	43-83	40-66	41-66	40-67
			fz	0.014-0.014	0.017-0.017	0.024-0.024	0.027-0.027	0.064-0.064	0.063-0.064
			RPM	12300-18700	10450-17600	9100-17600	6350-10550	4300-7050	3200-5300
			FEED	350-540	350-590	430-830	340-570	550-900	400-675
			Ap	0.011-0.028	0.025-0.070	0.017-0.077	0.021-0.140	0.056-0.210	0.074-0.280
			Ap	0.011-0.028	0.025-0.070	0.017-0.077	0.021-0.140	0.056-0.210	0.074-0.280
H	11.1 - 11.2	High alloyed steel, and tool steel	Vc	39-59	39-66	43-83	40-66	41-66	40-67
			fz	0.014-0.014	0.017-0.017	0.024-0.024	0.027-0.027	0.064-0.064	0.063-0.064
			RPM	12300-18700	10450-17600	9100-17600	6350-10550	4300-7050	3200-5300
			FEED	350-540	350-590	430-830	340-570	550-900	400-675
			Ap	0.011-0.028	0.025-0.070	0.017-0.077	0.021-0.140	0.056-0.210	0.074-0.280
			Ap	0.011-0.028	0.025-0.070	0.017-0.077	0.021-0.140	0.056-0.210	0.074-0.280
	38.1 - 38.2	Hardened steel	Vc	33-36	34-38	33-38	38-42	38-43	38-43
			fz	0.012-0.012	0.014-0.014	0.018-0.018	0.022-0.022	0.056-0.056	0.056-0.056
			RPM	10500-11500	9100-10000	7000-8000	6100-6700	3990-4600	3000-3400
			FEED	250-280	250-280	250-280	270-300	445-515	335-380
			Ap	0.008-0.020	0.015-0.042	0.012-0.055	0.015-0.100	0.040-0.150	0.053-0.200
			Ap	0.008-0.020	0.015-0.042	0.012-0.055	0.015-0.100	0.040-0.150	0.053-0.200
39.1 - 39.2	Hardened steel	Vc	20-25	20-26	23-30	23-30	23-30	23-30	
		fz	0.008-0.007	0.009-0.008	0.012-0.01	0.014-0.013	0.022-0.048	0.021-0.048	
		RPM	6300-8050	5400-7000	4300-5500	3600-4700	2400-3200	1800-2400	
		FEED	100-115	100-115	100-115	100-120	105-310	75-230	
		Ap	0.005-0.012	0.009-0.026	0.007-0.033	0.009-0.060	0.024-0.090	0.032-0.120	
		Ap	0.005-0.012	0.009-0.026	0.007-0.033	0.009-0.060	0.024-0.090	0.032-0.120	
40	Chilled Cast Iron	Vc	39-59	39-66	43-83	40-66	41-66	40-67	
		fz	0.014-0.014	0.017-0.017	0.024-0.024	0.027-0.027	0.064-0.064	0.063-0.064	
		RPM	12300-18700	10450-17600	9100-17600	6350-10550	4300-7050	3200-5300	
		FEED	350-540	350-590	430-830	340-570	550-900	400-675	
		Ap	0.011-0.028	0.025-0.070	0.017-0.077	0.021-0.140	0.056-0.210	0.074-0.280	
		Ap	0.011-0.028	0.025-0.070	0.017-0.077	0.021-0.140	0.056-0.210	0.074-0.280	
41	Hardened Cast Iron	Vc	33-36	34-38	33-38	38-42	38-43	38-43	
		fz	0.012-0.012	0.014-0.014	0.018-0.018	0.022-0.022	0.056-0.056	0.056-0.056	
		RPM	10500-11500	9100-10000	7000-8000	6100-6700	3990-4600	3000-3400	
		FEED	250-280	250-280	250-280	270-300	445-515	335-380	
		Ap	0.008-0.020	0.015-0.042	0.012-0.055	0.015-0.100	0.040-0.150	0.053-0.200	
		Ap	0.008-0.020	0.015-0.042	0.012-0.055	0.015-0.100	0.040-0.150	0.053-0.200	



**YG X5070 END MILLS**

**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER**

**G8A01, G8A36 SERIES 2 FLUTE - SLOTTING**

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.0	2.0	
P	5	Non-alloy steel	1.0D	0.05D	Vc	30	45	65	80	95	125	140	150	210	
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013	
					RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423	
					FEED	95	191	207	407	504	597	693	955	869	
					Vc	30	45	65	80	95	125	140	150	210	
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013	
	8-9	Low alloy steel	1.0D	0.05D	RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423	
					FEED	95	191	207	407	504	597	693	955	869	
					Vc	30	45	65	80	95	125	140	150	210	
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013	
					RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423	
					FEED	95	191	207	407	504	597	693	955	869	
11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	30	45	65	80	95	125	140	150	210		
				fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013		
				RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423		
				FEED	95	191	207	407	504	597	693	955	869		
				Vc	30	45	65	80	95	125	140	150	210		
				fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013		
11.2	High alloyed steel, and tool steel	1.0D	0.05D	RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423		
				FEED	95	191	207	407	504	597	693	955	869		
				Vc	30	45	65	80	95	125	140	150	210		
				fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013		
				RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423		
				FEED	95	191	207	407	504	597	693	955	869		
H	38.1	Hardened steel	1.0D	0.05D	Vc	30	40	55	70	85	100	110	120	165	
					fz	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.013	
					RPM	47746	42441	43768	44563	45094	39789	38905	38197	26261	
					FEED	95	170	175	267	361	477	545	611	683	
					Vc	25	40	50	65	75	80	80	80	110	
					fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.012	
	38.2	Hardened steel	1.0D	0.05D	RPM	39789	42441	39789	41380	39789	29842	28294	25465	17507	
					FEED	80	85	159	248	318	298	340	357	420	
					Vc	20	30	40	50	55	65	65	65	90	
					fz	0.001	0.001	0.001	0.002	0.003	0.004	0.005	0.005	0.009	
					RPM	31831	31831	31831	31831	29178	25863	22989	20690	14324	
					FEED	64	64	64	127	175	207	230	207	258	
39.1	Hardened steel	1.0D	0.05D	Vc	20	25	30	40	45	50	50	50	70		
				fz	0.001	0.001	0.001	0.002	0.003	0.004	0.005	0.005	0.009		
				RPM	31831	31831	31831	31831	29178	25863	22989	20690	14324		
				FEED	64	64	64	127	175	207	230	207	258		
				Vc	20	25	30	40	45	50	50	50	70		
				fz	0.001	0.001	0.001	0.002	0.003	0.004	0.005	0.005	0.009		
39.2	Hardened steel	1.0D	0.05D	RPM	31831	26526	23873	25465	23873	19894	17684	15915	11141		
				FEED	64	53	48	102	95	119	141	127	156		
				Vc	15	20	25	30	40	40	40	40	60		
				fz	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.006		
				RPM	23873	21221	19894	19099	21221	15915	14147	12732	9549		
				FEED	29	38	40	57	81	83	91	87	116		
39.3	Hardened steel	1.0D	0.02D	Vc	15	20	25	30	40	40	40	40	60		
				fz	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.006		
				RPM	23873	21221	19894	19099	21221	15915	14147	12732	9549		
				FEED	29	38	40	57	81	83	91	87	116		
				Vc	30	40	55	70	85	100	110	120	165		
				fz	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.013		
40	Chilled Cast Iron	1.0D	0.05D	RPM	47746	42441	43768	44563	45094	39789	38905	38197	26261		
				FEED	95	170	175	267	361	477	545	611	683		
				Vc	25	40	50	65	75	80	80	80	110		
				fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.012		
				RPM	39789	42441	39789	41380	39789	29842	28294	25465	17507		
				FEED	80	85	159	248	318	298	340	357	420		
41	Hardened Cast Iron	1.0D	0.05D	Vc	25	40	50	65	75						

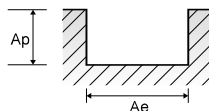


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**G8A01, G8A36 SERIES 2 FLUTE - SLOTTING**

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

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	5	Non-alloy steel	1.0D	0.05D	Vc	205	210	245	245	250	245	250	245	245	245
					fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085	
					RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899	
					FEED	827	869	998	936	995	842	849	721	663	
	8-9	Low alloy steel	1.0D	0.05D	Vc	205	210	245	245	250	245	250	245	245	
					fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085	
					RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899	
					FEED	827	869	998	936	995	842	849	721	663	
	11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	205	210	245	245	250	245	250	245	245	
					fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085	
					RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899	
					FEED	827	869	998	936	995	842	849	721	663	
11.2	High alloyed steel, and tool steel	1.0D	0.05D	Vc	165	165	195	195	195	200	195	195	195		
				fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085		
				RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104		
				FEED	700	709	794	766	714	683	690	574	528		
H	38.1		1.0D	0.05D	Vc	165	165	195	195	195	200	195	195	195	
					fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085	
					RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104	
					FEED	700	709	794	766	714	683	690	574	528	
	38.2		1.0D	0.05D	Vc	110	110	130	130	130	130	130	130	130	
					fz	0.018	0.025	0.03	0.035	0.043	0.051	0.059	0.07	0.082	
					RPM	11671	8754	8276	6897	5173	4138	3448	2586	2069	
					FEED	420	438	497	483	445	422	407	362	339	
	39.1	Hardened steel	1.0D	0.05D	Vc	90	90	100	100	100	100	100	100	100	
					fz	0.014	0.019	0.022	0.026	0.032	0.038	0.045	0.053	0.061	
					RPM	9549	7162	6366	5305	3979	3183	2653	1989	1592	
					FEED	267	272	280	276	255	242	239	211	194	
39.2		1.0D	0.05D	Vc	70	70	80	80	80	80	80	80	80		
				fz	0.011	0.015	0.018	0.021	0.026	0.03	0.037	0.042	0.048		
				RPM	7427	5570	5093	4244	3183	2546	2122	1592	1273		
				FEED	163	167	183	178	166	153	157	134	122		
39.3		1.0D	0.02D	Vc	60	60	70	70	70	70	70	70	70		
				fz	0.009	0.012	0.015	0.018	0.021	0.026	0.03	0.034	0.039		
				RPM	6366	4775	4456	3714	2785	2228	1857	1393	1114		
				FEED	115	118	132	131	119	114	112	94	86		
40	Chilled Cast Iron	1.0D	0.05D	Vc	165	165	195	195	195	200	195	195	195		
				fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085		
				RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104		
				FEED	700	709	794	766	714	683	690	574	528		
41	Hardened Cast Iron	1.0D	0.05D	Vc	110	110	130	130	130	130	130	130	130		
				fz	0.018	0.025	0.03	0.035	0.043	0.051	0.059	0.07	0.082		
				RPM	11671	8754	8276	6897	5173	4138	3448	2586	2069		
				FEED	420	438	497	483	445	422	407	362	339		

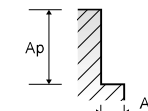


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**G8A01, G8A36 SERIES 2 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)										
						1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	5	Non-alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	245	245	
					fz	0.011	0.018	0.028	0.037	0.046	0.052	0.067	0.077	0.09	0.107	0.122
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1050	1203	1218	1237	1435	1352	1333	1201	1194	1043	951
	8-9	Low alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	245	245	
					fz	0.011	0.018	0.028	0.037	0.046	0.052	0.067	0.077	0.09	0.107	0.122
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1050	1203	1218	1237	1435	1352	1333	1201	1194	1043	951
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	245	245	
					fz	0.011	0.018	0.028	0.037	0.046	0.052	0.067	0.077	0.09	0.107	0.122
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1050	1203	1218	1237	1435	1352	1333	1201	1194	1043	951
11.2	High alloyed steel, and tool steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	195	195		
				fz	0.011	0.019	0.028	0.038	0.046	0.053	0.066	0.079	0.092	0.108	0.121	
				RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	
				FEED	840	998	980	998	1142	1097	1024	981	976	838	751	
H	38.1		0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	195	195	
					fz	0.011	0.019	0.028	0.038	0.046	0.053	0.066	0.079	0.092	0.108	0.121
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	840	998	980	998	1142	1097	1024	981	976	838	751
	38.2		0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	
					fz	0.01	0.017	0.026	0.036	0.043	0.05	0.061	0.072	0.084	0.1	0.116
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069
					FEED	509	595	607	630	712	690	631	596	579	517	480
	39.1	Hardened steel	0.03D	1.0D	Vc	65	90	90	100	100	100	100	100	100	100	
					fz	0.008	0.013	0.019	0.027	0.032	0.038	0.046	0.053	0.064	0.075	0.086
					RPM	20690	14324	9549	7162	6366	5305	3979	3183	2653	1989	1592
					FEED	331	372	363	387	407	403	366	337	340	298	274
39.2		0.03D	1.0D	Vc	50	70	70	70	80	80	80	80	80	80		
				fz	0.006	0.01	0.015	0.021	0.025	0.03	0.037	0.043	0.052	0.059	0.067	
				RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273	
				FEED	191	223	223	234	255	236	219	221	188	171		
39.3		0.03D	1.0D	Vc	40	60	60	60	70	70	70	70	70	70		
				fz	0.005	0.009	0.013	0.018	0.021	0.025	0.03	0.036	0.043	0.05	0.057	
				RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114	
				FEED	1237	172	166	172	187	186	167	160	160	139	127	
40	Chilled Cast Iron	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	195	195		
				fz	0.011	0.019	0.028	0.038	0.046	0.053	0.066	0.079	0.092	0.108	0.121	
				RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	
				FEED	840	998	980	998	1142	1097	1024	981	976	838	751	
41	Hardened Cast Iron	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130		
				fz	0.01	0.017	0.026	0.036	0.043	0.05	0.061	0.072	0.084	0.1	0.116	
				RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069	
				FEED	509	595	607	630	712	690	631	596	579	517	480	





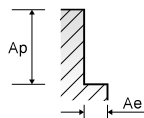


RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

G8A02, G8A37 SERIES 4 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)											
						1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	5	Non-alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	245
					fz	0.008	0.013	0.02	0.027	0.032	0.037	0.048	0.056	0.066	0.077	0.083	
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	
	8-9	Low alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	
					fz	0.008	0.013	0.02	0.027	0.032	0.037	0.048	0.056	0.066	0.077	0.083	
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245	
					fz	0.008	0.013	0.02	0.027	0.032	0.037	0.048	0.056	0.066	0.077	0.083	
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	
	11.2	High alloyed steel, and tool steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195	
					fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.071	0.078	
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	
H	38.1	Titanium-alloy	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195	
					fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.071	0.078	
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	
	38.2	Titanium-alloy	0.03D	1.0D	Vc	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968	
					fz	80	110	110	110	130	130	130	130	130	130	130	
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2079	
	39.1	Hardened steel	0.03D	1.0D	Vc	65	90	90	90	100	100	100	100	100	100	100	
					fz	0.005	0.009	0.014	0.019	0.023	0.026	0.033	0.038	0.045	0.053	0.059	
					RPM	20690	14324	9549	7162	6366	5305	3979	3183	2653	1989	1592	
	39.2	Hardened steel	0.03D	1.0D	Vc	414	516	535	544	586	552	525	484	478	422	376	
					fz	50	70	70	70	80	80	80	80	80	80	80	
					RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273	
39.3	Hardened steel	0.03D	1.0D	Vc	255	312	327	334	367	356	331	306	306	267	244		
				fz	40	60	60	60	70	70	70	70	70	70	70		
				RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114		
40	Chilled Cast Iron	0.03D	1.0D	Vc	204	267	229	248	285	267	245	223	201	183			
				fz	120	165	165	165	195	195	195	200	195	195			
				RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104		
41	Hardened Cast Iron	0.03D	1.0D	Vc	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968		
				fz	80	110	110	110	130	130	130	130	130	130	130		
				RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2079		

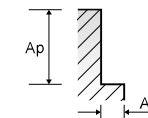


RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDPARAMETER

G8A39 SERIES 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
P	5	Non-alloy steel	0.05D	1.0D	Vc	120	121	121	122	121	121
					fz	0.039	0.052	0.063	0.07	0.09	0.079
					RPM	6366	4814	3852	3236	2407	1926
	8-9	Low alloy steel	0.05D	1.0D	Vc	120	121	121	122	121	121
					fz	0.039	0.052	0.063	0.07	0.09	0.079
					RPM	6366	4814	3852	3236	2407	1926
	11.1	High alloyed steel, and tool steel	0.05D	1.0D	Vc	120	121	121	122	121	121
					fz	0.039	0.052	0.063	0.07	0.09	0.079
					RPM	6366	4814	3852	3236	2407	1926
	11.2	High alloyed steel, and tool steel	0.05D	1.0D	Vc	106	108	106	106	108	110
					fz	0.036	0.049	0.058	0.065	0.083	0.095
					RPM	5623	4297	3374	2812	2149	1751
H	38.1	Titanium-alloy	0.05D	1.0D	Vc	106	108	106	106	108	110
					fz	0.036	0.049	0.058	0.065	0.083	0.095
					RPM	5623	4297	3374	2812	2149	1751
	38.2	Titanium-alloy	0.05D	1.0D	Vc	1215	1263	1174	1097	1070	998
					fz	95	97	94	95	97	98
					RPM	5040	3860	2992	2520	1930	1560
	39.1	Hardened steel	0.03D	1.0D	Vc	1058	1065	987	937	915	852
					fz	83	83	82	83	83	87
					RPM	4403	3302	2610	2202	1651	1385
	39.2	Hardened steel	0.03D	1.0D	Vc	872	872	830	780	753	598
					fz	72	72	72	72	72	75
					RPM	3820	2865	2292	1910	1432	1194
39.3	Hardened steel	0.03D	1.0D	Vc	711	722	688	642	619	494	
				fz	48	48	49	50	48	45	
				RPM	2546	1910	1560	1326	955	716	
40	Chilled Cast Iron	0.05D	1.0D	Vc	428	424	421	398	367	305	
				fz	106	108	106	106	108	110	
				RPM	5623	4297	3374	2812	2149	1751	
41	Hardened Cast Iron	0.05D	1.0D	Vc	1215	1263	1174	1097	1070	998	
				fz	106	108	106	106	108	110	
				RPM	5623	4297	3374	2812	2149	1751	



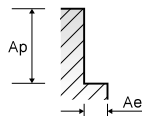


**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**G8D63 SERIES 6&8 FLUTE LONG LENGTH - 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	18.0	20.0	25.0	
P	5	Non-alloy steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	120	125
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11	
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592	
					FEED	1490	1490	1444	1337	1326	1289	1613	1222	1401	
	8-9	Low alloy steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	125	
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11	
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592	
					FEED	1490	1490	1444	1337	1326	1289	1613	1222	1401	
	11.1	High alloyed steel, and tool steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	125	
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11	
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592	
					FEED	1490	1490	1444	1337	1326	1289	1613	1222	1401	
11.2	High alloyed steel, and tool steel	0.04D	1.5D	Vc	95	95	95	95	95	95	100	95			
				fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096		
				RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210		
				FEED	1058	1043	998	937	907	896	1075	1159	929		
H	38.1 - 38.2	Hardened steel	0.04D	1.5D	Vc	95	95	95	95	95	95	100	95		
					fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096	
					RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210	
					FEED	1058	1043	998	937	907	896	1075	1159	929	
	39.1 - 39.2	Hardened steel	0.04D	1.5D	Vc	70	70	70	70	70	70	75	75		
					fz	0.031	0.042	0.05	0.056	0.066	0.072	0.073	0.069	0.087	
					RPM	3714	2785	2228	1857	1592	1393	1238	1194	955	
					FEED	691	702	668	624	630	602	723	659	665	
	39.3	Hardened steel	0.04D	1.5D	Vc	50	50	50	50	45	50	50	45	50	
					fz	0.028	0.037	0.045	0.05	0.051	0.064	0.066	0.071	0.079	
					RPM	2653	1989	1592	1326	1023	995	884	716	637	
					FEED	446	442	430	398	313	382	467	407	403	
40	Chilled Cast Iron	0.04D	1.5D	Vc	95	95	95	95	95	95	100	95			
				fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096		
				RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210		
				FEED	1058	1043	998	937	907	896	1075	1159	929		
41	Hardened Cast Iron	0.04D	1.5D	Vc	95	95	95	95	95	95	100	95			
				fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096		
				RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210		
				FEED	1058	1043	998	937	907	896	1075	1159	929		



**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDPARAMETER**

**G8D64 SERIES 6&8 FLUTE EXTRA LONG LENGTH - 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	18.0	20.0	25.0	
P	5	Non-alloy steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60	
					fz	0.04	0.05	0.06	0.07	0.075	0.081	0.085	0.086	0.089	
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764	
					FEED	764	716	688	669	614	580	721	657	544	
	8-9	Low alloy steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60		
					fz	0.04	0.05	0.06	0.07	0.075	0.081	0.085	0.086	0.089	
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764	
					FEED	764	716	688	669	614	580	721	657	544	
	11.1	High alloyed steel, and tool steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60		
					fz	0.04	0.05	0.06	0.07	0.075	0.081	0.085	0.086	0.089	
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764	
					FEED	764	716	688	669	614	580	721	657	544	
11.2	High alloyed steel, and tool steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60			
				fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08		
				RPM	3183	2387	1910	1592	1364	1194	1061	955	764		
				FEED	573	573	573	583	540	509	679	688	489		
H	38.1 - 38.2	Hardened steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60		
					fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08	
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764	
					FEED	573	573	573	583	540	509	679	688	489	
	39.1 - 39.2	Hardened steel	0.01D	3.0D	Vc	50	50	50	50	50	50	50	50		
					fz	0.03	0.04	0.05	0.06	0.066	0.071	0.081	0.091	0.081	
					RPM	2653	1989	1592	1326	1137	995	884	796	637	
					FEED	478	477	478	477	450	424	573	579	413	
	40	Chilled Cast Iron	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60		
					fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08	
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764	
					FEED	573	573	573	583	540	509	679	688	489	
41	Hardened Cast Iron	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60			
				fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08		
				RPM	3183	2387	1910	1592	1364	1194	1061	955	764		
				FEED	573	573	573	583	540	509	679	688	489		

