vargus
NEUMO Ehrenberg Group

GrooVical

Precise Grooving & Turning Applications

METRIC

GROOVEX
Innovative Grooving & Turning Solutions

GrooVical

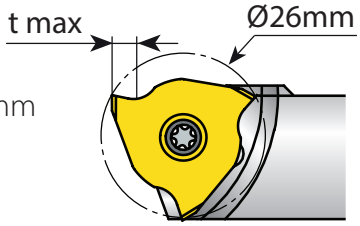
Precise Grooving & Turning Applications

New Range of Indexable Grooving Inserts

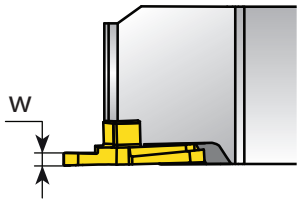
The Groovical family of products by Groovex offers improved solutions for internal and external grooving and turning applications. GVN26 and GV29 feature inserts with three cutting corners and a unique rigid clamping system for improved productivity.
The new GVN style inserts offer new applications in the Groovical line, including Turning and Grooving chip former to form helical chips, new parting off tools, machining close to shoulders and LH toolholders.

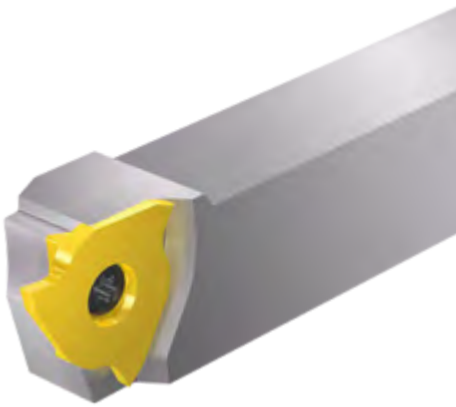
GVN26

t max = Groove Depths up to 5.5mm



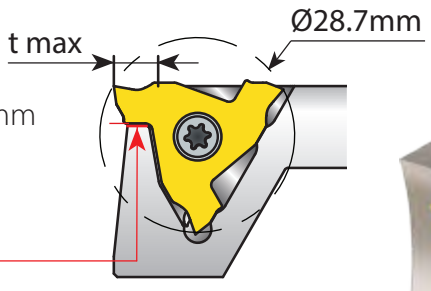
W = Groove Widths from 0.5-2.5mm





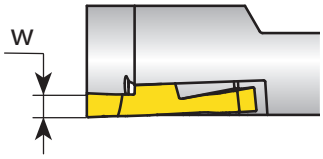
GVN29

t max = Groove Depths up to 6.5mm



Additional Corner Support

W = Groove Widths from 2-6.35mm



GrooVical Catalog

GrooVical Ordering Code System

Groovical Inserts

GVN	26	R	P	0.5	-	0.05	-	15	R	VKX
1	2	3	4	5		6		7	8	9

1- Insert Type	2 - Circular Circumference	3 - RH or LH	4 - Type of Application	5 - Grooving Width
GV - Groovical Neutral **GVN** - Groovical Close to Shoulder	**26** - 26mm **29** - 28.7mm	**R** - RH **L** - LH **N** - RH/LH	**T** - Turning & Grooving **S** - Square Grooving **R** - Round Grooving **P** - Parting Off **X** - Special Profile	0.5 to 6.35mm

6 - Corner Radius
0.0 - 1mm

7 - Approach Angle	8 - Cutting Side	9 - Carbide Grade
6 - 6 Deg. **15** - 15 Deg.	**R** - Right corner leading **L** - Left corner leading **None** - Neutral	VTX, VKX

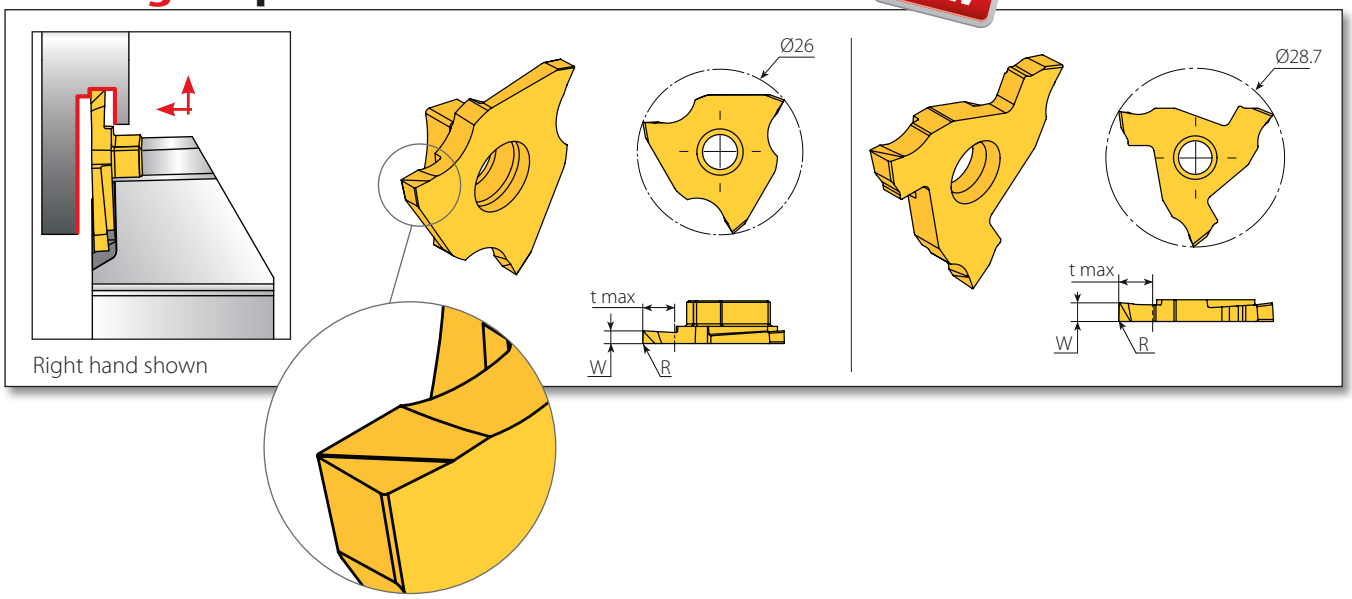
Groovical Toolholders

GVN	E	R	20	-	29	-	1
1	2	3	4		5		6

1- Insert Type	2 - External / Internal	3 - RH or LH	4 - Shank Size	5 - Insert Size	6 - For Insert Width
GV - Groovical Neutral **GVN** - Groovical Close to Shoulder	**E** - External **E90** - External 90° **I** - Internal	**R** - RH **L** - LH	10, 12, 16, 20, 25, 32, 40 mm	26 29	**1** - 2.5 - 3.5mm **2** - 3.6 - 5.5mm

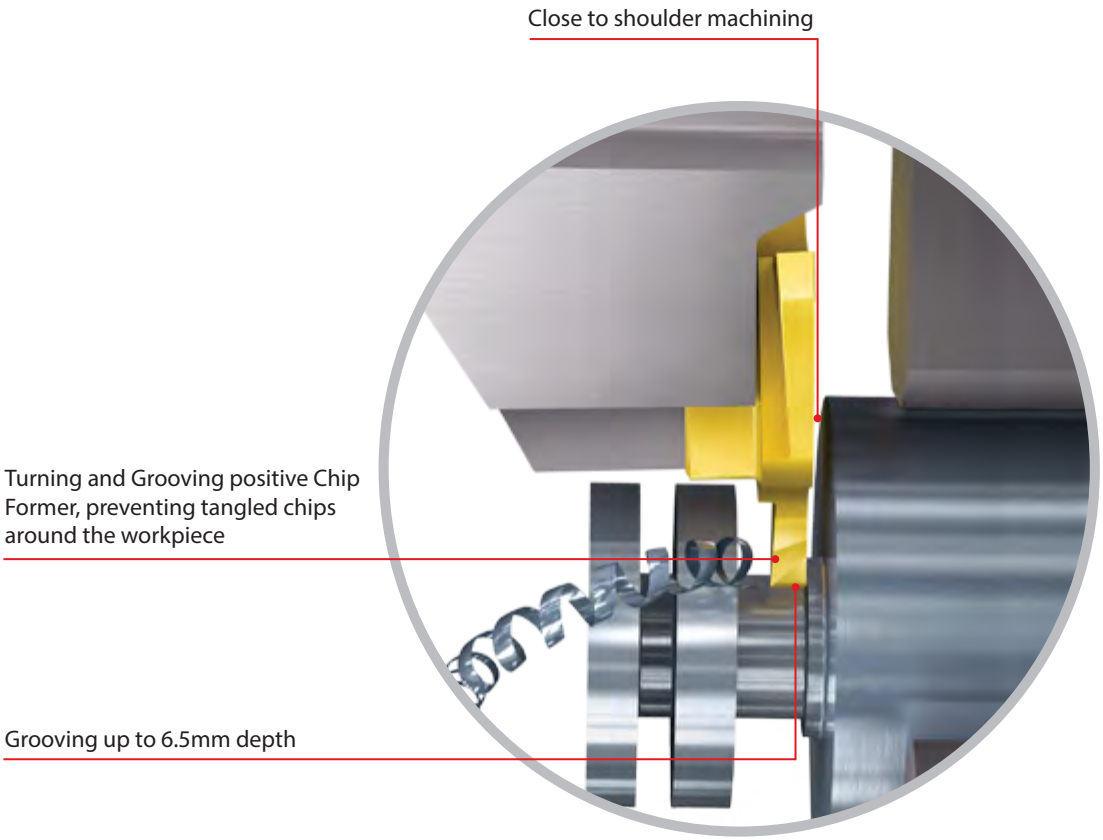
Close to Shoulder Square Grooving & Turning Chip Former

NEW

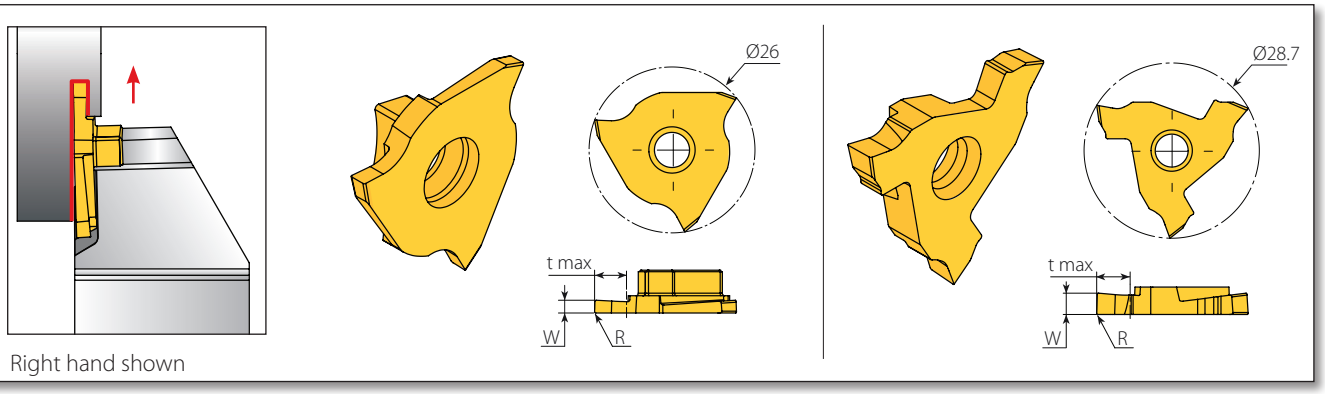


Insert Size	Ordering Code	Dimensions mm			Grade		Toolholder
IC	RH/LH	W±0.02	R±0.03	t max	VKX	VTX	
26	GVN26R/LT1.0-008	1.0	0.08	3.0	○	•	GVNE...-26, GVNE90...-26
	GVN26R/LT1.5-0.08	1.5	0.08	4.0	○	•	
	GVN26R/LT2.0-0.1	2.0	0.10	5.0	○	•	
	GVN26R/LT2.5-0.15	2.5	0.15	5.0	○	•	
29	GVN29R/LT3.0-0.2	3.0	0.2	6.5	○	•	GVNE...-29-1, GVNE90...-29-1, GVNI...-29

• In stock
○ Available upon request



Close to Shoulder Square Grooving

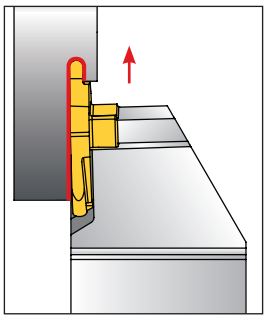


Right hand shown

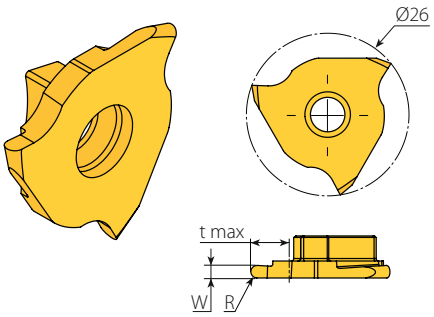
Insert Size	Ordering Code	Dimensions mm			Grade		Toolholder
IC	RH/LH	W±0.02	R±0.03	t max	**VKX**	**VTX**	
26	GVN26R/LS0.57-00	0.57	0.00	1.0	•	○	GVNE...-26, GVNE90...-26
	GVN26R/LS0.79-00	0.79	0.00	1.6	•	○	
	GVN26R/LS0.79-0.2	0.79	0.20	1.6	•	○	
	GVN26R/LS0.87-00	0.87	0.00	2.0	•	○	
	GVN26R/LS0.97-00	0.97	0.00	2.0	•	○	
	GVN26R/LS1.0-0.1	1.00	0.10	2.0	•	○	
	GVN26R/LS1.07-00	1.07	0.00	2.0	•	○	
	GVN26R/LS1.2-00	1.20	0.00	2.0	•	○	
	GVN26R/LS1.24-00	1.24	0.00	2.0	•	○	
	GVN26R/LS1.4-00	1.40	0.00	2.0	•	○	
	GVN26R/LS1.44-00	1.44	0.00	2.0	•	○	
	GVN26R/LS1.5-0.1	1.50	0.10	3.0	•	○	
	GVN26R/LS1.5-0.2	1.50	0.20	5.0	•	○	
	GVN26R/LS1.58-0.2	1.58	0.20	3.0	•	○	
	GVN26R/LS1.6-00	1.60	0.00	3.0	•	○	
	GVN26R/LS1.7-0.1	1.70	0.10	3.0	•	○	
	GVN26R/LS1.74-00	1.74	0.00	3.0	•	○	
	GVN26R/LS2.0-00	2.00	0.00	3.0	•	○	
	GVN26R/LS2.0-0.1	2.00	0.10	3.0	•	○	
	GVN26R/LS2.0-0.2	2.00	0.20	5.0	•	○	
	GVN26R/LS2.22-0.15	2.22	0.15	5.0	•	○	
	GVN26R/LS2.39-0.15	2.39	0.15	5.0	•	○	
	GVN26R/LS2.47-0.2	2.47	0.20	5.0	•	○	
29	GVN29R/LS2.38-0.1	2.38	0.10	6.5	•	○	GVNE...-29-1, GVNE90...-29-1, GVNI...-29
	GVN29R/LS2.5-0.1	2.50	0.10	6.5	•	○	
	GVN29R/LS2.7-0.1	2.70	0.10	6.5	•	○	
	GVN29R/LS3.0-0.2	3.00	0.20	6.5	•	○	
	GVN29R/LS3.17-0.2	3.17	0.20	6.5	•	○	
	GVN29R/LS3.5-0.2	3.50	0.20	6.5	•	•	GVNE...-29-2, GVNE90...-29-2, GVNI...-29
	GVN29R/LS4.0-0.4	4.00	0.40	6.5	•	•	
	GVN29R/LS5.0-0.4	5.00	0.40	6.5	•	•	

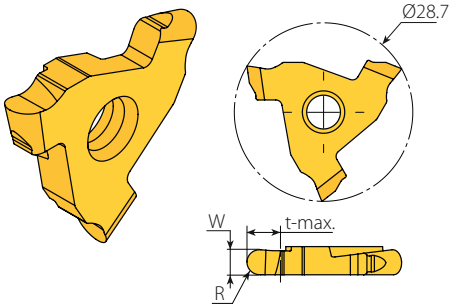
• In stock
○ Available upon request

Close to Shoulder Round Grooving



Right hand shown

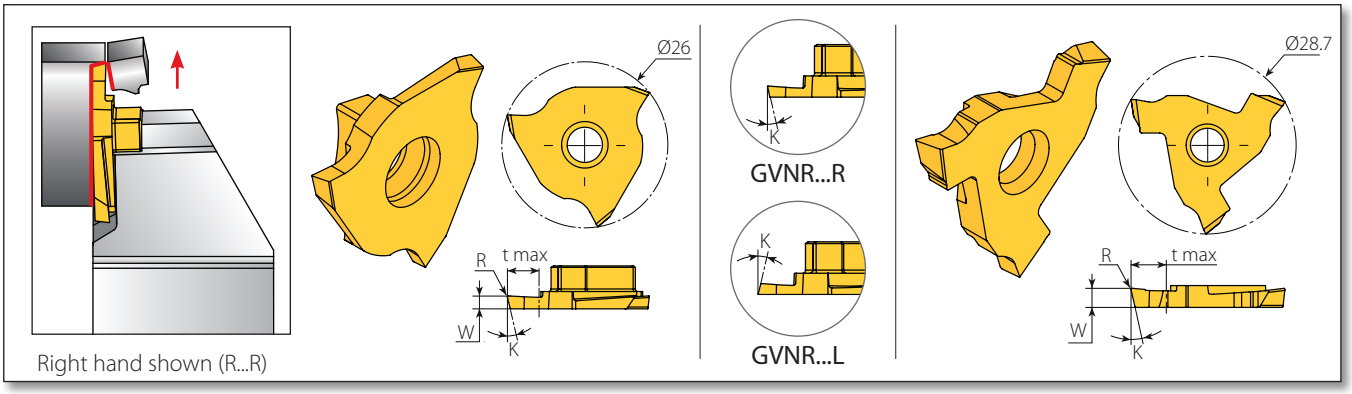




Insert Size	Ordering Code	Dimensions mm			Grade		Toolholder
IC	RH/LH	W±0.02	R±0.03	t max	**VKX**	**VTX**	
26	GVN26R/LR0.5-0.25	0.50	0.25	1.0	•	○	GVNE...-26, GVNE90...-26
	GVN26R/LR0.79-0.39	0.79	0.39	1.6	•	○	
	GVN26R/LR1.0-0.5	1.00	0.50	2.0	•	○	
	GVN26R/LR1.2-0.6	1.20	0.60	2.0	•	○	
	GVN26R/LR1.5-0.75	1.50	0.75	5.0	•	○	
	GVN26R/LR1.6-0.8	1.60	0.80	3.0	•	○	
	GVN26R/LR2.0-1.0	2.00	1.00	3.0	•	○	
	GVN26R/LR2.39-1.19	2.39	1.19	5.0	•	○	
29	GVN29R/LR2.38-1.19	2.38	1.19	6.5	•	○	GVNE...-29-1, GVNE90...-29-1, GVNI...-29
	GVN29R/LR2.5-1.25	2.50	1.25	6.5	•	○	
	GVN29R/LR3.0-1.5	3.00	1.50	6.5	•	○	
	GVN29R/LR3.17-1.59	3.17	1.59	6.5	•	○	
	GVN29R/LR4.0-2.0	4.00	2.00	6.5	•	•	GVNE...-29-2, GVNE90...-29-2, GVNI...-29

• In stock
○ Available upon request

Close to Shoulder Parting Off



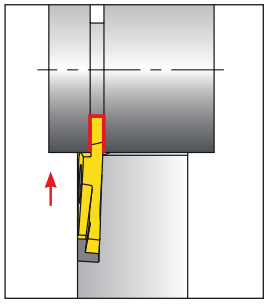
Right hand shown (R...R)

Insert Size	Ordering Code	Dimensions mm				Grade		Toolholder
IC	RH/LH	W±0.02	R±0.03	t max	Kº	VKX	VTX	
26	GVN26RP0.5-0.05-06R	0.5	0.05	1.0	6	●	○	GVNE...-26, GVNE90...-26
	GVN26RP0.5-0.05-06L	0.5	0.05	1.0	6	○	○	
	GVN26LP0.5-0.05-06R	0.5	0.05	1.0	6	○	○	
	GVN26LP0.5-0.05-06L	0.5	0.05	1.0	6	●	○	
	GVN26RP0.5-0.05-15R	0.5	0.05	1.0	15	●	○	
	GVN26RP0.5-0.05-15L	0.5	0.05	1.0	15	●	○	
	GVN26LP0.5-0.05-15R	0.5	0.05	1.0	15	●	○	
	GVN26LP0.5-0.05-15L	0.5	0.05	1.0	15	●	○	
	GVN26RP1.4-0.05-06R	1.4	0.05	5.0	6	●	○	
	GVN26RP1.4-0.05-06L	1.4	0.05	5.0	6	○	○	
	GVN26LP1.4-0.05-06R	1.4	0.05	5.0	6	○	○	
	GVN26LP1.4-0.05-06L	1.4	0.05	5.0	6	●	○	
	GVN26RP1.4-0.05-15R	1.4	0.05	5.0	15	●	○	
	GVN26RP1.4-0.05-15L	1.4	0.05	5.0	15	●	○	
	GVN26LP1.4-0.05-15R	1.4	0.05	5.0	15	●	○	
	GVN26LP1.4-0.05-15L	1.4	0.05	5.0	15	●	○	
	GVN26RP2.0-0.1-06R	2.0	0.10	5.0	6	●	○	
	GVN26RP2.0-0.1-06L	2.0	0.10	5.0	6	○	○	
	GVN26LP2.0-0.1-06R	2.0	0.10	5.0	6	○	○	
	GVN26LP2.0-0.1-06L	2.0	0.10	5.0	6	●	○	
	GVN26RP2.0-0.1-15R	2.0	0.10	5.0	15	●	○	
	GVN26RP2.0-0.1-15L	2.0	0.10	5.0	15	●	○	
	GVN26LP2.0-0.1-15R	2.0	0.10	5.0	15	●	○	
	GVN26LP2.0-0.1-15L	2.0	0.10	5.0	15	●	○	
29	GVN29RP2.5-0.2-06R	2.5	0.20	6.5	6	●	●	GVNE...-29-1, GVNE90...-29-1, GVNI...-29
	GVN29RP2.5-0.2-06L	2.5	0.20	6.5	6	○	○	
	GVN29LP2.5-0.2-06R	2.5	0.20	6.5	6	○	○	
	GVN29LP2.5-0.2-06L	2.5	0.20	6.5	6	●	●	
	GVN29RP2.5-0.2-15R	2.5	0.20	6.5	15	●	●	
	GVN29RP2.5-0.2-15L	2.5	0.20	6.5	15	○	○	
	GVN29LP2.5-0.2-15R	2.5	0.20	6.5	15	○	○	
	GVN29LP2.5-0.2-15L	2.5	0.20	6.5	15	●	●	
	GVN29RP3.0-0.2-06R	3.0	0.20	6.5	6	●	●	
	GVN29RP3.0-0.2-06L	3.0	0.20	6.5	6	○	○	
	GVN29LP3.0-0.2-06R	3.0	0.20	6.5	6	○	○	
	GVN29LP3.0-0.2-06L	3.0	0.20	6.5	6	●	●	
	GVN29RP3.0-0.2-15R	3.0	0.20	6.5	15	●	●	
	GVN29RP3.0-0.2-15L	3.0	0.20	6.5	15	○	○	
	GVN29LP3.0-0.2-15R	3.0	0.20	6.5	15	○	○	
	GVN29LP3.0-0.2-15L	3.0	0.20	6.5	15	●	●	

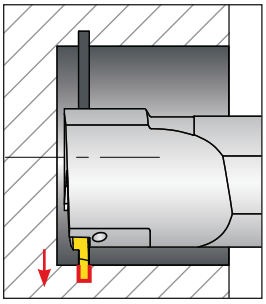
● In stock
○ Available upon request

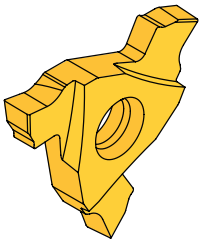
Square Grooving (GV29)

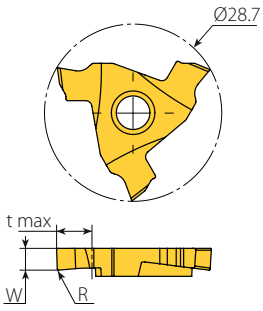
External



Internal







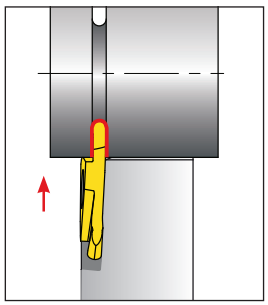
Right hand shown

Insert Size	Ordering Code	Dimensions mm			Grade		Toolholder
IC	RH/LH	W±0.02	R±0.03	t max	**VKX**	**VTX**	
29	GV29R/LS2.38-0.1	2.38	0.10	6.5	•	•	GVE...-29-1, GVE90...-2901, GVI...-29
	GV29R/LS2.5-0.1	2.50	0.10	6.5	•	•	
	GV29R/LS2.7-0.1	2.70	0.10	6.5	•	•	
	GV29R/LS3.0-0.2	3.00	0.20	6.5	•	•	
	GV29R S3.0-0.4	3.00	0.40	6.5	•	•	
	GV29R/LS3.17-0.2	3.17	0.20	6.5	•	•	
	GV29R/LS3.5-0.2	3.50	0.20	6.5	•	•	GVE...-29-2, GVE90...-29-2, GVI...-29, GVNE...-29-2, GVNE90...-29-2, GVNI...-29
	GV29R/LS4.0-0.4	4.00	0.40	6.5	•	•	
	GV29R/LS5.0-0.4	5.00	0.40	6.5	•	•	

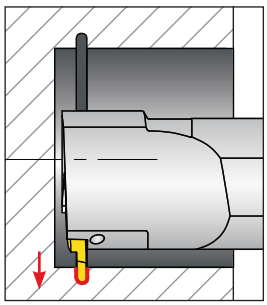
• In stock
○ Available upon request

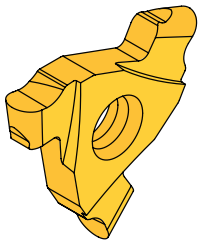
Round Grooving (GV29)

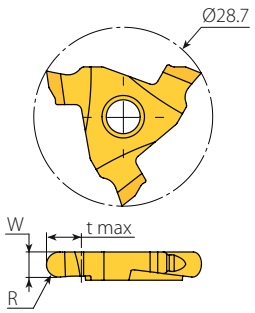
External



Internal





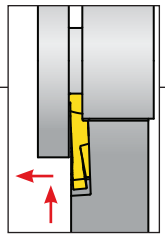


Right hand shown

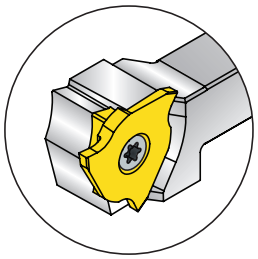
Insert Size	Ordering Code	Dimensions mm			Grade		Toolholder
IC	RH/LH	W±0.02	R±0.03	t max	**VKX**	**VTX**	
29	GV29R/LR2.38-1.19	2.38	1.19	6.5	•	•	GVE...-29-1, GVE90...-2901, GVI...-29
	GV29R/LR2.5-1.25	2.50	1.25	6.5	•	•	
	GV29R/LR3.0-1.5	3.00	1.50	6.5	•	•	
	GV29R/LR3.17-1.59	3.17	1.59	6.5	•	•	
	GV29R/LR4.0-2.0	4.00	2.00	6.5	•	•	GVE...-29-2, GVE90...-29-2, GVI...-29, GVNE...-29-2, GVNE90...-29-2, GVNI...-29

• In stock
○ Available upon request

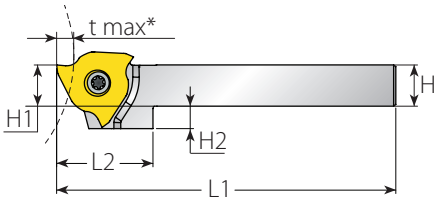
Close to Shoulder External Toolholders

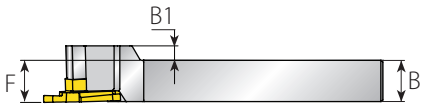


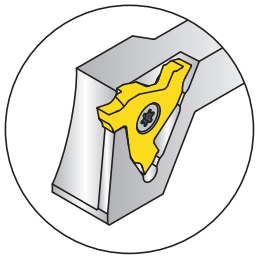
Right hand shown



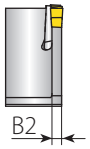
GVN26

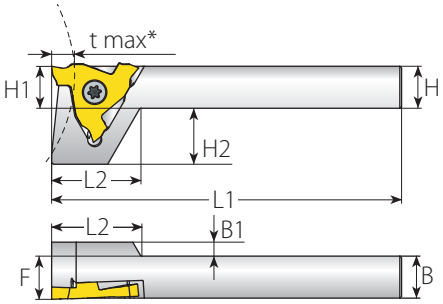






GVN29

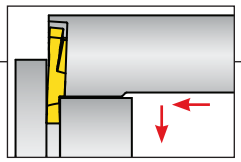




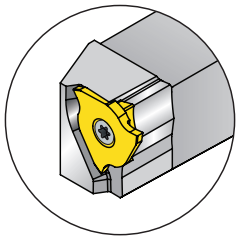
* See page 14 for t max and D max limitations.

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
	RH/LH	H=B	L1	H1	L2	H2	F	B1	B2	Insert Screw	Torx Key
26	GVNER/L10-26	10	125	10	28.0	8.5	10.2	6.2	-	SGM5	L20IP
	GVNER/L12-26	12	125	12	28.0	6.5	12.2	4.2			
	GVNER/L16-26	16	125	16	28.0	2.5	16.2	-			
	GVNER/L20-26	20	125	20	28.0	-	20.2	-			
	GVNER/L25-26	25	150	25	28.0	-	25.2	-			
29	GVNER/L12-29-1	12	100	12	25.5	16	12.5	4	1.75		
	GVNER/L12-29-2	12	100	12	25.5	16	12.5	4	2.75		
	GVNER/L16-29-1	16	125	16	23.2	12	16.5	-	1.75		
	GVNER/L16-29-2	16	125	16	23.2	12	16.5	-	2.75		
	GVNER/L20-29-1	20	125	20	20.9	8	20.5	-	1.75		
	GVNER/L20-29-2	20	125	20	20.9	8	20.5	-	2.75		
	GVNER/L25-29-1	25	150	25	18.0	3	25.5	-	1.75		
	GVNER/L25-29-2	25	150	25	18.0	3	25.5	-	2.75		

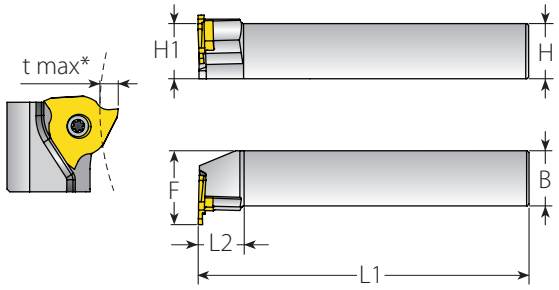
Close to Shoulder External Toolholders 90°

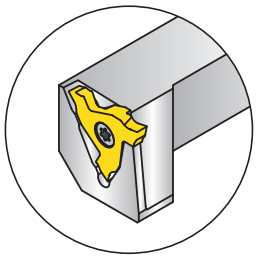


Right hand shown

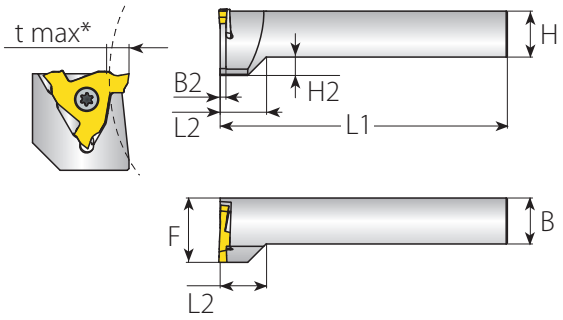


GVN26





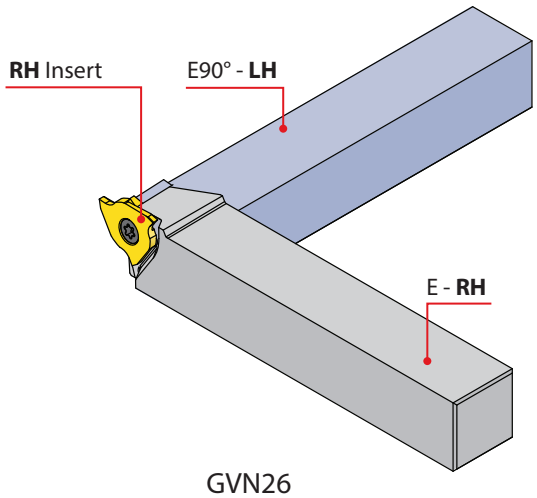
GVN29



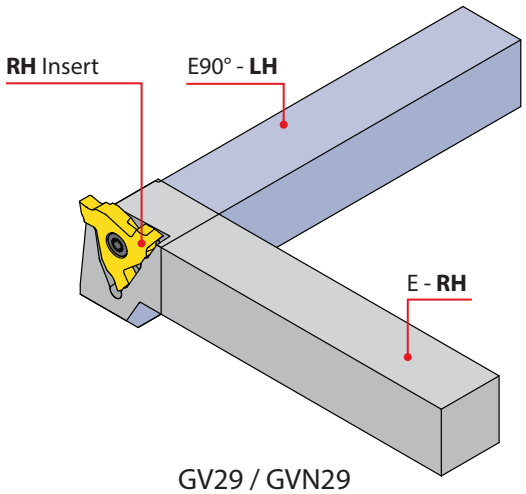
* See page 14 for t max and D max limitations.

Insert Size	Ordering Code	Dimensions (mm)							Spare Parts	
	RH/LH	H=B	L1	H1	L2	B2	H2	F	Insert Screw	Torx Key
26	GVNE90R/L20-26	20	125	20	20.0	-	-	28.5	SGM5	L20IP
	GVNE90R/L25-26	25	150	25	20.0	-	-	33.5		
29	GVNE90R/L20-29-1	20	125	20	20.2	1.75	8	28.0		
	GVNE90R/L20-29-2	20	125	20	20.2	2.75	8	28.0		
	GVNE90R/L25-29-1	25	150	25	25.0	1.75	3	33.0		
	GVNE90R/L25-29-2	25	150	25	25.0	2.75	3	33.0		

For **LH90°** work applications use **LH toolholder** with **RH insert** and vice versa.

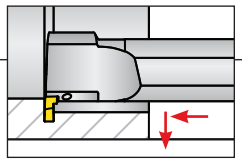


GVN26

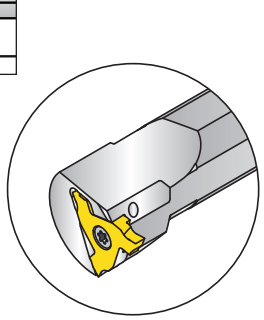


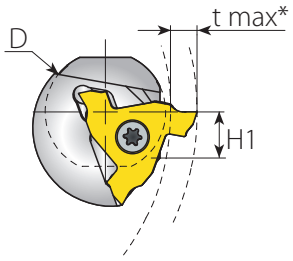
GV29 / GVN29

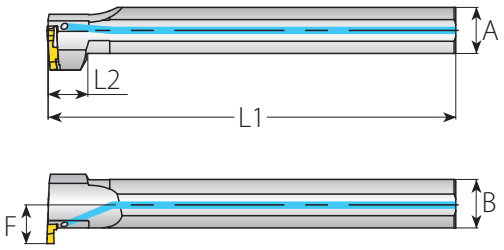
Close to Shoulder Internal Toolholders with Coolant



Right hand shown



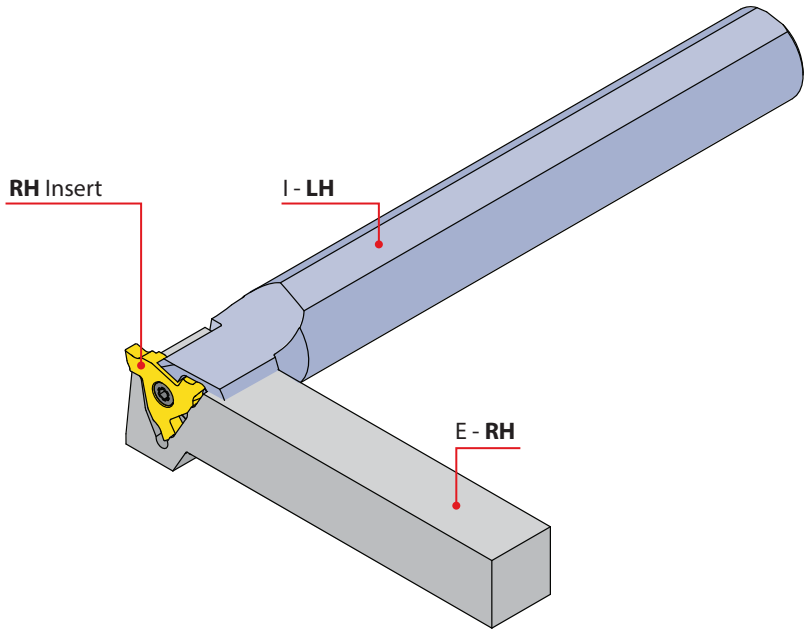




* See page 14 for t max and D max limitations.

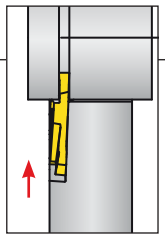
Insert Size	Ordering Code	Dimensions (mm)							Spare Parts	
	RH/LH	D	L1	L2	A	B	H1	F	Insert Screw	Torx Key
29	GVNIR/L25-29	25	200	19	22.6	23.8	11.3	19.0	SGM5	L20IP
	GVNIR/L32-29	32	250	19	29.0	30.5	14.5	22.2		

For **LH Internal** work applications use **LH toolholder** with **RH insert** and vice versa.

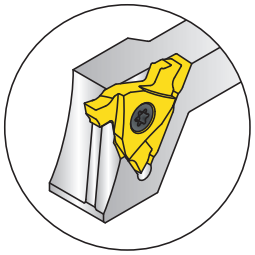


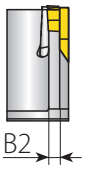
GV29 / GVN29

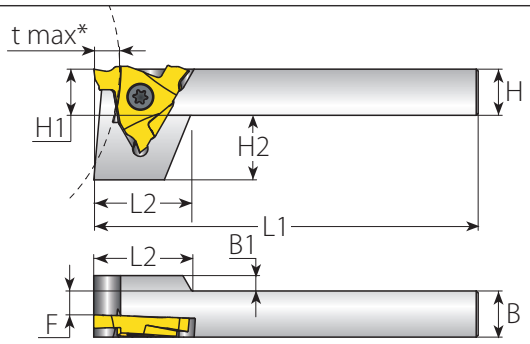
External Toolholders (GV29)



Right hand shown



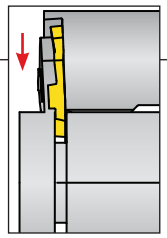




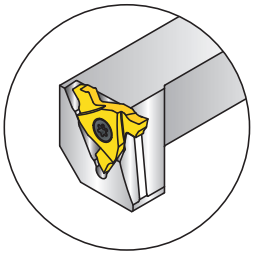
* See page 14 for t max and D max limitations.

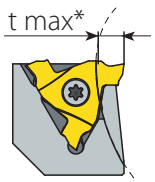
Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
	RH/LH	H=B	L1	H1	L2	H2	F	B1	B2	Insert Screw	Torx Key
29	GVER/L12-29-1	12	100	12	25.5	16	7.2	4	1.75	SGM5	L20IP
	GVER/L12-29-2	12	100	12	25.5	16	6.2	4	2.75		
	GVER/L16-29-1	16	125	16	23.2	12	11.2	-	1.75		
	GVER/L16-29-2	16	125	16	23.2	12	10.2	-	2.75		
	GVER/L20-29-1	20	125	20	20.9	8	15.2	-	1.75		
	GVER/L20-29-2	20	125	20	20.9	8	14.2	-	2.75		
	GVER/L25-29-1	25	150	25	18	3	20.2	-	1.75		
	GVER/L25-29-2	25	150	25	18	3	19.2	-	2.75		

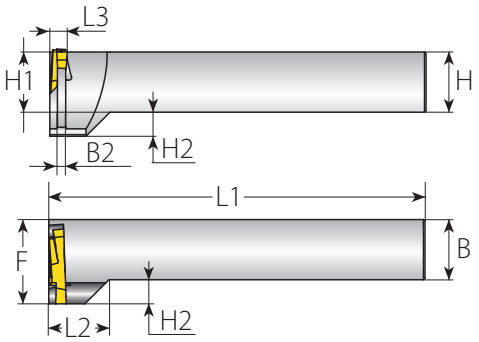
External Toolholders 90° (GV29)



Right hand shown



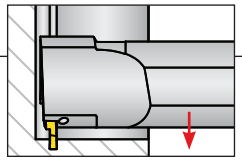


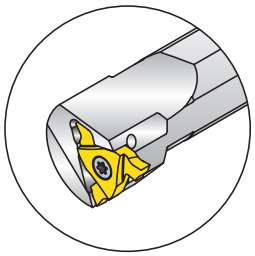


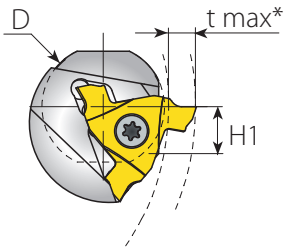
* See page 14 for t max and D max limitations.

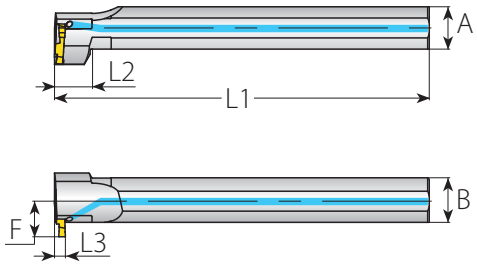
Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
	RH/LH	H=B	L1	H1	L2	H2	F	L3	B2	Insert Screw	Torx Key
29	GVE90R/L20-29-1	20	125	20	20.2	8	28	4.8	1.75	SGM5	L20IP
	GVE90R/L20-29-2	20	125	20	20.2	8	28	5.8	2.75		
	GVE90R/L25-29-1	25	150	25	25.2	8	33	4.8	1.75		
	GVE90R/L25-29-2	25	150	25	25.2	8	33		2.75		

Internal Toolholders (GV29) with Coolant









Right hand shown

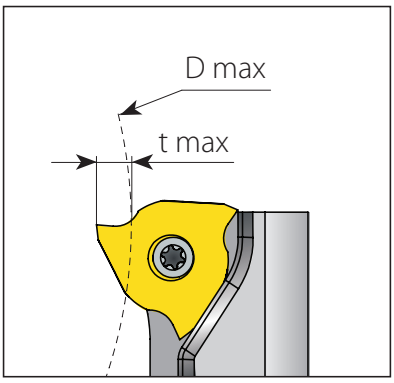
* See page 14 for t max and D max limitations.

Insert Size	Ordering Code	Dimensions (mm)								Spare Parts	
	RH/LH	D	L1	L2	L3	A	B	H1	F	Insert Screw	Torx Key
29	GVIR25-29	25	200	19	5.8	22.6	23.8	11.3	19	SGM5	L20IP
	GVIR32-29	32	250	19	5.8	29	30.5	14.5	22.2		

D max Limitations

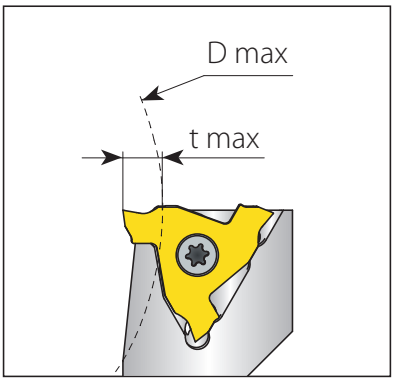
GVN26 External - Depth of Groove in Relation to Workpiece Dia.

D max is 150mm



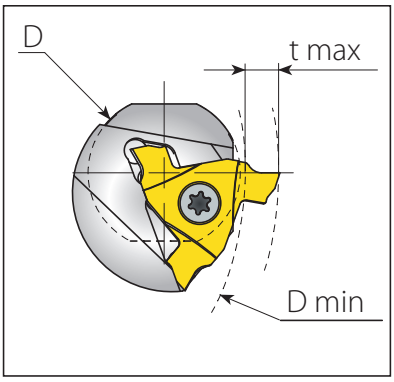
GV29 / GVN29 External - Depth of Groove in Relation to Workpiece Dia.

Dimensions (mm)	
t max	D max
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 / GVN29 Internal - Depth of Groove in Relation to Bore Dia.

Dimensions (mm)	
t max	D min
0.5	41.8
1	42.3
1.5	42.8
2	43.5
2.5	44.2
3	45.1
3.5	46.1
4.0	47.2
4.5	48.3
5.0	49.9
5.5	54.2
6.0	73.5
6.5	104.5



Groovical Technical Data

Recommended Grades and Cutting Data

Material Group	Vargus 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	70-120
	14		Super Austenitic	200	40-90
	15	Stainless Steel Cast Ferritic	Non Hardened	200	80-110
	16		Hardened	330	65-110
	17	Stainless Steel 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) Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	45-60
	26			51-55HRc	40-50

- For **VTX Grade**, increase speed by 20%.
- The maximum recommended **feed rate** is one-tenth of the insert width (W).
- The minimum recommended **depth of cut** is twice the corner radius (r).

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