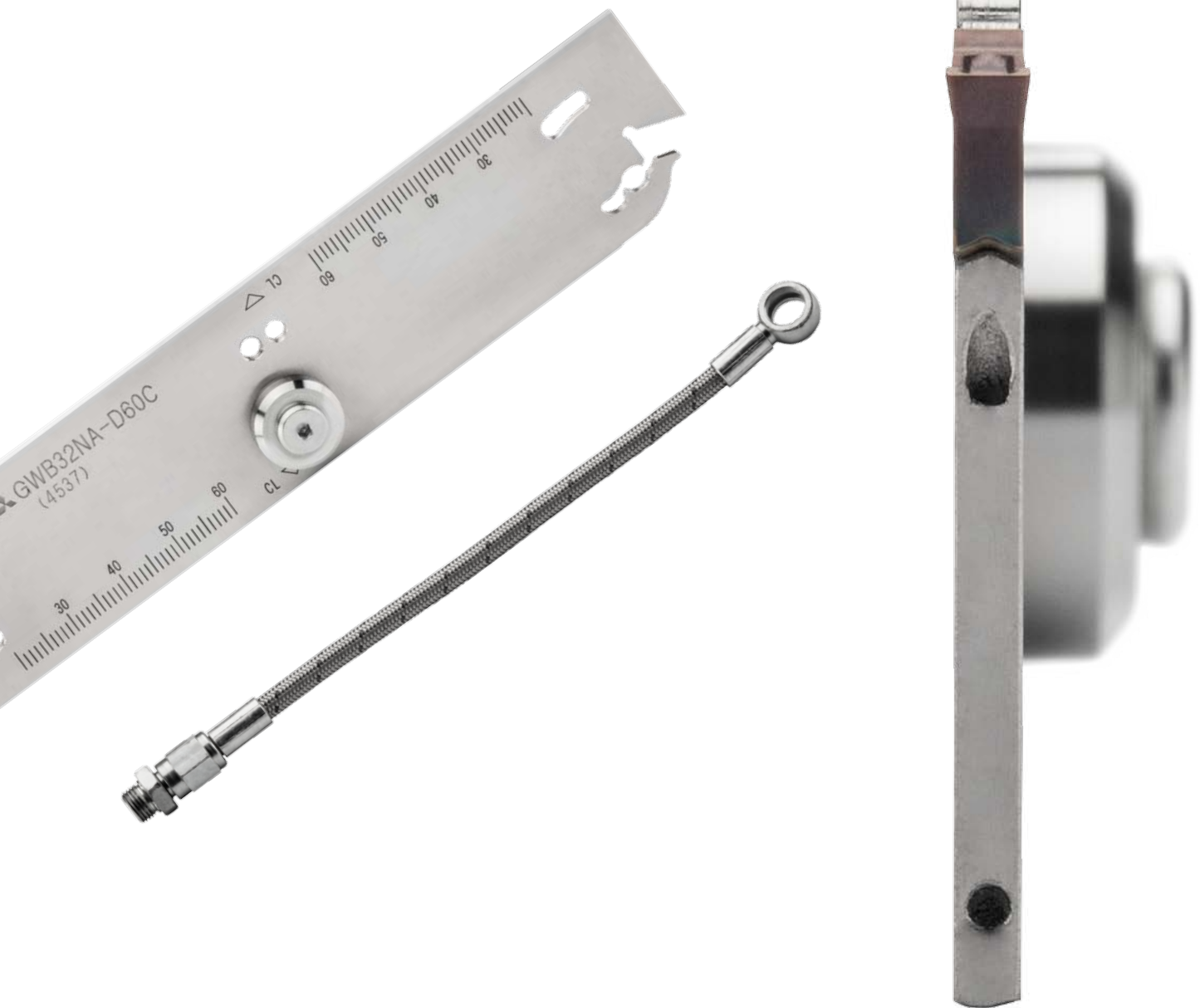


GW

DURABLE & EASY TO USE
CUTTING OFF & GROOVING SYSTEM



GW

SIMPLIFIED EFFICIENCY

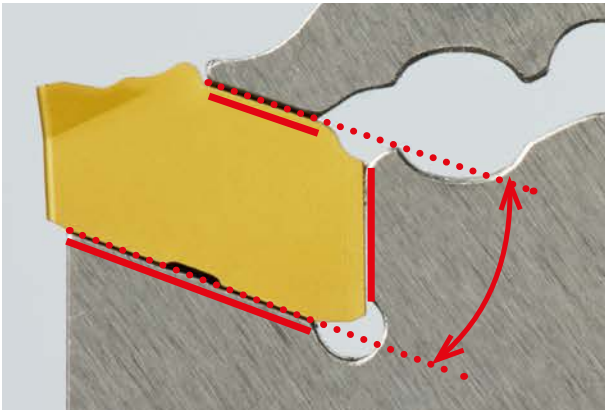
Simple & convenient. Introducing a new kind of cutting off & grooving system that maximizes usability whilst maintaining performance.

EASY CONFIGURATION THAT IMPROVES INVENTORY CONTROL

CLAMPING METHOD

SIMPLE INSERT CLAMPING METHOD OFFERING HIGH RIGIDITY

To prevent extraction during machining, the insert features a reverse taper angle. Additionally the design also includes 3 large locating faces with the blade offering increased cutting edge reliability. The blade itself is made from a suitable, special alloy steel. For changing the insert, a unique wrench is supplied to ensure ease of use.



Reverse Taper Angle

VOICE OF THE DEVELOPER

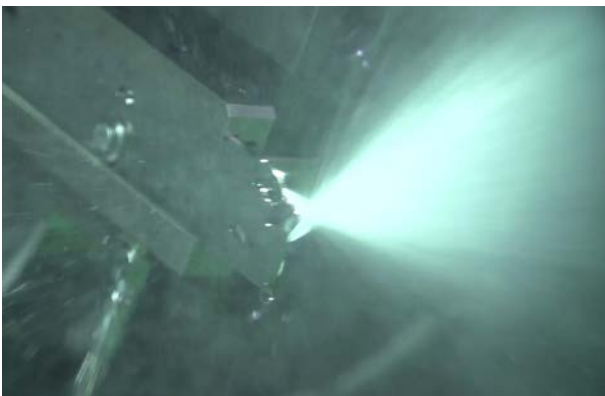
EASY INSERT SETTING

By using the unique wrench, it is possible to remove the insert with one simple action making it easier for everyday use in the workshop.

THROUGH COOLANT BLADE

INCREASED WEAR RESISTANCE DUE TO 2 THROUGH COOLANT HOLES

2 through holes supply coolant to both the rake and flank face, leading to effective cutting edge cooling and increased wear resistance. Additionally the blade can also be utilised with both low and high pressure coolant (7MPa).



VOICE OF THE DEVELOPER

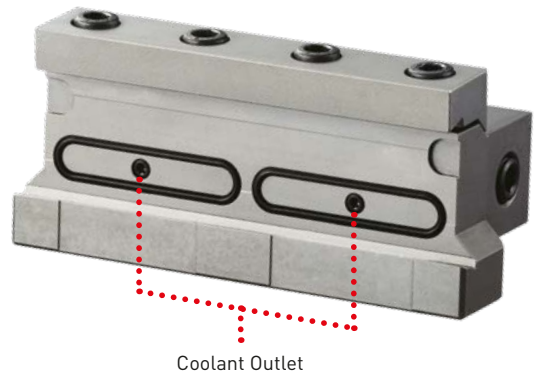
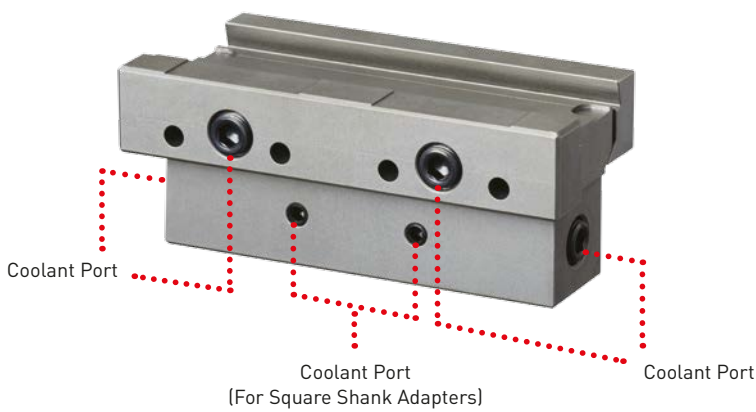
REDUCED HEAT GENERATION

The 2 coolant holes used in the blade are capable of coping with pressures up to 7MPa. This is achieved by using as large as possible hole diameter. The coolant holes are located close to the cutting edge to improve cutting edge cooling effect and increasing wear resistance.

COOLANT PORTS

FLEXIBILITY WITH THE USE OF 6 COOLANT PORTS

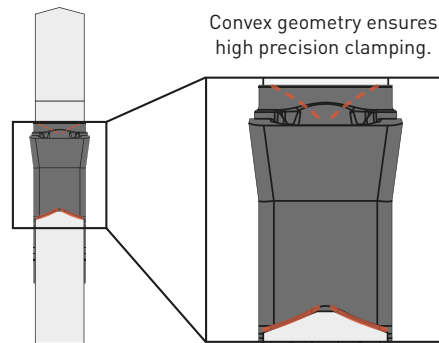
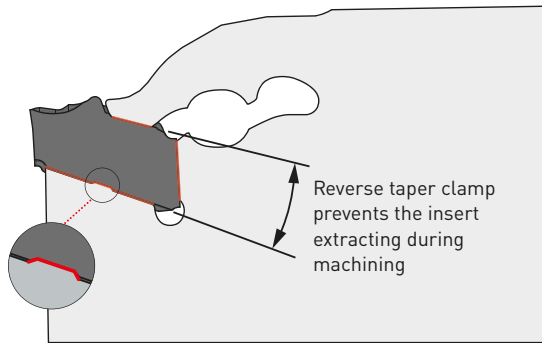
There are 6 coolant ports designed into the tool block, making it easy to set up the block and blade to a suitable configuration. The through coolant holes improve cutting edge cooling and chip evacuation. The use of external coolant hoses is also possible.



CLAMP MECHANISM

SIMPLE INSERT CLAMPING METHOD OFFERING HIGH RIGIDITY

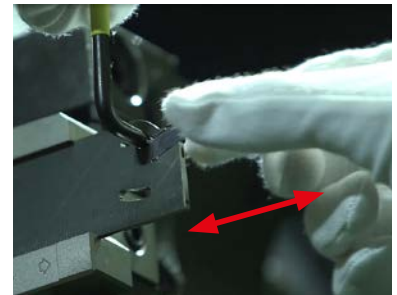
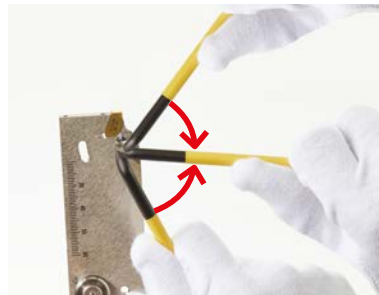
HIGHLY RELIABLE INSERT CLAMPING



Safety key prevents insert movement.

EASY INSERT INDEXING

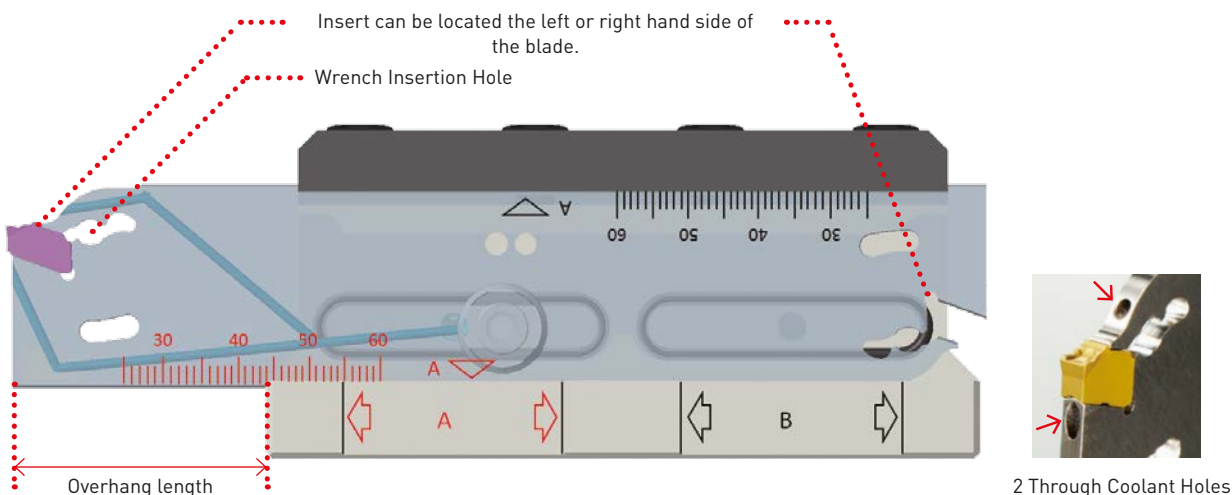
Inserts can be changed easily with a single movement of the wrench.



INTERNAL COOLANT





SUITABLE FOR A WIDE VARIETY OF APPLICATIONS

A scale is marked on the blade to facilitate the correct overhang length. If the arrow on the blade falls within the band marked on the tool block, through coolant is possible. The blade can be used with both external or through coolant.



CHIP BREAKER

BREAKER SYSTEM OFFERING EXCELLENT CHIP DISPOSAL PROPERTIES

GS Breaker	GM Breaker		
Low Feeds	Medium Feeds		
			
	Neutral	Right Hand/Left Hand	Blank insert for special profile by customer

INSERT GRADES

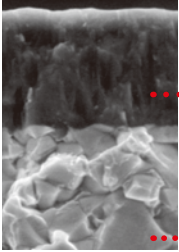
Cutting Conditions (Guide):

●: Stable Cutting ●: General Cutting ✖: Unstable Cutting

P	M	K	S
MY5015		MY5015	VP10RT RT9010
VP10RT RT9010	VP10RT RT9010	VP10RT RT9010	
VP20RT RT9020	VP20RT RT9020	VP20RT RT9020	VP20RT RT9020
VP30RT	VP30RT		

INSERT GRADES

VP10RT

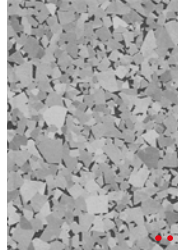


PVD coated grade with a cemented carbide substrate harder than VP20RT. For use on difficult-to-cut materials and for extending tool life.

..... MIRACLE Coating

..... Carbide Substrate (HRA92.0)

RT9010

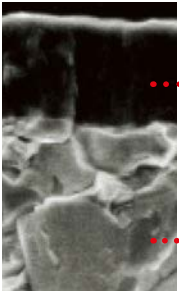


Cemented carbide substrate harder than RT9020 and is ideal for longer tool life on stable cutting application.

..... Carbide Substrate (HRA92.0)

VP20RT

(1st Recommendation)

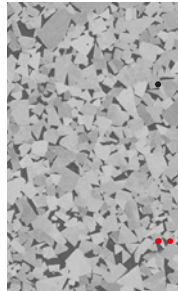


PVD coated grade suitable for a wide range of applications. The combination of a special tough cemented carbide substrate with MIRACLE coating provides an excellent balance of wear and fracture resistance.

..... MIRACLE Coating

..... Carbide Substrate (HRA90.5)

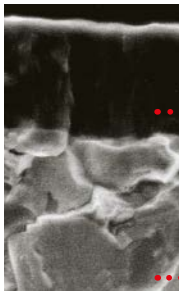
RT9020



Cemented carbide substrate suitable for a wide range of applications. Having an excellent balance of wear and fracture resistance.

..... Carbide Substrate (HRA90.5)

VP30RT

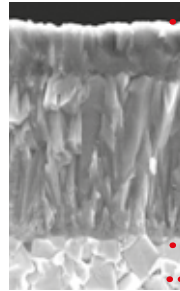


A combination of a tough, special cemented carbide substrate and MIRACLE coating. Ideal for heavy interrupted cutting of stainless and general steels.

..... MIRACLE Coating (Al,Ti)N

..... Carbide Substrate

MY5015



CVD coated grade with excellent wear resistance even at high temperatures. Providing longer tool life when machining cast and ductile cast irons. Also suitable for high speed continuous cutting of steels.

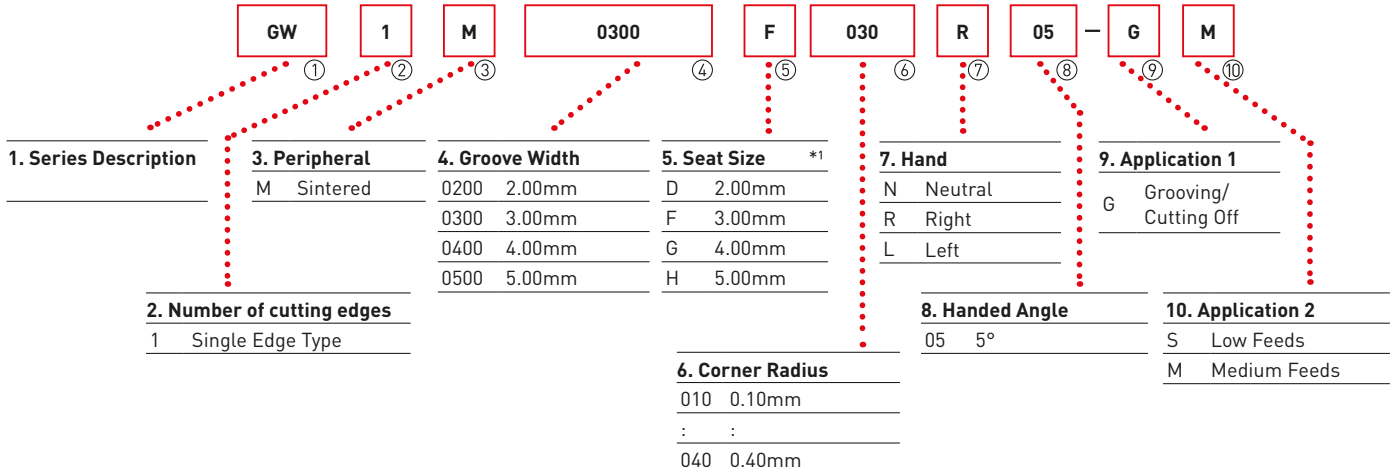
..... CVD Coating

..... Carbide Substrate

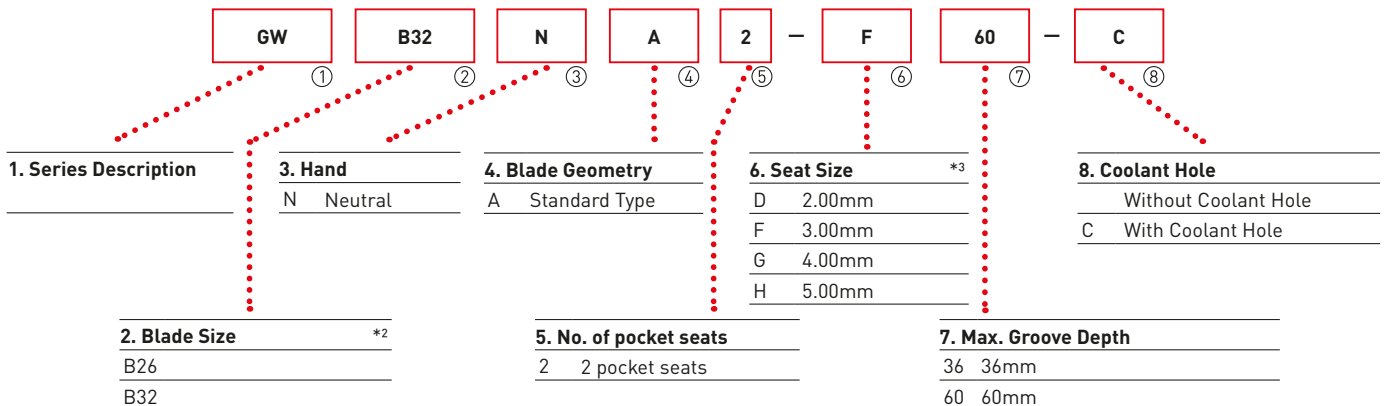
IDENTIFICATION

INSERT/BLADE/TOOL BLOCK

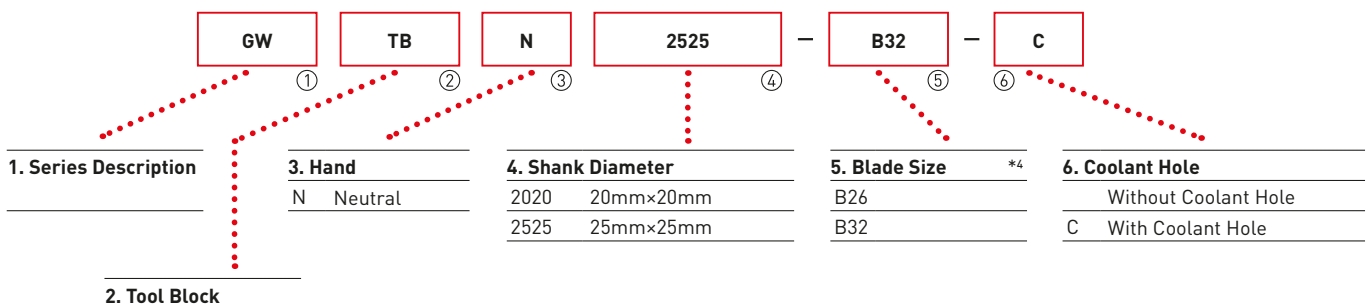
Insert



Blade



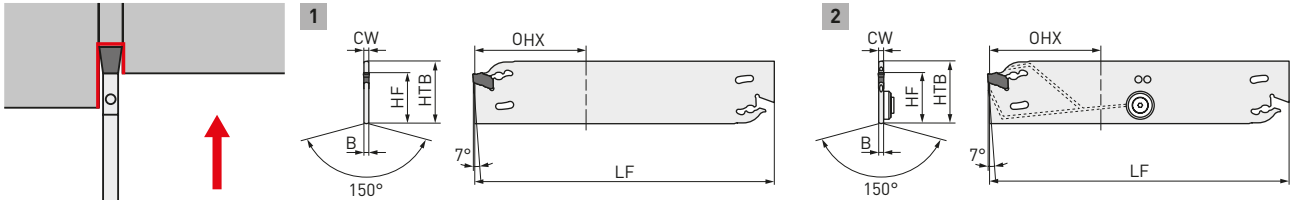
Tool Block



*1 Select seat size with the same symbol as the blade.
 *2 Select blade size with the same symbol as the tool block.
 *3 Select seat size with the same symbol as the insert.
 *4 Select blade size with the same symbol as the blade.


GW BLADE

FOR EXTERNAL CUTTING OFF/GROOVING



Simple insert clamping method offering high rigidity.
Possible to use with both external or through coolant.
Groove Depth CW 2.0—5.0mm

WITHOUT COOLANT HOLE

Order Number	Seat Size	CW	CUTDIA ^{*1}	Stock	OHN ^{*2}	OHX ^{*3}	B	LF	HTB	HF	Fig.			Tool Block Type
												Insert Type	Wrench	
GWB26NA2-D36	D	2.00	72	●	16	36	1.55	110	26	21.4	1	GW1M0200D	GWY39L	GWTBN-B26
GWB32NA2-D60			120	●	16	60	1.55	150	32	25	1	GW1M0200D	GWY39L	GWTBN-B32
GWB26NA2-D36		3.24	72	●								GW1B0320D020N	GWY39L	GWTBN-B26
GWB32NA2-D60			120	●								GW1B0320D020N	GWY39L	GWTBN-B32
GWB26NA2-F36	F	3.00	72	●	16	36	2.45	110	26	21.4	1	GW1M0300F	GWY39L	GWTBN-B26
GWB32NA2-F60			120	●	16	60	2.45	150	32	25	1	GW1M0300F	GWY39L	GWTBN-B32
GWB26NA2-F36		4.44	72	●								GW1B0440F020N	GWY39L	GWTBN-B26
GWB32NA2-F60			120	●								GW1B0440F020N	GWY39L	GWTBN-B32
GWB26NA2-G36	G	4.00	72	●	19	36	3.35	110	26	21.4	1	GW1M0400G	GWY39L	GWTBN-B26
GWB32NA2-G60			120	●	19	60	3.35	150	32	25	1	GW1M0400G	GWY39L	GWTBN-B32
GWB26NA2-G36		5.44	72	●								GW1B0540G020N	GWY39L	GWTBN-B26
GWB32NA2-G60			120	●								GW1B0540G020N	GWY39L	GWTBN-B32
GWB26NA2-H36	H	5.00	72	●	19	36	4.25	110	26	21.4	1	GW1M0500H	GWY39L	GWTBN-B26
GWB32NA2-H60			120	●	19	60	4.25	150	32	25	1	GW1M0500H	GWY39L	GWTBN-B32
GWB26NA2-H36		6.44	72	●								GW1B0640H020N	GWY39L	GWTBN-B26
GWB32NA2-H60			120	●								GW1B0640H020N	GWY39L	GWTBN-B32

Recommended Maximum Coolant Pressure 7MPa

*1 CUTDIA: Maximum Cut Off Diameter

*2 OHN: Minimum Overhang Length

*3 OHX: Maximum Overhang Length





GW BLADE



FOR EXTERNAL CUTTING OFF/GROOVING

WITH COOLANT HOLE

Order Number	Seat Size	CW	CUTDIA ^{*1}	Stock	OHN ^{*2}	OHX ^{*3}	B	LF	HTB	HF	Fig.			Tool Block Type
												Insert Type	Wrench	
GWB26NA2-D36-C	D	2.00	72	●	16	36	1.55	110	26	21.4	2	GW1M0200D	GWY39L	GWTBN-B26-C
GWB32NA2-D60-C			120	●	26	60	1.55	150	32	25	2	GW1M0200D	GWY39L	GWTBN-B32-C
GWB26NA2-D36-C		3.24	72	●								GW1B0320D020N	GWY39L	GWTBN-B26-C
GWB32NA2-D60-C			120	●								GW1B0320D020N	GWY39L	GWTBN-B32-C
GWB26NA2-F36-C	F	3.00	72	●	16	36	2.45	110	26	21.4	2	GW1M0300F	GWY39L	GWTBN-B26-C
GWB32NA2-F60-C			120	●	26	60	2.45	150	32	25	2	GW1M0300F	GWY39L	GWTBN-B32-C
GWB26NA2-F36-C		4.44	72	●								GW1B0440F020N	GWY39L	GWTBN-B26-C
GWB32NA2-F60-C			120	●								GW1B0440F020N	GWY39L	GWTBN-B32-C
GWB26NA2-G36-C	G	4.00	72	●	19	36	3.35	110	26	21.4	2	GW1M0400G	GWY39L	GWTBN-B26-C
GWB32NA2-G60-C			120	●	26	60	3.35	150	32	25	2	GW1M0400G	GWY39L	GWTBN-B32-C
GWB26NA2-G36-C		5.44	72	●								GW1B0540G020N	GWY39L	GWTBN-B26-C
GWB32NA2-G60-C			120	●								GW1B0540G020N	GWY39L	GWTBN-B32-C
GWB26NA2-H36-C	H	5.00	72	●	19	36	4.25	110	26	21.4	2	GW1M0500H	GWY39L	GWTBN-B26-C
GWB32NA2-H60-C			120	●	26	60	4.25	150	32	25	2	GW1M0500H	GWY39L	GWTBN-B32-C
GWB26NA2-H36-C		6.44	72	●								GW1B0640H020N	GWY39L	GWTBN-B26-C
GWB32NA2-H60-C			120	●								GW1B0640H020N	GWY39L	GWTBN-B32-C

Recommended Maximum Coolant Pressure 7MPa

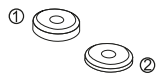


*1 CUTDIA: Maximum Cut Off Diameter

*2 OHN: Minimum Overhang Length

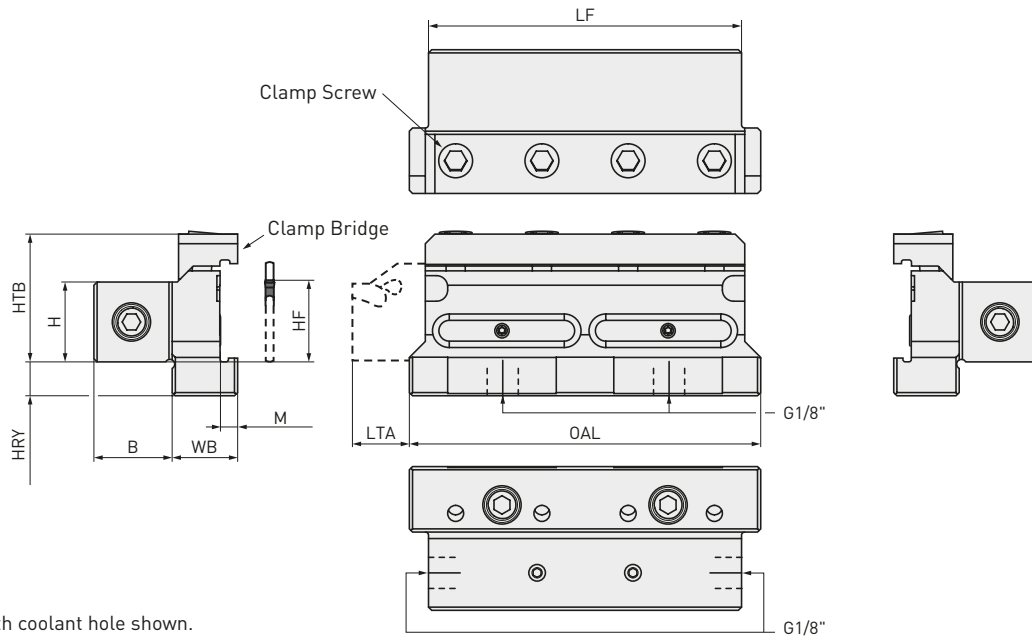
*3 OHX: Maximum Overhang Length



SPARE PARTS FOR BLADES WITH COOLANT HOLE


Order Number	CW			
		Washer	Clamp Screw	Plug Wrench
GWB26NA2-D36-C	2.0	① GWW04038	GW04005F	HKY20R
GWB32NA2-D60-C	2.0	① GWW04038	GW04005F	HKY20R
GWB26NA2-F36-C	3.0	① GWW04038	GW04005F	HKY20R
GWB32NA2-F60-C	3.0	① GWW04038	GW04005F	HKY20R
GWB26NA2-G36-C	4.0	② GWW04026	GW04005F	HKY20R
GWB32NA2-G60-C	4.0	② GWW04026	GW04005F	HKY20R
GWB26NA2-H36-C	5.0	② GWW04026	GW04005F	HKY20R
GWB32NA2-H60-C	5.0	② GWW04026	GW04005F	HKY20R

TOOL BLOCK



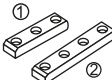


Tool block with coolant hole shown.

Without Coolant Hole

Order Number	Stock	H	HF	HTB	HRY	B	WB	M	LF	OAL			
											Clamp Bridge	Clamp Screw	Wrench
GWTBN2020-B26	★	20	20	33.5	11	19.5	20.0	5.0	75	85	① GWCW1	HSC06020	HKY50R
GWTBN2020-B32	★	20	20	35.0	15.6	19.5	20.5	5.5	100	110	② GWCW2	HSC06020	HKY50R
GWTBN2525-B26	★	25	25	38.5	6	24.5	20.0	5.0	75	85	① GWCW1	HSC06020	HKY50R
GWTBN2525-B32	★	25	25	40.0	10.6	24.5	20.5	5.5	100	110	② GWCW2	HSC06020	HKY50R



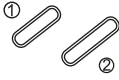





WITH COOLANT HOLE

Order Number	Stock	H	HF	HTB	HRY	B	WB	M	LF	OAL			
											Clamp Bridge	Clamp Screw	Wrench
GWTBN2020-B26-C	●	20	20	33.5	11	19.5	20.0	5.0	75	85	① GWCW1	HSC06020	HKY50R
GWTBN2020-B32-C	●	20	20	35.0	15.6	19.5	20.5	5.5	100	110	② GWCW2	HSC06020	HKY50R
GWTBN2525-B26-C	●	25	25	38.5	6	24.5	20.0	5.0	75	85	① GWCW1	HSC06020	HKY50R
GWTBN2525-B32-C	●	25	25	40.0	10.6	24.5	20.5	5.5	100	110	② GWCW2	HSC06020	HKY50R

1. Recommended Maximum Coolant Pressure 7MPa
2. Clamp Torque (N • m) : HSC06020=7.0



SPARE PARTS FOR TOOL BLOCK WITH COOLANT HOLE

Order Number						
	O-ring	Plug	Plug	Wrench	Plug	Wrench
GWTBN2020-B26-C	① ORGW332N9	HGJ-PT1/8	HSD05004S	HKY25R	CS300590T	TKY08R
GWTBN2020-B32-C	② ORGW457N9	HGJ-PT1/8	HSD05004S	HKY25R	CS300590T	TKY08R
GWTBN2525-B26-C	① ORGW332N9	HGJ-PT1/8	HSD05004S	HKY25R	CS300590T	TKY08R
GWTBN2525-B32-C	② ORGW457N9	HGJ-PT1/8	HSD05004S	HKY25R	CS300590T	TKY08R

INSERTS



Order Number	CW					REL	RER	PSIRR	Geometry		
	RT9010	RT9020	MY5015	VP10RT	VP20RT					VP30RT	Width of Cutting Edge
GROOVING, CUTTING OFF											
GW1M0200D020N-GS			●	●	●	2.00	±0.03	0.2	0.2	-	
GW1M0300F020N-GS			●	●	●	3.00	±0.03	0.2	0.2	-	
GW1M0400G020N-GS			●	●	●	4.00	±0.04	0.2	0.2	-	
GW1M0500H030N-GS			●	●	●	5.00	±0.04	0.3	0.3	-	
GW1M0200D020N-GM			●	●	●	2.00	±0.03	0.2	0.2	-	
GW1M0300F030N-GM			●	●	●	3.00	±0.03	0.3	0.3	-	
GW1M0400G030N-GM			●	●	●	4.00	±0.04	0.3	0.3	-	
GW1M0500H040N-GM			●	●	●	5.00	±0.04	0.4	0.4	-	
CUTTING OFF											
GW1M0200D020R05-GM			●	●	●	2.00	±0.03	0.2	0.2	5	
GW1M0200D020L05-GM			●	●	●	2.00	±0.03	0.2	0.2	5	
GW1M0300F030R05-GM			●	●	●	3.00	±0.03	0.3	0.3	5	
GW1M0300F030L05-GM			●	●	●	3.00	±0.03	0.3	0.3	5	
GW1M0400G030R05-GM			●	●	●	4.00	±0.04	0.3	0.3	5	
GW1M0400G030L05-GM			●	●	●	4.00	±0.04	0.3	0.3	5	
GW1M0500H040R05-GM			●	●	●	5.00	±0.04	0.4	0.4	5	
GW1M0500H040L05-GM			●	●	●	5.00	±0.04	0.4	0.4	5	
RAW BLANK											
NEW GW1B0320D020N			●	★		3.24	±0.10	0.2	0.2	-	
NEW GW1B0440F020N			●	★		4.44	±0.10	0.2	0.2	-	
NEW GW1B0540G020N			●	★		5.44	±0.10	0.2	0.2	-	
NEW GW1B0640H020N			●	★		6.44	±0.10	0.2	0.2	-	






Right hand insert shown.

(10 inserts in one case)

1. Blank inserts to be ground by customer



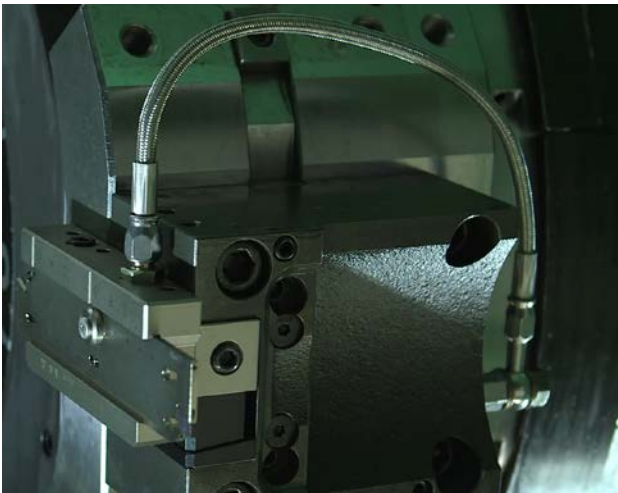
COOLANT HOSE KIT

Order Number	Stock	Hose Length	Kit Details									
												
			Hose	Banjo Adapter	Banjo Bolt	Adapter	Washer	Code No.	Qty.	Code No.	Qty.	Code No.
STRAIGHT												
CS-1/8-150SS	●	150	HOSE-1/8-150	-	-	-	-	AD-G1/8	2	WA-M10	2	
CS-1/8-200SS	●	200	HOSE-1/8-200	-	-	-	-	AD-G1/8	2	WA-M10	2	
CS-1/8-250SS	●	250	HOSE-1/8-250	-	-	-	-	AD-G1/8	2	WA-M10	2	
CS-1/8-300SS	●	300	HOSE-1/8-300	-	-	-	-	AD-G1/8	2	WA-M10	2	
ELBOW STRAIGHT												
CS-1/8-150BS	●	150	HOSE-1/8-150	AD-BM10	1	BB-G1/8	1	AD-G1/8	1	WA-M10	3	
CS-1/8-200BS	●	200	HOSE-1/8-200	AD-BM10	1	BB-G1/8	1	AD-G1/8	1	WA-M10	3	
CS-1/8-250BS	●	250	HOSE-1/8-250	AD-BM10	1	BB-G1/8	1	AD-G1/8	1	WA-M10	3	
CS-1/8-300BS	●	300	HOSE-1/8-300	AD-BM10	1	BB-G1/8	1	AD-G1/8	1	WA-M10	3	
ELBOW												
CS-1/8-150BB	●	150	HOSE-1/8-150	AD-BM10	2	BB-G1/8	2	-	-	WA-M10	4	
CS-1/8-200BB	●	200	HOSE-1/8-200	AD-BM10	2	BB-G1/8	2	-	-	WA-M10	4	
CS-1/8-250BB	●	250	HOSE-1/8-250	AD-BM10	2	BB-G1/8	2	-	-	WA-M10	4	
CS-1/8-300BB	●	300	HOSE-1/8-300	AD-BM10	2	BB-G1/8	2	-	-	WA-M10	4	

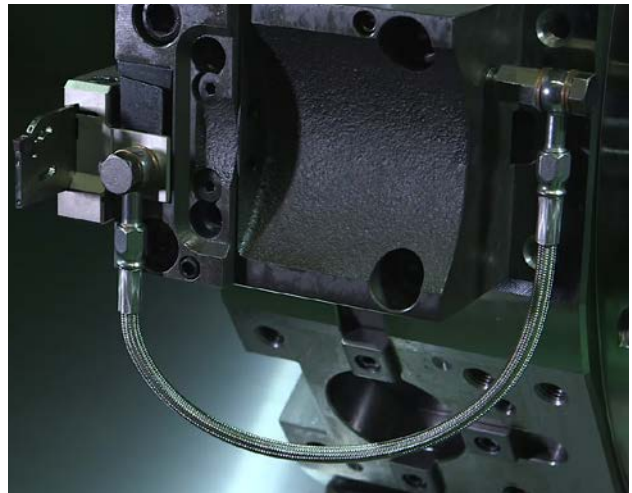
1. Connection Screw Size = G1/8"



MOUNTING EXAMPLE



Straight Type



Elbow Type

RECOMMENDED CUTTING CONDITIONS

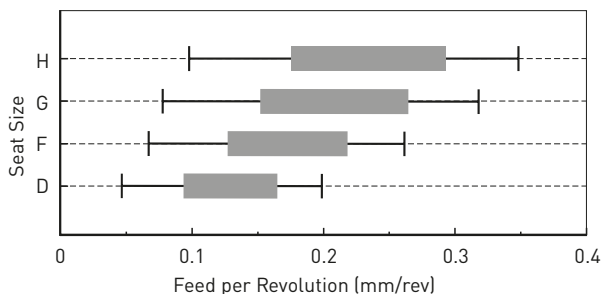
Cutting Speed

Material	Properties	Grade	Cutting Speed					
			50	100	150	200	250	300
P Carbon Steel Alloy Steel	<160HB	VP20RT/RT9020			100		240	
		VP10RT/RT9010			110		250	
	160–280HB	VP20RT/RT9020		80		200		
		VP10RT/RT9010		90		210		
		VP30RT	60		180			
	>280HB	MY5015		110		250		
		VP20RT/RT9020	60		160			
		VP10RT/RT9010	70		170			
		VP30RT	40		140			
		MY5015		90		210		
M Stainless Steel	<270HB	VP20RT/RT9020		60		180		
		VP10RT/RT9010		70		190		
		VP30RT	40		160			
K Gray Cast Iron Ductile Cast Iron	Tensile Strength <300MPa	VP20RT/RT9020		80		200		
		VP10RT/RT9010		90		210		
		MY5015		140		300		
	Tensile Strength <800MPa	VP20RT/RT9020	60		160			
		VP10RT/RT9010	70		170			
		MY5015	90		210			
S Heat Resistant Alloy Titanium Alloy	-	VP20RT/RT9020	30	60				
		VP10RT/RT9010	40	70				

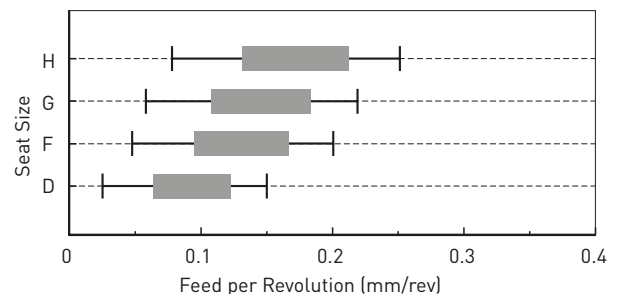
1. VP20RT is the first recommended grade for general materials.
2. For VP10RT, VP20RT, VP30RT and MY5015, wet cutting is recommended.

Feed per Revolution

GM BREAKER



GS BREAKER



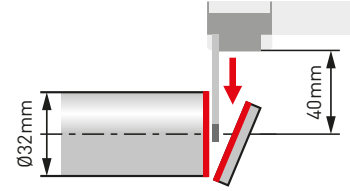
Chip Breaker	Feed per Revolution (mm/rev)			
	Seat Size D	Seat Size F	Seat Size G	Seat Size H
GM Breaker	0.05 – 0.20	0.07 – 0.26	0.08 – 0.32	0.10 – 0.35
GS Breaker	0.03 – 0.15	0.05 – 0.20	0.06 – 0.22	0.08 – 0.25

CUTTING PERFORMANCE

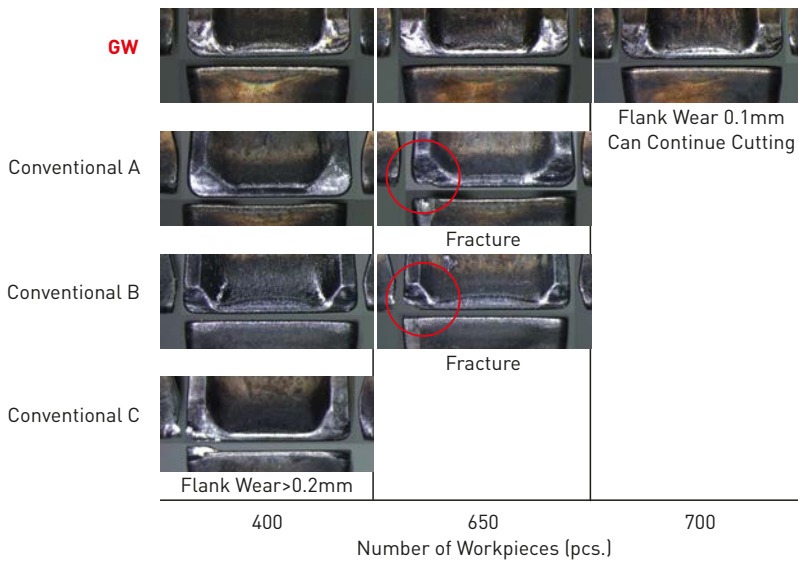
Alloy Steel (DIN 41CrMo4) cutting off

No abnormal cutting edge damage, possible to extend tool life.

Material	DIN 41CrMo4
Insert	GW1M0300F030N-GM (MY5015)
Grooving Width CW (mm)	3
Cutting Speed Vc (m/min)	170
Feed per Rev. f (mm/rev)	0.15 (smaller than $\varnothing 10\text{mm} = 0.03$)
Overhang (mm)	40
Cutting Mode	Internal Coolant 1MPa

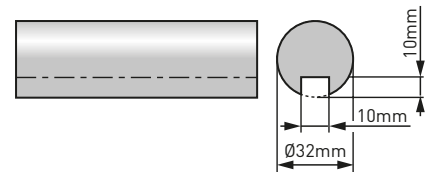


Tool Life Criteria : Flank wear up to 0.2mm or fracturing.

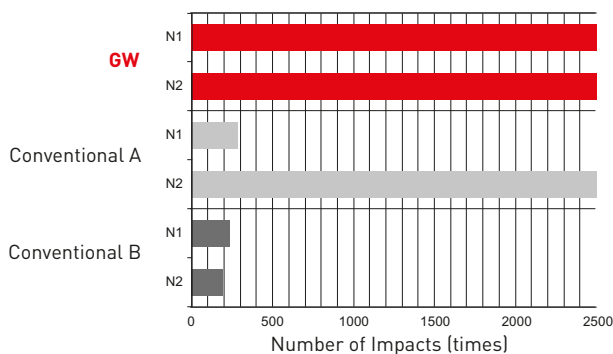


Alloy Steel (DIN 41CrMo4) interrupted cutting off

Material	DIN 41CrMo4
Insert	GW1M0300F030N-GM (VP30RT)
Grooving Width CW (mm)	3
Cutting Speed Vc (m/min)	120
Feed per Rev. f (mm/rev)	0.20 (smaller than $\varnothing 10\text{mm} = 0.03$)
Overhang (mm)	30
Cutting Mode	Internal Coolant 1MPa



Tool Life Criteria : Fracture or breakage.

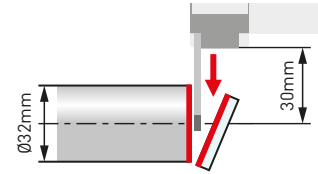


CUTTING PERFORMANCE

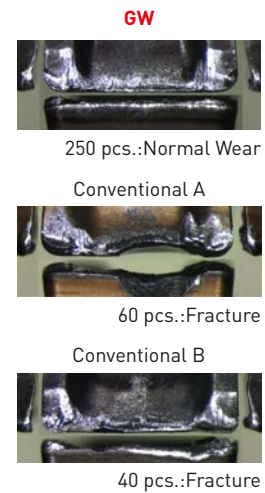
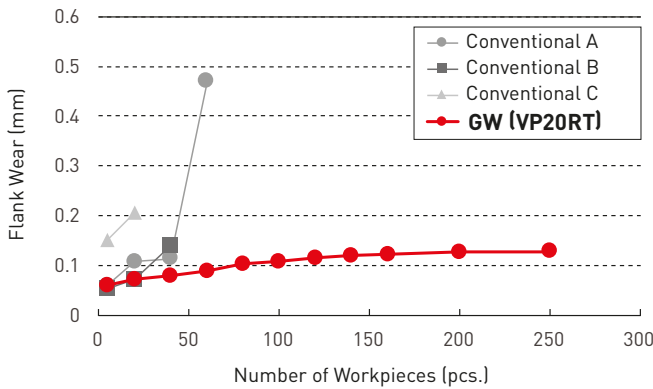
Stainless Steel (DIN X5CrNi189) cutting off

No abnormal cutting edge damage, 4 times longer tool life.

Material	DIN X5CrNi189
Insert	GW1M0300F030N-GM (VP20RT)
Grooving Width CW (mm)	3
Cutting Speed Vc (m/min)	180
Feed per Rev. f (mm/rev)	0.15 (smaller than $\varnothing 10\text{mm} = 0.03$)
Overhang (mm)	30
Cutting Mode	Internal Coolant 1MPa

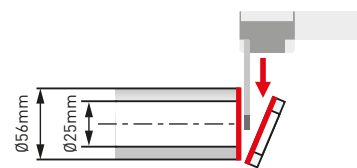


Tool Life Criteria : Flank wear up to 0.2mm or fracture.

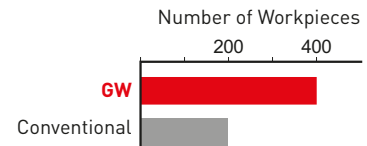


APPLICATION EXAMPLES

Insert	GW1M0300F030N-GM (VP20RT)
Workpiece	Stainless Steel
Component	Machine Parts
Cutting Speed Vc (m/min)	160
Feed per Rev. f (mm/rev)	0.1
Cutting Method	Cutting Off
Cutting Mode	Internal Coolant (2MPa)



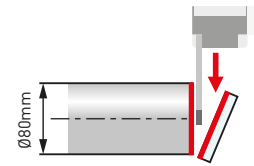
Results Double tool life compared to the conventional products. Plus improved tool handling.



APPLICATION EXAMPLES

Insert	GW1M0300F030N-GM(VP20RT)
Workpiece	Carbon Tool Steel (AISI W5)
Component	Machine Parts
Cutting Speed Vc (m/min)	180
Feed per Rev. f (mm/rev)	0.13
Cutting Method	Cutting Off
Cutting Mode	Internal Coolant (0.5MPa)

Results A good surface finish was obtained due to the smooth chip evacuation.



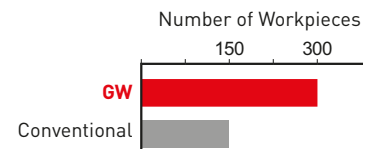
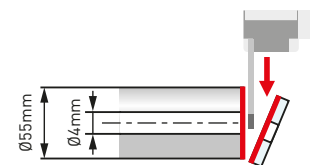
GW



Conventional

Insert	GW1M0300F030N-GM(VP20RT)
Workpiece	Stainless Steel (DIN X46Cr13)
Component	Machine Parts
Cutting Speed Vc (m/min)	110
Feed per Rev. f (mm/rev)	0.04
Cutting Method	Cutting Off
Cutting Mode	Internal Coolant

Results Compared to the conventional products double the number of workpieces were machined.



The examples shown are actual applications and can differ from the recommended cutting conditions.

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