RHINO•GROOVE™

Optimized Parting and Grooving Line

Single & Double-Ended Inserts

Insert Widths
- .079" (2mm)
- .118" (3mm)

Maximum Groove Depth
- .630" (16mm) per side

Chip Breakers
- C type – For general purpose and heavier feed rates
- J type – For soft & gummy materials and lower feed rates

Grades
- TT7220
- TT9080
- TT8020

Holders (Right and Left Hand)
- Standard: .625", .750", 1.000"
- Swiss: .500", .625", 12mm, 16mm

RHINOGROOVE is an economical product series consisting of external holders and optimized, single-ended and double-ended inserts that feature a shorter overall length. These inserts were specifically developed for strength, efficiency, economy and long tool life in shallow depth-of-cut parting and grooving.

When compared to the competition, and to Ingersoll's existing T-Clamp Ultra+ inserts, the RHINOGROOVE inserts' center of gravity promotes better stability in the pocket. This enables powerful clamping of the insert, which reduces vibration and keeps the insert straight while engaged in the work piece. Since vibration has the single greatest influence on tool life in parting and grooving, this design ensures that RHINOGROOVE will extend tool life.

In addition to exception performance in shorter groove applications, all RHINOGROOVE inserts are priced **30% lower** *than comparable, longer double-ended inserts.*

The RHINOGROOVE line includes standard C and J style chip breakers in 2mm and 3mm widths. Standard holders are available with .625", .750" and 1.000" shanks, and holders for Swiss machines are available with .500", .625", 12mm and 16mm shanks.

Features
- *Single and double-ended inserts*
- *Ideal for small component and shallow depth of cut parting & grooving*
- *Vibration minimized due to the insert's shorter length and improved center of gravity*
- *30% lower price compared to longer parting & grooving inserts!*
- *Optimized holder pocket design for better clamping*
- *C type chip breaker features a frontal land for strength in general purpose applications*
- *J type chip breaker has a positive cutting edge making it ideal for soft & gummy materials.*
- *Three grade options (TT9080, TT7220 & TT8020) provide a solution for a wide variety of materials and applications*

NEW PRODUCT ANNOUNCEMENT 2018

Member IMC Group
Ingersoll Cutting Tools

CHIP BREAKERS

"C" CHIP BREAKERS

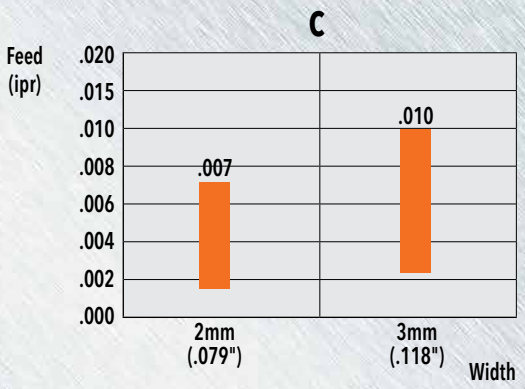
- For hard materials and tough applications
- For general applications on steel, alloy steel and stainless steel
- Medium-to-high feeds

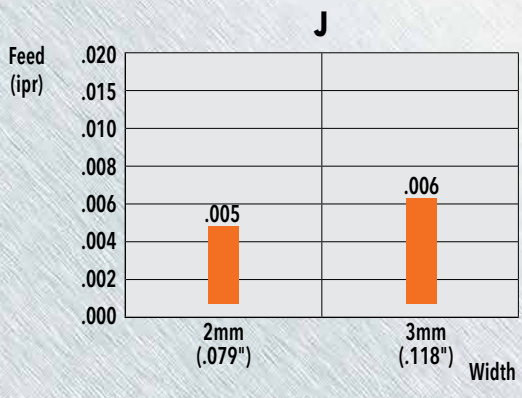
"J" CHIP BREAKERS

- For soft materials, parting of tubes, small diameters and thin-walled parts
- Low cutting forces and smaller burrs
- Excellent machining straightness
- Low-to-medium feeds

RECOMMENDED FEED RANGE AS A FUNCTION OF INSERT WIDTH

Material: SAE4140 (HB240)

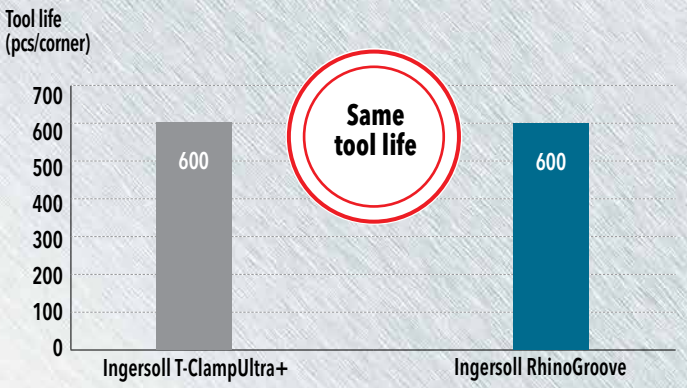




Workpiece materials					
	Alloy steel	Austenitic stainless	High - Temp alloys	Nonferrous materials	Cast iron
High feed ↕ Low feed	C J	C J	C J	C Brass J Aluminum	C

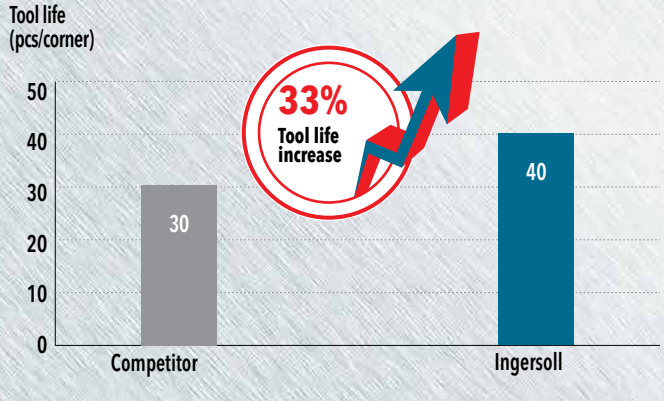
CASE STUDY 1

		Ingersoll	Ingersoll
Component		Adapter	
Workpiece material		AISI 1045 (S45C)	
Operation		External grooving	
Insert		TDC 3 TT7220	RDC 3 TT7220
Cutting speed	V (sfm)	360	360
Feed rate	f (ipr)	.003	.003
Depth of cut	ap (inch)	.315	.315
Coolant		Wet	Wet
Tool life (pcs/corner)		600	600



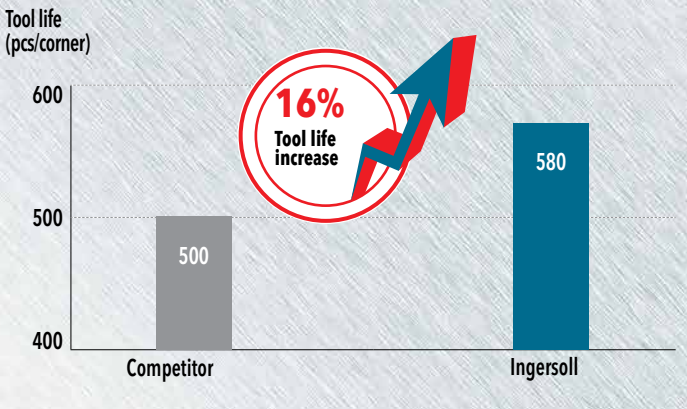
CASE STUDY 2

		Competitor	Ingersoll
Component		Pipe	
Workpiece material		AISI 304 (SUS 304)	
Operation		Parting	
Insert		Single type PVD coated	RDC 3 TT7220
Cutting speed	V (sfm)	350	350
Feed rate	f (ipr)	.003	.003
Depth of cut	ap (inch)	.256	.256
Coolant		Wet	Wet
Tool life (pcs/corner)		30	40



CASE STUDY 3

		Competitor	Ingersoll
Component		Car shaft	
Workpiece material		AISI 1025 (S525C)	
Operation		External grooving	
Insert		Triangular type PVD coated	RDC 3 TT7220
Cutting speed	V (sfm)	770	770
Feed rate	F (ipr)	.003	.003
Depth of cut	ap (inch)	.060	.060
Coolant		Wet	Wet
Tool life (pcs/corner)		500	580



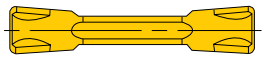
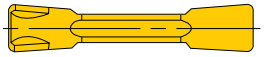
INSERT DESIGNATION SYSTEM

Only for handed insert (Available by quote)

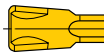
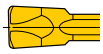
R	D	C	3	-	6	R	S
1	2	3	4		5	6	7

1 RhinoGroove

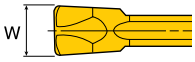
2 Cutting edge type

 D	 S
Double-ended insert	Single-ended insert

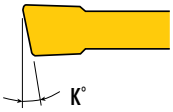
3 Chip breaker type

 C	 J
For medium	For light

4 Width of insert

	**2** = 2.0 mm (.079") **3** = 3.0 mm (.118")

5 Lead angle



6 Hand of insert

 L	 R
Left hand	Right hand

7 Corner type

 S	
Sharp corner	Standard corner radius

HOLDER DESIGNATION SYSTEM

R	G	E	R	25.4	-	3	T16
1	2	3	4	5		6	7

1 RhinoGroove

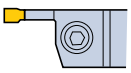
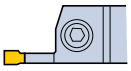
2 Application type

G Grooving

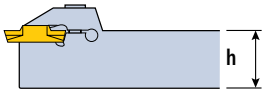
3 Machining type

E External parting and grooving

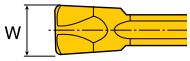
4 Hand of holder

	
L	**R**
Left-hand	Right-hand

5 Shank height

	(in mm)

6 Insert size

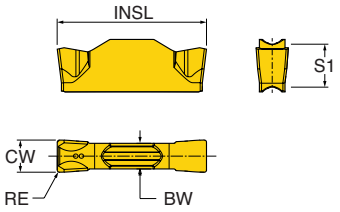

2, 3

7 Maximum depth of cut*

Tmax 16mm

*Indicates clearance of holder. Actual maximum depth of cut is also dependent on inserts.

NEW RSC Single-ended Inserts for Parting and Grooving with "C" Type Chip Breaker

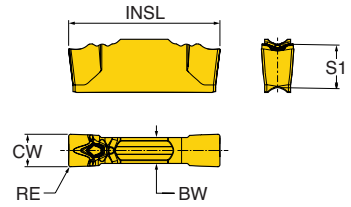


Size	Dimensions (inch)				
	CW±.002 Cutting Width	RE Corner Radius	BW Body Width	INSL Insert Length	S1 Insert Thickness
2	.079 (2mm)	.008	.067	.551	.157
3	.118 (3mm)	.008	.094	.551	.157

Insert	Part Number	Insert Seat Size	Feed (ipr)	PVD coated		
				TT9080	TT7220	TT8020
	RSC 2	2	.002 - .007	•	•	•
	RSC 3	3	.003 - .010	•	•	•

•: Standard items

NEW RSJ Single-ended Inserts for Parting and Grooving with "J" Type Chip Breaker

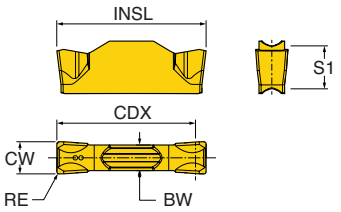


Size	Dimensions (inch)				
	CW±.002 Cutting Width	RE Corner Radius	BW Body Width	INSL Insert Length	S1 Insert Thickness
2	.079 (2mm)	.008	.067	.551	.157
3	.118 (3mm)	.008	.094	.551	.157

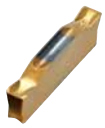
Insert	Part Number	Insert Seat Size	Feed (ipr)	PVD coated		
				TT9080	TT7220	TT8020
	RSJ 2	2	.0015 - .005	•	•	•
	RSJ 3	3	.0015 - .006	•	•	•

•: Standard items

RDC Double-ended Inserts for Parting and Grooving with "C" Type Chip Breaker

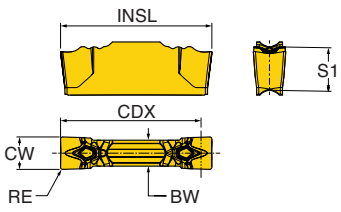


Size	Dimensions (inch)					
	CW±.002 Cutting Width	RE Corner Radius	BW Body Width	INSL Insert Length	S1 Insert Thickness	CDX Cutting Depth Max.
2	.079 (2mm)	.008	.067	.551	.157	.512
3	.118 (3mm)	.008	.094	.551	.157	.512

Insert	Part Number	Insert Seat Size	Feed (ipr)	PVD coated		
				TT9080	TT7220	TT8020
	RDC 2	2	.002 - .007	•	•	•
	RDC 3	3	.003 - .010	•	•	•

•: Standard items

RDJ Double-ended Inserts for Parting and Grooving with "J" Type Chip Breaker

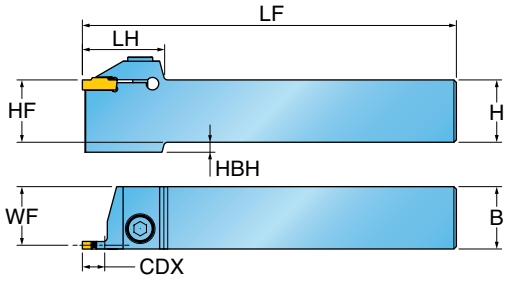


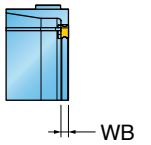
Size	Dimensions (inch)					
	CW±.002 Cutting Width	RE Corner Radius	BW Body Width	INSL Insert Length	S1 Insert Thickness	CDX Cutting Depth Max.
2	.079 (2mm)	.008	.067	.551	.157	.512
3	.118 (3mm)	.008	.094	.551	.157	.512

Insert	Part Number	Insert Seat Size	Feed (ipr)	PVD coated		
				TT9080	TT7220	TT8020
	RDJ 2	2	.0015 - .005	•	•	•
	RDJ 3	3	.0015 - .006	•	•	•

•: Standard items

RGER/L External Holders for Parting and Grooving





Right-hand shown.

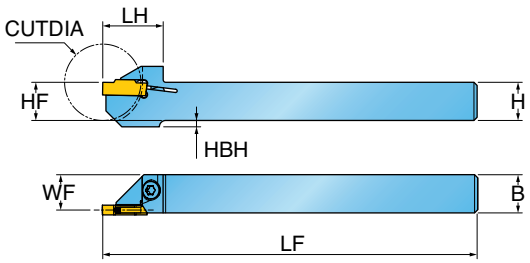
Part Number	SS Seat Size	Dimensions (inch)								Insert
		H / HF Shank Height	B Shank Width	LF Functional Length	WF Functional Width	LH Head Length	WB Blade Width	HBH Head Bottom Offset Height	CDX Cutting Depth Max*	
RGER/L 15.9-2T16	2	0.625	0.625	4.5	0.590	1.38	0.071	0.157	0.630	RDC2 / RDJ2 RSC2 / RSJ2
RGER/L 19-2T16	2	0.750	0.750	5.0	0.715	1.38	0.071	-	0.630	
RGER/L 25.4-2T16	2	1.000	1.000	6.0	0.965	1.38	0.071	-	0.630	
RGER/L 15.9-3T16	3	0.625	0.625	4.5	0.578	1.38	0.094	0.157	0.630	RDC3 / RDJ3 RSC3 / RSJ3
RGER/L 19-3T16	3	0.750	0.750	5.0	0.703	1.38	0.094	-	0.630	
RGER/L 25.4-3T16	3	1.000	1.000	6.0	0.953	1.38	0.094	-	0.630	

*When using double-ended insert, CDX= .512"

Spare Parts

Designation	Screw	Wrench	Torque (in-lbs)
RGER/L 15.9-2T16	SHM6X1X20	L-W5	70
RGER/L 19-2T16	SHM6X1X20		
RGER/L 25.4-2T16	SHM6X1X25		
RGER/L 15.9-3T16	SHM6X1X20		
RGER/L 19-3T16	SHM6X1X20		
RGER/L 25.4-3T16	SHM6X1X25		

RGER/L-SH External Holders for Parting and Grooving on Swiss Type Lathe



Right-hand shown.

INCH

Part Number	SS Seat Size	Dimensions (inch)									Insert
		H / HF Shank Height	B Shank Width	LF Functional Length	WF Functional Width	LH Head Length	OAH Overall Height	WB Blade Width	HBH Head Bottom Offset Height	CUTDIA Parting Dia. Max*	
RGER/L 12.7-24-2SH	2	0.500	0.500	5.0	0.465	0.748	0.776	0.071	0.157	0.945	RDC2 / RDJ2 RSC2 / RSJ2
RGER/L 15.9-24-2SH	2	0.625	0.625	5.0	0.590	0.945	0.822	0.071	-	0.945	

Spare Parts

Designation	Screw	Wrench	Torque (in-lbs)
RGER/L 12.7-24-2SH	SM40-115-00	T15	17.7
RGER/L 15.9-24-2SH			

METRIC

Part Number	SS Seat Size	Dimensions (mm)									Insert
		H / HF Shank Height	B Shank Width	LF Functional Length	WF Functional Width	LH Head Length	OAH Overall Height	WB Blade Width	HBH Head Bottom Offset Height	CUTDIA Parting Dia. Max*	
RGER/L 12-24-2SH	2	12	12	125	11.1	19	19	1.8	2	24	RDC2 / RDJ2 RSC2 / RSJ2
RGER/L 16-24-2SH	2	16	16	125	15.1	24	21	1.8	-	24	
NEW RGER/L 12-24-3SH	3	12	12	125	10.8	19	19	2.4	2	24	RDC2 / RDJ2 RSC2 / RSJ2
NEW RGER/L 16-24-3SH	3	16	16	125	14.8	24	21	2.4	-	24	

Spare Parts

Designation	Screw	Wrench	Torque (in-lbs)
RGER/L 12-24-2SH	SM40-115-00	T15	17.7
RGER/L 16-24-2SH			
RGER/L 12-24-3SH	SM40-115-00	T15	17.7
RGER/L 16-24-3SH			

RECOMMENDED CUTTING SPEEDS (SFM)

ISO	Material		Condition	Tensile strength (N/mm^2)	Hardness HB	Material No.	Cutting speed Vc(sfm)	
							TT9080 TT7220	TT8020
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	460-820	260-390
		>=0.25%C	Annealed	650	190	2	425-720	260-360
		<0.55%C	Quenched and tempered	850	250	3	295-650	230-295
		>=0.55%C	Annealed	750	220	4	330-720	230-330
			Quenched and tempered	1000	300	5	230-560	130-230
	Low alloy steel and cast steel (Less than 5% of alloying elements)		Annealed	600	200	6	295-390	230-330
			Quenched and tempered	930	275	7	260-560	165-230
				1000	300	8	230-425	130-200
				1200	350	9	165-395	100-165
	High alloy steel, cast steel and tool steel		Annealed	680	200	10	200-460	165-260
			Quenched and tempered	1100	325	11	165-230	100-200
M	Stainless steel and cast steel		Ferritic / martensitic	680	200	12	230-560	260-390
			Martensitic	820	240	13	200-495	200-295
			Austenitic	600	180	14	295-590	200-295
K	Gray cast iron (GG)		Ferritic		160	15	330-750	
			Pearlitic		250	16	295-590	
	Cast iron nodular (GGG)		Ferritic		180	17	625-980	
			Pearlitic		260	18	390-720	
	Malleable cast iron		Ferritic		130	19	390-820	
			Pearlitic		230	20	330-690	
S	High temp. alloys	Fe based	Annealed		200	31	130-230	
			Cured		280	32	100-165	
		Ni or Co based	Annealed		250	33	100-130	
			Cured		350	34	50-80	
			Cast		320	35	50-100	
	Titanium, Ti alloys			Rm 400		36	295-625	
			Alpha+beta alloys cured	Rm 1050		37	100-200	

Steel Stainless steel Cast iron High temp. alloys