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K-2 CARBIDE END MILLS

TiAIN-COATED SOLID CARBIDE END MILLS

General Purpose
Conventional / High Speed Milling
Wet / Dry Cutting

SELECTION GUIDE

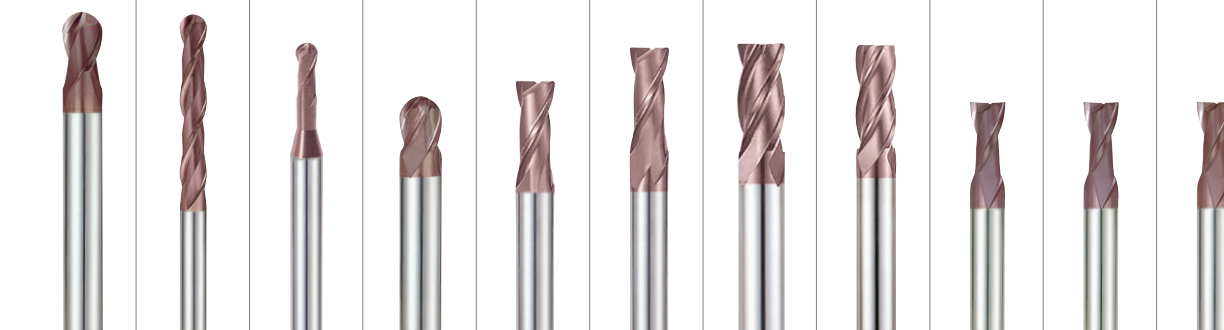


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TiAlN-COATED SOLID CARBIDE END MILLS
General Purpose
Conventional / High Speed Milling
Wet / Dry Cutting

◎ : Excellent ○ : Good

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	Malleable cast iron	Ferritic		130		○	○	○	○
	20		Pearlitic		230	21	○	○	○	○
	N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○
22		Curable Hardened		100		○	○	○	○	
23		Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○
24			≤ 12% Si, Curable Hardened		90		○	○	○	○
25			> 12% Si, Not Curable		130		○	○	○	○
26		Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○	○
27			CuZn, CuSnZn (Brass)		90		○	○	○	○
28			CuSn, lead-free copper and electrolytic copper		100		○	○	○	○
29		Non Metallic Materials	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				

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SELECTION GUIDE



K-2 CARBIDE END MILLS

TiAIN-COATED SOLID CARBIDE END MILLS
General Purpose
Conventional / High Speed Milling
Wet / Dry Cutting

◎ : Excellent ○ : Good

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	Malleable cast iron	Ferritic		130		○	○	○
	20		Pearlitic		230	21	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○
	22		Curable	Hardened	100		○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○	○
	25		> 12% Si, Not Curable		130		○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○
	27		CuZn, CuSnZn (Brass)		90		○	○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○
	29	Non Metallic Materials	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			

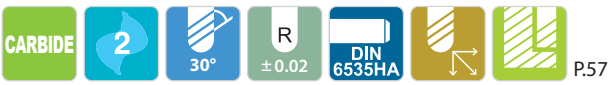
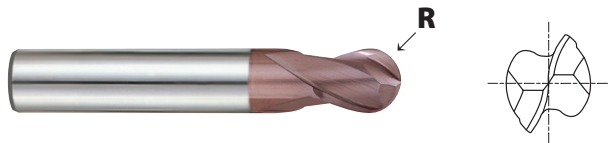
G9A69	G9448	G9540	G9449	G9G51	G9453	G9F45 G9F46	G9A42	G9400
4	4	4	4	4	4	4&6	Multi Flute	2
30°	≈ 30°	≈ 30°	≈ 30°	≈ 30°	30°	45°	30°	30°
SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	DRILL MILL
D1.0	D2.0	D3.5	D2.0	D3.0	D3.0	D3.0	D6.0	D3.0
D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D25.0	D20.0
48	49	50	51	52	53	54	55	56
SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH with CHAMFER	EXTRA LONG LENGTH	SHORT LENGTH LONG LENGTH	LONG LENGTH	-
TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	X-Coating	TiAIN

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○	○	○	○	○	○	○	○		40	
						○			41	

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE SHORT LENGTH BALL NOSE

G9624 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.02)				
G9624020	R1.0	2.0	6	4	48
G9624025	R1.25	2.5	6	4	48
G9624030	R1.5	3.0	6	4	48
G9624040	R2.0	4.0	6	6	50
G9624901	R2.0	4.0	4	12	40
G9624050	R2.5	5.0	6	7	51
G9624902	R2.5	5.0	5	14	50
G9624060	R3.0	6.0	6	7	51
G9624080	R4.0	8.0	8	9	59
G9624100	R5.0	10.0	10	10	60
G9624120	R6.0	12.0	12	14	71
G9624140	R7.0	14.0	14	14	71
G9624160	R8.0	16.0	16	16	76
G9624180	R9.0	18.0	18	18	76
G9624200	R10.0	20.0	20	20	82

Unit : mm

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

◎ : Excellent ○ : Good																							
ISO	P										M				K								
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230			
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○			
ISO	N										S										H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc											15	30	25	38	34			55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○			

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE SHORT LENGTH BALL NOSE

G9A70 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.02)				
G9A70010	R0.5	1.0	3	3	39
G9A70015	R0.75	1.5	3	5	39
G9A70020	R1.0	2.0	3	7	39
G9A70025	R1.25	2.5	3	8	39
G9A70030	R1.5	3.0	3	9	39
G9A70040	R2.0	4.0	4	14	51
G9A70050	R2.5	5.0	5	16	51
G9A70060	R3.0	6.0	6	19	64
G9A70080	R4.0	8.0	8	21	64
G9A70100	R5.0	10.0	10	22	70
G9A70110	R5.5	11.0	11	25	70
G9A70120	R6.0	12.0	12	25	76
G9A70160	R8.0	16.0	16	32	89
G9A70200	R10.0	20.0	20	38	102

Unit : mm

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

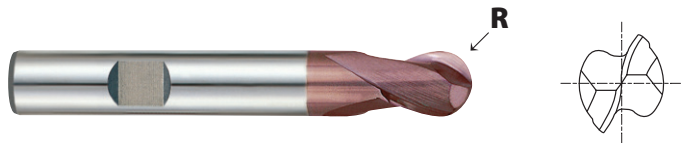
◎ : Excellent ○ : Good

ISO	P										M				K								
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230			
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○			
ISO	N										S										H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc											15	30	25	38	34			55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○			

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE SHORT LENGTH BALL NOSE

G9437 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.02)				
G9437020	R1.0	2.0	6	3	50
G9437030	R1.5	3.0	6	4	50
G9437040	R2.0	4.0	6	5	54
G9437050	R2.5	5.0	6	6	54
G9437060	R3.0	6.0	6	7	54
G9437080	R4.0	8.0	8	9	58
G9437100	R5.0	10.0	10	11	66
G9437120	R6.0	12.0	12	12	73
G9437140	R7.0	14.0	14	14	75
G9437180	R9.0	18.0	18	18	84
G9437200	R10.0	20.0	20	20	92

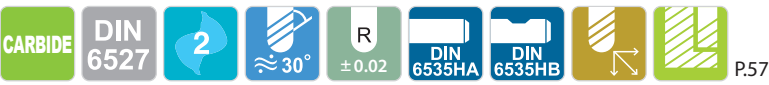
Unit : mm

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

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE LONG LENGTH BALL NOSE

G9438 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.02)				
G9438020	R1.0	2.0	3	6	38
G9438030	R1.5	3.0	6	7	57
G9438040	R2.0	4.0	6	8	57
G9438050	R2.5	5.0	6	10	57
G9438060	R3.0	6.0	6	10	57
G9438080	R4.0	8.0	8	16	63
G9438100	R5.0	10.0	10	19	72
G9438120	R6.0	12.0	12	22	83
G9438140	R7.0	14.0	14	22	83
G9438160	R8.0	16.0	16	26	92
G9438180	R9.0	18.0	18	26	92
G9438200	R10.0	20.0	20	32	104

Unit : mm

● with plain shank

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

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc											15	30	25	38	34			55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○

◎ : Excellent ○ : Good

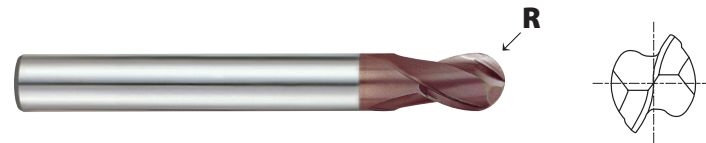
ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc											15	30	25	38	34			55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○

◎ : Excellent ○ : Good

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE LONG REACH BALL NOSE

G9454 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.02)				
G9454030	R1.5	3.0	3	5	75
G9454040	R2.0	4.0	4	8	75
G9454050	R2.5	5.0	5	9	75
G9454060	R3.0	6.0	6	10	100
G9454080	R4.0	8.0	8	12	100
G9454100	R5.0	10.0	10	14	100
G9454120	R6.0	12.0	12	16	100
G9454140	R7.0	14.0	14	18	100
G9454160	R8.0	16.0	16	22	150
G9454200	R10.0	20.0	20	26	150

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

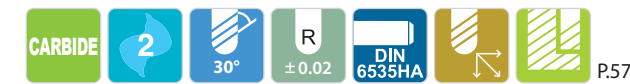
◎ : Excellent ○ : Good

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	41	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE EXTRA LONG LENGTH BALL NOSE

G9455 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.02)				
G9455903	R1.5	3.0	3	20	60
G9455030	R1.5	3.0	3	30	75
G9455904	R2.0	4.0	4	20	60
G9455040	R2.0	4.0	4	30	75
G9455905	R2.5	5.0	5	25	75
G9455050	R2.5	5.0	5	40	100
G9455906	R3.0	6.0	6	30	75
G9455060	R3.0	6.0	6	50	150
G9455908	R4.0	8.0	8	30	75
G9455080	R4.0	8.0	8	50	150
G9455910	R5.0	10.0	10	40	100
G9455100	R5.0	10.0	10	60	150
G9455912	R6.0	12.0	12	45	100
G9455120	R6.0	12.0	12	75	150
G9455914	R7.0	14.0	14	45	100
G9455140	R7.0	14.0	14	75	150
G9455916	R8.0	16.0	16	45	100
G9455160	R8.0	16.0	16	75	150
G9455918	R9.0	18.0	18	45	100
G9455180	R9.0	18.0	18	75	150
G9455920	R10.0	20.0	20	45	100
G9455200	R10.0	20.0	20	75	150

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

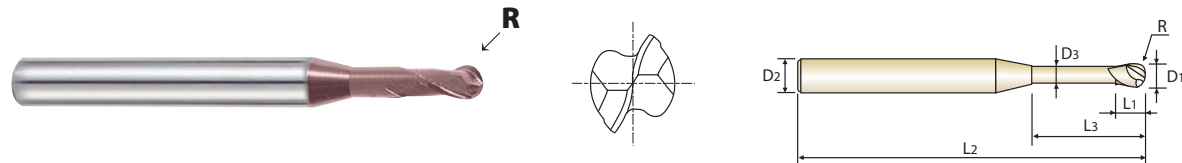
◎ : Excellent ○ : Good

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	41	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE BALL NOSE RIB PROCESSING

G9B81 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.02)	D1	D2	L1	L3	L2	D3
G9B81004	R0.2	0.4	4	0.7	2	50	0.37
G9B81005	R0.25	0.5	4	0.75	2	50	0.45
G9B81901	R0.25	0.5	4	0.75	4	50	0.45
G9B81902	R0.25	0.5	4	0.75	6	50	0.45
G9B81006	R0.3	0.6	4	0.9	2	50	0.55
G9B81903	R0.3	0.6	4	0.9	4	50	0.55
G9B81904	R0.3	0.6	4	0.9	6	50	0.55
G9B81008	R0.4	0.8	4	1.2	4	50	0.75
G9B81905	R0.4	0.8	4	1.2	6	50	0.75
G9B81906	R0.4	0.8	4	1.2	8	50	0.75
G9B81010	R0.5	1.0	4	1.5	6	50	0.95
G9B81907	R0.5	1.0	4	1.5	8	50	0.95
G9B81908	R0.5	1.0	4	1.5	10	50	0.95
G9B81909	R0.5	1.0	4	1.5	12	50	0.95
G9B81012	R0.6	1.2	4	1.8	8	50	1.15
G9B81910	R0.6	1.2	4	1.8	12	50	1.15
G9B81014	R0.7	1.4	4	2.1	16	50	1.35
G9B81015	R0.75	1.5	4	2.3	6	50	1.45
G9B81911	R0.75	1.5	4	2.3	8	50	1.45
G9B81912	R0.75	1.5	4	2.3	10	50	1.45
G9B81913	R0.75	1.5	4	2.3	12	50	1.45
G9B81914	R0.75	1.5	4	2.3	16	50	1.45

► NEXT PAGE

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

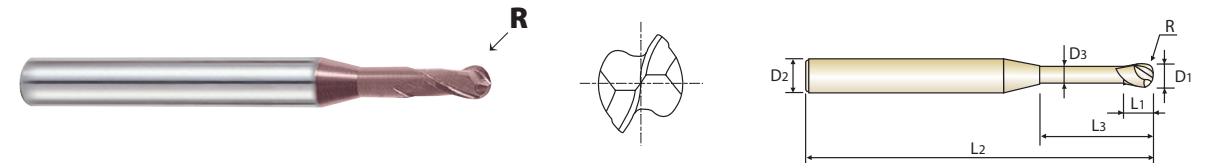
◎ : Excellent ○ : Good

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○										

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE BALL NOSE RIB PROCESSING

G9B81 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.02)	D1	D2	L1	L3	L2	D3
G9B81915	R0.75	1.5	4	2.3	20	50	1.45
G9B81016	R0.8	1.6	4	2.4	8	50	1.55
G9B81916	R0.8	1.6	4	2.4	12	50	1.55
G9B81917	R0.8	1.6	4	2.4	16	50	1.55
G9B81918	R0.8	1.6	4	2.4	20	50	1.55
G9B81020	R1.0	2.0	4	3	8	50	1.95
G9B81919	R1.0	2.0	4	3	10	50	1.95
G9B81920	R1.0	2.0	4	3	12	50	1.95
G9B81921	R1.0	2.0	4	3	14	50	1.95
G9B81922	R1.0	2.0	4	3	16	50	1.95
G9B81923	R1.0	2.0	4	3	20	50	1.95
G9B81030	R1.5	3.0	6	4.5	10	50	2.85
G9B81924	R1.5	3.0	6	4.5	12	50	2.85
G9B81925	R1.5	3.0	6	4.5	16	60	2.85
G9B81926	R1.5	3.0	6	4.5	20	60	2.85
G9B81927	R1.5	3.0	6	4.5	25	75	2.85
G9B81040	R2.0	4.0	6	6	12	50	3.85
G9B81928	R2.0	4.0	6	6	16	60	3.85
G9B81929	R2.0	4.0	6	6	20	75	3.85
G9B81930	R2.0	4.0	6	6	25	75	3.85
G9B81931	R2.0	4.0	6	6	30	75	3.85

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

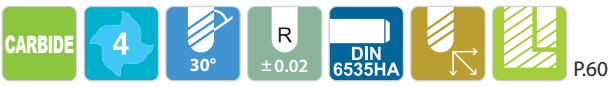
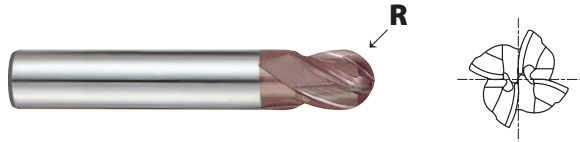
◎ : Excellent ○ : Good

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○										

TiAIN-COATED SOLID CARBIDE END MILLS
4 FLUTE SHORT LENGTH BALL NOSE

G9634 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.
- Designed for milling of radius bottom slots, fillets and special contours.



EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.02)				
G9634020	R1.0	2.0	6	4	48
G9634030	R1.5	3.0	6	4	48
G9634040	R2.0	4.0	6	6	50
G9634050	R2.5	5.0	6	7	51
G9634060	R3.0	6.0	6	7	51
G9634080	R4.0	8.0	8	9	59
G9634100	R5.0	10.0	10	10	60
G9634120	R6.0	12.0	12	14	71
G9634140	R7.0	14.0	14	14	71
G9634160	R8.0	16.0	16	16	76
G9634180	R9.0	18.0	18	18	76
G9634200	R10.0	20.0	20	20	82

Unit : mm

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

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO Material Description	N										S				H			
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE SHORT LENGTH CORNER RADIUS

G9B82 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R				
G9B82020	R0.2	2.0	4	4	50
G9B82901	R0.3	2.0	4	4	50
G9B82902	R0.5	2.0	4	4	50
G9B82025	R0.2	2.5	4	5	50
G9B82903	R0.3	2.5	4	5	50
G9B82904	R0.5	2.5	4	5	50
G9B82030	R0.2	3.0	4	6	50
G9B82905	R0.3	3.0	4	6	50
G9B82906	R0.5	3.0	4	6	50
G9B82907	R1.0	3.0	4	6	50
G9B82040	R0.2	4.0	4	8	50
G9B82908	R0.3	4.0	4	8	50
G9B82909	R0.5	4.0	4	8	50
G9B82910	R1.0	4.0	4	8	50
G9B82050	R0.2	5.0	6	10	50
G9B82911	R0.3	5.0	6	10	50
G9B82912	R0.5	5.0	6	10	50
G9B82913	R1.0	5.0	6	10	50
G9B82060	R0.2	6.0	6	12	50
G9B82914	R0.3	6.0	6	12	50
G9B82915	R0.5	6.0	6	12	50
G9B82916	R1.0	6.0	6	12	50

Unit : mm

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

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO Material Description	N										S				H			
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE SHORT LENGTH CORNER RADIUS

G9B82 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R				
G9B82080	R0.5	8.0	8	16	60
G9B82917	R1.0	8.0	8	16	60
G9B82918	R1.5	8.0	8	16	60
G9B82919	R2.0	8.0	8	16	60
G9B82920	R2.5	8.0	8	16	60
G9B82100	R0.5	10.0	10	20	75
G9B82921	R1.0	10.0	10	20	75
G9B82922	R1.5	10.0	10	20	75
G9B82923	R2.0	10.0	10	20	75
G9B82924	R2.5	10.0	10	20	75
G9B82120	R0.5	12.0	12	24	75
G9B82925	R1.0	12.0	12	24	75
G9B82926	R1.5	12.0	12	24	75
G9B82927	R2.0	12.0	12	24	75
G9B82928	R2.5	12.0	12	24	75

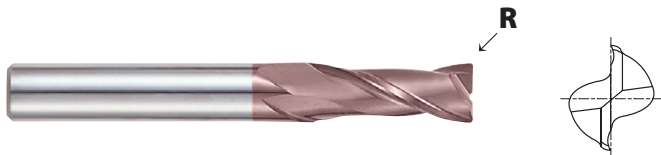
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc											15	30	25	38	34	40	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○									○

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE LONG REACH CORNER RADIUS

G9B83 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R				
G9B83030	R0.5	3.0	4	6	75
G9B83901	R1.0	3.0	4	6	75
G9B83040	R0.5	4.0	4	8	75
G9B83902	R1.0	4.0	4	8	75
G9B83050	R0.5	5.0	6	10	75
G9B83903	R1.0	5.0	6	10	75
G9B83060	R0.5	6.0	6	12	75
G9B83904	R1.0	6.0	6	12	75
G9B83080	R0.5	8.0	8	16	100
G9B83905	R1.0	8.0	8	16	100
G9B83906	R1.5	8.0	8	16	100
G9B83907	R2.0	8.0	8	16	100
G9B83908	R2.5	8.0	8	16	100
G9B83100	R0.5	10.0	10	20	100
G9B83909	R1.0	10.0	10	20	100
G9B83910	R1.5	10.0	10	20	100
G9B83911	R2.0	10.0	10	20	100
G9B83912	R2.5	10.0	10	20	100
G9B83120	R0.5	12.0	12	24	100
G9B83913	R1.0	12.0	12	24	100
G9B83914	R1.5	12.0	12	24	100
G9B83915	R2.0	12.0	12	24	100
G9B83916	R2.5	12.0	12	24	100

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

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc											15	30	25	38	34	40	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○									○

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

G9B84 PLAIN SHANK

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R				
G9B84020	R0.2	2.0	4	4	50
G9B84901	R0.3	2.0	4	4	50
G9B84902	R0.5	2.0	4	4	50
G9B84025	R0.2	2.5	4	5	50
G9B84903	R0.3	2.5	4	5	50
G9B84904	R0.5	2.5	4	5	50
G9B84030	R0.2	3.0	4	6	50
G9B84905	R0.3	3.0	4	6	50
G9B84906	R0.5	3.0	4	6	50
G9B84907	R1.0	3.0	4	6	50
G9B84040	R0.2	4.0	4	8	50
G9B84908	R0.3	4.0	4	8	50
G9B84909	R0.5	4.0	4	8	50
G9B84910	R1.0	4.0	4	8	50
G9B84050	R0.2	5.0	6	10	50
G9B84911	R0.3	5.0	6	10	50
G9B84912	R0.5	5.0	6	10	50
G9B84913	R1.0	5.0	6	10	50
G9B84060	R0.2	6.0	6	12	50
G9B84914	R0.3	6.0	6	12	50
G9B84915	R0.5	6.0	6	12	50

Unit : mm

▶ NEXT PAGE

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

◎ : Excellent ○ : Good																					
ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	
ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○											○	

◎ : Excellent ○ : Good

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

G9B84 PLAIN SHANK

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.



EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R				
G9B84916	R1.0	6.0	6	12	50
G9B84080	R0.5	8.0	8	16	60
G9B84917	R1.0	8.0	8	16	60
G9B84918	R1.5	8.0	8	16	60
G9B84919	R2.0	8.0	8	16	60
G9B84920	R2.5	8.0	8	16	60
G9B84100	R0.5	10.0	10	20	75
G9B84921	R1.0	10.0	10	20	75
G9B84922	R1.5	10.0	10	20	75
G9B84923	R2.0	10.0	10	20	75
G9B84924	R2.5	10.0	10	20	75
G9B84120	R0.5	12.0	12	24	75
G9B84925	R1.0	12.0	12	24	75
G9B84926	R1.5	12.0	12	24	75
G9B84927	R2.0	12.0	12	24	75
G9B84928	R2.5	12.0	12	24	75

Unit : mm

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

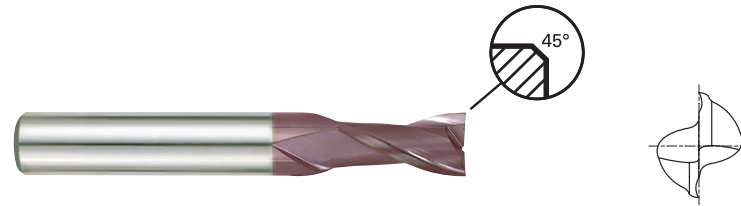
◎ : Excellent ○ : Good																					
ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	
ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○											○	

◎ : Excellent ○ : Good

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE SHORT LENGTH WITH CHAMFER

G9G44 PLAIN SHANK

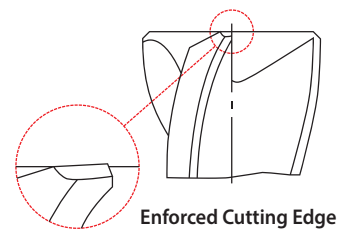
- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G44030	3.0	3	12	32	0.10
G9G44040	4.0	4	12	40	0.10
G9G44050	5.0	5	14	50	0.10
G9G44060	6.0	6	16	50	0.10
G9G44080	8.0	8	20	60	0.13
G9G44100	10.0	10	22	70	0.13
G9G44120	12.0	12	22	70	0.18
G9G44140	14.0	14	25	75	0.18
G9G44160	16.0	16	25	75	0.18
G9G44200	20.0	20	32	100	0.23

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



◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	41	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE SHORT LENGTH

G9A68 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A68010	1.0	3	3	39
G9A68015	1.5	3	5	39
G9A68020	2.0	3	7	39
G9A68025	2.5	3	7	39
G9A68030	3.0	3	9	39
G9A68040	4.0	4	14	51
G9A68050	5.0	5	16	51
G9A68060	6.0	6	19	64
G9A68080	8.0	8	21	64
G9A68100	10.0	10	22	70
G9A68120	12.0	12	25	76
G9A68160	16.0	16	32	89
G9A68200	20.0	20	38	102

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

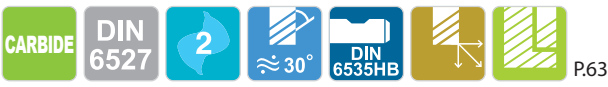
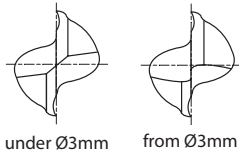
◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	41	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE SHORT LENGTH

G9444 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9444020	2.0	6	3	50
G9444030	3.0	6	4	50
G9444035	3.5	6	4	50
G9444040	4.0	6	5	54
G9444045	4.5	6	5	54
G9444050	5.0	6	6	54
G9444060	6.0	6	7	54
G9444070	7.0	8	8	58
G9444080	8.0	8	9	58
G9444090	9.0	10	10	66
G9444100	10.0	10	11	66
G9444120	12.0	12	12	73
G9444140	14.0	14	14	75
G9444160	16.0	16	16	82
G9444180	18.0	18	18	84
G9444200	20.0	20	20	92

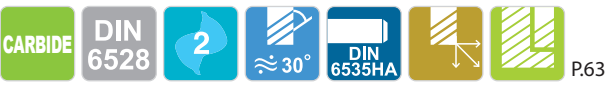
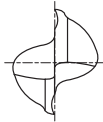
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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					Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc											15	30	25	38	34	40	41	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE LONG LENGTH

G9527 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9527035	3.5	3.5	7	50
G9527040	4.0	4	8	50
G9527045	4.5	4.5	8	50
G9527050	5.0	5	10	50
G9527055	5.5	5.5	10	57
G9527060	6.0	6	10	57
G9527065	6.5	6.5	13	60
G9527070	7.0	7	13	60
G9527075	7.5	7.5	16	63
G9527080	8.0	8	16	63
G9527085	8.5	8.5	16	67
G9527090	9.0	9	16	67
G9527095	9.5	9.5	19	72
G9527100	10.0	10	19	72
G9527110	11.0	11	22	83
G9527120	12.0	12	22	83
G9527130	13.0	13	22	83
G9527140	14.0	14	22	83
G9527150	15.0	15	26	92
G9527160	16.0	16	26	92
G9527180	18.0	18	26	92
G9527200	20.0	20	32	104

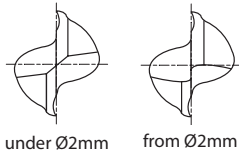
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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					Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc											15	30	25	38	34	40	41	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE LONG LENGTH

G9445 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9445901	2.0	3	6	38
G9445028	2.8	6	7	57
G9445030	3.0	6	7	57
G9445035	3.5	6	7	57
G9445038	3.8	6	8	57
G9445040	4.0	6	8	57
G9445045	4.5	6	8	57
G9445048	4.8	6	10	57
G9445050	5.0	6	10	57
G9445957	5.8	6	10	57
G9445060	6.0	6	10	57
G9445967	6.8	8	13	63
G9445070	7.0	8	13	63
G9445977	7.8	8	16	63
G9445080	8.0	8	16	63
G9445087	8.7	10	16	72
G9445090	9.0	10	16	72
G9445097	9.7	10	19	72
G9445100	10.0	10	19	72
G9445117	11.7	12	22	83
G9445120	12.0	12	22	83

● with plain shank
► NEXT PAGE

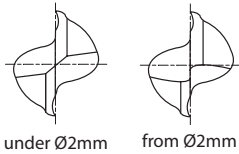
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	41	55
HB	60	100	75	90	130	110	90	100										
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE LONG LENGTH

G9445 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9445137	13.7	14	22	83
G9445140	14.0	14	22	83
G9445157	15.7	16	26	92
G9445160	16.0	16	26	92
G9445177	17.7	18	26	92
G9445180	18.0	18	26	92
G9445197	19.7	20	32	104
G9445200	20.0	20	32	104

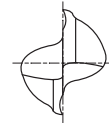
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	41	55
HB	60	100	75	90	130	110	90	100										
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE LONG LENGTH WITH CHAMFER

G9G45 FLAT SHANK

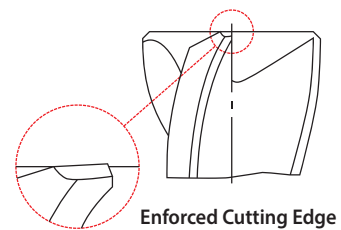
- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G45030	3.0	6	7	57	0.10
G9G45040	4.0	6	8	57	0.10
G9G45050	5.0	6	10	57	0.10
G9G45060	6.0	6	10	57	0.10
G9G45080	8.0	8	16	63	0.13
G9G45100	10.0	10	19	72	0.13
G9G45120	12.0	12	22	83	0.18
G9G45140	14.0	14	22	83	0.18
G9G45160	16.0	16	26	92	0.18
G9G45200	20.0	20	32	104	0.23

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



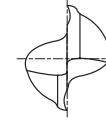
◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	41	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS 2 FLUTE EXTRA LONG LENGTH

G9452 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9452903	3.0	3	20	60
G9452030	3.0	3	30	75
G9452904	4.0	4	20	60
G9452040	4.0	4	30	75
G9452905	5.0	5	25	75
G9452050	5.0	5	40	100
G9452906	6.0	6	30	75
G9452060	6.0	6	50	150
G9452908	8.0	8	30	75
G9452080	8.0	8	50	150
G9452910	10.0	10	40	100
G9452100	10.0	10	60	150
G9452912	12.0	12	45	100
G9452120	12.0	12	75	150
G9452914	14.0	14	45	100
G9452140	14.0	14	65	150
G9452916	16.0	16	45	100
G9452160	16.0	16	65	150
G9452918	18.0	18	45	100
G9452180	18.0	18	65	150
G9452920	20.0	20	45	100
G9452200	20.0	20	65	150

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

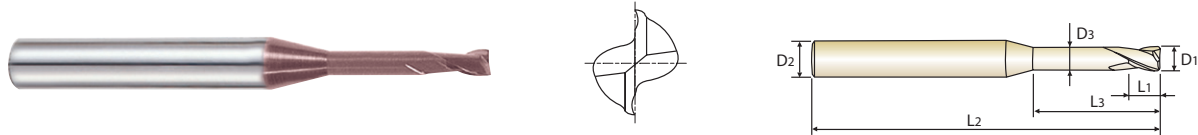
◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	40	41	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE RIB PROCESSING

G9B80 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G9B80004	0.4	4	0.7	2	50	0.37
G9B80901	0.4	4	0.7	4	50	0.37
G9B80005	0.5	4	0.75	2	50	0.45
G9B80902	0.5	4	0.75	4	50	0.45
G9B80903	0.5	4	0.75	6	50	0.45
G9B80006	0.6	4	0.9	2	50	0.55
G9B80904	0.6	4	0.9	4	50	0.55
G9B80905	0.6	4	0.9	6	50	0.55
G9B80007	0.7	4	1.1	4	50	0.65
G9B80906	0.7	4	1.1	6	50	0.65
G9B80008	0.8	4	1.2	4	50	0.75
G9B80907	0.8	4	1.2	6	50	0.75
G9B80908	0.8	4	1.2	8	50	0.75
G9B80009	0.9	4	1.4	6	50	0.85
G9B80909	0.9	4	1.4	8	50	0.85
G9B80910	0.9	4	1.4	10	50	0.85
G9B80010	1.0	4	1.5	6	50	0.95
G9B80911	1.0	4	1.5	8	50	0.95
G9B80912	1.0	4	1.5	10	50	0.95
G9B80913	1.0	4	1.5	12	50	0.95
G9B80012	1.2	4	1.8	6	50	1.15
G9B80914	1.2	4	1.8	8	50	1.15
G9B80915	1.2	4	1.8	10	50	1.15
G9B80916	1.2	4	1.8	12	50	1.15

Unit : mm

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

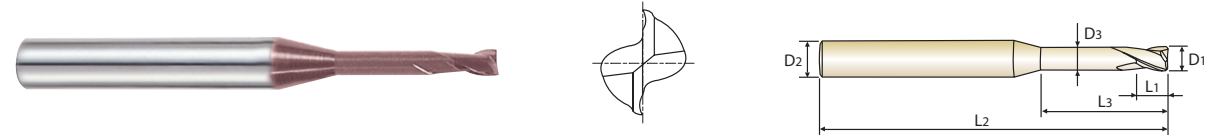
◎ : Excellent ○ : Good

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRC	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○										

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE RIB PROCESSING

G9B80 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G9B80015	1.5	4	2.3	6	50	1.45
G9B80917	1.5	4	2.3	8	50	1.45
G9B80918	1.5	4	2.3	10	50	1.45
G9B80919	1.5	4	2.3	12	50	1.45
G9B80920	1.5	4	2.3	14	50	1.45
G9B80921	1.5	4	2.3	16	50	1.45
G9B80922	1.5	4	2.3	18	50	1.45
G9B80923	1.5	4	2.3	20	50	1.45
G9B80020	2.0	4	3	6	50	1.95
G9B80924	2.0	4	3	8	50	1.95
G9B80925	2.0	4	3	10	50	1.95
G9B80926	2.0	4	3	12	50	1.95
G9B80927	2.0	4	3	14	50	1.95
G9B80928	2.0	4	3	16	50	1.95
G9B80929	2.0	4	3	18	50	1.95
G9B80930	2.0	4	3	20	50	1.95
G9B80025	2.5	4	3.7	8	50	2.40
G9B80931	2.5	4	3.7	12	50	2.40
G9B80932	2.5	4	3.7	16	50	2.40
G9B80933	2.5	4	3.7	20	50	2.40
G9B80030	3.0	6	4.5	8	50	2.85
G9B80934	3.0	6	4.5	12	50	2.85
G9B80935	3.0	6	4.5	16	60	2.85
G9B80936	3.0	6	4.5	20	60	2.85

Unit : mm

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

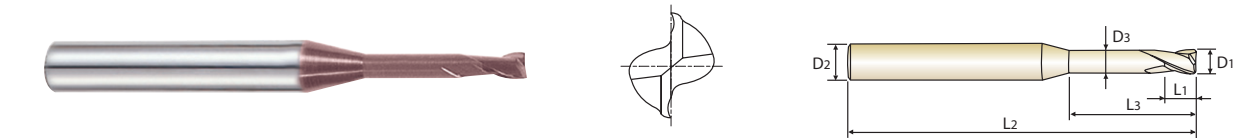
◎ : Excellent ○ : Good

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRC	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○										

TiAIN-COATED SOLID CARBIDE END MILLS
2 FLUTE RIB PROCESSING

G9B80 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 2 flute design for slotting.



EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G9B80937	3.0	6	4.5	25	75	2.85
G9B80040	4.0	6	6	12	50	3.85
G9B80938	4.0	6	6	16	60	3.85
G9B80939	4.0	6	6	20	75	3.85
G9B80940	4.0	6	6	25	75	3.85
G9B80941	4.0	6	6	30	75	3.85
G9B80942	4.0	6	6	35	75	3.85

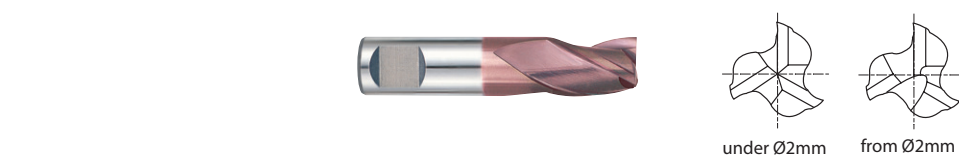
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc											15	30	25	38	34	40	55	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○										

TiAIN-COATED SOLID CARBIDE END MILLS
3 FLUTE SHORT LENGTH THROW AWAY

G9553 PLAIN SHANK
G9410 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design combines the advantage of 2 flute and 4 flute end mill.



EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
G9553005	-	0.5	3	1.5	38
G9553006	-	0.6	3	1.5	38
G9553008	-	0.8	3	2	38
G9553010	-	1.0	3	2	38
G9553012	-	1.2	3	2	38
G9553015	-	1.5	3	2	38
G9553018	-	1.8	3	2	38
-	G9410020	2.0	6	4	35
-	G9410025	2.5	6	5	36
-	G9410030	3.0	6	5	36
-	G9410035	3.5	6	6	37
-	G9410040	4.0	6	7	38
-	G9410045	4.5	6	8	38
-	G9410050	5.0	6	8	39
-	G9410055	5.5	6	8	39
-	G9410957	5.8	6	8	39
-	G9410060	6.0	6	8	39
-	G9410967	6.8	8	10	42
-	G9410070	7.0	8	10	42
-	G9410977	7.8	8	10	42
-	G9410080	8.0	8	11	43
-	G9410087	8.7	10	11	48
-	G9410090	9.0	10	11	48
-	G9410097	9.7	10	11	48

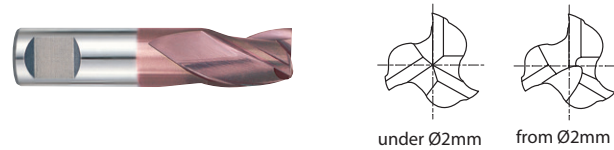
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

ISO Material Description	P										M				K			
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel		Grey cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
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
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc											15	30	25	38	34	40	55	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○								

TiAIN-COATED SOLID CARBIDE END MILLS 3 FLUTE SHORT LENGTH THROW AWAY

G9553 PLAIN SHANK
G9410 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design combines the advantage of 2 flute and 4 flute end mill.



Unit : mm

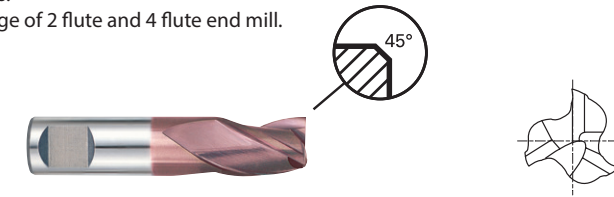
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
-	G9410100	10.0	10	13	50
-	G9410120	12.0	12	15	55
-	G9410140	14.0	14	15	58
-	G9410160	16.0	16	18	62
-	G9410180	18.0	18	20	70
-	G9410200	20.0	20	22	75

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

TiAIN-COATED SOLID CARBIDE END MILLS 3 FLUTE SHORT LENGTH THROW AWAY WITH CHAMFER

G9G46 FLAT SHANK

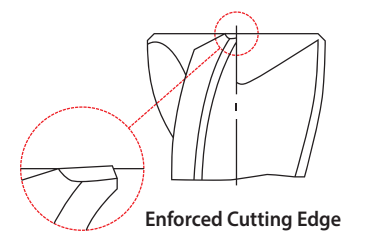
- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design combines the advantage of 2 flute and 4 flute end mill.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G46030	3.0	6	5	36	0.10
G9G46040	4.0	6	7	38	0.10
G9G46050	5.0	6	8	39	0.10
G9G46060	6.0	6	8	39	0.10
G9G46080	8.0	8	11	43	0.13
G9G46100	10.0	10	13	50	0.13
G9G46120	12.0	12	15	55	0.18
G9G46140	14.0	14	15	58	0.18
G9G46160	16.0	16	18	62	0.18
G9G46200	20.0	20	22	75	0.23

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



◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc												15	30	25	38	34	34	55
HB	60	100	75	90	130	110	90	100				200	280	250	350	320	400 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

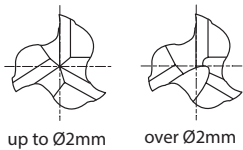
◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc												15	30	25	38	34	34	55
HB	60	100	75	90	130	110	90	100				200	280	250	350	320	400 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS
3 FLUTE SHORT LENGTH

G9439 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design combines the advantage of 2 flute and 4 flute end mill.



Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9439020	2.0	6	3	50
G9439030	3.0	6	4	50
G9439035	3.5	6	4	50
G9439040	4.0	6	5	54
G9439045	4.5	6	5	54
G9439050	5.0	6	6	54
G9439060	6.0	6	7	54
G9439070	7.0	8	8	58
G9439080	8.0	8	9	58
G9439090	9.0	10	10	66
G9439100	10.0	10	11	66
G9439120	12.0	12	12	73
G9439140	14.0	14	14	75
G9439160	16.0	16	16	82
G9439180	18.0	18	18	84
G9439200	20.0	20	20	92

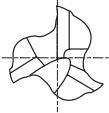
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good																							
ISO	P										M				K								
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230			
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○			
ISO	N										S										H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc											15	30	25	38	34			55	60	42	55		
HB	61	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	570	630	400	550		
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		

TiAIN-COATED SOLID CARBIDE END MILLS
3 FLUTE LONG LENGTH

G9528 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design combines the advantage of 2 flute and 4 flute end mill.



Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9528035	3.5	3.5	7	50
G9528040	4.0	4	8	50
G9528045	4.5	4.5	8	50
G9528050	5.0	5	10	50
G9528055	5.5	5.5	10	57
G9528060	6.0	6	10	57
G9528065	6.5	6.5	13	60
G9528070	7.0	7	13	60
G9528075	7.5	7.5	16	63
G9528080	8.0	8	16	63
G9528085	8.5	8.5	16	67
G9528090	9.0	9	16	67
G9528095	9.5	9.5	19	72
G9528100	10.0	10	19	72
G9528110	11.0	11	22	83
G9528120	12.0	12	22	83
G9528130	13.0	13	22	83
G9528140	14.0	14	22	83
G9528150	15.0	15	26	92
G9528160	16.0	16	26	92
G9528180	18.0	18	26	92
G9528200	20.0	20	32	104

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

◎ : Excellent ○ : Good																							
ISO	P											M			K								
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230			
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○			
ISO	N										S										H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc											15	30	25	38	34			55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○			

TiAIN-COATED SOLID CARBIDE END MILLS
3 FLUTE LONG LENGTH

G9433 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design combines the advantage of 2 flute and 4 flute end mill.



Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9433030	3.0	6	7	57
G9433040	4.0	6	8	57
G9433050	5.0	6	10	57
G9433060	6.0	6	10	57
G9433080	8.0	8	16	63
G9433090	9.0	10	16	72
G9433100	10.0	10	19	72
G9433120	12.0	12	22	83
G9433140	14.0	14	22	83
G9433160	16.0	16	26	92
G9433180	18.0	18	26	92
G9433200	20.0	20	32	104

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

TiAIN-COATED SOLID CARBIDE END MILLS
3 FLUTE LONG LENGTH WITH CHAMFER

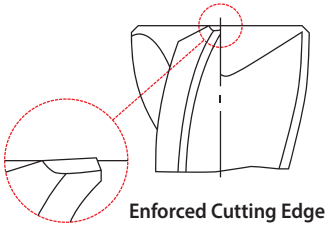
G9G48 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design combines the advantage of 2 flute and 4 flute end mill.



Unit : mm					
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G48030	3.0	6	7	57	0.10
G9G48040	4.0	6	8	57	0.10
G9G48050	5.0	6	10	57	0.10
G9G48060	6.0	6	10	57	0.10
G9G48080	8.0	8	16	63	0.13
G9G48100	10.0	10	19	72	0.13
G9G48120	12.0	12	22	83	0.18
G9G48140	14.0	14	22	83	0.18
G9G48160	16.0	16	26	92	0.18
G9G48200	20.0	20	32	104	0.23

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



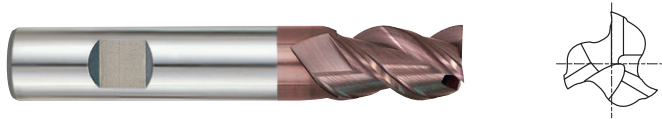
◎ : Excellent ○ : Good																							
ISO	P										M				K								
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230			
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○			
ISO	N										S										H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	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	570	630	400	550		
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		

																			◎ : Excellent ○ : Good									
ISO	P											M				K												
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron									
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20								
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21								
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230								
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○								
ISO	N										S								H									
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys			Hardened steel		Chilled Cast iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41							
HRc											15	30	25	38	34			55	60	42	55							
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550							
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○								

TiAIN-COATED SOLID CARBIDE END MILLS
3 FLUTE 45° HELIX LONG LENGTH

G9447 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.



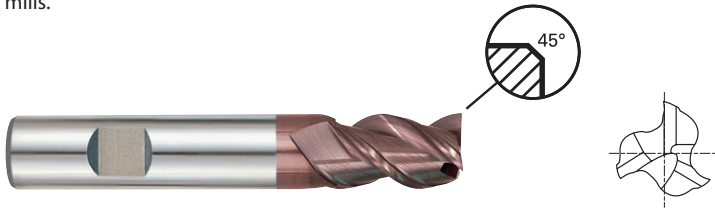
Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9447030	3.0	6	7	57
G9447035	3.5	6	7	57
G9447040	4.0	6	8	57
G9447045	4.5	6	8	57
G9447050	5.0	6	10	57
G9447060	6.0	6	10	57
G9447070	7.0	8	13	63
G9447080	8.0	8	16	63
G9447090	9.0	10	16	72
G9447100	10.0	10	19	72
G9447120	12.0	12	22	83
G9447140	14.0	14	22	83
G9447160	16.0	16	26	92
G9447180	18.0	18	26	92
G9447200	20.0	20	32	104

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

TiAIN-COATED SOLID CARBIDE END MILLS
3 FLUTE 45° HELIX LONG LENGTH WITH CHAMFER

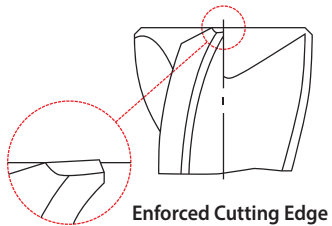
G9G49 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.



Unit : mm					
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G49030	3.0	6	7	57	0.10
G9G49040	4.0	6	8	57	0.10
G9G49050	5.0	6	10	57	0.10
G9G49060	6.0	6	10	57	0.10
G9G49080	8.0	8	16	63	0.13
G9G49100	10.0	10	19	72	0.13
G9G49120	12.0	12	22	83	0.18
G9G49140	14.0	14	22	83	0.18
G9G49160	16.0	16	26	92	0.18
G9G49200	20.0	20	32	104	0.23

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



◎ : Excellent ○ : Good																							
ISO	P										M				K								
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230			
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○			
ISO	N										S										H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc											15	30	25	38	34			55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		

◎ : Excellent ○ : Good																							
ISO	P										M				K								
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230			
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○			
ISO	N										S										H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc											15	30	25	38	34			55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550		
Recommended	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○			

TiAIN-COATED SOLID CARBIDE END MILLS
4 FLUTE SHORT LENGTH

G9A69 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.



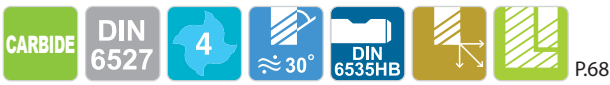
Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A69010	1.0	3	3	39
G9A69015	1.5	3	5	39
G9A69020	2.0	3	7	39
G9A69025	2.5	3	7	39
G9A69030	3.0	3	10	39
G9A69040	4.0	4	14	51
G9A69050	5.0	5	16	51
G9A69060	6.0	6	19	64
G9A69080	8.0	8	21	64
G9A69100	10.0	10	22	70
G9A69120	12.0	12	25	76
G9A69160	16.0	16	32	89
G9A69200	20.0	20	38	102

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

TiAIN-COATED SOLID CARBIDE END MILLS
4 FLUTE SHORT LENGTH

G9448 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.



Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9448020	2.0	6	4	50
G9448025	2.5	6	4	50
G9448030	3.0	6	5	50
G9448035	3.5	6	6	50
G9448040	4.0	6	8	54
G9448045	4.5	6	8	54
G9448050	5.0	6	9	54
G9448060	6.0	6	10	54
G9448070	7.0	8	11	58
G9448080	8.0	8	12	58
G9448090	9.0	10	13	66
G9448100	10.0	10	14	66
G9448120	12.0	12	16	73
G9448140	14.0	14	18	75
G9448160	16.0	16	22	82
G9448180	18.0	18	24	84
G9448200	20.0	20	26	92

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

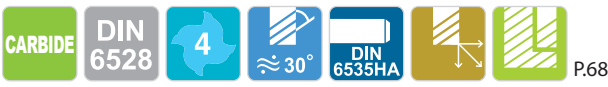
◎ : Excellent ○ : Good																					
ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	
ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

◎ : Excellent ○ : Good																					
ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	
ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34		55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS
4 FLUTE LONG LENGTH

G9540 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.



Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9540035	3.5	3.5	10	50
G9540040	4.0	4	11	50
G9540045	4.5	4.5	11	50
G9540050	5.0	5	13	50
G9540055	5.5	5.5	13	57
G9540060	6.0	6	13	57
G9540065	6.5	6.5	16	60
G9540070	7.0	7	16	60
G9540075	7.5	7.5	19	63
G9540080	8.0	8	19	63
G9540085	8.5	8.5	19	67
G9540090	9.0	9	19	67
G9540095	9.5	9.5	22	72
G9540100	10.0	10	22	72
G9540110	11.0	11	26	83
G9540120	12.0	12	26	83
G9540130	13.0	13	26	83
G9540140	14.0	14	26	83
G9540150	15.0	15	32	92
G9540160	16.0	16	32	92
G9540180	18.0	18	32	92
G9540200	20.0	20	38	104

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

◎ : Excellent ○ : Good																					
ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

TiAIN-COATED SOLID CARBIDE END MILLS
4 FLUTE LONG LENGTH

G9449 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.



Unit : mm				
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9449901	2.0	● 3	7	38
G9449030	3.0	6	8	57
G9449035	3.5	6	10	57
G9449040	4.0	6	11	57
G9449045	4.5	6	11	57
G9449050	5.0	6	13	57
G9449060	6.0	6	13	57
G9449070	7.0	8	16	63
G9449080	8.0	8	19	63
G9449090	9.0	10	19	72
G9449100	10.0	10	22	72
G9449120	12.0	12	26	83
G9449140	14.0	14	26	83
G9449160	16.0	16	32	92
G9449180	18.0	18	32	92
G9449200	20.0	20	38	104

● with plain shank

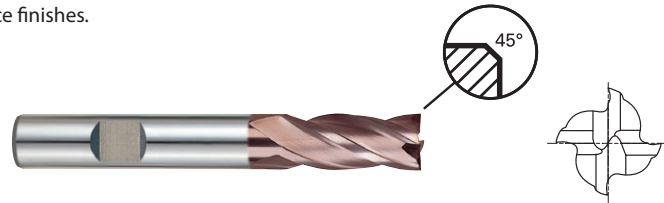
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good																					
ISO	P										M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	
ISO	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

TiAIN-COATED SOLID CARBIDE END MILLS 4 FLUTE LONG LENGTH WITH CHAMFER

G9G51 FLAT SHANK

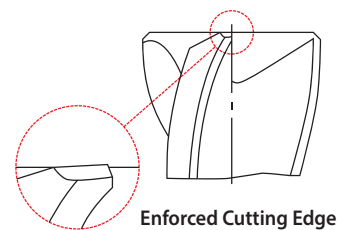
- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G51030	3.0	6	8	57	0.10
G9G51040	4.0	6	11	57	0.10
G9G51050	5.0	6	13	57	0.10
G9G51060	6.0	6	13	57	0.10
G9G51080	8.0	8	19	63	0.13
G9G51100	10.0	10	22	72	0.13
G9G51120	12.0	12	26	83	0.18
G9G51140	14.0	14	26	83	0.18
G9G51160	16.0	16	32	92	0.18
G9G51200	20.0	20	38	104	0.23

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



◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	15	30	25
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS 4 FLUTE EXTRA LONG LENGTH

G9453 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9453903	3.0	3	20	60
G9453030	3.0	3	30	75
G9453904	4.0	4	20	60
G9453040	4.0	4	30	75
G9453905	5.0	5	25	75
G9453050	5.0	5	40	100
G9453906	6.0	6	30	75
G9453060	6.0	6	50	150
G9453908	8.0	8	30	75
G9453080	8.0	8	50	150
G9453910	10.0	10	40	100
G9453100	10.0	10	60	150
G9453912	12.0	12	45	100
G9453120	12.0	12	75	150
G9453914	14.0	14	45	100
G9453140	14.0	14	65	150
G9453916	16.0	16	45	100
G9453160	16.0	16	65	150
G9453918	18.0	18	45	100
G9453180	18.0	18	65	150
G9453920	20.0	20	45	100
G9453200	20.0	20	65	150

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

◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	15	30	25
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAIN-COATED SOLID CARBIDE END MILLS 4&6 FLUTE 45° HELIX SHORT / LONG LENGTH

G9F45 PLAIN SHANK
G9F46 PLAIN SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.



■ SHORT

Unit : mm

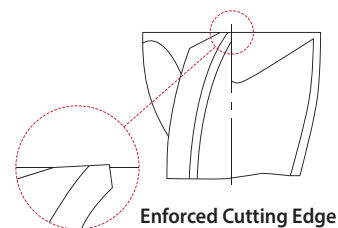
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
G9F45030	3.0	4	6	50	4
G9F45040	4.0	4	11	50	4
G9F45050	5.0	6	13	50	6
G9F45060	6.0	6	16	50	6
G9F45080	8.0	8	19	60	6
G9F45100	10.0	10	22	75	6
G9F45120	12.0	12	26	75	6
G9F45140	14.0	14	30	90	6
G9F45160	16.0	16	32	100	6
G9F45180	18.0	18	38	100	6
G9F45000	20.0	20	38	100	6

■ LONG

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
G9F46120	12.0	12	50	100	6
G9F46160	16.0	16	65	150	6
G9F46200	20.0	20	75	150	6

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



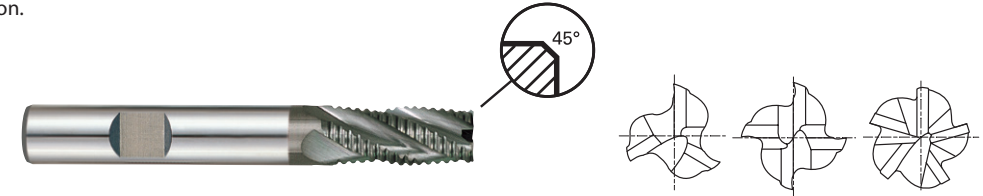
◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	○	○	○	○	○	○	○	○	◎	○	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42
HB											200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

X-COATED SOLID CARBIDE END MILLS MULTI FLUTE LONG LENGTH ROUGHING - COARSE

G9A42 FLAT SHANK

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Fast chip ejection.

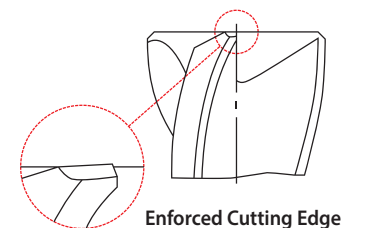


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
G9A42060	6.0	6	16	57	3	0.60
G9A42080	8.0	8	16	63	3	0.60
G9A42100	10.0	10	22	72	4	0.60
G9A42120	12.0	12	26	83	4	0.74
G9A42140	14.0	14	26	83	4	0.94
G9A42160	16.0	16	32	92	4	0.94
G9A42180	18.0	18	32	92	4	0.94
G9A42200	20.0	20	38	104	4	0.94
G9A42250	25.0	25	45	121	5	0.94

Tolerances according to DIN 7160 & 7161

Tolerance range in μ m					
Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h5	0 - 4	0 - 5	0 - 6	0 - 8	0 - 9



◎ : Excellent ○ : Good

ISO	P										M				K			
Material Description	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel				Stainless steel			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
ISO	N										S				H			
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42
HB											200	280	250	350	320	400 Rm	1050 Rm	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

TiAlN-COATED SOLID CARBIDE END MILLS

G9400 PLAIN SHANK



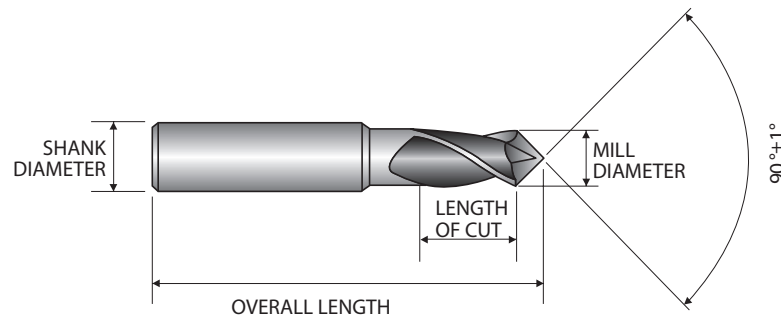
P.71~73

Unit : mm

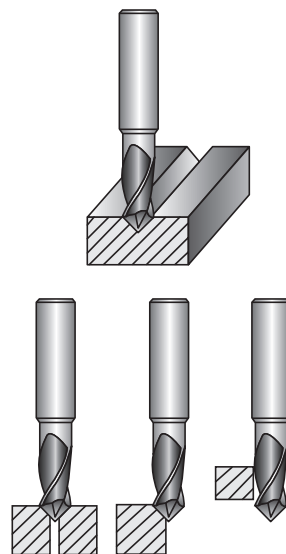
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9400030	3.0	4	6	50
G9400040	4.0	5	8	50
G9400050	5.0	6	10	50
G9400060	6.0	8	12	60
G9400080	8.0	10	16	70
G9400100	10.0	12	18	70
G9400120	12.0	12	20	70
G9400140	14.0	14	24	80
G9400160	16.0	16	26	80
G9400200	20.0	20	32	100

► TiN, TiCN and TiAlN Coatings are available on your request.

- Performs many drilling and milling operations that are not presently done with the standard end mill.
- Among the many vertical milling machine operations, applications for the Drill Mill are:
Drilling, Slotting, NC Milling, Drilling & Slotting, Profile Milling and Chamfering.



Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
$\varnothing 3 \sim \varnothing 10 = h9$ $\varnothing 12 \sim \varnothing 20 = d9$	h5



◎ : Excellent ○ : Good

[illegible]

RECOMMENDED CUTTING CONDITIONS

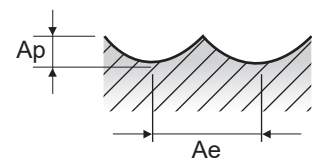
$V_c = \text{m/min.}$
 $f_z = \text{mm/tooth}$
 $\text{RPM} = \text{rev./min.}$
 $\text{FEED} = \text{mm/min.}$
 $A_p = \text{mm}$

G9624, G9A70, G9437, G9438, G9454, G9455 SERIES

2 FLUTE BALL NOSE

ISO	VDI 3323	Material Description	Ae	Parameter	Mill Diameter (Ø)											
					2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	1-4	Non-alloy steel	0.2D	Vc	80	105	110	125	135	155	170	190	200	205	215	225
				fz	0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.188	0.201
				RPM	12732	11141	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	662	557	613	716	859	1098	1320	1512	1501	1468	1430	1440
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	5		0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175
				fz	0.023	0.023	0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158
				RPM	8754	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	403	390	444	484	700	796	859	955	931	898	890	880
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	6-7	Low alloy steel	0.2D	Vc	80	105	110	125	135	155	170	190	200	205	215	225
				fz	0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.188	0.201
				RPM	12732	11141	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	662	557	613	716	859	1098	1320	1512	1501	1468	1430	1440
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	8-9		0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175
				fz	0.023	0.023	0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158
				RPM	8754	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	403	390	444	484	700	796	859	955	931	898	890	880
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
10	High alloyed steel, and tool steel	0.2D	Vc	80	105	110	125	135	155	170	190	200	205	215	225	
			fz	0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.188	0.201	
			RPM	12732	11141	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581	
			FEED	662	557	613	716	859	1098	1320	1512	1501	1468	1430	1440	
			Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
11.1 - 11.2		0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175	
			fz	0.023	0.023	0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158	
			RPM	8754	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785	
			FEED	403	390	444	484	700	796	859	955	931	898	890	880	
			Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.7D	Vc	65	65	65	65	65	65	65	65	60	65	60	65
				fz	0.01	0.016	0.028	0.04	0.053	0.092	0.112	0.131	0.164	0.177	0.209	0.2
				RPM	10345	6897	5173	4138	3448	2586	2069	1724	1364	1293	1061	1035
				FEED	207	221	290	331	366	476	463	452	447	458	444	414
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
N	21~22	Aluminum-wrought alloy	0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185
				fz	0.006	0.01	0.013	0.019	0.023	0.034	0.044	0.061	0.073	0.07	0.079	0.092
				RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944
				FEED	372	414	403	460	476	541	546	631	631	543	531	542
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
23~25	Aluminum-cast, alloyed	0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185	
			fz	0.006	0.01	0.013	0.019	0.023	0.034	0.044	0.061	0.073	0.07	0.079	0.092	
			RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944	
			FEED	372	414	403	460	476	541	546	631	631	543	531	542	
			Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
H	38.1	Hardened steel	0.2D	Vc	25	35	45	50	50	50	55	55	55	60	60	60
				fz	0.016	0.016	0.021	0.024	0.03	0.046	0.054	0.07	0.081	0.091	0.1	0.111
				RPM	3979	3714	3581	3183	2653	1989	1751	1459	1251	1194	1061	955
				FEED	127	119	150	153	159	183	189	204	203	217	212	212
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	40	Chilled Cast Iron	0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175
				fz	0.023	0.023	0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158
				RPM	8754	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	403	390	444	484	700	796	859	955	931	898	890	880
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3

※ The FEED, in long & extra long types, should be reduced by around 50%



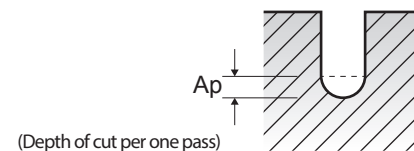
G9B81 SERIES

2 FLUTE BALL NOSE

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)				
				0.4	0.5	0.6	0.8	1.0
P	1-4	Non-alloy steel	Vc	33~43	41~53	50~64	66~85	77~97
			fz	0.003~0.006	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010
			RPM	26350~34000	26350~34000	26350~34000	26350~34000	24650~31000
			FEED	150~415	150~415	190~535	190~535	210~595
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	5	Non-alloy steel	Vc	24~30	30~38	36~46	48~61	55~69
			fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007
			RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100
			FEED	75~230	75~230	95~300	95~300	105~330
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	6-7	Low alloy steel	Vc	33~43	41~53	50~64	66~85	77~97
			fz	0.003~0.006	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010
			RPM	26350~34000	26350~34000	26350~34000	26350~34000	24650~31000
			FEED	150~415	150~415	190~535	190~535	210~595
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	8-9	Low alloy steel	Vc	24~30	30~38	36~46	48~61	55~69
			fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007
			RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100
			FEED	75~230	75~230	95~300	95~300	105~330
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	10	High alloyed steel, and tool steel	Vc	33~43	41~53	50~64	66~85	77~97
			fz	0.003~0.006	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010
			RPM	26350~34000	26350~34000	26350~34000	26350~34000	24650~31000
			FEED	150~415	150~415	190~535	190~535	210~595
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	11.1 - 11.2	High alloyed steel, and tool steel	Vc	24~30	30~38	36~46	48~61	55~69
			fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007
			RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100
			FEED	75~230	75~230	95~300	95~300	105~330
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090

※ The FEED, in long & extra long types, should be reduced by around 50%

▶ NEXT PAGE



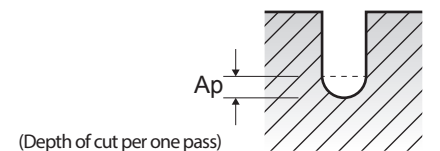
(Depth of cut per one pass)

G9B81 SERIES

2 FLUTE BALL NOSE

VDI 3323	Material Description	Parameter	Mill Diameter (Ø)							
			1.2	1.4	1.5	1.6	1.8	2.0	3.0	4.0
1-4	Non-alloy steel	Vc	77~98	79~97	75~97	78~101	82~103	82~101	85~104	90~117
		fz	0.005~0.013	0.006~0.015	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.036
		RPM	20500~26000	18000~22000	16000~20500	15500~20000	14500~18200	13000~16000	9000~11000	7200~9350
		FEED	210~665	210~665	210~665	210~665	210~665	210~665	210~665	210~665
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
	5	Vc	55~69	56~67	54~70	56~70	58~72	59~72	57~108	63~83
		fz	0.004~0.009	0.004~0.011	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.014	0.011~0.025
		RPM	14500~18300	12800~15300	11500~14900	11200~14000	10200~12800	9400~11500	6000~11500	5000~6600
		FEED	105~330	105~330	105~330	105~330	105~330	105~330	105~330	105~330
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
	6-7	Vc	77~98	79~97	75~97	78~101	82~103	82~101	85~104	90~117
		fz	0.005~0.013	0.006~0.015	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.036
		RPM	20500~26000	18000~22000	16000~20500	15500~20000	14500~18200	13000~16000	9000~11000	7200~9350
		FEED	210~665	210~665	210~665	210~665	210~665	210~665	210~665	210~665
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
	8-9	Vc	55~69	56~67	54~70	56~70	58~72	59~72	57~108	63~83
		fz	0.004~0.009	0.004~0.011	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.014	0.011~0.025
		RPM	14500~18300	12800~15300	11500~14900	11200~14000	10200~12800	9400~11500	6000~11500	5000~6600
		FEED	105~330	105~330	105~330	105~330	105~330	105~330	105~330	105~330
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
	10	Vc	77~98	79~97	75~97	78~101	82~103	82~101	85~104	90~117
		fz	0.005~0.013	0.006~0.015	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.036
		RPM	20500~26000	18000~22000	16000~20500	15500~20000	14500~18200	13000~16000	9000~11000	7200~9350
		FEED	210~665	210~665	210~665	210~665	210~665	210~665	210~665	210~665
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
	11.1 - 11.2	Vc	55~69	56~67	54~70	56~70	58~72	59~72	57~108	63~83
		fz	0.004~0.009	0.004~0.011	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.014	0.011~0.025
		RPM	14500~18300	12800~15300	11500~14900	11200~14000	10200~12800	9400~11500	6000~11500	5000~6600
		FEED	105~330	105~330	105~330	105~330	105~330	105~330	105~330	105~330
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360

※ The FEED, in long & extra long types, should be reduced by around 50%



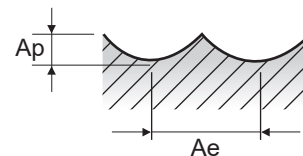
(Depth of cut per one pass)

G9634 SERIES

4 FLUTE BALL NOSE

ISO	VDI 3323	Material Description	Ae	Parameter	Mill Diameter (Ø)											
					2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	1-4	Non-alloy steel	0.2D	Vc	85	110	110	125	135	155	170	190	200	205	215	225
				fz	0.013	0.019	0.027	0.033	0.046	0.068	0.089	0.112	0.124	0.136	0.14	0.15
				RPM	13528	11671	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	703	887	945	1050	1318	1677	1926	2258	2255	2219	2129	2149
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	5		0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175
				fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119
				RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	6-7	Low alloy steel	0.2D	Vc	85	110	110	125	135	155	170	190	200	205	215	225
				fz	0.013	0.019	0.027	0.033	0.046	0.068	0.089	0.112	0.124	0.136	0.14	0.15
				RPM	13528	11671	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	703	887	945	1050	1318	1677	1926	2258	2255	2219	2129	2149
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	8-9		0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175
				fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119
				RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	10	High alloyed steel, and tool steel	0.2D	Vc	85	110	110	125	135	155	170	190	200	205	215	225
				fz	0.013	0.019	0.027	0.033	0.046	0.068	0.089	0.112	0.124	0.136	0.14	0.15
				RPM	13528	11671	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	703	887	945	1050	1318	1677	1926	2258	2255	2219	2129	2149
Ap				0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
11.1 - 11.2	0.2D		Vc	65	80	90	95	110	125	135	150	160	160	170	175	
			fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119	
			RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785	
			FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326	
			Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.7D	Vc	65	65	65	65	65	65	65	60	60	65	60	65
				fz	0.008	0.012	0.021	0.03	0.04	0.068	0.083	0.097	0.125	0.135	0.159	0.15
				RPM	10345	6897	5173	4138	3448	2586	2069	1724	1364	1293	1061	1035
				FEED	331	331	434	497	552	703	687	669	682	698	675	621
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
N	21~22	Aluminum-wrought alloy	0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185
				fz	0.005	0.007	0.01	0.015	0.017	0.026	0.033	0.046	0.055	0.053	0.06	0.069
				RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944
				FEED	621	579	621	726	703	828	819	952	950	822	806	813
	23~25	Aluminum-cast, alloyed	0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185
				fz	0.005	0.007	0.01	0.015	0.017	0.026	0.033	0.046	0.055	0.053	0.06	0.069
				RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944
				FEED	621	579	621	726	703	828	819	952	950	822	806	813
H	38.1	Hardened steel	0.2D	Vc	25	35	45	50	50	55	55	55	55	55	60	60
				fz	0.008	0.012	0.016	0.019	0.022	0.034	0.041	0.053	0.062	0.073	0.076	0.084
				RPM	3979	3714	3581	3183	2653	2188	1751	1459	1251	1094	1061	955
				FEED	127	178	229	242	233	298	287	309	310	320	323	321
	40	Chilled Cast Iron	0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175
				fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119
				RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326

※ The FEED, in long & extra long types, should be reduced by around 50%



G9B82, G9B83 SERIES

2 FLUTE CORNER RADIUS - SLOTTING

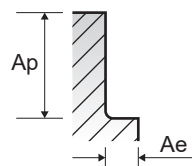
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1-4	Non-alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	50	55	65	70	70	70	70	70
					fz	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065
	RPM		7958	5836	5173	4456	3714	2785	2228	1857			
	FEED		159	175	259	276	290	318	285	241			
	5	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	30	35	40	40	45	45	40	45	
				fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	
	RPM	4775	3714	3183	2546	2387	1790	1273	1194				
	FEED	95	119	159	158	196	179	127	115				
	6-7	Low alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	50	55	65	70	70	70	70	70
					fz	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065
	RPM		7958	5836	5173	4456	3714	2785	2228	1857			
	FEED		159	175	259	276	290	318	285	241			
	8-9	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	30	35	40	40	45	45	40	45	
				fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	
RPM	4775	3714	3183	2546	2387	1790	1273	1194					
FEED	95	119	159	158	196	179	127	115					
10	High alloyed steel, and tool steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	50	55	65	70	70	70	70	70	
				fz	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	
RPM		7958	5836	5173	4456	3714	2785	2228	1857				
FEED		159	175	259	276	290	318	285	241				
11.1 - 11.2	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	30	35	40	40	45	45	40	45		
			fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048		
RPM	4775	3714	3183	2546	2387	1790	1273	1194					
FEED	95	119	159	158	196	179	127	115					
M	14.1	Stainless steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	30	35	35	35	35	35	35
					fz	0.009	0.016	0.025	0.031	0.04	0.053	0.059	0.058
					RPM	3979	3183	2785	2228	1857	1393	1114	928
					FEED	72	102	139	138	149	148	131	108
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	1.0D	Vc	60	55	60	55	55	55	60	55
					fz	0.012	0.018	0.024	0.03	0.043	0.063	0.077	0.102
					RPM	9549	5836	4775	3501	2918	2188	1910	1459
					FEED	229	210	229	210	251	276	294	298
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	140	145	140	145	145	145	145	140
					fz	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065
	RPM	22282	15385	11141	9231	7692	5769	4615	3714				
	FEED	446	462	468	462	492	496	489	483				
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	140	145	140	145	145	145	145	140
					fz	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065
	RPM	22282	15385	11141	9231	7692	5769	4615	3714				
	FEED	446	462	468	462	492	496	489	483				
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	105	105	110	105	105	110	105	105
					fz	0.01	0.015	0.019	0.025	0.033	0.043	0.055	0.066
	RPM	16711	11141	8754	6685	5570	4377	3342	2785				
	FEED	334	334	333	334	368	376	368	368				
29.1	Non Metallic Materials	1.0D	1.0D	Vc	105	105	110	105	105	110	105	105	
				fz	0.01	0.015	0.019	0.025	0.033	0.043	0.055	0.066	
RPM	16711	11141	8754	6685	5570	4377	3342	2785					
FEED	334	334	333	334	368	376	368	368					
H	40	Chilled Cast Iron	1.0D	1.0D	Vc	30	35	40	40	45	45	40	45
					fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048
					RPM	4775	3714	3183	2546	2387	1790	1273	1194
					FEED	95	119	159	158	196	179	127	115

G9B84, G9B85 SERIES

4 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)									
						1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1-4	Non-alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387
	5	Non-alloy steel	0.1D	1.0D	FEED	140	233	229	267	484	519	554	616	509	449
					Vc	30	35	40	45	50	50	55	55	55	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037
	6-7	Low alloy steel	0.1D	1.0D	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459
					FEED	76	119	153	172	302	306	362	333	266	216
	8-9	Low alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387
	10	High alloyed steel, and tool steel	0.1D	1.0D	FEED	140	233	229	267	484	519	554	616	509	449
					Vc	30	35	40	45	50	50	55	55	55	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037
M	14.1	Stainless steel	0.1D	1.0D	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459
					FEED	76	119	153	172	302	306	362	333	266	216
					Vc	25	35	35	35	40	40	45	45	45	45
	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	1.0D	fz	0.002	0.004	0.006	0.009	0.018	0.024	0.029	0.042	0.044	0.045
					RPM	7958	7427	5570	3714	3183	2546	2387	1790	1432	1194
					FEED	64	119	134	134	229	244	277	301	252	215
	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	60	55	60	55	60	55	55	55	60	55
					fz	0.008	0.013	0.017	0.026	0.035	0.044	0.065	0.093	0.116	0.155
					RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	FEED	611	607	649	607	668	616	759	814	886	905
					Vc	140	130	140	145	140	145	145	145	145	140
					fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095
N	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714
					FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411
					Vc	140	130	140	145	140	145	145	145	145	140
	29.1	Non Metallic Materials	1.0D	1.0D	fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714
					FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411
	40	Chilled Cast Iron	1.0D	1.0D	Vc	80	95	105	105	110	105	105	110	105	105
					fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785
H	40	Chilled Cast Iron	1.0D	1.0D	FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070
					Vc	80	95	105	105	110	105	105	110	105	105
					fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096
	40	Chilled Cast Iron	1.0D	1.0D	RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785
					FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070
					Vc	30	35	40	45	50	50	55	55	55	55
	40	Chilled Cast Iron	1.0D	1.0D	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459
					FEED	76	119	153	172	302	306	362	333	266	216

※ The FEED, in long & extra long types, should be reduced by around 50%



G9424, G9G44, G9A68, G9444, G9527, G9445, G9G45, G9452 SERIES

2 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)													
						1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	
P	1-4	Non-alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	45	50	55	65	70	70	70	70	70	75	75	70	
					fz	0.004	0.008	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	0.063	0.062	0.063	
					RPM	14324	9549	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114	
	5		1.0D	0.5D (Up to Ø3 : 0.2D)	FEED	115	153	159	175	259	276	290	318	285	241	215	185	140	
					Vc	25	25	30	35	40	40	45	45	40	45	45	50	45	
					fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05	
	6-7	Low alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716	
					FEED	64	85	95	119	159	158	196	179	127	115	98	99	72	
					Vc	25	25	30	35	40	40	45	45	40	45	45	50	45	
	8-9		1.0D	0.5D (Up to Ø3 : 0.2D)	fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05	
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716	
					FEED	64	85	95	119	159	158	196	179	127	115	98	99	72	
	10	High alloyed steel, and tool steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	45	50	55	65	70	70	70	70	70	75	75	70	
					fz	0.004	0.008	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	0.063	0.062	0.063	
RPM					14324	9549	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114		
11.1 - 11.2	1.0D		0.5D (Up to Ø3 : 0.2D)	FEED	115	153	159	175	259	276	290	318	285	241	215	185	140		
				Vc	25	25	30	35	40	40	45	45	40	45	45	50	45		
				fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05		
M	14.1	Stainless steel	1.0D	0.5D (Up to Ø3 : 0.2D)	RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716	
					FEED	64	85	95	119	159	158	196	179	127	115	98	99	72	
					Vc	20	25	25	30	35	35	35	35	35	35	35	35	35	
					fz	0.003	0.007	0.009	0.016	0.025	0.031	0.04	0.053	0.059	0.058	0.059	0.068	0.064	
					RPM	6366	5305	3979	3183	2785	2228	1857	1393	1114	928	796	696	557	
					FEED	38	74	72	102	139	138	149	148	131	108	94	95	71	
	K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	1.0D	Vc	60	55	60	55	60	55	55	55	60	55	55	55	55
						fz	0.005	0.008	0.012	0.018	0.024	0.03	0.043	0.063	0.077	0.102	0.119	0.145	0.189
						RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459	1251	1094	875
						FEED	191	187	229	210	229	210	251	276	294	298	298	317	331
						Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
						fz	0.004	0.007	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	0.073	0.085	0.11
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228	
					FEED	357	386	446	462	468	462	492	496	489	483	481	490	490	
					Vc	140	130	140	145	140	145	145	145	145	140	145	145	140	
					fz	0.004	0.007	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	0.073	0.085	0.11	
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228	
					FEED	357	386	446	462	468	462	492	496	489	483	481	490	490	
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105	
					fz	0.004	0.007	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	0.073	0.085	0.11	
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671	
					FEED	204	282	334	334	333	334	368	376	368	368	372	372	368	
					Vc	80	95	105	105	110	105	105	110	105	105	105	110	105	
					fz	0.004	0.007	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	0.073	0.085	0.11	
26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671		
				FEED	204	282	334	334	333	334	368	376	368	368	372	372	368		
				Vc	80	95	105	105	110	105	105	110	105	105	105	110	105		
				fz	0.004	0.007	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	0.073	0.085	0.11		
				RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671		
				FEED	204	282	334	334	333	334	368	376	368	368	372	372	368		
29.1	Non Metallic Materials	1.0D	1.0D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105		
				fz	0.004	0.007	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	0.073	0.085	0.11		
				RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671		
				FEED	204	282	334	334	333	334	368	376	368	368	372	372	368		
				Vc	25	25	30	35	40	40	45	45	40	45	45	50	45		
				fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05		
H	40	Chilled Cast Iron	1.0D	0.5D (Up to Ø3 : 0.2D)	RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716	
					FEED	64	85	95	119	159	158	196	179	127	115	98	99	72	
					Vc	25	25	30	35	40	40	45	45	40	45	45	50	45	
					fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05	
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716	
					FEED	64	85	95	119	159	158	196	179	127	115	98	99	72	

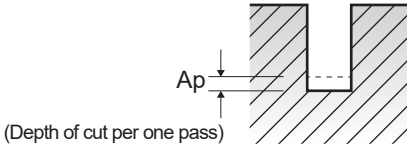
G9B80 SERIES

2 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)						
				0.4	0.5	0.6	0.7	0.8	0.9	1.0
P	1-4	Non-alloy steel	Vc	33~43	42~53	50~64	58~75	58~75	61~76	60~75
			fz	0.003~0.005	0.003~0.005	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014
			RPM	26500~34000	26500~34000	26500~34000	26500~34000	23000~30000	21500~27000	19000~24000
			FEED	170~370	170~370	210~485	210~485	240~535	240~610	240~690
	Ap		0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
	5		Vc	24~30	30~38	36~45	42~53	41~53	42~54	42~53
			fz	0.002~0.006	0.002~0.006	0.003~0.008	0.003~0.008	0.003~0.010	0.005~0.012	0.006~0.015
			RPM	19000~24000	19000~24000	19000~24000	19000~24000	16500~21000	15000~19000	13500~17000
		FEED	72~290	72~290	95~365	95~365	100~410	135~460	160~510	
	Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090		
	6-7	Low alloy steel	Vc	33~43	42~53	50~64	58~75	58~75	61~76	60~75
			fz	0.003~0.005	0.003~0.005	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014
			RPM	26500~34000	26500~34000	26500~34000	26500~34000	23000~30000	21500~27000	19000~24000
			FEED	170~370	170~370	210~485	210~485	240~535	240~610	240~690
	Ap		0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
	8-9		Vc	24~30	30~38	36~45	42~53	41~53	42~54	42~53
			fz	0.002~0.006	0.002~0.006	0.003~0.008	0.003~0.008	0.003~0.010	0.005~0.012	0.006~0.015
			RPM	19000~24000	19000~24000	19000~24000	19000~24000	16500~21000	15000~19000	13500~17000
		FEED	72~290	72~290	95~365	95~365	100~410	135~460	160~510	
	Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090		
	10	High alloyed steel, and tool steel	Vc	33~43	42~53	50~64	58~75	58~75	61~76	60~75
			fz	0.003~0.005	0.003~0.005	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014
			RPM	26500~34000	26500~34000	26500~34000	26500~34000	23000~30000	21500~27000	19000~24000
			FEED	170~370	170~370	210~485	210~485	240~535	240~610	240~690
	Ap		0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	
11.1 - 11.2	Vc		24~30	30~38	36~45	42~53	41~53	42~54	42~53	
	fz		0.002~0.006	0.002~0.006	0.003~0.008	0.003~0.008	0.003~0.010	0.005~0.012	0.006~0.015	
	RPM		19000~24000	19000~24000	19000~24000	19000~24000	16500~21000	15000~19000	13500~17000	
	FEED	72~290	72~290	95~365	95~365	100~410	135~460	160~510		
Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090			

※ The FEED, in long & extra long types, should be reduced by around 50%

▶ NEXT PAGE

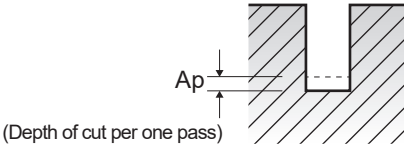


G9B80 SERIES

2 FLUTE - SLOTTING

VDI 3323	Material Description	Parameter	Mill Diameter (Ø)								
			1.2	1.4	1.5	1.6	1.8	2.0	2.5	3.0	4.0
1-4	Non-alloy steel	Vc	58~72	60~75	59~73	60~75	62~79	63~79	63~79	64~80	64~82
		fz	0.008~0.020	0.009~0.023	0.010~0.025	0.010~0.026	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.024~0.059
		RPM	15500~19000	13600~17000	12500~15500	12000~15000	11000~14000	10000~12500	8000~10000	6800~8500	5100~6500
		FEED	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765
5	Non-alloy steel	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
		Vc	41~53	43~53	42~54	44~55	44~55	44~56	45~57	44~57	44~57
		fz	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.028	0.014~0.035	0.017~0.043	0.023~0.057
		RPM	11000~14000	9800~12000	8950~11500	8700~10900	7800~9800	7000~8950	5700~7200	4700~6000	3500~4500
6-7	Low alloy steel	FEED	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
		Vc	41~53	43~53	42~54	44~55	44~55	44~56	45~57	44~57	44~57
		fz	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.028	0.014~0.035	0.017~0.043	0.023~0.057
8-9	Low alloy steel	RPM	11000~14000	9800~12000	8950~11500	8700~10900	7800~9800	7000~8950	5700~7200	4700~6000	3500~4500
		FEED	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
		Vc	58~72	60~75	59~73	60~75	62~79	63~79	63~79	64~80	64~82
10	High alloyed steel, and tool steel	fz	0.008~0.020	0.009~0.023	0.010~0.025	0.010~0.026	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.024~0.059
		RPM	15500~19000	13600~17000	12500~15500	12000~15000	11000~14000	10000~12500	8000~10000	6800~8500	5100~6500
		FEED	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
11.1 - 11.2	High alloyed steel, and tool steel	Vc	41~53	43~53	42~54	44~55	44~55	44~56	45~57	44~57	44~57
		fz	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.028	0.014~0.035	0.017~0.043	0.023~0.057
		RPM	11000~14000	9800~12000	8950~11500	8700~10900	7800~9800	7000~8950	5700~7200	4700~6000	3500~4500
		FEED	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510
11.2	High alloyed steel, and tool steel	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
		Vc	58~72	60~75	59~73	60~75	62~79	63~79	63~79	64~80	64~82
		fz	0.008~0.020	0.009~0.023	0.010~0.025	0.010~0.026	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.024~0.059
		RPM	15500~19000	13600~17000	12500~15500	12000~15000	11000~14000	10000~12500	8000~10000	6800~8500	5100~6500
		FEED	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765
		Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360

※ The FEED, in long & extra long types, should be reduced by around 50%



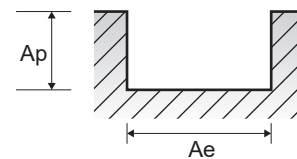
G9553, G9G46, G9410, G9425, G9G47, G9439

G9528, G9433, G9G48, G9447, G9G49 SERIES

3 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)													
						1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	
P	1-4	Non-alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	60	50	55	65	70	70	70	70	70	75	75	70	
					fz	0.002	0.003	0.005	0.007	0.012	0.015	0.018	0.027	0.03	0.031	0.029	0.029	0.029	
					RPM	14324	12732	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114	
	5	Non-alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	FEED	86	115	119	123	186	201	201	226	201	173	148	130	97	
					Vc	25	25	30	35	40	40	45	45	40	45	45	50	45	
					fz	0.002	0.004	0.005	0.007	0.012	0.014	0.02	0.024	0.023	0.022	0.022	0.023	0.024	
	6-7	Low alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716	
					FEED	48	64	72	78	115	107	143	129	88	79	68	69	52	
					Vc	45	60	50	55	65	70	70	70	70	75	75	70	70	
	8-9	Low alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	fz	0.002	0.004	0.005	0.007	0.012	0.014	0.02	0.024	0.023	0.022	0.022	0.023	0.024	
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716	
					FEED	48	64	72	78	115	107	143	129	88	79	68	69	52	
10	High alloyed steel, and tool steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	60	50	55	65	70	70	70	70	70	75	75	70		
				fz	0.002	0.003	0.005	0.007	0.012	0.015	0.018	0.027	0.03	0.031	0.029	0.029	0.029		
				RPM	14324	12732	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114		
11.1 - 11.2	High alloyed steel, and tool steel	1.0D	0.5D (Up to Ø3 : 0.2D)	FEED	86	115	119	123	186	201	201	226	201	173	148	130	97		
				Vc	25	25	30	35	40	40	45	45	40	45	45	50	45		
				fz	0.002	0.004	0.005	0.007	0.012	0.014	0.02	0.024	0.023	0.022	0.022	0.023	0.024		
M	14.1	Stainless steel	1.0D	0.5D (Up to Ø3 : 0.2D)	RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716	
					FEED	48	64	72	78	115	107	143	129	88	79	68	69	52	
					Vc	20	25	25	30	35	35	35	35	35	35	35	35	35	
					fz	0.002	0.003	0.004	0.007	0.011	0.015	0.019	0.025	0.028	0.026	0.027	0.031	0.03	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	1.0D	RPM	6366	5305	3979	3183	2785	2228	1857	1393	1114	928	796	696	557	
					FEED	38	48	48	67	92	100	106	104	94	72	64	65	50	
					Vc	60	55	60	55	60	55	55	55	60	55	55	55	55	
					fz	0.003	0.005	0.007	0.011	0.013	0.018	0.026	0.036	0.046	0.063	0.073	0.086	0.115	
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459	1251	1094	875	
					FEED	172	175	201	193	186	189	228	236	264	276	274	282	302	
					Vc	140	130	140	145	140	145	145	145	140	145	145	145	140	
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	fz	0.002	0.004	0.006	0.009	0.013	0.015	0.019	0.026	0.032	0.038	0.043	0.05	0.065	
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228	
					FEED	267	331	401	415	434	415	438	450	443	423	425	433	434	
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105	
					fz	0.002	0.004	0.006	0.009	0.012	0.015	0.02	0.025	0.032	0.039	0.046	0.05	0.065	
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671	
	29.1	Non Metallic Materials	1.0D	1.0D	FEED	153	242	301	301	315	301	334	328	321	326	329	328	326	
					Vc	80	95	105	105	110	105	105	110	105	105	105	110	105	
					fz	0.002	0.004	0.006	0.009	0.012	0.015	0.02	0.025	0.032	0.039	0.046	0.05	0.065	
H	40	Chilled Cast Iron	1.0D	1.0D	RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716	
					FEED	48	64	72	78	115	107	143	129	88	79	68	69	52	
					Vc	25	25	30	35	40	40	45	45	40	45	45	50	45	
					fz	0.002	0.004	0.005	0.007	0.012	0.014	0.02	0.024	0.023	0.022	0.022	0.023	0.024	

※ The FEED, in long & extra long types, should be reduced by around 50%



G9553, G9G46, G9410, G9425, G9G47, G9439

G9528, G9433, G9G48, G9447, G9G49 SERIES

3 FLUTE - SIDE CUTTING

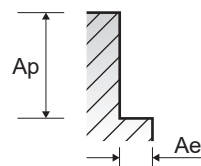
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)													
						1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	
P	1-4	Non-alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.047	
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	
	5	Non-alloy steel	0.1D	1.0D	FEED	105	175	172	201	363	390	430	451	381	337	289	272	202	
					Vc	30	35	40	45	50	50	55	55	55	55	60	55		
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.037	
	6-7	Low alloy steel	0.1D	1.0D	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	
					FEED	57	89	115	129	227	229	271	249	200	162	139	136	97	
					Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	
	8-9	Low alloy steel	0.1D	1.0D	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.03	0.038	0.038	0.037	0.037	0.038	0.037	
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	
					FEED	105	175	172	201	363	390	430	451	381	337	289	272	202	
10	High alloyed steel, and tool steel	0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55	55	60	55		
				fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.037		
				RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875		
11.1 ~ 11.2	High alloyed steel, and tool steel	0.1D	1.0D	FEED	57	89	115	129	227	229	271	249	200	162	139	136	97		
				Vc	55	55	60	70	80	85	90	90	85	90	90	95	90		
				fz	0.002	0.005	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.047		
M	14.1	Stainless steel	0.1D	1.0D	RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	
					FEED	105	175	172	201	363	390	430	451	381	337	289	272	202	
					Vc	25	35	35	35	40	40	45	45	45	45	45	45	45	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	fz	0.002	0.004	0.006	0.009	0.018	0.024	0.03	0.042	0.045	0.045	0.044	0.048	0.048	
					RPM	7958	7427	5570	3714	3183	2546	2387	1790	1432	1194	1023	895	716	
					FEED	48	89	100	100	100	172	183	215	226	193	161	135	129	103
N	21~22	Aluminum-wrought alloy	0.1D	1.5D	Vc	60	55	60	55	60	55	55	55	60	55	55	55	55	
					fz	0.008	0.013	0.017	0.026	0.035	0.044	0.064	0.093	0.115	0.154	0.181	0.22	0.285	
					RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459	1251	1094	875	
	23~25	Aluminum-cast, alloyed	0.1D	1.5D	FEED	458	455	487	455	501	462	560	611	659	674	679	722	748	
					Vc	140	130	140	145	140	145	145	145	145	140	145	145	140	
					fz	0.006	0.01	0.016	0.021	0.031	0.037	0.048	0.064	0.08	0.098	0.111	0.129	0.167	
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.1D	1.5D	RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228	
					FEED	802	828	1070	969	1036	1025	1108	1108	1108	1092	1098	1116	1116	
					Vc	80	95	105	105	110	105	105	110	105	105	105	110	105	
	29.1	Non Metallic Materials	0.1D	1.5D	fz	0.006	0.011	0.016	0.023	0.029	0.037	0.048	0.063	0.081	0.096	0.115	0.125	0.162	
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671	
					FEED	458	665	802	769	762	742	802	827	812	802	824	821	812	
H	40	Chilled Cast Iron	0.1D	1.0D	Vc	80	95	105	105	110	105	105	110	105	105	110	105		
					fz	0.006	0.011	0.016	0.023	0.029	0.037	0.048	0.063	0.081	0.096	0.115	0.125	0.162	
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671	
H	40	Chilled Cast Iron	0.1D	1.0D	FEED	458	665	802	769	762	742	802	827	812	802	824	821	812	
					Vc	30	35	40	45	50	50	55	55	55	55	60	55		
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.037	
H	40	Chilled Cast Iron	0.1D	1.0D	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875	
					FEED	57	89	115	129	227	229	271	249	200	162	139	136	97	
					Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	

G9432, G9G50, G9A69, G9448, G9540, G9449, G9G51, G9453 SERIES

4 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)												
						1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1-4	Non-alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432
	5	Non-alloy steel	0.1D	1.0D	FEED	140	233	229	267	484	519	554	616	509	449	385	355	269
					Vc	30	35	40	45	50	50	55	55	55	55	60	55	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038
	6-7	Low alloy steel	0.1D	1.0D	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	76	119	153	172	302	306	362	333	266	216	190	177	133
					Vc	55	55	60	70	80	85	90	90	85	90	90	95	90
	8-9	Low alloy steel	0.1D	1.0D	fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	76	119	153	172	302	306	362	333	266	216	190	177	133
10	High alloyed steel, and tool steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90	
				fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	0.047	
				RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432	
11.1 - 11.2	High alloyed steel, and tool steel	0.1D	1.0D	FEED	140	233	229	267	484	519	554	616	509	449	385	355	269	
				Vc	30	35	40	45	50	50	55	55	55	55	60	55	55	
				fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038	
M	14.1	Stainless steel	0.1D	1.0D	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	76	119	153	172	302	306	362	333	266	216	190	177	133
					Vc	25	35	35	35	40	40	45	45	45	45	50	45	45
					fz	0.002	0.004	0.006	0.009	0.018	0.024	0.029	0.042	0.044	0.045	0.045	0.045	0.046
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	RPM	7958	7427	5570	3714	3183	2546	2387	1790	1432	1194	1023	995	716
					FEED	64	119	134	134	229	244	277	301	252	215	184	179	132
					Vc	60	55	60	55	60	55	55	55	60	55	55	55	55
					fz	0.008	0.013	0.017	0.026	0.035	0.044	0.065	0.093	0.116	0.155	0.182	0.22	0.288
N	21~22	Aluminum-wrought alloy	0.1D	1.5D	RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459	1251	1094	875
					FEED	611	607	649	607	668	616	759	814	886	905	910	963	1008
					Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
	23~25	Aluminum-cast, alloyed	0.1D	1.5D	fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095	0.108	0.125	0.163
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
					FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411	1424	1442	1453
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.1D	1.5D	Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
					fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095	0.108	0.125	0.163
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
	29.1	Non Metallic Materials	0.1D	1.5D	FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411	1424	1442	1453
					Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096	0.115	0.125	0.162
H	40	Chilled Cast Iron	0.1D	1.0D	RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070	1098	1094	1083
					Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096	0.115	0.125	0.162
H	40	Chilled Cast Iron	0.1D	1.0D	RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070	1098	1094	1083
					Vc	30	35	40	45	50	50	55	55	55	55	60	55	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038
H	40	Chilled Cast Iron	0.1D	1.0D	RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	76	119	153	172	302	306	362	333	266	216	190	177	133
					Vc	55	55	60	70	80	85	90	90	85	90	90	95	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	0.047

※ The FEED, in long & extra long types, should be reduced by around 50%



G9F45, G9F46 SERIES

4&6 FLUTE - SIDE CUTTING

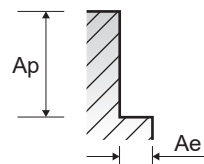
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)											
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	
P	1-4	Non-alloy steel	0.05D	1.5D	Vc	82	83	98	98	97	97	99	98	98	97	97	
					fz	0.024	0.033	0.025	0.03	0.045	0.045	0.053	0.058	0.062	0.065	0.069	
	RPM		8700	6605	6239	5199	3860	3088	2626	2228	1950	1715	1544				
	FEED		835	872	936	936	1042	834	835	775	725	669	639				
	5	0.03D	1.5D	Vc	54	55	65	65	65	64	66	66	65	65	64		
				fz	0.024	0.033	0.027	0.03	0.038	0.045	0.053	0.057	0.062	0.066	0.07		
	6-7	Low alloy steel	0.05D	1.5D	RPM	5730	4377	4138	3448	2586	2037	1751	1501	1293	1149	1019	
					FEED	550	578	670	621	590	550	557	513	481	455	428	
	8-9		0.03D	1.5D	Vc	82	83	98	98	97	97	99	98	98	97	97	
					fz	0.024	0.033	0.025	0.03	0.045	0.045	0.053	0.058	0.062	0.065	0.069	
	10	High alloyed steel, and tool steel	0.05D	1.5D	RPM	8700	6605	6239	5199	3860	3088	2626	2228	1950	1715	1544	
					FEED	835	872	936	936	1042	834	835	775	725	669	639	
11.1 - 11.2	0.03D		1.5D	Vc	54	55	65	65	65	64	66	66	65	65	64		
				fz	0.024	0.033	0.027	0.03	0.038	0.045	0.053	0.057	0.062	0.066	0.07		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.5D	RPM	5730	4377	4138	3448	2586	2037	1751	1501	1293	1149	1019	
					FEED	550	578	670	621	590	550	557	513	481	455	428	
H	38.1		Hardened steel	0.03D	1.5D	Vc	82	83	98	98	97	97	99	98	98	97	97
						fz	0.024	0.033	0.025	0.03	0.045	0.045	0.053	0.058	0.062	0.065	0.069
	38.2 39.1	0.03D		1.5D	RPM	8700	6605	6239	5199	3860	3088	2626	2228	1950	1715	1544	
					FEED	835	872	936	936	1042	834	835	775	725	669	639	
	39.2	0.02D	1D	Vc	54	55	65	65	65	64	66	66	65	65	64		
				fz	0.018	0.025	0.02	0.023	0.029	0.033	0.029	0.041	0.046	0.05	0.052		
	40	Chilled Cast Iron	0.03D	1.5D	RPM	4775	3581	3183	2653	1989	1592	1326	1137	995	884	796	
					FEED	344	358	382	366	346	315	231	280	275	265	248	
	41	Hardened Cast Iron	0.03D	1.5D	Vc	35	35	40	40	40	40	40	40	40	40	41	
					fz	0.014	0.02	0.016	0.018	0.023	0.027	0.031	0.034	0.037	0.039	0.042	
41	Hardened Cast Iron	0.03D	1.5D	RPM	3714	2785	2546	2122	1592	1273	1061	909	796	707	653		
				FEED	208	223	244	229	220	206	197	186	177	166	164		

G9A42 SERIES

MULTI FLUTE ROUGHING - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)								
						6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.3D	1.5D	Vc	250	250	245	255	255	255	250	260	285
					fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.112	0.1
					RPM	13263	9947	7799	6764	5798	5073	4421	4138	3629
	FEED		1989	1999	1965	2029	2041	2029	1981	1854	1814			
	Vc		200	195	205	190	195	205	210	190	210			
	fz		0.022	0.023	0.028	0.033	0.04	0.04	0.041	0.039	0.039			
	5	Non-alloy steel	0.3D	1.5D	RPM	10610	7759	6525	5040	4434	4078	3714	3024	2674
					FEED	700	535	731	665	709	653	609	472	521
					Vc	250	250	245	255	255	255	250	260	285
	fz		0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.112	0.1			
	RPM		13263	9947	7799	6764	5798	5073	4421	4138	3629			
	FEED		1989	1999	1965	2029	2041	2029	1981	1854	1814			
	6-7	Low alloy steel	0.3D	1.5D	Vc	200	195	205	190	195	205	210	190	210
					fz	0.022	0.023	0.028	0.033	0.04	0.04	0.041	0.039	0.039
					RPM	10610	7759	6525	5040	4434	4078	3714	3024	2674
	FEED		700	535	731	665	709	653	609	472	521			
8-9	Low alloy steel		0.3D	1.5D	Vc	250	250	245	255	255	255	250	260	285
					fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.112	0.1
		RPM			13263	9947	7799	6764	5798	5073	4421	4138	3629	
FEED		1989	1999	1965	2029	2041	2029	1981	1854	1814				
10		High alloyed steel, and tool steel	0.3D	1.5D	Vc	200	195	205	190	195	205	210	190	210
					fz	0.022	0.023	0.028	0.033	0.04	0.04	0.041	0.039	0.039
	RPM				10610	7759	6525	5040	4434	4078	3714	3024	2674	
FEED	700		535	731	665	709	653	609	472	521				
11.1 - 11.2	High alloyed steel, and tool steel		0.3D	1.5D	Vc	135	135	135	135	135	140	130	130	145
					fz	0.022	0.022	0.028	0.034	0.039	0.038	0.039	0.038	0.038
		RPM			7162	5371	4297	3581	3069	2785	2299	2069	1846	
FEED		473	355	481	487	479	423	359	314	351				
M		Stainless steel	0.05D	1.0D	Vc	40	40	35	40	35	35	35	35	40
					fz	0.026	0.024	0.036	0.04	0.037	0.032	0.038	0.041	0.06
	RPM				2122	1592	1114	1061	796	696	619	557	509	
FEED	166		115	160	170	118	89	94	91	153				
S	Heat Resistant Super Alloys		0.05D	1.0D	Vc	200	195	205	190	195	205	210	190	210
					fz	0.022	0.023	0.028	0.033	0.04	0.04	0.041	0.039	0.039
		RPM			10610	7759	6525	5040	4434	4078	3714	3024	2674	
FEED		700	535	731	665	709	653	609	472	521				
H		Chilled Cast Iron	0.3D	1.5D	Vc	200	195	205	190	195	205	210	190	210
					fz	0.022	0.023	0.028	0.033	0.04	0.04	0.041	0.039	0.039
	RPM				10610	7759	6525	5040	4434	4078	3714	3024	2674	
FEED	700		535	731	665	709	653	609	472	521				

※ The FEED, in long & extra long types, should be reduced by around 50%

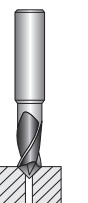


G9400 SERIES

2 FLUTE DRILL MILLS - CHAMFERING

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)									
				3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	1-2	Non-alloy steel	Vc	60	65	65	60	60	65	70	70	85	
			fz	0.025	0.031	0.04	0.052	0.071	0.083	0.1	0.125	0.137	
			RPM	6366	5173	4138	3183	2387	2069	1857	1393	1353	
	FEED		318	321	331	331	339	343	371	348	371		
	3-4		Vc	45	55	55	55	55	55	60	65	65	
			fz	0.023	0.027	0.036	0.043	0.058	0.073	0.091	0.105	0.14	
			RPM	4775	4377	3501	2918	2188	1751	1592	1293	1035	
	FEED		220	236	252	251	254	256	290	272	290		
	5		Vc	40	45	45	40	40	50	50	50	55	
			fz	0.023	0.028	0.035	0.044	0.06	0.066	0.083	0.115	0.134	
			RPM	4244	3581	2865	2122	1592	1592	1326	995	875	
	FEED		195	201	201	187	191	210	220	229	235		
	6	Low alloy steel	Vc	60	65	65	60	60	65	70	70	85	
			fz	0.025	0.031	0.04	0.052	0.071	0.083	0.1	0.125	0.137	
			RPM	6366	5173	4138	3183	2387	2069	1857	1393	1353	
	FEED		318	321	331	331	339	343	371	348	371		
	7		Vc	45	55	55	55	55	55	60	65	65	
			fz	0.023	0.027	0.036	0.043	0.058	0.073	0.091	0.105	0.14	
			RPM	4775	4377	3501	2918	2188	1751	1592	1293	1035	
	FEED		220	236	252	251	254	256	290	272	290		
	8-9		Vc	40	45	45	40	40	50	50	50	55	
			fz	0.023	0.028	0.035	0.044	0.06	0.066	0.083	0.115	0.134	
			RPM	4244	3581	2865	2122	1592	1592	1326	995	875	
	FEED		195	201	201	187	191	210	220	229	235		
10	High alloyed steel, and tool steel	Vc	60	65	65	60	60	65	70	70	85		
		fz	0.025	0.031	0.04	0.052	0.071	0.083	0.1	0.125	0.137		
		RPM	6366	5173	4138	3183	2387	2069	1857	1393	1353		
FEED		318	321	331	331	339	343	371	348	371			
11.1		Vc	40	45	45	40	40	50	50	50	55		
		fz	0.023	0.028	0.035	0.044	0.06	0.066	0.083	0.115	0.134		
		RPM	4244	3581	2865	2122	1592	1592	1326	995	875		
FEED		195	201	201	187	191	210	220	229	235			
M		14.1	Stainless steel	Vc	30	35	40	35	35	40	40	40	45
				fz	0.021	0.025	0.029	0.037	0.055	0.064	0.078	0.11	0.122
				RPM	3183	2785	2546	1857	1393	1273	1061	796	716
				FEED	134	139	148	137	153	163	166	175	175
N	21~22	Aluminum-wrought alloy	Vc	145	160	150	150	155	175	185	195	195	
			fz	0.025	0.032	0.045	0.057	0.075	0.085	0.1	0.134	0.175	
			RPM	15385	12732	9549	7958	6167	5570	4907	3879	3104	
			FEED	769	815	859	907	925	947	981	1040	1086	
	23~25	Aluminum-cast, alloyed	Vc	145	160	150	150	155	175	185	195	195	
			fz	0.025	0.032	0.045	0.057	0.075	0.085	0.1	0.134	0.175	
			RPM	15385	12732	9549	7958	6167	5570	4907	3879	3104	
			FEED	769	815	859	907	925	947	981	1040	1086	

※ The FEED, in long & extra long types, should be reduced by around 50%

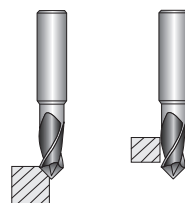


G9400 SERIES

2 FLUTE DRILL MILLS - CHAMFERING & SIDE CUTTING

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)									
				3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	1-2	Non-alloy steel	Vc	80	85	85	80	80	90	95	90	95	
			fz	0.008	0.01	0.013	0.018	0.025	0.03	0.037	0.054	0.063	
			RPM	8488	6764	5411	4244	3183	2865	2520	1790	1512	
	FEED		136	135	141	153	159	172	186	193	191		
	3-4		Vc	50	55	55	55	55	55	60	65	60	
			fz	0.008	0.01	0.013	0.018	0.024	0.03	0.041	0.05	0.064	
			RPM	5305	4377	3501	2918	2188	1751	1592	1293	955	
	FEED		85	88	91	105	105	105	131	129	122		
	5		Vc	45	50	50	50	45	55	55	55	55	
			fz	0.008	0.009	0.012	0.017	0.025	0.027	0.036	0.046	0.06	
		RPM	4775	3979	3183	2653	1790	1751	1459	1094	875		
	FEED	76	72	76	90	90	95	105	101	105			
	6	Low alloy steel	Vc	80	85	85	80	80	90	95	90	95	
			fz	0.008	0.01	0.013	0.018	0.025	0.03	0.037	0.054	0.063	
			RPM	8488	6764	5411	4244	3183	2865	2520	1790	1512	
	FEED		136	135	141	153	159	172	186	193	191		
	7		Vc	50	55	55	55	55	55	60	65	60	
			fz	0.008	0.01	0.013	0.018	0.024	0.03	0.041	0.05	0.064	
			RPM	5305	4377	3501	2918	2188	1751	1592	1293	955	
	FEED		85	88	91	105	105	105	131	129	122		
	8-9		Vc	45	50	50	50	45	55	55	55	55	
			fz	0.008	0.009	0.012	0.017	0.025	0.027	0.036	0.046	0.06	
		RPM	4775	3979	3183	2653	1790	1751	1459	1094	875		
	FEED	76	72	76	90	90	95	105	101	105			
10	High alloyed steel, and tool steel	Vc	80	85	85	80	80	90	95	90	95		
		fz	0.008	0.01	0.013	0.018	0.025	0.03	0.037	0.054	0.063		
		RPM	8488	6764	5411	4244	3183	2865	2520	1790	1512		
FEED		136	135	141	153	159	172	186	193	191			
11.1		Vc	45	50	50	50	45	55	55	55	55		
		fz	0.008	0.009	0.012	0.017	0.025	0.027	0.036	0.046	0.06		
		RPM	4775	3979	3183	2653	1790	1751	1459	1094	875		
FEED		76	72	76	90	90	95	105	101	105			
M		14.1	Stainless steel	Vc	30	35	40	35	40	45	45	45	40
				fz	0.008	0.01	0.013	0.018	0.024	0.027	0.036	0.046	0.069
	RPM			3183	2785	2546	1857	1592	1432	1194	895	637	
	FEED			51	56	66	67	76	77	86	82	88	
N	21~22	Aluminum-wrought alloy	Vc	185	210	210	205	205	225	230	230	230	
			fz	0.008	0.01	0.013	0.019	0.03	0.037	0.045	0.05	0.064	
			RPM	19629	16711	13369	10876	8157	7162	6101	4576	3661	
			FEED	314	334	348	413	489	530	549	458	469	
	23~25	Aluminum-cast, alloyed	Vc	185	210	210	205	205	225	230	230	230	
			fz	0.008	0.01	0.013	0.019	0.03	0.037	0.045	0.05	0.064	
S	36-37	Titanium Alloys	RPM	19629	16711	13369	10876	8157	7162	6101	4576	3661	
			FEED	314	334	348	413	489	530	549	458	469	
			Vc	30	35	40	35	40	45	45	45	40	
			fz	0.008	0.01	0.013	0.018	0.024	0.027	0.036	0.046	0.069	

※ The FEED, in long & extra long types, should be reduced by around 50%

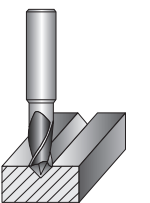


G9400 SERIES

2FLUTE DRILL MILLS - V-GROOVING

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø)									
				3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	
P	1-2	Non-alloy steel	Vc	80	85	85	80	80	90	95	100	95	
			fz	0.005	0.006	0.008	0.01	0.014	0.016	0.018	0.023	0.029	
			RPM	8488	6764	5411	4244	3183	2865	2520	1989	1512	
			FEED	85	81	87	85	89	92	91	92	88	
			3-4	Vc	55	60	55	55	55	55	55	65	60
				fz	0.004	0.004	0.006	0.007	0.012	0.014	0.02	0.022	0.028
				RPM	5836	4775	3501	2918	2188	1751	1459	1293	955
				FEED	47	38	42	41	53	49	58	57	53
			5	Vc	45	50	50	50	45	55	55	55	55
				fz	0.004	0.004	0.006	0.008	0.014	0.015	0.018	0.023	0.03
				RPM	4775	3979	3183	2653	1790	1751	1459	1094	875
				FEED	38	32	38	42	50	53	53	50	53
	6	Low alloy steel	Vc	80	85	85	80	80	90	95	100	95	
			fz	0.005	0.006	0.008	0.01	0.014	0.016	0.018	0.023	0.029	
			RPM	8488	6764	5411	4244	3183	2865	2520	1989	1512	
			FEED	85	81	87	85	89	92	91	92	88	
			7	Vc	55	60	55	55	55	55	55	65	60
				fz	0.004	0.004	0.006	0.007	0.012	0.014	0.02	0.022	0.028
				RPM	5836	4775	3501	2918	2188	1751	1459	1293	955
				FEED	47	38	42	41	53	49	58	57	53
	8-9	Vc	45	50	50	50	45	55	55	55	55		
		fz	0.004	0.004	0.006	0.008	0.014	0.015	0.018	0.023	0.03		
		RPM	4775	3979	3183	2653	1790	1751	1459	1094	875		
		FEED	38	32	38	42	50	53	53	50	53		
	10	High alloyed steel, and tool steel	Vc	80	85	85	80	80	90	95	100	95	
			fz	0.005	0.006	0.008	0.01	0.014	0.016	0.018	0.023	0.029	
			RPM	8488	6764	5411	4244	3183	2865	2520	1989	1512	
			FEED	85	81	87	85	89	92	91	92	88	
			11.1	Vc	45	50	50	50	45	55	55	55	55
				fz	0.004	0.004	0.006	0.008	0.014	0.015	0.018	0.023	0.03
				RPM	4775	3979	3183	2653	1790	1751	1459	1094	875
				FEED	38	32	38	42	50	53	53	50	53
M	14.1	Stainless steel	Vc	30	35	40	35	40	45	45	45	40	
			fz	0.004	0.005	0.006	0.008	0.01	0.011	0.013	0.019	0.028	
			RPM	3183	2785	2546	1857	1592	1432	1194	895	637	
			FEED	25	28	31	30	32	32	31	34	36	
N	21~22	Aluminum-wrought alloy	Vc	185	210	210	205	205	220	230	230	230	
			fz	0.008	0.01	0.013	0.016	0.022	0.026	0.03	0.041	0.052	
			RPM	19629	16711	13369	10876	8157	7003	6101	4576	3661	
			FEED	314	334	348	348	359	364	366	375	381	
	23~25	Aluminum-cast, alloyed	Vc	185	210	210	205	205	220	230	230	230	
			fz	0.008	0.01	0.013	0.016	0.022	0.026	0.03	0.041	0.052	
			RPM	19629	16711	13369	10876	8157	7003	6101	4576	3661	
			FEED	314	334	348	348	359	364	366	375	381	
S	36-37	Titanium Alloys	Vc	30	35	40	35	40	45	45	45	40	
			fz	0.004	0.005	0.006	0.008	0.01	0.011	0.013	0.019	0.028	
			RPM	3183	2785	2546	1857	1592	1432	1194	895	637	
			FEED	25	28	31	30	32	32	31	34	36	

※ The FEED, in long & extra long types, should be reduced by around 50%



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MEMO



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