



VG-Cut

Deep Grooving, Threading and Parting Off



METRIC

VG-Cut | Deep Grooving, Threading and Parting Off

Complete Range of Solutions for External Turning Applications

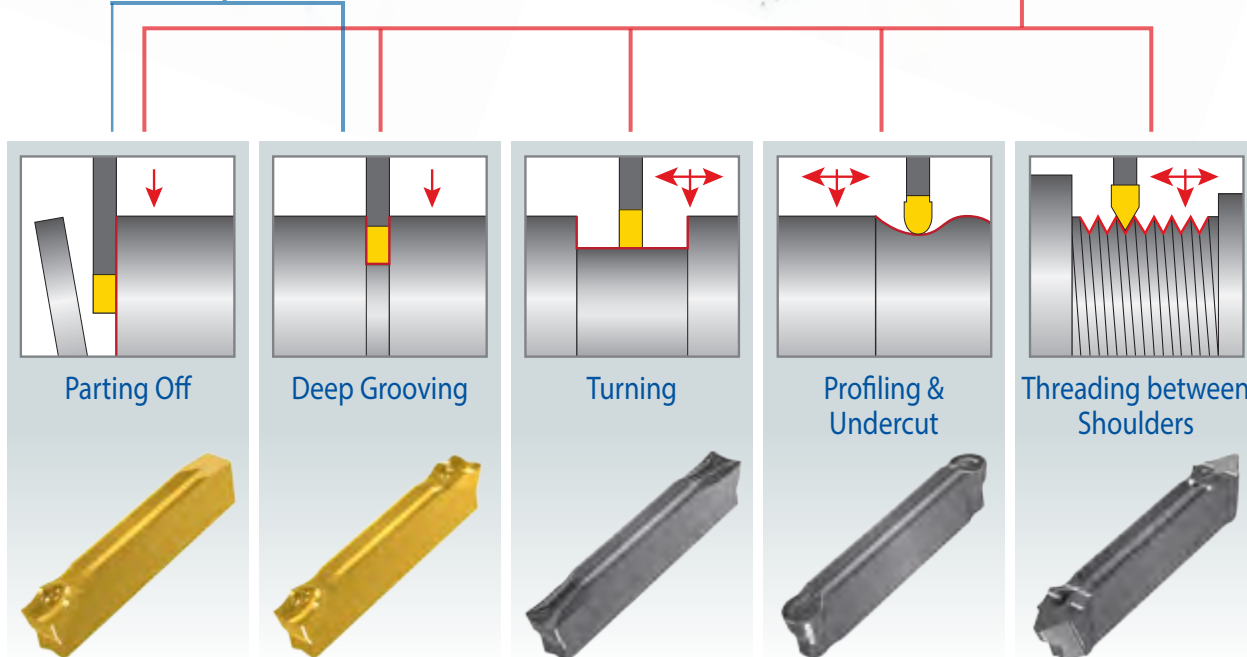
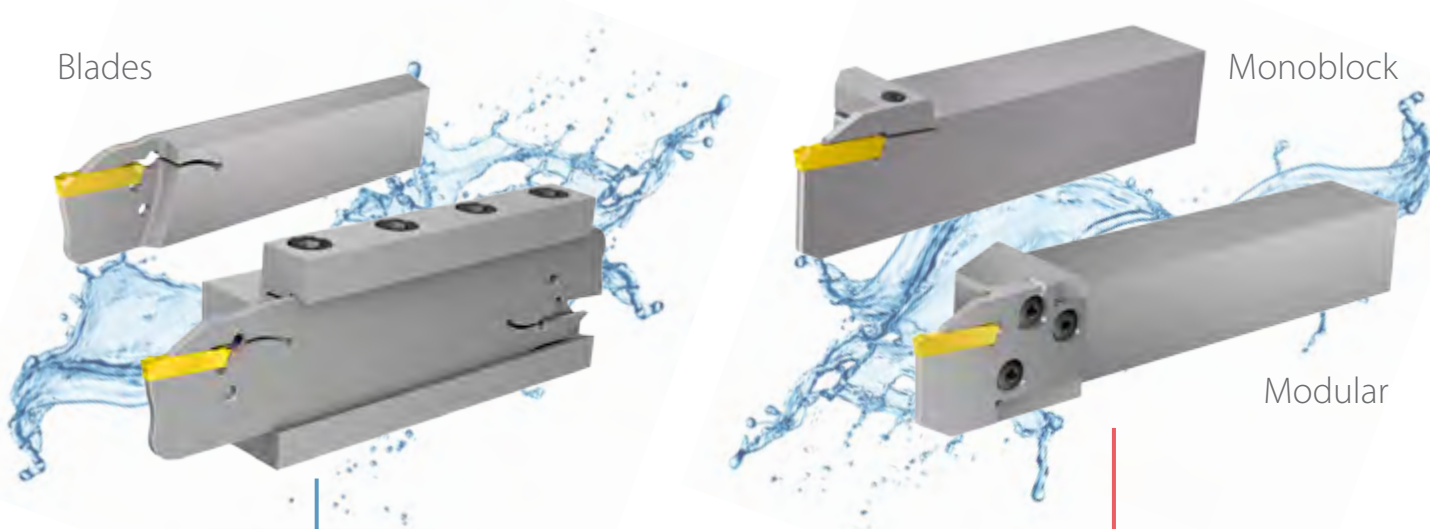
VARGUS Ltd., the leading supplier of premium thread turning and thread milling solutions, as well as hand deburring tools, launched its groundbreaking range of GROOVEX tool solutions for cost-effective, high-performance grooving applications in 2011.

With full commitment to the GROOVEX line of tooling and insert solutions across all industry sectors, VARGUS Ltd. is pleased to introduce its newest family of products - the VG-Cut.

The new family of VG-Cut tools opens doors to greater application exposure within the same insert pocket of Deep Grooving, Parting Off, Turning, Profiling and Threading all with excellent designated chip formers and carbide grades, making VG-Cut the most versatile product yet.

VG-Cut tools cover a large scope of Threading Standards for machining between shoulders and close to the spindle, and up to shoulder depth of 10.0 mm.

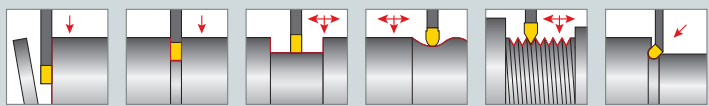

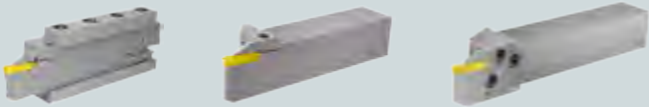
The VG-Cut, with its unique multifunctional geometry, minimizes inventory for the end-user in an extensive selection of applications.



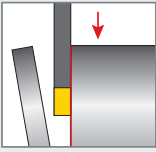
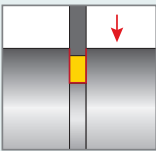




VG-Cut

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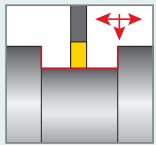

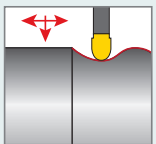

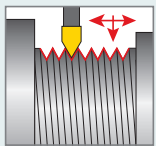

Insert, Tool and Cutting Data Selection Guide

A	Identify the Application																																																											
B	Identify the Designated Work Piece Material	P Alloy Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous	S Heat Resistance	H Hardened Material																																																					
C	Designated Chip Former Geometry for Selected Applications							page 4																																																				
D	Designated Carbide Grade for Desired Application	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="background-color: #cc0000; color: white; padding: 5px; text-align: center;">VKG</div> <div style="background-color: #0070c0; color: white; padding: 5px; text-align: center;">VPG</div> <div style="background-color: #ffcc00; color: black; padding: 5px; text-align: center;">VMG</div> </div>						page 5																																																				
E	Selecting Insert and Tool as Required by Operation							pages 7-15																																																				
F	Cutting Data According to Selected Items	<table border="1" style="font-size: 8px; border-collapse: collapse;"> <tr> <td rowspan="2" style="background-color: #ffcc00;">Stainless Steel</td> <td>15</td> <td>Stainless Steel</td> <td>Non Hardened</td> <td>200</td> <td>50-120</td> <td>60-160</td> <td></td> </tr> <tr> <td>16</td> <td>Stainless Steel Cast Ferritic</td> <td>Hardened</td> <td>320</td> <td>40-100</td> <td>50-140</td> <td></td> </tr> <tr> <td rowspan="2" style="background-color: #ffcc00;">Stainless Steel Cast Austenitic</td> <td>17</td> <td>Stainless Steel Cast Austenitic</td> <td>Austenitic</td> <td>200</td> <td>50-120</td> <td>60-160</td> <td></td> </tr> <tr> <td>18</td> <td>Stainless Steel Cast Austenitic</td> <td>Hardened</td> <td>330</td> <td>40-100</td> <td>50-140</td> <td></td> </tr> <tr> <td rowspan="3" style="background-color: #cc0000;">Malleable Cast Iron</td> <td>20</td> <td>Malleable Cast Iron</td> <td>Ferritic (short chips)</td> <td>130</td> <td></td> <td>160-240</td> <td>160-280</td> </tr> <tr> <td>21</td> <td>Malleable Cast Iron</td> <td>Pearlitic (long chips)</td> <td>230</td> <td></td> <td>140-220</td> <td>140-260</td> </tr> <tr> <td>30</td> <td>Malleable Cast Iron</td> <td>Low Tensile Strength</td> <td>180</td> <td></td> <td>160-240</td> <td>160-280</td> </tr> </table>						Stainless Steel	15	Stainless Steel	Non Hardened	200	50-120	60-160		16	Stainless Steel Cast Ferritic	Hardened	320	40-100	50-140		Stainless Steel Cast Austenitic	17	Stainless Steel Cast Austenitic	Austenitic	200	50-120	60-160		18	Stainless Steel Cast Austenitic	Hardened	330	40-100	50-140		Malleable Cast Iron	20	Malleable Cast Iron	Ferritic (short chips)	130		160-240	160-280	21	Malleable Cast Iron	Pearlitic (long chips)	230		140-220	140-260	30	Malleable Cast Iron	Low Tensile Strength	180		160-240	160-280	pages 10, 16-18
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Designated Chip Former Geometry for Parting Off and Grooving

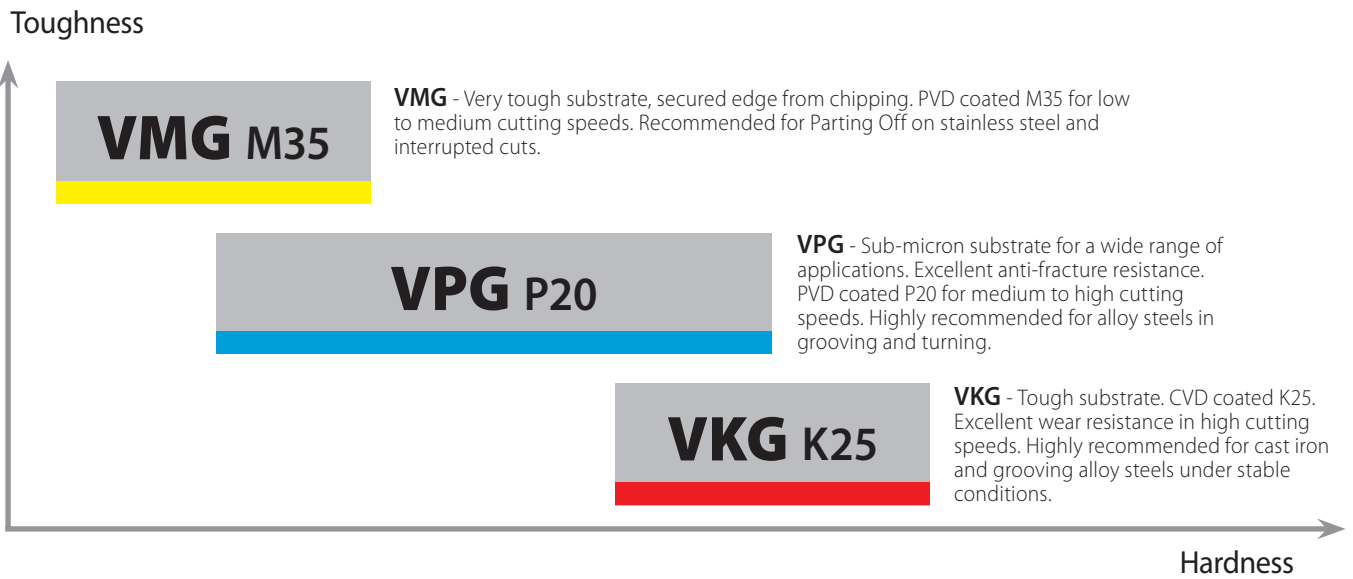
Application	Material Group	Standard Conditions	Extreme Conditions				
 Parting Off  Grooving	<table border="1"> <tr> <td>P Alloy Steel</td> <td>H Hardened Material</td> </tr> <tr> <td>K Cast Iron</td> <td></td> </tr> </table>	P Alloy Steel	H Hardened Material	K Cast Iron		 <p>GT Primary choice for machining alloy steels. Positive rake chip former leads to low cutting forces during cutting. A multifunctional chip former for parting, grooving and turning.</p>	 <p>GP Primary choice for machining cast iron, for interrupted cuts and for unstable applications where accuracy and overall machining stability are not clear. Reinforced cutting edge for parting off and grooving.</p>
	P Alloy Steel	H Hardened Material					
K Cast Iron							
<table border="1"> <tr> <td>M Stainless Steel</td> <td>S Heat Resistance</td> </tr> <tr> <td>N Non-Ferrous</td> <td>P Mild Steel</td> </tr> </table>	M Stainless Steel	S Heat Resistance	N Non-Ferrous	P Mild Steel	 <p>GM Primary choice for stainless steel. Sharp cutting edge decreases build-up on edge for parting off and grooving in low feeds.</p>	 <p>GT Primary choice for machining alloy steels. Positive rake chip former leads to low cutting forces during cutting, with multifunctional chip former for parting, grooving and turning.</p>	
M Stainless Steel	S Heat Resistance						
N Non-Ferrous	P Mild Steel						

Designated Chip Former Geometry for Turning, Profiling and Threading

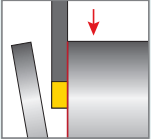


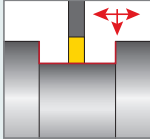


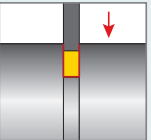


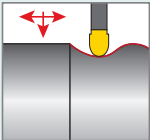


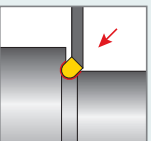


Application	Standard Conditions
 Turning	 <p>GT Primary choice for machining alloy steels. Positive rake chip former leads to low cutting forces during cutting, with multifunctional chip former for parting off, grooving and turning.</p>
 Profiling	 <p>GR Primary choice for grooving, undercut and profiling. Round shape geometric for profiling, with positive rake chip former with multifunctional chip control.</p>
 Threading	 <p>RS/LS Varied range of threading standards for machining between shoulders and close to the spindle in VPG grade.</p>

Designated Carbide Grade for Desired Application

Toughness vs. Hardness



Recommended Carbide Grade for Designated Application

Application	Improved Chipping Resistance	Improved Wear Resistance	Application	Improved Chipping Resistance	Improved Wear Resistance
 Parting Off			 Turning		
 Grooving			 Profiling		
 Undercut					

VG-Cut Insert Ordering Code

VG	D	3.00	020	6R	GP	VPG
1	2	3	4	5	6	7

1 – Line Name Deep Grooving & Parting Off	2 – Number of Cutting Corners D - Double S - Single	3 – Insert Width 1.40, 2.0, 3.0, 4.0 mm	4 – Corner Radius 0.0 mm Threading Standard
5 – RH or LH (for Grooving) 6R - 6 Deg. RH 6L - 6 Deg. LH NON - Neutral	5 – RH or LH (for Threading) RH Helix LH Helix NON - Neutral	6 – Top Rake Geometry GP, GM, GT, GR RS - Close to right shoulder LS - Close to left shoulder	7 – Carbide Grade VPG, VMG, VKG

VG-Cut Tools Ordering Code

Tools

VG	E	R	2525	3	T12
1	2	9	3	4	5

Blades

VG	P	32	4	D
1	6	7	4	8

Module Blades

VG	A	R	20	T25	4	S
1	2	9	7	5	4	8

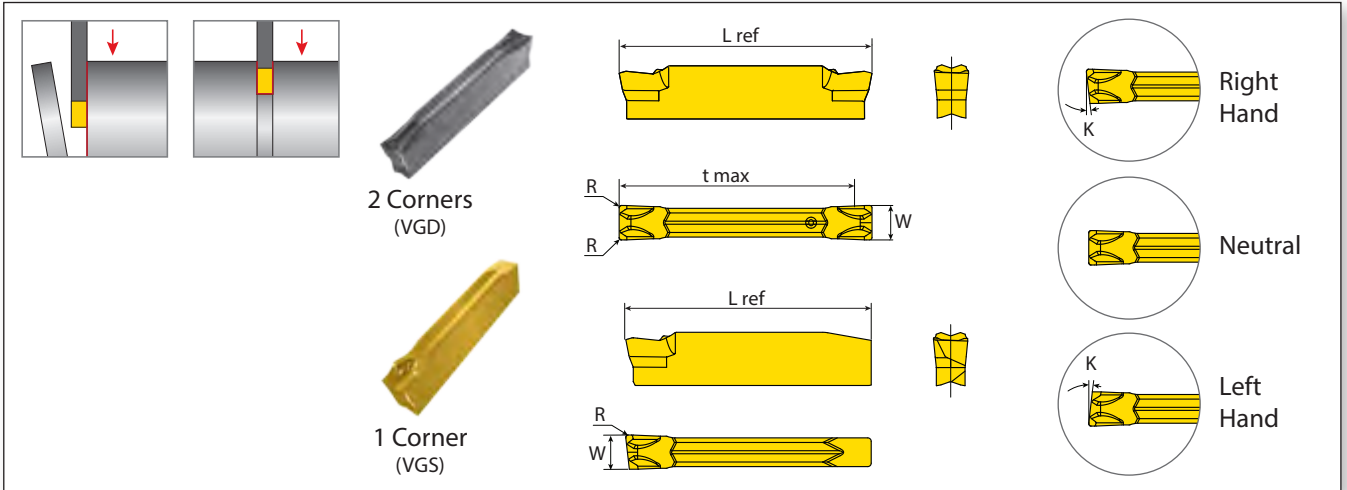
Holders

VB	A	R	2520	32
1	2	9	3	7

1 – Line Name VG - Deep Grooving & Parting Off VB - Holders	2 – Application Approach E - External I - Internal A - Blades M - Modules	3 – Shank Size Width-Height
4 – Pocket Size 1, 2, 3, 4	5 – Depth of Cut T12 - Limit Depth of Cut 12 mm	6 – Blade Type P - Universal A - Modules W - Reinforced blade
8 – Number of Pockets D - Double S - Single	9 – RH or LH R - RH L - LH NON - Neutral	7 – Blade Height 20, 25, 26, 32 00, 45, 90 Approach angle

Parting Off & Deep Grooving

3.0 mm Width



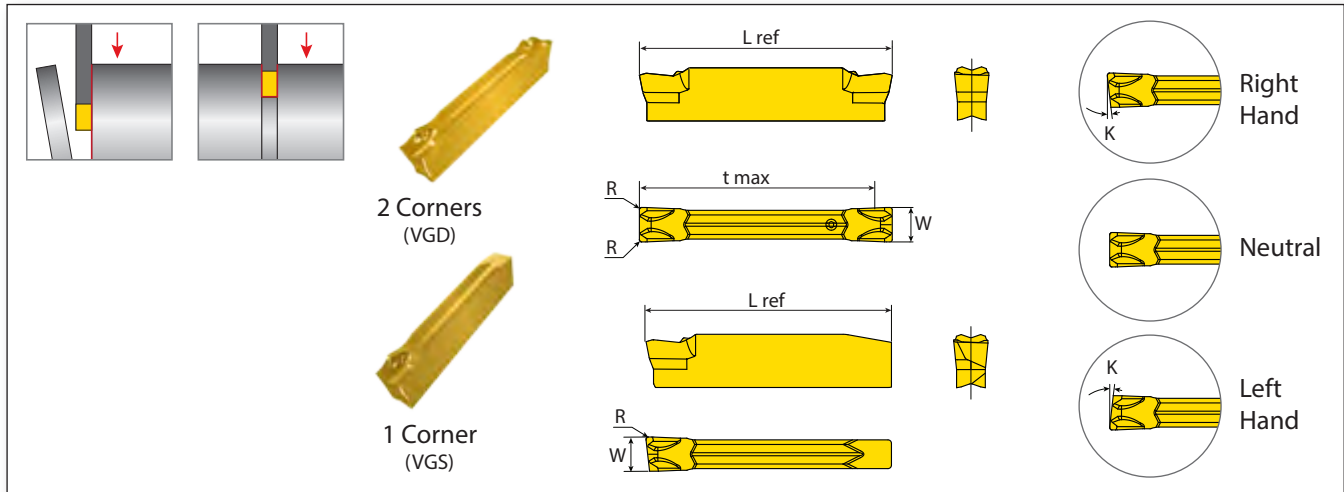
	Pocket Size	Ordering Code	Dimension (mm)					Feed Range (mm/rev)	Grade			
			W ± 0.04	R	t max	K°	L ref		VPG	VMG	VKG	
Positive sharp cutting edge, for low feed & speed	GM	3	VGD3.00-030-GM	3.00	0.30	20.0	0.0	22.0	0.05 - 0.22	●	●	○
		3	VGS3.00-020-GM	3.00	0.20	∞	0.0	22.0	0.05 - 0.22	●	●	○
		3	VGD3.00-020-6R-GM	3.00	0.20	20.0	6.0	22.0	0.05 - 0.16	○	●	○
		3	VGD3.00-020-6L-GM	3.00	0.20	20.0	6.0	22.0	0.05 - 0.16	○	●	○
		3	VGS3.00-020-6R-GM	3.00	0.20	∞	6.0	21.3	0.05 - 0.16	○	●	○
		3	VGS3.00-020-6L-GM	3.00	0.20	∞	6.0	21.3	0.05 - 0.16	○	●	○
Multi-purpose geometric, for general use	GT	3	VGD3.00-030-GT	3.00	0.30	20.0	0.0	22.0	0.05 - 0.15	●	○	●
		3	*VGD3.00-150-GR	3.00	1.50	18.0	0.0	22.0	0.05 - 0.15	●	○	○
Blunt reinforced cutting edge for high feed & speed	GP	3	VGD3.00-020-GP	3.00	0.20	20.0	0.0	22.0	0.06 - 0.25	●	●	●
		3	VGS3.00-020-GP	3.00	0.20	∞	0.0	22.0	0.06 - 0.25	●	●	○
		3	VGD3.00-015-6R-GP	3.00	0.15	20.0	6.0	22.0	0.06 - 0.16	○	●	○
		3	VGD3.00-015-6L-GP	3.00	0.15	20.0	6.0	22.0	0.06 - 0.16	○	●	○
		3	VGS3.00-020-6R-GP	3.00	0.20	∞	6.5	21.3	0.06 - 0.16	○	●	○
3	VGS3.00-020-6L-GP	3.00	0.20	∞	6.5	21.3	0.06 - 0.16	○	●	○		




- In stock
- Available upon request
- * For grooving and profiling



Parting Off & Deep Grooving

4.0 mm Width



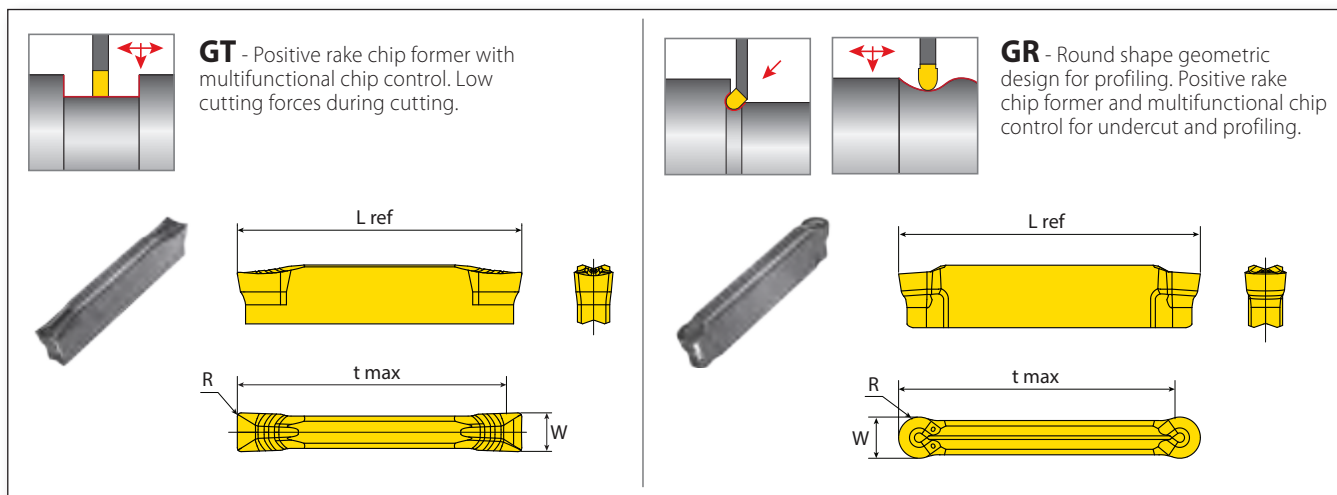
	Pocket Size	Ordering Code	Dimension (mm)						Feed Range (mm/rev)	Grade		
			W ± 0.04	R	t max	K°	L ref	VPG		VMG	VKG	
Positive sharp cutting edge, for low feed & speed 	4	VGD4.00-040-GM	4.00	0.40	23.0	0.0	25.0	0.06 - 0.25	●	●	○	
	4	VGS4.00-040-GM	4.00	0.40	∞	0.0	25.0	0.06 - 0.25	●	●	○	
	4	VGS4.00-040-4R-GM	4.00	0.40	∞	4.0	24.3	0.06 - 0.18	○	●	○	
	4	VGS4.00-040-4L-GM	4.00	0.40	∞	4.0	24.3	0.06 - 0.18	○	●	○	
Multi-purpose geometric, for general use 	4	VGD4.00-040-GT	4.00	0.40	23.0	0.0	25.0	0.05 - 0.18	●	○	●	
	4	*VGD4.00-200-GR	4.00	2.00	20.0	0.0	25.0	0.05 - 0.18	●	○	○	
Blunt reinforced cutting edge for high feed & speed 	4	VGD4.00-030-GP	4.00	0.30	23.0	0.0	25.0	0.08 - 0.28	●	●	●	
	4	VGS4.00-030-GP	4.00	0.30	∞	0.0	25.0	0.08 - 0.28	●	●	○	
	4	VGD4.00-020-4R-GP	4.00	0.20	23.0	4.0	25.0	0.06 - 0.22	○	●	○	
	4	VGD4.00-020-4L-GP	4.00	0.20	23.0	4.0	25.0	0.06 - 0.22	○	●	○	
	4	VGS4.00-030-4R-GP	4.00	0.30	∞	4.0	24.3	0.06 - 0.22	○	●	○	
	4	VGS4.00-030-4L-GP	4.00	0.30	∞	4.0	24.3	0.06 - 0.22	○	●	○	

- In stock
- Available upon request
- * For grooving and profiling



Turning & Profiling

3.0 mm and 4.0 mm Width



Pocket Size	Ordering Code	Dimension (mm)					Feed Range (mm/rev)	Grade		
		$W \pm 0.05$	R	t max	K°	L ref		VPG	VMG	VKG
3	VGD3.00-030-GT	3.00	0.30	20.0	-	22.0	0.05 - 0.25	•	◦	•
3	VGD3.00-150-GR		1.50	18.0	-	22.0	0.20 - 0.50	•	◦	◦
4	VGD4.00-040-GT	4.00	0.40	23.0	-	25.0	0.08 - 0.28	•	◦	•
4	VGD4.00-200-GR		2.00	20.0	-	25.0	0.22 - 0.55	•	◦	◦

- In stock
- Available upon request



Threading

3.0 mm Width

RS/LS Varied range of threading standards for machining between shoulders and close to spindle.

RS Full Profile

LS Full Profile

Partial Profile

To be used with monoblock tools (VGE...T12) only

Pocket Size	Ordering Code	Dimension (mm)				No. of Passes	Helix	Grade	Min. Thread Diameter	
		W ref	Pitch mm/tpi	h min	Y					L ref
ISO Metric External Full Profile										
3	VGD3.0ISO0.50RH-RS/LS	3.00	0.50	0.31	0.53	21.9	2.5°	•	M 3x0.5	
3	VGD3.0ISO0.75RH-RS/LS		0.75	0.46	0.64				5 - 8	M 5x0.75
3	VGD3.0ISO1.00RH-RS/LS		1.00	0.61	0.74				5 - 9	M 6x1
3	VGD3.0ISO1.25RH-RS/LS		1.25	0.77	0.85				6 - 10	M 8x1.25
3	VGD3.0ISO1.50RH-RS/LS		1.50	0.92	1.10				7 - 12	M10x1.5 Coarse
3	VGD3.0ISO1.75RH-RS/LS		1.75	1.07	1.20				8 - 14	M12x1.75 Coarse
3	VGD3.0ISO2.00RH-RS/LS		2.00	1.23	1.30				9 - 14	M16x2.0 Coarse
American UN External Full Profile										
3	VGD3.0UN32RH-RS/LS	3.00	32	0.49	0.66	21.9	2.5°	•	5/32-32 UNC	
3	VGD3.0UN28RH-RS/LS		28	0.56	0.71				5 - 9	3/16-28 UNC
3	VGD3.0UN24RH-RS/LS		24	0.65	0.77				5 - 9	7/32-24 UNC
3	VGD3.0UN20RH-RS/LS		20	0.78	0.86				6 - 10	1/4-20 UNC
3	VGD3.0UN18RH-RS/LS		18	0.87	0.93				7 - 12	5/16-18 UNC
3	VGD3.0UN16RH-RS/LS		16	0.97	1.10				7 - 12	3/8-16 UNC
3	VGD3.0UN14RH-RS/LS		14	1.11	1.09				8 - 14	7/16-14 UNC
3	VGD3.0UN12RH-RS/LS	12	1.30	1.30	8 - 14	9/16-14 UNC				
NPT External Full Profile										
3	VGD3.0NPT18RH-RS/LS	3.00	18	1.01	1.20	21.9	1.5°	•	1/4-18NPT	
3	VGD3.0NPT14RH-RS/LS		14	1.33	1.40				8 - 14	1/2-14NPT
3	VGD3.0NPT11.5RH-RS/LS		12	1.64	1.60				9 - 15	1-11.5NPT
Whitworth External Full Profile										
3	VGD3.0W19RH-RS/LS	3.00	19	0.86	0.95	21.9	2.5°	•	1/2-19BSW	
3	VGD3.0W14RH-RS/LS		14	1.16	1.15				8 - 14	1/2-14BSW

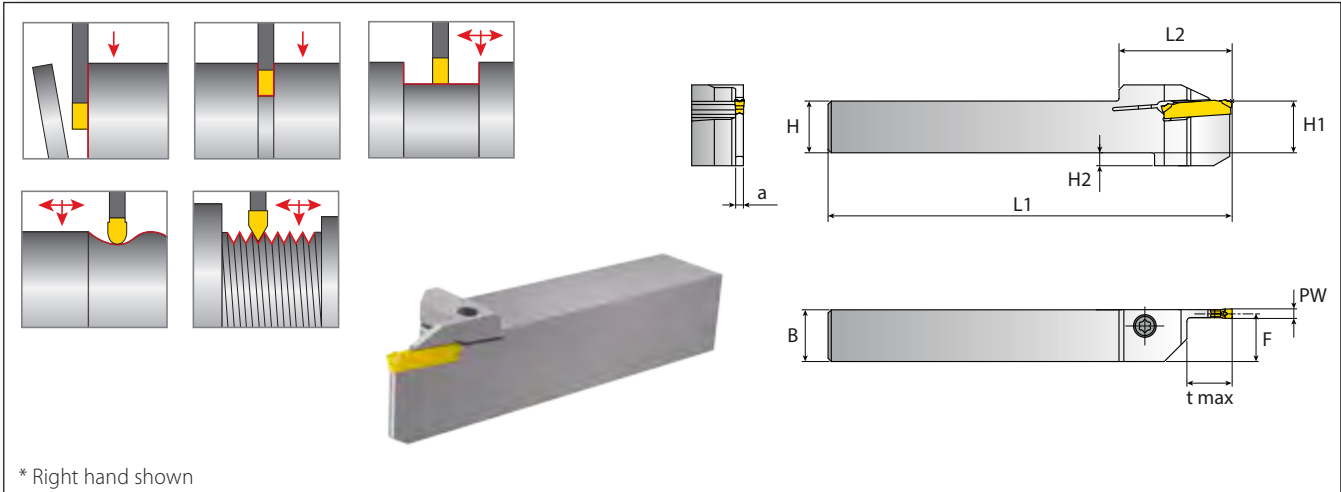
• In stock | ◦ Available upon request
 LH Helix threads available upon request

External Partial Profile



Pocket Size	Ordering Code	Dimension (mm)				No. of Passes	Helix	Grade	Min. Thread Diameter
		W ref	Pitch mm/tpi	R	Y				
3	VGD3.0A60RH	3.00	0.5-1.5	0.05	1.68	21.9	1.5°	•	Partial Profile A60
3	VGD3.0A55RH	3.00	48-16	0.05	1.68				5 - 8

• In stock | ◦ Available upon request

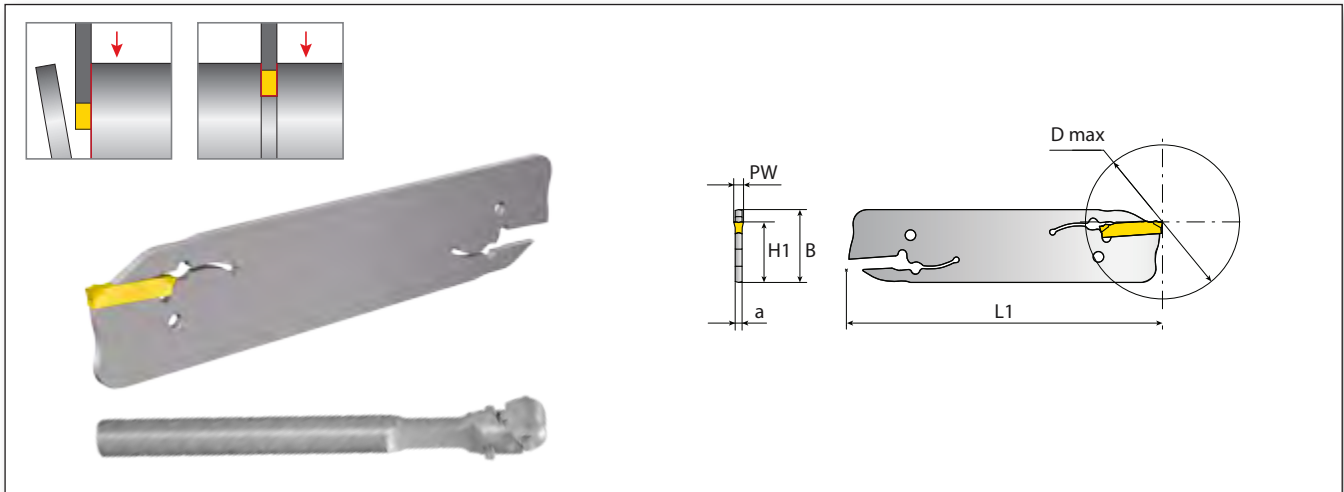
External Monoblock Tools for Grooving, Parting Off, Turning and Threading



* Right hand shown

										Spare Parts	
Ordering Code		Dimension (mm)									
PW	t max	HXB	H1	F	L1	L2	a	H2		Cylindrical Holder Screw	Key
VGER1212-3T12	3	12	12X12	12	10.8	125	35	2.4	4.0	SM3,5X14-T15	KT-15
VGEL1212-3T12			12X12	12	10.8	125	35	2.4	4.0	SM3,5X14-T15	KT-15
VGER1616-3T12			16X16	16	14.8	125	35	2.4	4.0	SM4,0X18-T20	K6T
VGEL1616-3T12			16X16	16	14.8	125	35	2.4	4.0	SM4,0X18-T20	K6T
VGER2020-3T12			20X20	20	18.8	125	35	2.4	---	SM4,0X18-T20	K6T
VGEL2020-3T12			20X20	20	18.8	125	35	2.4	---	SM4,0X18-T20	K6T
VGER2525-3T12		25X25	25	23.8	125	35	2.4	---	SM4,0X18-T20	K6T	
VGEL2525-3T12		25X25	25	23.8	125	35	2.4	---	SM4,0X18-T20	K6T	
VGER1616-3T21		21	16X16	16	14.8	125	35	2.4	4.0	SM4,0X18-T20	K6T
VGEL1616-3T21			16X16	16	14.8	125	35	2.4	4.0	SM4,0X18-T20	K6T
VGER2020-3T21			20X20	20	18.8	125	35	2.4	---	SM4,0X18-T20	K6T
VGEL2020-3T21			20X20	20	18.8	125	35	2.4	---	SM4,0X18-T20	K6T
VGER2525-3T21			25X25	25	23.8	125	35	2.4	---	SM4,0X18-T20	K6T
VGEL2525-3T21			25X25	25	23.8	125	35	2.4	---	SM4,0X18-T20	K6T
VGER1616-4T21	4	21	16X16	16	14.5	125	35	3.0	4.0	SM4,0X18-T20	K6T
VGEL1616-4T21			16X16	16	14.5	125	35	3.0	4.0	SM4,0X18-T20	K6T
VGER2020-4T21			20X20	20	18.5	125	35	3.0	---	SM4,0X18-T20	K6T
VGEL2020-4T21			20X20	20	18.5	125	35	3.0	---	SM4,0X18-T20	K6T
VGER2525-4T21			25X25	25	23.5	125	35	3.0	---	SM4,0X18-T20	K6T
VGEL2525-4T21			25X25	25	23.5	125	35	3.0	---	SM4,0X18-T20	K6T

Double Ended Blades for Grooving & Parting Off

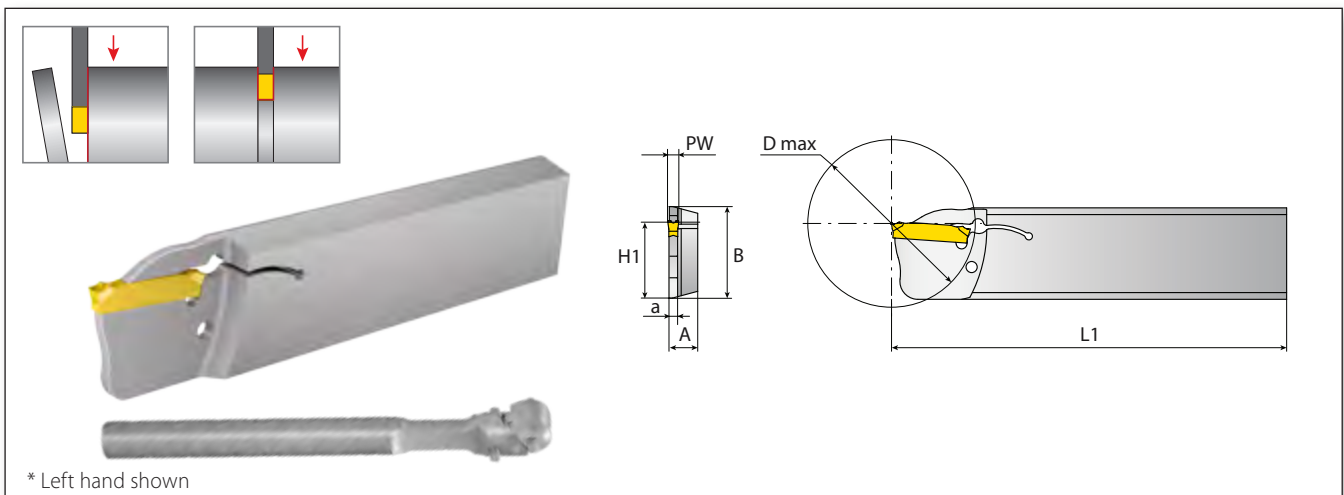


Ordering Code	Dimension (mm)						
	B	PW	a	L1	H1	D max*	Key Code**
VGP26-3D	26	3	2.4	110	21.1	75	VP-3
VGP32-3D	32		2.4	150	24.7	100	VP-3
VGP32-4D	32	4	3.0	150	24.6	120	VP-4

* D max figures presented are for single corner insert (VGS)

** Item ordered separately

Reinforced Blades for Grooving & Parting Off



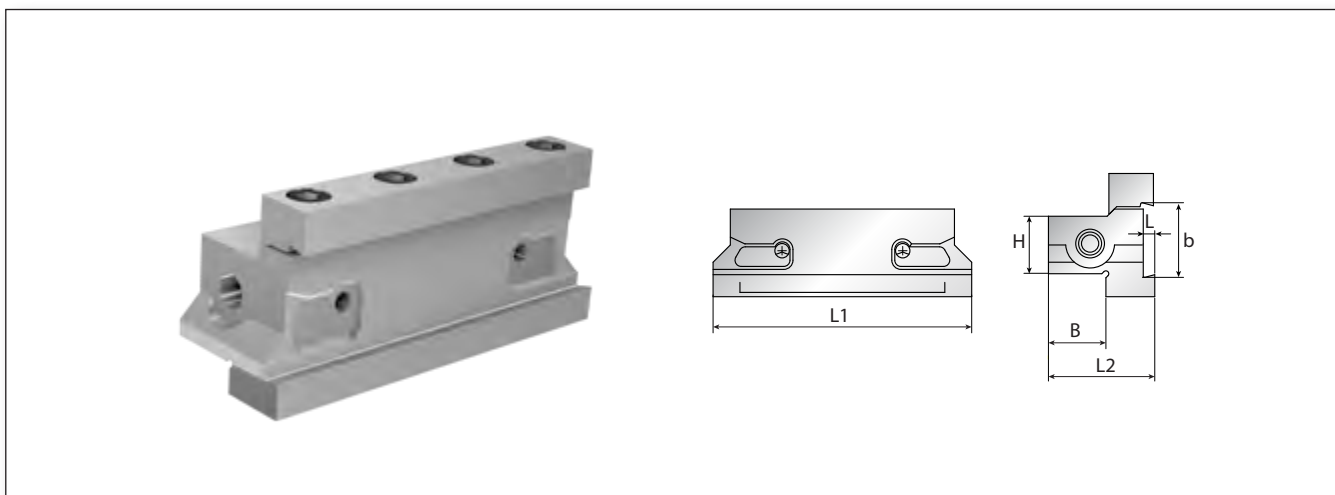
* Left hand shown



Ordering Code	Dimension (mm)							
	B	PW	a	A	L1	H1	D max*	Key Code**
VGWR26-3S	26	3	2.4	8.0	110	21.1	48	VP-3
VGWL26-3S	26		2.4	8.0	110	21.1	48	VP-3

* D max figures presented are for single corner insert (VGS)

** Item ordered separately

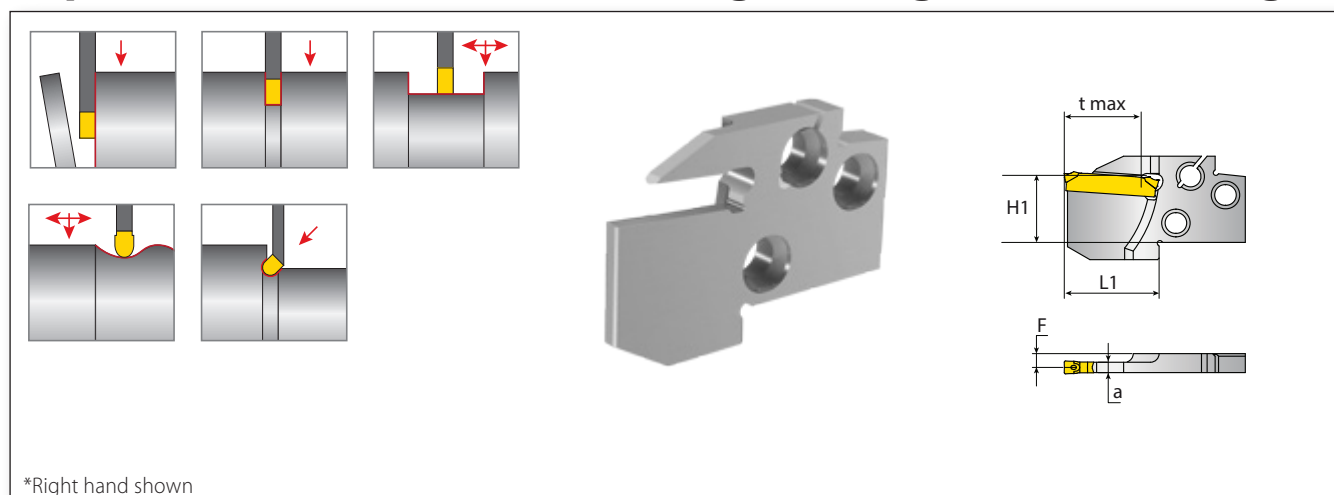
Blade Holders



Ordering Code						Dimension (mm)		Spare Parts	
	b	H	B	L	L1	L2			
VBA 2020-26	26	20	20	4	90	37	M6x1.0x25	K5	
VBA 2520-32	32	25	20	2.5	110	37.7			



Replaceable Modules for Grooving, Parting Off and Turning

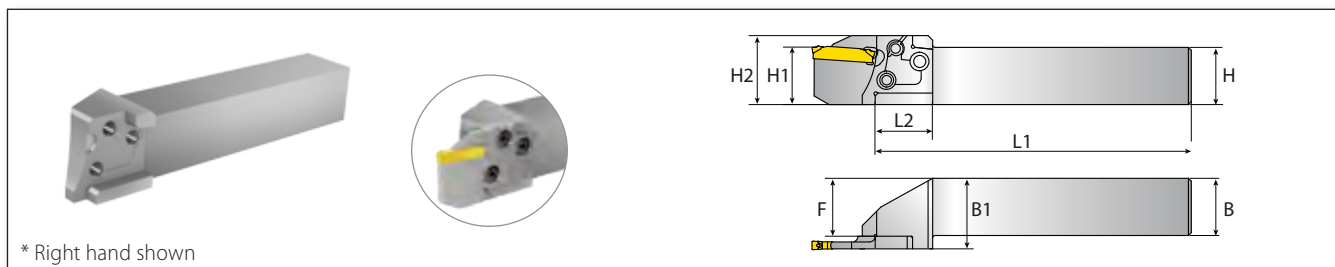
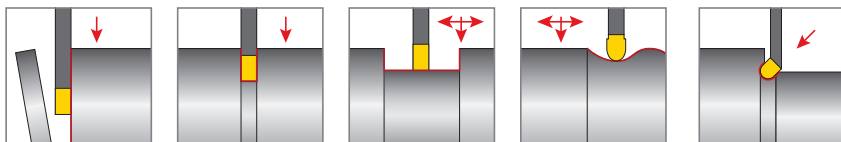


Ordering Code	Dimension (mm)				
	H1	F	L1	a	t max*
VGAR20T25-3S	16	3.20	22	2.4	25
VGAL20T25-3S	16	3.20	22	2.4	25
VGAR20T25-4S	16	2.93	24	3.0	25
VGAL20T25-4S	16	2.93	24	3.0	25
VGAR25T25-3S	20	4.70	22	2.4	25
VGAL25T25-3S	20	4.70	22	2.4	25
VGAR25T25-4S	20	4.43	24	3.0	25
VGAL25T25-4S	20	4.43	24	3.0	25

* t max figures presented are for single corner insert (VGS)

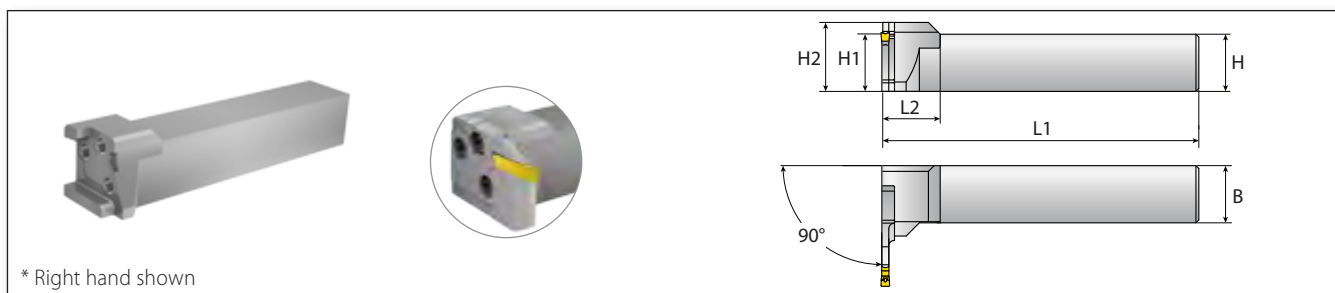


Modular Holders for Grooving, Parting Off and Turning



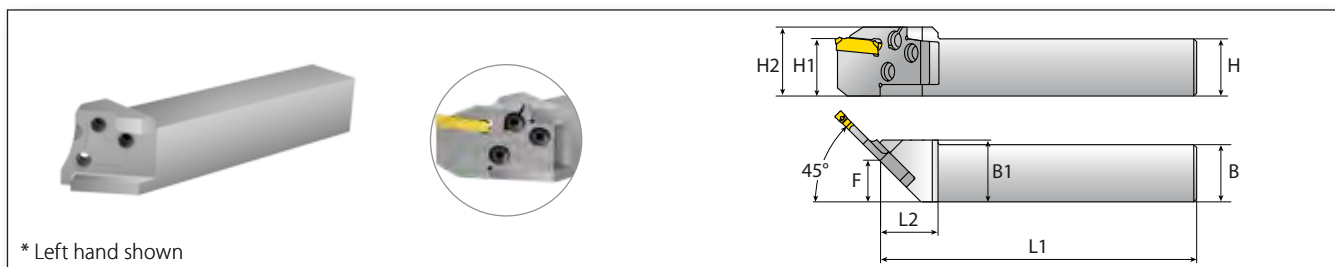
* Right hand shown

Ordering Code	Dimension (mm)							Spare Parts	
	H/H1	B	B1	H2	F	L1	L2		
VBMR2020-00	20	19.9	24.3	24.00	20.15	110	20	SM4x14 T15	TK-T15
VBML2020-00									
VBMR2525-00	25	24.9	31	30.00	25.50	140	25	SM5x18 T20	TK-T20
VBML2525-00									



* Right hand shown

Ordering Code	Dimension (mm)					Spare Parts	
	H/H1	B	H2	L1	L2		
VBMR2020-90	20	19.9	24.00	110	20	SM4x14 T15	TK-T15
VBML2020-90							
VBMR2525-90	25	24.9	30.00	140	28	SM5x18 T20	TK-T20
VBML2525-90							

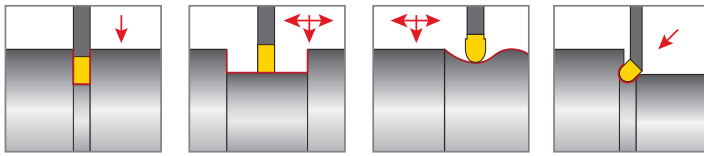


* Left hand shown

Ordering Code	Dimension (mm)							Spare Parts	
	H/H1	B	B1	H2	L1	L2	F		
VBMR2020-45	20	19.9	21.5	24.00	110	20	14.5	SM4x10.5 T15	TK-T15
VBML2020-45								SM4x14 T15	
VBMR2525-45	25	24.9	26.0	30.00	140	25	18	SM5x13.5 T20	TK-T20
VBML2525-45								SM5x18 T20	

Technical Data

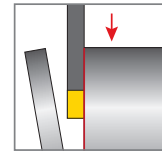
Recommended Cutting Speeds



Vc [m/min] for Grooving and Turning

Material Group	Vargus No.	Material	Hardness Brinell HB	Carbide Grade			
				VMG PVD M35	VPG PVD P20	VKG CVD K25	
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	100-160	120-260	120-280
	2		Medium Carbon (C=0.25-0.55%)	150	80-140	90-220	90-250
	3		High Carbon (C=0.55-0.85%)	170	80-140	90-220	90-250
	4	Low Alloy Steel (alloying elements ≤5%)	Non Hardened	180	80-140	90-220	90-250
	5		Hardened	275	50-120	60-160	60-180
	6		Hardened	350	40-70	50-100	60-160
	7	High Alloy Steel (alloying elements >5%)	Annealed	200	80-140	90-220	90-250
	8		Hardened	325	40-70	50-100	60-160
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	80-140	90-220	90-250
	10		High Alloy (alloying elements >5%)	225	50-120	60-190	60-180
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	50-120	60-160	
	12		Hardened	330	40-100	50-140	
	13	Stainless Steel Austenitic	Austenitic	180	50-120	60-160	
	14		Super Austenitic	200	50-120	60-160	
	15	Stainless Steel Cast Ferritic	Non Hardened	200	50-120	60-160	
	16		Hardened	330	40-100	50-140	
	17	Stainless Steel Cast Austenitic	Austenitic	200	50-120	60-160	
	18		Hardened	330	40-100	50-140	
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130		160-240	160-280
	29		Pearlitic (long chips)	230		140-220	140-260
	30	Grey Cast Iron	Low Tensile Strength	180		160-240	160-280
	31		High Tensile Strength	260		100-200	100-240
	32	Nodular Sg Iron	Ferritic	160		100-200	100-240
	33		Pearlitic	260		100-200	100-240
N(K) Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	150-300		
	35		Aged	100	150-250		
	36	Aluminium Alloys	Cast	75	150-300		
	37		Cast & Aged	90	150-300		
	38	Aluminium Alloys	Cast Si 13-22%	130	150-250		
	39	Copper and Copper Alloys	Brass	90	150-300		
	40		Bronze And Non Leaded Copper	100	150-300		
	S(M) Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	25-40	30-50
20		Aged (iron based)		280	25-35	20-50	
21		Annealed (nickel or cobalt based)		250	25-35	20-50	
22		Aged (nickel or cobalt based)		350	25-35	20-50	
23		Titanium Alloys	Pure 99.5 Ti	400Rm	25-40	30-50	
24	α+β Alloys		1050Rm	25-60	30-70		
H(K) Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc		20-40	30-50
	26			51-55HRc		15-30	25-45

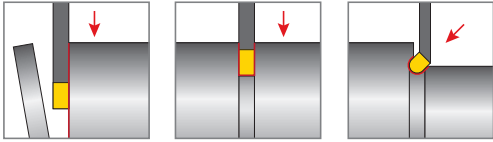
Vc [m/min] for Parting Off



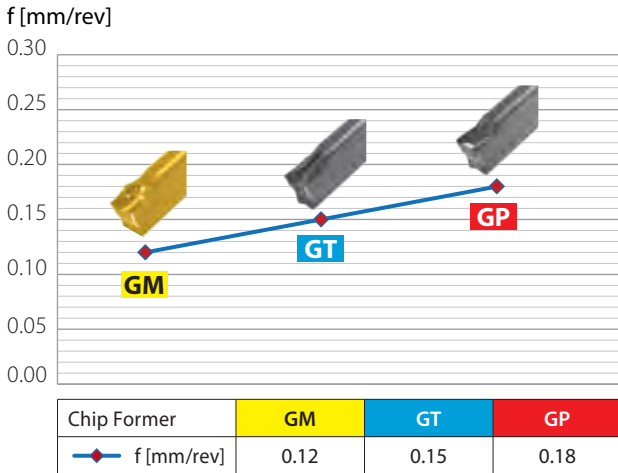
For Parting Off and to also improve chip forming and chip evacuation; **reduce speed by ≈ 30%.**

For Gummy materials, such as stainless steel and heat resistant metals - or in case of build up on edge (cold welding) - **speed should be increased by ≈ 20%.**

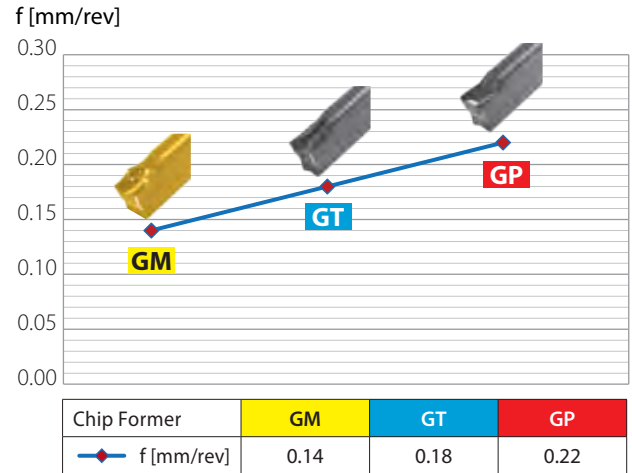
Feed Rate (f) Starting Point for Deep Grooving and Parting Off



3.0 mm Insert Width



4.0 mm Insert Width



Correct chip forming is essential for chip evacuation.

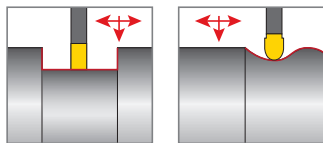
Low feed rates with sufficient chip evacuation improves process stability and tool life.

Feed rate should be increased only when improved evacuation is needed to prevent wall scratching or chip entanglement.

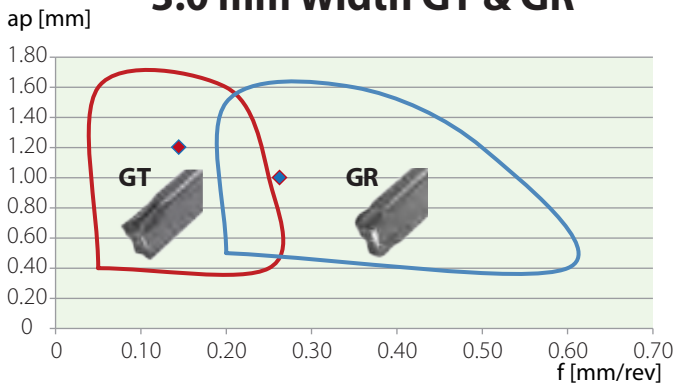
For Parting Off, it is recommended to reduce feed rate by 30% while using R / L inserts.

For Parting Off, it is strongly recommended to reduce feed rate by 50% as the insert approaches rotation center. Reduce feed when the insert approaches approx. 6.0 mm diameter.

Feed Rate (f) and Depth of Cuts for Axial Turning and Profiling



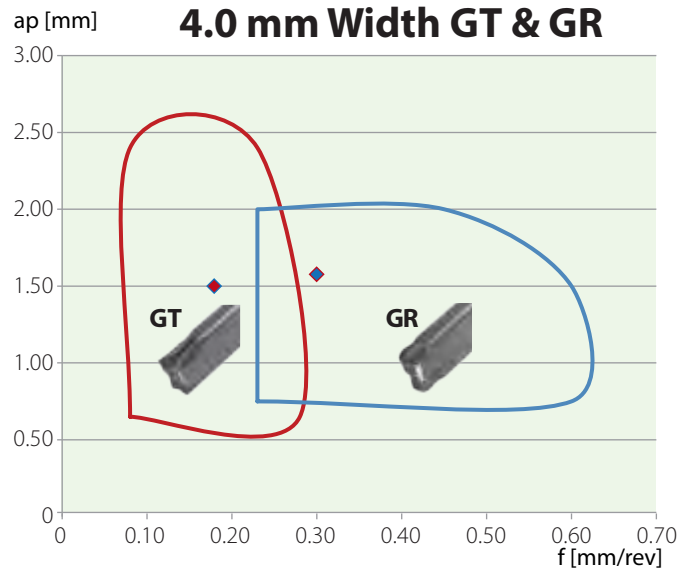
3.0 mm Width GT & GR



Recommended Starting Point:

	◆ GT 3.0 mm	◆ GR 3.0 mm
ap [mm]	1.20	1.00
f [mm/rev]	0.14	0.25

4.0 mm Width GT & GR

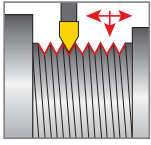


Recommended Starting Point:

	◆ GT 4.0 mm	◆ GR 4.0 mm
ap [mm]	1.50	1.60
f [mm/rev]	0.18	0.30

Technical Data

Recommended Cutting Speeds

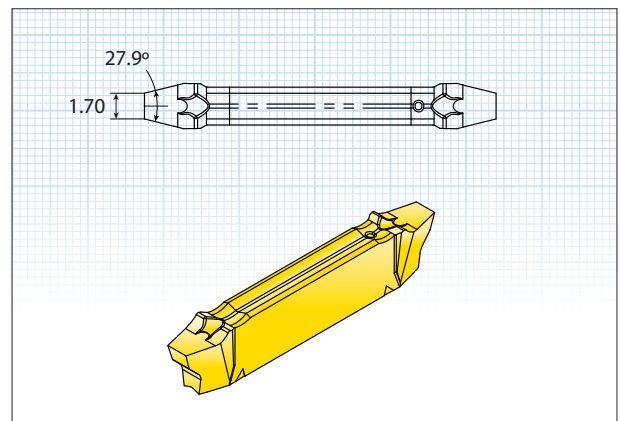
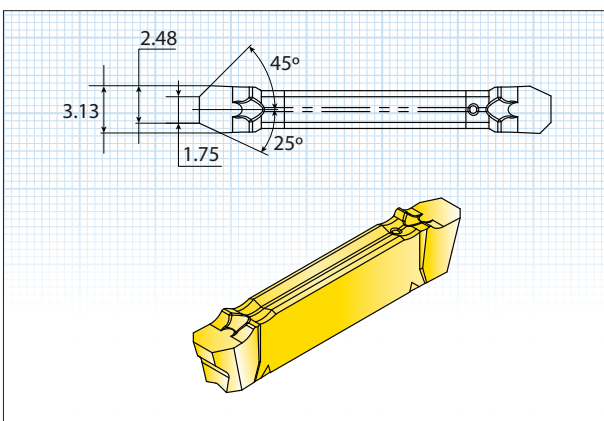
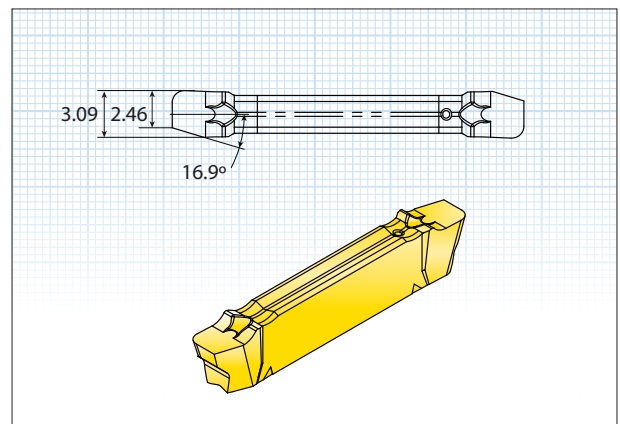
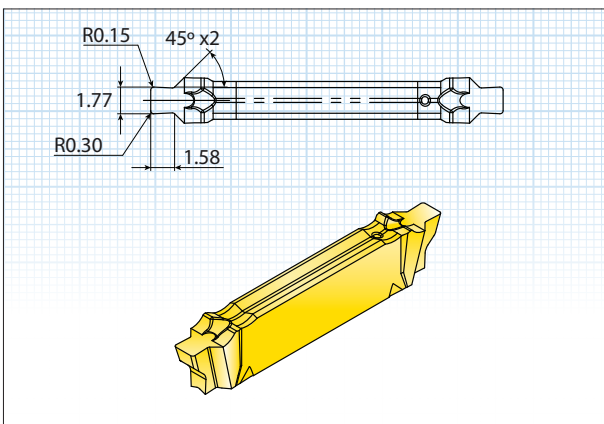
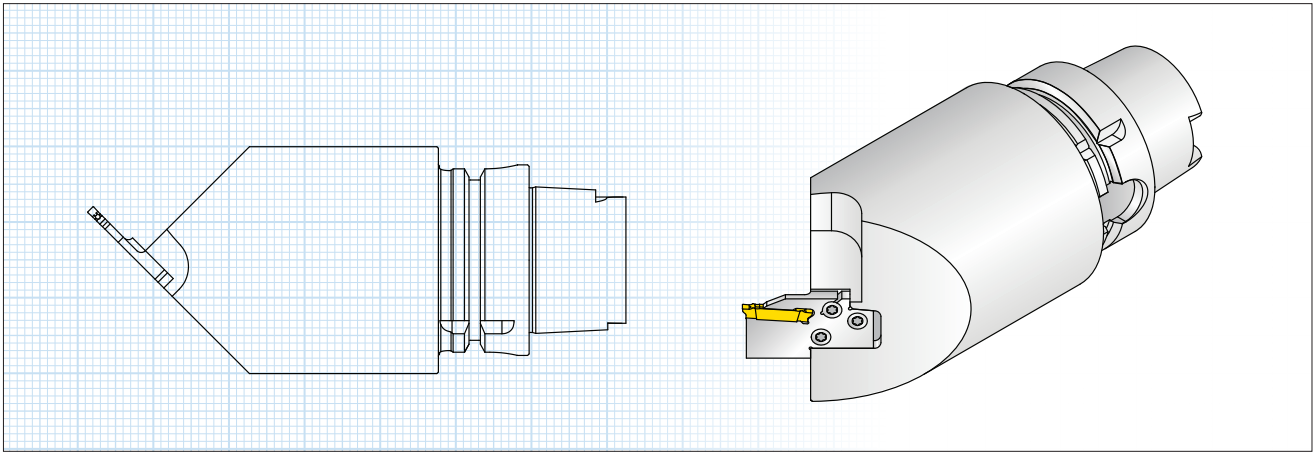


Vc [m/min] for Threading

Material Group	Vargus No.	Material		Hardness Brinell HB	Carbide Grade
					VPG PVD P20
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	120-260
	2		Medium Carbon (C=0.25-0.55%)	150	90-220
	3		High Carbon (C=0.55-0.85%)	170	90-220
	4	Low Alloy Steel (alloying elements ≤5%)	Non Hardened	180	90-220
	5		Hardened	275	60-160
	6		Hardened	350	50-100
	7	High Alloy Steel (alloying elements >5%)	Annealed	200	90-220
	8		Hardened	325	50-100
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	90-220
	10		High Alloy (alloying elements >5%)	225	60-160
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	60-160
	12		Hardened	330	50-140
	13	Stainless Steel Austenitic	Austenitic	180	60-160
	14		Super Austenitic	200	60-160
	15	Stainless Steel Cast Ferritic	Non Hardened	200	60-160
	16		Hardened	330	50-140
	17	Stainless Steel Cast Austenitic	Austenitic	200	60-160
	18		Hardened	330	50-140
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	160-240
	29		Pearlitic (long chips)	230	140-220
	30	Grey Cast Iron	Low Tensile Strength	180	160-240
	31		High Tensile Strength	260	100-200
	32	Nodular Sg Iron	Ferritic	160	100-200
	33		Pearlitic	260	100-200
N(K) Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	200-450
	35		Aged	100	200-350
	36	Aluminium Alloys	Cast	75	200-450
	37		Cast & Aged	90	200-450
	38	Aluminium Alloys	Cast Si 13-22%	130	200-350
	39	Copper and Copper Alloys	Brass	90	200-450
	40		Bronze And Non Leaded Copper	100	200-450
S(M) Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	30-50
	20		Aged (iron based)	280	20-50
	21		Annealed (nickel or cobalt based)	250	20-50
	22		Aged (nickel or cobalt based)	350	20-50
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	30-50
	24		α+β Alloys	1050Rm	30-70
H(K) Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	20-40
	26			51-55HRc	15-30

Tailor-made Insert and Tool Solutions

Special inserts and toolholder solutions are available upon request.





VG-Cut

Deep Grooving, Threading and Parting off

GROOVEX

Innovative Grooving Solutions