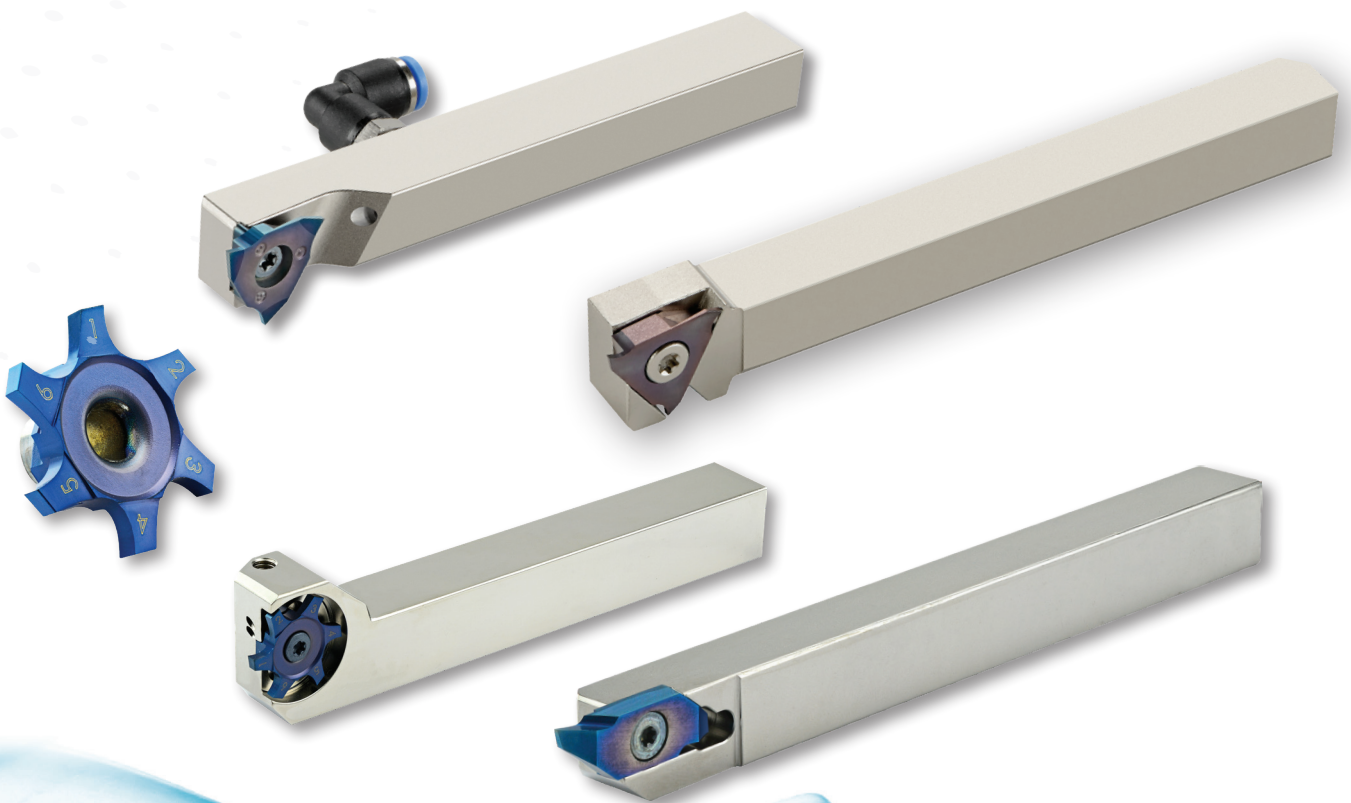




**Carmex**  
*Precision Tools Ltd.*  
*The optimal tools for your industry™*

# Swiss-Line



**Metric 2020**



## Contents:

## Page:

Introduction - Swiss Line	2
<b>Polygon Inserts and Toolholders</b>	<b>2</b>
Product Identification - Inserts	3
Grooving and Turning	4
Grooving, Circlip Ring Grooves	5
Grooving and Profiling (full radius)	6
Parting Off and Grooving	7-8
Back Turning	9
Front Turning	9
Threading - Partial Profile 60°	10
Threading - Partial Profile 55°	10
Threading - ISO metric 60° Full Profile	11
Threading - UN unified 60° Full Profile	11
External Toolholders	12-13
Product Identification - Toolholders	12
External Toolholders With Internal Coolant	13
Working Method	14
Technical Section - Polygon Swiss Line	15
<b>3 Cutting Edges Swiss Line Inserts and Toolholders</b>	<b>16</b>
Product Identification – Inserts	17
16 mm Inserts and Toolholders	18
Grooving	18
Grooving, Circlip Ring Grooves	18
External Toolholders	19
Technical Section - 3 Cutting Edges Swiss Line Inserts (16 mm)	20
19,20 mm Inserts and Toolholders	21
Grooving and Turning	21
Grooving and Profiling (full radius)	22
Parting Off	23
Back Turning	24
Front Turning	24
Threading - Partial Profile 60°	25
Threading - Partial Profile 55°	25
Threading - ISO metric 60° - Full Profile	26
Threading - UN unified 60° - Full Profile	26
External Toolholders	27-28
Product Identification – Toolholders	27
Slim Holders	28
Working Method: Grooving – Parting Off – Turning – Profiling – Threading	29
Technical Section - 3 Cutting Edges Swiss Line Inserts (19,20 mm)	30
<b>6 Cutting edges G6 Turning inserts and Toolholders</b>	<b>31</b>
Product Identification - Inserts	32
Grooving	33
Grooving, Circlip Ring Grooves	34
Grooving and Profiling (full radius)	34
Parting Off and Grooving	35
Back Turning	36
Front Turning	36
Threading - Partial Profile 60°	37
Threading - Partial Profile 55°	37
Threading - ISO metric 60° Full Profile	38
Threading - UN unified 60° Full Profile	38
External Toolholders	39
Product Identification - Toolholders	39
Technical Section – G6 Inserts	40

## Swiss-Line

- Swiss style lathes are becoming a popular alternative to large lathes and machining centers in many companies.
- Carmex is introducing a new line of inserts and toolholders, developed for automatic and Swiss style lathes.
- Designed for economic production of parting, grooving, profiling threading and chamfering.

## Polygon Inserts and Toolholders

**Carmex extends the Swiss Line range by offering a new type of polygon inserts and toolholders for external turning, grooving, parting and threading on Swiss-Type machines. Specially designed for small parts machining.**



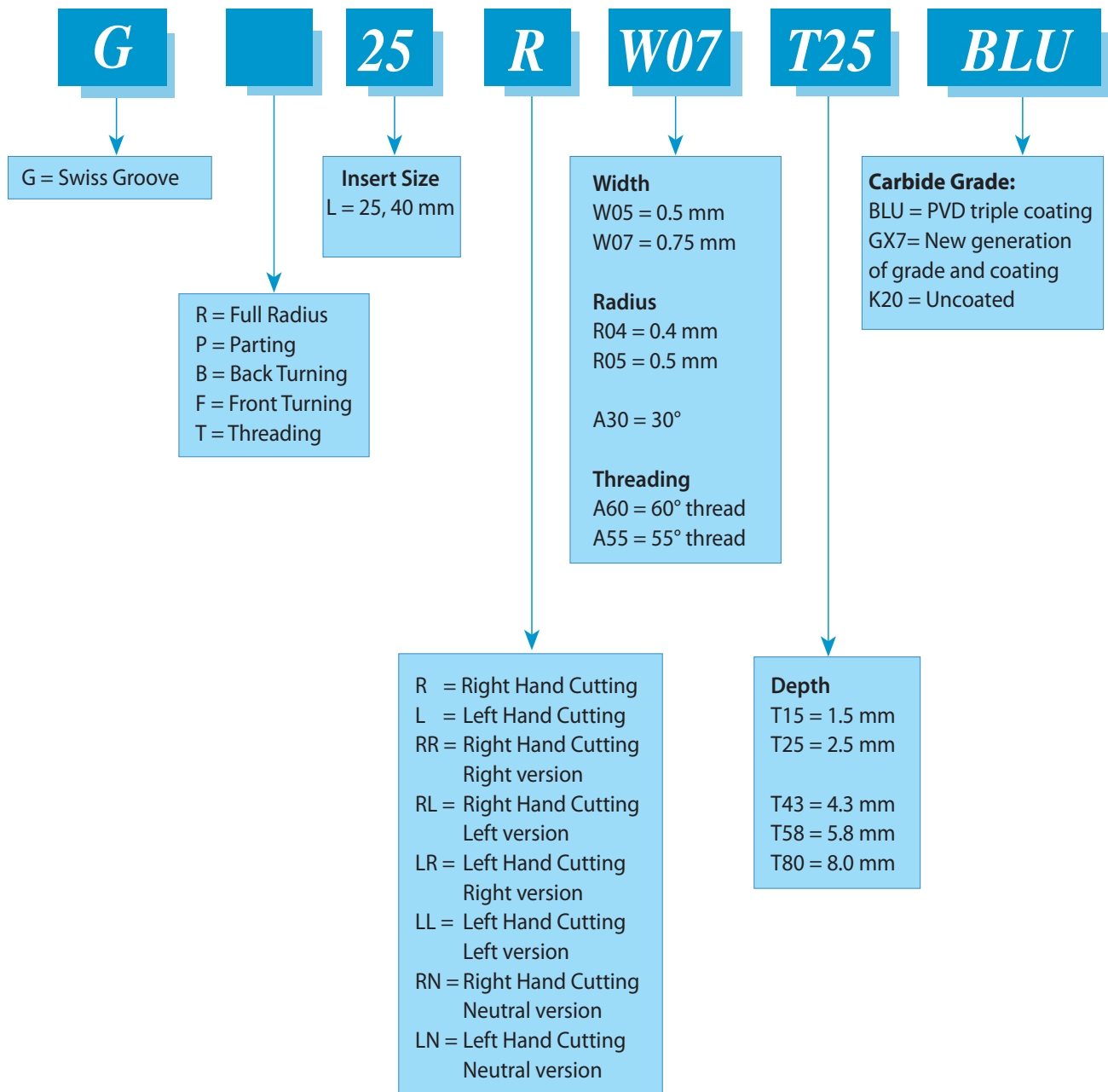
### Features

- High precision ground inserts.
- All inserts can be used with same toolholders.
- A combination of the latest carbide and coating technologies guarantees maximum tool life and improved productivity.
- Compatible with a wide range of materials.
- Coated holders provide abrasive resistance.

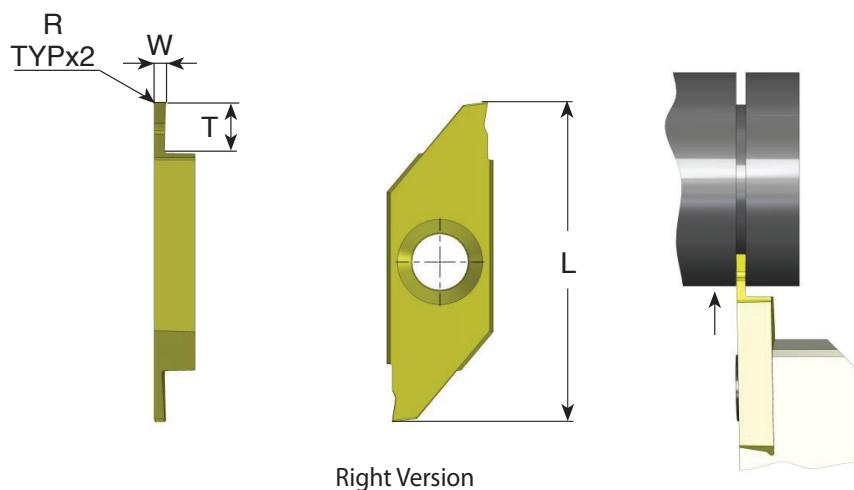
Carbide grades: BLU, GX7, K20

## Product Identification - Ordering Codes

### Polygon Inserts



## Grooving and Turning



### Right hand cutting

Insert Size L	Ordering Code	W ±.002	T max	R	Feed mm/rev
25	G25 R W05 T15	0.5	1.5	0	0.01-0.06
	G25 R W07 T25	0.75	2.5	0	0.02-0.07
	G25 R W10 T27	1.0	2.7	0.05	0.02-0.09
	G25 R W12 T30	1.2	3.0	0.05	0.02-0.10
	G25 R W15 T38	1.5	3.8	0.05	0.02-0.12
	G25 R W20 T38	2.0	3.8	0.05	0.02-0.13
	G25 R W25 T38	2.5	3.8	0.05	0.02-0.14
40	G40 R W30 T80	3.0	8.0	0.05	0.02-0.14
	G40 R W40 T80	4.0	8.0	0.05	0.02-0.14

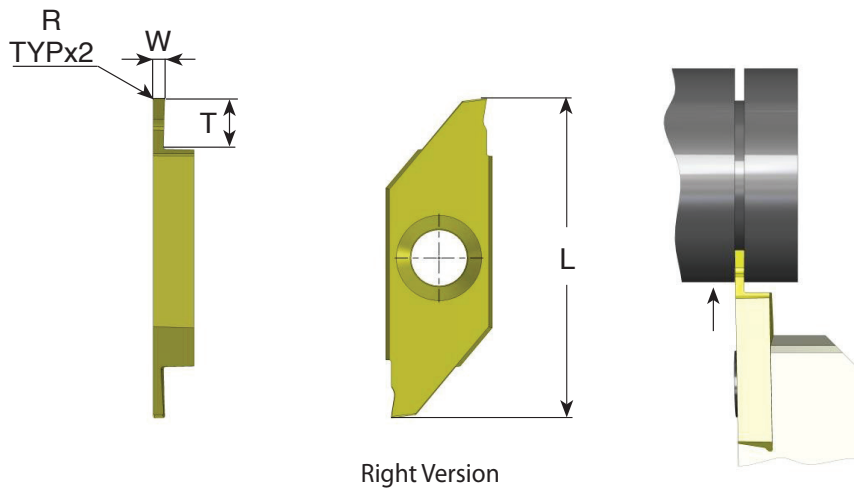
	K20	BLU	GX7*
P		●	●
M	●	●	●
K	●	○	○
N	●		
S	○	○	●
H		≤45 HRc	≤58 HRc

For L.H, specify G25 **L** instead of G25 **R**

\* Available for insert size G25... only

## Grooving, Circlip Ring Grooves

### DIN 471/472

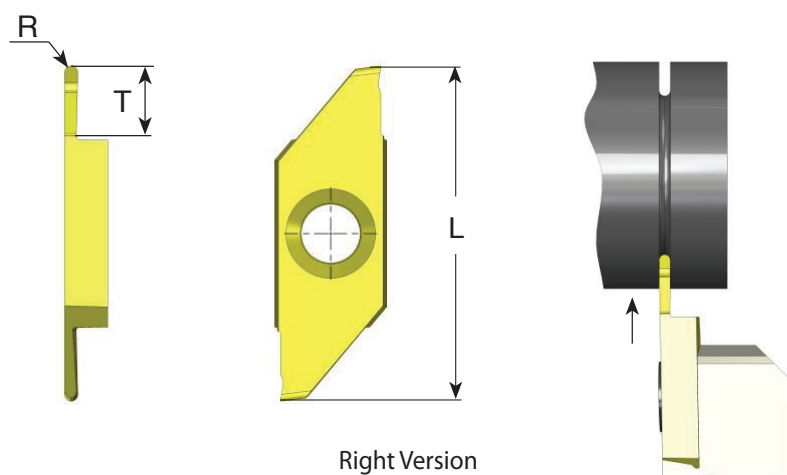


### Right hand cutting

Insert Size L	Ordering Code	Nom` groove width	W-0.05	T max	R	Feed Inch/rev		K20	BLU	GX7
25	GD25 R W05 T16	0.50	0.57	1.6	0	0.01-0.06	P		●	●
	GD25 R W06 T17	0.60	0.67	1.7	0	0.01-0.06	M	●	●	●
	GD25 R W07 T19	0.70	0.77	1.9	0	0.02-0.07	K	●	○	○
	GD25 R W08 T22	0.80	0.87	2.2	0	0.02-0.09	N	●		
	GD25 R W09 T24	0.90	0.97	2.4	0	0.02-0.09	S	○	○	●
	GD25 R W12 T31	1.10	1.24	3.1	0.05	0.02-0.10	H		≤45 HRc	≤58 HRc
	GD25 R W14 T33	1.30	1.44	3.3	0.05	0.02-0.12				
	GD25 R W17 T33	1.60	1.74	3.3	0.05	0.02-0.13				
	GD25 R W19 T39	1.85	1.99	3.9	0.05	0.02-0.13				
	GD25 R W22 T45	2.15	2.29	4.5	0.05	0.02-0.14				
	GD25 R W27 T55	2.65	2.79	5.5	0.05	0.02-0.14				

For L.H, specify GD25 **L** instead of GD25 **R**  
 Nom` = nominal

## Grooving and Profiling (full radius)



### Right hand cutting

Insert Size L	Ordering Code	R±0.03	T max	Feed mm/rev
25	<b>GR25 R R02 T15</b>	0.25	1.5	0.01-0.06
	<b>GR25 R R04 T25</b>	0.40	2.5	0.02-0.07
	<b>GR25 R R05 T27</b>	0.50	2.7	0.02-0.09

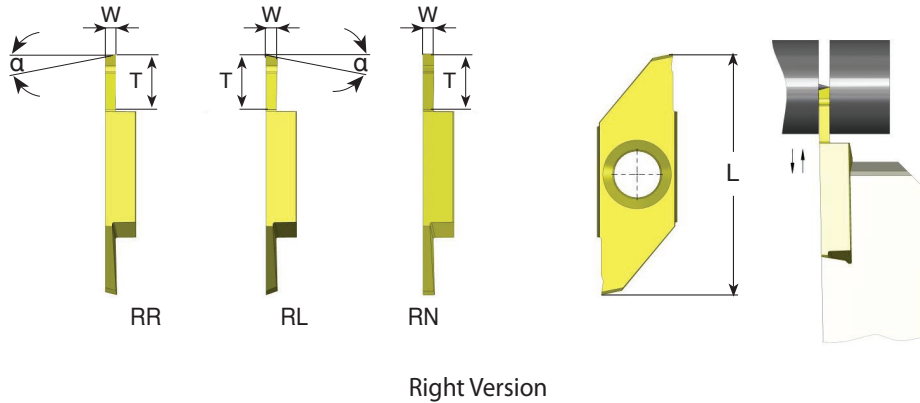
For L.H, specify GR25 **L** instead of GR25 **R**

	K20	BLU	GX7
<b>P</b>		●	●
<b>M</b>	●	●	●
<b>K</b>	●	○	○
<b>N</b>	●		
<b>S</b>	○	○	●
<b>H</b>		≤45 HRc	≤58 HRc

● First choice ○ Alternative



## Parting Off and Grooving



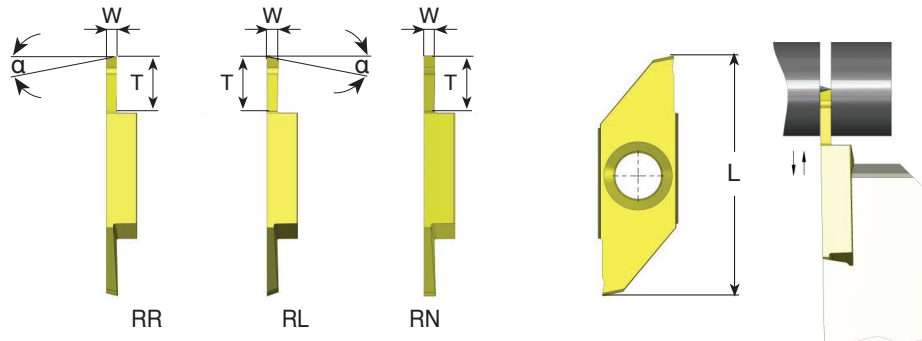
### Right hand cutting

Insert Size L	Ordering Code	W	α°	T max	Feed mm/rev		K20	BLU	GX7
25	GP25 RR W05 T30	0.5	15	3.0	0.02-0.06	P		●	●
	GP25 RL W05 T30	0.5	15	3.0	0.02-0.06	M	●	●	●
	GP25 RN W05 T30	0.5	0	3.0	0.02-0.06	K	●	○	○
	GP25 RR W07 T43	0.7	15	4.3	0.02-0.08	N	●		
	GP25 RL W07 T43	0.7	15	4.3	0.02-0.08	S	○	○	●
	GP25 RN W07 T43	0.7	0	4.3	0.02-0.08	H		≤45 HRc	≤58 HRc
	GP25 RR W08 T50	0.8	15	5.0	0.02-0.08				
	GP25 RL W08 T50	0.8	15	5.0	0.02-0.08				
	GP25 RN W08 T50	0.8	0	5.0	0.02-0.08				
	GP25 RR W10 T58	1.0	15	5.8	0.02-0.13				
	GP25 RL W10 T58	1.0	15	5.8	0.02-0.13				
	GP25 RN W10 T58	1.0	0	5.8	0.02-0.13				
	GP25 RR W12 T58	1.2	15	5.8	0.02-0.13				
	GP25 RL W12 T58	1.2	15	5.8	0.02-0.13				
	GP25 RN W12 T58	1.2	0	5.8	0.02-0.13				
	GP25 RR W15 T58	1.5	15	5.8	0.02-0.13				
	GP25 RL W15 T58	1.5	15	5.8	0.02-0.13				
	GP25 RN W15 T58	1.5	0	5.8	0.02-0.13				
	GP25 RR W18 T58	1.8	15	5.8	0.02-0.13				
	GP25 RL W18 T58	1.8	15	5.8	0.02-0.13				
	GP25 RN W18 T58	1.8	0	5.8	0.02-0.13				
	GP25 RR W20 T58	2.0	15	5.8	0.02-0.13				
	GP25 RL W20 T58	2.0	15	5.8	0.02-0.13				
	GP25 RN W20 T58	2.0	0	5.8	0.02-0.13				
	GP25 RR W20 T75	2.0	15	7.5	0.02-0.10				
	GP25 RL W20 T75	2.0	15	7.5	0.02-0.10				
	GP25 RN W20 T75	2.0	0	7.5	0.02-0.10				
	GP25 RR W25 T58	2.5	15	5.8	0.04-0.13				
	GP25 RL W25 T58	2.5	15	5.8	0.04-0.13				
	GP25 RN W25 T58	2.5	0	5.8	0.04-0.13				

For L.H, specify GP25 **LR** instead of GP25 **RR**  
 GP25 **LL** instead of GR25 **RL**  
 GP25 **LN** instead of GR25 **RN**

● First choice ○ Alternative

## Parting Off and Grooving



Right Version

### Right hand cutting

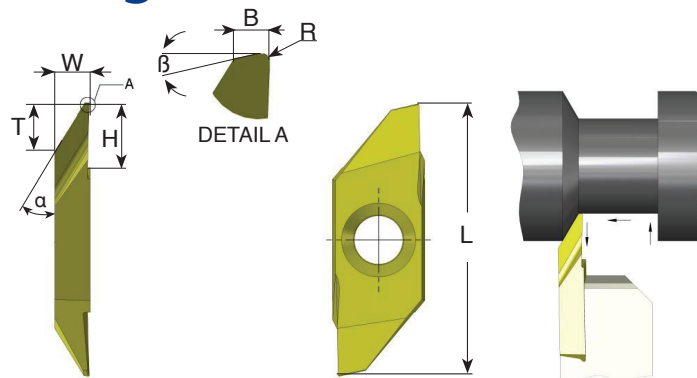
Insert Size L	Ordering Code	W	$\alpha^\circ$	T max	Feed mm/rev
40	GP40 RR W15 T80	1.5	15	8.0	0.03-0.08
	GP40 RL W15 T80	1.5	15	8.0	0.03-0.08
	GP40 RN W15 T80	1.5	0	8.0	0.03-0.08
	GP40 RR W18 T95	1.8	15	9.5	0.03-0.08
	GP40 RL W18 T95	1.8	15	9.5	0.03-0.08
	GP40 RN W18 T95	1.8	0	9.5	0.03-0.08
	GP40 RR W20 T110	2.0	15	11.0	0.03-0.08
	GP40 RL W20 T110	2.0	15	11.0	0.03-0.08
	GP40 RN W20 T110	2.0	0	11.0	0.03-0.08
	GP40 RR W25 T130	2.5	15	13.0	0.03-0.08
	GP40 RL W25 T130	2.5	15	13.0	0.03-0.08
	GP40 RN W25 T130	2.5	0	13.0	0.03-0.08
	GP40 RR W30 T130	3.0	15	13.0	0.03-0.08
	GP40 RL W30 T130	3.0	15	13.0	0.03-0.08
	GP40 RN W30 T130	3.0	0	13.0	0.03-0.08

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GP25 **LR** instead of GP25 **RR**  
 GP25 **LL** instead of GP25 **RL**  
 GP25 **LN** instead of GP25 **RN**

● First choice ○ Alternative

## Back Turning



Right Version

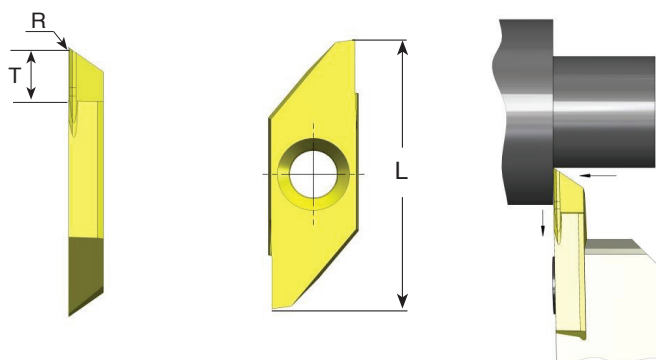
### Right hand cutting

Insert Size L	Ordering Code	$\alpha^\circ$	$\beta^\circ$	R	W	T <sub>max</sub>	B	H	Feed mm/rev
25	<b>GB25 R A30 R03</b>	30	15	0.03	3.0	4.0	0.5	8.0	0.05-0.12
	<b>GB25 R A30 R10</b>	30	15	0.10	3.0	4.0	0.5	8.0	0.05-0.12
	<b>GB25 R A30 R20</b>	30	15	0.20	3.0	4.0	0.5	8.0	0.05-0.12

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GB25 **L** instead of GB25 **R**

## Front Turning



Right Version

### Right hand cutting

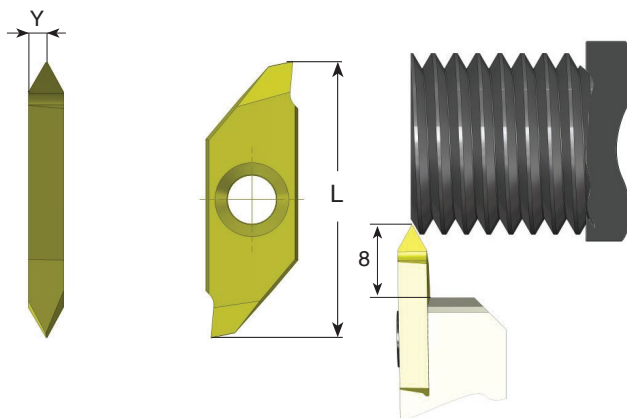
Insert Size L	Ordering Code	T <sub>max</sub>	R	Feed mm/rev
25	<b>GF25 R T40</b>	4.0	0.05	0.05-0.12
	<b>GF25 R T40 R10</b>	4.0	0.10	0.05-0.12
	<b>GF25 R T70</b>	7.0	0.05	0.05-0.08

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GF25 **L** instead of GF25 **R**

● First choice ○ Alternative

## Threading - Partial Profile 60°



Right Version

### Right hand cutting

Insert Size L	Ordering Code	Pitch Range		Y
		mm	TPI	
25	<b>GT25 R A60</b>	0.25-0.8	100-32	0.7
	<b>GT25 R G60</b>	1.0-3.0	24-8	1.6

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GT25 **L** instead of GT25 **R**

## Threading - Partial Profile 55°

### Right hand cutting

Insert Size L	Ordering Code	Pitch Range		Y
		mm	TPI	
25	<b>GT25 R A55</b>	0.5-1.5	48-16	1.0
	<b>GT25 R G55</b>	1.75-3.0	14-8	1.6

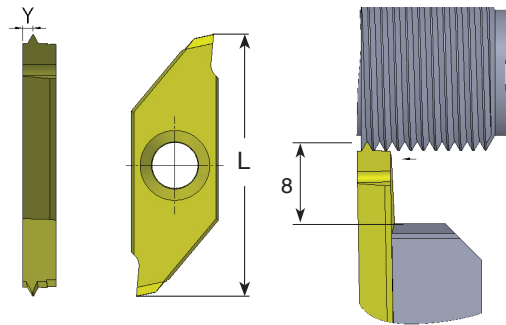
	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GT25 **L** instead of GT25 **R**

● First choice ○ Alternative

## Threading - ISO metric 60° Full Profile

### External thread



Right Version

### Right hand cutting

Insert Size L	Ordering Code	Pitch mm	Y
25	GT25 R 0.5ISO	0.5	0.6
	GT25 R 0.6ISO	0.6	0.6
	GT25 R 0.7ISO	0.7	0.7
	GT25 R 0.75ISO	0.75	0.7
	GT25 R 0.8ISO	0.8	0.7
	GT25 R 1.0ISO	1.0	0.8
	GT25 R 1.25ISO	1.25	1.0
	GT25 R 1.5ISO	1.5	1.1

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GT25 **L** instead of GT25 **R**

## Threading - UN unified 60° Full Profile

### External thread

### Right hand cutting

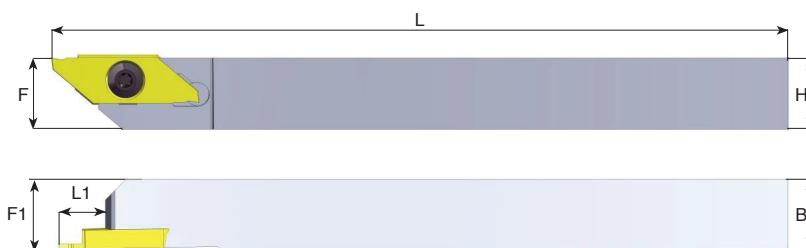
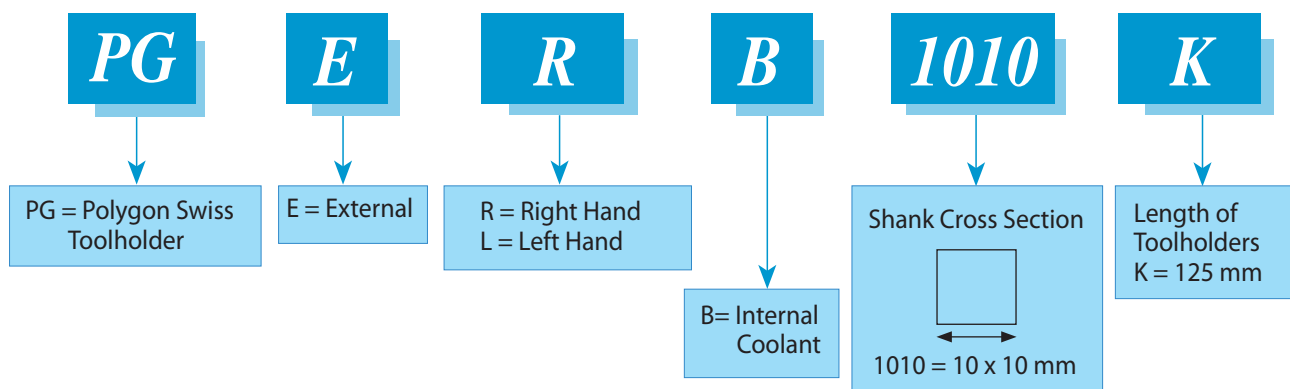
Insert Size L	Ordering Code	Pitch TPI	Y
25	GT25 R 56UN	56	0.6
	GT25 R 40UN	40	0.7
	GT25 R 32UN	32	0.7
	GT25 R 24UN	24	0.8

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GT25 **L** instead of GT25 **R**

## External Toolholders

### Product Identification - Ordering Codes



Right Version

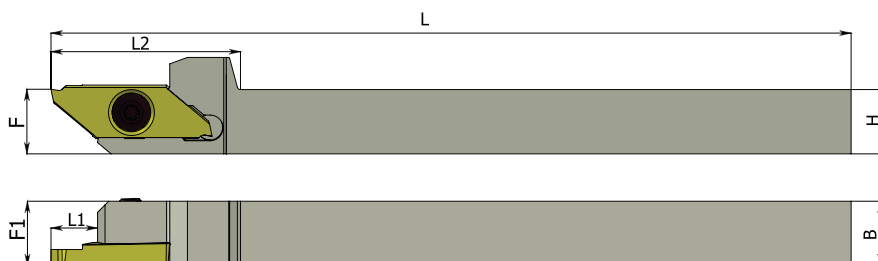


### Right hand cutting

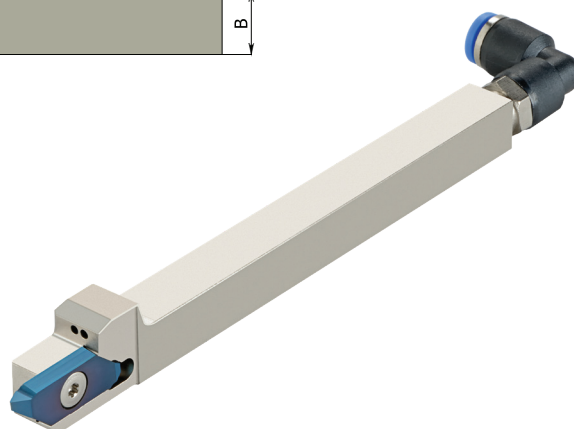
Insert Size	Ordering Code	B	H	L1	L	F	F1	Insert Screw Torx+	Key Torx+
25	<b>PGER 0808 K</b>	8	8	8	125	10	10	S26PD	K11P
	<b>PGER 1010 K</b>	10	10	8	125	10	10	S26PD	K11P
	<b>PGER 1212 K</b>	12	12	8	125	12	12	S26PD	K11P
	<b>PGER 1616 K</b>	16	16	8	125	16	16	S26PD	K11P
	<b>PGER 2020 K</b>	20	20	8	125	20	20	S26PD	K11P
40	<b>PGER 1010 K40</b>	10	10	13	125	10	10	S26PD	K11P
	<b>PGER 1212 K40</b>	12	12	13	125	12	12	S26PD	K11P
	<b>PGER 1616 K40</b>	16	16	13	125	16	16	S26PD	K11P
	<b>PGER 2020 K40</b>	20	20	13	125	20	20	S26PD	K11P
	<b>PGER 2525 M40</b>	25	25	13	150	25	25	S26PD	K11P

For L.H, specify PGE **L** instead of PGE **R**

## External Toolholders with internal coolant



Right Version



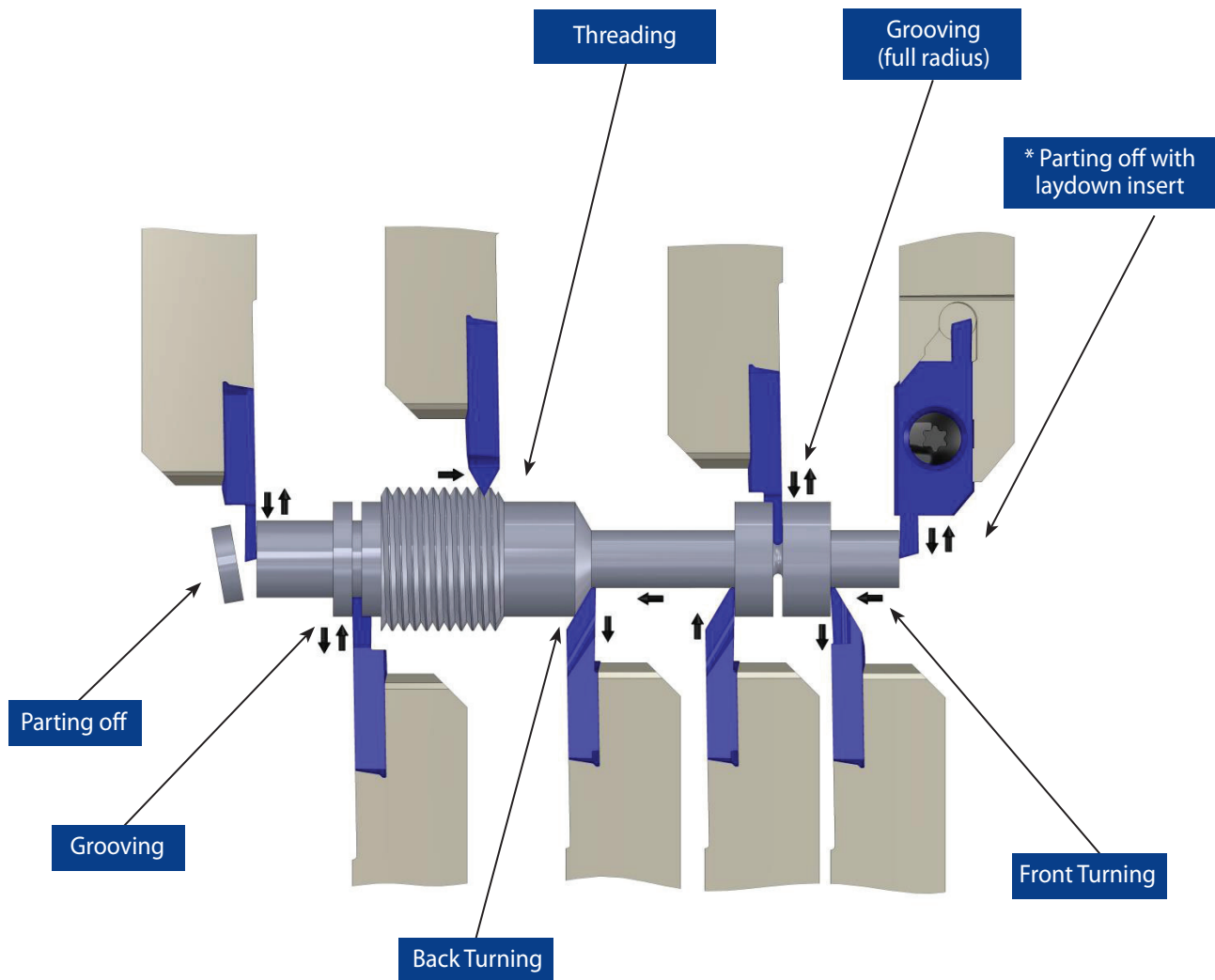
### Right hand cutting

Insert Size	Ordering Code	B	H	L1	L2	L	F	F1	Insert Screw Torx+	Key Torx+	*Coolant connector
25	<b>PGERB 1010 K</b>	10	10	8	30	125	10	10	S26PD	K11P	Ø4 / Ø6
	<b>PGERB 1212 K</b>	12	12	8	30	125	12	12	S26PD	K11P	Ø4 / Ø6
	<b>PGERB 1616 K</b>	16	16	8	30	125	16	16	S26PD	K11P	Ø4 / Ø6

For L.H, specify PGE **L** B instead of PGE **R** B

\* Coolant pipe diameter

## Working Method



\* Available upon request (grooving, parting, threading)



## Polygon Swiss Line

### Carbide grades

#### BLU

PVD triple layer coated Sub-Micron grade for Steel, Stainless Steels, Titanium and hard materials.

#### GX7

New generation of PVD triple layer coated Sub-Micron grade for wide range of materials as: Steel, Stainless Steels, Titanium and hard materials up to 58 HRc.  
With high toughness for optimized performance.

#### K20

Uncoated Sub-Micron carbide grade for Aluminum and non-ferrous materials, Stainless Steels and Titanium.

## Cutting Data

ISO Standard	Materials	Cutting Speed m/min		
		K20	BLU	GX7*
<b>P</b>	Low & Medium Carbon Steels <0.55%C	-	80-150	70-160
	High Carbon Steels ≥0.55%C	-	70-120	60-130
	Alloy Steels, Treated Steels	-	40-80	40-100
<b>M</b>	Stainless Steel-Free Cutting	30-80	60-120	60-140
	Stainless Steel-Austenitic	20-70	30-90	30-120
	Cast Steels	30-80	50-120	50-140
<b>K</b>	Cast Iron	50-120	60-130	60-140
<b>N</b>	Aluminum ≤12%Si, Copper	120-250	-	-
	Aluminum >12%Si	90-200	-	-
	Synthetics, Duroplastics, Thermoplastics	70-150	-	-
<b>S</b>	Nickel Alloys, Titanium Alloys	20-50	30-70	30-90
<b>H</b>	Hardened Steel, 45-50HRc	-	20-50	20-70
	Hardened Steel, 50-58HRc	-	-	20-60

\* Available for grooving and parting off, with G25 insert size

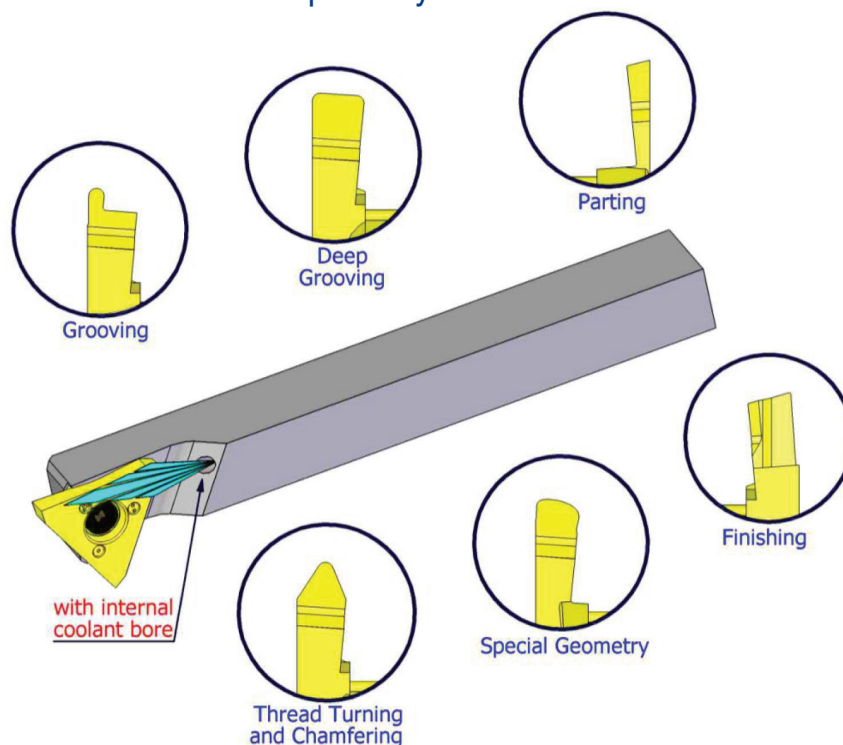
## 3 Cutting Edges Swiss Line Inserts and Toolholders

- Swiss style lathes are becoming a popular alternative to large lathes and machining centers in many companies
- Carmex is introducing Swiss line of inserts and toolholders, developed for automatic and Swiss style lathes
- Designed for economic production of parting, grooving, profiling and chamfering

### Advantages

**Advanced sub-micron grade (K10-K30) - a combination of strength, toughness, wear resistance and edge sharpness**

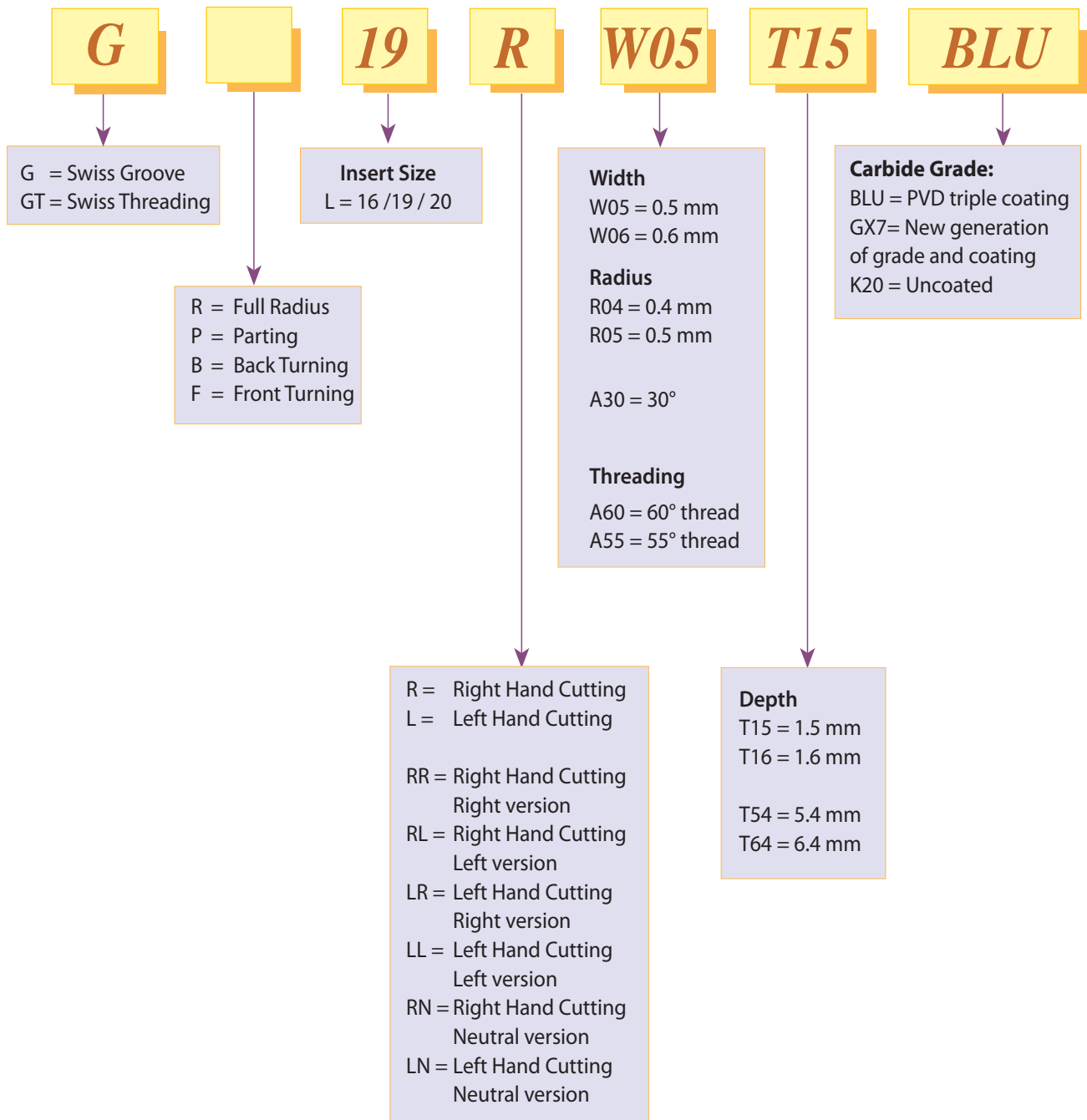
- Grounded cutting edges
- Advanced and unique PVD triple coating, for high wear and heat resistance
- For most types of material, including Stainless Steels, Titanium and Super Alloys



- Three cutting edges
- The insert can be indexed directly on the machine
- Internal coolant to the cutting edge

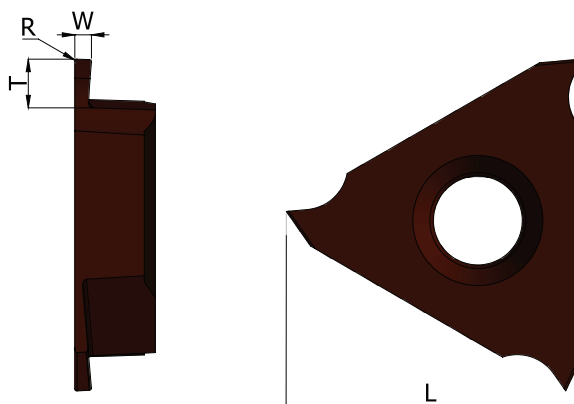
## Product Identification - Ordering Codes

### Inserts



## 16 mm Inserts and Toolholders

### Grooving



Right Version

#### Right hand cutting

Insert Size L	Ordering Code	W $\pm 0.02$	T max	R	Feed mm/rev	
					Radial	Axial
16	<b>G16 R W05 T12</b>	0.5	1.2	0.05	0.01-0.06	0.02-0.08
	<b>G16 R W10 T20</b>	1.0	2.0	0.05	0.02-0.07	0.02-0.10
	<b>G16 R W15 T25</b>	1.5	2.5	0.10	0.03-0.08	0.02-0.10
	<b>G16 R W20 T25</b>	2.0	2.5	0.15	0.05-0.10	0.02-0.15
	<b>G16 R W25 T25</b>	2.5	2.5	0.20	0.05-0.10	0.02-0.15

	K20	GX7
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤58 HRc

## Grooving, Circlip Ring Grooves

### DIN 471/472

#### Right hand cutting

Insert Size L	Ordering Code	Nom` groove width	W-0.05	T max	R	Feed mm/rev	
						Radial	Axial
16	<b>G16 R W07 T20</b>	0.7	0.77	2.0	0	0.01-0.06	0.02-0.08
	<b>G16 R W08 T20</b>	0.8	0.87	2.0	0	0.01-0.06	0.02-0.08
	<b>G16 R W09 T25</b>	0.9	0.97	2.5	0	0.02-0.07	0.02-0.10
	<b>G16 R W12 T25</b>	1.1	1.24	2.5	0.05	0.02-0.07	0.02-0.10
	<b>G16 R W14 T25</b>	1.3	1.44	2.5	0.05	0.03-0.08	0.02-0.10
	<b>G16 R W17 T25</b>	1.6	1.74	2.5	0.05	0.03-0.08	0.02-0.10

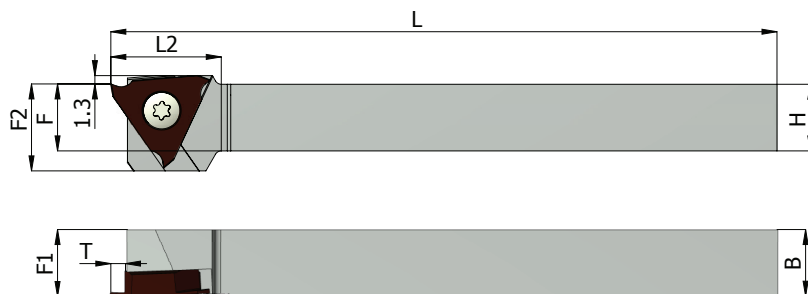
	K20	GX7
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤58 HRc

For L.H, specify G16 **L** instead of G16 **R**

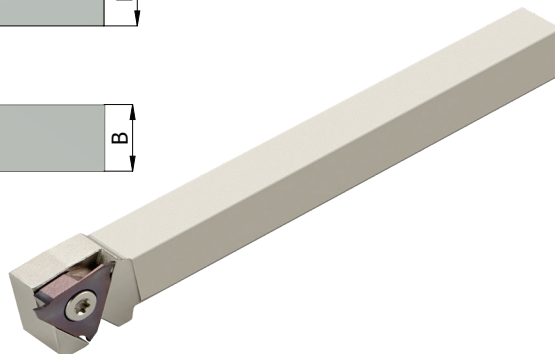
Nom` = nominal

● First choice ○ Alternative

## External Toolholders



Right Version



### Right hand cutting

Ordering Code	B	H	T	L2	L	F	F1	F2	Insert Screw Torx+	Key Torx+
<b>VGER 0810 K</b>	10	8	2.6	17	125	8	10	13	S16PS	K16P
<b>VGER 1010 K</b>	10	10	2.6	17	125	10	10	13	S16PS	K16P
<b>VGER 1212 K</b>	12	12	2.6	17	125	12	12	13	S16P	K16P
<b>VGER 1616 K</b>	16	16	2.6	17	125	16	16	16	S16P	K16P

For L.H, specify VGE **L** instead of VGE **R**

## 3 Cutting Edges Swiss Line Inserts (16 mm)

### Carbide grades

#### GX7

New generation of PVD triple layer coated Sub-Micron grade for wide range of materials as: Steel, Stainless Steels, Titanium and hard materials up to 58 HRc. With high toughness for optimized performance.

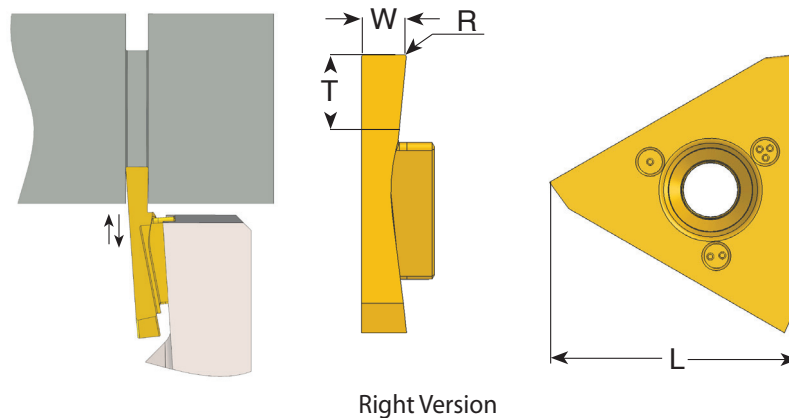
#### K20

Uncoated Sub-Micron carbide grade for Aluminum and non-ferrous materials, Stainless Steels and Titanium.

## Cutting Data

ISO Standard	Materials	Cutting Speed m/min	
		K20	GX7
<b>P</b>	Low & Medium Carbon Steels <0.55%C	-	80-150
	High Carbon Steels ≥0.55%C	-	70-120
	Alloy Steels, Treated Steels	-	40-80
<b>M</b>	Stainless Steel-Free Cutting	30-80	60-120
	Stainless Steel-Austenitic	20-70	30-90
	Cast Steels	30-80	50-120
<b>K</b>	Cast Iron	50-120	50-120
<b>N</b>	Aluminum ≤12%Si, Copper	120-250	-
	Aluminum >12%Si	90-200	-
	Synthetics, Duroplastics, Thermoplastics	70-150	-
<b>S</b>	Nickel Alloys, Titanium Alloys	20-50	30-70
<b>H</b>	Hardened Steel, 45-58HRc	-	20-50

## 19,20 mm Inserts and Toolholders



## Grooving and Turning

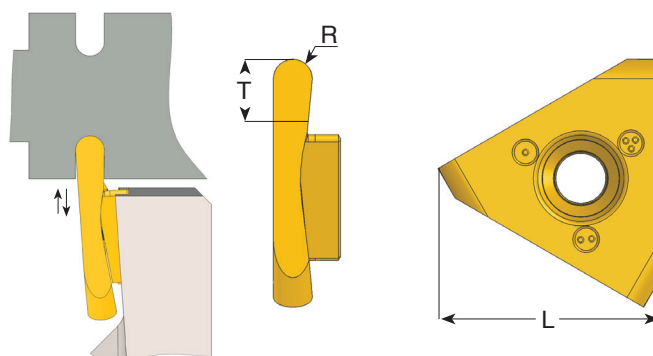
### Right hand cutting

Insert Size L	Ordering Code	W $\pm 0.02$	T max	R	Feed mm/rev	
					Radial	Axial
19	G19 R W05 T15	0.5	1.5	0	0.01-0.06	0.02-0.10
	G19 R W06 T16	0.6	1.6	0	0.01-0.06	0.02-0.10
	G19 R W07 T17	0.75	1.7	0	0.01-0.06	0.02-0.10
	G19 R W08 T18	0.8	2.0	0.05	0.01-0.06	0.02-0.10
	G19 R W10 T22	1.0	2.5	0.05	0.02-0.07	0.02-0.10
	G19 R W12 T24	1.2	3.0	0.05	0.02-0.07	0.02-0.10
	G19 R W14 T28	1.4	3.0	0.05	0.03-0.08	0.02-0.10
	G19 R W15 T30	1.5	3.0	0.05	0.03-0.08	0.02-0.10
	G19 R W17 T34	1.7	4.0	0.05	0.04-0.09	0.02-0.20
20	G20 R W20 T40	2.0	4.0	0.1	0.05-0.10	0.02-0.20
	G20 R W22 T45	2.25	5.0	0.1	0.05-0.10	0.02-0.20
	G20 R W25 T50	2.5	6.0	0.1	0.05-0.10	0.02-0.20
	G20 R W30 T60	3.0	6.0	0.1	0.05-0.10	0.02-0.20

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify G19 **L** instead of G19 **R**

## Grooving and Profiling (full radius)



Right Version

### Right hand cutting

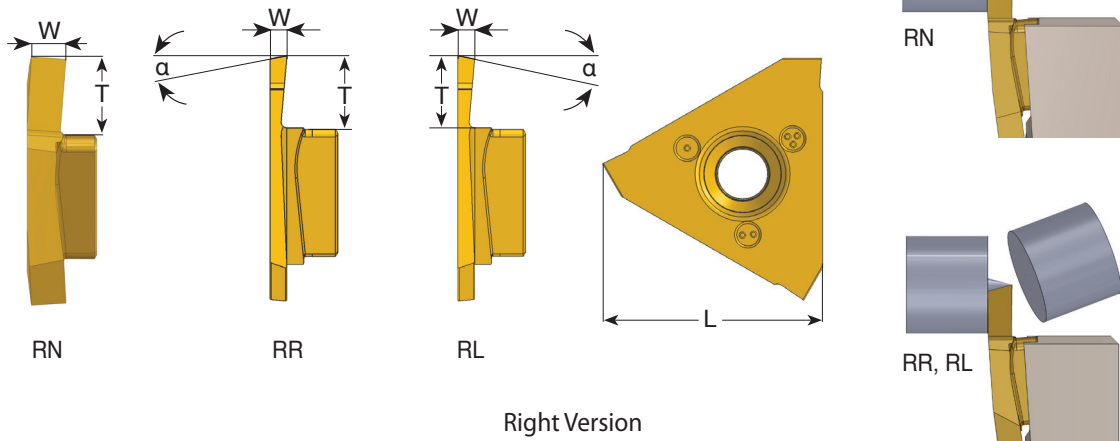
Insert Size L	Ordering Code	R $\pm 0.03$	T max	Feed mm/rev	
				Radial	Axial
19	GR19 R R02 T15	0.25	1.5	0.01-0.06	0.02-0.10
	GR19 R R04 T18	0.40	2.0	0.01-0.06	0.02-0.10
	GR19 R R05 T22	0.50	2.5	0.02-0.07	0.02-0.10
	GR19 R R06 T26	0.60	3.0	0.02-0.07	0.02-0.10
	GR19 R R08 T33	0.80	3.5	0.04-0.09	0.02-0.20
	GR19 R R10 T40	1.00	4.0	0.05-0.10	0.02-0.20
20	GR20 R R12 T50	1.25	6.0	0.05-0.10	0.02-0.20
	GR20 R R15 T60	1.50	6.0	0.05-0.10	0.02-0.20

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify G19 **L** instead of G19 **R**



## Parting Off



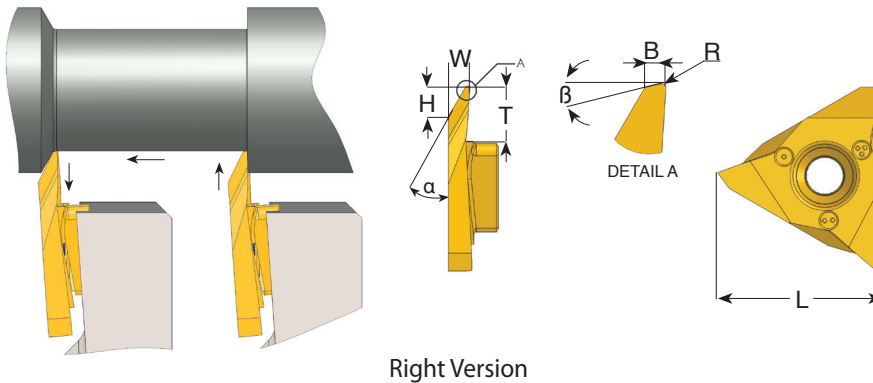
### Right hand cutting

Insert Size L	Ordering Code	W	$\alpha^\circ$	T max	Feed mm/rev Radial
19	GP19 RR W10 T54	1.0	15	5.4	0.02-0.09
	GP19 RL W10 T54	1.0	15	5.4	
	GP19 RN W10 T54	1.0	0	5.4	
	GP19 RR W12 T54	1.2	15	5.4	0.02-0.09
	GP19 RL W12 T54	1.2	15	5.4	
	GP19 RN W12 T54	1.2	0	5.4	
20	GP20 RR W15 T64	1.5	15	6.4	0.04-0.10
	GP20 RL W15 T64	1.5	15	6.4	
	GP20 RN W15 T64	1.5	0	6.4	
	GP20 RR W18 T64	1.8	15	6.4	0.04-0.10
	GP20 RL W18 T64	1.8	15	6.4	
	GP20 RN W18 T64	1.8	0	6.4	
	GP20 RR W20 T64	2.0	15	6.4	0.05-0.12
	GP20 RL W20 T64	2.0	15	6.4	
	GP20 RN W20 T64	2.0	0	6.4	
	GP20 RR W25 T64	2.5	15	6.4	0.05-0.12
	GP20 RL W25 T64	2.5	15	6.4	
	GP20 RN W25 T64	2.5	0	6.4	
	GP20 RR W30 T64	3.0	15	6.4	0.05-0.12
	GP20 RL W30 T64	3.0	15	6.4	
	GP20 RN W30 T64	3.0	0	6.4	

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GP19 **LR** instead of GP19 **RR**  
 GP19 **LL** instead of GP19 **RL**  
 GP19 **LN** instead of GP19 **RN**

## Back Turning



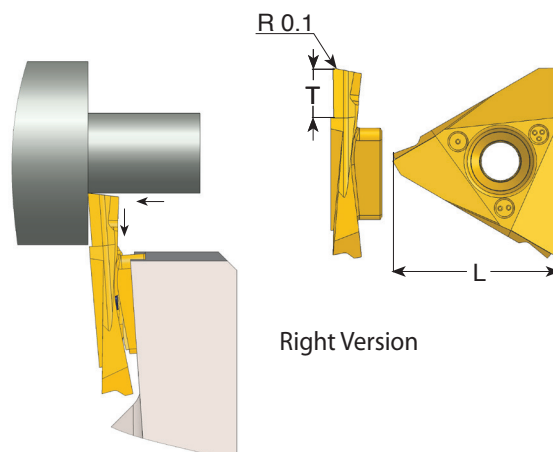
### Right hand cutting

Insert Size L	Ordering Code	$\alpha^\circ$	$\beta^\circ$	R	W	H	B	T <sub>max</sub>	Feed mm/rev
19	<b>GB19 R A30</b>	30	12	0.1	3.4	4.3	0.5	5.4	0.05-0.15
20	<b>GB20 R A30</b>	30	12	0.1	3.4	4.3	0.5	6.4	0.05-0.15

For L.H, specify GB19 **L** instead of GB19 **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

## Front Turning



### Right hand cutting

Insert Size L	Ordering Code	T <sub>max</sub>	Feed mm/rev
19	<b>GF19 R T54</b>	5.4	0.05-0.15
20	<b>GF20 R T64</b>	6.4	0.05-0.15

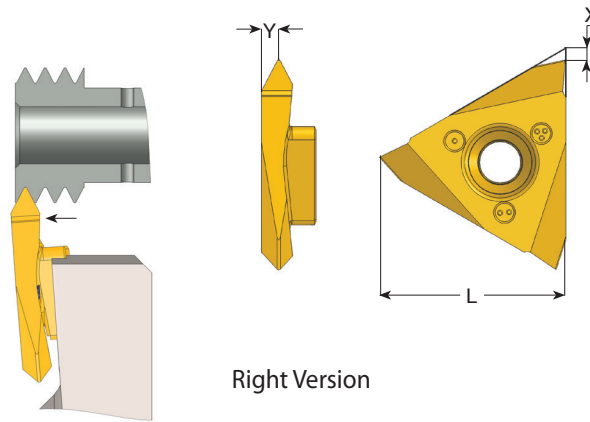
For L.H, specify GF19 **L** instead of GF19 **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

● First choice ○ Alternative

## Threading - Partial Profile 60°

### External Thread



#### Right hand cutting

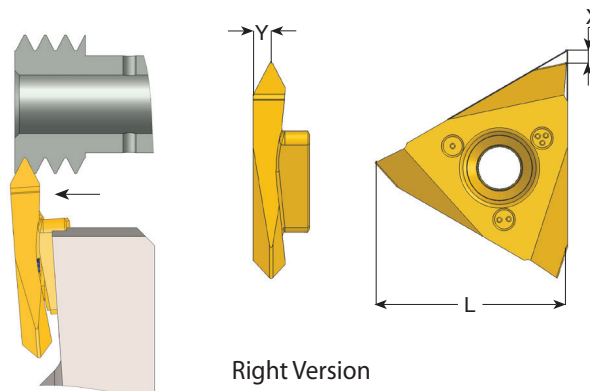
Insert Size L	mm	TPI	Ordering Code	X	Y
19	0.5-1.5	48-16	<b>GT19 R A60</b>	2.8	1.1
	1.75-3.0	14-8	<b>GT19 R G60</b>	2.8	1.7
	0.5-3.0	48-8	<b>GT19 R AG60</b>	2.8	1.7

For L.H, specify GT19 **L** instead of GT19 **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

## Threading - Partial Profile 55°

### External Thread



#### Right hand cutting

Insert Size L	mm	TPI	Ordering Code	X	Y
19	0.5-1.5	48-16	<b>GT19 R A55</b>	2.8	1.0
	1.75-3.0	14-8	<b>GT19 R G55</b>	2.8	1.7
	0.5-3.0	48-8	<b>GT19 R AG55</b>	2.8	1.7

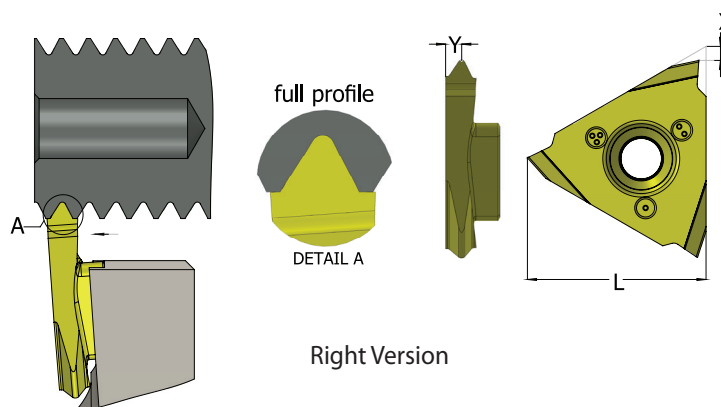
For L.H, specify GT19 **L** instead of GT19 **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

● First choice ○ Alternative

## Threading - ISO metric 60° Full Profile

### External Thread



### Right hand cutting

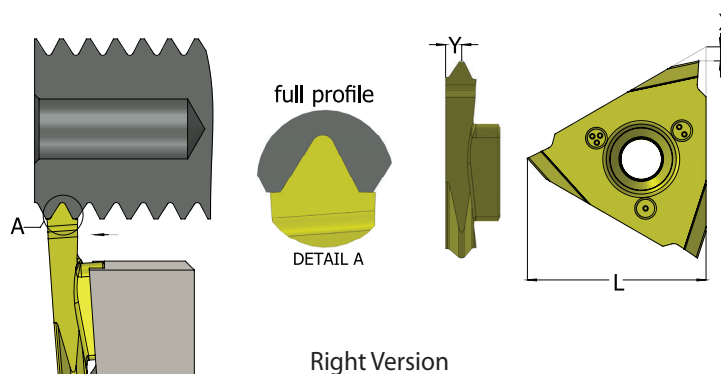
Insert Size L	mm	Ordering Code	X	Y
19	0.5	GT19 R 0.5 ISO	2.8	0.6
	0.7	GT19 R 0.7 ISO	2.8	0.7
	0.75	GT19 R 0.75 ISO	2.8	0.7
	0.8	GT19 R 0.8 ISO	2.8	0.7
	1.0	GT19 R 1.0 ISO	2.8	0.8
	1.25	GT19 R 1.25 ISO	2.8	1.0
	1.5	GT19 R 1.5 ISO	2.8	1.1
	1.75	GT19 R 1.75 ISO	2.8	1.3

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GT19 **L** instead of GT19 **R**

## Threading - UN unified 60° Full Profile

### External Thread



### Right hand cutting

Insert Size L	TPI	Ordering Code	X	Y
19	72	GT19 R 72UN	2.8	0.4
	56	GT19 R 56UN	2.8	0.6
	40	GT19 R 40UN	2.8	0.7
	32	GT19 R 32UN	2.8	0.7
	24	GT19 R 24UN	2.8	0.8
	20	GT19 R 20UN	2.8	1.0

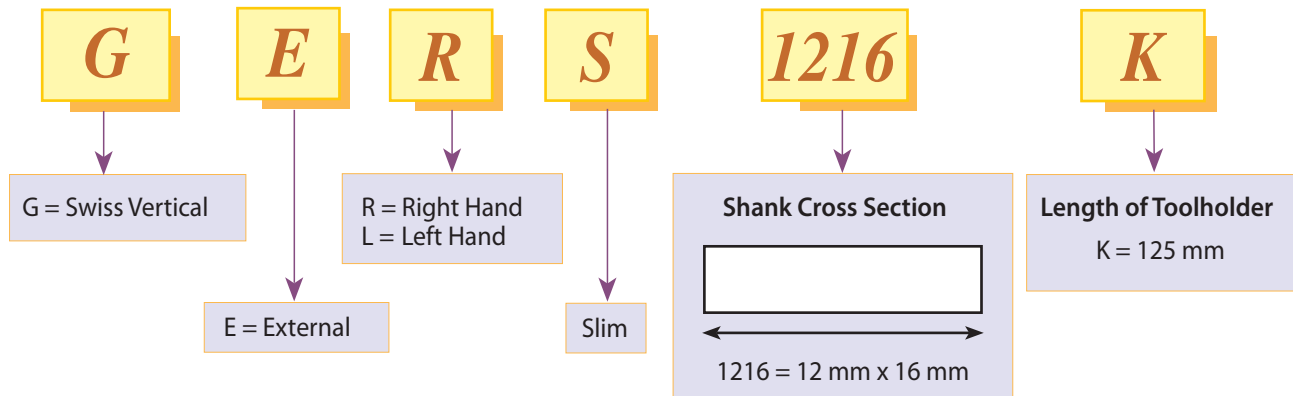
	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify GT19 **L** instead of GT19 **R**

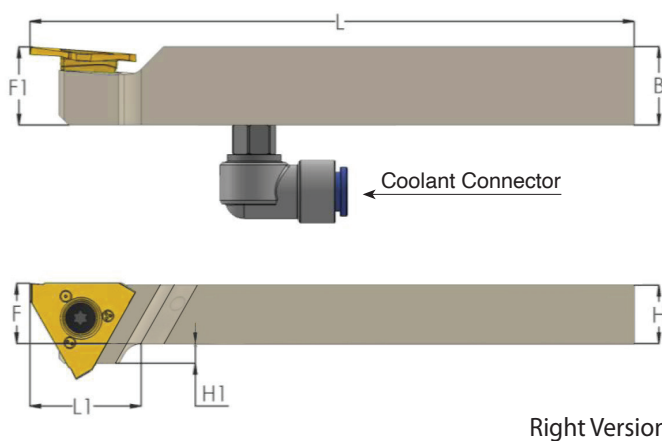
● First choice ○ Alternative

## External Toolholders

### Product Identification - Ordering Codes



- Coolant through toolholders, for external turning in Swiss type lathes machines.
- The high pressure coolant is directed towards the insert cutting edge, in order to evacuate the chips created and avoid build up edge.
- Including a coolant connector for fast attachment on the machine.



### Right hand cutting

Ordering Code	B	H	L1	L	F	F1	H1	Insert Screw	Torx Key	*Coolant connector
<b>**GER 0816 K</b>	16	8	17	125	8	16	8	S21	K21	-
<b>GER 1016 K</b>	16	10	17	125	10	16	6	S21	K21	Ø4 / Ø6
<b>GER 1216 K</b>	16	12	17	125	12	16	4	S21	K21	Ø4 / Ø6
<b>GER 1616 K</b>	16	16	-	125	16	16	0	S21	K21	Ø4 / Ø6
<b>GER 2020 K</b>	20	20	-	125	20	20	0	S21	K21	Ø4 / Ø6
<b>GER 2525 M</b>	25	25	-	150	25	25	0	S21	K21	Ø4 / Ø6

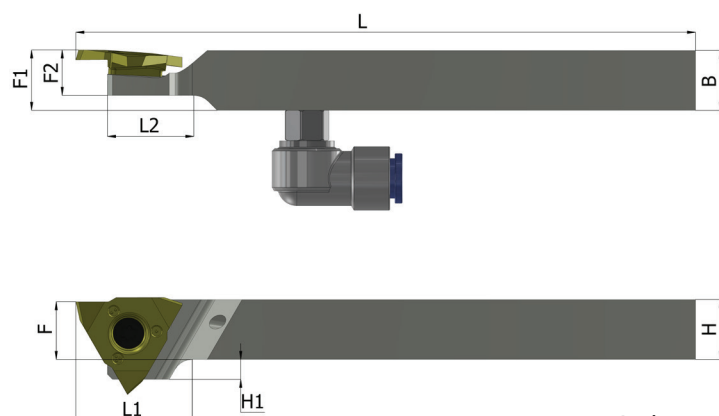
For L.H, specify GE **L** instead of GE **R**

\* Coolant pipe diameter

\*\* Without coolant

## Slim Holders

For cut off, when using sub-spindle



Right Version

### Right hand cutting

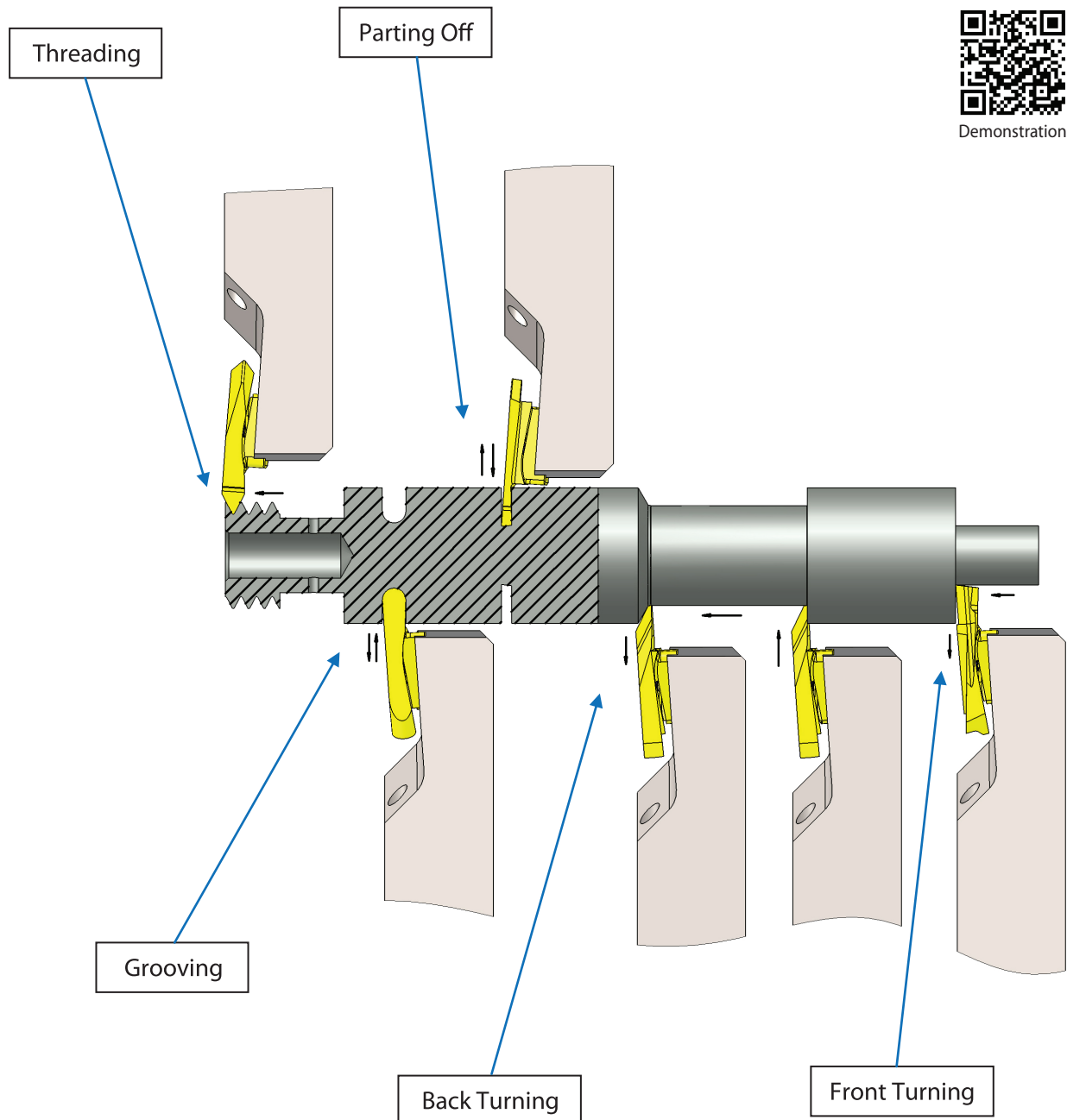
Ordering Code	B=H	L1	L2	L	F	F1	F2	H1	Insert Screw	Torx Key	*Coolant connector
<b>GERS 1010 K</b>	10	17	11	125	10	10	10.0	6	S21XS	K21	Ø4 / Ø6
<b>GERS 1212 K</b>	12	17	11	125	12	12	9.5	4	S21XS	K21	Ø4 / Ø6
<b>GERS 1616 K</b>	16	-	11	125	16	16	9.5	0	S21XS	K21	Ø4 / Ø6
<b>GERS 2020 K</b>	20	-	11	125	20	20	9.5	0	S21XS	K21	Ø4 / Ø6

For L.H, specify GELS instead of GERS

\* Coolant pipe diameter

## Working Method

### Grooving - Parting Off - Turning - Profiling - Threading



## 3 Cutting Edges Swiss Line Inserts (19,20 mm)

### Carbide grades

#### BLU

PVD triple layer coated Sub-Micron grade for Steel, Stainless Steels, Titanium and hard materials.

#### K20

Uncoated Sub-Micron carbide grade for Aluminum and non-ferrous materials, Stainless Steels and Titanium.

## Cutting Data

ISO Standard	Materials	Cutting Speed m/min	
		K20	BLU
<b>P</b>	Low & Medium Carbon Steels <0.55%C	-	80-150
	High Carbon Steels ≥0.55%C	-	70-120
	Alloy Steels, Treated Steels	-	40-80
<b>M</b>	Stainless Steel-Free Cutting	30-80	60-120
	Stainless Steel-Austenitic	20-70	30-90
	Cast Steels	30-80	50-120
<b>K</b>	Cast Iron	50-120	-
<b>N</b>	Aluminum ≤12%Si, Copper	120-250	-
	Aluminum >12%Si	90-200	-
	Synthetics, Duroplastics, Thermoplastics	70-150	-
<b>S</b>	Nickel Alloys, Titanium Alloys	20-50	30-70
<b>H</b>	Hardened Steel, 45-50HRc	-	20-50

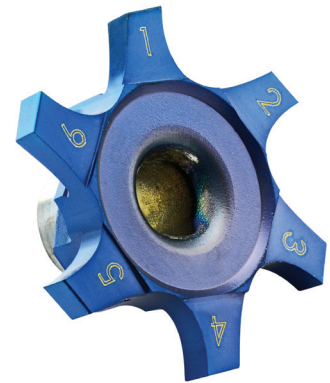


## 6 Cutting Edges G6 Turning Inserts and Toolholders

For grooving, parting-off and threading

### Benefits

- High productivity and cost efficiency due to six cutting edges
- One holder for all insert types - Maximum versatility
- High precision thanks to the fully ground profile



### Features

- Strong and stable clamping due to the unique insert shape
- Can be used with high machining parameters, and provides high surface finish
- Internal coolant provides the coolant liquid towards the cutting edge

### Application

- Multi-function inserts for grooving, parting, turning and threading
- Fits a large range of diameters from very small applications with a thin wall up to 60 mm diameter

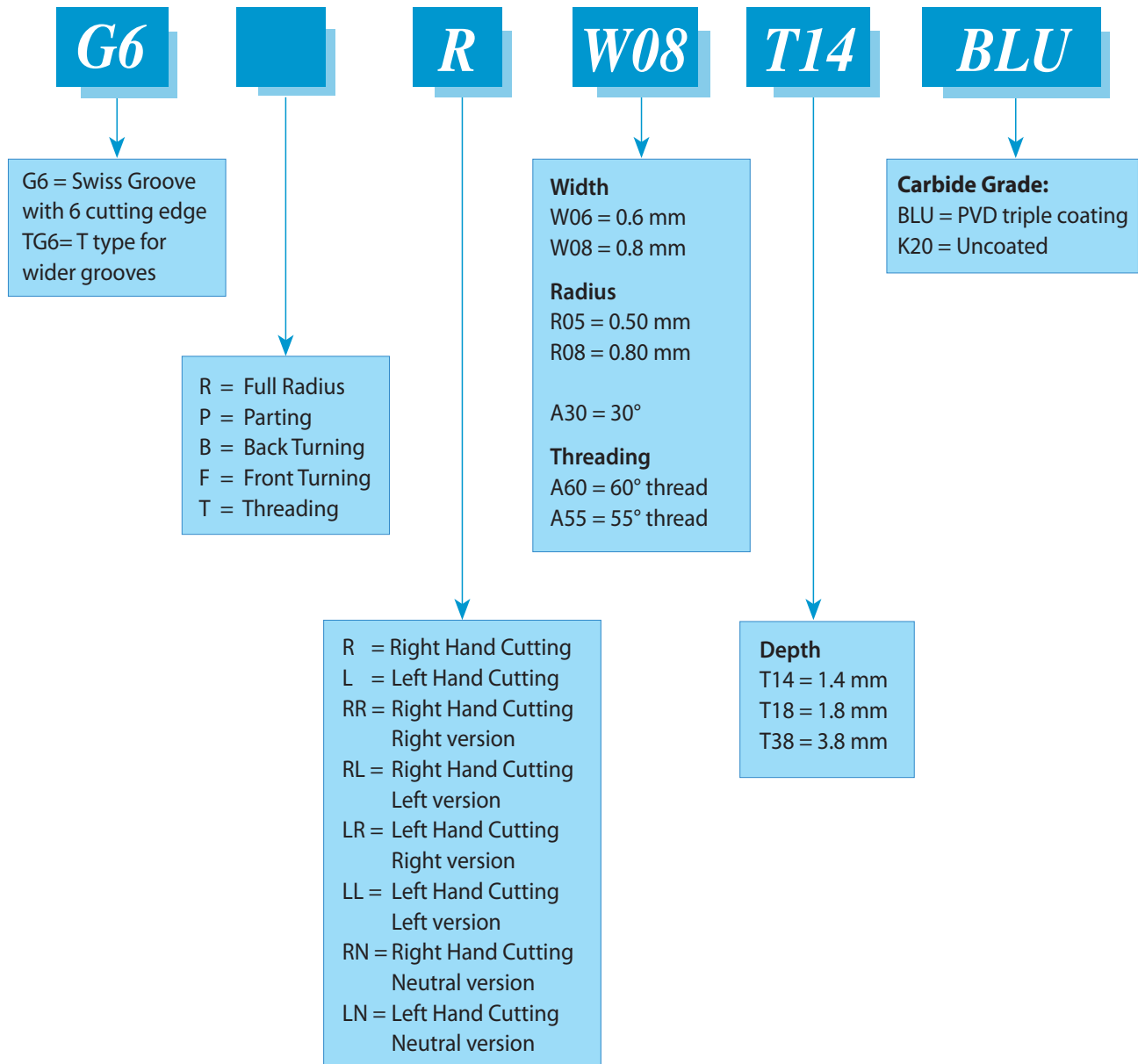
Carbide grades: BLU, K20



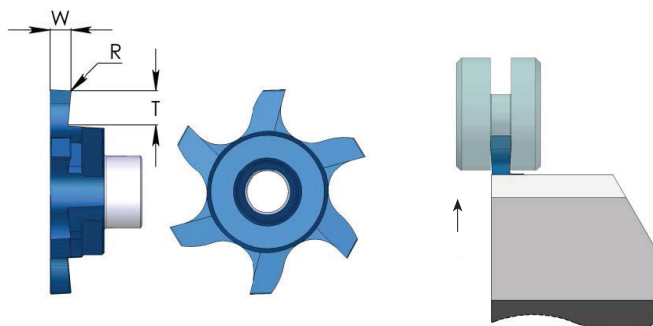
Demonstration

## Product Identification - Ordering Codes

### G6 Inserts



## Grooving



Right Version

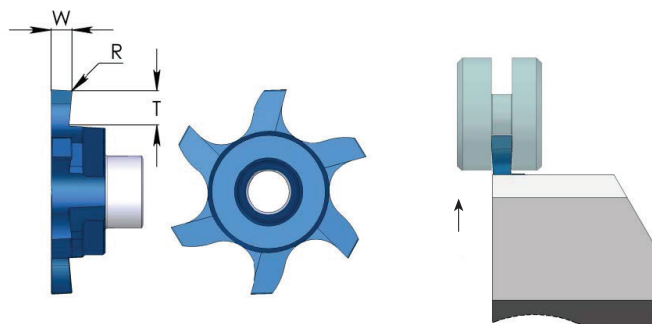
### Right hand cutting

Insert Type	Ordering Code	W±0.02	T max	R	Feed mm/rev
G6	<b>G6 R W06 T11</b>	0.6	1.1	0	0.01-0.06
	<b>G6 R W08 T14</b>	0.8	1.4	0	0.02-0.07
	<b>G6 R W10 T18</b>	1.0	1.8	0.05	0.02-0.09
	<b>G6 R W15 T33</b>	1.5	3.3	0.05	0.02-0.12
	<b>G6 R W20 T38</b>	2.0	3.8	0.10	0.02-0.13
	<b>G6 R W25 T38</b>	2.5	3.8	0.10	0.02-0.14
TG6	<b>TG6 R W30 T38</b>	3.0	3.8	0.10	0.02-0.12
	<b>TG6 R W40 T38</b>	4.0	3.8	0.10	0.02-0.12

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

For L.H, specify G6 **L** instead of G6 **R**

## Grooving, Circlip Ring Grooves DIN 471/472



Right Version

### Right hand cutting

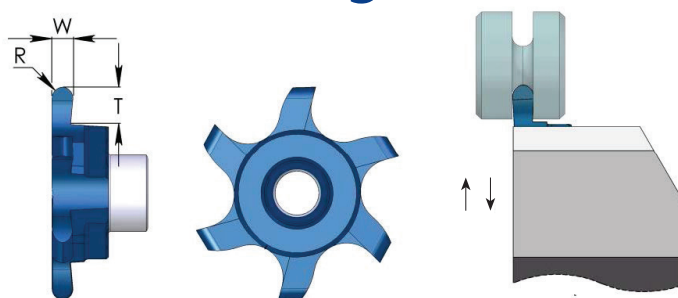
Insert Type	Ordering Code	Nom` groove width	W-0.05	T max	R	Feed mm/rev
G6	<b>G6D R W12 T31</b>	1.10	1.24	3.1	0.05	0.02-0.09
	<b>G6D R W14 T33</b>	1.30	1.44	3.3	0.05	0.02-0.12
	<b>G6D R W17 T33</b>	1.60	1.74	3.3	0.05	0.02-0.12

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H., specify G6D **L** instead of G6D **R**

Nom` = nominal

## Grooving and Profiling (full radius)



Right Version

### Right hand cutting

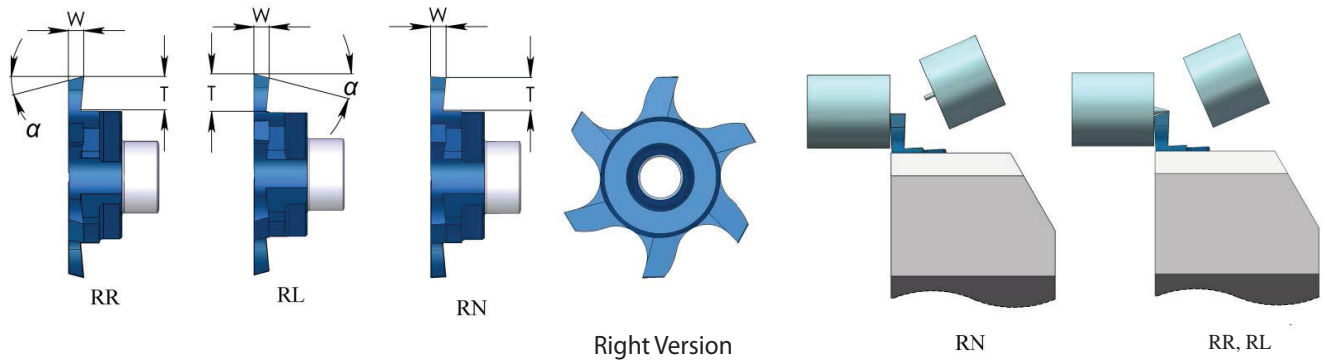
Insert Type	Ordering Code	R±0.03	W	T max	Feed mm/rev
G6	<b>G6R R R05 T25</b>	0.50	1.0	2.5	0.02-0.09
	<b>G6R R R08 T30</b>	0.80	1.6	3.0	0.02-0.09
	<b>G6R R R10 T38</b>	1.00	2.0	3.8	0.02-0.13
	<b>G6R R R12 T38</b>	1.25	2.5	3.8	0.02-0.14
TG6	<b>TG6R R R15 T38</b>	1.5	3.0	3.8	0.02-0.12
	<b>TG6R R R20 T38</b>	2.0	4.0	3.8	0.02-0.12

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H., specify G6R **L** instead of G6R **R**

● First choice ○ Alternative

## Parting Off and Grooving



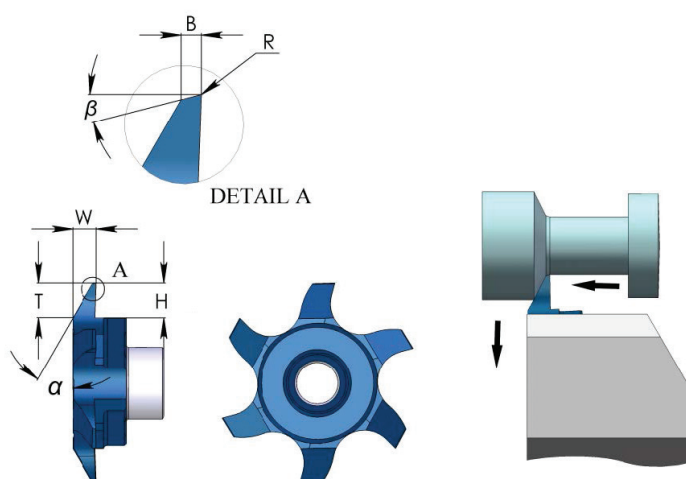
### Right hand cutting

Insert Type	Ordering Code	W	$\alpha^\circ$	T max	Feed mm/rev
G6	G6P RR W08 T38	0.8	15	3.8	0.02-0.09
	G6P RL W08 T38	0.8	15	3.8	0.02-0.09
	G6P RN W08 T38	0.8	0	3.8	0.02-0.09
	G6P RR W10 T38	1.0	15	3.8	0.02-0.09
	G6P RL W10 T38	1.0	15	3.8	0.02-0.09
	G6P RN W10 T38	1.0	0	3.8	0.02-0.09
	G6P RR W15 T38	1.5	15	3.8	0.02-0.13
	G6P RL W15 T38	1.5	15	3.8	0.02-0.13
	G6P RN W15 T38	1.5	0	3.8	0.02-0.13
	G6P RR W20 T38	2.0	15	3.8	0.02-0.13
	G6P RL W20 T38	2.0	15	3.8	0.02-0.13
	G6P RN W20 T38	2.0	0	3.8	0.02-0.13

	K20	BLU
P		●
M	●	●
K	●	○
N	●	
S	●	●
H		≤45 HRc

For L.H, specify G6P **LR** instead of G6P **RR**  
 G6P **LL** instead of G6P **RL**  
 G6P **LN** instead of G6P **RN**

## Back Turning



Right Version

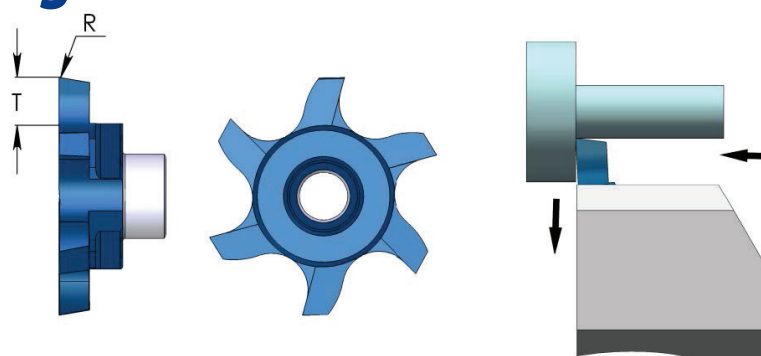
### Right hand cutting

Insert Type	Ordering Code	$\alpha^\circ$	$\beta^\circ$	R	W	H	B	T <sub>max</sub>	Feed mm/rev
G6	<b>G6B R A30</b>	30	12	0.1	2.6	3.8	0.5	3.8	0.05-0.12

For L.H, specify G6B **L** instead of G6B **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

## Front Turning



Right Version

### Right hand cutting

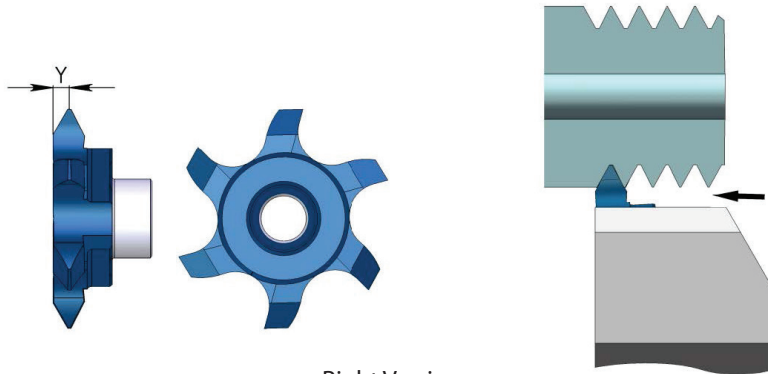
Insert Type	Ordering Code	T <sub>max</sub>	R	Feed mm/rev
G6	<b>G6F R T38</b>	3.8	0.1	0.05-0.12

For L.H, specify G6F **L** instead of G6F **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

● First choice ○ Alternative

## Threading - Partial Profile 60°



Right Version

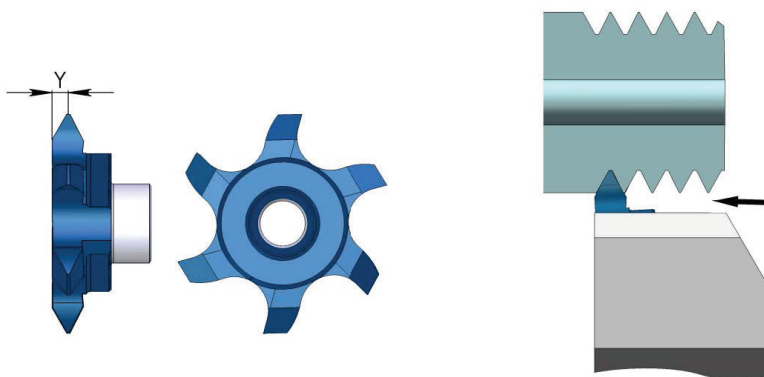
### Right hand cutting

Insert Type	Ordering Code	Pitch Range		Y
		mm	TPI	
G6	<b>G6T R A60</b>	0.5-1.5	48-16	0.8
	<b>G6T R G60</b>	1.75-3.0	14-8	1.5
	<b>G6T R AG60</b>	0.5-3.0	48-8	1.5

For L.H, specify G6T **L** instead of G6T **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

## Threading - Partial Profile 55°



Right Version

### Right hand cutting

Insert Type	Ordering Code	Pitch Range		Y
		mm	TPI	
G6	<b>G6T R A55</b>	0.5-1.5	48-16	0.8
	<b>G6T R G55</b>	1.75-3.0	14-8	1.5
	<b>G6T R AG55</b>	0.5-3.0	48-8	1.5

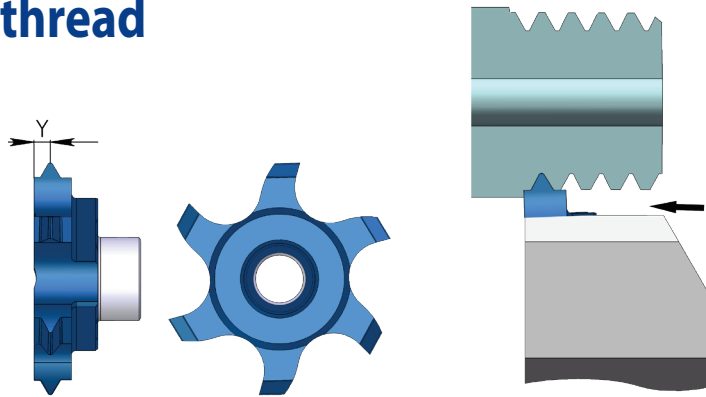
For L.H, specify G6T **L** instead of G6T **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

● First choice ○ Alternative

## Threading - ISO metric 60° Full Profile

### External thread



Right Version

### Right hand cutting

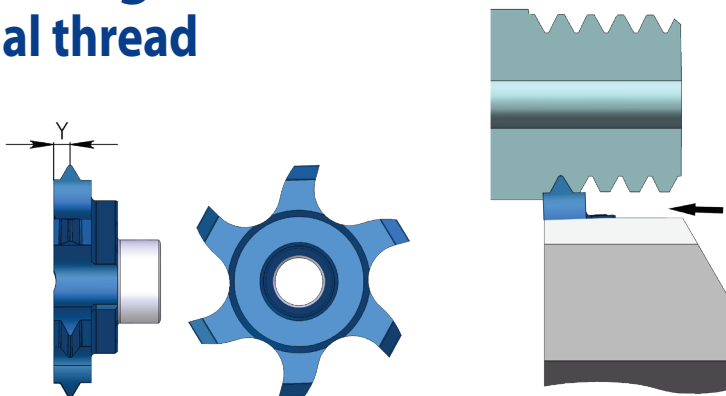
Insert Type	Ordering Code	Pitch mm	Y
G6	<b>G6T R 1.0ISO</b>	1.0	0.7
	<b>G6T R 1.5ISO</b>	1.5	1.0
	<b>G6T R 2.0ISO</b>	2.0	1.3

For L.H, specify G6T **L** instead of G6T **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

## Threading - UN unified 60° Full Profile

### External thread



Right Version

### Right hand cutting

Insert Type	Ordering Code	Pitch TPI	Y
G6	<b>G6T R 56UN</b>	56	0.6
	<b>G6T R 40UN</b>	40	0.7
	<b>G6T R 32UN</b>	32	0.7
	<b>G6T R 24UN</b>	24	0.7

For L.H, specify G6T **L** instead of G6T **R**

	K20	BLU
<b>P</b>		●
<b>M</b>	●	●
<b>K</b>	●	○
<b>N</b>	●	
<b>S</b>	●	●
<b>H</b>		≤45 HRc

● First choice ○ Alternative



## External Toolholders - For G6 Inserts

Coolant through toolholders, for external turning in Swiss type lathes machines. The high pressure coolant is directed towards the insert cutting edge in order to evacuate the chips created and avoid build up edge.

Includes a coolant connector for fast attachment on the machine.

## Product Identification - Ordering Codes

**G6**

↓

G6 = Swiss toolholder

**T**

↓

T = Type

**E**

↓

E = External

**R**

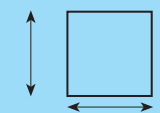
↓

R = Right Hand  
L = Left Hand

**1212**

↓

Shank Cross Section

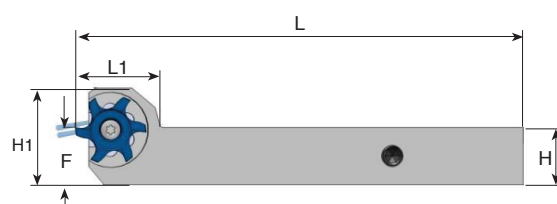
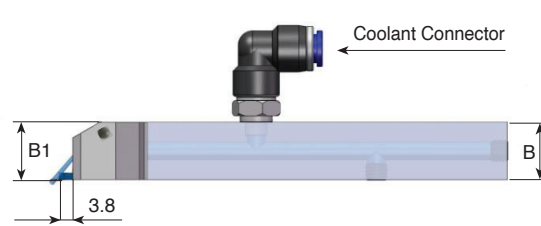



1212 = 12x12 mm

**K**

↓

Length of Toolholders  
K = 125 mm  
M = 150 mm

Right Version

### Right hand cutting

Insert Type	Ordering Code	B	H	L1	L	H1	F	B1	Insert Screw Torx +	Torx + Key	**Coolant connector (mm)
G6	*G6ER 1212 K	12	12	20	125	23	12	16	S16LP	K16P	---
	G6ER 1616 K	16	16	20	125	27	16	16	S16LP	K16P	Ø4 / Ø6
	G6ER 2020 K	20	20	20	125	31	20	20	S16LP	K16P	Ø4 / Ø6
	G6ER 2525 M	25	25	20	150	36	25	25	S16LP	K16P	Ø4 / Ø6
TG6	*TG6ER 1212 K	12	12	20	125	12	12	18	S16LP	K16P	---
	TG6ER 1616 K	16	16	20	125	27	16	18	S16LP	K16P	Ø4 / Ø6
	TG6ER 2020 K	20	20	20	125	31	20	20	S16LP	K16P	Ø4 / Ø6
	TG6ER 2525 M	25	25	20	150	36	25	25	S16LP	K16P	Ø4 / Ø6

\* Without internal coolant

\*\* Coolant pipe diameter

For L.H, specify G6EL instead of G6ER

Coated holders provide high abrasion resistance

## G6 Inserts

### Carbide grades

**BLU** PVD triple layer coated Sub-Micron grade for Steel, Stainless Steels, Titanium and hard materials.

**K20** Uncoated Sub-Micron carbide grade for Aluminum and non-ferrous materials, Stainless Steels and Titanium.

## Cutting Data

ISO Standard	Material	Cutting Speed m/min	
		K20	BLU
<b>P</b>	Low and Medium Carbon Steels <0.55%C	-	80-150
	High Carbon Steels ≥0.55%C	-	70-120
	Alloy Steels, Treated Steels	-	40-80
<b>M</b>	Stainless Steel-Free Cutting	30-80	60-120
	Stainless Steel-Austenitic	20-70	30-90
	Cast Steels	30-80	50-120
<b>K</b>	Cast Iron	50-120	60-130
<b>N</b>	Aluminum ≤12%Si, Copper	120-250	-
	Aluminum >12%Si	90-200	-
	Synthetics, Duroplastics, Thermoplastics	70-150	-
<b>S</b>	Nickel Alloys, Titanium Alloys.	20-50	30-70
<b>H</b>	Hardened Steel, ≤45 HRc	-	20-50



