



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

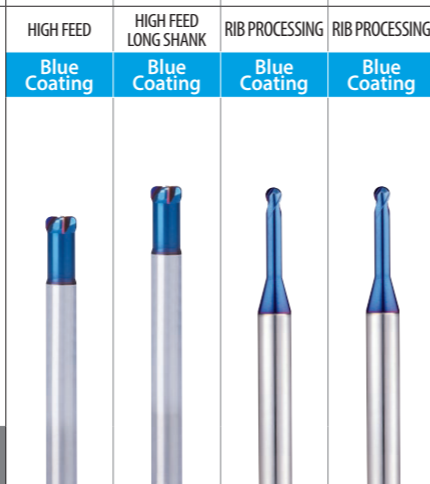
Please visit
globalyg1.com/mat
for material search

◎ : Excellent ○ : Good

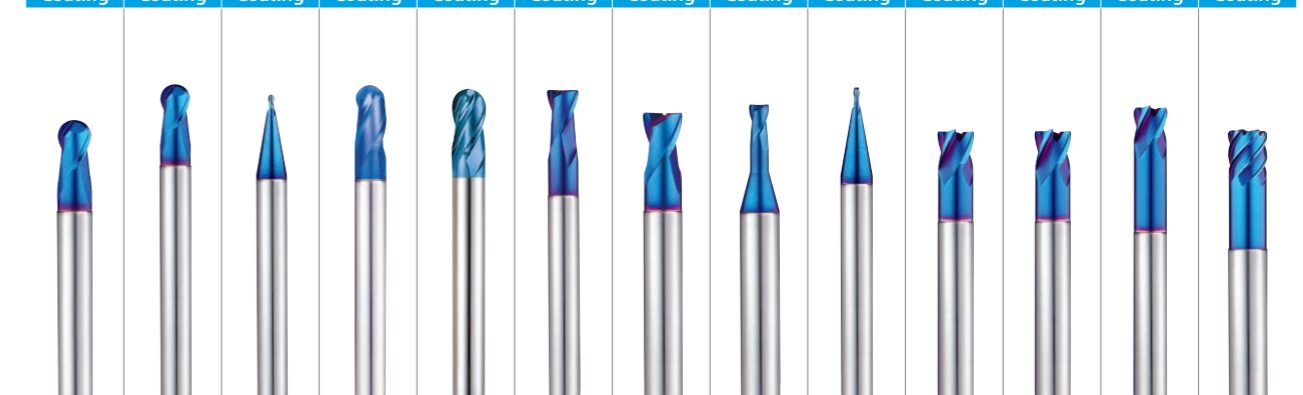
Recommended cutting conditions : p. C181

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						
	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)	Cutting Alloys, PB>1%	110						
	27		CuZn, CuSnZn (Brass)	90						
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100						
	29		Duroplastic, Fiber Reinforced Plastic							
	30	Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33			Annealed	250	25				
	34		Ni or Co Based	Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium	400 Rm						
	37		Alpha + Beta Alloys Hardened	1050 Rm						
H	38	Hardened steel	Hardened		550	55	◎	◎	◎	◎
	39				630	60	◎	◎	◎	◎
	40	Hardened Cast Iron	Cast		400	42	○	○	○	○
	41				550	55	◎	◎	◎	◎

SERIES	G8B59	G8B54	G8A46	G8A54
FLUTE	4	4	2	2
HELIX ANGLE	0°	0°	30°	30°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE
SIZE MIN	D2.0	D2.0	R0.05	R0.25
SIZE MAX	D12.0	D16.0	R2.0	R1.0
PAGE	C143	C144	C145	C149



G8A28	G8A38	G8A53	G8A59	G8D62	G8A60	G8A36	G8A52	G8A50	G8A47	G8A37	G8B08	G8A39
2	2	2	3	4	2	2	2	2	4	4	4	6
30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	45°
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
R1.0	R0.5	R0.2	R1.5	R1.5	D0.5	D0.3	D0.5	D0.3	D3.0	D1.0	D6.0	D6.0
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
C150	C152	C153	C154	C155	C156	C161	C163	C164	C165	C166	C167	C168
-	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



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◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	39
○	○	○	○	○	○	○	○	○	○	○	○	○	40
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	41

SELECTION GUIDE



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	D0.2	D1.0	D6.0	D6.0
SIZE MAX	D4.0	D20.0	D20.0	D25.0	D25.0
PAGE	C169	C173	C174	C175	C176

SOLID CARBIDE
X5070
END MILLS

High Hardened Steels HRc45 to HRc70,
High Speed Machining, Dry Cutting

RIB PROCESSING	EXTENDED NECK	EXTENDED NECK	LONG LENGTH	EXTRA LONG LENGTH
Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C117

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)	Cutting Alloys, PB>1%	110						
	27		CuZn, CuSnZn (Brass)	90						
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	100						
	29		Duroplastic, Fiber Reinforced Plastic							
	30	Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15					
	32		Cured	280	30					
	33		Annealed	250	25					
	34		Ni or Co Based Cured	350	38					
	35		Cast	320	34					
36	Titanium Alloys	Pure Titanium	400 Rm							
37		Alpha + Beta Alloys Hardened	1050 Rm							
H	38	Hardened steel	Hardened	550	55	◎	◎	◎	◎	◎
	39		Hardened	630	60	◎	◎	◎	◎	◎
	40	Chilled Cast Iron	Cast	400	42	○	○	○	○	○
	41	Hardened Cast Iron	Hardened	550	55	◎	◎	◎	◎	◎



PLAIN SHANK **G8B59** SERIES

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS HIGH FEED

● VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB
● Fraise carbure, 4 dents, torique, grande avance, extra-courte
● 4 TAGLIENTI, 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.

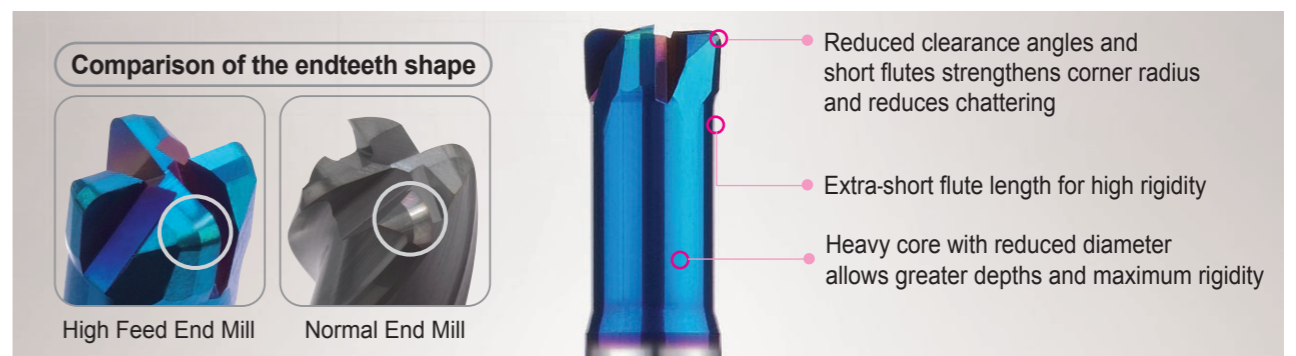
- ▶ Hervorragende Verschleißigenschaften bei hohen Schnittwerten in gehärteten Materialien
- ▶ Mit reduzierten Freiwinkeln und kurzen Spannuten für hohe Festigkeiten konstruiert.
- ▶ Große Härte u. hitzebeständige Beschichtung für lange Lebensdauer bei Trockenbearbeitung



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

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

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.



◎ : 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	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N							S							H						
	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			15	30	25	38	34	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	260	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎



PLAIN SHANK **G8B54** SERIES

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS HIGH FEED (Long Shank)

● **VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB**
 ○ **Fraise carbure, 4 dents, torique, grande avance, extra-courte**
 ○ **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

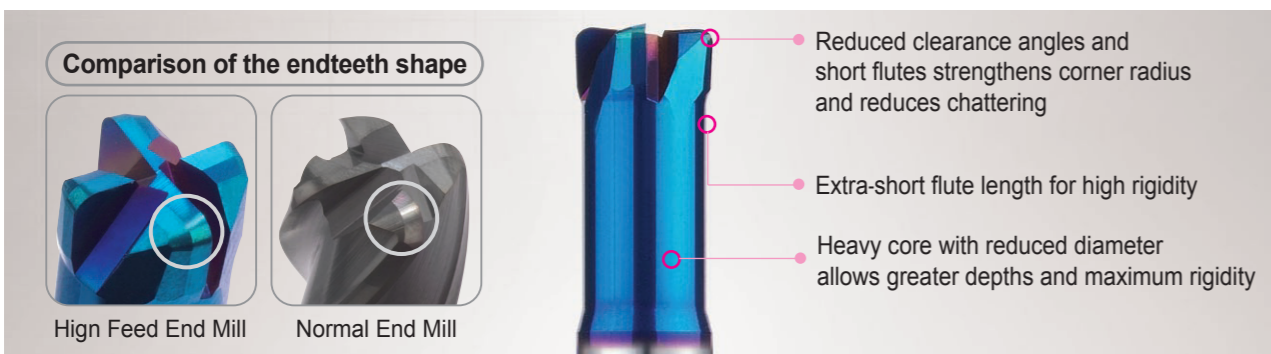


Unit : mm

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



◎ : 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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
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	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	
Recommend					○				○	○																																



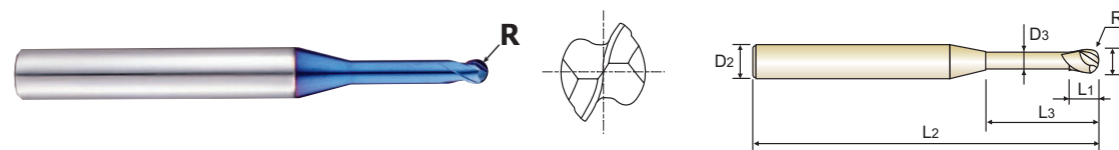
PLAIN SHANK **G8A46** SERIES

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

● **VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN**
 ○ **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.



Unit : mm

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

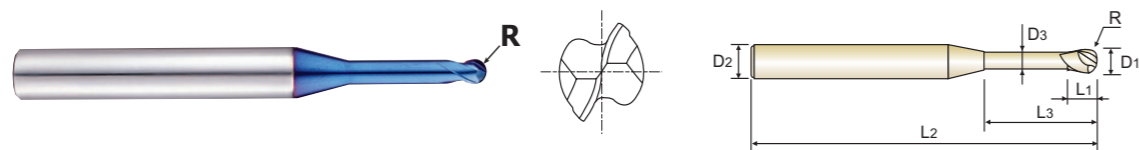
ISO	P										M						K																									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron																					
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
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	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	
Recommend					○				○	○																																

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

- **VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN**
- **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 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.



Unit : mm

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

◎ : 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	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					○				○												

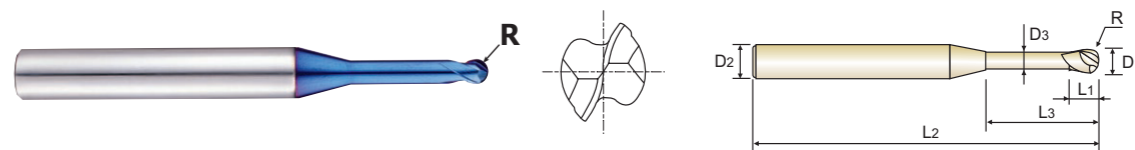
ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	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
Recommend																		◎	◎	○	◎

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

- **VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN**
- **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 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.



Unit : mm

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
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

◎ : 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	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					○				○												

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
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
Recommend																		◎	◎	○	◎



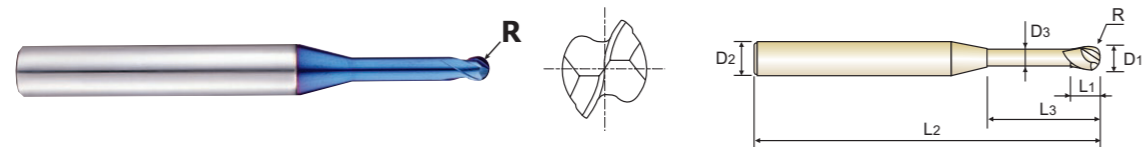
PLAIN SHANK **G8A46** SERIES

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.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut		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 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 Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	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	○										○				○					

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	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
Recommend	◎		◎		◎		◎		◎			◎		◎		◎		◎		◎	



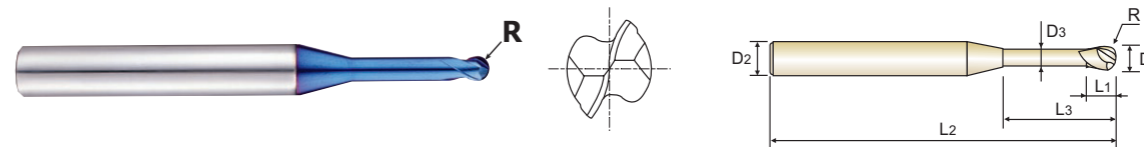
PLAIN SHANK **G8A54** SERIES

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 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.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut		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 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 Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	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	○										○				○					

ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	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
Recommend	◎		◎		◎		◎		◎			◎		◎		◎		◎		◎	



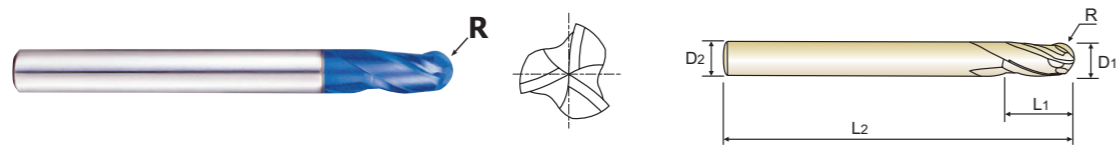
PLAIN SHANK **G8A59** SERIES

CARBIDE, 3 FLUTE BALL NOSE - Center Match

- **VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt**
- **Fraise carbure, 3 dents, hémisphérique, coupe au centre**
- **3 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	Overall Length
	R	D1	D2	L1	L2
G8A59030	R1.5	3.0	6	8	60
G8A59040	R2.0	4.0	6	8	70
G8A59050	R2.5	5.0	6	10	80
G8A59060	R3.0	6.0	6	12	90
G8A59080	R4.0	8.0	8	14	100
G8A59100	R5.0	10.0	10	18	100
G8A59120	R6.0	12.0	12	22	110
G8A59160	R8.0	16.0	16	30	140
G8A59200	R10.0	20.0	20	38	160

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	

◎ : 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	29	32	38	35	35	23	10	10	26	3	25	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					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
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	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎					◎					◎				◎						



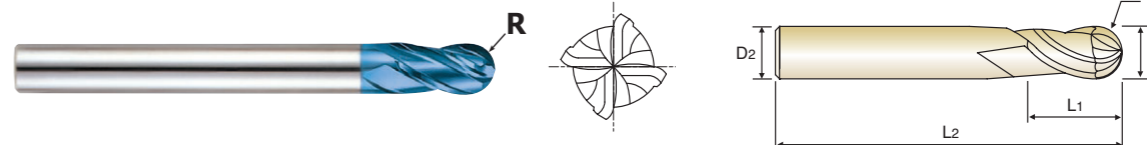
PLAIN SHANK **G8D62** SERIES

CARBIDE, 4 FLUTE BALL NOSE - Center Match

- **VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt**
- **Fraise carbure, 4 dents, hémisphérique - coupe au centre**
- **4 TAGLIENTI, SEMISFERICA - 4 TAGLIENTI A CENTRO FRESA**

- ▶ Applied center match type & special new design on ball center shape.
- ▶ Excellent high wear resistance and high performance.
- ▶ Applied for high speed and feed.
- ▶ Increased the surface roughness.

- ▶ Neues Design der Kugelschneidengeometrie
- ▶ Hohe Verschleißfestigkeit, hohe Leistung.
- ▶ Geeignet für hohe Schnittgeschwindigkeiten und hohe Vorschübe
- ▶ verbessert deutlich die Oberflächenrauigkeit



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
G8D62030	R1.5	3.0	6	8	60
G8D62040	R2.0	4.0	6	8	70
G8D62050	R2.5	5.0	6	10	80
G8D62060	R3.0	6.0	6	12	90
G8D62080	R4.0	8.0	8	14	100
G8D62100	R5.0	10.0	10	18	100
G8D62120	R6.0	12.0	12	22	110
G8D62160	R8.0	16.0	16	30	140
G8D62200	R10.0	20.0	20	38	160

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	

◎ : 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	29	32	38	35	35	23	10	10	26	3	25	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					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
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	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
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 **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.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Ø0.5-Ø6 Ø8-Ø12

p.C184~C185

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
G8A60060102	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
G8A609114S	R0.2	1.0	4	1.5	8	50	0.95
G8A600100304	R0.3	1.0	4	1.5	4	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
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

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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 Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	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 Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	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
Recommend	◎										◎					◎					



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Ø0.5-Ø6 Ø8-Ø12

p.C184~C185

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
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
G8A609144S	R0.2	1.5	4	2.5	12	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
G8A6002002084S	R0.2	2.0	4	3	8	50	1.95
G8A6002002124S	R0.2	2.0	4	3	12	55	1.95
G8A6002003084S	R0.3	2.0	4	3	8	50	1.95
G8A6002003164S	R0.3	2.0	4	3	16	55	1.95
G8A609174S	R0.5	2.0	4	3	6	50	1.95
G8A600204S	R0.5	2.0	4	3	10	55	1.95
G8A609184S	R0.5	2.0	4	3	12	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 Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	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 Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	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
Recommend	◎										◎					◎					



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CARBIDE 2 30° ±0.010 ±0.015 PLAIN BLUE p.C184~C185

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
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
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

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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 Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	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 Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎										◎					◎					



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CARBIDE 2 30° ±0.010 ±0.015 PLAIN BLUE p.C184~C185

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
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
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

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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 Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	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 Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎										◎					◎					



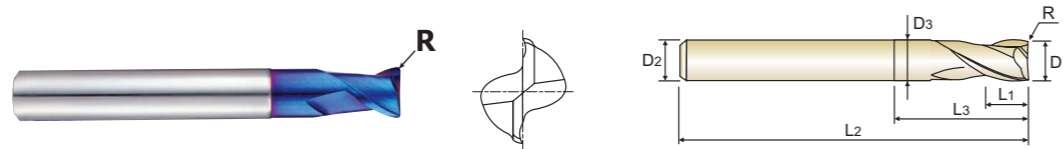
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EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60907	R1.5	8.0	8	9	25	60	7.7
G8A600802025	R2.0	8.0	8	9	25	60	7.7
G8A60923	R0.3	10.0	10	11	32	70	9.7
G8A601000532	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	

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	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	○										○				○			○		



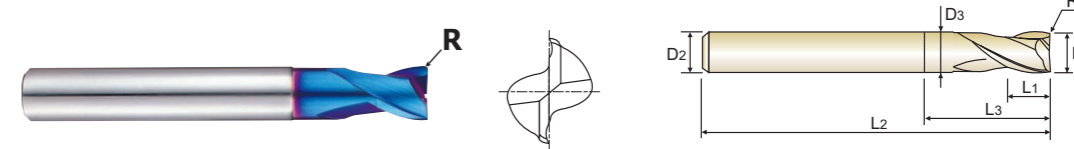
PLAIN SHANK **G8A36** SERIES

CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK

- VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- Fraise carbure, 2 dents, torique, détalonnée, extra-courte
- 2 TAGLIENTI, 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.



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	

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	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	○										○				○			○		



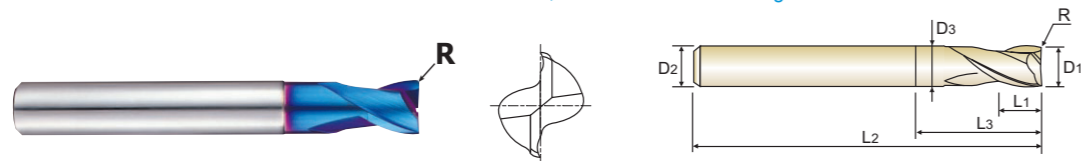
PLAIN SHANK **G8A36** SERIES

CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK

- **VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL**
- **Fraise carbure, 2 dents, torique, détalonnée, extra-courte**
- **2 TAGLIENTI, 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.



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
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
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 Material Description	P									M						K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	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 Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						55	60	42	55				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	◎						◎						◎								



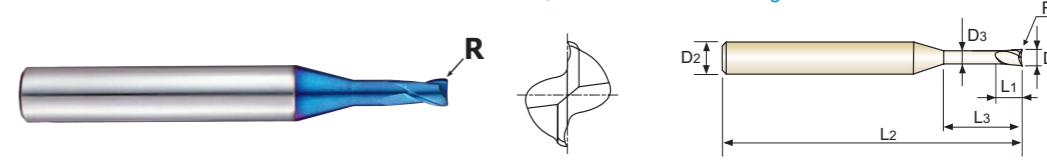
PLAIN SHANK **G8A52** SERIES

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, 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.



p.C186

Unit : mm

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
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 Material Description	P									M						K				
	Non-alloy steel			Low alloy steel			High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	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 Material Description	N						S						H								
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Heat Resistant Super Alloys			Titanium Alloys			Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						55	60	42	55				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	◎						◎						◎								



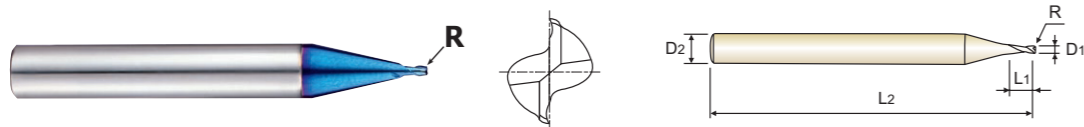
PLAIN SHANK **G8A50** SERIES

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS

- VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS
- ① Fraise carbure, 2 dents, torique, micro-fraise
- ② 2 TAGLIENTI, 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.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.010)	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 Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

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



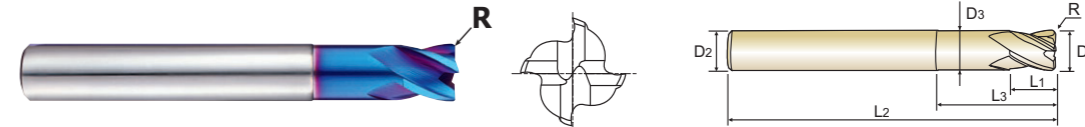
PLAIN SHANK **G8A47** SERIES

CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK

- VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
- ① Fraise carbure, 2 dents, torique, micro-fraise
- ② 4 TAGLIENTI, 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.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Ø3-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
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 Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○										○				○					

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



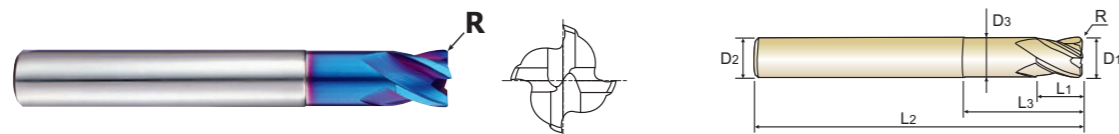
PLAIN SHANK **G8A37** SERIES

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK

● **VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL**
 (●) **Fraise carbure, 4 dents, torique, détalonnée, extra-courte**
 (●) **4 TAGLIENTI, 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.



Ø1-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
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	

◎ : 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	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	○										○				○					

ISO	N					S					H													
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
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	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550			
HB	60	100	75	90	130	110	90	100																
Recommend	◎		◎			◎		◎			◎		◎			◎			◎			◎		



PLAIN SHANK **G8B08** SERIES

CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK

● **VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL**
 (●) **Fraise carbure, 4 dents, torique, détalonnée**
 (●) **4 TAGLIENTI, 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.



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
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	

◎ : 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	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	○										○				○					

ISO	N					S					H													
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys		Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
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	15	30	25	38	34	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550			
HB	60	100	75	90	130	110	90	100																
Recommend	◎		◎			◎		◎			◎		◎			◎			◎			◎		



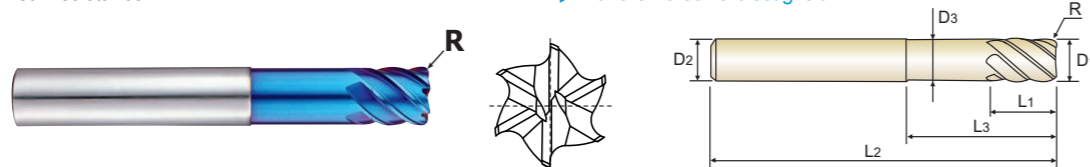
PLAIN SHANK **G8A39** SERIES

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

● **VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL**
 (●) **Fraise carbure, 6 dents, torique, hélice 45°, détalonnée**
 (●) **6 TAGLIENTI, 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	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	
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	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	○										○				○					

ISO	N										S				H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
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	400 Rm	1050 Rm	550	630	400	550			
Recommend	◎										◎				◎				◎		◎		◎	



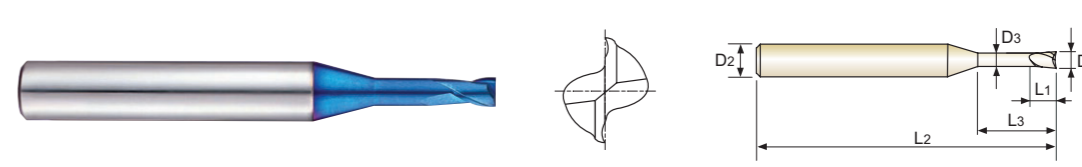
PLAIN SHANK **G8A45** SERIES

CARBIDE, 2 FLUTE for RIB PROCESSING

● **VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN**
 (●) **Fraise carbure, 2 dents pour usinage de rainure**
 (●) **2 TAGLIENTI 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
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
G8A45991	0.6	4	0.9	4	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.

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	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	○										○				○					

ISO	N										S				H									
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
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	400 Rm	1050 Rm	550	630	400	550			
Recommend	◎										◎				◎				◎		◎		◎	



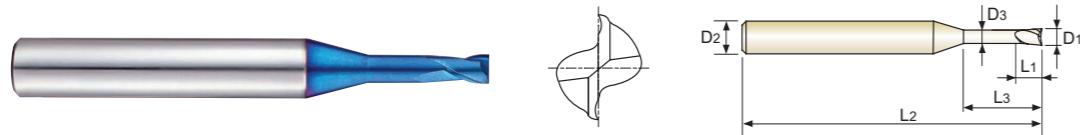
PLAIN SHANK **G8A45** SERIES

CARBIDE, 2 FLUTE for RIB PROCESSING

- VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
- ① Fraise carbure, 2 dents pour usinage de rainure
- ② 2 TAGLIENTI 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.
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- ▶ 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.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A45992	0.6	4	0.9	6	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						
	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					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
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											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																		◎	◎	○	◎



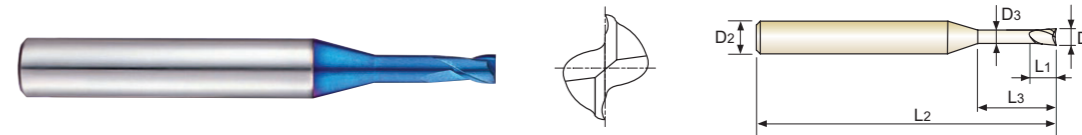
PLAIN SHANK **G8A45** SERIES

CARBIDE, 2 FLUTE for RIB PROCESSING

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

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
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- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente 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	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						
	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					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
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											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																		◎	◎	○	◎



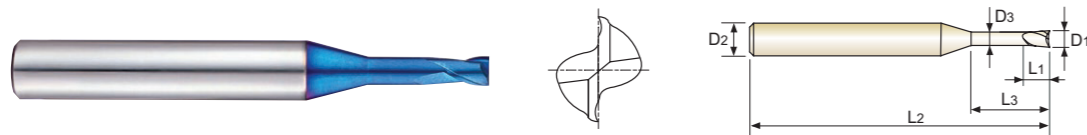
PLAIN SHANK **G8A45** SERIES

CARBIDE, 2 FLUTE for RIB PROCESSING

- VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
- ① Fraise carbure, 2 dents pour usinage de rainure
- ② 2 TAGLIENTI 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.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A45979	3.0	6	4.5	18	55	2.85
G8A45980	3.0	6	4.5	20	60	2.85
G8A45981	3.0	6	4.5	25	65	2.85
G8A45832	3.0	6	4.5	30	70	2.85
G8A45833	3.0	6	4.5	35	80	2.85
G8A45983	3.0	6	4.5	40	90	2.85
G8A45040	4.0	6	6	12	50	3.85
G8A45801	4.0	6	6	16	60	3.85
G8A45802	4.0	6	6	20	60	3.85
G8A45803	4.0	6	6	25	70	3.85
G8A45834	4.0	6	6	30	70	3.85
G8A45835	4.0	6	6	35	80	3.85
G8A45836	4.0	6	6	40	90	3.85
G8A45837	4.0	6	6	45	90	3.85
G8A45838	4.0	6	6	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						
	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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend					○				○												

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
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	15	30	25	38	34	55	60	42	55	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																		◎	◎	○	◎	



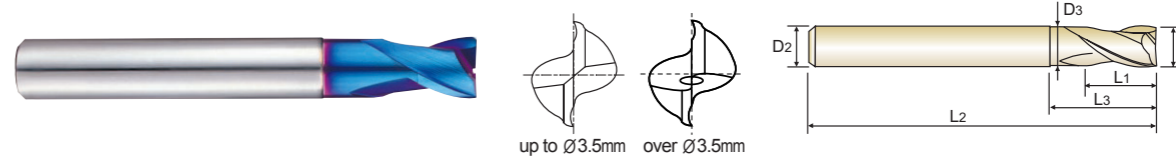
PLAIN SHANK **G8A01** SERIES

CARBIDE, 2 FLUTE with EXTENDED NECK

- VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL
- ① Fraise carbure, 2 dents, détalonnée
- ② 2 TAGLIENTI 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.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
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	50	0.95
G8A01010	1.0	6	1.5	3	50	0.95
G8A010154S	1.5	4	1.7	4	50	1.45
G8A01015	1.5	6	1.7	4	50	1.45
G8A010204S	2.0	4	2	5	50	1.95
G8A01020	2.0	6	2	5	50	1.95
G8A010254S	2.5	4	2.5	6	55	2.4
G8A01025	2.5	6	2.5	6	55	2.4
G8A01030	3.0	6	3	8	55	2.85
G8A01035	3.5	6	3.5	9	55	3.35
G8A01040	4.0	6	4	10	55	3.85
G8A01050	5.0	6	5	13	55	4.85
G8A01060	6.0	6	6	15	55	5.85
G8A01080	8.0	8	8	20	65	7.7
G8A01100	10.0	10	10	25	75	9.7
G8A01120	12.0	12	12	28	85	11.7
G8A01200	20.0	20	20	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						
	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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend					○				○												

ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
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	15	30	25	38	34	55	60	42	55	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																		◎	◎	○	◎	



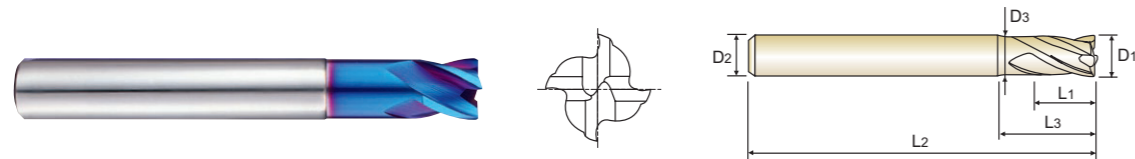
PLAIN SHANK **G8A02** SERIES

CARBIDE, 4 FLUTE with EXTENDED NECK

- **VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL**
- **Fraise carbure, 4 dents, détalonnée**
- **4 TAGLIENTI 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.



p.C194

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A02010	1.0	6	1.5	3	50	0.95
G8A02020	2.0	6	2	5	50	1.95
G8A02030	3.0	6	3	8	55	2.85
G8A02040	4.0	6	4	10	55	3.85
G8A02050	5.0	6	5	13	55	4.85
G8A02060	6.0	6	6	15	55	5.85
G8A02080	8.0	8	8	20	65	7.7
G8A02100	10.0	10	10	25	75	9.7
G8A02120	12.0	12	12	28	85	11.7
G8A02160	16.0	16	16	32	90	15.7
G8A02200	20.0	20	20	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 Material Description	P										M				K																										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron																				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	118	122	128	132	138	142	148	152	158	162	168	172	178	182	188	192	198	202	208	212	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	160	250	130	230																	
Recommend	○										○				○				○				○																		

ISO Material Description	N					S					H																																		
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron																							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
HRC	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	550	630	400	550																				
Recommend	◎		◎			◎			◎		◎					◎		◎		◎		◎		◎		◎		◎		◎		◎		◎		◎		◎		◎		◎		◎	



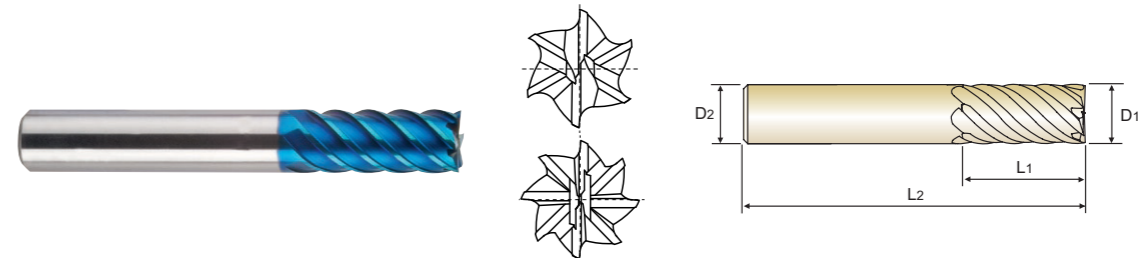
PLAIN SHANK **G8D63** SERIES

CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH

- **VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG**
- **Fraise carbure, 6&8 dents, hélice 45°, longue**
- **6&8 TAGLIENTI, 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



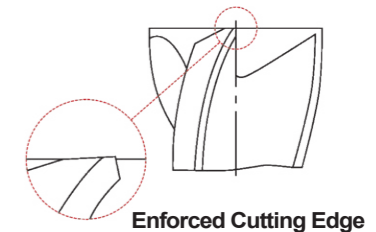
p.C196

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 Material Description	P										M				K																												
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron																						
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRC	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	118	122	128	132	138	142	148	152	158	162	168	172	178	182	188	192	198	202	208	212			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	160	250	130	230																			
Recommend	○										○				○				○																								

ISO Material Description	N					S					H																																		
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron																							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
HRC	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	550	630	400	550																				
Recommend	◎		◎			◎			◎		◎					◎		◎		◎		◎		◎		◎		◎		◎		◎		◎		◎		◎		◎		◎			



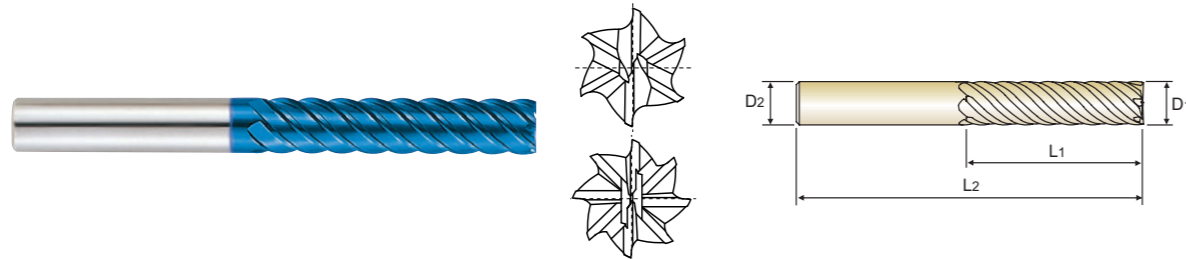
PLAIN SHANK **G8D64** SERIES

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 TAGLIENTI, 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

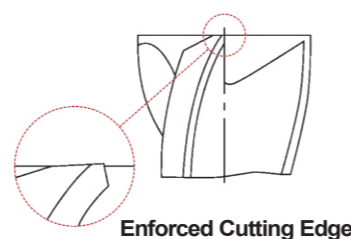


Unit : mm

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 uniformed. However, it doesn't affect the performance of the tool.

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



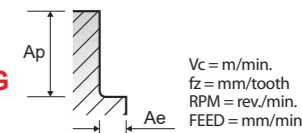
◎ : Excellent ○ : Good

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	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					○				○													

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



**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER**



G8B59, G8B54 SERIES

4 FLUTE CORNER RADIUS - SIDE CUTTING

HIGH 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	0.3D	0.1R	Vc	180	205	215	235	255	250	250	250	250	250
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925	
					RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974	
	8-9	Low alloy steel	0.3D	0.1R	Vc	180	205	215	235	255	250	250	250	250	250
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925	
					RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974	
	11.1	High alloyed steel, and tool steel	0.3D	0.1R	Vc	180	205	215	235	255	250	250	250	250	250
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925	
					RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974	
	11.2	High alloyed steel, and tool steel	0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195	
					fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897	
					RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879	
H	38.1	Hardened steel	0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195	
					fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897	
					RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879	
	38.2	Hardened steel	0.3D	0.1R	Vc	95	200	140	155	170	170	170	170	165	
					fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833	
					RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283	
	39.1	Hardened steel	0.3D	0.05R	Vc	70	90	100	110	120	120	120	120	120	
					fz	0.101	0.121	0.172	0.214	0.25	0.349	0.447	0.547	0.729	
					RPM	11141	9549	7958	7003	6366	4775	3820	3183	2387	
	39.2	Hardened steel	0.3D	0.05R	Vc	4501	4622	5475	5994	6366	6665	6830	6965	6961	
					fz	55	65	70	75	85	85	85	85	85	
					RPM	8754	6897	5570	4775	4509	3382	2706	2255	1691	
40	Chilled Cast Iron	0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195		
				fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897		
				RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879		
41	Hardened Cast Iron	0.3D	0.1R	Vc	95	200	140	155	170	170	170	170	165		
				fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833		
				RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283		

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	
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	
					RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188	
	8-9	Low alloy steel	0.5D	0.2R	Vc	85	90	100	100	110	110	110	110	110	
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	
					RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188	
	11.1	High alloyed steel, and tool steel	0.5D	0.2R	Vc	85	90	100	100	110	110	110	110	110	
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869	
					RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188	
	11.2	High alloyed steel, and tool steel	0.5D	0.2R	Vc	60	65	70	75	75	75	75	75	80	
					fz	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79	
					RPM	9549	6897	5570	4775	3979	2984	2387	1989	1592	
H	38.1	Hardened steel	0.5D	0.2R	Vc	3782	4138	4456	4775	4759	4799	4775	4759	5029	
					fz	60	65	70	75	75	75	75	75	80	
					RPM	9549	6897	5570	4775	3979	2984	2387	1989	1592	
	38.2	Hardened steel	0.5D	0.2R	Vc	35	45	50	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	
					RPM	5570	4775	3979	3501	2918	2188	1751	1459	1094	
	39.1	Hardened steel	0.5D	0.1R	Vc	20	25	30	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	
					RPM	3183	2653	2387	2228	1857	1393	1114	928	696	
	39.2	Hardened steel	0.5D	0.1R	Vc	993	1072	1261	1622	1857	1838	1872	1857	1841	
					fz	15	20	20	25	25	25	25	25	25	
					RPM	602	679	637	745	780	796	796	793	792	
40	Chilled Cast Iron	0.5D	0.2R	Vc	60	65	70	75	75	75	75	75	80		
				fz	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79		
				RPM	9549	6897	5570	4775	3979	2984	2387	1989	1592		
41	Hardened Cast Iron	0.5D	0.2R	Vc	35	45	50	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		
				RPM	5570	4775	3979	3501	2918	2188	1751	1459	1094		



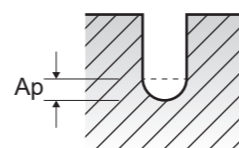
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

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	50000	48000~50000	48000~50000	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	50000	48000~50000	48000~50000	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	50000	48000~50000	48000~50000	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	Hardened steel	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	50000	48000~50000	48000~50000	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
	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	50000	46000~50000	46000~50000	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	50000	46000~50000	46000~50000	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	50000	48000~50000	48000~50000	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	50000	48000~50000	48000~50000	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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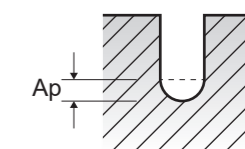


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

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	

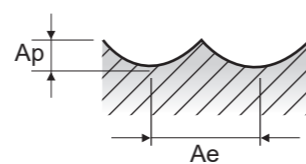


G8A28, G8A38, G8A53 SERIES 2 FLUTE BALL NOSE

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
	8-9	Low 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
	11.1	High alloyed steel, and tool 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
11.2	High alloyed steel, and tool steel	0.05D	0.02D	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	
H	38.1		0.05D	0.02D	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
	38.2		0.05D	0.02D	Vc	30	40	55	70	85	115	140
					fz	0.011	0.013	0.017	0.021	0.024	0.033	0.042
					RPM	47746	42441	43768	44563	45094	45757	44563
					FEED	1050	1103	1488	1872	2165	3020	3743
	39.1	Hardened steel	0.05D	0.02D	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	39789	41380	39789	39789	39789
					FEED	796	1019	1194	1572	1830	2387	3024
39.2		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	
39.3		0.05D	0.02D	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	
40	Chilled Cast Iron	0.05D	0.02D	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	
41	Hardened Cast Iron	0.05D	0.02D	Vc	30	40	55	70	85	115	140	
				fz	0.011	0.013	0.017	0.021	0.024	0.033	0.042	
				RPM	47746	47746	51725	50930	50399	49736	49338	
				FEED	1050	1337	1759	2139	2520	3283	4144	

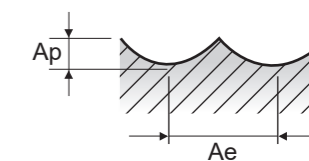
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G8A28, G8A38, G8A53 SERIES 2 FLUTE BALL NOSE

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	
	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	
8-9	Vc	190	235	310	310	315	290	260	280	290	260	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	
11.1	Vc	190	235	310	310	315	290	260	280	290	260	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	
11.2	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	
38.1	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	
38.2	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	42441	43502	39789	26526	19894	14961	10876	8952	7480	5570	4476	3581	
	FEED	3820	4089	3979	3979	3979	3740	3067	2686	2394	1894	1692	1490	
39.1	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	
39.2	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	
39.3	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	
40	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	
41	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	



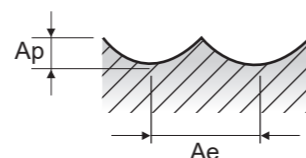


**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER**

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																														
P	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	0.087	0.099	0.108	0.136	0.155	0.168	0.187	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	0.115	0.134	0.144	0.156	0.173	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	0.156	0.173	0.18	RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263	FEED	4011	3696	3498	3844	3359	2888	2423	1805	1419
H	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	120	120	125	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	185	185	195	230	230	230	230	230	230	fz	0.072	0.087	0.099	0.115	0.134	0.144	0.156	0.173	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	0.156	0.173	0.18	RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263	FEED	4011	3696	3498	3844	3359	2888	2423	1805	1419
	39.1	Hardened steel	0.05D	0.02D	Vc	120	120	125	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	185	185	195	230	230	230	230	230	230	fz	0.072	0.087	0.099	0.115	0.134	0.144	0.156	0.173	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	0.156	0.173	0.18	RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263	FEED	4011	3696	3498	3844	3359	2888	2423	1805	1419
	39.2	Hardened steel	0.05D	0.02D	Vc	120	120	125	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	185	185	195	230	230	230	230	230	230	fz	0.072	0.087	0.099	0.115	0.134	0.144	0.156	0.173	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	0.156	0.173	0.18	RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263	FEED	4011	3696	3498	3844	3359	2888	2423	1805	1419
39.3	Hardened steel	0.05D	0.02D	Vc	120	120	125	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	185	185	195	230	230	230	230	230	230	fz	0.072	0.087	0.099	0.115	0.134	0.144	0.156	0.173	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	0.156	0.173	0.18	RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263	FEED	4011	3696	3498	3844	3359	2888	2423	1805	1419	
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	0.087	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	
41	Hardened Cast Iron	0.05D	0.02D	Vc	255	255	265	285	285	285	285	285	285	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	185	185	195	230	230	230	230	230	230	fz	0.072	0.087	0.099	0.115	0.134	0.144	0.156	0.173	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	0.156	0.173	0.18	RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263	FEED	4011	3696	3498	3844	3359	2888	2423	1805	1419	



**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																														
P	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	5		

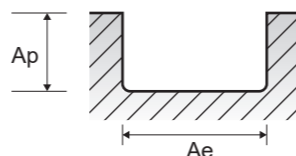


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

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	Hardened 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	
	38.2	Hardened steel	1.0D	0.05D	Vc	65	75	75	80	110	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	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	Hardened steel	1.0D	0.05D	Vc	40	45	50	50	70	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	123			
39.3	Hardened steel	1.0D	0.02D	Vc	30	40	40	40	60	60	60	70	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	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	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.

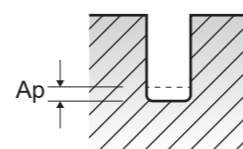
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						0.5	0.6	0.8	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
P	5	Non-alloy steel	0.03D	1.0D	Vc	80	95	125	150	210	205	210	245	245	250	245	250	
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072	
					RPM	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	Hardened 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	
	38.2	Hardened steel	0.03D	1.0D	Vc	65	75	75	80	110	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	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	117	103	248	286	306	301	331	318	294	274	271	
39.2	Hardened steel	0.03D	1.0D	Vc	40	45	50	50	70	70	70	80	80	80	80	80		
				fz	0.001	0.001	0.002	0.005	0.008	0.012	0.017	0.02	0.024	0.029	0.035	0.042		
				RPM	25465	23873	19894	15915	11141	7427	5570	5093	4244	3183	2546	2122		
				FEED	51	48	40	95	134	134	143	144	127	122	123			
39.3	Hardened steel	0.03D	1.0D	Vc	30	40	40	40	60	60	60	70	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	152	149	129		
40	Chilled Cast Iron	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		
41	Hardened Cast Iron	0.03D	1.0D	Vc	65	75	75	80	110	110	110	130	130	13				

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	180~280	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	100~115	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	180~280	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	



G8A50 SERIES

2 FLUTE CORNER RADIUS - SLOTTING

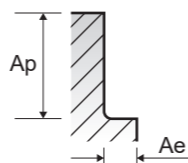
Vc = m/min.
fz = mm/tooth
RPM = rev/min.
FEED = mm/min.

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	817	869	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	0.0210~0.1400	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	0.0210~0.1400	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	817	869	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	0.0210~0.1400	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	0.0210~0.1400	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	817	869	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	0.0210~0.1400	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	0.0210~0.1400	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	0.0150~0.1000	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	0.0150~0.1000	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	0.0150~0.1000	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	0.0150~0.1000	0.0150~0.1000
	38.2	Hardened steel	1.0D	0.05D	Vc	40	50	65	75	75	80	85	100	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	0.0150~0.1000	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	0.0150~0.1000	0.0150~0.1000
39.1	Hardened steel	1.0D	0.02D	Vc	30	40	50	55	65	65	75	80	90	
				fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.009	
				RPM	31831	31831	31831	29178	25863	20690	19894	16977	14324	
				FEED	64	64	127	175	207	207	239	238	258	
				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	0.015			

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	fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067	RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045				
					8-9	Low alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	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	RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045
									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	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067	RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899	FEED	1146	1471	1392	1471	1560	1560	1512
	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	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063	RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	917	1050	980	1050	1192	1117	1086
					38.1	Hardened steel	0.03D	1.0D					Vc	120	165	165	165	195	195	195	195	200	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	RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	917	1050	980	1050	1192	1117	1086
									38.2	Hardened steel	0.03D	1.0D	Vc	80	110	110	110	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	RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069	FEED	611	700	700	700	794	772	724
	39.1	Hardened steel	0.03D	1.0D									Vc	65	90	90	90	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	RPM	20690	14324	9549	7162	6366	5305	3979	3183	2653	1989	1592	FEED	331	401	420	430	458	446	414
					39.2	Hardened steel	0.03D	1.0D					Vc	50	70	70	70	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	RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273	FEED	191	267	267	267	306	289	267
									39.3	Hardened steel	0.03D	1.0D	Vc	40	60	60	60	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	RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	153	191	178	191	214	208	189
	40	Chilled Cast Iron	0.03D	1.0D									Vc	120	165	165	165	195	195	195	195	200	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	RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104	FEED	917	1050	980	1050	1192	1117	1086
					41	Hardened Cast Iron	0.03D	1.0D					Vc	80	110	110	110	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	RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069	FEED	611	700	700	700	794	772	724

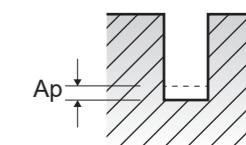


G8A45 SERIES 2 FLUTE for RIB PROCESSING - SLOTTING

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

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)																																			
				0.2	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	370~470	330~560	360~590	Ap	0.006~0.016	0.006~0.015	0.005~0.028	0.006~0.035	0.007~0.030	0.009~0.040		
			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	370~470	330~560	360~590	Ap	0.006~0.016	0.006~0.015	0.005~0.028	0.006~0.035	0.007~0.030	0.009~0.040
					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	370~470	330~560	360~590	Ap	0.006~0.016	0.006~0.015	0.005~0.028	0.006~0.035
	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	Ap	0.005~0.013	0.004~0.011	0.003~0.020	0.004~0.025
			39.1 - 39.2	Hardened steel			Vc	31	23~30	23~31	22~28	22~29	23~29	fz	0.002~0.003	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	Ap	0.005~0.012	0.003~0.007	0.002~0.012	0.003~0.015
					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	370~470	330~560	360~590	Ap	0.006~0.016	0.006~0.015	0.005~0.028	0.006~0.035
	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	Ap	0.005~0.013	0.004~0.011	0.003~0.020	0.004~0.025

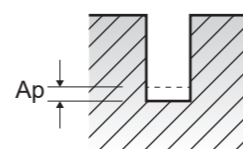
▶ NEXT PAGE



G8A45 SERIES 2 FLUTE 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)					
				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
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	
H	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	20~26	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	



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	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	
11.1	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	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	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		
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	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	
					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	
39.1	Hardened steel	1.0D	0.05D	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		
				Vc	20	25	30	40	45	50	50	50	70		
				fz	0.001	0.001	0.001	0.002	0.002	0.003	0.004	0.004	0.007		
39.2	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	0.002	0.003	0.004	0.004	0.007		
				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		
39.3	Hardened steel	1.0D	0.02D	Vc	23873	21221	19894	19099	21221	15915	14147	12732	9549		
				fz	29	38	40	57	81	83	91	87	116		
				RPM	29	38	40	57	81	83	91	87	116		
				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	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						

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	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	935	842	849	721	663
					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	935	842	849	721	663
					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	935	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	935	842	849	721	663
					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	935	842	849	721	663
					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	935	842	849	721	663
	11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	165	165	195	195	195	195	200	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
					Vc	165	165	195	195	195	195	200	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
					Vc	165	165	195	195	195	195	200	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
	11.2	High alloyed steel, and tool steel	1.0D	0.05D	Vc	165	165	195	195	195	195	200	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
					Vc	165	165	195	195	195	195	200	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
					Vc	165	165	195	195	195	195	200	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	Hardened steel	1.0D	0.05D	Vc	110	110	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	
					Vc	110	110	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	
					Vc	110	110	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	
	38.2	Hardened steel	1.0D	0.05D	Vc	90	90	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	
					Vc	90	90	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	
					Vc	90	90	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	
	39.1	Hardened steel	1.0D	0.05D	Vc	70	70	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	
					Vc	70	70	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	
					Vc	70	70	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	
	39.2	Hardened steel	1.0D	0.05D	Vc	60	60	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	
					Vc	60	60	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	
					Vc	60	60	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	
39.3	Hardened steel	1.0D	0.02D	Vc	120	120	130	130	130	130	130	130	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		
				Vc	120	120	130	130	130	130	130	130	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		
				Vc	120	120	130	130	130	130	130	130	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		
40	Chilled Cast Iron	1.0D	0.05D	Vc	110	110	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		
				Vc	110	110	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		
				Vc	110	110	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		
41	Hardened Cast Iron	1.0D	0.05D	Vc	110	110	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		
				Vc	110	110	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		
				Vc	110	110	130	130	130	130	130	130	fz	0																														



**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER**

G8A02, G8A37 SERIES 4 FLUTE - SIDE CUTTING

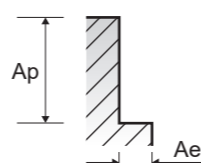
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

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	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	FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294
					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	FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294
					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	FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294
	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	FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294
					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	FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294
					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	FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294
	11.1	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	FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
					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	FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
					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	FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
	11.2	High alloyed steel, and tool steel	0.03D	1.0D	Vc	106	108	106	106	106	108	106	106	106	108	110	fz	0.036	0.049	0.058	0.065	0.083	0.095	0.110	0.125	0.140	0.155	0.170	RPM	5623	4297	3374	2812	2149	1751	1515	1215	1097	1070	998	FEED	1215	1263	1174	1097	1070	1070	998	998	998	998	998
					Vc	106	108	106	106	106	108	106	106	108	106	106	fz	0.036	0.049	0.058	0.065	0.083	0.095	0.110	0.125	0.140	0.155	0.170	RPM	5623	4297	3374	2812	2149	1751	1515	1215	1097	1070	998	FEED	1215	1263	1174	1097	1070	1070	998	998	998	998	998
					Vc	106	108	106	106	106	108	106	106	108	106	106	fz	0.036	0.049	0.058	0.065	0.083	0.095	0.110	0.125	0.140	0.155	0.170	RPM	5623	4297	3374	2812	2149	1751	1515	1215	1097	1070	998	FEED	1215	1263	1174	1097	1070	1070	998	998	998	998	998
H	38.1	Hardened steel	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	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	FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968	
					Vc	80	110	110	110	130	130	130	130	130	130	130	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	FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
					Vc	80	110	110	110	130	130	130	130	130	130	130	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	FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
	38.2	Hardened steel	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	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	FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968	
					Vc	80	110	110	110	130	130	130	130	130	130	130	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	FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
					Vc	80	110	110	110	130	130	130	130	130	130	130	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	FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
	39.1	Hardened steel	0.03D	1.0D	Vc	65	90	90	90	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	FEED	414	516	535	544	586	552	525	484	478	422	376	
					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	FEED	414	516	535	544	586	552	525	484	478	422	376
					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	FEED	414	516	535	544	586	552	525	484	478	422	376
	39.2	Hardened steel	0.03D	1.0D	Vc	50	70	70	70	80	80	80	80	80	80	fz	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036	0.042	0.048	RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273	FEED	255	312	327	334	367	356	331	306	306	267	244	
					Vc	50	70	70	70	80	80	80	80	80	80	80	fz	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036	0.042	0.048	RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273	FEED	255	312	327	334	367	356	331	306	306	267	244
					Vc	50	70	70	70	80	80	80	80	80	80	80	fz	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036	0.042	0.048	RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273	FEED	255	312	327	334	367	356	331	306	306	267	244
39.3	Hardened steel	0.03D	1.0D	Vc	40	60	60	60	70	70	70	70	70	70	fz	0.004	0.007	0.009	0.013	0.016	0.018	0.022	0.025	0.03	0.036	0.041	RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	204	267	229	248	285	267	245	223	223	201	183		
				Vc	40	60	60	60	70	70	70	70	70	70	70	fz	0.004	0.007	0.009	0.013	0.016	0.018	0.022	0.025	0.03	0.036	0.041	RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114	FEED	204	267	229	248	285	267	245	223	223	201	183	
				Vc	40	60	60	60	70	70	70	70	70	70	70	fz	0.004	0.007	0.009	0.013	0.016	0.018																														

G8D63 SERIES 6&8 FLUTE LONG LENGTH - SIDE CUTTING

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

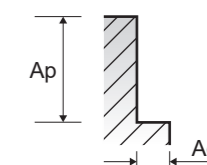
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	5	Non-alloy steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	125
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592
					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	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	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	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	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	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	



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	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	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	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	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	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	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	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	





Global Cutting Tool Leader **YG-1**



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