



GrooVical

For General Grooving Applications



METRIC

GrooVical

For General Grooving Applications New Range of Indexable Grooving Inserts

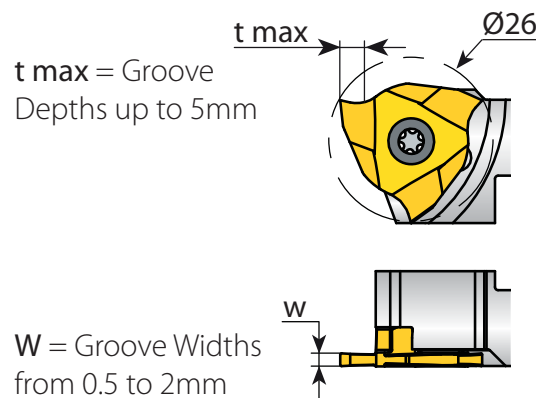
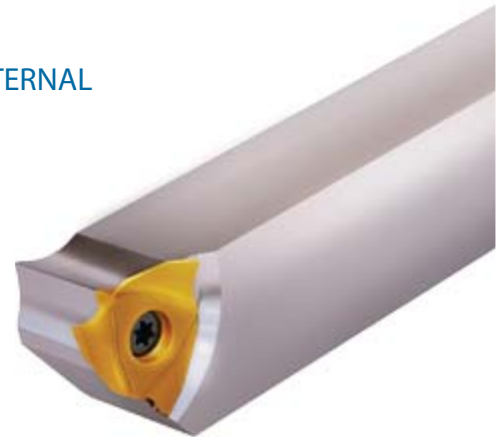
The new Groovical line by Groovex offers new and improved solutions for internal and external grooving applications. Groovical 26 and 29 tools feature inserts with 3 cutting corners and a unique rigid clamping system for improved productivity.



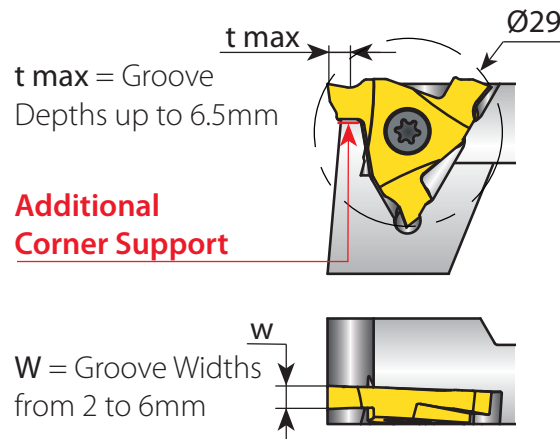
GV26

INTERNAL

EXTERNAL



GV29



GrooVical CATALOG

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Groovical Ordering Code System

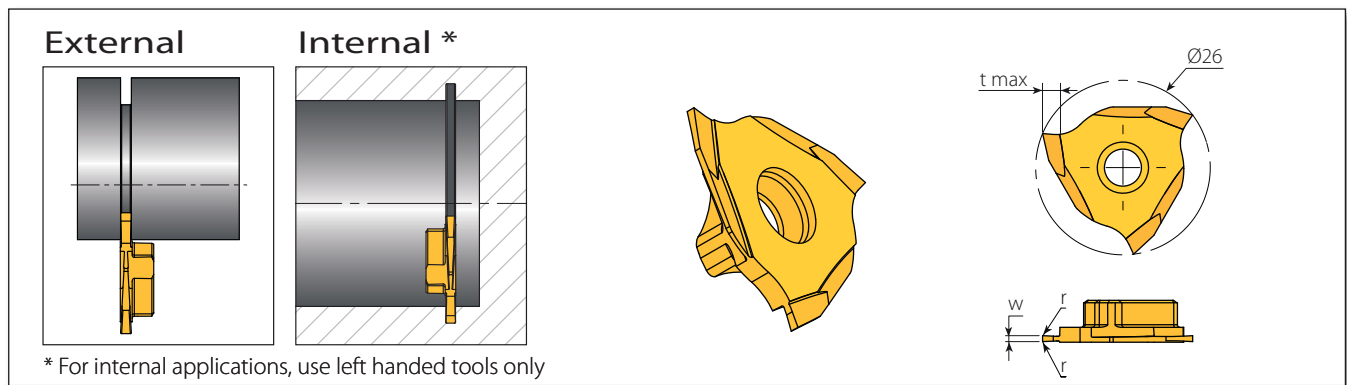
Groovical Inserts

GV	26	R	1.5	-	0.2	R	-	CB	VKX
1	2	3	4		5	6		7	8
1 - Insert Size	3 - Type of Application		4 - Grooving Width (mm)		6 - RH or LH		7 - Chip Breaker		8 - Grade
GV - Groovical	S - Square Grooving R - Round Grooving P - Parting Off X - Special Profile		0.5 - 6.35 mm		R - RH L - LH N - RH/LH		CB Blank		VKX
2 - Circular Circumference	5 - Corner Radius (mm)								
26-26mm 29-29mm	0.1-0.5 mm								

Groovical Toolholders

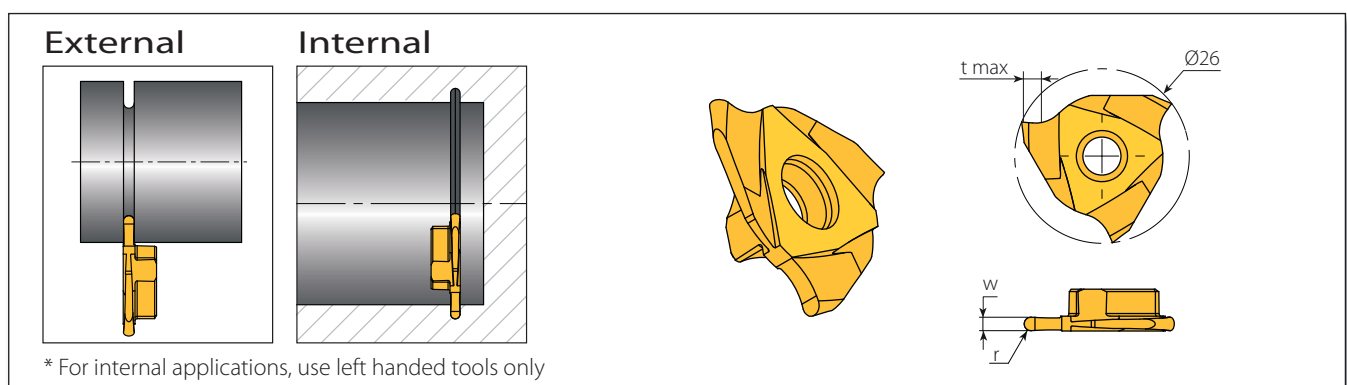
GV	E	R	12	-	29	-	1			
1	2	3	4		5		6			
1 - Insert Type	2 - External / Internal		3 - RH or LH		4 - Shank Size (mm)		5 - Insert Size		6 - Insert Type Width (mm)	
GV - Groovical	External Internal E90°- External 90° RFE- Radial Face External RFE90°- Radial Face External 90° RFI- Radial Face Internal		R - RH L - LH		12, 16, 20, 25, 32, 40		26 29		1 - 2.5 - 3.5 2 - 3.6 - 5.5 3 - 5.6 - ... Blank	

GV26 - Square Grooving



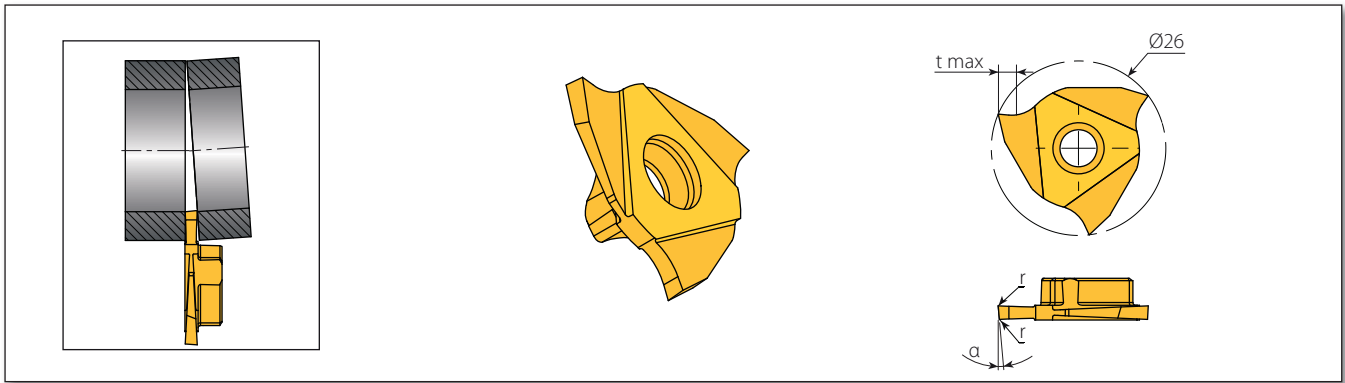
Insert Style	Ordering Code	Dimensions (mm)			Toolholder	
		RH	W±0.02	R±0.03		t max
26	GV26S0.57-00R		0.57		1	GV...-26
	GV26S0.77-00R		0.77		1.5	
	GV26S0.87-00R		0.87		2.0	
	GV26S0.97-00R		0.97		2.5	
	GV26S1.07-00R		1.07		2	
	GV26S1.2-00R		1.2	0	2	
	GV26S1.24-00R		1.24		2	
	GV26S1.4-00R		1.4		3	
	GV26S1.44-00R		1.44		3	
	GV26S1.74-00R		1.74		4	
	GV26S1.99-00R		1.99		5	
	GV26S0.8-0.2R		0.8	0.2	2	
	GV26S1.0-0.1R		1	0.1	4	
	GV26S1.5-0.2R		1.5	0.2	5	
	GV26S1.7-0.1R		1.7	0.1	3	
	GV26S2.0-0.2R		2	0.2	5	

GV26 - Round Grooving

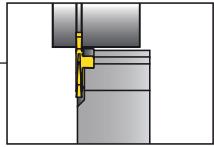


Insert Style	Ordering Code	Dimensions (mm)			Toolholder	
		RH	W±0.02	R±0.03		t max
26	GV26R0.5-0.25R		0.5	0.25	1	GV...-26
	GV26R1.0-0.5R		1	0.5	2.5	
	GV26R1.2-0.6R		1.2	0.6	3	
	GV26R1.6-0.8R		1.6	0.8	3	
	GV26R2.0-1.0R		2	1	5	

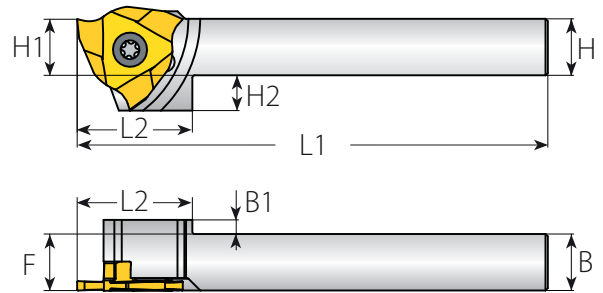
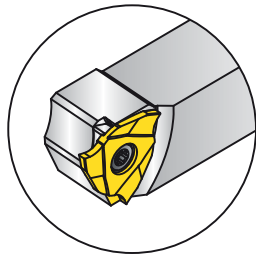
GV 26 - Parting Off



Insert Style	Ordering Code	Dimensions (mm)				Toolholder	
		RH	W±0.02	R±0.03	t max		α
26	GV26P0.5-00R		0.5	0.04	1	5	GV...-26
	GV26P0.8-00R		0.8	0.05	1.5		
	GV26P1.0-00R		1	0.06	5		
	GV26P1.2-00R		1.2	0.08	5		
	GV26P2.0-00R		2	0.2	5		

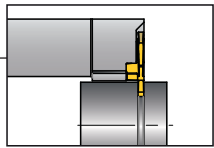


GV26 - External Toolholders

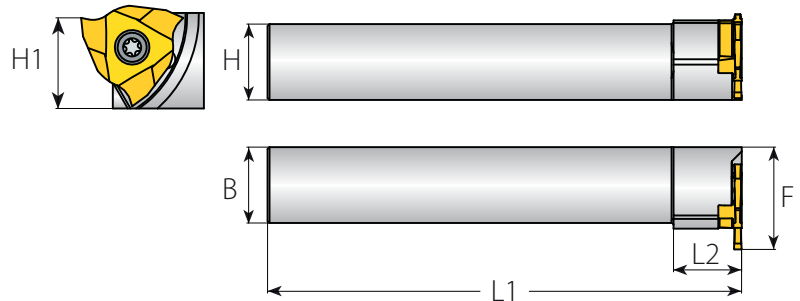
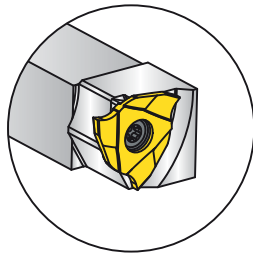


Right Hand

Insert Size		Ordering Code		Dimensions (mm)				Spare Parts	
Insert Size	Ordering Code	H=B=H1	Bl	F	H2	L1	L2	Insert Screw	Torx Key
26	GVER12-26	12	3	12	7.5	100	24	SGM5	F20IP
	GVER16-26	16	-	16	3.5	125	24		
	GVER20-26	20	-	20	-	125	-		
	GVER25-26	25	-	25	-	150	-		

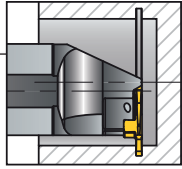


GV26 - External Toolholders - 90°

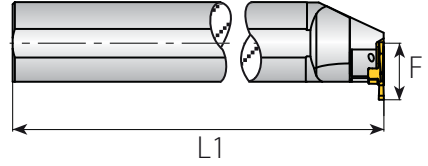
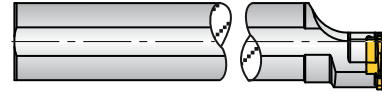
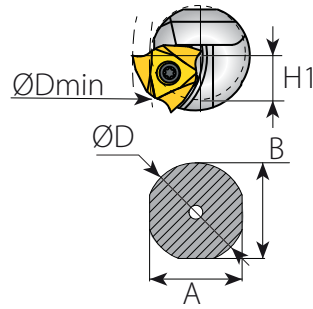
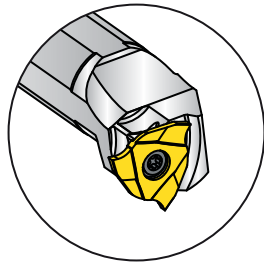


Left Hand

Insert Size		Ordering Code		Dimensions (mm)			Spare Parts	
Insert Size	Ordering Code	H=B=H1	F	L1	L2	Insert Screw	Torx Key	
26	GVE90L20-26	20	27	125	20	SGM5	F20IP	
	GVE90L25-26	25	32	150				



GV26 - Internal Toolholders



Left Hand

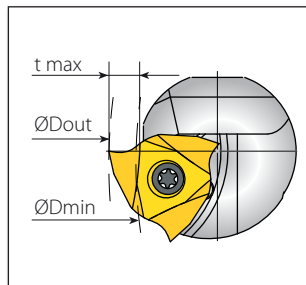
Spare Parts

Insert Size	Ordering Code		Dimensions (mm)						Spare Parts	
	LH	B	L1	D	F	A	H1	D min*	Insert Screw	Torx Key
26	GVIL25-26	24.25	200	25	18	23.5	11.3	43	SGM5	F20IP

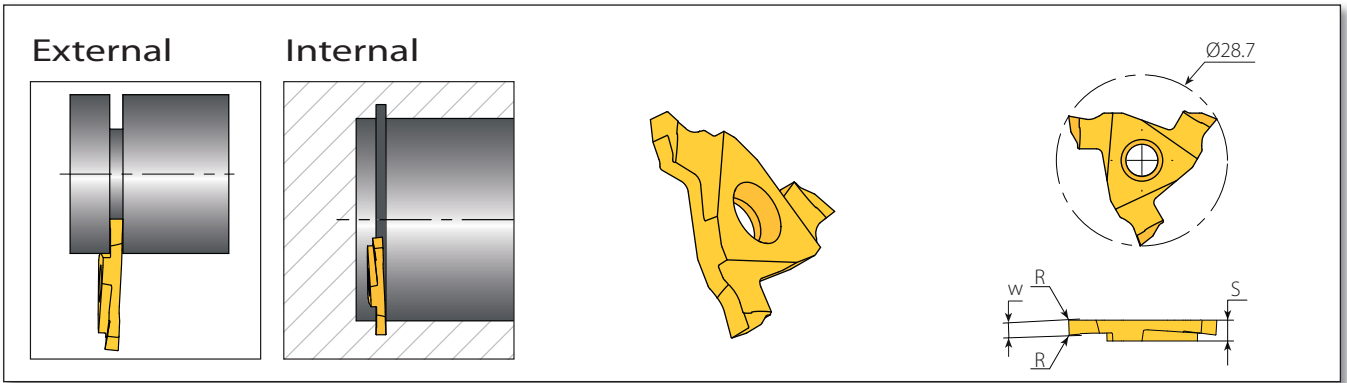
*Depth of Groove in Relation to Bore Ø

ØDmin = 43mm

ØD Outside (mm)	ØD min (mm)	t max (mm)
41	41	0
45	43	1
50	46	2
56	50	3
68	60	4
110	100	5

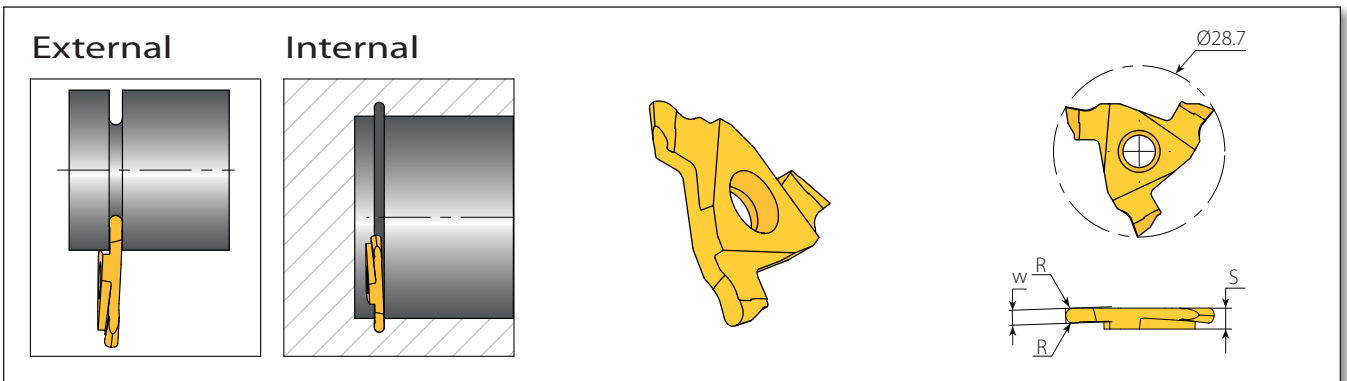


GV29 - Square Grooving



Insert Style	Ordering Code	Dimensions (mm)			
		RH/LH	W±0.02	R±0.03	S
29	GV29S2.5-0.1R/L		2.5	0.1	3.5
	GV29S2.7-0.1R/L		2.7	0.1	
	GV29S3.0-0.2R/L		3	0.2	
	GV GV29S3.5-0.2R/L		3.5	0.2	4.5
	GV GV29S4.0-0.4R/L		4	0.4	
	GV GV29S5.0-0.4R/L		5	0.4	
	GVRF29S2.5-0.1R/L		2.5	0.1	3.5
	GVRF29S2.7-0.1R/L		2.7	0.1	
	GVRF29S3.0-0.2R/L		3.0	0.2	

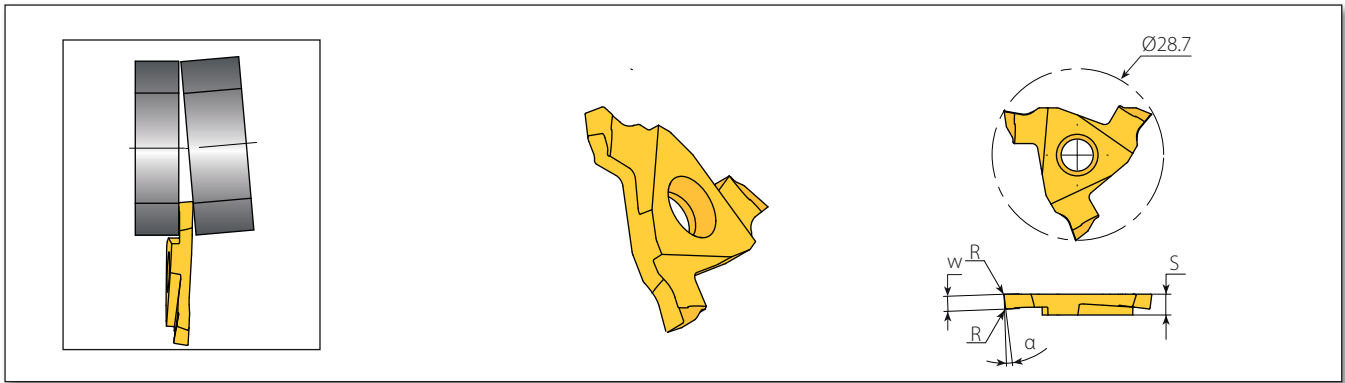
GV29 - Round Grooving



Insert Style	Ordering Code	Dimensions (mm)			
		RH/LH	W±0.02	R±0.03	S
29	GV29R2.5-1.25R/L		2.5	1.25	3.5
	GV29R3.0-1.5R/L		3	1.5	
	GV29R4.0-2.0R/L		4	2	4.5
	GVRF29R2.5-1.25R/L		2.5	1.25	3.5
	GVRF29R3.0-1.5R/L		3.0	1.5	

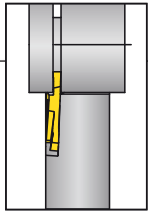
Note: For groove depths, please see pages 15,18

GV 29 - Parting Off

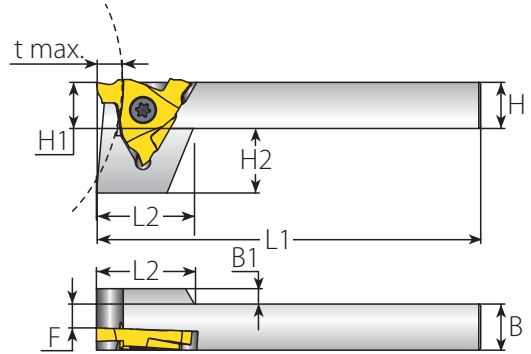
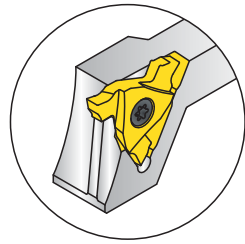


Insert Style	Ordering Code		Dimensions (mm)		
	RH/LH	W±0.02	R±0.03	α	S
29	GV29P2.5-0.2R/L	2.5	0.2	5	3.5
	GV29P3.0-0.2R/L	3			

Note: For groove depths, please see pages 15,18

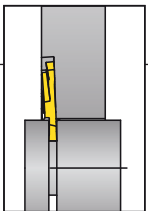


GV29 External Toolholders

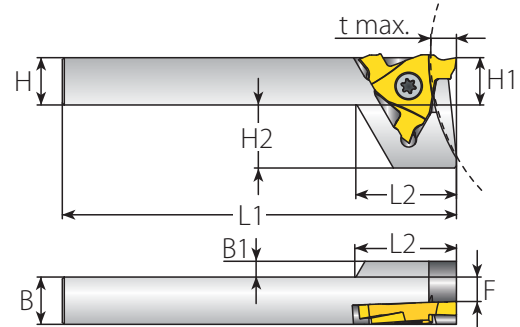
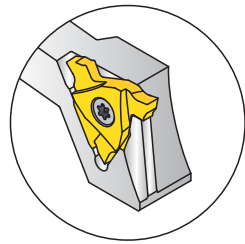


Right Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts			
		RH	H=B	L1	H1	L2	H2	F	B1	t max.	Insert Screw	Torx Key	
GV29P(2.5+3.5)...R... GV29R(2.5+3.5)...R... GV29S(2.5+3.5)...R...	GVER12-29-1	12	100	12	25.5	16	7.2	4	6.5	SGM5	F20IP		
	GVER16-29-1	16	125	16	23.2	12	11.2	-					
	GVER20-29-1	20	20.9	8	15.2	-							
	GVER25-29-1	25	150	25	18	3	20.2	-					
GV29P(3.5+6.0)...R... GV29R(3.5+6.0)...R... GV29S(3.5+6.0)...R...	GVER12-29-2	12	100	12	25.5	16	6.2	4	6.5				
	GVER16-29-2	16	125	16	23.2	12	10.2	-					
	GVER20-29-2	20	20	20.9	8	14.2	-						
	GVER25-29-2	25	150	25	18	3	19.2	-					



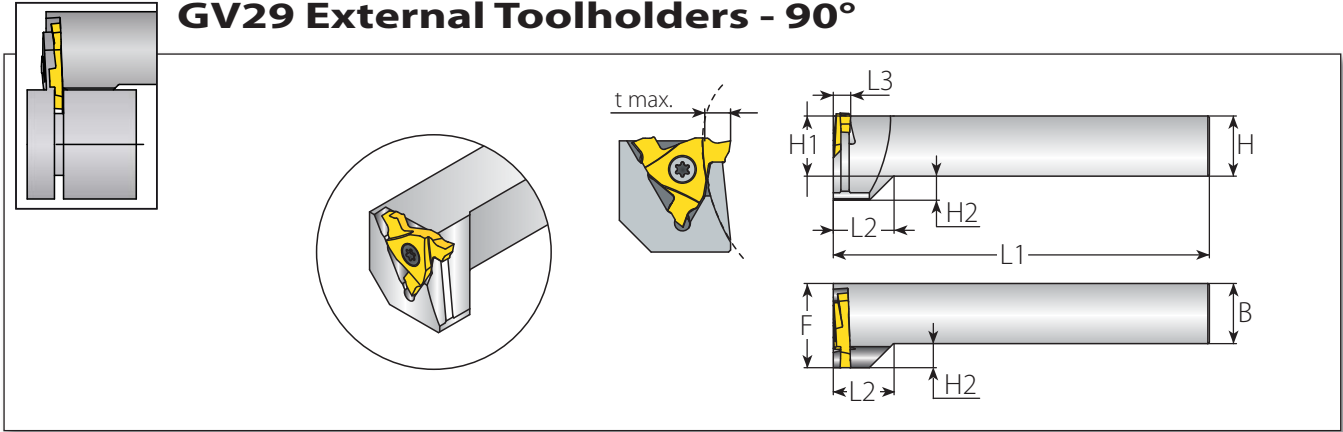
GV29 External Toolholders



Left Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts			
		LH	H=B	L1	H1	L2	H2	F	B1	t max.	Insert Screw	Torx Key	
GV29P(2.5+3.5)...L... GV29R(2.5+3.5)...L... GV29S(2.5+3.5)...L...	GVEL12-29-1	12	100	12	25.5	16	7.2	4	6.5	SGM5	F20IP		
	GVEL16-29-1	16	125	16	23.2	12	11.2	-					
	GVEL20-29-1	20	20.9	8	15.2	-							
	GVEL25-29-1	25	150	25	18	3	20.2	-					
GV29P(3.5+6.0)...L... GV29R(3.5+6.0)...L... GV29S(3.5+6.0)...L...	GVEL12-29-2	12	100	12	25.5	16	6.2	4	6.5				
	GVEL16-29-2	16	125	16	23.2	12	10.2	-					
	GVEL20-29-2	20	20	20.9	8	14.2	-						
	GVEL25-29-2	25	150	25	18	3	19.2	-					

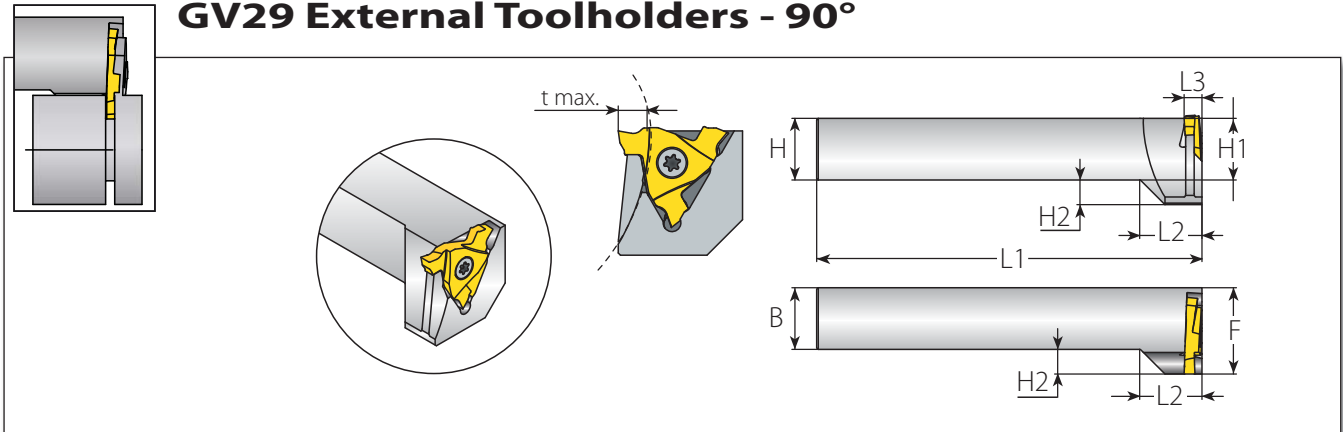
GV29 External Toolholders - 90°



Right Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
		RH	H=B	L1	H1	L2	H2	F	L3	t max.	Insert Screw
GV29P(2.5÷3.5)...L...	GVE90R20-29-1	20	125	20	20.2	8	28	4.8	6.5	SGM5	F20IP
GV29R(2.5÷3.5)...L...	GVE90R25-29-1	25	150	25	25	3	33				
GV29S(2.5÷3.5)...L...	GVE90R25-29-1	25	150	25	25	3	33				
GV29P(3.5÷6.0)...L...	GVE90R20-29-2	20	125	20	20.2	8	28	5.8	6.5		
GV29R(3.5÷6.0)...L...	GVE90R25-29-2	25	150	25	25	3	33				
GV29S(3.5÷6.0)...L...	GVE90R25-29-2	25	150	25	25	3	33				

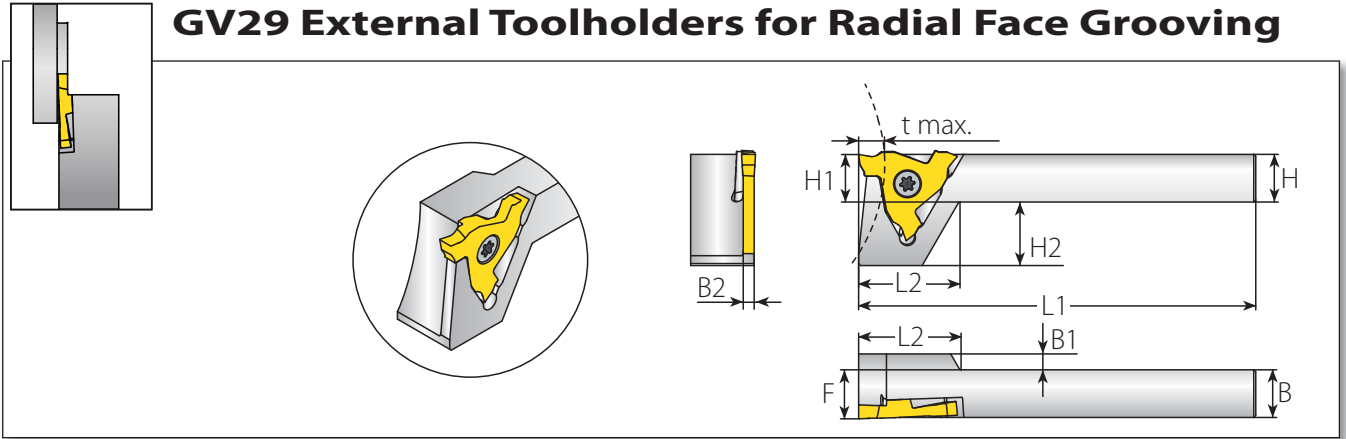
GV29 External Toolholders - 90°



Left Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
		LH	H=B	L1	H1	L2	H2	F	L3	t max.	Insert Screw
GV29P(2.5÷3.5)...R...	GVE90L20-29-1	20	125	20	20.2	8	28	4.8	6.5	SGM5	F20IP
GV29R(2.5÷3.5)...R...	GVE90L25-29-1	25	150	25	25	3	33				
GV29S(2.5÷3.5)...R...	GVE90L25-29-1	25	150	25	25	3	33				
GV29P(3.5÷6.0)...R...	GVE90L20-29-2	20	125	20	20.2	8	28	5.8	6.5		
GV29R(3.5÷6.0)...R...	GVE90L25-29-2	25	150	25	25	3	33				
GV29S(3.5÷6.0)...R...	GVE90L25-29-2	25	150	25	25	3	33				

GV29 External Toolholders for Radial Face Grooving

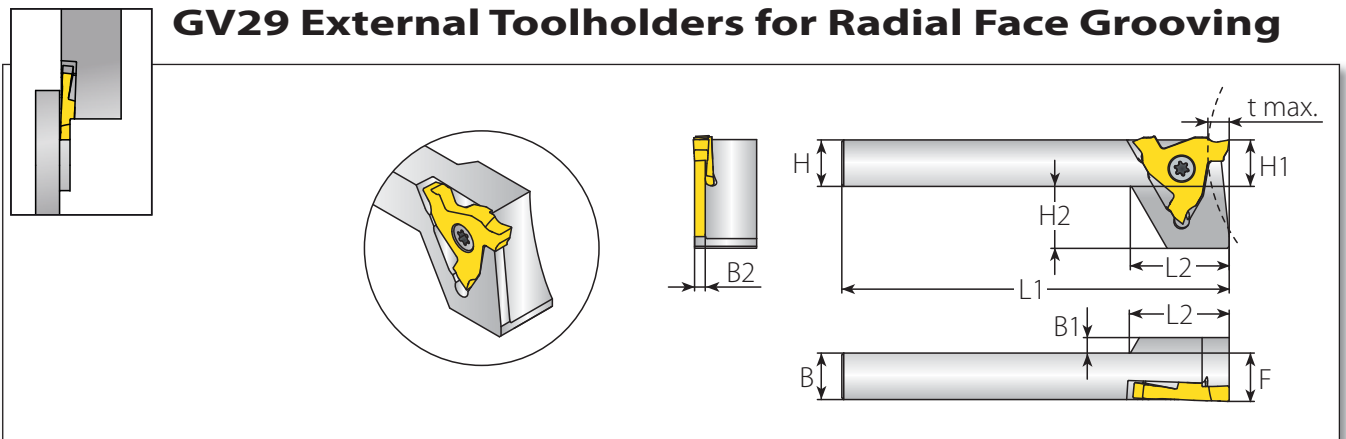


Right Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
		RH	H=B	L1	H1	L2	H2	B1	B2	t max.	Insert Screw
GVRF29R(2.5÷3.5)...R... GVRF29S(2.5÷3.5)...R...	GVER12-29-1	12	100	12	25.5	16	4	1.75	6.5	SGM5	F20IP
	GVER16-29-1	16	125	16	23.2	12	-				
	GVER20-29-1	20	20	20.9	8	-	-				
GV29R(3.5÷6.0)...L... GV29S(3.5÷6.0)...L...	GVER12-29-2	12	100	12	25.5	16	4	2.75	6.5		
	GVER16-29-2	16	125	16	23.2	12	-				
	GVER20-29-2	20	20	20.9	8	-	-				
	GVER25-29-2	25	150	25	18	3	-				

F=B+0.5mm

GV29 External Toolholders for Radial Face Grooving

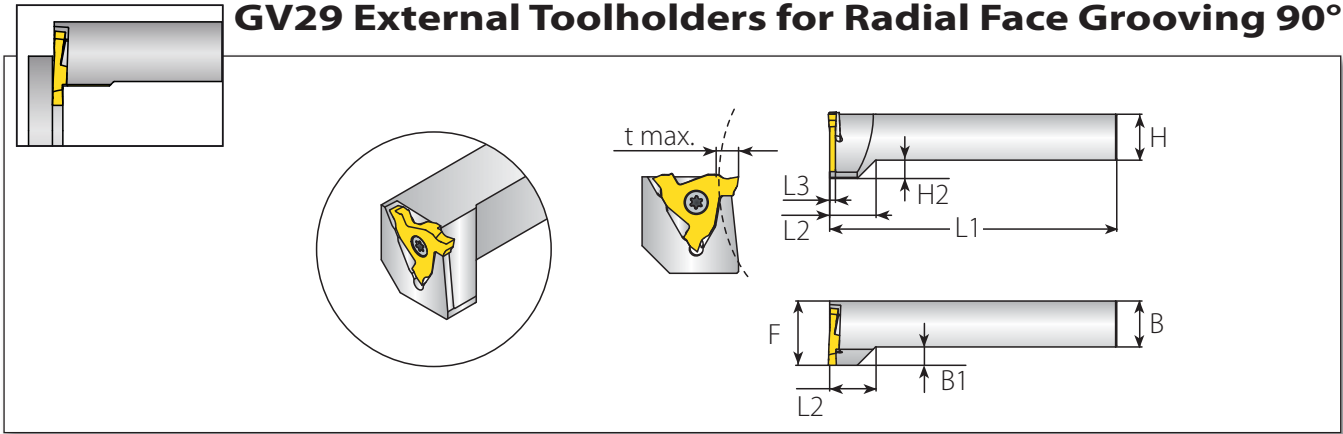


Left Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
		LH	H=B	L1	H1	L2	H2	B1	B2	t max.	Insert Screw
GVRF29R(2.5÷3.5)...L... GVRF29S(2.5÷3.5)...L...	GVRFEL12-29-1	12	100	12	25.5	16	4	1.75	6.5	SGM5	F20IP
	GVRFEL16-29-1	16	125	16	23.2	12	-				
	GVRFEL20-29-1	20	20	20.9	8	-	-				
GV29R(3.5÷6.0)...R... GV29S(3.5÷6.0)...R...	GVRFEL12-29-2	12	100	12	25.5	16	4	2.75	6.5		
	GVRFEL16-29-2	16	125	16	23.2	12	-				
	GVRFEL20-29-2	20	20	20.9	8	-	-				
	GVRFEL25-29-2	25	150	25	18	3	-				

F=B+0.5mm

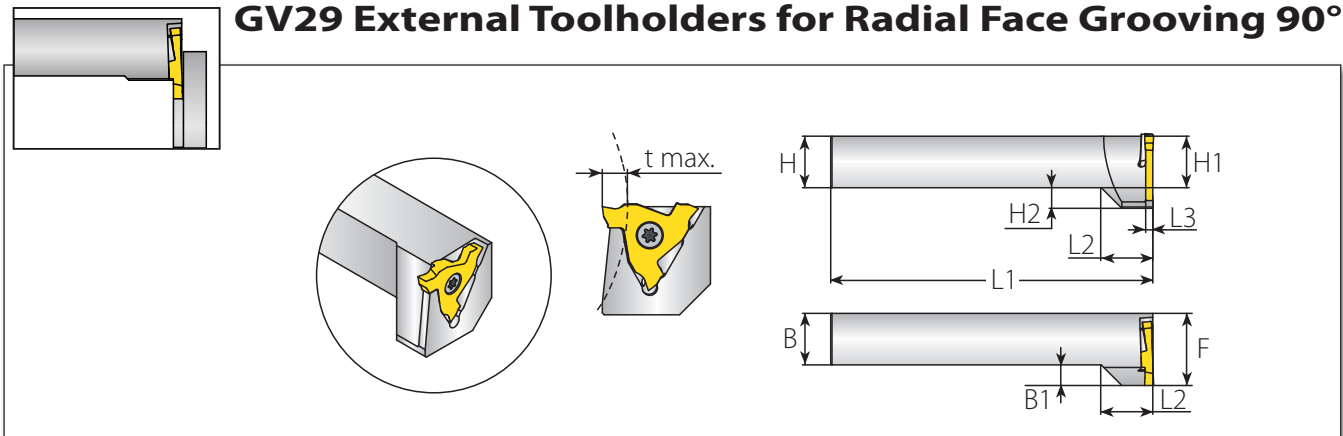
GV29 External Toolholders for Radial Face Grooving 90°



Right Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
		RH	H=B	L1	H1	L2	H2	F	L3	t max.	Insert Screw
GVRF29R(2.5÷3.5)...L...	GVRFE90R20-29-1	20	125	20	20.2	8	28	4.8	6.5	SGM5	F20IP
GVRF29S(2.5÷3.5)...L...	GVRFE90R25-29-1	25	150	25	25	3	33	5.8	6.5		
GV29R(3.5÷6.0)...R...	GVRFE90R20-29-2	20	125	20	20.2	8	28	4.8	6.5		
GV29S(3.5÷6.0)...R...	GVRFE90R25-29-2	25	150	25	25	3	33	5.8	6.5		

GV29 External Toolholders for Radial Face Grooving 90°



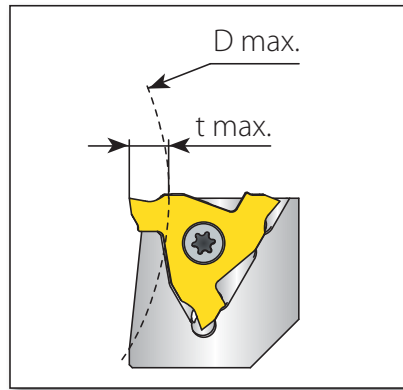
Left Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
		LH	H=B	L1	H1	L2	H2	F	L3	t max.	Insert Screw
GVRF29R(2.5÷3.5)...R...	GVRFE90L20-29-1	20	125	20	20.2	8	28	1.75	6.5	SGM5	F20IP
GVRF29S(2.5÷3.5)...R...	GVRFE90L25-29-1	25	150	25	25	3	33	2.75	6.5		
GV29R(3.5÷6.0)...L...	GVRFE90L20-29-2	20	125	20	20.2	8	28	1.75	6.5		
GV29S(3.5÷6.0)...L...	GVRFE90L25-29-2	25	150	25	25	3	33	2.75	6.5		

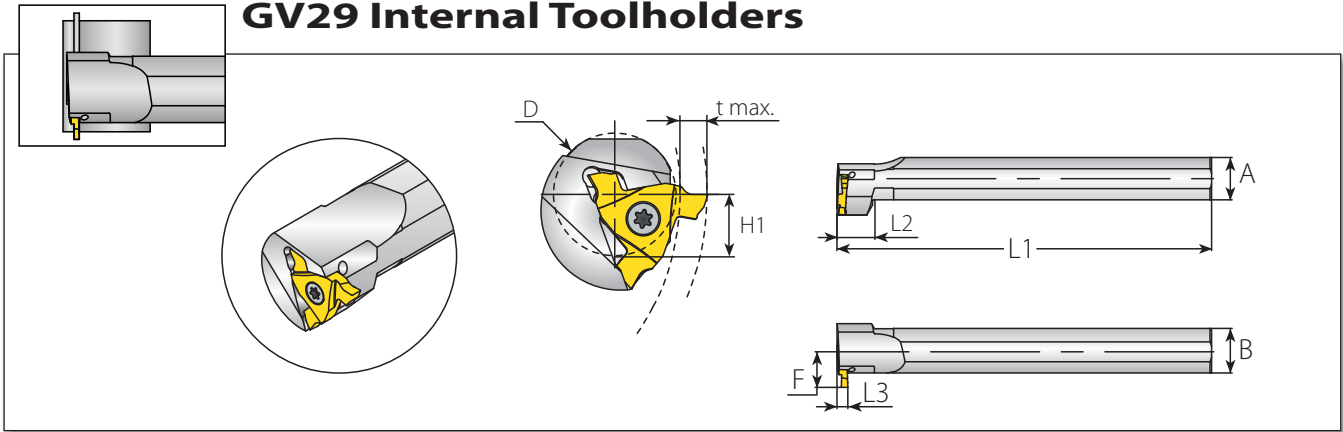
GV29 External Toolholder Comparison

Depth of Groove

t max (mm)	D max. (mm)
0	-
0.5	1085.0
1	590.0
1.5	408.0
2	310.0
2.5	250.0
3	210.0
3.5	180.0
4	160.0
4.5	145.0
5	130.0
5.5	120.0
6	110.0
6.5	105.0



GV29 Internal Toolholders

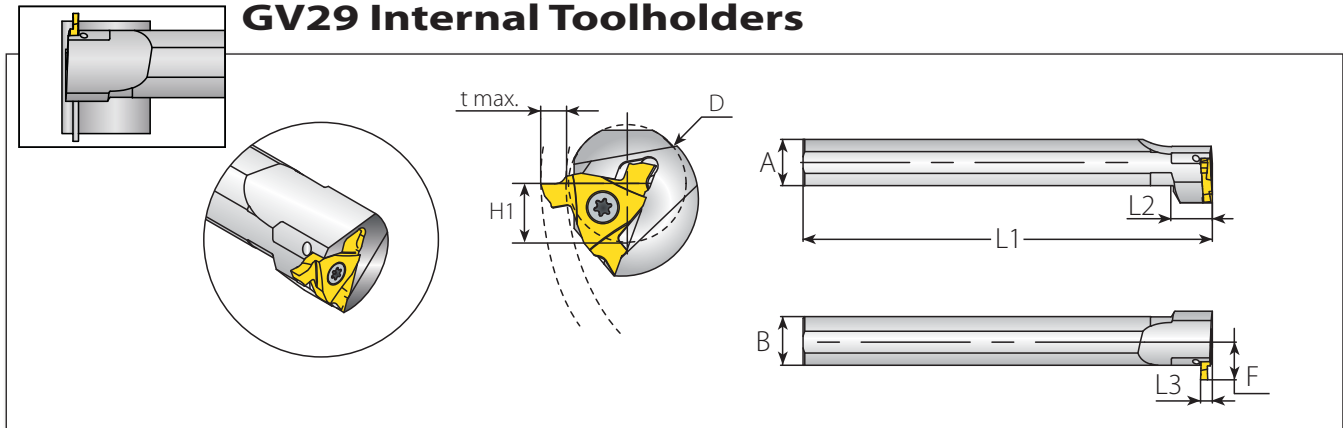


Right Hand

Insert Size	Ordering Code	Dimensions (mm)									Spare Parts		
		RH	D	L1	L2	L3	A	B	H1	F	t max.	Insert Screw	Torx Key
GV29P(2.5÷6.0)...L...	GVir25-29		25	200	19	5.8	22.6	23.8	11.3	19	6.5	SGM5	F20IP
GV29R(2.5÷6.0)...L...	GVir32-29	32	250	19	5.8	29	30.5	14.5	22.2				
GV29S(2.5÷6.0)...L...													

* Use with left handed inserts

GV29 Internal Toolholders

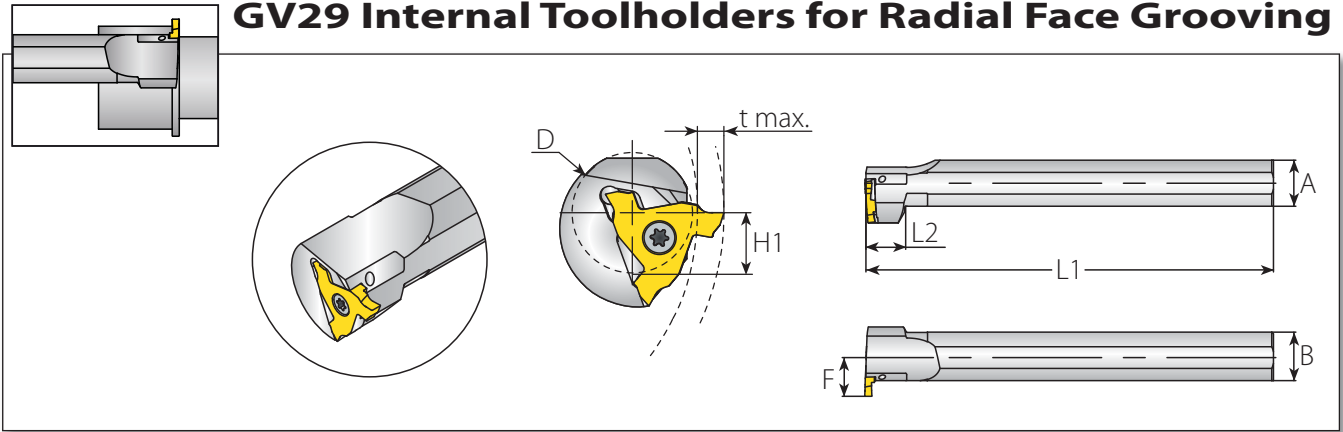


Left Hand

Insert Size	Ordering Code	Dimensions (mm)									Spare Parts		
		LH	D	L1	L2	L3	A	B	H1	F	t max.	Insert Screw	Torx Key
GV29P(2.5÷6.0)...R...	GvIL25-29		25	200	19	5.8	22.6	23.8	11.3	19	6.5	SGM5	F20IP
GV29R(2.5÷6.0)...R...	GvIL32-29	32	250	19	5.8	29	30.5	14.5	22.2				
GV29S(2.5÷6.0)...R...													

* Use with right handed inserts

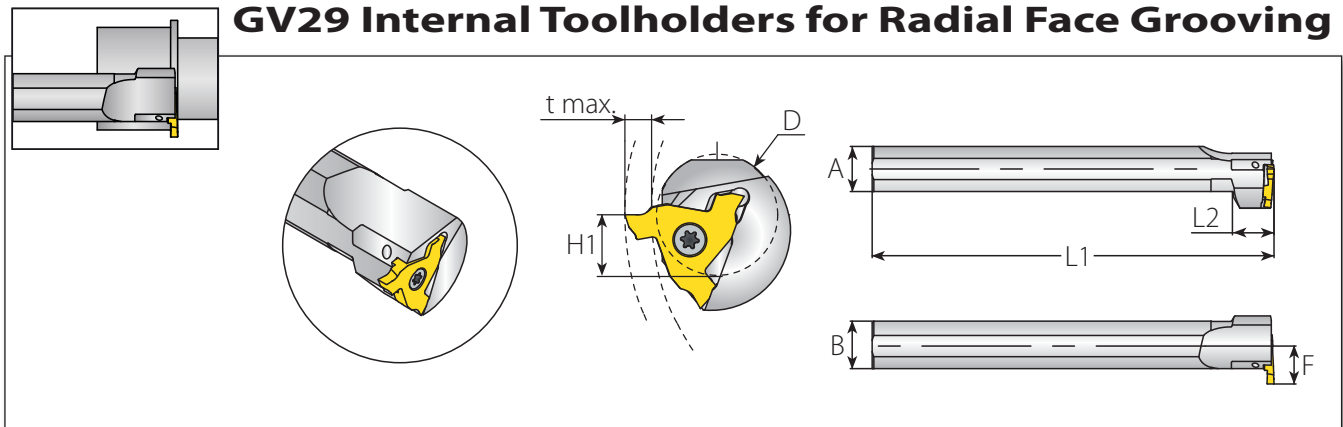
GV29 Internal Toolholders for Radial Face Grooving



Right Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
		RH	D	L1	L2	A	B	H1	F	t max.	Insert Screw
GVRF29R(2.5÷3.5)...L...	GVRFIR25-29	25	200	19	22.6	23.8	11.3	19	6.5	SGM5	F20IP
GVRF29S(2.5÷3.5)...L...											
GV29R(3.5÷6.0)...R...	GVRFIR32-29	32	250	19	29	30.5	14.5	22.2			
GV29S(3.5÷6.0)...R...											

GV29 Internal Toolholders for Radial Face Grooving



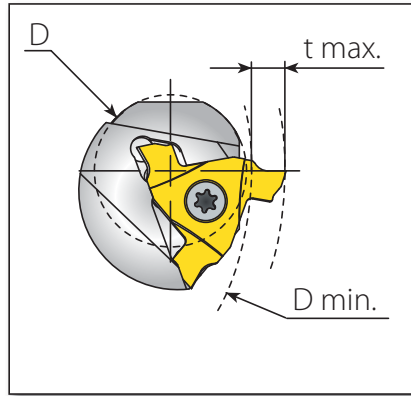
Left Hand

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
		LH	D	L1	L2	A	B	H1	F	t max.	Insert Screw
GVRF29R(2.5÷3.5)...R...	GVRFIL25-29	25	200	19	22.6	23.8	11.3	19	6.5	SGM5	F20IP
GVRF29S(2.5÷3.5)...R...											
GV29R(3.5÷6.0)...L...	GVRFIL32-29	32	250	19	29	30.5	14.5	22.2			
GV29S(3.5÷6.0)...L...											

GV29 Internal Toolholder Comparison

Depth of Groove in Relation to Bore \varnothing

t max (mm)	D min (mm)
0	40.5
0.5	42.0
1	43.3
1.5	44.7
2	46.1
2.5	47.7
3	49.3
3.5	51.0
4	52.7
4.5	54.7
5	56.6
5.5	58.9
6	74.3
6.5	104.2




Groovical Technical Data

Recommended Grades, Cutting Speeds Vc [m/min]

Material Group	Vardex No.	Material		Hardness Brinell HB	Vc [m/min]
					Coated
					VKX
P Steel	1	Unalloyed steel	Low carbon (C=0.1-0.25%)	125	140-200
	2		Medium carbon (C=0.25-0.55%)	150	120-180
	3		High Carbon (C=0.55-0.85%)	170	110-180
	4	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	100-155
	5		Hardened	275	110-180
	6		Hardened	350	80-135
	7	High alloy steel (alloying elements >5%)	Annealed	200	70-115
	8		Hardened	325	50-100
	9	Cast steel	Low alloy (alloying elements <5%)	200	30-50
	10		High alloy (alloying elements >5%)	225	20-40
M Stainless Steel	11	Stainless steel Ferritic	Non hardened	200	70-120
	12		Hardened	330	60-95
	13	Stainless steel Austenitic	Austenitic	180	100-130
	14		Super Austenitic	200	40-90
	15	Stainless steel Cast ferritic	Non hardened	200	80-110
	16		Hardened	330	65-110
	17	Cast austenitic	Austenitic	200	85-100
	18		Hardened	330	60-100
K Cast Iron	28	Malleable Cast iron	Ferritic (short chips)	130	70-120
	29		Pearlitic (long chips)	230	70-120
	30	Grey cast iron	Low tensile strength	180	70-120
	31		High tensile strength	260	60-100
	32	Nodular SG iron	Ferritic	160	50-80
	33		Pearlitic	260	60-90
N(K) Non-Ferrous Metals	34	Aluminium alloys Wrought	Non aging	60	100-240
	35		Aged	100	80-170
	36	Aluminium alloys	Cast	75	100-150
	37		Cast & aged	90	80-120
	38	Aluminium alloys	Cast Si 13-22%	130	100-150
	39	Copper and copper alloys	Brass	90	80-200
40	Bronze and non leaded copper		100	80-200	
S(M) Heat Resistant Material	19	High temperature alloys	Annealed (Iron based)	200	45-60
	20		Aged (Iron based)	280	35-50
	21		Annealed (Nickel or Cobalt based)	250	20-30
	22		Aged (Nickel or Cobalt based)	350	15-25
	23	Titanium alloys	Pure 99.5 Ti	400Rm	140-170
	24		α+β alloys	1050Rm	50-70
H(K) Hardned Material	25	Extra hard steel	Hardened & tempered	45-50HRc	45-60
	26			51-55HRc	40-50

Grades and Their Application

Grade	Application Type	Sample
VKX	Excellent for general use TiN coated	

Feed Rate

$$f = 0.05-0.18 \text{ mm/rev}$$

$$f \text{ max} = W \cdot 0.075$$

Groovical

For General Grooving Applications



GROOVEX

Innovative Grooving Solutions



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