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SINCE 1964

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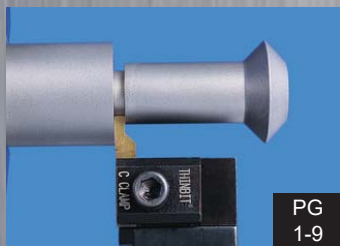


MADE IN THE USA!

2025

GROOVING - THREADING - PARTING - BORING - TURNING
FACE GROOVING - CUSTOM TOOLING - FORM TOOLING - MILL TOOLING

SECTION 1: GROOVING



GROOVING AND TURNING
.004" THROUGH .150" IN
.001" INCREMENTS

PG
1-9



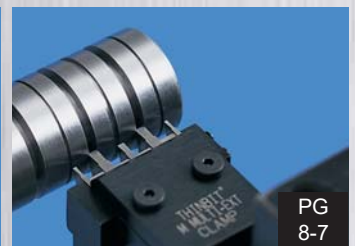
1.000" DEPTH OF CUT
2, 3, 4, 5 AND 6MM
INSERT WIDTHS

PG
1-13



STATIC O-RING GROOVING WITH
1.250" MINIMUM BORE DIAMETER

PG
1-13



INTERNAL AND EXTERNAL
MULTI - INSERT

PG
8-7

SECTION 2: FACE GROOVING



MAJOR DIAMETERS FROM .300"
.004" THROUGH .150" IN
.001" INCREMENTS

PG
2-9



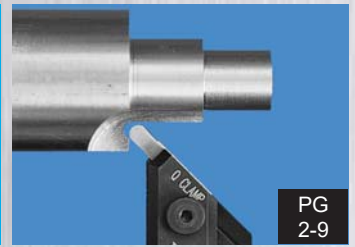
MAJOR DIAMETERS FROM .787";
1" D.O.C.; 2, 3, 4, 5 AND
6MM INSERT WIDTHS

PG
2-15



MAJOR DIAMETERS FROM .300";
FOR DOVETAIL O-RING
FACE GROOVING

PG
2-11

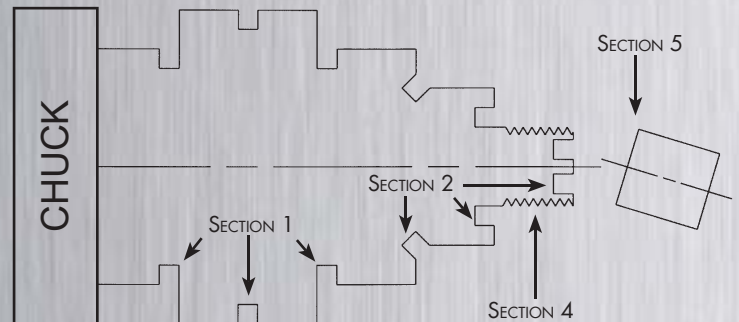


MAJOR DIAMETERS FROM .300"
.004" THROUGH .150" IN
.001" INCREMENTS

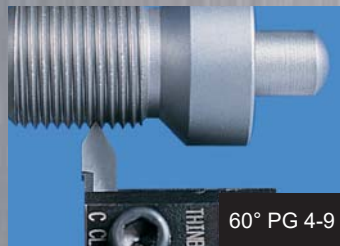
PG
2-9

THINBIT®

OVER 100,000 TOOLS IN STOCK FOR
GROOVING • THREADING • PARTING
BORING • TURNING • FACE GROOVING
SPECIALS • FORM TOOLS
MILLING



SECTION 4: THREADING AND CHAMFERING



INTERNAL AND EXTERNAL THREADING
8 THREADS PER INCH AND GREATER

60° PG 4-9



ACME EXTERNAL THREADING
4 THREADS PER INCH AND GREATER

ACME PG 4-11



INTERNAL AND EXTERNAL
CHAMFERING
45°

PG
4-13

SECTION 5: PARTING



PG
5-3

UP TO 1" MATERIAL
.025", .045", .062", .085",
.115" INSERT WIDTHS

MADE IN USA SINCE 1964



KAISER TOOL COMPANY, INC.
3620 CENTENNIAL DRIVE
FORT WAYNE, IN 46808

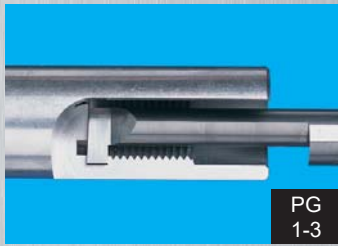
SECTION 11: MILLING



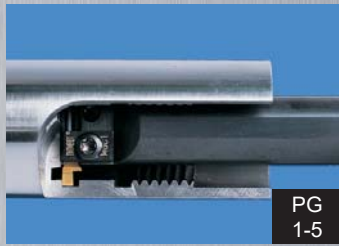
PG
11-2

FOR TREPPANNING ON A CNC OR
CONVENTIONAL MILLING MACHINE

SECTION 1: GROOVING



.125" MINIMUM BORE DIAMETER
.004" THROUGH .250"
IN .001" INCREMENTS



.325" MINIMUM BORE DIAMETER
.004" THROUGH .125"
IN .001" INCREMENTS



1.000" MINIMUM BORE DIAMETER;
2MM, 3MM AND 4MM
INSERT WIDTHS

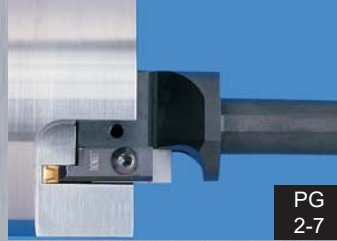
SECTION 2: FACE GROOVING



MAJOR DIAMETERS FROM .125"
.004" THROUGH .250"
IN .001" INCREMENTS

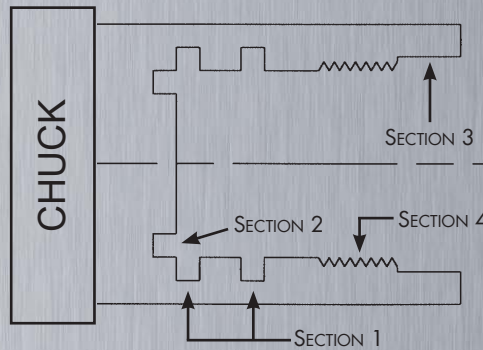


MAJOR DIAMETERS FROM .415"
.004" THROUGH .125"
IN .001" INCREMENTS



MAJOR DIAMETERS FROM 1.574"
2, 3, 4, 5 AND 6MM
INSERT WIDTHS

FOR MORE COMPLETE
APPLICATION REFERENCE
CHARTS, REFER TO
PAGES 9-3 & 9-4



SECTION 3: BORING



.073" MINIMUM BORE DIAMETER
SOLID CARBIDE TOOLING



.125" MINIMUM BORE DIAMETER
PROFILING
SOLID CARBIDE TOOLING



.165" MINIMUM BORE DIAMETER
CD, TD, TP AND WCGT INSERT
STYLES

SECTION 4: THREADING



.077" MINIMUM BORE DIAMETER
4 THREADS PER INCH AND GREATER



.325" MINIMUM BORE DIAMETER
9 THREADS PER INCH AND GREATER



.187" MINIMUM BORE DIAMETER
6 THREADS PER INCH AND GREATER

TOOLHOLDERS
SECTION 7

MODIFICATIONS
SECTION 8

TECHNICAL
SECTION 9

LITTLEBIT®
SECTION 10

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(260) 484-3620

**MADE IN
THE USA?**
DAMN RIGHT.

New Products!



**Mill A Groove®
Section 11**



**Heavy Duty Round
Reversible Toolholder
Page 7-7**



**Swiss Angled
Toolholder
Page 7-12**



**Square Angled
Toolholders
Page 7-12**



**Round Angled
Toolholders
Page 7-14**



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24/7

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KAISER TOOL COMPANY, INC.

3620 Centennial Drive • Fort Wayne, IN 46808
P.O. Box 80430 • Fort Wayne, IN 46898-0430

Phone: 888-THINBIT (888-844-6248) • (260) 484-3620

Web: www.thinbit.com

General E-mail: thinbit@kaisertool.com

Orders: orders@thinbit.com Quotes: quotes@thinbit.com

GENERAL INFORMATION

- HOURS:** Our business hours are:
Monday - Thursday: 7:30 am to 5:00 pm Eastern Standard Time.
Processing for same day shipment stops at 3:00 pm EST.
Friday: 7:30 am to 2:00 pm Eastern Standard Time
Processing for same day shipment stops at 12:00 pm EST.
- SHIPMENT:** Shipments are made by United Parcel Service. Ground service will be used (air for Alaska, Hawaii and U.S. Territories) unless otherwise specified by the customer. Shipments can be made via other carriers when customer provides shipping account number.
- TERMS:** Mastercard, Visa, Discover, American Express and C.O.D. accepted.
F.O.B. Fort Wayne, Indiana.
No minimum order on standard items.
We collect sales tax in California only.
- PRICING:** Current pricing is available online at: <http://www.thinbit.com/price list>.
Items cannot be combined for quantity prices.
A shipping and handling fee applies to all orders.
Prices for tooling modifications will be given in writing.
Pricing and availability on orders are confirmed to customer.
- RETURNS:** Returns are accepted for credit within 30 days of receipt of order and with prior written approval. All returns are subject to a 15% restocking charge. All returned goods must be in 'like-new' condition and returned in their original packaging.
All claims for damaged goods or incorrect items must be made within 48 hours of receipt of order.
- CREDIT:** 30 day net credit for approved accounts.
Accounts must re-establish credit after 18 months of inactivity.

OUTSIDE THE U.S.A.

- TERMS:** Cash in advance until credit is established. Payment via Mastercard, Visa, Discover, American Express, or bank to bank transfer in U.S. funds. F.O.B. Fort Wayne, Indiana, U.S.A.
- Please notify us prior to remittance to confirm total amount including shipping charges.
- Shipments made outside the U.S.A. are shipped via United Parcel Service.
- Shipments can be made via other carriers when customer provides shipping account number.

Kaiser Tool Company, Inc. has made every effort to produce a catalog that is accurate and error free.
Kaiser Tool Company, Inc. is not responsible for any loss due to errors or changes in product specifications.
For the most accurate and up to date information, contact our sales office.

PRODUCT INDEX

To use this index: Match the first few characters from your invoice or tool to the 'Product Code'.

Product Code	Description	Page	Product Code	Description	Page
AD	Round & Square Adapters	7-2	LGTF	GROOVE 'N TURN® Face Grooving Insert	2-10
AT	MICROBIT® ACME Threading Tool	4-6	LGTT	GROOVE 'N TURN® Threading Insert	4-10
BT	MICROBIT® Boring Tool	3-4	LHA	LITTLEBIT® Hardinge Toolholder	10-5
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Clamp C	Clamp	Section 7, 10	LPT	LITTLEBIT® Parting Insert	10-2
Clamp M	Clamp	7-9	LR	GROOVE 'N TURN® Round Angled Toolholders	7-13; 7-14
Clamp N	Clamp	7-9	LRE	LITTLEBIT® Reversible Toolholder	10-7
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DGPP	DEEPGROOVE® Tooling Package	7-15	MBG	MINI-BORE® TRIGON® Boring Bar	3-10
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LGOR	GROOVE 'N TURN® Static O-Ring OD Insert	1-12	SRIH	LITTLEBIT® 90° Reversible Head	10-7
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LGS	GROOVE 'N TURN® OD Toolholder	7-3	SSS	LITTLEBIT® Swiss Toolholder	10-6
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DISCONTINUED PRODUCT INDEX

PLEASE NOTE:

The following products have been discontinued from our standard catalog. Stock delivery is limited to quantity on hand at time of order. For out of stock products, delivery will be determined at time of order.

Please call for any products on the discontinued list below. We may be able to substitute or design a special application.

To use this index: Match the first few characters from your invoice or tool to the **'Product Code'**

Product Code	Description	Product Code	Description
Clamp B	Clamp	MBBSQ	MINI-BORE® Boring Bar
Clamp D	Clamp	MBCSQ	MINI-BORE® Boring Bar
Clamp E	Clamp	MBCH4	MINI-BORE® Boring Bar
Clamp G	Clamp	MBCS4	MINI-BORE® Boring Bar
Clamp H	Clamp	MBP	MINI-BORE® Coolant Adapter
Clamp I	Clamp	MMA	MINI-BORE® Boring Bar
Clamp J	Clamp	MMB	MINI-BORE® Boring Bar
Clamp L	Clamp	MSET	Mini GROOVE 'N TURN® Insert Set
Clamp O	Clamp	S45	LITTLEBIT® 45° Toolholder
Clamp P	Clamp	SFG	LITTLEBIT® Face Grooving Insert
Clamp S	Clamp	SME	MINIBIT® External Toolholder
Clamp T	Clamp	SMF	MINIBIT® Face Grooving Toolholder
EM34	LITTLEBIT® Multi-Insert Toolholder	SMGI	MINIBIT® Grooving Insert
ESM34	LITTLEBIT® Multi-Insert Shank	SMI	MINIBIT® Internal Toolholder
GTSET	GROOVE 'N TURN® Insert Set	SMSET	MINIBIT® Insert Sets
HM34	LITTLEBIT® Multi-Insert Pocket	SMSF	MINIBIT® Shoulder Face Grooving Insert
LFG	LITTLEBIT® Face Grooving Insert	SMSG	MINIBIT® Shoulder Grooving Insert
LME	MINIBIT® External Toolholder	SMTT	MINIBIT® Threading Insert
LMF	MINIBIT® Face Grooving Toolholder	SSF	LITTLEBIT® Face Grooving Insert
LMGI	MINIBIT® Grooving Insert	SSG	LITTLEBIT® Grooving Insert
LMI	MINIBIT® Internal Toolholder	XFG	LITTLEBIT® Face Grooving Insert
LMSET	MINIBIT® Insert Sets	XGB	LITTLEBIT® Insert Blank
LMSF	MINIBIT® Face Grooving Insert	XGI	LITTLEBIT® Grooving Insert
LMSG	MINIBIT® Shoulder Grooving Insert	XRE	LITTLEBIT® Reversible Toolholder
LMTT	MINIBIT® Threading Insert	XREH	LITTLEBIT® Reversible Head
LSF	LITTLEBIT® Shoulder Face Grooving Insert	XRI	LITTLEBIT® 90° Reversible Toolholder
LSG	LITTLEBIT® Shoulder Grooving Insert	XRIH	LITTLEBIT® 90° Reversible Head
MBBH4	MINI-BORE® Boring Bar	XR0	LITTLEBIT® Round Internal Toolholder
MBBS4	MINI-BORE® Boring Bar	XSET	LITTLEBIT® Grooving Insert Set

THINBIT®

OVER 100,000 TOOLS IN STOCK FOR
GROOVING • THREADING • PARTING
BORING • TURNING • FACE GROOVING
SPECIALS • FORM TOOLS • MILLING

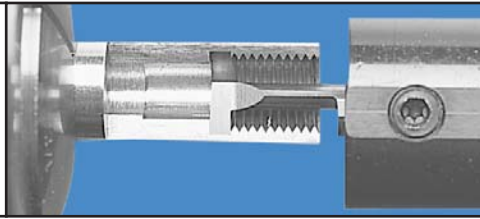
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PRODUCT SELECTION GUIDE - GROOVING

GROOVING

PAGE
1-3



- For internal diameters of .125" and larger
- Groove widths .004"-.250"
- For depth of cut up to .150"
- Solid carbide shanks in 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" diameter

PAGE
1-5



- For internal diameters of .325" and larger
- Groove widths .004"-.125"
- For depth of cut up to .125"
- Inserts can groove, bore and generate profiles
- Inserts can also be used for face grooving

PAGE
1-7



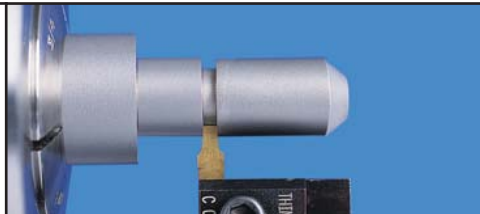
- For internal diameters of 1" and larger
- Groove widths 2, 3 and 4mm
- For depth of cut up to .500"

PAGE
1-9



- Groove widths .004"-.150"
- For depth of cut 2-1/2 to 3 times width
- Inserts can groove, turn, generate profiles and be used for face grooving over 3" diameters
- Carbide and High Speed Steel

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1-11



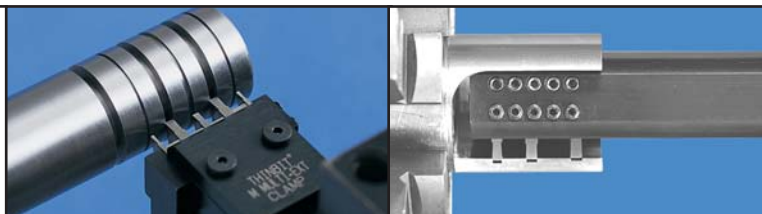
- Groove widths .095", .125" & .142"
- Included Angle 7°
- Two grades of Sub-Micron Grain Carbide

PAGE
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- Groove widths 2, 3, 4, 5 and 6mm
- For depth of cut to 1"
- Inserts can also be used for parting and face grooving

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8-7



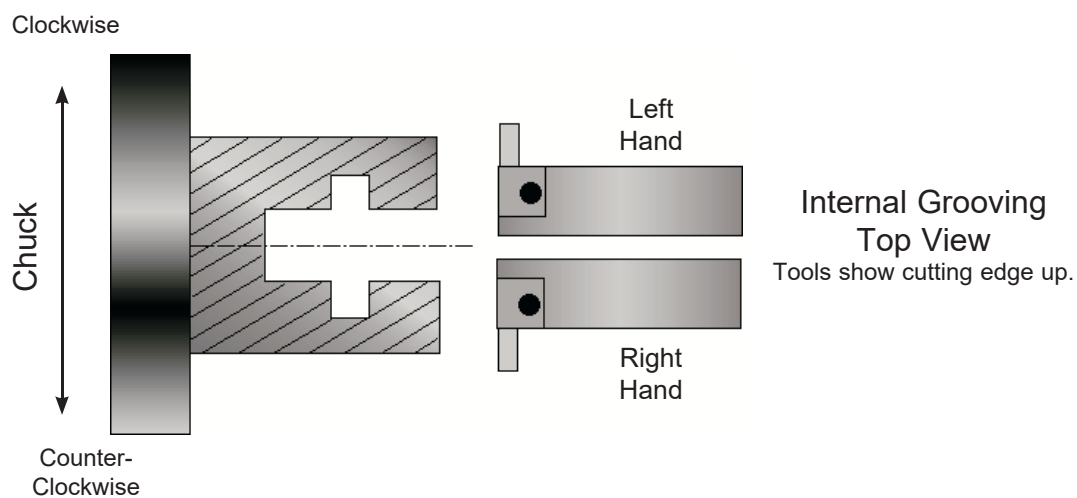
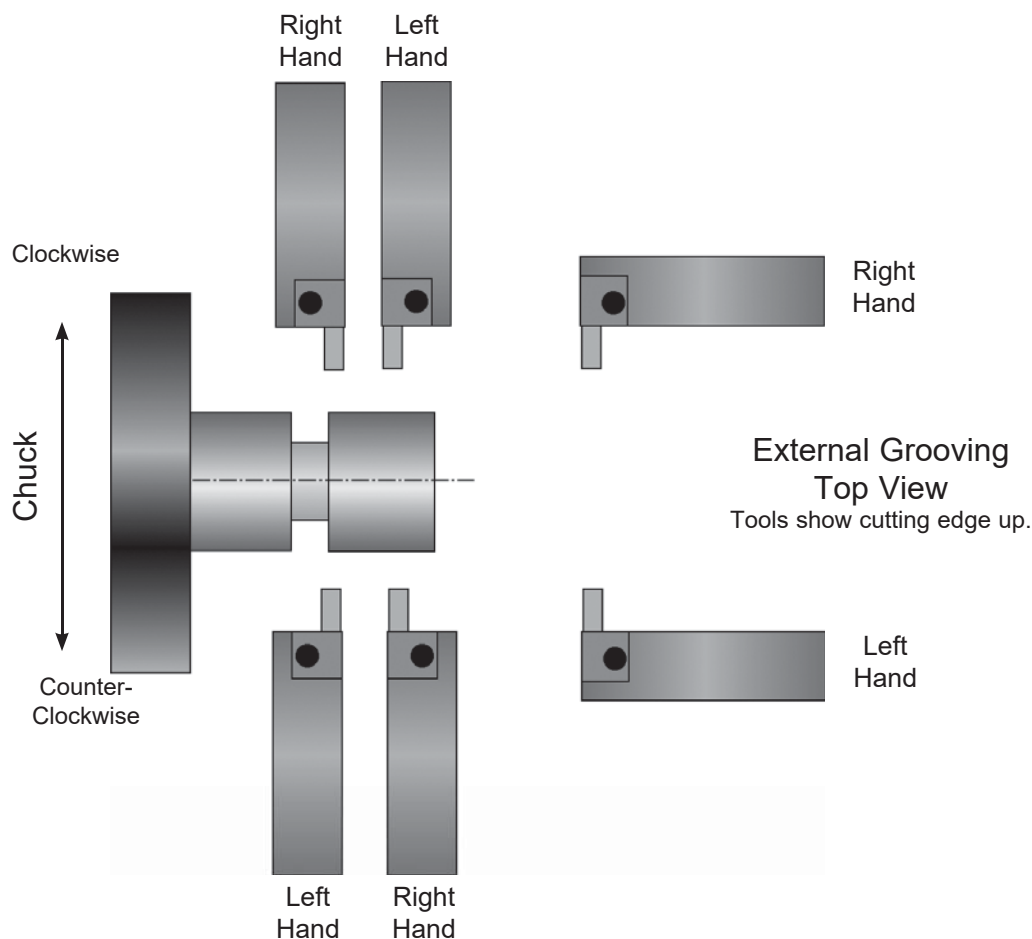
Used for generating multiple groove forms simultaneously

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TOOLING ORIENTATION GUIDE - GROOVING

GROOVING

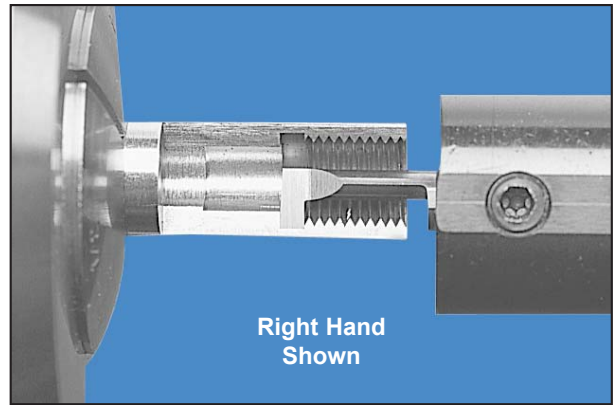


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PRODUCT INFORMATION

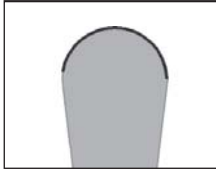
- Internal grooving for diameters .125" and larger.
- .004" through .250" groove widths in .001" increments.
- 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" shanks.
- Sub-micron grain **DURA-MAX® 2000** Carbide.
- Tools available with TiN, TiAlN, TiCN and diamond coating.
- Short neck lengths for greater rigidity; long neck lengths for greater reach.
- Elliptically ground necks for greater strength.



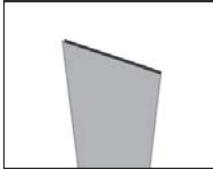
MODIFICATIONS

SEE PAGE
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FOR ADDITIONAL
INFORMATION

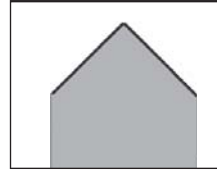
RADII
(TOP VIEW)



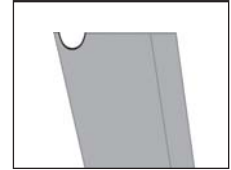
LEAD ANGLE
(TOP VIEW)



INCLUDED ANGLE
(TOP VIEW)



BACK CLEARANCE
(TOP VIEW)

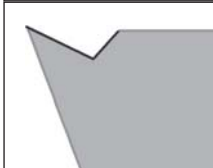


CUSTOM BLANK
(TOP VIEW)



PG 8-6

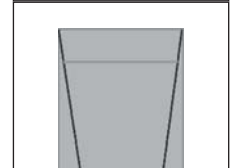
TOP RAKE
(SIDE VIEW)



CHIP BREAKER
(SIDE VIEW)

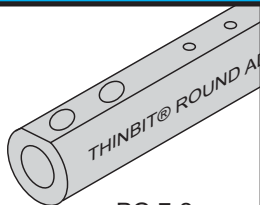


SIDE CLEARANCE
(END VIEW)

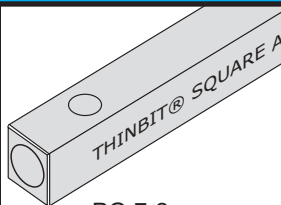


ADAPTER STYLES

TOOLHOLDER SELECTIONS



PG 7-2



PG 7-2

TECHNICAL SECTIONS

SPEEDS AND FEEDS

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APPLICATION REFERENCE

PG 9-4

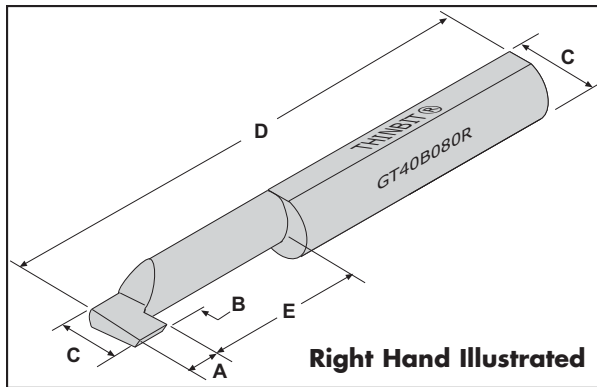
TROUBLESHOOTING

PG 9-7

KAISER TOOL COMPANY, INC.

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I.D. GROOVING TOOLS



FRONT RAKE: Primary 21°
 BACK CLEARANCE: 2°
 SIDE CLEARANCE: 2°
 RADIUS: Sharp corner through full radius available
 TOP RAKE: 0°
 LEAD ANGLE: 0°
 'A' TOLERANCE: .004" - .250": +.0009"/-.0000"

I.D. GROOVING

ORDERING INSTRUCTIONS

Complete the **ORDER CODE** in the table below that represents your selection of groove width and tool dimensions.

EXAMPLE:

The **ORDER CODE** for a 1/4" shank, right hand tool with an .080" tool width, .110" depth of cut and .500" long neck is:

GT40B 0 8 0 R

Specify the Tool Width 'A' ↑

SPECIFICATIONS				ORDER CODE				INFORMATION	
Minimum Bore & Shank Diameter 'C'	Tool Width Range 'A'	Depth of Cut 'B'	Neck Length 'E'	DURA-MAX® 2000 Carbide See Page 9-10 for speeds and feeds		Add-ons Use 'Order Code' and Add			Overall Length
				Right Hand	Left Hand	Full Radius Page 8-3	Corner Radius Page 8-3	Coating Page 9-6	'D'
1/8"	.004"-.063"	.004"-.006" = 3 x 'A' .007"-.063" = .020" .004"-.016" = 3 x 'A' .017"-.063" = .050"	.250" .375" .250" .375"	GT20C ___ R GT21C ___ R GT20B ___ R GT21B ___ R	GT20C ___ L GT21C ___ L GT20B ___ L GT21B ___ L	add 'FR' Maximum radius limited to depth of cut * See Note	add 'CR___' (indicate size in .xxx") Maximum radius limited to depth of cut * See Note	TiN add 'C' TiCN add 'D' TiAlN add 'E' Diamond add 'F'	1.365" + 'A'
3/16"	.004"-.093"	.004"-.011" = 3 x 'A' .012"-.093" = .035" .004"-.026" = 3 x 'A' .027"-.093" = .080"	.375" .625" .375" .625"	GT30C ___ R GT31C ___ R GT30B ___ R GT31B ___ R	GT30C ___ L GT31C ___ L GT30B ___ L GT31B ___ L				1.865" + 'A'
1/4"	.004"-.125"	.004"-.016" = 3 x 'A' .017"-.125" = .050" .004"-.036" = 3 x 'A' .037"-.125" = .110"	.500" .750" .500" .750"	GT40C ___ R GT41C ___ R GT40B ___ R GT41B ___ R	GT40C ___ L GT41C ___ L GT40B ___ L GT41B ___ L				2.365" + 'A'
5/16"	.004"-.156"	.004"-.021" = 3 x 'A' .022"-.156" = .063" .004"-.046" = 3 x 'A' .047"-.156" = .140"	.625" 1.000" .625" 1.000"	GT50C ___ R GT51C ___ R GT50B ___ R GT51B ___ R	GT50C ___ L GT51C ___ L GT50B ___ L GT51B ___ L				2.330" + 'A'
3/8"	.004"-.187"	.004"-.036" = 3 x 'A' .037"-.187" = .110"	.750" 1.250"	GT60C ___ R GT61C ___ R	GT60C ___ L GT61C ___ L				2.800" + 'A'
1/2"	.004"-.250"	.004"-.050" = 3 x 'A' .051"-.250" = .150"	1.000" 1.750"	GT80C ___ R GT81C ___ R	GT80C ___ L GT81C ___ L				3.240" + 'A'

* Example: GT31C093R - max radius would be .035"

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PRODUCT INFORMATION

- Internal grooving and profiling for diameters .325" and larger.
- Shank sizes 1/4", 3/8", 1/2" and 5/8" in steel, heavy metal or carbide.
- All toolholders are reversible for right and left hand orientation.
- Sub-micron grain **DURA-MAX® 2000** and **5000** Carbides and High Speed Steel.
- Modifications can be provided on any of our tooling.
- Please contact us with your application requirements.



Left Hand Insert in
Right Hand Toolholder
Shown

TECHNICAL SECTIONS

SPEEDS AND FEEDS

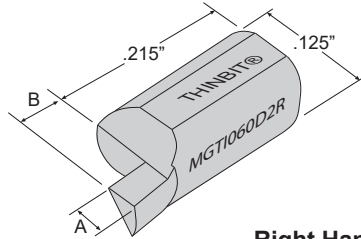
PG 9-10

APPLICATION REFERENCE

PG 9-4

TROUBLESHOOTING

PG 9-7



Right Hand Illustrated

FRONT RAKE: 15°
 BACK CLEARANCE: 2° both sides
 SIDE CLEARANCE: 2° I.D. side
 RADIUS: Sharp corner through
 full radius available
 TOP RAKE: 0°
 LEAD ANGLE: 0°
 'A' TOLERANCE:
 .004" - .063": +.0009"/-.0000"
 .064" - .125": +.001"/-.001"

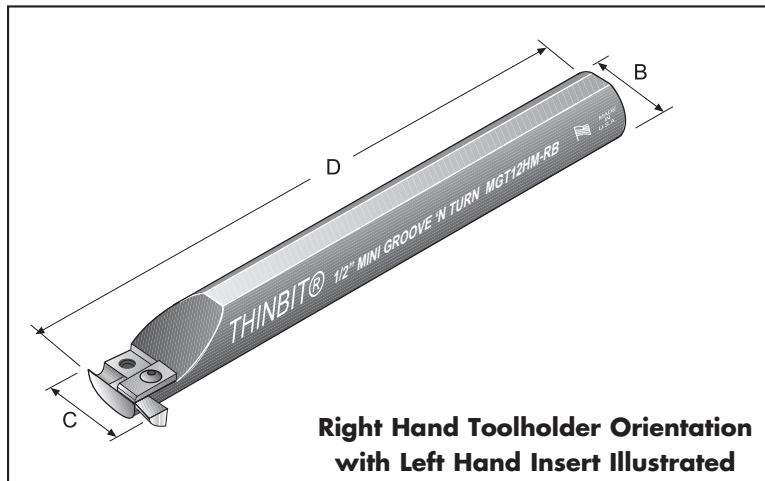
SPECIFICATIONS

ORDER CODE

Insert Orientation	Insert Width	Depth of Cut	Insert Grades		Add-ons		
	'A'	'B'	See Page 9-5 for expanded material descriptions and Page 9-10 or 9-12 for Speeds and Feeds information		Use 'Order Code' and Add		
			DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Non-ferrous	Full Radius Page 8-3	Corner Radius Page 8-3	Coating Page 9-6
Right Hand For ID grooving use left hand 'MGT' Page 1-5 For face grooving use right hand 'MGTF' Page 2-6	.004"-.063"	<u>Width</u> <u>DOC</u> .004"-.031" = 2 x 'A' .032"-.063" = .063"	MGTI _ _ _D2R	MGTI _ _ _D5R	add 'FR'	add 'CR_ _ _' (indicate size in .xxx")	TiN add 'C' TiCN add 'D' TiAlN add 'E' Diamond add 'F'
	.064"-.125"	<u>Width</u> <u>DOC</u> .064"-.083" = 1.5 x 'A' .084"-.125" = .125"					
Left Hand For ID grooving use right hand 'MGT' Page 1-5 For face grooving use left hand 'MGTF' Page 2-6	.004"-.063"	<u>Width</u> <u>DOC</u> .004"-.031" = 2 x 'A' .032"-.063" = .063"	MGTI _ _ _D2L	MGTI _ _ _D5L			
	.064"-.125"	<u>Width</u> <u>DOC</u> .064"-.083" = 1.5 x 'A' .084"-.125" = .125"					

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Note:

- All toolholders are reversible for right hand or left hand orientation.

- For grooving:

Insert Width

.004"-.031"

.032"-.063"

.064"-.083"

.084"-.125"

Depth of Cut

2 x width

.063"

1.5 x width

.125"

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a .575" minimum bore toolholder with a 1/2" steel shank is:

MGT12

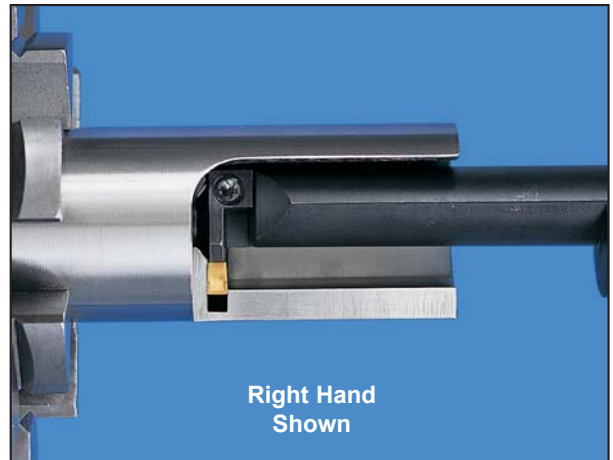
SPECIFICATIONS		ORDER CODE				INFORMATION		
Minimum Bore	Toolholder Material	Toolholder Package	Replacement Parts			Overall Length	Shank Diameter	Inserts
'C'	Extension Ratios: Steel: 4xø Heavy Metal: 6xø Carbide: 8xø	Includes Shank, Clamp and Hardware	Clamp Only	Screw Only	Wrench Only	'D'	'B'	Use Inserts Beginning With
.325" .063" Insert Width Maximum (Threading & Groove Widths .004"-.063")	Steel	MGT14	MGC1	F31	W31	4.000"	1/4"	Grooving: 'MGT1' Page 1-5 Threading: 'MGTT' Page 4-8 Use right hand inserts for clockwise or left hand inserts for counter- clockwise
	Heavy Metal	MGT14HM				3.965"		
	Carbide	MGT14C				6.504"		
.450" .063" Insert Width Maximum (Threading & Groove Widths .004"-.063")	Steel	MGT38	MGC1	F31	W31	5.500"	3/8"	
	Heavy Metal	MGT38HM				5.485"		
	Carbide	MGT38C				6.768"		
.575" (Threading & Groove Widths .004"-.063") or .640" (Groove Widths .064"-.125")	Steel	MGT12	MGC1	F31	W31	5.500"	1/2"	
	Heavy Metal	MGT12HM				5.485"		
.690" (Threading & Groove Widths .004"-.063") or .755" (Groove Widths .064"-.125")	Steel	MGT58	MGC1	F31	W31	5.500"	5/8"	

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PRODUCT INFORMATION

- Internal grooving for diameters 1" and larger.
- 3/4" and 1" shank diameters.
- Right hand orientation standard.
- Short neck lengths for greater rigidity; long neck lengths for greater reach.
- Elliptical neck for increased strength and rigidity.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



INSERT SELECTIONS

SEE PAGE 6-1

INSERT STYLES

CORNER RADIUS (TOP VIEW)



SHARP CORNER (TOP VIEW)



TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-10

APPLICATION REFERENCE

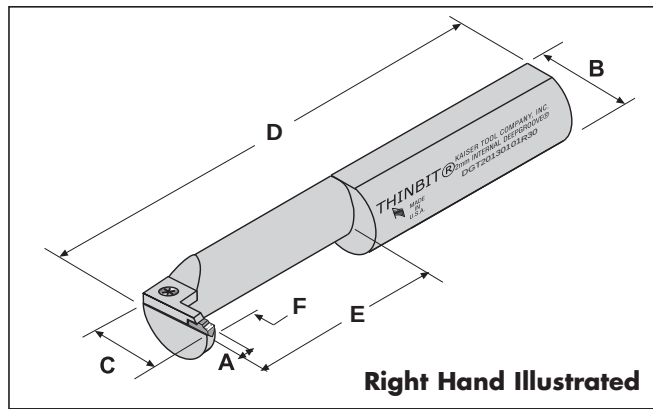
PG 9-4

TROUBLESHOOTING

PG 9-7

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ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a 2mm insert width toolholder package with a depth of cut of .500", a 1" shank and a 3" neck is: **DGPZ2013010130**

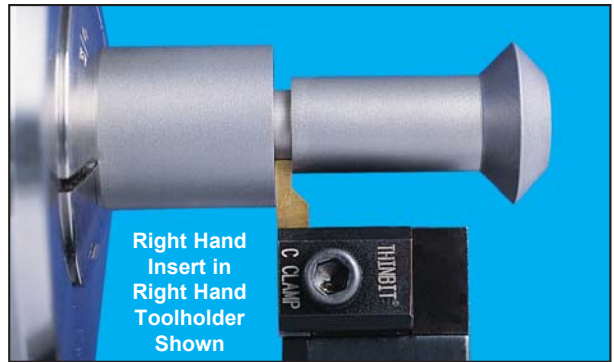
SPECIFICATIONS					ORDER CODE							INFO.
Minimum Bore	Insert Width	Depth of Cut	Neck Length	Shank Diameter	Toolholder Package Includes Shank, Clamp and Hardware	Inserts	Replacement Parts				Overall Length	
'C'	'A'	'F'	'E'	'B'	Right Hand	Use Inserts Beginning With	Shank	Clamp	Screw	Wrench	'D'	
1"	2mm (.078")	.393"	1.5"	3/4"	DGPZ2010013415	'DGI2' (Page 6-2)	DGT20100134R15	DGC82013	S4552	W3200	5.5"	
				1"	DGPZ2010010115		DGT20100101R15				7"	
			3"	3/4"	DGPZ2010013430		DGT20100134R30				5.5"	
				1"	DGPZ2010010130		DGT20100101R30				7"	
		.500"	1.5"	3/4"	DGPZ2013013415		DGT20130134R15				5.5"	
				1"	DGPZ2013010115		DGT20130101R15				7"	
			3"	3/4"	DGPZ2013013430		DGT20130134R30				5.5"	
				1"	DGPZ2013010130		DGT20130101R30				7"	
	3mm (.118")	.393"	1.5"	3/4"	DGPZ3010013415	'DGM13' (Page 6-2)	DGT30100134R15	DGC83013	S4552	W3200	5.5"	
				1"	DGPZ3010010115		DGT30100101R15				7"	
			3"	3/4"	DGPZ3010013430		DGT30100134R30				5.5"	
				1"	DGPZ3010010130		DGT30100101R30				7"	
		.500"	1.5"	3/4"	DGPZ3013013415		DGT30130134R15				5.5"	
				1"	DGPZ3013010115		DGT30130101R15				7"	
			3"	3/4"	DGPZ3013013430		DGT30130134R30				5.5"	
				1"	DGPZ3013010130		DGT30130101R30				7"	
	4mm (.157")	.393"	1.5"	3/4"	DGPZ4010013415	'DGM14' (Page 6-2)	DGT40100134R15	DGC84013	S4552	W3200	5.5"	
				1"	DGPZ4010010115		DGT40100101R15				7"	
			3"	3/4"	DGPZ4010013430		DGT40100134R30				5.5"	
				1"	DGPZ4010010130		DGT40100101R30				7"	
		.500"	1.5"	3/4"	DGPZ4013013415		DGT40130134R15				5.5"	
				1"	DGPZ4013010115		DGT40130101R15				7"	
			3"	3/4"	DGPZ4013013430		DGT40130134R30				5.5"	
				1"	DGPZ4013010130		DGT40130101R30				7"	

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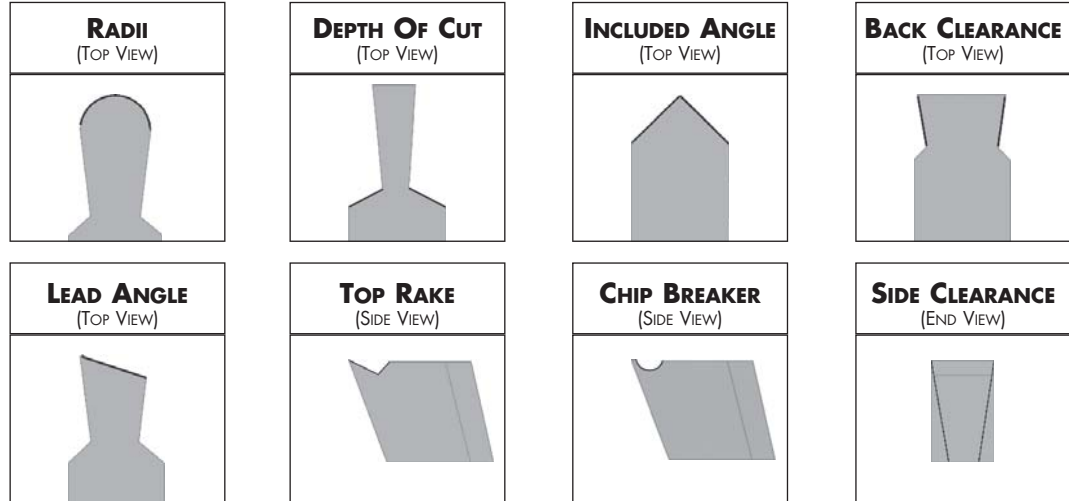
PRODUCT INFORMATION

- External grooving and turning.
- Internal grooving and boring with 1.250" minimum bore diameter.
- .004" through .150" in .001" increments available.
- Sub-micron grain **DURA-MAX[®] 2000** and **5000** Carbides and High Speed Steel.
- Inserts available with TiN, TiAlN, TiCN and Diamond coating.



MODIFICATIONS

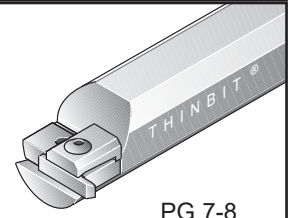
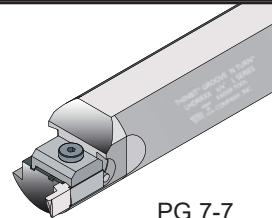
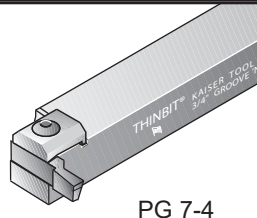
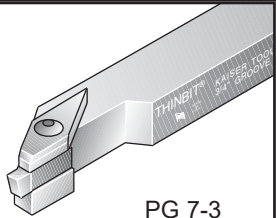
SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION



TOOLHOLDER SELECTIONS

CNC, SWISS, CONVENTIONAL STYLE

ROUND STYLE



TECHNICAL SECTIONS

SPEEDS AND FEEDS

APPLICATION REFERENCE

TROUBLESHOOTING

PG 9-10

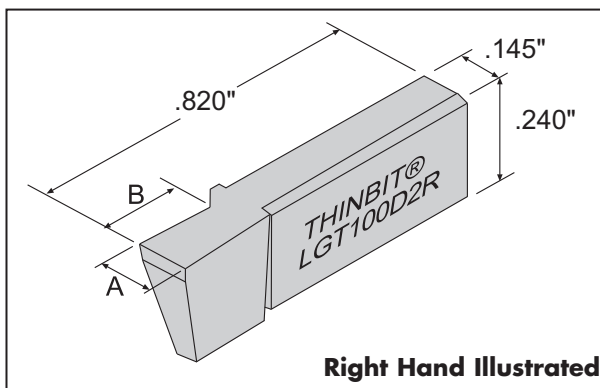
PG 9-3

PG 9-7

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O.D./I.D. GROOVING AND TURNING INSERTS



FRONT RAKE:

CARBIDE: Primary 10° honed, Secondary 15°

HIGH SPEED STEEL: 15°

BACK CLEARANCE: 2-1/2° both sides

SIDE CLEARANCE: .004" - .019" - 0° both sides
.020" - .150" - 5° both sides

RADIUS: Sharp corner through full radius available

TOP RAKE: 0°

LEAD ANGLE: 0°

NOTES: Capable of grooving along a shoulder
.004"-.019" inserts are not designed for turning

O.D. & I.D.
GROOVING

ORDERING INSTRUCTIONS

Complete the **ORDER CODE** in the table below that represents your selection of groove width and insert grade.

EXAMPLE:

The **ORDER CODE** for a right hand, .100" insert width in **DURA-MAX® 2000** is:

LGT 1 0 0 D2 R

Specify the Tool Width 'A' _____ ↑

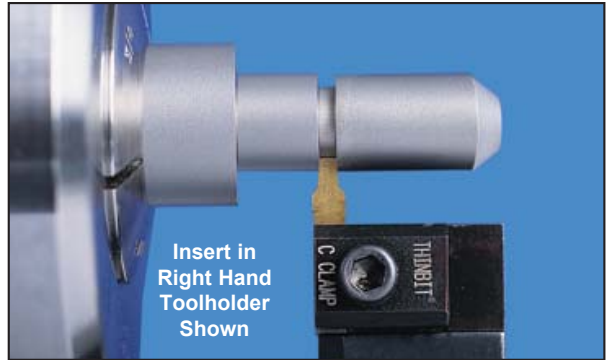
SPECIFICATIONS			ORDER CODE						INFO.
Insert Orientation	Insert Width 'A' +.0009"/-.0000"	Depth of Cut 'B'	Insert Grades See Page 9-5 for expanded material descriptions and Page 9-10 for Speeds and Feeds information			Add-ons Use 'Order Code' and Add			Toolholder Catalog Section 7
			DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Non-ferrous	High Speed Steel	Full Radius Page 8-3	Corner Radius Page 8-3	Coating Page 9-6	Use Toolholders Beginning With
Right Hand	.004"-.150"	<u>Width</u> <u>DOC</u> .004"-.033" = 3 x 'A' .034"-.039" = .100" .040"-.100" = 2.5 x 'A' .101"-.150" = .250"	LGT ____ D2R	LGT ____ D5R	LGT ____ HSR	add 'FR'	add 'CR____' (indicate size in .xxx")	TiN add 'C' TiCN add 'D'	'L' Use right hand straight holder or left hand 90° holder
Left Hand	.004"-.150"		LGT ____ D2L	LGT ____ D5L	LGT ____ HSL	add 'FR'	add 'CR____' (indicate size in .xxx")	TiAIN add 'E' Diamond add 'F'	'L' Use left hand straight holder or right hand 90° holder

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PRODUCT INFORMATION

- External grooving.
- Internal Static O-Ring grooving with 1.250" minimum bore diameter.
- Sub-micron grain **DURA-MAX[®] 2000** and **5000** Carbides.
- Inserts available with TiN, TiAlN, TiCN and Diamond coating.



MODIFICATIONS

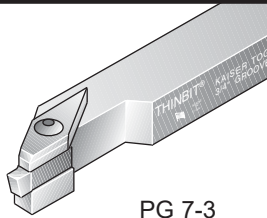
SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION

RADIUS (TOP VIEW)	DEPTH OF CUT (TOP VIEW)	INCLUDED ANGLE (TOP VIEW)	BACK CLEARANCE (TOP VIEW)
LEAD ANGLE (TOP VIEW)	TOP RAKE (SIDE VIEW)	CHIP BREAKER (SIDE VIEW)	SIDE CLEARANCE (END VIEW)

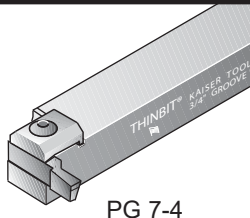
TOOLHOLDER SELECTIONS

CNC, SWISS, CONVENTIONAL STYLE

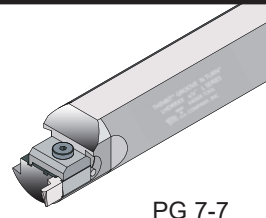
ROUND STYLE



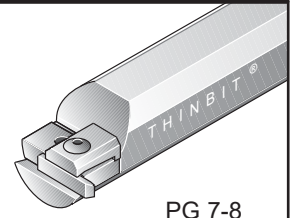
PG 7-3



PG 7-4



PG 7-7



PG 7-8

TECHNICAL SECTIONS

SPEEDS AND FEEDS

APPLICATION REFERENCE

TROUBLESHOOTING

PG 9-10

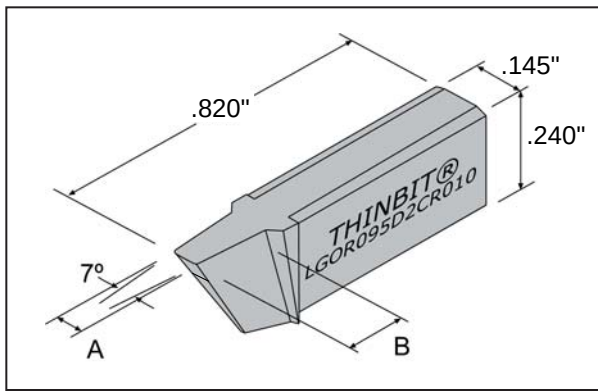
PG 9-3

PG 9-7

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O.D. STATIC O-RING INSERTS



FRONT RAKE: Primary 10° honed, Secondary 15°
 BACK CLEARANCE: 7° included angle
 SIDE CLEARANCE: 5° both sides
 RADIUS: .010" or .020"
 TOP RAKE: 0°
 LEAD ANGLE: 0°
 DEPTH OF CUT: .200" or .250"

STATIC O-RING
GROOVING

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of groove width and insert grade.

EXAMPLE:

The **ORDER CODE** for a .095" insert width in **DURA-MAX® 2000** is:

LGOR095D2CR010

SPECIFICATIONS			ORDER CODE		INFO.	
Insert Orientation & Radius	Insert Width	Depth of Cut	Insert Grades See Page 9-5 for expanded material descriptions and Page 9-10 for Speeds and Feeds information		Add-ons Use 'Order Code' and Add	Toolholder Catalog Section 7
	'A' ± .001"	'B'	DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Non-ferrous	Coating Page 9-6	Use Toolholders Beginning With
Centered .010" Corner Radius	.095"	.250"	LGOR095D2CR010	LGOR095D5CR010	TiN add 'C'	'L'
	.142"	.200"	LGOR142D2CR010	LGOR142D5CR010	TiCN add 'D' TiAlN add 'E'	
Centered .020" Corner Radius	.125"	.250"	LGOR125D2CR020	LGOR125D5CR020	Diamond add 'F'	

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PRODUCT INFORMATION

- External grooving and parting with depth of cut to 1".
- Shank sizes 3/4", 1", 16mm, 20mm and 25mm in straight and 90° orientations.
- Modular tooling system will also accept face grooving heads. See compatibility guide on Page 9-8.
- If round shanks are required, see Page 7-13, Package Styles 'Q' and 'R'.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



INSERT SELECTIONS

SEE PAGE 6-1

INSERT STYLES

CORNER RADIUS (TOP VIEW)



SHARP CORNER (TOP VIEW)



TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-10

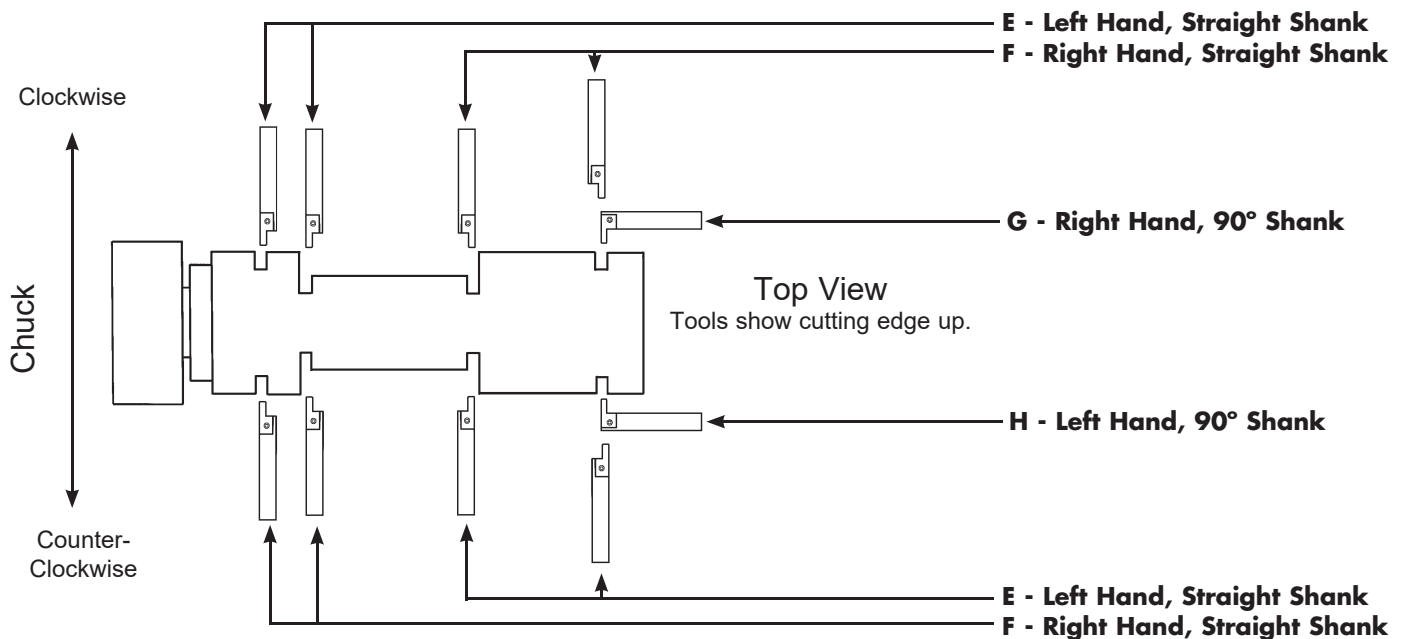
APPLICATION REFERENCE

PG 9-3

TROUBLESHOOTING

PG 9-7

PACKAGE STYLE



Note: If round shanks are required, see Page 7-13, Package Styles 'Q' and 'R'.

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O.D. GROOVING AND PARTING TOOLS

ORDERING INSTRUCTIONS

3/4" and 1" Shanks

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a 3mm insert width, toolholder package style 'E' with a .500" depth of cut and 1" shank is:

DGPE301301

Metric Shanks

Complete the **ORDER CODE** in the table below with the shank size as 16 (16mm), 20 (20mm) or 25 (25mm).

EXAMPLE:

The **ORDER CODE** for a 3mm insert width, toolholder package style 'E' with a .500" depth of cut and 20mm shank is:

DGPE3013 20 ← Specify the 'SHANK SIZE'

O.D. GROOVING
& PARTING

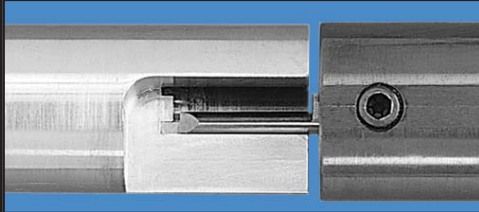
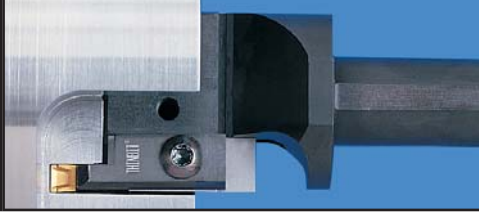
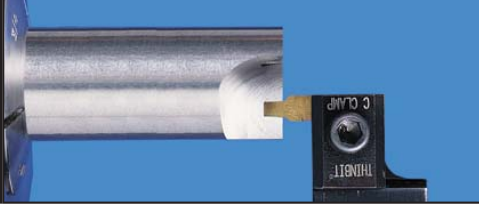
SPECIFICATIONS			ORDER CODE								
Insert Width	Depth of Cut	Package Style See Page 1-13	Toolholder Package Includes Shank, Head, Clamp and Hardware			Inserts Use Inserts Beginning With	Replacement Parts				
			3/4" Shank 3/4"x3/4"x5"	1" Shank 1"x1"x5"	Metric Shanks 16 = 16x16x125mm 20 = 20x1"x125mm 25 = 25x1"x125mm		Head	Head Hardware	Shank 34 = 3/4" 01 = 1" 16 = 16mm 20 = 20mm 25 = 25mm	Clamp	Clamp Hardware
2mm (.078")	13mm (1/2")	E	DGPE201334	DGPE201301	DGPE2013 __	'DGI2' (Page 6-1)	DGH22013	Screw: 2 each S7552 Wrench: W4025	DGS__XL	DGC22013	Screw: S6552 Wrench: W4025
		G	DGPG201334	DGPG201301	DGPG2013 __		DGH12013		DGS__YR	DGC12013	
		F	DGPF201334	DGPF201301	DGPF2013 __				DGS__XR	DGC12013	
		H	DGPH201334	DGPH201301	DGPH2013 __				DGS__YL	DGC12013	
3mm (.118")	13mm (1/2")	E	DGPE301334	DGPE301301	DGPE3013 __	'DGI3' (Page 6-1)	DGH23013		DGS__XL	DGC23013	
		G	DGPG301334	DGPG301301	DGPG3013 __		DGH13013		DGS__YR	DGC13013	
		F	DGPF301334	DGPF301301	DGPF3013 __				DGS__XR	DGC13013	
		H	DGPH301334	DGPH301301	DGPH3013 __				DGS__YL	DGC13013	
4mm (.157")	13mm (1/2")	E	DGPE401334	DGPE401301	DGPE4013 __	'DGI4' (Page 6-1)	DGH24013		DGS__XL	DGC24013	
		G	DGPG401334	DGPG401301	DGPG4013 __		DGH14013		DGS__YR	DGC14013	
		F	DGPF401334	DGPF401301	DGPF4013 __				DGS__XR	DGC14013	
		H	DGPH401334	DGPH401301	DGPH4013 __				DGS__YL	DGC14013	
	20mm (3/4")	E	DGPE402034	DGPE402001	DGPE4020 __		DGH24020		DGS__XL	DGC24020	
		G	DGPG402034	DGPG402001	DGPG4020 __		DGH14020		DGS__YR	DGC14020	
		F	DGPF402034	DGPF402001	DGPF4020 __				DGS__XR	DGC14020	
		H	DGPH402034	DGPH402001	DGPH4020 __				DGS__YL	DGC14020	
5mm (.197")	13mm (1/2")	E	DGPE501334	DGPE501301	DGPE5013 __	'DGI5' (Page 6-1)	DGH25013		DGS__XL	DGC25013	
		G	DGPG501334	DGPG501301	DGPG5013 __		DGH15013		DGS__YR	DGC15013	
		F	DGPF501334	DGPF501301	DGPF5013 __				DGS__XR	DGC15013	
		H	DGPH501334	DGPH501301	DGPH5013 __				DGS__YL	DGC15013	
	25mm (1")	E	DGPE502534	DGPE502501	DGPE5025 __		DGH25025		DGS__XL	DGC25025	
		G	DGPG502534	DGPG502501	DGPG5025 __		DGH15025		DGS__YR	DGC15025	
		F	DGPF502534	DGPF502501	DGPF5025 __				DGS__XR	DGC15025	
		H	DGPH502534	DGPH502501	DGPH5025 __				DGS__YL	DGC15025	
6mm (.236")	13mm (1/2")	E	DGPE601334	DGPE601301	DGPE6013 __	'DGI6' (Page 6-1)	DGH26013		DGS__XL	DGC26013	
		G	DGPG601334	DGPG601301	DGPG6013 __		DGH16013		DGS__YR	DGC16013	
		F	DGPF601334	DGPF601301	DGPF6013 __				DGS__XR	DGC16013	
		H	DGPH601334	DGPH601301	DGPH6013 __				DGS__YL	DGC16013	
	25mm (1")	E	DGPE602534	DGPE602501	DGPE6025 __		DGH26025		DGS__XL	DGC26025	
		G	DGPG602534	DGPG602501	DGPG6025 __		DGH16025		DGS__YR	DGC16025	
		F	DGPF602534	DGPF602501	DGPF6025 __				DGS__XR	DGC16025	
		H	DGPH602534	DGPH602501	DGPH6025 __				DGS__YL	DGC16025	

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PRODUCT SELECTION GUIDE - FACE GROOVING

FACE GROOVING

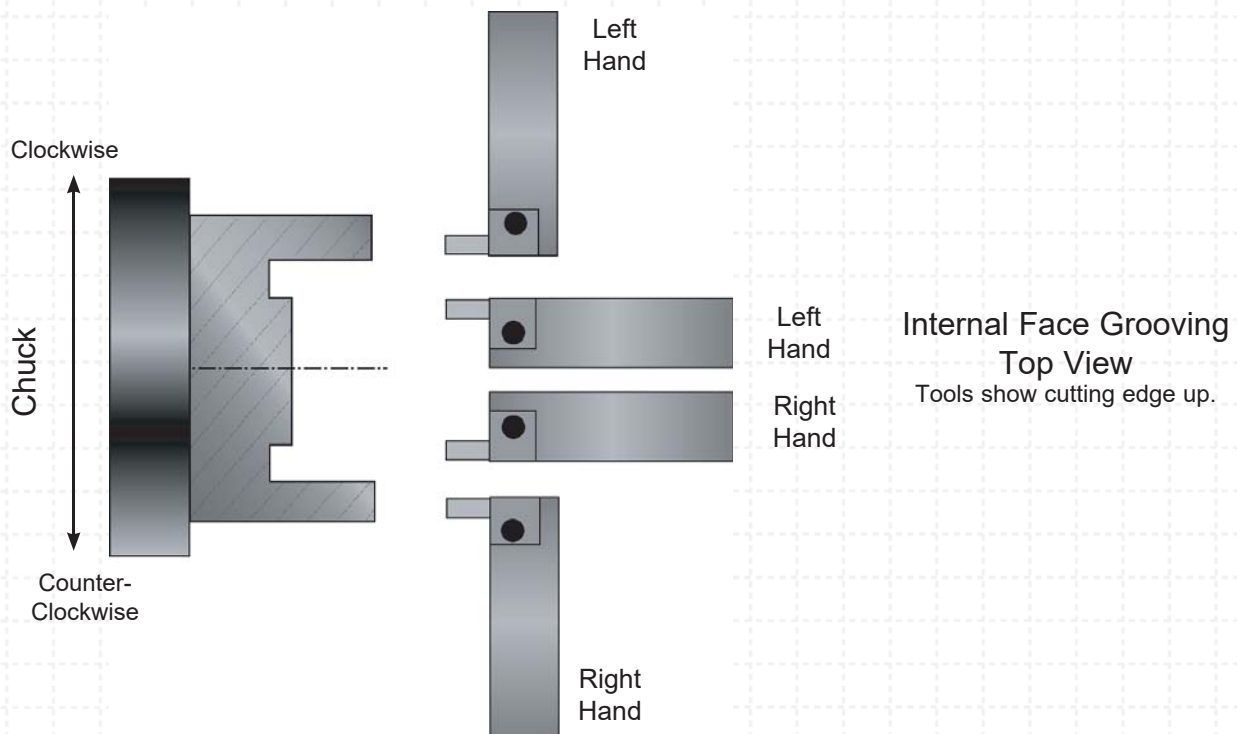
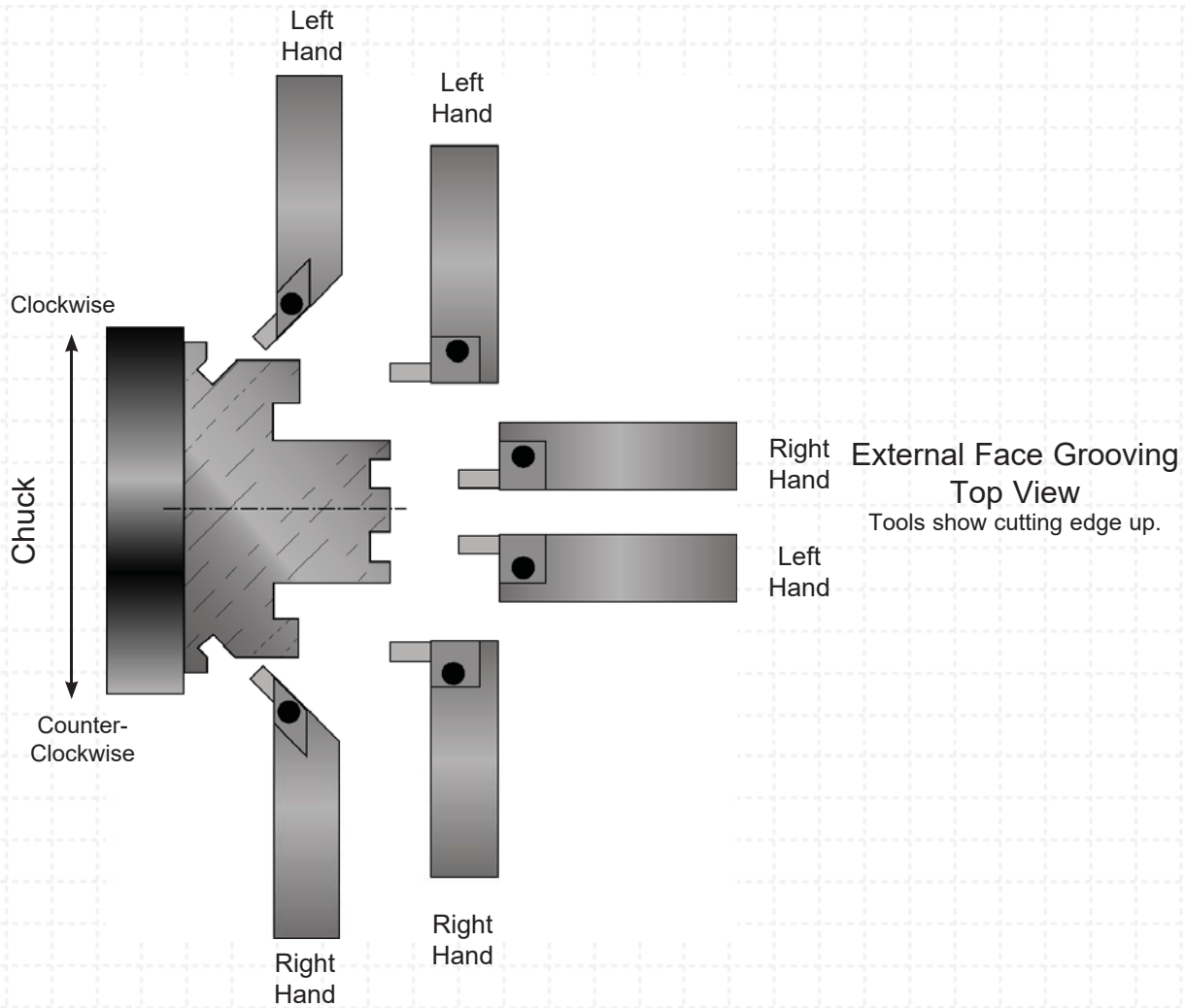
PAGE 2-3		• For internal diameters of .125" and larger • Groove widths .004"-.250" • Solid carbide shanks in 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" diameter
PAGE 2-5		• For internal diameters of .415" and larger • Groove widths .004"-.125" • For depth of cut up to .125" • Insert can groove, bore and generate profiles
PAGE 2-7		• For internal diameters of 1.574" and larger • Groove widths 2, 3, 4, 5 and 6mm • For depth of cut to 1" • Inserts can also be used for parting and OD/ID grooving
PAGE 2-9		• Major diameters of .300", .750", 1.250" & 3" • Groove widths .004" to .150" in .001" increments • Depth of cut 2-1/2 to 3 times width • Insert can groove, turn and generate profiles
PAGE 2-9		• Major diameters of .300", .750", 1.250" & 3" • Groove widths .004" to .150" in .001" increments • Depth of cut 2-1/2 to 3 times width • Insert can groove, turn and generate profiles
PAGE 2-11		• For dovetail o-ring grooves • Groove widths .030", .050", .060", .070", .080", .090", .100", .125" & .150" • Back clearance 24° (66° undercut) • Major diameters starting from .300"
PAGE 2-13		• For static o-ring grooves • Groove widths .086", .103", .122", .138" & .125" • 7° included angle • Major diameters starting from .300"
PAGE 2-15		• Groove widths 2, 3, 4, 5 and 6mm • For depth of cut to 1" • Inserts can also be used for parting and OD/ID grooving • Major diameters starting from .787"

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TOOLING ORIENTATION GUIDE - FACE GROOVING

FACE GROOVING

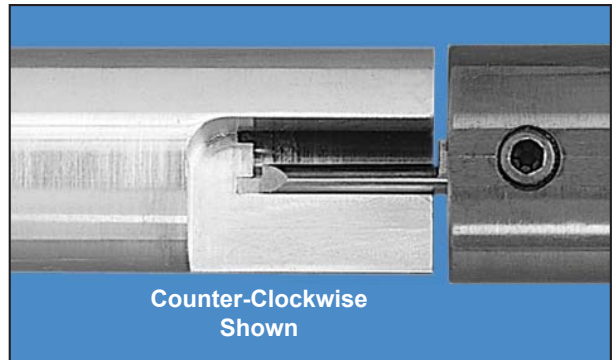


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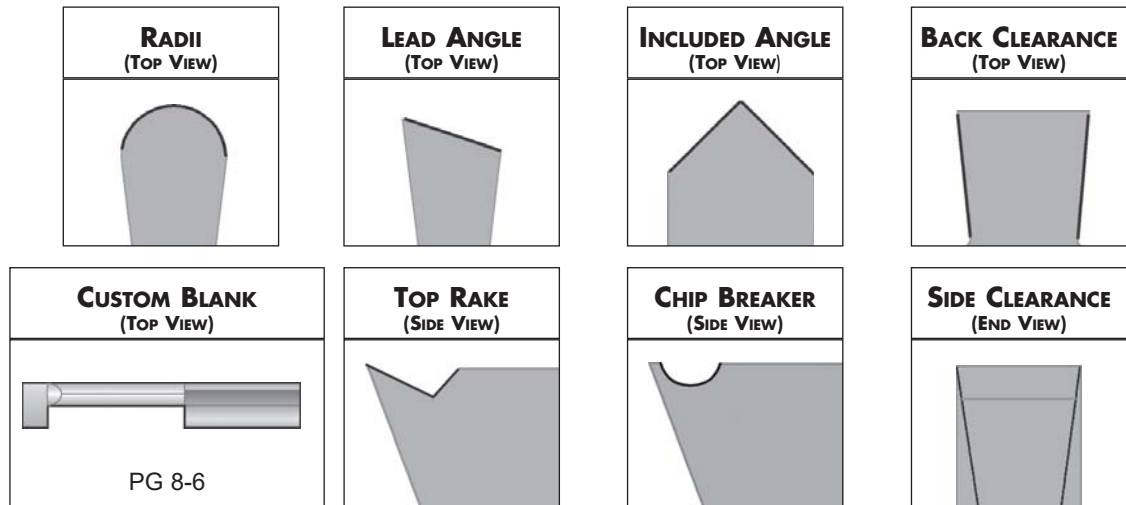
PRODUCT INFORMATION

- Internal face grooving for diameters .125" and larger.
- Elliptically ground necks for greater strength.
- .004" through .250" in .001" increments available.
- 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" shanks.
- Sub-micron grain **DURA-MAX® 2000** Carbide.
- Inserts available with TiN, TiAlN, TiCN and Diamond coating.



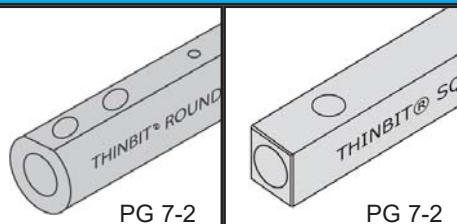
MODIFICATIONS

SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION



TOOLHOLDER SELECTIONS

ADAPTER STYLES



TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-15

APPLICATION REFERENCE

PGS 9-3 & 9-4

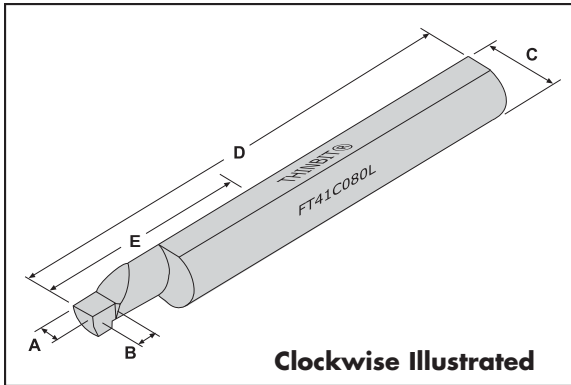
TROUBLESHOOTING

PG 9-7

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INTERNAL FACE GROOVING TOOLS



FRONT RAKE: Primary 10°
 BACK CLEARANCE: 2° ID side
 SIDE CLEARANCE: 2° ID side
 RADIUS: Sharp corner through full radius available
 TOP RAKE: 0°
 LEAD ANGLE: 0°

INTERNAL
FACE GROOVING

ORDERING INSTRUCTIONS

Complete the **ORDER CODE** in the table below that represents your selection of groove width and tool dimensions.

EXAMPLE:

The **ORDER CODE** for a 1/4" major diameter, clockwise rotation tool with an .080" groove width, .125" depth of cut and .750" reach is:

FT41C 0 8 0 L

Specify the Groove Width '**A**'
↑

SPECIFICATIONS				ORDER CODE					INFORMATION	
Minimum Bore & Major Diameter	Groove Width Range	Depth of Cut	Reach into Bore	DURA-MAX® 2000 Carbide See Page 9-15 for Speeds and Feeds		Add-ons Use 'Order Code' and Add			Overall Length	Toolholder Page 7-2
'C'	'A' ± .001"	'B'	'E'	Counter-Clockwise	Clockwise	Full Radius Page 8-3	Corner Radius Page 8-3	Coating Page 9-6	'D'	Use Toolholders Beginning With
1/8"	.004"-.063"	<u>Width</u> <u>DOC</u> .004"-.020" = 3 x 'A' .021"-.063" = .062"	.375"	FT21C ___ R	FT21C ___ L	add 'FR'	add 'CR___', (indicate size in .xxx")	TiN add 'C' TiCN add 'D' TiAlN add 'E' Diamond add 'F'	1.365" + 'B'	'AD'
3/16"	.004"-.093"	<u>Width</u> <u>DOC</u> .004"-.030" = 3 x 'A' .031"-.093" = .093"	.625"	FT31C ___ R	FT31C ___ L				1.865" + 'B'	'AD'
1/4"	.004"-.125"	<u>Width</u> <u>DOC</u> .004"-.041" = 3 x 'A' .042"-.125" = .125"	.750"	FT41C ___ R	FT41C ___ L				2.365" + 'B'	'AD'
5/16"	.004"-.156"	<u>Width</u> <u>DOC</u> .004"-.051" = 3 x 'A' .052"-.156" = .156"	1.000"	FT51C ___ R	FT51C ___ L				2.330" + 'B'	'AD'
3/8"	.004"-.187"	<u>Width</u> <u>DOC</u> .004"-.061" = 3 x 'A' .062"-.187" = .187"	1.250"	FT61C ___ R	FT61C ___ L				2.800" + 'B'	'AD'
1/2"	.004"-.250"	<u>Width</u> <u>DOC</u> .004"-.082" = 3 x 'A' .083"-.250" = .250"	1.750"	FT81C ___ R	FT81C ___ L				3.240" + 'B'	'AD'

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PRODUCT INFORMATION

- Internal face grooving and profiling for diameters of .415" and larger.
- Shank sizes 3/8", 1/2" and 5/8" in steel; 3/8" and 1/2" in heavy metal.
- 1/2" and 5/8" diameter toolholders are reversible for right and left hand orientation.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



Right Hand Insert in
Right Hand Toolholder
Shown

TECHNICAL SECTIONS

SPEEDS AND FEEDS

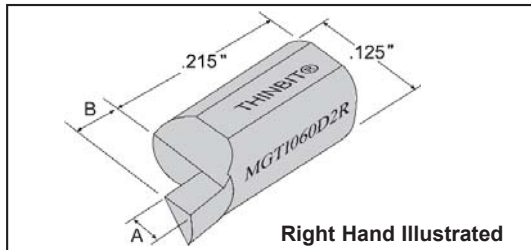
PG 9-12

APPLICATION REFERENCE

PGS 9-3 & 9-4

TROUBLESHOOTING

PG 9-7



Right Hand Illustrated

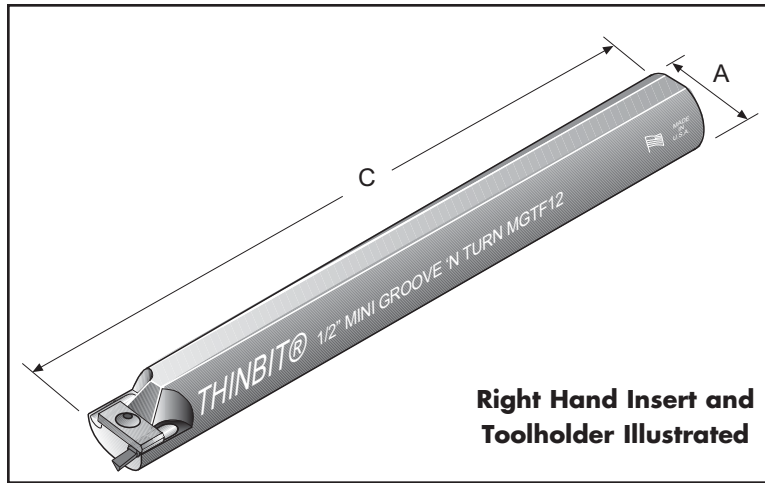
FRONT RAKE: 15°
 BACK CLEARANCE: 2° both sides
 SIDE CLEARANCE: 2° I.D. side
 RADIUS: Sharp corner through full radius available
 TOP RAKE: 0°
 LEAD ANGLE: 0°
 'A' TOLERANCE:
 .004" - .063": +.0009/-.0000
 .064" - .125": +.001/-.001

SPECIFICATIONS			ORDER CODE						
Insert Orientation	Insert Width	Depth of Cut	Insert Grades See Page 9-5 for expanded material descriptions and Page 9-10 or 9-12 for speeds and feeds information		Add-ons Use 'Order Code' and Add				
	'A'	'B'	DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	Full Radius Page 8-3	Corner Radius Page 8-3	Coating Page 9-6		
Right Hand For ID grooving use left hand 'MGT' Page 1-5 For face grooving use right hand 'MGTF' Page 2-6	.004"-.063"	<u>Width</u> <u>DOC</u> .004"-.031" = 2 x 'A' .032"-.063" = .063"	MGTI _ _ _D2R	MGTI _ _ _D5R	add 'FR'	add 'CR _ _ _' (indicate size in .xxx")	TiN add 'C'		
	.064"-.125"	<u>Width</u> <u>DOC</u> .064"-.083" = 1.5 x 'A' .084"-.125" = .125"						TiCN add 'D'	
Left Hand For ID grooving use right hand 'MGT' Page 1-5 For face grooving use left hand 'MGTF' Page 2-6	.004"-.063"	<u>Width</u> <u>DOC</u> .004"-.031" = 2 x 'A' .032"-.063" = .063"	MGTI _ _ _D2L	MGTI _ _ _D5L			add 'FR'	add 'CR _ _ _' (indicate size in .xxx")	TiAlN add 'E'
	.064"-.125"	<u>Width</u> <u>DOC</u> .064"-.083" = 1.5 x 'A' .084"-.125" = .125"							Diamond add 'F'

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I.D. FACE GROOVING TOOLS



Note:

- 1/2" and 5/8" toolholders are reversible for right hand or left hand orientation.

- For face grooving:

Insert Width

.004"-.031"

.032"-.063"

.064"-.083"

.084"-.125"

Depth of Cut

2 x width

.063"

1.5 x width

.125"

I.D. FACE
GROOVING

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a .530" minimum bore and a 1/2" steel shank is:
MGTF12

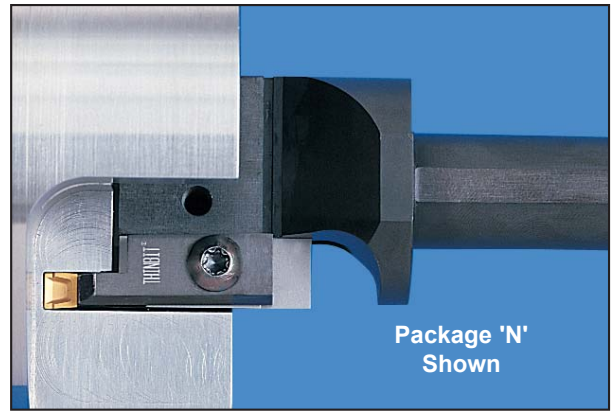
SPECIFICATIONS		ORDER CODE				INFORMATION		
Minimum Bore & Major Diameter	Orientation & Toolholder Material	Toolholder Package Includes Shank, Clamp and Hardware	Replacement Parts			Shank Diameter 'A'	Shank Length 'C'	Inserts Page 2-5
			Clamp Only	Screw Only	Wrench Only			Use Inserts Beginning With
.415"	Right Hand Steel	MGTF38R	MGC1	F31	W31	3/8"	5.500"	'MGTI' Use right hand inserts
	Right Hand Heavy Metal	MGTF38RHM					5.485"	
	Left Hand Steel	MGTF38L					5.500"	'MGTI' Use left hand inserts
	Left Hand Heavy Metal	MGTF38LHM					5.485"	
.530"	Steel	MGTF12				1/2"	5.500"	'MGTI' Use with left hand inserts for clockwise or with right hand inserts for counter-clockwise
	Heavy Metal	MGTF12HM					5.485"	
.650"	Steel	MGTF58				5/8"	5.500"	

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PRODUCT INFORMATION

- Internal face grooving for diameters 1.574" and larger with depth of cut to 1".
- Shank sizes 3/4", 1", 20mm & 25mm.
- Modular tooling system will also accept OD & external face grooving heads. See compatibility guide on Page 9-8.
- If square shank is required, see Page 7-16, package styles 'S', 'T', 'U' and 'V'.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



INSERT SELECTIONS SEE PAGE 6-1

INSERT STYLES

CORNER RADIUS (TOP VIEW)



SHARP CORNER (TOP VIEW)



TECHNICAL SECTIONS

SPEEDS AND FEEDS

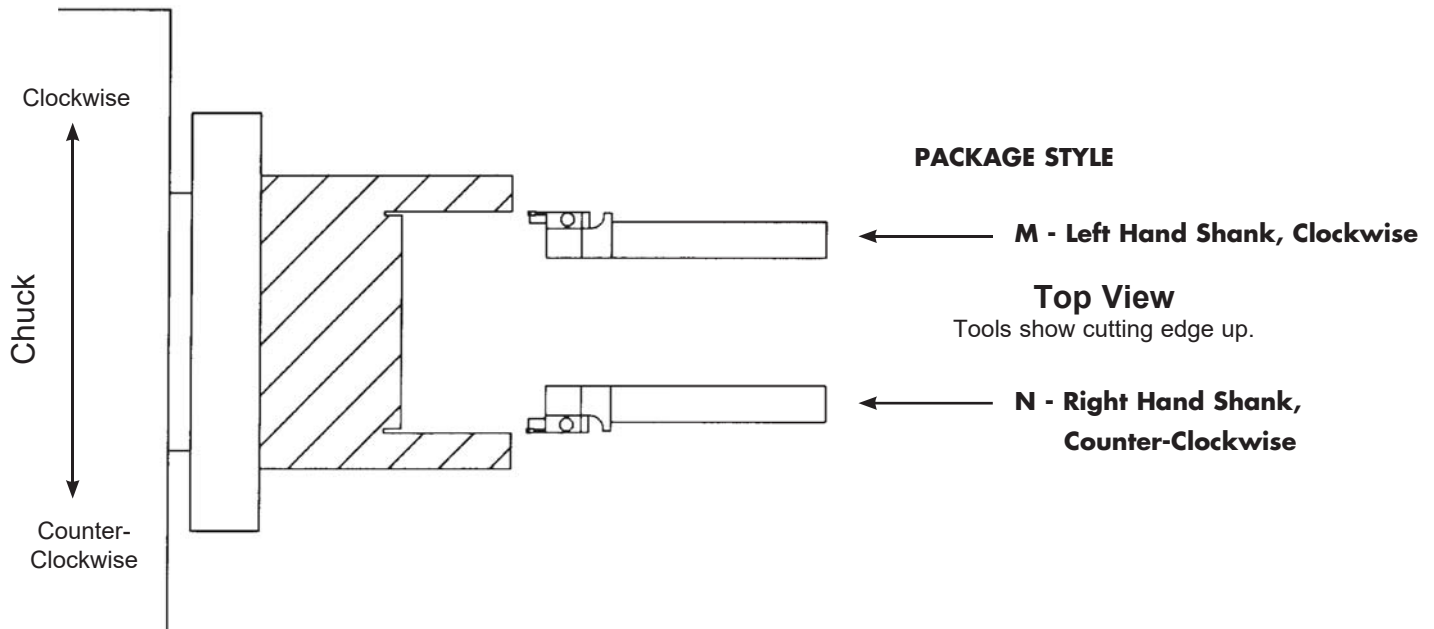
PG 9-12

APPLICATION REFERENCE

PGS 9-3 & 9-4

TROUBLESHOOTING

PG 9-7



Note: If square shank is required, see Page 7-16, package styles 'S', 'T', 'U' and 'V'.

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ORDERING INSTRUCTIONS

Complete the **ORDER CODE** in the table below that represents your selection of major diameter.

EXAMPLE:

The **ORDER CODE** for a 3mm insert width, toolholder package style 'N' with a .500" depth of cut, 1" shank and 1.75" major diameter is:

DGPN301301 4 5

Specify Major Diameter '**CODE**' here _____

I.D. FACE
GROOVING

SPECIFICATIONS			ORDER CODE									
Insert Width	Depth of Cut	Package Style	Toolholder Package Includes Shank, Head, Clamp and Hardware				Inserts Use Inserts Beginning With	Replacement Parts				
			3/4" Shank 7" Long	1" Shank 7" Long	20mm Shank 178mm (7") Long	25mm Shank 178mm (7") Long		Head	Head Hardware	Shank 3/4 = 3/4" 01 = 1" 20 = 20mm 25 = 25mm	Clamp	Clamp Hardware
2mm (.078")	13mm (1/2")	M	DGPM201334 _ _	DGPM201301 _ _	DGPM201320 _ _	DGPM201325 _ _	'DGI2' (Page 6-1)	DGH52013 _ _	Screw: 2 each S7552 Wrench: W4025	DGS_ _ ZL	DGC52013	Screw: S6552 Wrench: W4025
		N	DGPN201334 _ _	DGPN201301 _ _	DGPN201320 _ _	DGPN201325 _ _		DGH62013 _ _		DGS_ _ ZR	DGC62013	
3mm (.118")	13mm (1/2")	M	DGPM301334 _ _	DGPM301301 _ _	DGPM301320 _ _	DGPM301325 _ _	'DGI3' (Page 6-1)	DGH53013 _ _		DGS_ _ ZL	DGC53013	
		N	DGPN301334 _ _	DGPN301301 _ _	DGPN301320 _ _	DGPN301325 _ _		DGH63013 _ _		DGS_ _ ZR	DGC63013	
4mm (.157")	13mm (1/2")	M	DGPM401334 _ _	DGPM401301 _ _	DGPM401320 _ _	DGPM401325 _ _	'DGI4' (Page 6-1)	DGH54013 _ _		DGS_ _ ZL	DGC54013	
		N	DGPN401334 _ _	DGPN401301 _ _	DGPN401320 _ _	DGPN401325 _ _		DGH64013 _ _		DGS_ _ ZR	DGC64013	
	20mm (3/4")	M	DGPM402034 _ _	DGPM402001 _ _	DGPM402020 _ _	DGPM402025 _ _		DGH54020 _ _		DGS_ _ ZL	DGC54020	
		N	DGPN402034 _ _	DGPN402001 _ _	DGPN402020 _ _	DGPN402025 _ _		DGH64020 _ _		DGS_ _ ZR	DGC64020	
5mm (.197")	13mm (1/2")	M	DGPM501334 _ _	DGPM501301 _ _	DGPM501320 _ _	DGPM501325 _ _	'DGI5' (Page 6-1)	DGH55013 _ _		DGS_ _ ZL	DGC55013	
		N	DGPN501334 _ _	DGPN501301 _ _	DGPN501320 _ _	DGPN501325 _ _		DGH65013 _ _		DGS_ _ ZR	DGC65013	
	25mm (1")	M	DGPM502534 _ _	DGPM502501 _ _	DGPM502520 _ _	DGPM502525 _ _		DGH55025 _ _		DGS_ _ ZL	DGC55025	
		N	DGPN502534 _ _	DGPN502501 _ _	DGPN502520 _ _	DGPN502525 _ _		DGH65025 _ _		DGS_ _ ZR	DGC65025	
6mm (.236")	13mm (1/2")	M	DGPM601334 _ _	DGPM601301 _ _	DGPM601320 _ _	DGPM601325 _ _	'DGI6' (Page 6-1)	DGH56013 _ _		DGS_ _ ZL	DGC56013	
		N	DGPN601334 _ _	DGPN601301 _ _	DGPN601320 _ _	DGPN601325 _ _		DGH66013 _ _		DGS_ _ ZR	DGC66013	
	25mm (1")	M	DGPM602534 _ _	DGPM602501 _ _	DGPM602520 _ _	DGPM602525 _ _		DGH56025 _ _		DGS_ _ ZL	DGC56025	
		N	DGPN602534 _ _	DGPN602501 _ _	DGPN602520 _ _	DGPN602525 _ _		DGH66025 _ _		DGS_ _ ZR	DGC66025	

Major Diameter Range	Code
1.574"-1.968" (40-50mm)	45
1.968"-2.362" (50-60mm)	56
2.362"-2.952" (60-75mm)	67
2.952"-3.937" (75-100mm)	71
3.937"-5.905" (100-150mm)	11
5.905"-11.811" (150-300mm)	13
11.811"- ∞ (300mm-∞)	30

Note:

As long as first plunge is made within major diameter range and each following plunge overlaps, groove width can be increased toward or away from center of part.

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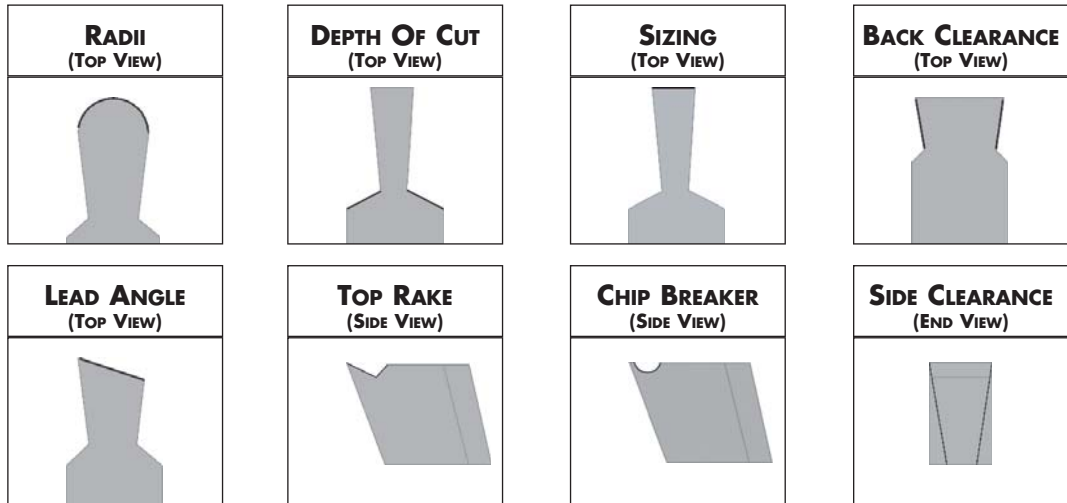
PRODUCT INFORMATION

- Face grooving for major diameters .300", .750", 1.250", 3" and greater.
- Face grooving with a central hub, recessed or flat face.
- .004" - .150" in .001" increments available.
- Sub-micron grain **DURA-MAX® 2000** and **5000** Carbides.
- Inserts available with TiN, TiAlN, TiCN and Diamond coating.



MODIFICATIONS

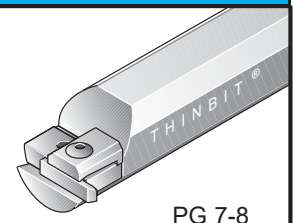
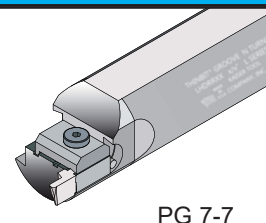
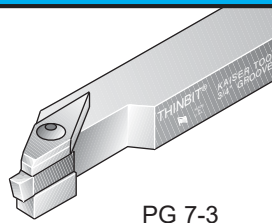
SEE PAGES
8-2 & 8-3
FOR ADDITIONAL
INFORMATION



TOOLHOLDER SELECTIONS

CNC, SWISS, CONVENTIONAL STYLE

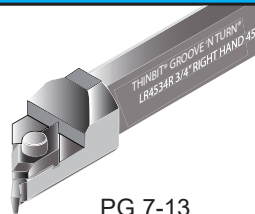
ROUND STYLE



ROUND ANGLED STYLE

SQUARE ANGLED STYLE

SWISS FACE STYLE



TECHNICAL SECTIONS

SPEEDS AND FEEDS

APPLICATION REFERENCE

TROUBLESHOOTING

PG 9-12

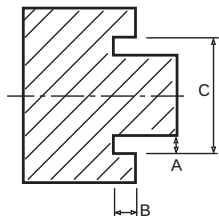
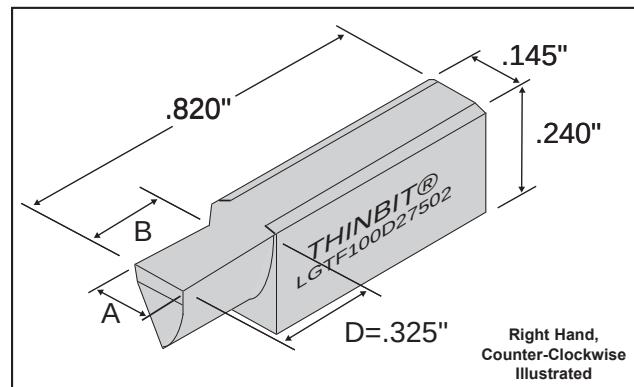
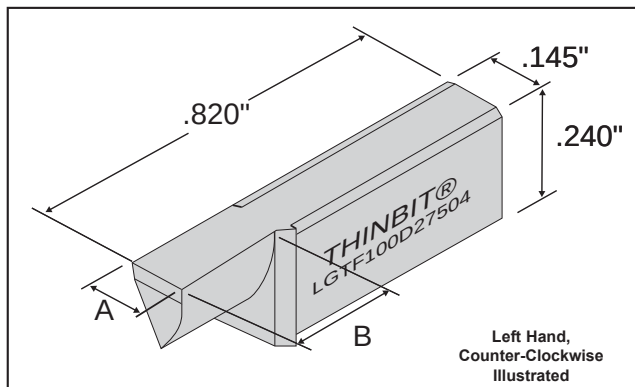
PGS 9-3 & 9-4

PG 9-7

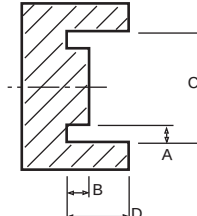
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FACE GROOVING INSERTS



FRONT RAKE: Primary 10° honed, Secondary 15°
 BACK CLEARANCE: 2-1/2° both sides
 SIDE CLEARANCE: .004" - .019" - 0° ID side
 .020" - .150" - 5° ID side
 RADIUS: Sharp corner through full radius available
 TOP RAKE: 0°
 LEAD ANGLE: 0°



Cut with a LH CCW Insert

NOTE: Capable of grooving along a shoulder

Cut with a RH CCW Insert

ORDERING INSTRUCTIONS

EXAMPLE:

Sample **ORDER CODE** for a left hand/counter-clockwise, .100" wide insert in **DURA-MAX® 2000**, with a .750" major diameter and no corner radius is:

LGTF 1 0 0 D27504

Specify the Insert Width 'A'

SPECIFICATIONS				ORDER CODE					INFO.
Insert Orientation	Insert Width	Depth of Cut	Major Diameter	Insert Grades See Page 9-5 for expanded material descriptions and Page 9-12 for Speeds and Feeds information		Add-ons Use 'Order Code' and Add			Toolholder Catalog Section 7
	'A' ± .001"	'B'	Can be used on any diameter equal to or greater than listed	DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	Full Radius Page 8-3	Corner Radius Page 8-3	Coating Page 9-6	Use Toolholders Beginning With 'L'
Left Hand/ Counter-Clockwise	.004" - .150"	<u>Width</u> <u>D.O.C.</u> .004"- .033" = 3 x 'A' .034"- .039" = .100" .040"- .100" = 2.5 x 'A' .101"- .150" = .250"	.300"	LGTF _ _ _ D23004	LGTF _ _ _ D53004	add 'FR'	add 'CR _ _ _', (indicate size in .xxx")	TiN add 'C' TiCN add 'D' TiAlN add 'E' Diamond add 'F'	For shoulder cutting use left hand straight holder or right hand 90° holder
			.750"	LGTF _ _ _ D27504	LGTF _ _ _ D57504				
			1.250"	LGTF _ _ _ D212504	LGTF _ _ _ D512504				
			* 3.000"	LGT _ _ _ D2L	LGT _ _ _ D5L				
Right Hand/ Counter-Clockwise	.004" - .150"	<u>Width</u> <u>D.O.C.</u> .004"- .033" = 3 x 'A' .034"- .039" = .100" .040"- .100" = 2.5 x 'A' .101"- .150" = .250"	.300"	LGTF _ _ _ D23002	LGTF _ _ _ D53002	add 'FR'	(indicate size in .xxx")	TiAlN add 'E' Diamond add 'F'	Use right hand or left hand straight holder or right hand 90° holder
			.750"	LGTF _ _ _ D27502	LGTF _ _ _ D57502				
			1.250"	LGTF _ _ _ D212502	LGTF _ _ _ D512502				
			* 3.000"	LGT _ _ _ D2R	LGT _ _ _ D5R				

* 3.000" Major Diameter Excludes .004" - .019" Insert Width Due to Side Clearance

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INSERTS
FACE GROOVING

PRODUCT INFORMATION

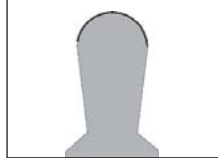
- For Dovetail O-Ring face grooving and OD/ID grooving.
- Groove Widths .030", .050", .060", .070", .080", .090", .100", .125" & .150".
- Major diameters from .300".
- Sub-micron grain **DURA-MAX[®] 2000** and **5000** Carbides.
- Inserts available with TiN, TiCN, TiAlN or Diamond film coating.



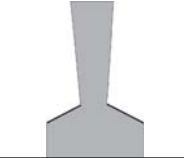
MODIFICATIONS

SEE PAGES
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FOR ADDITIONAL
INFORMATION

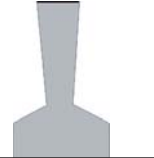
RADII
(TOP VIEW)



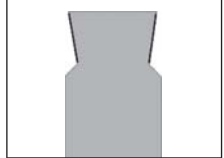
DEPTH OF CUT
(TOP VIEW)



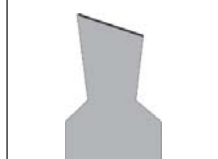
SIZING
(TOP VIEW)



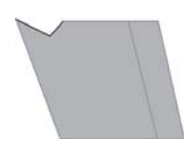
BACK CLEARANCE
(TOP VIEW)



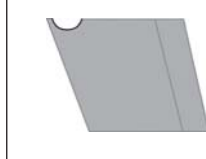
LEAD ANGLE
(TOP VIEW)



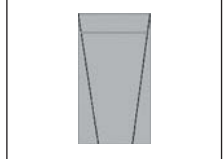
TOP RAKE
(SIDE VIEW)



CHIP BREAKER
(SIDE VIEW)

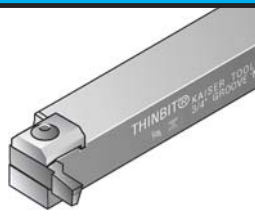
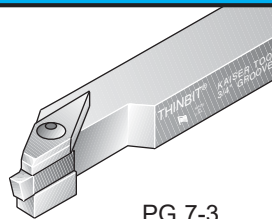


SIDE CLEARANCE
(END VIEW)

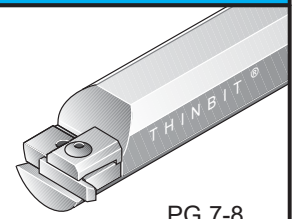
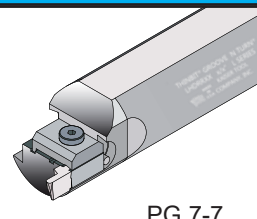


TOOLHOLDER SELECTIONS

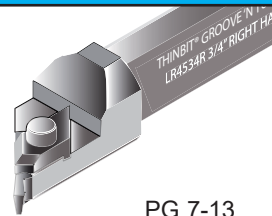
CNC, SWISS, CONVENTIONAL STYLE



ROUND STYLE



ROUND ANGLED STYLE



SQUARE ANGLED STYLE



SWISS FACE STYLE



TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-12

APPLICATION REFERENCE

PGS 9-3 & 9-4

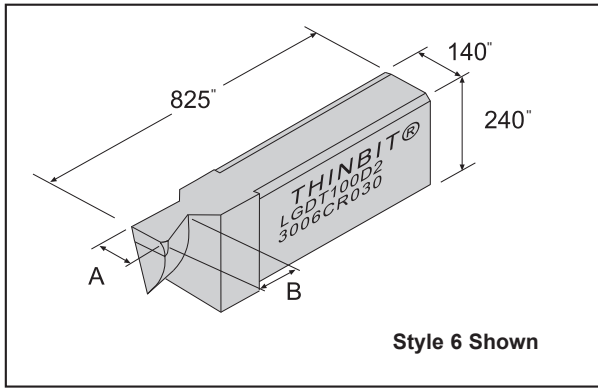
TROUBLESHOOTING

PG 9-7

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DOVETAIL O-RING FACE GROOVING INSERTS



FRONT RAKE: Primary 10° honed, Secondary 15°
 BACK CLEARANCE: 24° one side
 SIDE CLEARANCE: Depends on major diameter
 RADIUS: On 24° side only - Non-Angled sharp
 TOP RAKE: 0°
 LEAD ANGLE: 0°

Notes:

- For best performance, form undercut by profiling.
- If using on either an ID Bore or OD Shaft contact us for assistance.
- Half dovetail form requires a radius on both corners.

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of groove width and insert grade.

EXAMPLE:

The **ORDER CODE** for a left hand/counter-clockwise, .100" wide OD side insert in **DURA-MAX® 2000**, with a .300" major diameter and a .030" corner radius is:
LGDT100D23006CR030

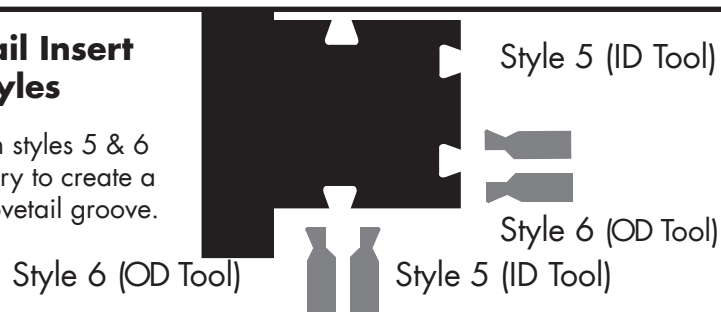
SPECIFICATIONS				ORDER CODE				INFO.	
Insert Orientation & Radius	Insert Width	Depth of Cut	Radius	Insert Grades See Page 9-5 for expanded material descriptions and Page 9-12 for Speeds and Feeds information				Add-ons Use 'Order Code' and Add	Toolholder Catalog Section 7
	'A'	'B'		DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting		DURA-MAX® 5000 Carbide For Aluminum & Nonferrous		Coating Page 9-6	Use Toolholders Beginning With
				Style 5 (ID Tool)	Style 6 (OD Tool)	Style 5 (ID Tool)	Style 6 (OD Tool)		
Left Hand/ Counter-Clockwise	.030"	.030"	.015"	LGDT030D2__5CR015	LGDT030D2__6CR015	LGDT030D5__5CR015	LGDT030D5__6CR015	TiN add 'C' TiCN add 'D' TiAlN add 'E' Diamond add 'F'	'L'
	.050"	.070"	.015"	LGDT050D2__5CR015	LGDT050D2__6CR015	LGDT050D5__5CR015	LGDT050D5__6CR015		
	.060"	.070"	.015"	LGDT060D2__5CR015	LGDT060D2__6CR015	LGDT060D5__5CR015	LGDT060D5__6CR015		
	.070"	.100"	.015"	LGDT070D2__5CR015	LGDT070D2__6CR015	LGDT070D5__5CR015	LGDT070D5__6CR015		
	.080"	.100"	.015"	LGDT080D2__5CR015	LGDT080D2__6CR015	LGDT080D5__5CR015	LGDT080D5__6CR015		
	.090"	.115"	.015"	LGDT090D2__5CR015	LGDT090D2__6CR015	LGDT090D5__5CR015	LGDT090D5__6CR015		
	.100"	.125"	.015"	LGDT100D2__5CR015	LGDT100D2__6CR015	LGDT100D5__5CR015	LGDT100D5__6CR015		
	.100"	.125"	.030"	LGDT100D2__5CR030	LGDT100D2__6CR030	LGDT100D5__5CR030	LGDT100D5__6CR030		
	.125"	.190"	.030"	LGDT125D2__5CR030	LGDT125D2__6CR030	LGDT125D5__5CR030	LGDT125D5__6CR030		
	.150"	.200"	.030"	LGDT150D2__5CR030	LGDT150D2__6CR030	LGDT150D5__5CR030	LGDT150D5__6CR030		

Major Diameter Code

Major Diameter	Code
.300"	300
.500"	500
1.000"	1000
1.500"	1500
2.000"	2000
3.000"	3000

Dovetail Insert Styles

Note: both styles 5 & 6 are necessary to create a complete dovetail groove.

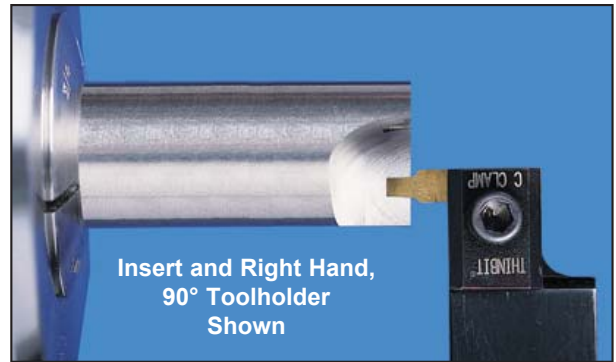


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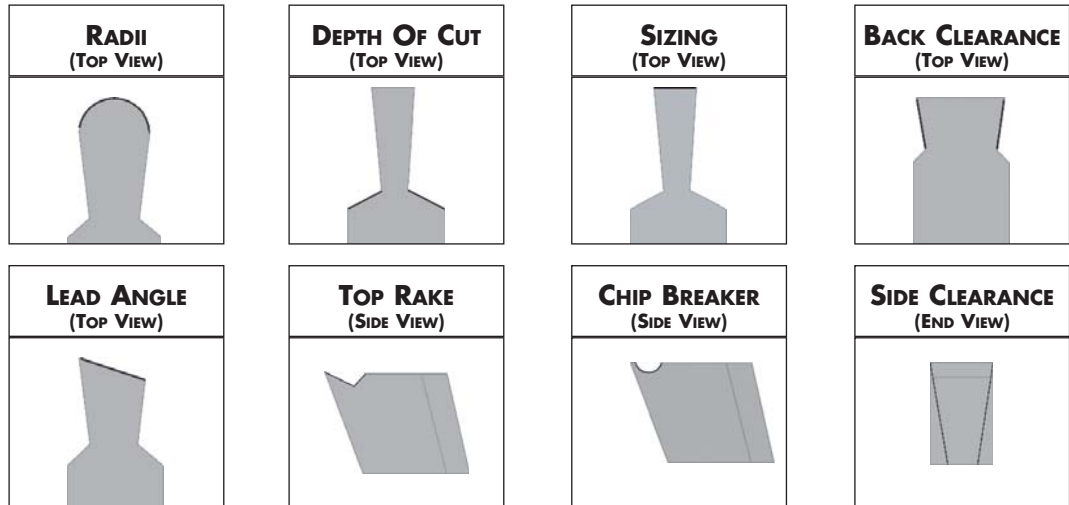
PRODUCT INFORMATION

- For Static O-Ring Face Grooving.
- Groove widths .086", .103", .122", .125" & .138".
- 7° included angle.
- Major diameters starting from .300".
- Sub-micron grain **DURA-MAX® 2000** and **5000** Carbides.
- Inserts available with TiN, TiCN, TiAlN or Diamond film coating.



MODIFICATIONS

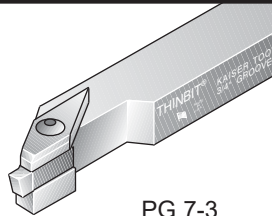
SEE PAGES
8-2 & 8-3
FOR ADDITIONAL
INFORMATION



TOOLHOLDER SELECTIONS

CNC, SWISS, CONVENTIONAL STYLE

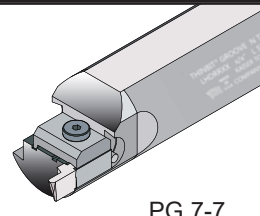
ROUND STYLE



PG 7-3



PG 7-4



PG 7-7

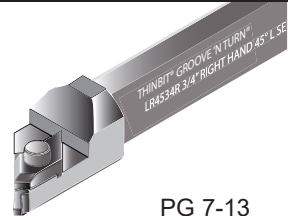


PG 7-8

ROUND ANGLED STYLE

SQUARE ANGLED STYLE

SWISS FACE STYLE



PG 7-13



PG 7-11



PG 7-6

TECHNICAL SECTIONS

SPEEDS AND FEEDS

APPLICATION REFERENCE

TROUBLESHOOTING

PG 9-12

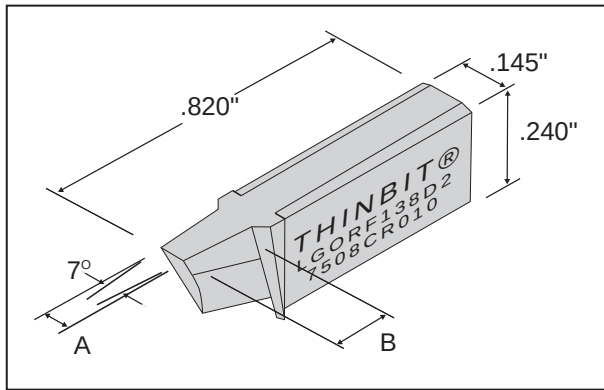
PGS 9-3 & 9-4

PG 9-7

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STATIC O-RING FACE GROOVING INSERTS



FRONT RAKE: Primary 10° honed, Secondary 15°
 BACK CLEARANCE: 7° included angle
 SIDE CLEARANCE: 5° both sides
 RADIUS: .010" or .020"
 TOP RAKE: 0°
 LEAD ANGLE: 0°
 DEPTH OF CUT: .170" or .250"

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of groove width and insert grade.

EXAMPLE:

The **ORDER CODE** for a counter-clockwise, .138" wide insert in **DURA-MAX® 2000**, with a .750" major diameter and a .010" corner radius is:

LGORF138D27508CR010

STATIC O-RING
FACE GROOVING

SPECIFICATIONS				ORDER CODE		INFO.	
Insert Orientation & Radius	Insert Width	Depth of Cut	Major Diameter	Insert Grades See Page 9-5 for expanded material descriptions and Page 9-12 for Speeds and Feeds information		Add-ons Use 'Order Code' and Add	Toolholder Catalog Section 7
	'A' ± .001"	'B'	Can be used on any diameter equal to or greater than listed	DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Non-ferrous	Coating Page 9-6	Use Toolholders Beginning With
Counter-Clockwise; .010" Corner Radius	.086"	.250"	.300"	LGORF086D23008CR010	LGORF086D53008CR010	TiN add 'C' TiCN add 'D' TiAlN add 'E' Diamond add 'F'	'L' Use left hand straight holder or right hand 90° holder
			.750"	LGORF086D27508CR010	LGORF086D57508CR010		
	.103"	.250"	.300"	LGORF103D23008CR010	LGORF103D53008CR010		
			.750"	LGORF103D27508CR010	LGORF103D57508CR010		
	.122"	.250"	.300"	LGORF122D23008CR010	LGORF122D53008CR010		
			.750"	LGORF122D27508CR010	LGORF122D57508CR010		
	.138"	.170"	.300"	LGORF138D23008CR010	LGORF138D53008CR010		
			.750"	LGORF138D27508CR010	LGORF138D57508CR010		
Counter-Clockwise; .020" Corner Radius	.125"	.250"	.300"	LGORF125D23008CR020	LGORF125D53008CR020		
			.750"	LGORF125D27508CR020	LGORF125D57508CR020		

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PRODUCT INFORMATION

- External face grooving with depth of cut to 1".
- Shank sizes 3/4", 1", 16mm, 20mm and 25mm in straight and 90° orientations.
- Modular tooling system will also accept OD & internal face grooving heads. See compatibility guide on Page 9-8.
- If round shanks are required, see Page 7-15, package styles 'O' and 'P'.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.
- Major diameter starting from .787".



Package 'D' Shown

INSERT SELECTIONS SEE PAGE 6-1

INSERT STYLES

CORNER RADIUS (TOP VIEW)



SHARP CORNER (TOP VIEW)



TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-12

APPLICATION REFERENCE

PGS 9-3 & 9-4

TROUBLESHOOTING

PG 9-7

ORDERING INSTRUCTIONS

3/4", 1" and Metric Shanks

Select the **ORDER CODE** in the table at right that represents your selection of major diameter.

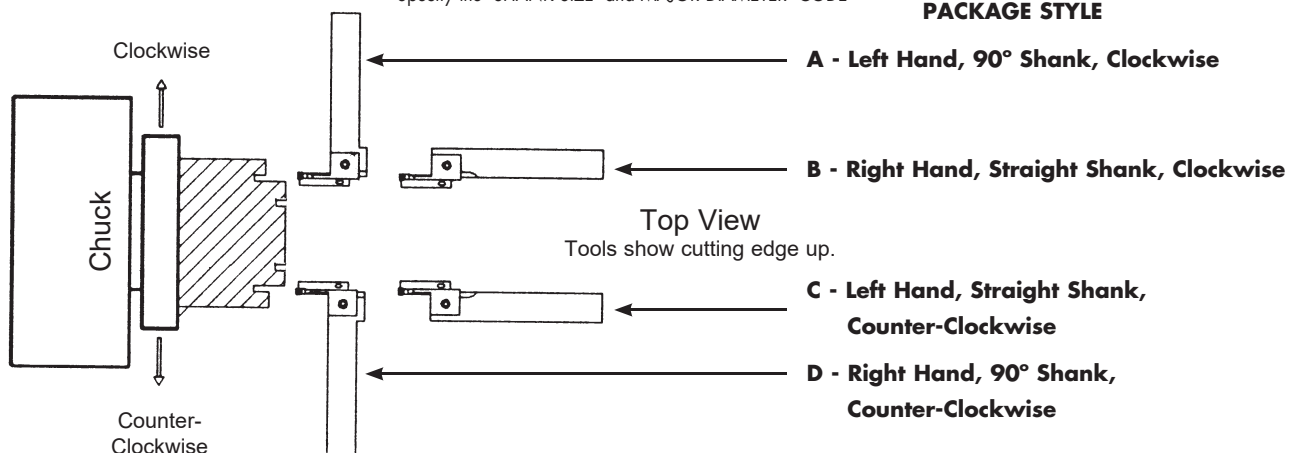
EXAMPLE:

The **ORDER CODE** for a 3mm insert width, toolholder package style 'C' with a .500" depth of cut, 1" shank and 1" major diameter is:

DGPC3013 0 1 2 3

Specify the 'SHANK SIZE' and MAJOR DIAMETER 'CODE'

PACKAGE STYLE



Note: If round shanks are required, see Page 7-15, package styles 'O' and 'P'.

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FACE GROOVING TOOLS

SPECIFICATIONS			ORDER CODE								
Insert Width	Depth of Cut	Package Style	Toolholder Package			Inserts	Replacement Parts				
			Includes Shank, Head, Clamp and Hardware				Section 6 Use Inserts Beginning With	Head	Head Hardware	Shank 34 = 3/4" 01 = 1" 16 = 16mm 20 = 20mm 25 = 25mm	Clamp
See Page 2-15	3/4" Shank 3/4"x3/4"x5"	1" Shank 1"x1"x5"	Metric Shanks 16 = 16x16x125mm 20 = 20x1"x125mm 25 = 25x1"x125mm								
2mm (.078")	13mm (1/2")	A	DGPA201334_	DGPA201301_	DGPA2013_	'DGI2' (Page 6-1)	DGH32013_	Screw: 2 each S7552 Wrench: W4025	DGS_ _YL	DGC12013	Screw: S6552 Wrench: W4025
		B	DGPB201334_	DGPB201301_	DGPB2013_		DGS_ _XR		DGC12013		
		C	DGPC201334_	DGPC201301_	DGPC2013_		DGS_ _XL		DGC22013		
		D	DGPD201334_	DGPD201301_	DGPD2013_		DGS_ _YR		DGC22013		
3mm (.118")	13mm (1/2")	A	DGPA301334_	DGPA301301_	DGPA3013_	Use 'DGM13' for major diameter codes '02'&'25' 'DGI3' for all others (Page 6-1)	DGH33013_		DGS_ _YL	DGC13013	
		B	DGPB301334_	DGPB301301_	DGPB3013_		DGS_ _XR		DGC13013		
		C	DGPC301334_	DGPC301301_	DGPC3013_		DGS_ _XL		DGC23013		
		D	DGPD301334_	DGPD301301_	DGPD3013_		DGS_ _YR		DGC23013		
4mm (.157")	13mm (1/2")	A	DGPA401334_	DGPA401301_	DGPA4013_	Use 'DGM14' for major diameter codes '02'&'25' 'DGI4' for all others (Page 6-1)	DGH34013_		DGS_ _YL	DGC14013	
		B	DGPB401334_	DGPB401301_	DGPB4013_		DGS_ _XR		DGC14013		
		C	DGPC401334_	DGPC401301_	DGPC4013_		DGS_ _XL		DGC24013		
		D	DGPD401334_	DGPD401301_	DGPD4013_		DGS_ _YR		DGC24013		
	20mm (3/4")	A	DGPA402034_	DGPA402001_	DGPA4020_		DGH34020_		DGS_ _YL	DGC14020	
		B	DGPB402034_	DGPB402001_	DGPB4020_		DGS_ _XR		DGC14020		
		C	DGPC402034_	DGPC402001_	DGPC4020_		DGS_ _XL		DGC24020		
		D	DGPD402034_	DGPD402001_	DGPD4020_		DGS_ _YR		DGC24020		
5mm (.197")	13mm (1/2")	A	DGPA501334_	DGPA501301_	DGPA5013_	'DGI5' (Page 6-1)	DGH35013_		DGS_ _YL	DGC15013	
		B	DGPB501334_	DGPB501301_	DGPB5013_		DGS_ _XR		DGC15013		
		C	DGPC501334_	DGPC501301_	DGPC5013_		DGS_ _XL		DGC25013		
		D	DGPD501334_	DGPD501301_	DGPD5013_		DGS_ _YR		DGC25013		
	25mm (1")	A	DGPA502534_	DGPA502501_	DGPA5025_		DGH35025_		DGS_ _YL	DGC15025	
		B	DGPB502534_	DGPB502501_	DGPB5025_		DGS_ _XR		DGC15025		
		C	DGPC502534_	DGPC502501_	DGPC5025_		DGS_ _XL		DGC25025		
		D	DGPD502534_	DGPD502501_	DGPD5025_		DGS_ _YR		DGC25025		
6mm (.236")	13mm (1/2")	A	DGPA601334_	DGPA601301_	DGPA6013_	'DGI6' (Page 6-1)	DGH36013_		DGS_ _YL	DGC16013	
		B	DGPB601334_	DGPB601301_	DGPB6013_		DGS_ _XR		DGC16013		
		C	DGPC601334_	DGPC601301_	DGPC6013_		DGS_ _XL		DGC26013		
		D	DGPD601334_	DGPD601301_	DGPD6013_		DGS_ _YR		DGC26013		
	25mm (1")	A	DGPA602534_	DGPA602501_	DGPA6025_		DGH36025_		DGS_ _YL	DGC16025	
		B	DGPB602534_	DGPB602501_	DGPB6025_		DGS_ _XR		DGC16025		
		C	DGPC602534_	DGPC602501_	DGPC6025_		DGS_ _XL		DGC26025		
		D	DGPD602534_	DGPD602501_	DGPD6025_		DGS_ _YR		DGC26025		

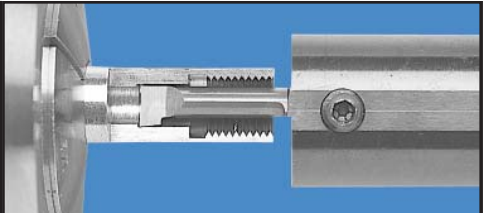
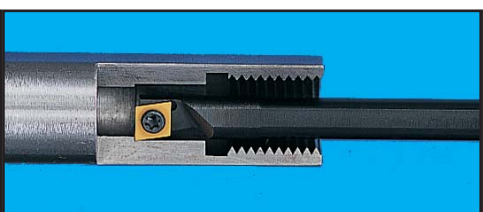
DEEPCROOVE
FACE GROOVING

Major Diameter Range				Major Diameter Range			
Major Diameter Range	Insert Width	Code	Insert Style	Major Diameter Range	Insert Width	Code	Insert Style
.787"-.885" (20-22.5mm)	2mm	02	DGI	1.377"-1.574" (35-40mm)	2mm	50	DGI
	3 & 4mm	02	DGMI		3, 4, 5 & 6mm	34	DGI
.885"-.984" (22.5-25mm)	2mm	25	DGI	1.574"-1.968" (40-50mm)	All	45	DGI
	3 & 4mm	25	DGMI	1.968"-2.362" (50-60mm)		56	DGI
.984"-1.082" (25-27.5mm)	2mm	57	DGI	2.362"-2.952" (60-75mm)		67	DGI
	3, 4, 5 & 6mm	23	DGI	2.952"-3.937" (75-100mm)		71	DGI
1.082"-1.181" (27.5-30mm)	2mm	70	DGI	3.937"-5.905" (100-150mm)		11	DGI
	3, 4, 5 & 6mm	23	DGI	5.905"-11.811" (150-300mm)		13	DGI
1.181"-1.377" (30-35mm)	2mm	05	DGI	11.811"-∞ (300mm-∞)		30	DGI
	3, 4, 5 & 6mm	34	DGI				

Note:
As long as first plunge is made within major diameter range and each following plunge overlaps, groove width can be increased toward or away from center of part.

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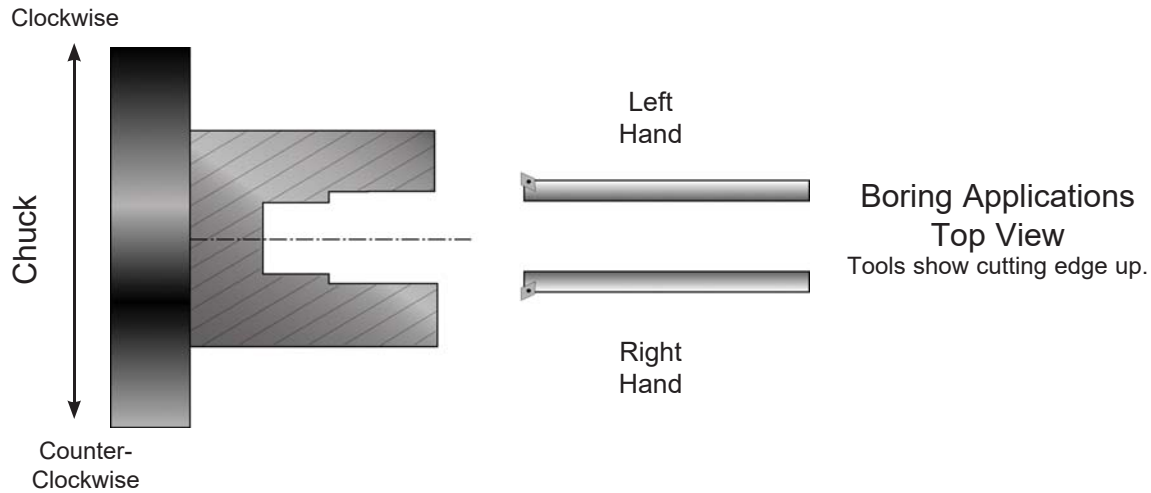
PAGE 3-3		• Finish boring • For internal diameters of .073" and larger • Solid carbide shanks in 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" diameter
PAGE 3-5		• Profiling & Reverse Profiling • For internal diameters of .125" and larger • Solid carbide shanks in 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" diameter
PAGE 3-7 to 3-10		• Rough boring using Trigon inserts • PAGE 3-8: .210" Min. Bore; MBE (WCGT) style • PAGE 3-9: .270" Min. Bore; MBF (WCGT) style • PAGE 3-10: .410" Min. Bore; MBG (WCGT) style
PAGE 3-11 to 3-18		• Finish boring • PAGE 3-12: .165" Min. Bore; MBZ style • PAGE 3-13: .180" Min. Bore; MBA (CD) style • PAGE 3-15: .270" Min. Bore; MBB (TD) style • PAGE 3-17: .430" Min. Bore; MBC (TP) style

THINBIT®

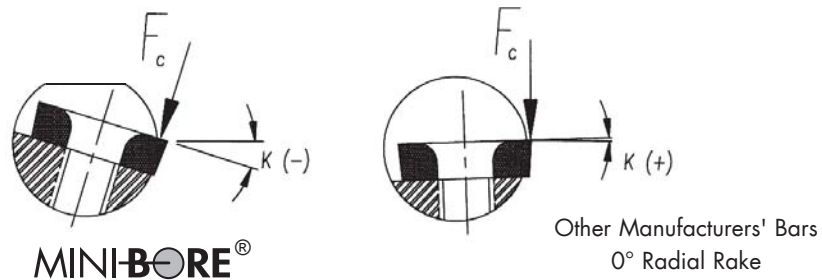
OVER 100,000 TOOLS IN STOCK FOR
 GROOVING • THREADING • PARTING • BORING
 TURNING • FACE GROOVING • SPECIALS
 FORM TOOLS • MILLING

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'K' ANGLE



MINI-BORE® bars are designed to cut above center with a negative cutting rake or 'K' angle. As the diameter of the bar increases the 'K' angle decreases. Flats are provided to ensure speedy and proper set-up.

This unique design provides critical advantages over other manufacturers' small diameter bars:

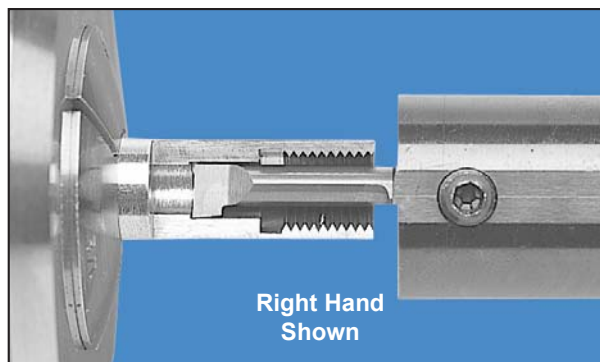
- Up to 25% greater cross-sectional area under the cutting edge which increases the strength and rigidity of the pocket.
- Increased screw thread engagement to reduce thread stripping and increase the holding power.
- Better surface finishes due to better chip control and flow.

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PRODUCT INFORMATION

- For boring diameters .073" and larger.
- 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" shank.
- Elliptically ground necks for greater strength.
- Round necks to fit into small diameters.
- Sub-micron grain **DURA-MAX® 2000** Carbide.
- Tools available with TiN, TiAlN, TiCN and Diamond coating.



MODIFICATIONS

SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION

CUSTOM BLANK (TOP VIEW)



PG 8-6

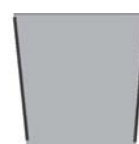
RADI (TOP VIEW)



LEAD ANGLE (TOP VIEW)



BACK CLEARANCE (TOP VIEW)



TOP RAKE (SIDE VIEW)



CHIP BREAKER (SIDE VIEW)

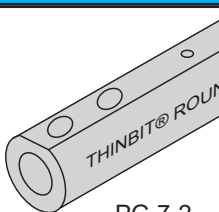


SIDE CLEARANCE (END VIEW)

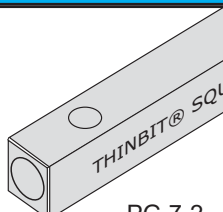


TOOLHOLDER SELECTIONS

ADAPTER STYLES



PG 7-2



PG 7-2

TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-15

APPLICATION REFERENCE

PG 9-4

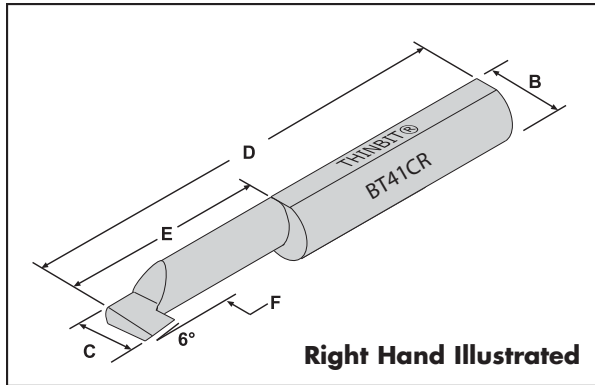
TROUBLESHOOTING

PG 9-7

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BORING TOOLS



FRONT RAKE: Primary 21°
 BACK CLEARANCE: 3° Lead side
 SIDE CLEARANCE: 7° Lead side
 LEAD ANGLE: 6°
 RADIUS: None
 TOP RAKE: 0°
 NOTE: Tool designed for feeding into bore only.

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of tool dimensions.

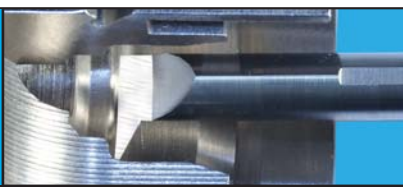
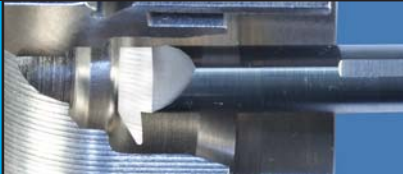
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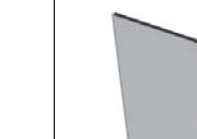
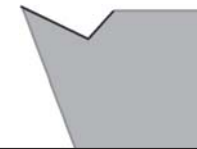
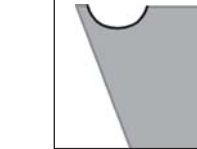
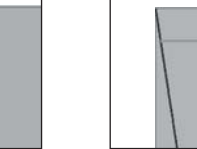
The **ORDER CODE** for a .250" minimum bore, right hand tool with a .875" tool reach and .062" projection is:
BT41CR

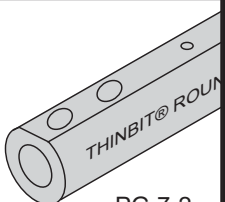
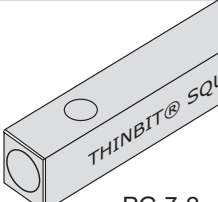
Specifications			Order Code						Information					
Minimum Bore	Tool Reach	Projection	DURA-MAX® 2000 Carbide See Page 9-15 for Speeds and Feeds		Coatings See Page 9-6 for expanded coating descriptions				Shank Diameter	Overall Length	Toolholder Page 7-2			
'C'	'E'	'F'			Use uncoated part number and add coating code				'B'	'D'	Use Toolholders Beginning With			
	Minimum	+.000"/- .010"	Right Hand	Left Hand	TiN	TiCN	TiAlN	Diamond						
.073" Round Neck	.375"	.010"	BT20AR	BT20AL	add 'C'	add 'D'	add 'E'	add 'F'	1/8"	1.500"	'AD'			
	.500"	.010"	BT21AR	BT21AL										
.125"	.500"	.031"	BT21CR	BT21CL										
.187"	.750"	.047"	BT31CR	BT31CL										
.250"	.875"	.062"	BT41CR	BT41CL										
.312"	1.156"	.078"	BT51CR	BT51CL										
.375"	1.437"	.125"	BT61CR	BT61CL										
.500"	2.000"	.167"	BT81CR	BT81CL										

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PRODUCT INFORMATION	- For profiling diameters .125" and larger. 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" shank. - Elliptically ground necks for greater strength. - Sub-micron grain DURA-MAX® 2000 Carbide. - Tools available with TiN, TiAlN, TiCN and Diamond coating.	Right Hand Profiling Tool Shown	
		Right Hand Reverse Profiling Tool Shown	

MODIFICATIONS SEE PAGE 8-3 FOR ADDITIONAL INFORMATION	CUSTOM BLANK (TOP VIEW)  PG 8-6	RADII (TOP VIEW) 	LEAD ANGLE (TOP VIEW) 	BACK CLEARANCE (TOP VIEW) 
		TOP RAKE (SIDE VIEW) 	CHIP BREAKER (SIDE VIEW) 	SIDE CLEARANCE (END VIEW) 

TOOLHOLDER SELECTIONS	ADAPTER STYLES	
	 PG 7-2	 PG 7-2

TECHNICAL SECTIONS	SPEEDS AND FEEDS PG 9-15	APPLICATION REFERENCE PG 9-4	TROUBLESHOOTING PG 9-7

ORDERING INSTRUCTIONS

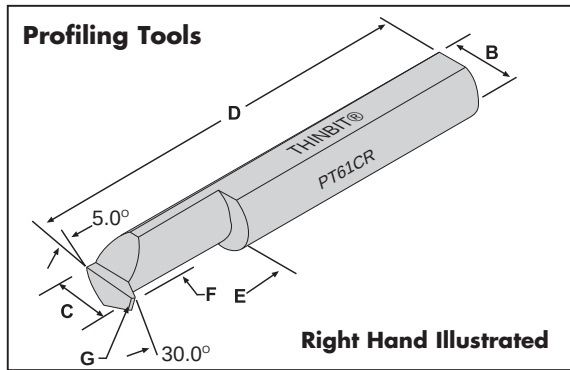
Select the **ORDER CODE** in the table on the next page that represents your selection of tool dimensions.

EXAMPLE:

The **ORDER CODE** for a .375" minimum bore, right hand tool with a 1.350" tool reach and .115" projection is:
PT61CR

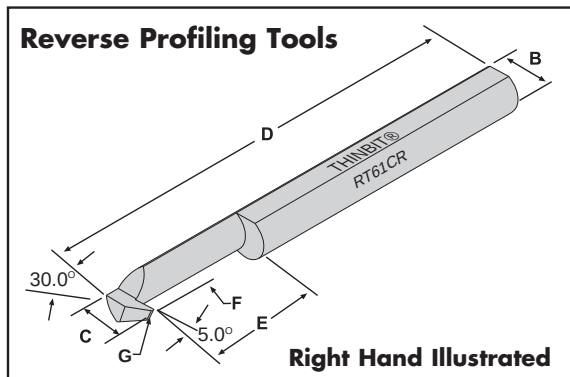
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FRONT RAKE: Primary 21°
 SIDE CLEARANCE: 5° Lead side
 BACK CLEARANCE: 5° Lead side
 BACK CLEARANCE: 30° Trailing side
 NOTE: Tool designed for feeding into bore only.

SPECIFICATIONS				ORDER CODE					INFORMATION				
Minimum Bore	Tool Reach	Nose Radius	Projection	DURA-MAX® 2000 Carbide See Page 9-15 for Speeds and Feeds		Coatings See Page 9-6 for expanded coating descriptions				Shank Diameter	Overall Length	Toolholder Page 7-2	
'C'	'E'	'G'	'F'			Use uncoated part number and add coating code				'B'	'D'	Use Toolholders Beginning With	
	Minimum		Minimum	Right Hand	Left Hand	TiN	TiCN	TiAlN	Diamond				
.125"	.425"	.007"	.052"	PT21BR	PT21BL	add 'C'	add 'D'	add 'E'	add 'F'	1/8"	1.500"		'AD'
.187"	.705"	.010"	.083"	PT31BR	PT31BL					3/16"	2.000"		'AD'
.250"	.840"	.010"	.115"	PT41BR	PT41BL					1/4"	2.500"		'AD'
.312"	1.115"	.015"	.146"	PT51BR	PT51BL					5/16"	2.500"		'AD'
.375"	1.350"	.015"	.115"	PT61CR	PT61CL					3/8"	3.000"		'AD'
.500"	1.870"	.015"	.157"	PT81CR	PT81CL					1/2"	3.500"		'AD'



FRONT RAKE: Primary 21°
 SIDE CLEARANCE: 10° Lead side
 BACK CLEARANCE: 30° Lead side
 BACK CLEARANCE: 5° Trailing side
 NOTE: Tool designed for feeding out of bore only.

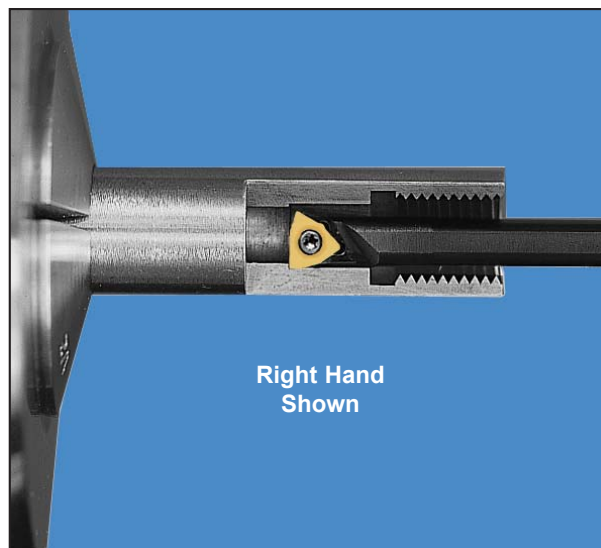
SPECIFICATIONS				ORDER CODE						INFORMATION		
Minimum Bore	Tool Reach	Nose Radius	Projection	DURA-MAX® 2000 Carbide See Page 9-15 for Speeds and Feeds		Coatings See Page 9-6 for expanded coating descriptions				Shank Diameter	Overall Length	Toolholder Page 7-2
'C'	'E'	'G'	'F'			Use uncoated part number and add coating code				'B'	'D'	Use Toolholders Beginning With
	Minimum		Minimum	Right Hand	Left Hand	TiN	TiCN	TiAlN	Diamond			
.125"	.375"	.007"	.052"	RT21BR	RT21BL	add 'C'	add 'D'	add 'E'	add 'F'	1/8"	1.500"	'AD'
.187"	.625"	.010"	.083"	RT31BR	RT31BL					3/16"	2.000"	'AD'
.250"	.750"	.010"	.115"	RT41BR	RT41BL					1/4"	2.500"	'AD'
.312"	1.000"	.015"	.146"	RT51BR	RT51BL					5/16"	2.500"	'AD'
.375"	1.250"	.015"	.115"	RT61CR	RT61CL					3/8"	3.000"	'AD'
.500"	1.750"	.015"	.157"	RT81CR	RT81CL					1/2"	3.500"	'AD'

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PRODUCT INFORMATION

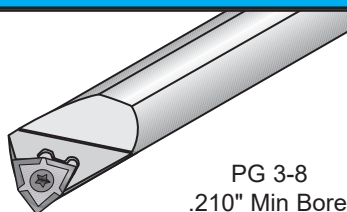
- Boring with .210" minimum bore diameter.
- 'K' angle increases strength in insert pocket by increasing the cross-sectional area below the insert.
- Boring bars for WCGT insert style.
- Variety of diameters made from Steel, Heavy Metal and Carbide.
- Bars and inserts are compatible with other ANSI standard bars and inserts. Call for cross-overs.
- Sub-micron grain **DURA-MAX® 4000** and **5000** Carbide.
- Tools available with TiN, TiAlN, TiCN and Diamond coating.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



Right Hand
Shown

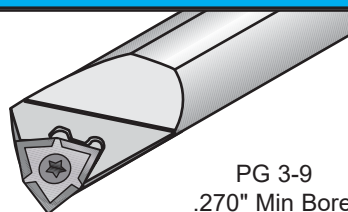
TOOLHOLDER SELECTIONS

WCGT STYLE - MBE SERIES



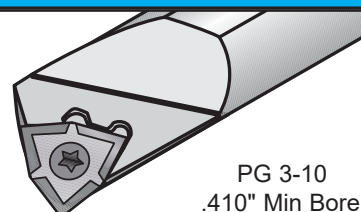
PG 3-8
.210" Min Bore

WCGT STYLE - MBF SERIES



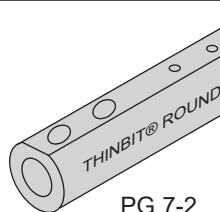
PG 3-9
.270" Min Bore

WCGT STYLE - MBG SERIES

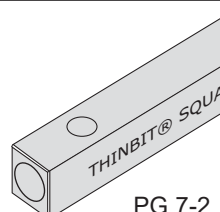


PG 3-10
.410" Min Bore

ADAPTER STYLES



PG 7-2



PG 7-2

INSERT SELECTIONS

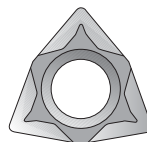
WCGT STYLE - MBE SERIES



WCGT 1.21

PG 3-8

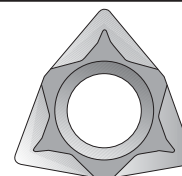
WCGT STYLE - MBF SERIES



WCGT 1.51.5

PG 3-9

WCGT STYLE - MBG SERIES



WCGT 21.5

PG 3-10

TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-14

APPLICATION REFERENCE

PG 9-4

TROUBLESHOOTING

PG 9-7

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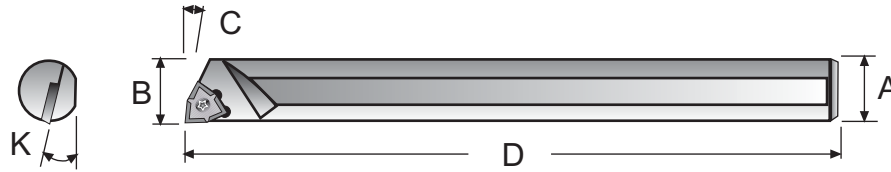
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TO ORDER WCGT STYLE - MBE SERIES BORING BARS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a .270" minimum bore, right hand, heavy metal shank with a 3° lead angle is:
MBEH132527R



	TOOL SPECIFICATIONS						ORDER CODE		
	Minimum Bore 'B' With .008" radius insert	Material Extension Ratios: Steel: 4 x ø Heavy Metal: 6 x ø Carbide: 8 x ø	Bar Diameter 'A'	Length 'D'	Lead Angle 'C'	'K' Angle 'K' see page 3-2	Boring Bar Includes Screw and Wrench	Screw	Wrench
 .156" I.C. Right Hand Bars Use inserts beginning with 'MBEIW' and ANSI 'WCGT 1.21' inserts	.210"	Steel	.188"	3.500"	3°	17°	MBES131821R	F15	W11
		Heavy Metal	.188"	3.976"	3°	17°	MBEH131821R	F15	W11
		Carbide	.188"	4.474"	3°	17°	MBEC131821R	F15	W11
	.220"	Steel	.188"	3.500"	0°	17°	MBES101822R	F15	W11
		Heavy Metal	.188"	3.976"	0°	17°	MBEH101822R	F15	W11
	.270"	Steel	.250"	4.000"	0°	12°	MBES102527R	F15	W11
					3°	12°	MBES132527R	F15	W11
		Heavy Metal	.250"	3.976"	0°	12°	MBEH102527R	F15	W11
					3°	12°	MBEH132527R	F15	W11
	Left Hand Bars Use inserts beginning with 'MBEIW' and ANSI 'WCGT 1.21' inserts	Steel	.188"	3.500"	3°	17°	MBES131821L	F15	W11

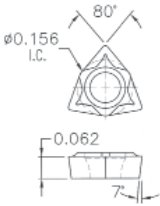
MBE TRIGON BORING

TO ORDER WCGT STYLE - MBE SERIES INSERTS

Select the **ORDER CODE** in the table below that represents your selection of insert specifications.

EXAMPLE:

The **ORDER CODE** for a **DURA-MAX® 4000** insert with .008" radius and TiN coating is:
MBEIW08D4C

WCGT Style MBE Series Use toolholders beginning with 'MBE' 	SPECIFICATIONS		ORDER CODE			
	Insert Material	Corner Radius	Coating See Page 9-5 for expanded material description and Page 9-14 for speeds and feeds			
			Uncoated	TiN	TiCN Non-stock	TiAlN Non-stock
	DURA-MAX® 4000 carbide For Steel & Interrupted Cutting	.004"	MBEIW04D4U	MBEIW04D4C	MBEIW04D4D	MBEIW04D4E

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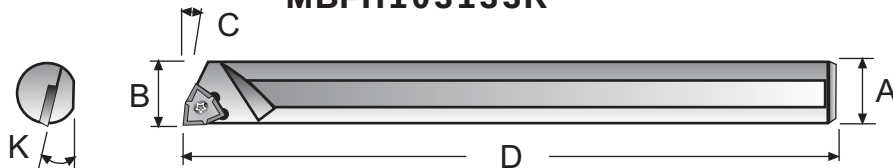
TO ORDER WCGT STYLE - MBF SERIES BORING BARS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a .330" minimum bore, right hand, heavy metal shank with a 0° lead angle is:

MBFH103133R



	TOOL SPECIFICATIONS						ORDER CODE			
	Minimum Bore	Material	Bar Diameter	Length	Lead Angle	'K' Angle	Boring Bar	Replacement Parts		
	'B'	Extension Ratios: Steel: 4 x ø Heavy Metal: 6 x ø Carbide: 8 x ø	'A'	'D'	'C'	'K'	Includes Screw and Wrench	Screw	Wrench	
	With .008" radius insert					See Page 3-2				
Right Hand Bars Use inserts beginning with 'MBFIW' and ANSI 'WCGT 1.51.5' inserts	.270"	Steel	.250"	4.000"	0°	15°	MBFS102527R	F15	W11	
						3°	15°	MBFS132527R	F15	W11
		Heavy Metal	.250"	3.976"	0°	15°	MBFH102527R	F15	W11	
					3°	15°	MBFH132527R	F15	W11	
		Carbide	.250"	6.488"	3°	15°	MBFC132527R	F15	W11	
	.330"	Steel	.312"	4.000"	0°	15°	MBFS103133R	F15	W11	
					3°	15°	MBFS133133R	F15	W11	
		Heavy Metal	.312"	5.500"	0°	15°	MBFH103133R	F15	W11	
					3°	15°	MBFH133133R	F15	W11	
	Left Hand Bars Use inserts beginning with 'MBFIW' and ANSI 'WCGT 1.51.5' inserts	.270"	Steel	.250"	4.000"	3°	15°	MBFS132527L	F15	W11
			Heavy Metal	.250"	3.976"	3°	15°	MBFH132527L	F15	W11
		.330"	Steel	.312"	4.000"	3°	15°	MBFS133133L	F15	W11
Heavy Metal			.312"	5.500"	3°	15°	MBFH133133L	F15	W11	

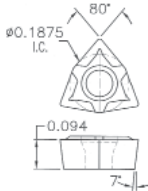
TO ORDER WCGT STYLE - MBF SERIES INSERTS

Select the **ORDER CODE** in the table below that represents your selection of insert specifications.

EXAMPLE:

The **ORDER CODE** for a **DURA-MAX® 4000** insert with .008" radius and TiN coating is:

MBFIW08D4C

WCGT Style MBF Series Use toolholders beginning with 'MBF'	SPECIFICATIONS		ORDER CODE			
	Insert Material	Corner Radius	Coating See Page 9-5 for expanded material description and Page 9-14 for Speeds and Feeds			
			Uncoated	TiN	TiCN Non-stock	TiAlN Non-stock
	DURA-MAX® 4000 carbide For Steel & Interrupted Cutting	.004"	MBFIW04D4U	MBFIW04D4C	MBFIW04D4D	MBFIW04D4E
		.008"	MBFIW08D4U	MBFIW08D4C	MBFIW08D4D	MBFIW08D4E
		.015"	MBFIW15D4U	MBFIW15D4C	MBFIW15D4D	MBFIW15D4E
	DURA-MAX® 5000 carbide For Aluminum & Nonferrous	.004"	MBFIW04D5U	MBFIW04D5C	MBFIW04D5D	MBFIW04D5E
		.008"	MBFIW08D5U	MBFIW08D5C	MBFIW08D5D	MBFIW08D5E
		.015"	MBFIW15D5U	MBFIW15D5C	MBFIW15D5D	MBFIW15D5E

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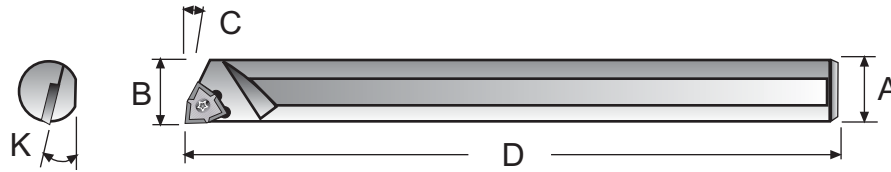
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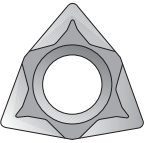
TO ORDER WCGT STYLE - MBG SERIES BORING BARS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a .410" minimum bore, right hand, heavy metal shank with a 3° lead angle is:
MBGH133741R



 .250" I.C.	TOOL SPECIFICATIONS						ORDER CODE		
	Minimum Bore 'B' With .008" radius insert	Material Extension Ratios: Steel: 4 x ø Heavy Metal: 6 x ø Carbide: 8 x ø	Bar Diameter 'A'	Length 'D'	Lead Angle 'C'	'K' Angle 'K' See Page 3-2	Boring Bar Includes Screw and Wrench	Replacement Parts	
Right Hand Bars Use inserts beginning with 'MBGIW' and ANSI 'WCGT 21.5' inserts	.410"	Steel	.375"	5.500"	0°	8°	MBGS103741R	F26	W26
					3°	8°	MBGS133741R	F26	W26
		Heavy Metal	.375"	5.500"	0°	8°	MBGH103741R	F26	W26
					3°	8°	MBGH133741R	F26	W26
	.530"	Steel	.500"	5.500"	0°	8°	MBGS105053R	F26	W26
					3°	8°	MBGS135053R	F26	W26
		Heavy Metal	.500"	5.500"	0°	8°	MBGH105053R	F26	W26
					3°	8°	MBGH135053R	F26	W26
Left Hand Bars Use inserts beginning with 'MBGIW' and ANSI 'WCGT 21.5' inserts	.410"	Steel	.375"	5.500"	3°	8°	MBGS133741L	F26	W26
		Heavy Metal	.375"	5.500"	3°	8°	MBGH133741L	F26	W26
	.530"	Steel	.500"	5.500"	3°	8°	MBGS135053L	F26	W26
		Heavy Metal	.500"	5.500"	3°	8°	MBGH135053L	F26	W26

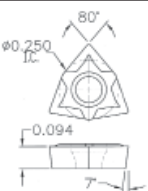
MBF & MBG TRIGON BORING

TO ORDER WCGT STYLE - MBG SERIES INSERTS

Select the **ORDER CODE** in the table below that represents your selection of insert specifications.

EXAMPLE:

The **ORDER CODE** for a **DURA-MAX® 4000** insert with .008" radius and TiN coating is:
MBGIW08D4C

WCGT Style MBG Series Use toolholders beginning with 'MBG'	SPECIFICATIONS		ORDER CODE			
	Insert Material	Corner Radius	Coating See Page 9-5 for expanded material description and Page 9-14 for Speeds and Feeds			
			Uncoated	TiN	TiCN Non-stock	TiAlN Non-stock
	DURA-MAX® 4000 carbide For Steel & Interrupted Cutting	.004"	MBGIW04D4U	MBGIW04D4C	MBGIW04D4D	MBGIW04D4E
		.008"	MBGIW08D4U	MBGIW08D4C	MBGIW08D4D	MBGIW08D4E
		.015"	MBGIW15D4U	MBGIW15D4C	MBGIW15D4D	MBGIW15D4E
	DURA-MAX® 5000 carbide For Aluminum & Nonferrous	.004"	MBGIW04D5U	MBGIW04D5C	MBGIW04D5D	MBGIW04D5E
		.008"	MBGIW08D5U	MBGIW08D5C	MBGIW08D5D	MBGIW08D5E
		.015"	MBGIW15D5U	MBGIW15D5C	MBGIW15D5D	MBGIW15D5E

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PRODUCT INFORMATION

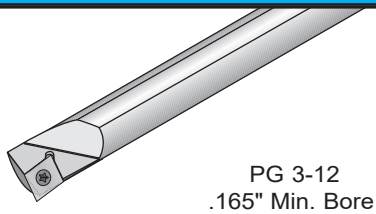
- Boring with .165" minimum bore diameter.
- 'K' angle increases strength in insert pocket by increasing the cross-sectional area below the insert.
- Boring bars for CD, TD and TP insert styles.
- Variety of diameters made from Steel, Heavy Metal and Carbide.
- Sub-micron grain **DURA-MAX® 3000, 4000 and 5000** Carbides.
- CBN tipped **DURA-MAX® 8000**.
- PCD tipped **DURA-MAX® 9000**.
- Inserts available with TiN, TiAlN, TiCN and Diamond coating.
- Bars and inserts are completely compatible with other ANSI standard bars and inserts. Call for cross-overs.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



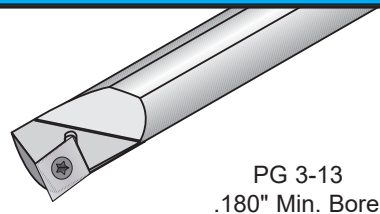
Right Hand
Shown

TOOLHOLDER SELECTIONS

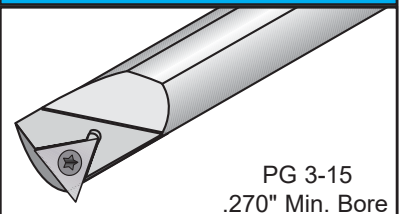
CD STYLE - MBZ SERIES



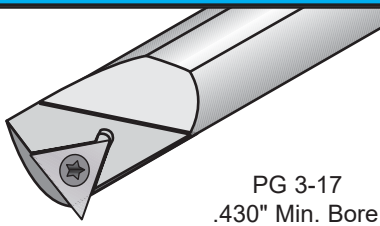
CD STYLE - MBA SERIES



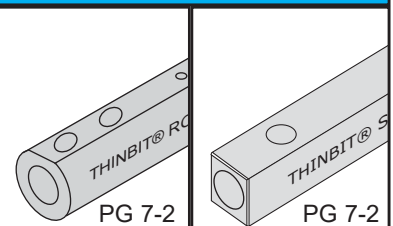
TD STYLE - MBB SERIES



TP STYLE - MBC SERIES



ADAPTER STYLES



INSERT SELECTIONS

CD STYLE - MBA SERIES



TD STYLE - MBB SERIES



TP STYLE - MBC SERIES



TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-15

APPLICATION REFERENCE

PG 9-4

TROUBLESHOOTING

PG 9-7

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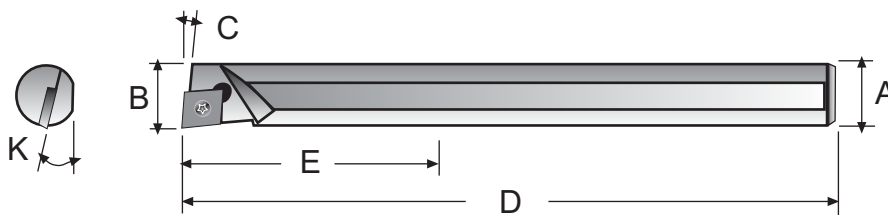
TO ORDER CD STYLE - MBZ SERIES BORING BARS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a .165" minimum bore, right hand, steel, .187" shank is:

MBZS171816R



	TOOL SPECIFICATIONS							ORDER CODE	
	Minimum Bore 'B' With .007" radius insert	Material Extension Ratios: Steel: 4 x ø Carbide: 8 x ø	Bar Diameter 'A'	Length 'D'	Neck Length 'E'	Lead Angle 'C'	'K' Angle 'K'	Boring Bar Includes Screw and Wrench	Replacement Parts Screw Wrench
 .140" I.C. Right Hand Bars Use Inserts beginning with 'MBZ'	0.165"	Steel	.187"	2.500"	.580"	7°	17°	MBZS171816R	F11 W11
		Carbide	.156"	4.477"	1.500"	7°	17°	MBZC171516R	

MBZ BARS & INSERTS BORING

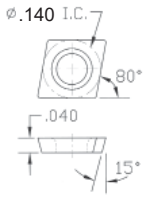
TO ORDER CDCD STYLE - MBZ SERIES INSERTS

Select the **ORDER CODE** in the table below that represents your selection of insert specifications.

EXAMPLE:

The **ORDER CODE** for a **DURA-MAX® 5000** insert with .007" radius and TiN coating is:

MBZIZ07D5C

	SPECIFICATIONS		ORDER CODE				
	Insert Material	Corner Radius	Coating See Page 9-5 for expanded material description and Page 9-15 for speeds and feeds				
			Uncoated	TiN	TiCN Non-stock	TiAlN Non-stock	Diamond Non-stock
	DURA-MAX® 4000 carbide For Steel & Interrupted Cutting	.002"	MBZIZ02D4U	MBZIZ02D4C	MBZIZ02D4D	MBZIZ02D4E	MBZIZ02D4F
		.007"	MBZIZ07D4U	MBZIZ07D4C	MBZIZ07D4D	MBZIZ07D4E	MBZIZ07D4F
		.015"	MBZIZ15D4U	MBZIZ15D4C	MBZIZ15D4D	MBZIZ15D4E	MBZIZ15D4F
	DURA-MAX® 5000 carbide For Aluminum & Nonferrous	.002"	MBZIZ02D5U	MBZIZ02D5C	MBZIZ02D5D	MBZIZ02D5E	MBZIZ02D5F
		.007"	MBZIZ07D5U	MBZIZ07D5C	MBZIZ07D5D	MBZIZ07D5E	MBZIZ07D5F
		.015"	MBZIZ15D5U	MBZIZ15D5C	MBZIZ15D5D	MBZIZ15D5E	MBZIZ15D5F

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TO ORDER CD STYLE - MBA SERIES BORING BARS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

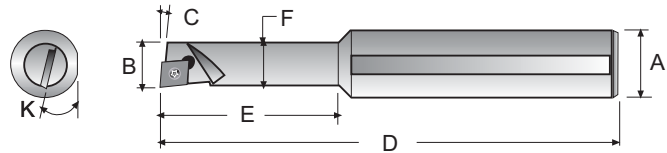
The **ORDER CODE** for a .205" minimum bore, right hand, steel, .187" shank is:

MBAS151820R

STANDARD BARS



STEP BARS



	TOOL SPECIFICATIONS								ORDER CODE		
	Minimum Bore 'B'	Material	Bar Diameter		Length		Lead Angle	'K' Angle	Boring Bar	Replacement Parts	
	With .007" radius insert	Extension Ratios: Steel: 4 x ø Heavy Metal: 6 x ø Carbide: 8 x ø	'F' Neck	'A' Shank	'E' Neck	'D' Overall	'C'	'K'	Includes Screw and Wrench	Screw	Wrench
 .156" I.C. Right Hand Bars Use inserts beginning with 'MBAIW', 'MBAIZ', left hand 'MBAIG' inserts and most ANSI 'CD' standard inserts	.180"	Steel	.164"	.187"	.520"	2.500"	7°	17°	MBAS171818R	F11	W11
			.164"	.375"	.520"	2.500"	7°	17°	MBAS373718R050		
		Heavy Metal	.156"	---	---	3.976"	7°	17°	MBAH171518R		
			.164"	.500"	.750"	3.000"	7°	17°	MBAH375018R075		
		Carbide	.156"	---	---	4.477"	7°	17°	MBAC171518R		
	.205"	Steel	.187"	---	---	3.500"	5°	17°	MBAS151820R	F15	W11
			.180"	.500"	.500"	3.000"	5°	17°	MBAS355020R050		
		Heavy Metal	.187"	---	---	3.976"	5°	17°	MBAH151820R		
			.187"	---	---	3.500"	0°	17°	MBAS101821R		
	.210"	Steel	.187"	.375"	1.000"	3.000"	5°	17°	MBAS353721R100	F15	W11
			.187"	---	---	3.976"	0°	17°	MBAH101821R		
		Heavy Metal	.187"	---	---	3.976"	0°	17°	MBAH101821R		
			.187"	---	---	3.976"	5°	17°	MBAH151822R		
	.220"	Steel	.197"	.375"	.500"	2.500"	0°	17°	MBAS303722R050	F15	W11
			.187"	---	---	3.976"	5°	17°	MBAH151822R		
		Heavy Metal	.187"	.500"	1.125"	3.977"	5°	17°	MBAH355022R112		
			.187"	---	---	4.477"	5°	17°	MBAC151822R		
	.230"	Steel	.187"	---	---	3.500"	5°	17°	MBAS151823R	F15	W11
		Steel	.250"	---	---	4.000"	0°	12°	MBAS102527R	F15	W11
	.280"	Steel	.250"	---	---	4.000"	5°	12°	MBAS152528R	F15	W11
			.250"	.375"	1.250"	3.000"	5°	12°	MBAS353728R125		
		Heavy Metal	.250"	---	---	3.976"	5°	12°	MBAH152528R		
		Carbide	.250"	---	---	6.504"	5°	12°	MBAC152528R		
	.350"	Heavy Metal	.313"	---	---	5.500"	5°	8°	MBAH153135R	F15	W11
Left Hand Bars Use inserts beginning with 'MBAIW', 'MBAIZ', right hand 'MBAIG' inserts and most ANSI 'CD' standard inserts	.180"	Steel	.164"	.187"	.520"	2.500"	7°	17°	MBAS171818L	F11	W11
		Heavy Metal	.156"	---	---	3.976"	7°	17°	MBAH171518L		
	.205"	Steel	.180"	.500"	.500"	3.000"	5°	17°	MBAS355020L050	F15	W11
	.230"	Steel	.187"	---	---	3.500"	5°	17°	MBAS151823L		
	.280"	Steel	.250"	---	---	4.000"	5°	12°	MBAS152528L		

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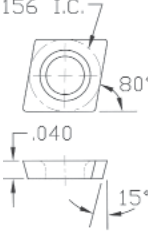
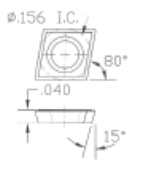
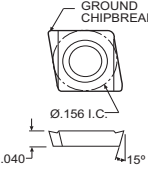
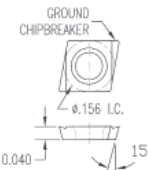
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TO ORDER CD STYLE - MBA SERIES INSERTS

Select the **ORDER CODE** in the table below that represents your selection of insert specifications.

EXAMPLE:

The **ORDER CODE** for a molded chipbreaker, **DURA-MAX® 4000** insert with .007" radius and TiN coating is:
MBAIW07D4C

CD Style MBA Series Use toolholders beginning with 'MBA'	SPECIFICATIONS		ORDER CODE				
	Insert Material	Corner Radius	Coating See Page 9-5 for expanded material descriptions and Page 9-15 for Speeds and Feeds				
			Uncoated	TiN	TiCN Non-stock	TiAlN Non-stock	Diamond Non-stock
Flat top  CDCD Style	DURA-MAX® 4000 Carbide For Steel & Interrupted Cutting	.002"	MBAIZ02D4U	MBAIZ02D4C	MBAIZ02D4D	MBAIZ02D4E	MBAIZ02D4F
		.007"	MBAIZ07D4U	MBAIZ07D4C	MBAIZ07D4D	MBAIZ07D4E	MBAIZ07D4F
		.015"	MBAIZ15D4U	MBAIZ15D4C	MBAIZ15D4D	MBAIZ15D4E	MBAIZ15D4F
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.002"	MBAIZ02D5U	MBAIZ02D5C	MBAIZ02D5D	MBAIZ02D5E	MBAIZ02D5F
		.007"	MBAIZ07D5U	MBAIZ07D5C	MBAIZ07D5D	MBAIZ07D5E	MBAIZ07D5F
		.015"	MBAIZ15D5U	MBAIZ15D5C	MBAIZ15D5D	MBAIZ15D5E	MBAIZ15D5F
	DURA-MAX® 8000 CBN For Hardened Materials	.002"	MBAIZ02D8				
		.007"	MBAIZ07D8				
		.015"	MBAIZ15D8				
	DURA-MAX® 9000 PCD For Abrasive Nonferrous	.002"	MBAIZ02D9				
		.007"	MBAIZ07D9				
		.015"	MBAIZ15D9				
Molded Chipbreaker  CDCH Style	DURA-MAX® 4000 Carbide For Steel & Interrupted Cutting	.007"	MBAIW07D4U	MBAIW07D4C	MBAIW07D4D	MBAIW07D4E	MBAIW07D4F
		.015"	MBAIW15D4U	MBAIW15D4C	MBAIW15D4D	MBAIW15D4E	MBAIW15D4F
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.007"	MBAIW07D5U	MBAIW07D5C	MBAIW07D5D	MBAIW07D5E	MBAIW07D5F
		.015"	MBAIW15D5U	MBAIW15D5C	MBAIW15D5D	MBAIW15D5E	MBAIW15D5F
Ground Chipbreaker Right Hand for Left Hand Bars  CDCG Style	DURA-MAX® 4000 Carbide For Steel & Interrupted Cutting	.002"	MBAIG02D4UR	MBAIG02D4CR	MBAIG02D4DR	MBAIG02D4ER	MBAIG02D4FR
		.007"	MBAIG07D4UR	MBAIG07D4CR	MBAIG07D4DR	MBAIG07D4ER	MBAIG07D4FR
		.015"	MBAIG15D4UR	MBAIG15D4CR	MBAIG15D4DR	MBAIG15D4ER	MBAIG15D4FR
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.002"	MBAIG02D5UR	MBAIG02D5CR	MBAIG02D5DR	MBAIG02D5ER	MBAIG02D5FR
		.007"	MBAIG07D5UR	MBAIG07D5CR	MBAIG07D5DR	MBAIG07D5ER	MBAIG07D5FR
		.015"	MBAIG15D5UR	MBAIG15D5CR	MBAIG15D5DR	MBAIG15D5ER	MBAIG15D5FR
Ground Chipbreaker Left Hand for Right Hand Bars  CDCG Style	DURA-MAX® 4000 Carbide For Steel & Interrupted Cutting	.002"	MBAIG02D4UL	MBAIG02D4CL	MBAIG02D4DL	MBAIG02D4EL	MBAIG02D4FL
		.007"	MBAIG07D4UL	MBAIG07D4CL	MBAIG07D4DL	MBAIG07D4EL	MBAIG07D4FL
		.015"	MBAIG15D4UL	MBAIG15D4CL	MBAIG15D4DL	MBAIG15D4EL	MBAIG15D4FL
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.002"	MBAIG02D5UL	MBAIG02D5CL	MBAIG02D5DL	MBAIG02D5EL	MBAIG02D5FL
		.007"	MBAIG07D5UL	MBAIG07D5CL	MBAIG07D5DL	MBAIG07D5EL	MBAIG07D5FL
		.015"	MBAIG15D5UL	MBAIG15D5CL	MBAIG15D5DL	MBAIG15D5EL	MBAIG15D5FL

**MBA BARS
& INSERTS
BORING**

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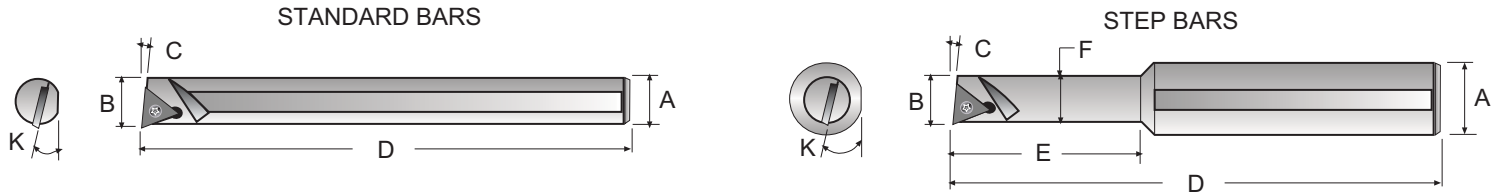
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TO ORDER TD STYLE - MBB SERIES BORING BARS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a .300" minimum bore, right hand, heavy metal, .500" shank step bar is:
MBBH355030R150



	TOOL SPECIFICATIONS								ORDER CODE		
	Minimum Bore	Material	Bar Diameter		Length		Lead Angle	'K' Angle	Boring Bar	Replacement Parts	
	'B'		'F'	'A'	'E'	'D'	'C'	'K'		Screw	Wrench
.160" I.C.	With .007" radius insert	Extension Ratios: Steel: 4 x ø Heavy Metal: 6 x ø Carbide: 8 x ø	Neck	Shank	Neck	Overall		See Page 3-2	Includes Screw and Wrench		
Right Hand Bars Use inserts beginning with 'MBBIW', 'MBBIZ', left hand 'MBBIG' inserts and most ANSI 'TD' standard inserts	.270"	Steel	.187"		---	3.500"	0°	17°	MBBS101827R	F22	W11
			.187"		---	3.500"	5°	17°	MBBS151827R		
			.187"	.500"	1.000"	3.000"	5°	17°	MBBS355027R100		
		Heavy Metal	.187"		---	3.976"	0°	17°	MBBH101827R		
			.187"		---	3.976"	5°	17°	MBBH151827R		
			.187"	.500"	1.125"	3.965"	5°	17°	MBBH355027R112		
		Carbide	.187"		---	4.487"	5°	17°	MBBC151827R		
	.300"	Steel	.250"		---	4.000"	0°	12°	MBBS102530R	F22	W11
			.250"		---	4.000"	5°	12°	MBBS152530R		
			.250"	.500"	1.250"	3.000"	5°	12°	MBBS355030R125		
			.250"	.625"	1.250"	4.000"	5°	12°	MBBS356230R125		
		Heavy Metal	.250"		---	3.976"	0°	12°	MBBH102530R		
			.250"		---	3.976"	5°	12°	MBBH152530R		
			.250"	.500"	1.500"	3.981"	5°	12°	MBBH355030R150		
		Carbide	.250"		---	6.488"	5°	12°	MBBC152530R		
	.350"	Steel	.313"		---	4.000"	0°	8°	MBBS103135R	F22	W11
			.313"		---	4.000"	5°	8°	MBBS153135R		
			.313"	.500"	1.000"	3.000"	5°	8°	MBBS355035R100		
		Heavy Metal	.313"		---	5.500"	0°	8°	MBBH103135R		
			.313"		---	5.500"	5°	8°	MBBH153135R		
			.313"	.500"	1.500"	3.981"	5°	8°	MBBH355035R150		
		Carbide	.313"		---	6.483"	5°	8°	MBBC153135R		
Left Hand Bars Use inserts beginning with 'MBBIW', 'MBBIZ', right hand 'MBBIG' inserts and most ANSI 'TD' standard inserts	.270"	Steel	.187"		---	3.500"	5°	17°	MBBS151827L	F22	W11
	.300"	Steel	.250"		---	4.000"	5°	12°	MBBS152530L		
	.350"	Steel	.313"		---	4.000"	5°	8°	MBBS153135L		
		Heavy Metal	.313"		---	5.500"	5°	8°	MBBH153135L		

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TO ORDER TD STYLE - MBB SERIES INSERTS

Select the **ORDER CODE** in the table below that represents your selection of insert specifications.

EXAMPLE:

The **ORDER CODE** for a molded chipbreaker, **DURA-MAX® 4000** insert with .007" radius and TiN coating is:
MBBIW07D4C

TD Style MBB Series Use toolholders beginning with 'MBB'	SPECIFICATIONS		ORDER CODE				
	Insert Material	Corner Radius	Coating See Page 9-5 for expanded material descriptions and Page 9-15 for Speeds and Feeds				
			Uncoated	TiN	TiCN Non-stock	TiAlN Non-stock	Diamond Non-stock
Flat top  TDAB Style	DURA-MAX® 3000/4000 Carbide* For Steel & Interrupted Cutting	.002"	MBBIZ02D3U	MBBIZ02D3C	MBBIZ02D3D	MBBIZ02D3E	MBBIZ02D3F
		.007"	MBBIZ07D3U	MBBIZ07D3C	MBBIZ07D3D	MBBIZ07D3E	MBBIZ07D3F
		.015"	MBBIZ15D3U	MBBIZ15D3C	MBBIZ15D3D	MBBIZ15D3E	MBBIZ15D3F
		.031"	MBBIZ31D3U	MBBIZ31D3C	MBBIZ31D3D	MBBIZ31D3E	MBBIZ31D3F
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.002"	MBBIZ02D5U	MBBIZ02D5C	MBBIZ02D5D	MBBIZ02D5E	MBBIZ02D5F
		.007"	MBBIZ07D5U	MBBIZ07D5C	MBBIZ07D5D	MBBIZ07D5E	MBBIZ07D5F
		.015"	MBBIZ15D5U	MBBIZ15D5C	MBBIZ15D5D	MBBIZ15D5E	MBBIZ15D5F
		.031"	MBBIZ31D5U	MBBIZ31D5C	MBBIZ31D5D	MBBIZ31D5E	MBBIZ31D5F
	DURA-MAX® 8000 CBN For Hardened Materials	.002"	MBBIZ02D8				
		.007"	MBBIZ07D8				
		.015"	MBBIZ15D8				
		.031"	MBBIZ31D8				
	DURA-MAX® 9000 PCD For Abrasive Nonferrous	.002"	MBBIZ02D9				
		.007"	MBBIZ07D9				
		.015"	MBBIZ15D9				
		.031"	MBBIZ31D9				
Molded Chipbreaker  TDCH Style	DURA-MAX® 4000 Carbide For Steel & Interrupted Cutting	.007"	MBBIW07D4U	MBBIW07D4C	MBBIW07D4D	MBBIW07D4E	MBBIW07D4F
		.015"	MBBIW15D4U	MBBIW15D4C	MBBIW15D4D	MBBIW15D4E	MBBIW15D4F
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.007"	MBBIW07D5U	MBBIW07D5C	MBBIW07D5D	MBBIW07D5E	MBBIW07D5F
		.015"	MBBIW15D5U	MBBIW15D5C	MBBIW15D5D	MBBIW15D5E	MBBIW15D5F
Ground Chipbreaker Right Hand for Left Hand Bars  TDCG Style	DURA-MAX® 3000 Carbide For Steel & Interrupted Cutting	.002"	MBBIG02D3UR	MBBIG02D3CR	MBBIG02D3DR	MBBIG02D3ER	MBBIG02D3FR
		.007"	MBBIG07D3UR	MBBIG07D3CR	MBBIG07D3DR	MBBIG07D3ER	MBBIG07D3FR
		.015"	MBBIG15D3UR	MBBIG15D3CR	MBBIG15D3DR	MBBIG15D3ER	MBBIG15D3FR
		.031"	MBBIG31D3UR	MBBIG31D3CR	MBBIG31D3DR	MBBIG31D3ER	MBBIG31D3FR
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.002"	MBBIG02D5UR	MBBIG02D5CR	MBBIG02D5DR	MBBIG02D5ER	MBBIG02D5FR
		.007"	MBBIG07D5UR	MBBIG07D5CR	MBBIG07D5DR	MBBIG07D5ER	MBBIG07D5FR
		.015"	MBBIG15D5UR	MBBIG15D5CR	MBBIG15D5DR	MBBIG15D5ER	MBBIG15D5FR
		.031"	MBBIG31D5UR	MBBIG31D5CR	MBBIG31D5DR	MBBIG31D5ER	MBBIG31D5FR
Ground Chipbreaker Left Hand for Right Hand Bars  TDCG Style	DURA-MAX® 3000 Carbide For Steel & Interrupted Cutting	.002"	MBBIG02D3UL	MBBIG02D3CL	MBBIG02D3DL	MBBIG02D3EL	MBBIG02D3FL
		.007"	MBBIG07D3UL	MBBIG07D3CL	MBBIG07D3DL	MBBIG07D3EL	MBBIG07D3FL
		.015"	MBBIG15D3UL	MBBIG15D3CL	MBBIG15D3DL	MBBIG15D3EL	MBBIG15D3FL
		.031"	MBBIG31D3UL	MBBIG31D3CL	MBBIG31D3DL	MBBIG31D3EL	MBBIG31D3FL
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.002"	MBBIG02D5UL	MBBIG02D5CL	MBBIG02D5DL	MBBIG02D5EL	MBBIG02D5FL
		.007"	MBBIG07D5UL	MBBIG07D5CL	MBBIG07D5DL	MBBIG07D5EL	MBBIG07D5FL
		.015"	MBBIG15D5UL	MBBIG15D5CL	MBBIG15D5DL	MBBIG15D5EL	MBBIG15D5FL
		.031"	MBBIG31D5UL	MBBIG31D5CL	MBBIG31D5DL	MBBIG31D5EL	MBBIG31D5FL

* For some details, **DURA-MAX® 4000** may be substituted.

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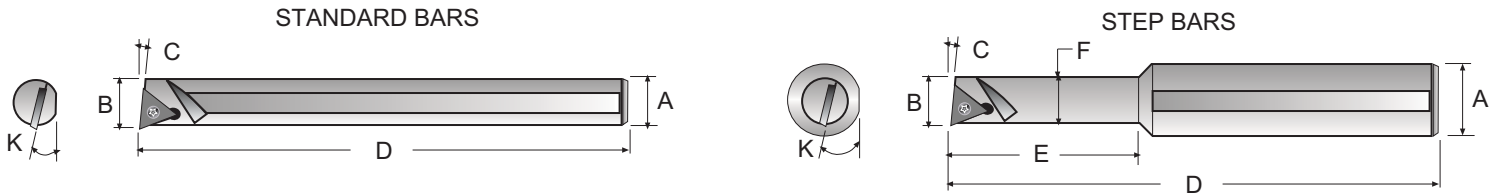
MBB BARS
& INSERTS
BORING

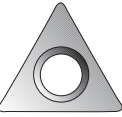
TO ORDER TP STYLE - MBC SERIES BORING BARS

Select the **ORDER CODE** in the table below that represents your selection of tool specifications.

EXAMPLE:

The **ORDER CODE** for a .430" minimum bore, right hand, steel, .375" shank is:
MBCS153743R



 .250" I.C.	TOOL SPECIFICATIONS								ORDER CODE		
	Minimum Bore	Material	Bar Diameter		Length		Lead Angle	'K' Angle	Boring Bar	Replacement Parts	
	'B'		'F'	'A'	'E'	'D'	'C'	'K'		Screw	Wrench
	With .007" radius insert	Extension Ratios: Steel: 4 x ø Heavy Metal: 6 x ø Carbide: 8 x ø	Neck	Shank	Neck	Overall		see page 3-2	Includes Screw and Wrench		
Right Hand Bars Use inserts beginning with 'MBCIW', 'MBCIZ', 'MBCIG' left hand 'MBCIG' inserts and most ANSI 'TP' standard inserts	.430"	Steel	.375"		---	5.500"	0°	8°	MBCS103743R	F31	W31
			.375"		---	5.500"	5°	8°	MBCS153743R		
			.375"	.750"	1.125"	4.000"	5°	8°	MBCS357543R112		
		Heavy Metal	.375"		---	5.500"	5°	8°	MBCH153743R		
			.375"	.500"	2.250"	3.988"	5°	8°	MBCH355043R225		
			.375"		---	6.783"	5°	8°	MBCC153743R		
	.560"	Steel	.500"		---	5.500"	5°	2°	MBCS155056R	F31	W31
			.500"	.625"	1.500"	4.000"	5°	2°	MBCS356256R150		
		Heavy Metal	.500"		---	5.500"	5°	2°	MBCH155056R		
		Carbide	.500"		---	6.769"	5°	2°	MBCC155056R		
Left Hand Bars Use inserts beginning with 'MBCIW', 'MBCIZ', 'MBCIG' right hand 'MBCIG' inserts and most ANSI 'TP' standard inserts	.680"	Steel	.625"		---	5.500"	5°	2°	MBCS156268R	F31	W31
	.430"	Steel	.375"		---	5.500"	5°	8°	MBCS153743L	F31	W31

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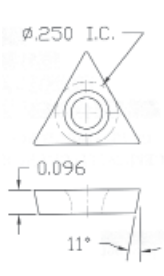
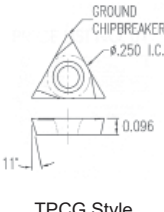
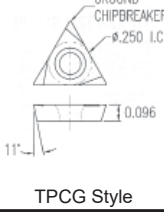
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TO ORDER TP STYLE - MBC SERIES INSERTS

Select the **ORDER CODE** in the table below that represents your selection of insert specifications.

EXAMPLE:

The **ORDER CODE** for a molded chipbreaker, **DURA-MAX® 5000** insert with .015" radius and TiN coating is:
MBCIW15D5C

TP Style MBC Series Use toolholders beginning with 'MBC'	SPECIFICATIONS		ORDER CODE				
	Insert Material	Corner Radius	Coating See Page 9-5 for expanded material descriptions and Page 9-15 for Speeds and Feeds				
			Uncoated	TiN	TiCN Non-stock	TiAlN Non-stock	Diamond Non-stock
Flat top  TPCB Style	DURA-MAX® 3000/4000 Carbide* For Steel & Interrupted Cutting	.002"	MBCIZ02D3U	MBCIZ02D3C	MBCIZ02D3D	MBCIZ02D3E	MBCIZ02D3F
		.007"	MBCIZ07D3U	MBCIZ07D3C	MBCIZ07D3D	MBCIZ07D3E	MBCIZ07D3F
		.015"	MBCIZ15D4U	MBCIZ15D4C	MBCIZ15D4D	MBCIZ15D4E	MBCIZ15D4F
		.031"	MBCIZ31D3U	MBCIZ31D3C	MBCIZ31D3D	MBCIZ31D3E	MBCIZ31D3F
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.002"	MBCIZ02D5U	MBCIZ02D5C	MBCIZ02D5D	MBCIZ02D5E	MBCIZ02D5F
		.007"	MBCIZ07D5U	MBCIZ07D5C	MBCIZ07D5D	MBCIZ07D5E	MBCIZ07D5F
		.015"	MBCIZ15D5U	MBCIZ15D5C	MBCIZ15D5D	MBCIZ15D5E	MBCIZ15D5F
		.031"	MBCIZ31D5U	MBCIZ31D5C	MBCIZ31D5D	MBCIZ31D5E	MBCIZ31D5F
	DURA-MAX® 8000 CBN For Hardened Materials	.002"	MBCIZ02D8				
		.007"	MBCIZ07D8				
		.015"	MBCIZ15D8				
		.031"	MBCIZ31D8				
	DURA-MAX® 9000 PCD For Abrasive Nonferrous	.002"	MBCIZ02D9				
		.007"	MBCIZ07D9				
		.015"	MBCIZ15D9				
		.031"	MBCIZ31D9				
Molded Chipbreaker  TPCB Style	DURA-MAX® 3000 Carbide* For Steel & Interrupted Cutting	.015"	MBCIW15D3U	MBCIW15D3C	MBCIW15D3D	MBCIW15D3E	MBCIW15D3F
		.031"	MBCIW31D3U	MBCIW31D3C	MBCIW31D3D	MBCIW31D3E	MBCIW31D3F
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.015"	MBCIW15D5U	MBCIW15D5C	MBCIW15D5D	MBCIW15D5E	MBCIW15D5F
		.031"	MBCIW31D5U	MBCIW31D5C	MBCIW31D5D	MBCIW31D5E	MBCIW31D5F
Ground Chipbreaker Right Hand for Left Hand Bars  TPCG Style	DURA-MAX® 3000/4000 Carbide* For Steel & Interrupted Cutting	.002"	MBCIG02D3UR	MBCIG02D3CR	MBCIG02D3DR	MBCIG02D3ER	MBCIG02D3FR
		.007"	MBCIG07D3UR	MBCIG07D3CR	MBCIG07D3DR	MBCIG07D3ER	MBCIG07D3FR
		.015"	MBCIG15D4UR	MBCIG15D4CR	MBCIG15D4DR	MBCIG15D4ER	MBCIG15D4FR
		.031"	MBCIG31D3UR	MBCIG31D3CR	MBCIG31D3DR	MBCIG31D3ER	MBCIG31D3FR
	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.002"	MBCIG02D5UR	MBCIG02D5CR	MBCIG02D5DR	MBCIG02D5ER	MBCIG02D5FR
		.007"	MBCIG07D5UR	MBCIG07D5CR	MBCIG07D5DR	MBCIG07D5ER	MBCIG07D5FR
		.015"	MBCIG15D5UR	MBCIG15D5CR	MBCIG15D5DR	MBCIG15D5ER	MBCIG15D5FR
		.031"	MBCIG31D5UR	MBCIG31D5CR	MBCIG31D5DR	MBCIG31D5ER	MBCIG31D5FR
	DURA-MAX® 3000/4000 Carbide* For Steel & Interrupted Cutting	.002"	MBCIG02D3UL	MBCIG02D3CL	MBCIG02D3DL	MBCIG02D3EL	MBCIG02D3FL
		.007"	MBCIG07D3UL	MBCIG07D3CL	MBCIG07D3DL	MBCIG07D3EL	MBCIG07D3FL
		.015"	MBCIG15D4UL	MBCIG15D4CL	MBCIG15D4DL	MBCIG15D4EL	MBCIG15D4FL
		.031"	MBCIG31D3UL	MBCIG31D3CL	MBCIG31D3DL	MBCIG31D3EL	MBCIG31D3FL
Ground Chipbreaker Left Hand for Right Hand Bars  TPCG Style	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	.002"	MBCIG02D5UL	MBCIG02D5CL	MBCIG02D5DL	MBCIG02D5EL	MBCIG02D5FL
		.007"	MBCIG07D5UL	MBCIG07D5CL	MBCIG07D5DL	MBCIG07D5EL	MBCIG07D5FL
		.015"	MBCIG15D5UL	MBCIG15D5CL	MBCIG15D5DL	MBCIG15D5EL	MBCIG15D5FL
		.031"	MBCIG31D5UL	MBCIG31D5CL	MBCIG31D5DL	MBCIG31D5EL	MBCIG31D5FL

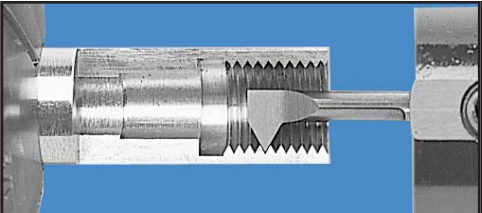
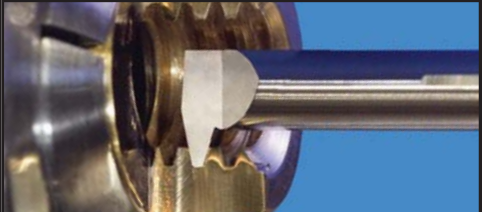
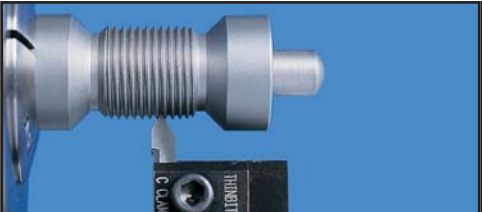
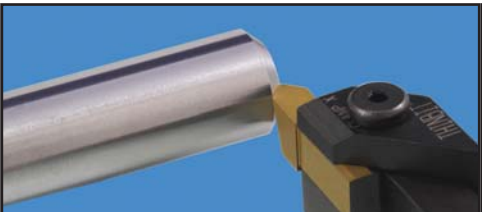
* For some details, **DURA-MAX® 4000** may be substituted.

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MBC BARS
& INSERTS
BORING

PRODUCT SELECTION GUIDE - THREADING & CHAMFERING

PAGE 4-3		• 60° Profile for internal diameters of .077" and larger • 4 Threads per inch and greater • Solid carbide shanks in 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" diameter
PAGE 4-5		• ACME profile • For internal diameters of .187" and larger • 6 Threads per inch and greater
PAGE 4-7		• 60° Profile for internal diameters of .325" and larger • 9 Threads per inch and greater
PAGE 4-9		• 60° Profile for external and internal threading • For internal diameters of 1.250" and larger • 8 Threads per inch and greater • Carbide and High Speed Steel
PAGE 4-11		• ACME Profile for external and internal threading • For internal diameters of 1.250" and larger • 4 Threads per inch and greater • Carbide and High Speed Steel
PAGE 4-13		• Chamfering inserts for external and internal use • For internal diameters of 1.250" and larger • Carbide and High Speed Steel
PAGE 1-13		• 3mm Threading & Chamfering style inserts (Pg. 6-2) • Can thread over a .500" long shoulder • Can back thread along a shoulder

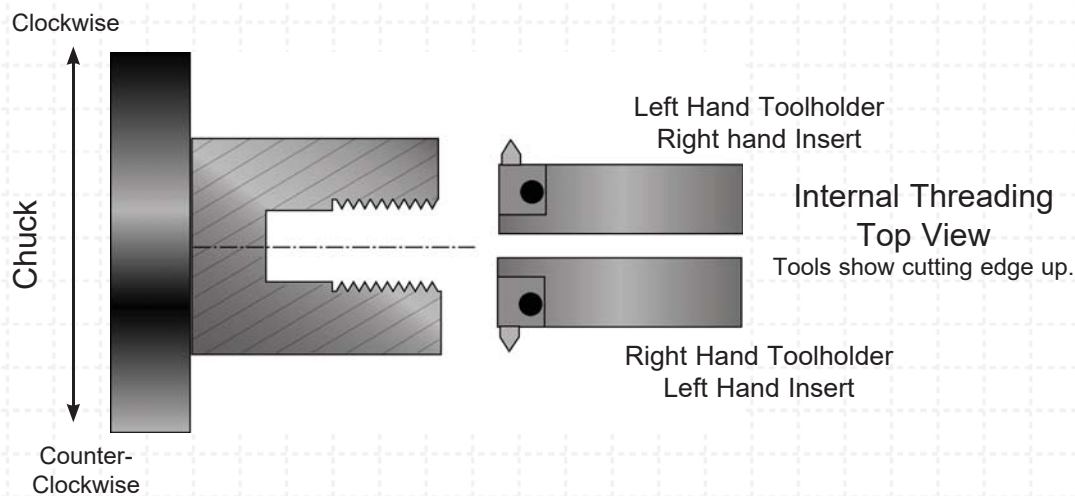
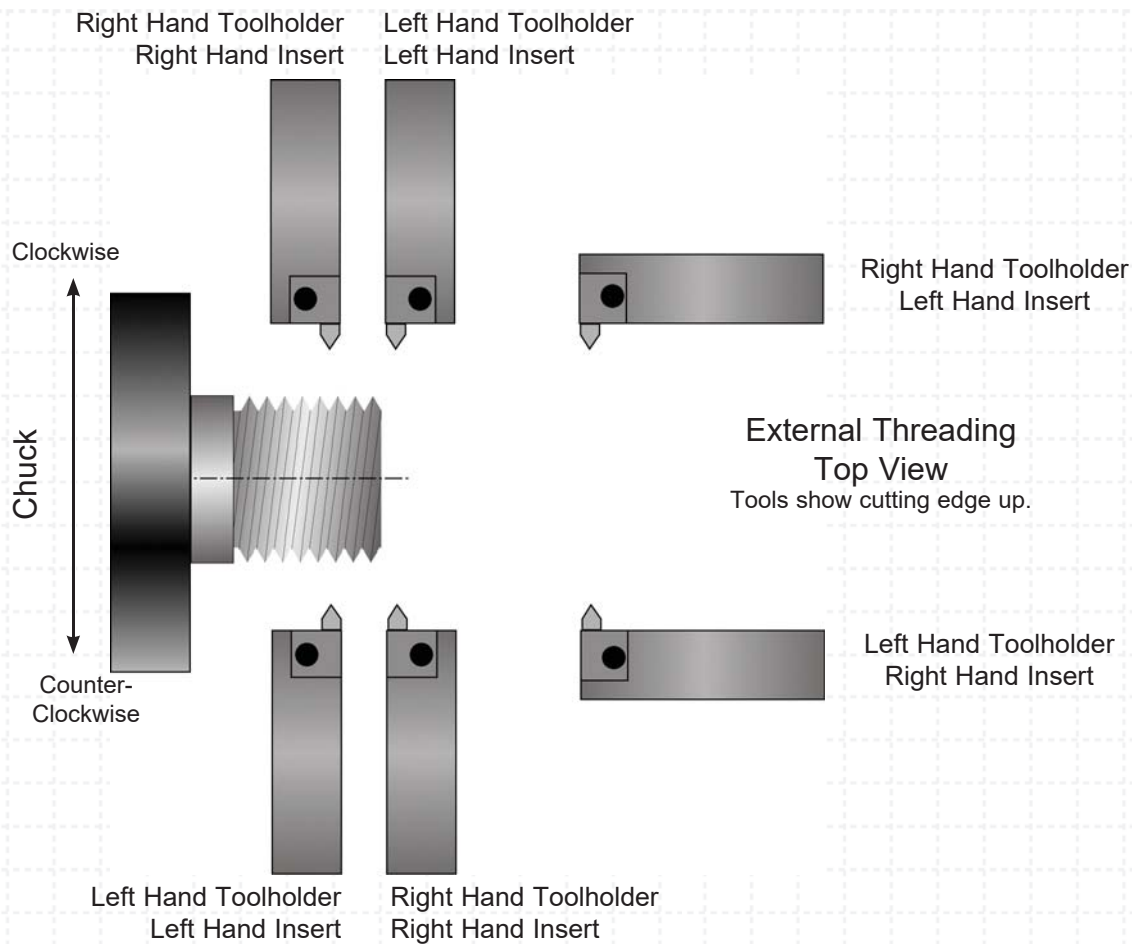
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TOOLING ORIENTATION GUIDE - THREADING & CHAMFERING



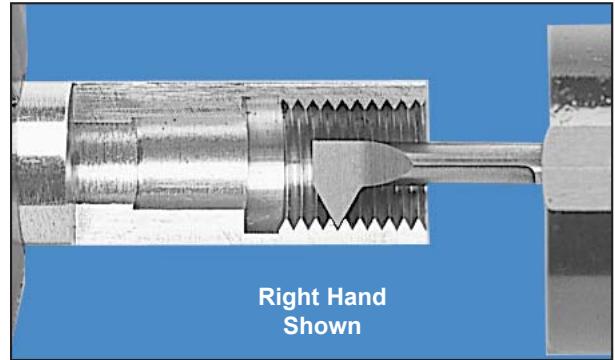
THREADING

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PRODUCT INFORMATION

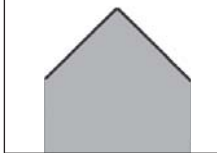
- Internal threading for diameters .077" and larger.
- 4 threads per inch and greater.
- 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" shank.
- Short neck lengths for greater rigidity; long neck lengths for greater reach.
- Elliptically ground necks for greater strength; round necks to fit into small diameters.
- Sub-micron grain **DURA-MAX® 2000** Carbide.
- Tools can be coated with TiN, TiAlN, TiCN and Diamond coating.



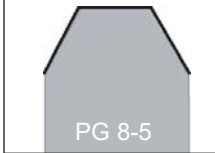
MODIFICATIONS

SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION

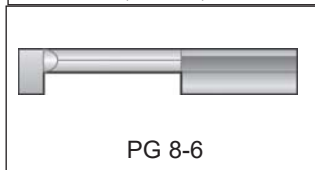
INCLUDED ANGLE (TOP VIEW)



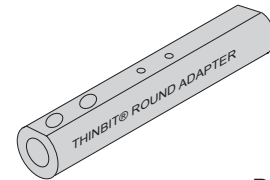
CUSTOM THREADS (TOP VIEW)



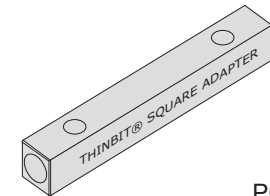
CUSTOM BLANK (TOP VIEW)



ADAPTER STYLES



PG 7-2



PG 7-2

TOOLHOLDER SELECTIONS

TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-18

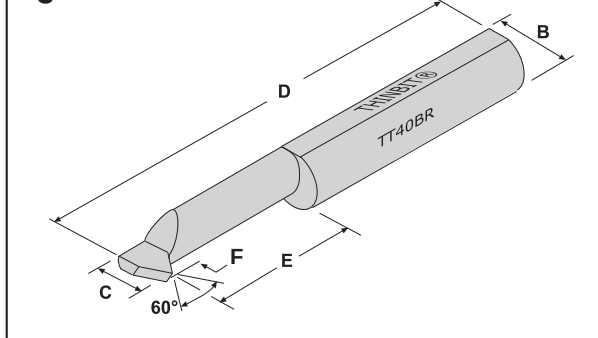
APPLICATION REFERENCE

PG 9-4

TROUBLESHOOTING

PG 9-7

Right Hand Illustrated



FRONT RAKE: Primary 21°

RADIUS: .002" or .000"

TOP RAKE: 0°

NOTE: Tool designed for feeding into bore only. Right hand tools should be used for right hand internal threads. Left hand tools should be used for left hand internal threads.

Select the **ORDER CODE** in the table on the next page that represents your selection of tool dimensions.

EXAMPLE:

The **ORDER CODE** for a .250" minimum bore, right hand tool for 5 to 56 T.P.I. and .596" tool reach is: **TT40BR**

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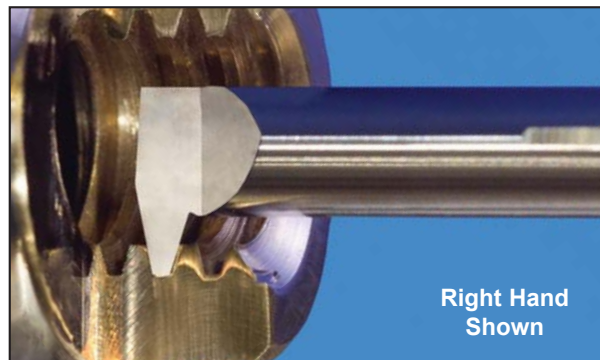
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I.D. THREADING TOOLS

SPECIFICATIONS			ORDER CODE						INFORMATION					
Minimum Bore	Threads per Inch	Tool Reach	DURA-MAX® 2000 Carbide See Page 9-18 for Speeds and Feeds Information		Coatings See Page 9-6 for Expanded Coating Descriptions Use Uncoated Part Number and Add Coating Code				Overall Length	Projection	Shank Diameter	Toolholder Page 7-2		
'C'		'E'							'D'	'F'	'B'	Use Toolholders Beginning With		
		Minimum	Right Hand	Left Hand	TiN	TiCN	TiAlN	Diamond						
.077" Round Neck	40 to 56	.291"	TT20AR	TT20AL	add 'C'	add 'D'	add 'E'	add 'F'	1.397"	.014"	1/8"	'AD'		
		.416"	TT21AR	TT21AL										
	Over 56	.291"	TT20AR1	TT20AL1										
		.416"	TT21AR1	TT21AL1										
.125"	11 to 56	.312"	TT20BR	TT20BL	add 'C'	add 'D'	add 'E'	add 'F'	1.439"	.050"	1/8"	'AD'		
		.437"	TT21BR	TT21BL										
	Over 56	.312"	TT20BR1	TT20BL1					1.404"	.020"				
		.437"	TT21BR1	TT21BL1										
	27 to 56	.294"	TT20CR	TT20CL										
		.419"	TT21CR	TT21CL										
	Over 56	.294"	TT20CR1	TT20CL1										
		.419"	TT21CR1	TT21CL1										
.187"	7 to 56	.454"	TT30BR	TT30BL	add 'C'	add 'D'	add 'E'	add 'F'	1.974"	.080"	3/16"	'AD'		
		.704"	TT31BR	TT31BL										
	Over 56	.454"	TT30BR1	TT30BL1					1.922"	.035"				
		.704"	TT31BR1	TT31BL1										
	16 to 56	.428"	TT30CR	TT30CL										
		.678"	TT31CR	TT31CL										
	Over 56	.428"	TT30CR1	TT30CL1										
		.678"	TT31CR1	TT31CL1										
.250"	5 to 56	.596"	TT40BR	TT40BL	add 'C'	add 'D'	add 'E'	add 'F'	2.508"	.110"	1/4"	'AD'		
		.846"	TT41BR	TT41BL										
	Over 56	.596"	TT40BR1	TT40BL1					2.439"	.050"				
		.846"	TT41BR1	TT41BL1										
	11 to 56	.562"	TT40CR	TT40CL										
		.812"	TT41CR	TT41CL										
	Over 56	.562"	TT40CR1	TT40CL1										
		.812"	TT41CR1	TT41CL1										
.313"	4 to 56	.739"	TT50BR	TT50BL	add 'C'	add 'D'	add 'E'	add 'F'	2.513"	.140"	5/16"	'AD'		
		1.114"	TT51BR	TT51BL										
	Over 56	.739"	TT50BR1	TT50BL1					2.424"	.063"				
		1.114"	TT51BR1	TT51BL1										
	9 to 56	.694"	TT50CR	TT50CL										
		1.069"	TT51CR	TT51CL										
	Over 56	.694"	TT50CR1	TT50CL1										
		1.069"	TT51CR1	TT51CL1										
.375"	5 to 56	.846"	TT60CR	TT60CL	add 'C'	add 'D'	add 'E'	add 'F'	2.948"	.110"	3/8"	'AD'		
		1.346"	TT61CR	TT61CL										
	Over 56	.846"	TT60CR1	TT60CL1										
		1.346"	TT61CR1	TT61CL1										
.500"	4 to 56	1.119"	TT80CR	TT80CL	add 'C'	add 'D'	add 'E'	add 'F'	3.434"	.150"	1/2"	'AD'		
		1.869"	TT81CR	TT81CL										
	Over 56	1.119"	TT80CR1	TT80CL1										
		1.869"	TT81CR1	TT81CL1										

PRODUCT INFORMATION

- Internal ACME threading for diameters .187" and larger.
- 6 threads per inch and greater.
- 3/16", 1/4", 5/16" and 3/8".
- Short neck lengths for greater rigidity; long neck lengths for greater reach.
- Elliptically ground necks for greater strength; round necks to fit into small diameters.
- Sub-micron grain **DURA-MAX® 2000** Carbide.
- Tools can be coated with TiN, TiAlN, TiCN and Diamond coating.

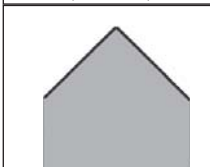


Right Hand
Shown

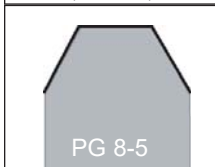
MODIFICATIONS

SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION

INCLUDED ANGLE
(TOP VIEW)



CUSTOM THREADS
(TOP VIEW)



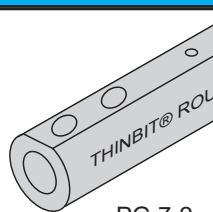
CUSTOM BLANK
(TOP VIEW)



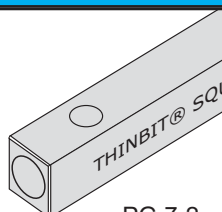
PG 8-6

TOOLHOLDER SELECTIONS

ADAPTER STYLES



PG 7-2



PG 7-2

TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-18

APPLICATION REFERENCE

PG 9-4

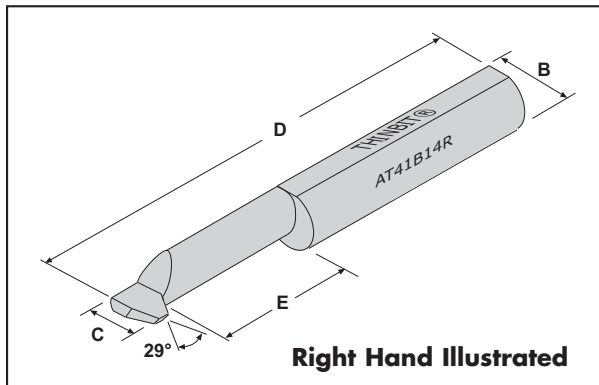
TROUBLESHOOTING

PG 9-7

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I.D. ACME THREADING TOOLS



FRONT RAKE: Primary 21°

TOP RAKE: 0°

NOTE: Tool designed for feeding into bore only. Right hand tools should be used for right hand internal threads. Left hand tools should be used for left hand internal threads.

- 29° ACME threading tools for internal applications.
- ACME threading tools can be used to cut other thread profiles by over cutting.
- Single lead

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of tool dimensions.

EXAMPLE:

The **ORDER CODE** for a .250" minimum bore, right hand tool for 14 or fewer T.P.I. and .750" tool reach is:

AT41B14R

I.D. ACME
THREADING

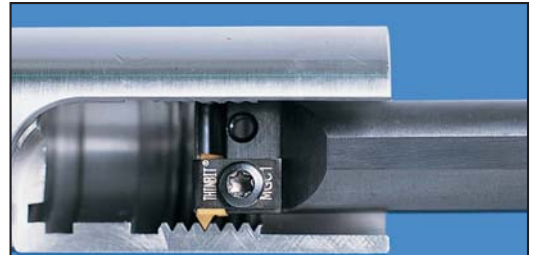
SPECIFICATIONS				ORDER CODE						INFORMATION		
Minimum Bore 'C'	Threads per Inch	Flat at Tip	Tool Reach 'E' Minimum	DURA-MAX® 2000 Carbide See Page 9-18 for Speeds and Feeds information		Coatings See Page 9-6 for Expanded Coating Descriptions Use Uncoated Part Number and Add Coating Code				Overall Length 'D'	Shank Diameter 'B'	Toolholder Page 7-2 Use Toolholders Beginning With
				Right Hand	Left Hand	TiN	TiCN	TiAlN	Diamond			
.187"	16	.021"	.625"	AT31B16R	AT31B16L	add 'C'	add 'D'	add 'E'	add 'F'	1.902"	3/16"	'AD'
.250"	14	.024"	.750"	AT41B14R	AT41B14L					2.413"	1/4"	
.313"	12	.028"	1.000"	AT51B12R	AT51B12L					2.388"	5/16"	
.375"	10	.032"	1.250"	AT61C10R	AT61C10L					2.893"	3/8"	
.375"	6	.057"	1.250"	AT61C06R	AT61C06L					2.863"	3/8"	

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PRODUCT INFORMATION

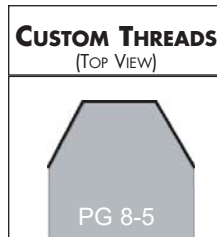
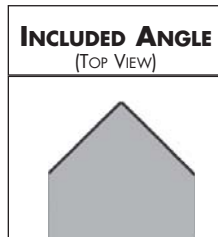
- Internal threading for diameters .325" and larger.
- 9 threads per inch and greater.
- Sub-micron grain **DURA-MAX® 2000** and **5000** Carbides.
- Inserts available coated with TiN, TiAlN, TiCN and Diamond coating.



Right Hand Toolholder with Left Hand Insert Shown

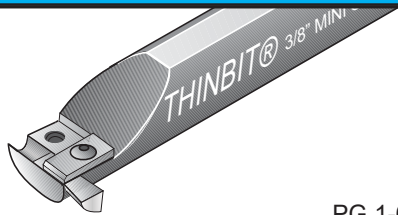
MODIFICATIONS

SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION



TOOLHOLDER SELECTION

ROUND STYLES



PG 1-6

TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-18

APPLICATION REFERENCE

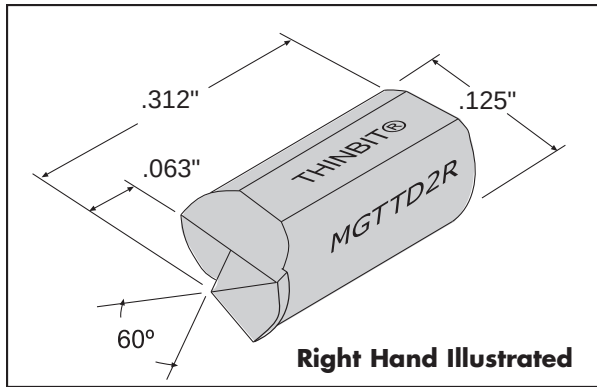
PG 9-4

TROUBLESHOOTING

PG 9-7

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FRONT RAKE: 15°
RADIUS: .002" or .000"
TOP RAKE: 0°

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of insert specifications.

EXAMPLE:

The **ORDER CODE** for a right hand, 9 to 56 Threads Per Inch **DURA-MAX® 2000** Carbide insert with TiN coating is:
MGTTD2RC

SPECIFICATIONS		ORDER CODE						INFO.
Insert Orientation	Threads per Inch	Insert Grades See Page 9-5 for Expanded Material Descriptions and Page 9-18 for Speeds and Feeds		Coatings See Page 9-6 for Expanded Coating Descriptions				Toolholder Page 1-6
		DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	Use Uncoated Part Number and Add Coating Code				Use Toolholders Beginning With
				TiN	TiCN	TiAlN	Diamond	
Right Hand	9 to 56	MGTTD2R	MGTTD5R	add 'C'	add 'D'	add 'E'	add 'F'	'MGT'
	Greater than 56	MGTTD2R1	MGTTD5R1					Use left hand holder
Left Hand	9 to 56	MGTTD2L	MGTTD5L	add 'C'	add 'D'	add 'E'	add 'F'	'MGT'
	Greater than 56	MGTTD2L1	MGTTD5L1					Use right hand holder

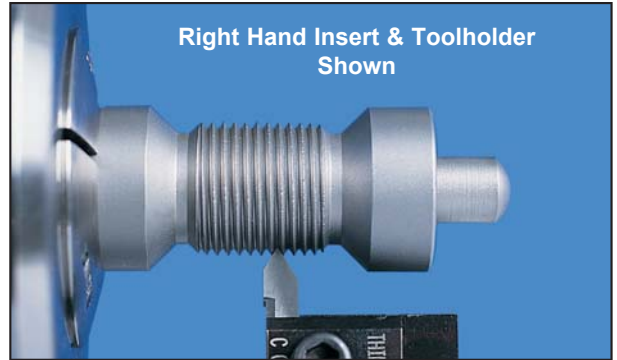
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PRODUCT INFORMATION

- External threading within .065" of a shoulder.
- Internal threading with 1.250" minimum bore diameter.
- 8 threads per inch and greater.
- Sub-micron grain **DURA-MAX® 2000** and **5000** Carbides and High Speed Steel.
- Inserts can be coated with TiN, TiAlN, TiCN and Diamond coating.

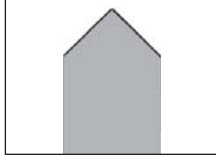
Right Hand Insert & Toolholder Shown



MODIFICATIONS

SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION

INCLUDED ANGLE
(Top View)

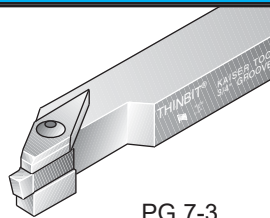


CUSTOM THREADS
(Top View)

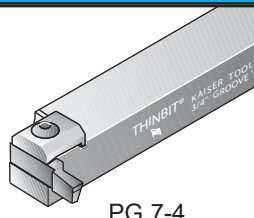


TOOLHOLDER SELECTIONS

CNC, SWISS, CONVENTIONAL STYLE

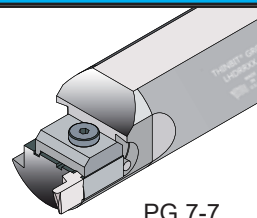


PG 7-3

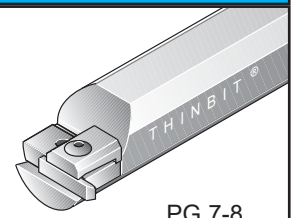


PG 7-4

ROUND STYLE



PG 7-7



PG 7-8

TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-18

APPLICATION REFERENCE

PGS 9-3 & 9-4

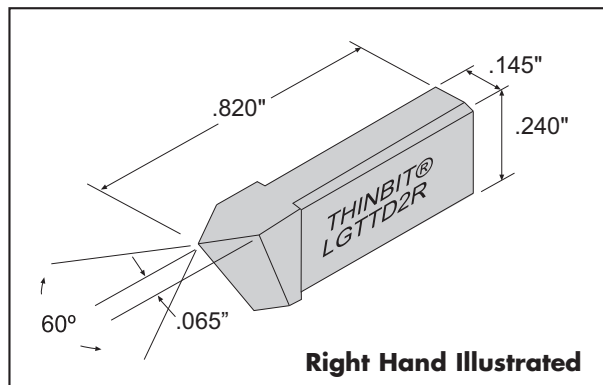
TROUBLESHOOTING

PG 9-7

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THREADING INSERTS



FRONT RAKE: 15°
RADIUS: .002" or .000"
TOP RAKE: 0°

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of orientation and insert grade.

EXAMPLE:

The **ORDER CODE** for a right hand, 8 to 56 Threads Per Inch threading insert in **DURA-MAX® 2000** is:
LGTTD2R

INSERTS
THREADING

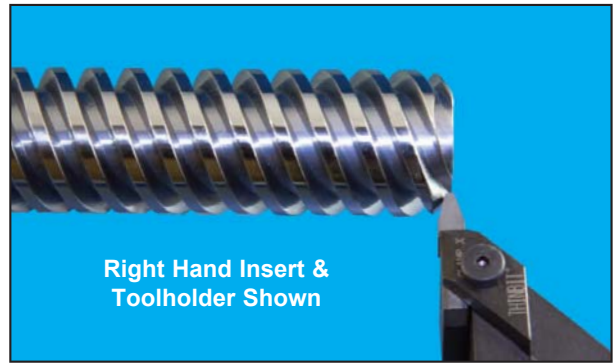
SPECIFICATIONS		ORDER CODE							INFO.
Insert Orientation	Threads per Inch	Insert Grades See Page 9-5 for expanded material selections and Page 9-18 for Speeds and Feeds information			Coatings See Page 9-6 for Expanded Coating Descriptions				Toolholder Catalog Section 7 Use Toolholders Beginning With
		DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	High Speed Steel	Use Uncoated Part Number and Add Coating Code				
					TiN	TiCN	TiAlN	Diamond	
Right Hand For right hand external threads or left hand internal threads	8 to 56	LGTTD2R	LGTTD5R	LGTTHSR	add 'C'	add 'D'	add 'E'	add 'F'	'L' Use right hand straight holder or left hand 90° holder
	Greater than 56	LGTTD2R1	LGTTD5R1	LGTTHSR1					
Left Hand For left hand external threads or right hand internal threads	8 to 56	LGTTD2L	LGTTD5L	LGTTHSL	add 'C'	add 'D'	add 'E'	add 'F'	'L' Use left hand straight holder or right hand 90° holder
	Greater than 56	LGTTD2L1	LGTTD5L1	LGTTHSL1					

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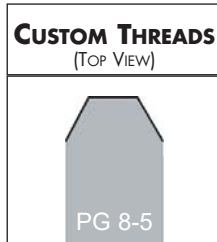
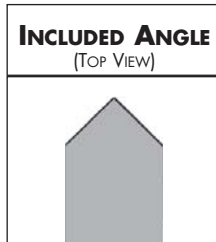
PRODUCT INFORMATION

- External threading within .070" of a shoulder.
- Internal ACME threading with 1.250" minimum bore diameter.
- 4 threads per inch and greater.
- Sub-micron grain **DURA-MAX[®] 2000** and **5000** Carbides and High Speed Steel.
- Inserts can be coated with TiN, TiAlN, TiCN and Diamond coating.



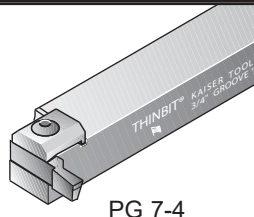
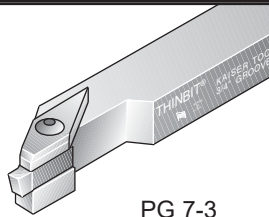
MODIFICATIONS

SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION

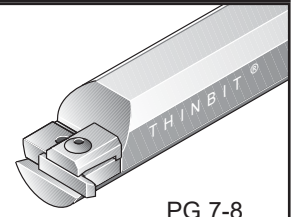
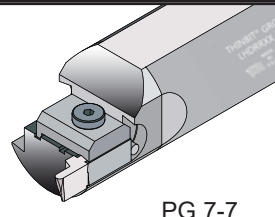


TOOLHOLDER SELECTIONS

CNC, SWISS, CONVENTIONAL STYLE



ROUND STYLE



TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-18

APPLICATION REFERENCE

PGS 9-3 & 9-4

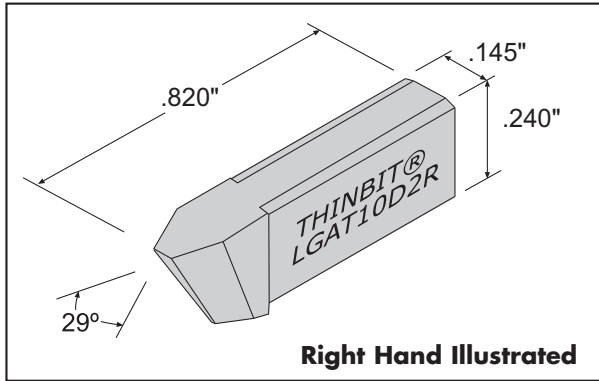
TROUBLESHOOTING

PG 9-7

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ACME THREADING INSERTS



FRONT RAKE: 15°

TOP RAKE: 0°

- 29° ACME threading inserts for internal and external applications.
- ACME threading tools can be used to cut other thread profiles by over cutting.
- Single lead

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of orientation and insert grade.

EXAMPLE:

The **ORDER CODE** for a right hand ACME threading insert in **DURA-MAX® 2000** with 10 or fewer T.P.I. is:
LGAT10D2R

ACME INSERTS
THREADING

SPECIFICATIONS			ORDER CODE							INFO.
Insert Orientation	Threads per Inch	Flat at Tip	Insert Grades See Page 9-5 for expanded material selections and Page 9-18 for Speeds and Feeds information			Coatings See page 9-6 for expanded coating descriptions Use Uncoated Part Number and Add Coating Code				Toolholder Catalog Section 7 Use Toolholders Beginning With
			DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	High Speed Steel	TIN	TICN	TIAlN	Diamond	
Centered right hand, left hand, internal and external threads	4	.087"	LGAT04D2R	LGAT04D5R	LGAT04HSR	add 'C'	add 'D'	add 'E'	add 'F'	'L'
	5	.069"	LGAT05D2R	LGAT05D5R	LGAT05HSR					Use right hand straight holder, or left hand 90° holder, for right hand external threads or left hand internal threads or Use left hand straight holder, or right hand 90° holder, for left hand external threads or right hand internal threads
	6	.057"	LGAT06D2R	LGAT06D5R	LGAT06HSR					
	8	.041"	LGAT08D2R	LGAT08D5R	LGAT08HSR					
	10	.032"	LGAT10D2R	LGAT10D5R	LGAT10HSR					
	12	.028"	LGAT12D2R	LGAT12D5R	LGAT12HSR					
	14	.024"	LGAT14D2R	LGAT14D5R	LGAT14HSR					
	16	.021"	LGAT16D2R	LGAT16D5R	LGAT16HSR					

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PRODUCT INFORMATION

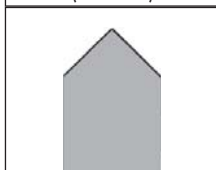
- Chamfering within .090" of a shoulder.
- Internal chamfering with 1.250" minimum bore diameter.
- Sub-micron grain **DURA-MAX[®] 2000** and **5000** Carbides and High Speed Steel.
- Inserts can be coated with TiN, TiAlN, TiCN and Diamond coating.



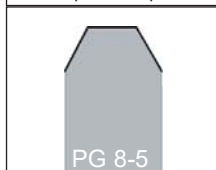
MODIFICATIONS

SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION

INCLUDED ANGLE
(TOP VIEW)

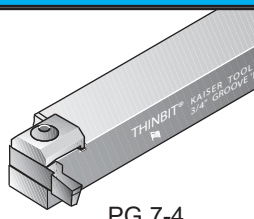
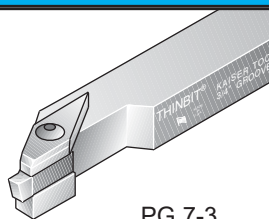


CUSTOM THREADS
(TOP VIEW)

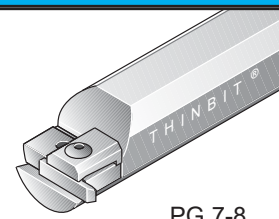
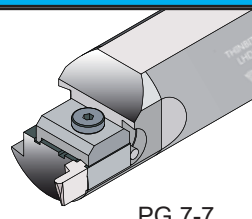


TOOLHOLDER SELECTIONS

CNC, SWISS, CONVENTIONAL STYLE



ROUND STYLE



TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-18

APPLICATION REFERENCE

PGS 9-3 & 9-4

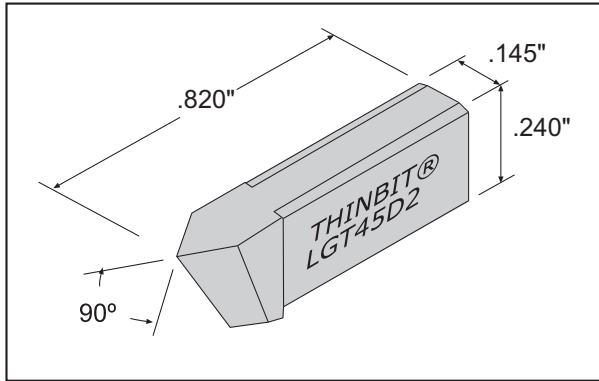
TROUBLESHOOTING

PG 9-7

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CHAMFERING INSERTS



FRONT RAKE: 15°
 MAXIMUM RADIUS: .002"
 TOP RAKE: 0°

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of orientation and insert grade.

EXAMPLE:

The **ORDER CODE** for a chamfering insert in **DURA-MAX® 2000** is:

LGT45D2

CHAMFERING INSERTS
 THREADING

SPECIFICATIONS		ORDER CODE							INFO.
Insert Orientation	Flat at Tip	Insert Grades See Page 9-5 for expanded material selections and Page 9-18 for speeds and feeds information			Coatings See Page 9-6 for expanded coating descriptions				Toolholder Catalog Section 7 Use Toolholders Beginning With
		DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	High Speed Steel	Use Uncoated Part Number and Add Coating Code				
					TiN	TiCN	TiAlN	Diamond	
Centered	None	LGT45D2	LGT45D5	LGT45HS	add 'C'	add 'D'	add 'E'	add 'F'	'L'

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PAGE
5-3



- For diameters 1" and smaller
- Parting widths .025", .045", .062", .085" & .115"
- Typically used for Conventional and Swiss machining, precious metals and small diameter parts

PAGE
1-13



- For diameters 2" and smaller
- Parting widths 2, 3, 4, 5 and 6mm
- Typically used for CNC machining and large diameter parts

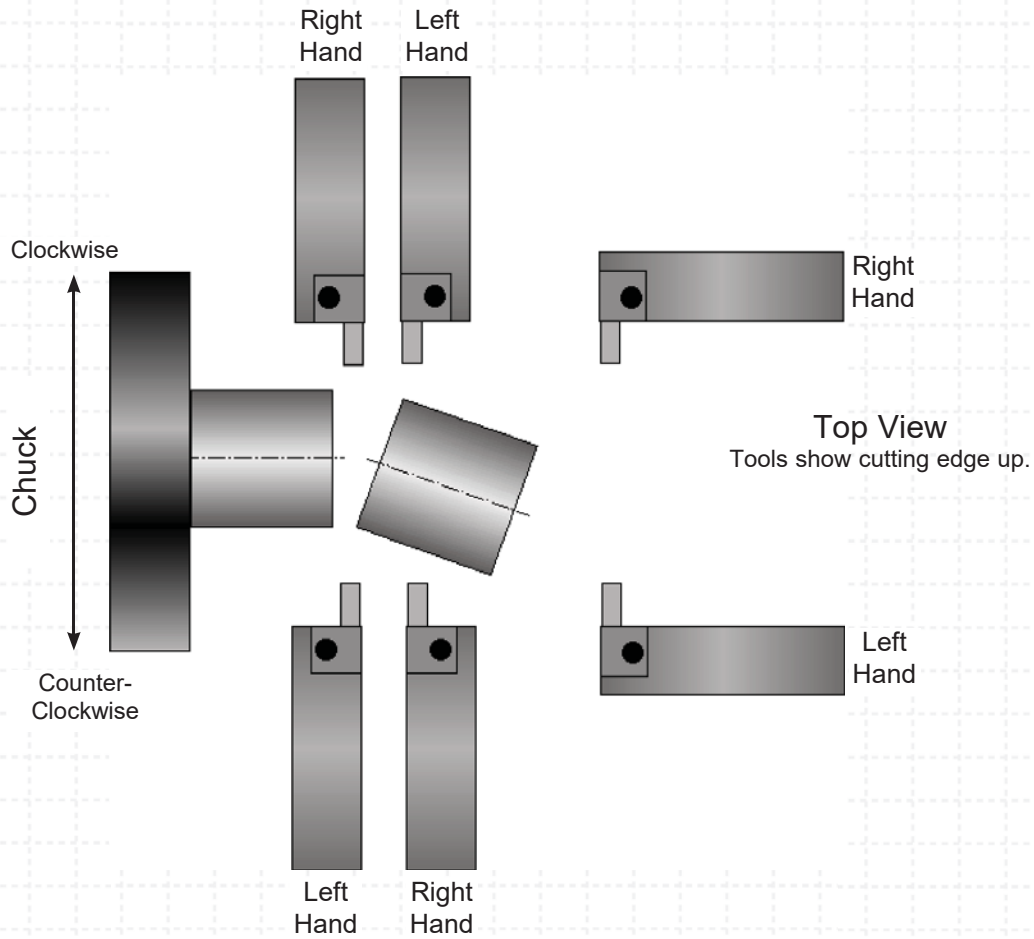
PARTING

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OVER 100,000 TOOLS IN STOCK FOR
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BORING • TURNING • FACE GROOVING
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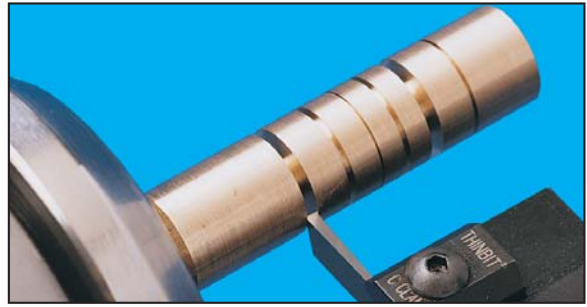


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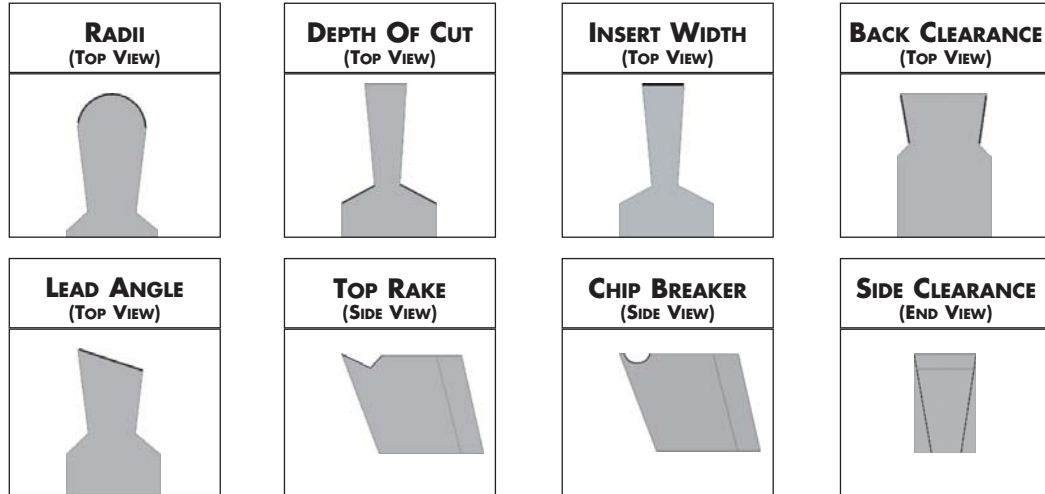
PRODUCT INFORMATION

- .025", .045", .062", .085" and .115"
- Parting off up to 1" diameter
- 0° or 7° lead angle
- Centered or Offset
- Sub-micron grain **DURA-MAX[®] 2000** and **5000** Carbides and High Speed Steel.
- Inserts available with TiN, TiAlN, TiCN and Diamond coating.



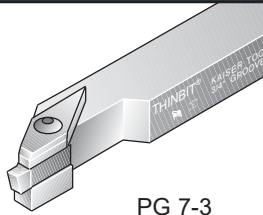
MODIFICATIONS

SEE PAGE
8-3
FOR ADDITIONAL
INFORMATION

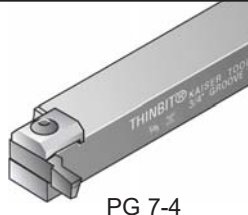


TOOLHOLDER SELECTIONS

CNC, SWISS, CONVENTIONAL STYLE

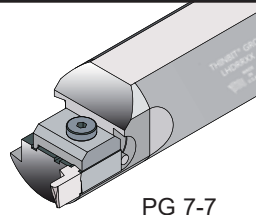


PG 7-3

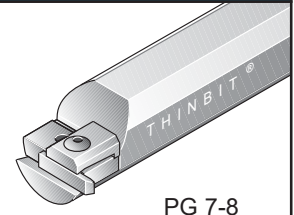


PG 7-4

ROUND STYLE



PG 7-7



PG 7-8

TECHNICAL SECTIONS

SPEEDS AND FEEDS

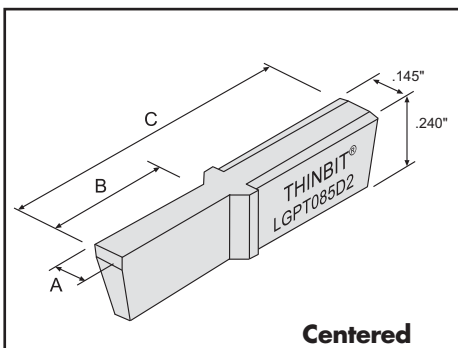
PG 9-20

APPLICATION REFERENCE

PGS 9-3 & 9-4

TROUBLESHOOTING

PG 9-7



FRONT RAKE:

CARBIDE: Primary 7° honed, Secondary 15°

HIGH SPEED STEEL: 15°

BACK CLEARANCE:

0° LGPT045HS & LGPT062HS

1° all others

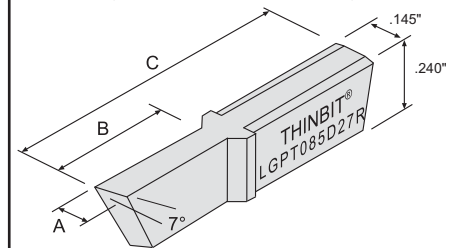
SIDE CLEARANCE: 1°

RADIUS: None

TOP RAKE: 0°

LEAD ANGLE: 0° or 7°

Parting Tools with Lead Angle



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PARTING INSERTS

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of groove width and insert grade.

EXAMPLE:

The **ORDER CODE** for an .085" wide parting insert in **DURA-MAX® 2000** is:

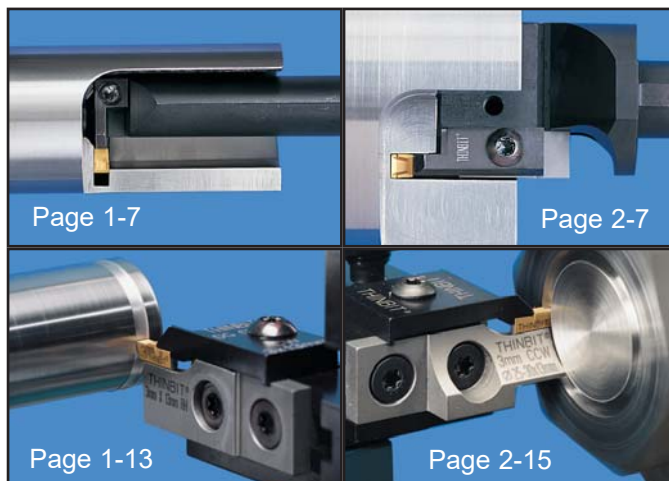
LGPT085D2

SPECIFICATIONS				ORDER CODE								INFORMATION																				
Insert Width	Insert Orientation	Lead Angle Orientation	Depth of Cut	Insert Grades See Page 9-5 for expanded material descriptions and Page 9-20 for Speeds and Feeds information			Coatings See Page 9-6 for expanded coating descriptions				Overall Length	Toolholder																				
'A'		 Right Hand	'B'	DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Non-ferrous	High Speed Steel	Use uncoated part number and add coating code				'C'	Use Toolholders Beginning With																				
±.001"							TIN	TICN	TIAlN	Diamond																						
.025"	Centered	0°		LGPT025D2	LGPT025D5	LGPT025HS	add 'C'	add 'D'	add 'E'	add 'F'	.820" Carbide .825" HSS																					
		7° Right Hand		LGPT025D27R	LGPT025D57R	LGPT025HS7R																										
		7° Left Hand		LGPT025D27L	LGPT025D57L	LGPT025HS7L																										
		0°		LGPT025D2R	LGPT025D5R	LGPT025HSR																										
		7° Right Hand		LGPT025D2R7R	LGPT025D5R7R	LGPT025HSR7R																										
		7° Left Hand		LGPT025D2R7L	LGPT025D5R7L	LGPT025HSR7L																										
		0°		LGPT025D2L	LGPT025D5L	LGPT025HSL																										
		7° Right Hand		LGPT025D2L7R	LGPT025D5L7R	LGPT025HSL7R																										
		7° Left Hand		LGPT025D2L7L	LGPT025D5L7L	LGPT025HSL7L																										
		0°		LGPT045D2	LGPT045D5	LGPT045HS																										
	.045"	Centered		0°		LGPT045D27R							LGPT045D57R	LGPT045HS7R	add 'C'	add 'D'	add 'E'	add 'F'														
				7° Right Hand		LGPT045D27R							LGPT045D57R	LGPT045HS7R																		
7° Left Hand			LGPT045D27L	LGPT045D57L		LGPT045HS7L																										
0°			LGPT045D2R	LGPT045D5R		LGPT045HSR																										
		7° Right Hand	LGPT045D2R7R	LGPT045D5R7R		LGPT045HSR7R																										
		7° Left Hand	LGPT045D2R7L	LGPT045D5R7L		LGPT045HSR7L																										
		0°	LGPT045D2L	LGPT045D5L		LGPT045HSL																										
		7° Right Hand	LGPT045D2L7R	LGPT045D5L7R		LGPT045HSL7R																										
		7° Left Hand	LGPT045D2L7L	LGPT045D5L7L		LGPT045HSL7L																										
		0°	LGPT062D2	LGPT062D5		LGPT062HS																										
.062"		Centered	0°			LGPT062D27R					LGPT062D57R	LGPT062HS7R	add 'C'	add 'D'							add 'E'	add 'F'	1.062" Carbide									
			7° Right Hand			LGPT062D27R					LGPT062D57R	LGPT062HS7R																				
	7° Left Hand		LGPT062D27L		LGPT062D57L	LGPT062HS7L																										
	0°		LGPT062D2R		LGPT062D5R	LGPT062HSR																										
		7° Right Hand	LGPT062D2R7R		LGPT062D5R7R	LGPT062HSR7R																										
		7° Left Hand	LGPT062D2R7L		LGPT062D5R7L	LGPT062HSR7L																										
		0°	LGPT062D2L		LGPT062D5L	LGPT062HSL																										
		7° Right Hand	LGPT062D2L7R		LGPT062D5L7R	LGPT062HSL7R																										
		7° Left Hand	LGPT062D2L7L		LGPT062D5L7L	LGPT062HSL7L																										
		0°	LGPT085D2		LGPT085D5	LGPT085HS																										
	.085"	Centered	0°			LGPT085D27R					LGPT085D57R	LGPT085HS7R							add 'C'	add 'D'					add 'E'	add 'F'	1.078" HSS					
			7° Right Hand			LGPT085D27R					LGPT085D57R	LGPT085HS7R																				
7° Left Hand			LGPT085D27L	LGPT085D57L		LGPT085HS7L																										
0°			LGPT085D2R	LGPT085D5R		LGPT085HSR																										
		7° Right Hand	LGPT085D2R7R	LGPT085D5R7R		LGPT085HSR7R																										
		7° Left Hand	LGPT085D2R7L	LGPT085D5R7L		LGPT085HSR7L																										
		0°	LGPT085D2L	LGPT085D5L		LGPT085HSL																										
		7° Right Hand	LGPT085D2L7R	LGPT085D5L7R		LGPT085HSL7R																										
		7° Left Hand	LGPT085D2L7L	LGPT085D5L7L		LGPT085HSL7L																										
		0°	LGPT115D2	LGPT115D5		LGPT115HS																										
.115"		Centered	0°			LGPT115D27R					LGPT115D57R	LGPT115HS7R											add 'C'	add 'D'					add 'E'	add 'F'		
			7° Right Hand			LGPT115D27R					LGPT115D57R	LGPT115HS7R																				
	7° Left Hand		LGPT115D27L		LGPT115D57L	LGPT115HS7L																										
	0°		LGPT115D2R		LGPT115D5R	LGPT115HSR																										
		7° Right Hand	LGPT115D2R7R		LGPT115D5R7R	LGPT115HSR7R																										
		7° Left Hand	LGPT115D2R7L		LGPT115D5R7L	LGPT115HSR7L																										
		0°	LGPT115D2L		LGPT115D5L	LGPT115HSL																										
		7° Right Hand	LGPT115D2L7R		LGPT115D5L7R	LGPT115HSL7R																										
		7° Left Hand	LGPT115D2L7L		LGPT115D5L7L	LGPT115HSL7L																										
		0°	LGPT115D2		LGPT115D5	LGPT115HS																										

INSERTS
PARTING

PRODUCT INFORMATION

- 2, 3, 4, 5 and 6mm insert widths.
- Recessed pocket and raised edge for chip control.
- Internal grooving, external grooving, face grooving and parting.
- Sub-micron grain **DURA-MAX® 2000** carbide.
- Inserts available with TiN, TiAlN, TiCN and Diamond coating.



INSERT GEOMETRY

SHARP CORNER (TOP VIEW)



CORNER RADIUS (TOP VIEW)



FULL RADIUS (TOP VIEW)



60° THREADING (TOP VIEW)



7° LEAD ANGLE (TOP VIEW)

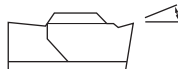


Right Hand

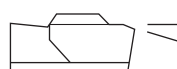


Left Hand

15°(+) TOP RAKE (SIDE VIEW)



15° (-) TOP RAKE (SIDE VIEW)



90° CHAMFERING (TOP VIEW)



TECHNICAL SECTIONS

SPEEDS AND FEEDS

PGS 9-10, 9-12,
9-18 & 9-20

APPLICATION REFERENCE

PGS 9-3 & 9-4

TROUBLESHOOTING

PG 9-7

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table at right that represents your selection of insert geometry and coating. Please pay special attention to the '**Compatibility**' column to match the insert with the correct tooling.

The **ORDER CODE** for a 3mm wide, '**DGI**' Style insert with .015" radius and TiN coating is '**DGI30BC**'

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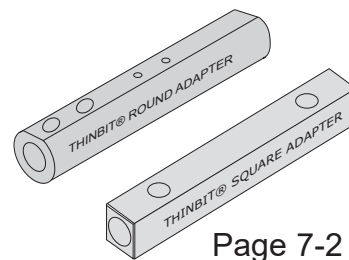
'DGI' & 'DGMI' STYLE OD/ID AND FACE GROOVING INSERTS

SPECIFICATIONS			ORDER CODE				
Insert Width +.005"/ -.000"	Compatibility	Insert Geometry	DURA-MAX® 2000 Carbide See Page 9-10 or 9-12 for Speeds and Feeds				
			Uncoated	TiN	TiCN Non-stock	TiAlN	Diamond Non-stock
.078" (2mm)	Use in all 2mm 'DGP'	Sharp Corner	DGI20BU1	DGI20BC1	DGI20BD1	DGI20BE1	DGI20BF1
		.004" (.10mm) radius	DGI20BU2010	DGI20BC2010	DGI20BD2010	DGI20BE2010	DGI20BF2010
		.008" (.20mm) radius	DGI20BU2020	DGI20BC2020	DGI20BD2020	DGI20BE2020	DGI20BF2020
		.010" (.25mm) radius	DGI20BU2025	DGI20BC2025	DGI20BD2025	DGI20BE2025	DGI20BF2025
		.015" (.38mm) radius	DGI20BU	DGI20BC	DGI20BD	DGI20BE	DGI20BF
		.020" (.50mm) radius	DGI20BU2050	DGI20BC2050	DGI20BD2050	DGI20BE2050	DGI20BF2050
		.030" (.75mm) radius	DGI20BU2075	DGI20BC2075	DGI20BD2075	DGI20BE2075	DGI20BF2075
		Full Radius	DGI20BU4	DGI20BC4	DGI20BD4	DGI20BE4	DGI20BF4
		15° (+) Top Rake	DGI20BU7P	DGI20BC7P	DGI20BD7P	DGI20BE7P	DGI20BF7P
		15° (-) Top Rake	DGI20BU7N	DGI20BC7N	DGI20BD7N	DGI20BE7N	DGI20BF7N
		7° R.H. Lead Angle	DGI20BU3R	DGI20BC3R	DGI20BD3R	DGI20BE3R	DGI20BF3R
		7° L.H. Lead Angle	DGI20BU3L	DGI20BC3L	DGI20BD3L	DGI20BE3L	DGI20BF3L
.118" (3mm)	Use ONLY with 3mm 'DGPZ' ID tools and face grooving heads with major diameter codes '02' and '25'	Sharp Corner	DGMI30BU1	DGMI30BC1	DGMI30BD1	DGMI30BE1	DGMI30BF1
		.015" (.38mm) radius	DGMI30BU	DGMI30BC	DGMI30BD	DGMI30BE	DGMI30BF
	Use in 3mm 'DGP' for OD grooving/parting and major diameters greater than .984"	Sharp Corner	DGI30BU1	DGI30BC1	DGI30BD1	DGI30BE1	DGI30BF1
		.004" (.10mm) radius	DGI30BU2010	DGI30BC2010	DGI30BD2010	DGI30BE2010	DGI30BF2010
		.008" (.20mm) radius	DGI30BU2020	DGI30BC2020	DGI30BD2020	DGI30BE2020	DGI30BF2020
		.010" (.25mm) radius	DGI30BU2025	DGI30BC2025	DGI30BD2025	DGI30BE2025	DGI30BF2025
		.015" (.38mm) radius	DGI30BU	DGI30BC	DGI30BD	DGI30BE	DGI30BF
		.020" (.50mm) radius	DGI30BU2050	DGI30BC2050	DGI30BD2050	DGI30BE2050	DGI30BF2050
		.030" (.75mm) radius	DGI30BU2075	DGI30BC2075	DGI30BD2075	DGI30BE2075	DGI30BF2075
		.040" (1.0mm) radius	DGI30BU2100	DGI30BC2100	DGI30BD2100	DGI30BE2100	DGI30BF2100
		Full Radius	DGI30BU4	DGI30BC4	DGI30BD4	DGI30BE4	DGI30BF4
		15° (+) Top Rake	DGI30BU7P	DGI30BC7P	DGI30BD7P	DGI30BE7P	DGI30BF7P
		15° (-) Top Rake	DGI30BU7N	DGI30BC7N	DGI30BD7N	DGI30BE7N	DGI30BF7N
		7° R.H. Lead Angle	DGI30BU3R	DGI30BC3R	DGI30BD3R	DGI30BE3R	DGI30BF3R
		7° L.H. Lead Angle	DGI30BU3L	DGI30BC3L	DGI30BD3L	DGI30BE3L	DGI30BF3L
		60° Threading	DGI30BU5	DGI30BC5	DGI30BD5	DGI30BE5	DGI30BF5
		90° Chamfering	DGI30BU6	DGI30BC6	DGI30BD6	DGI30BE6	DGI30BF6
.157" (4mm)	Use ONLY with 4mm 'DGPZ' ID tools and face grooving heads with major diameter codes '02' and '25'	Sharp Corner	DGMI40BU1	DGMI40BC1	DGMI40BD1	DGMI40BE1	DGMI40BF1
		.015" (.38mm) radius	DGMI40BU	DGMI40BC	DGMI40BD	DGMI40BE	DGMI40BF
	Use in 4mm 'DGP' for OD grooving/parting and major diameters greater than .984"	Sharp Corner	DGI40BU1	DGI40BC1	DGI40BD1	DGI40BE1	DGI40BF1
		.004" (.10mm) radius	DGI40BU2010	DGI40BC2010	DGI40BD2010	DGI40BE2010	DGI40BF2010
		.008" (.20mm) radius	DGI40BU2020	DGI40BC2020	DGI40BD2020	DGI40BE2020	DGI40BF2020
		.010" (.25mm) radius	DGI40BU2025	DGI40BC2025	DGI40BD2025	DGI40BE2025	DGI40BF2025
		.015" (.38mm) radius	DGI40BU	DGI40BC	DGI40BD	DGI40BE	DGI40BF
		.020" (.50mm) radius	DGI40BU2050	DGI40BC2050	DGI40BD2050	DGI40BE2050	DGI40BF2050
		.030" (.75mm) radius	DGI40BU2075	DGI40BC2075	DGI40BD2075	DGI40BE2075	DGI40BF2075
		.040" (1.0mm) radius	DGI40BU2100	DGI40BC2100	DGI40BD2100	DGI40BE2100	DGI40BF2100
		Full Radius	DGI40BU4	DGI40BC4	DGI40BD4	DGI40BE4	DGI40BF4
		15° (+) Top Rake	DGI40BU7P	DGI40BC7P	DGI40BD7P	DGI40BE7P	DGI40BF7P
		15° (-) Top Rake	DGI40BU7N	DGI40BC7N	DGI40BD7N	DGI40BE7N	DGI40BF7N
		7° R.H. Lead Angle	DGI40BU3R	DGI40BC3R	DGI40BD3R	DGI40BE3R	DGI40BF3R
		7° L.H. Lead Angle	DGI40BU3L	DGI40BC3L	DGI40BD3L	DGI40BE3L	DGI40BF3L
.197" (5mm)	Use in all 5mm 'DGP'	Sharp Corner	DGI50BU1	DGI50BC1	DGI50BD1	DGI50BE1	DGI50BF1
		.004" (.10mm) radius	DGI50BU2010	DGI50BC2010	DGI50BD2010	DGI50BE2010	DGI50BF2010
		.008" (.20mm) radius	DGI50BU2020	DGI50BC2020	DGI50BD2020	DGI50BE2020	DGI50BF2020
		.010" (.25mm) radius	DGI50BU2025	DGI50BC2025	DGI50BD2025	DGI50BE2025	DGI50BF2025
		.015" (.38mm) radius	DGI50BU	DGI50BC	DGI50BD	DGI50BE	DGI50BF
		.020" (.50mm) radius	DGI50BU2050	DGI50BC2050	DGI50BD2050	DGI50BE2050	DGI50BF2050
		.030" (.75mm) radius	DGI50BU2075	DGI50BC2075	DGI50BD2075	DGI50BE2075	DGI50BF2075
		.040" (1.0mm) radius	DGI50BU2100	DGI50BC2100	DGI50BD2100	DGI50BE2100	DGI50BF2100
		Full Radius	DGI50BU4	DGI50BC4	DGI50BD4	DGI50BE4	DGI50BF4
		15° (+) Top Rake	DGI50BU7P	DGI50BC7P	DGI50BD7P	DGI50BE7P	DGI50BF7P
		15° (-) Top Rake	DGI50BU7N	DGI50BC7N	DGI50BD7N	DGI50BE7N	DGI50BF7N
		7° R.H. Lead Angle	DGI50BU3R	DGI50BC3R	DGI50BD3R	DGI50BE3R	DGI50BF3R
		7° L.H. Lead Angle	DGI50BU3L	DGI50BC3L	DGI50BD3L	DGI50BE3L	DGI50BF3L
.236" (6mm)	Use in all 6mm 'DGP'	Sharp Corner	DGI60BU1	DGI60BC1	DGI60BD1	DGI60BE1	DGI60BF1
		.004" (.10mm) radius	DGI60BU2010	DGI60BC2010	DGI60BD2010	DGI60BE2010	DGI60BF2010
		.008" (.20mm) radius	DGI60BU2020	DGI60BC2020	DGI60BD2020	DGI60BE2020	DGI60BF2020
		.010" (.25mm) radius	DGI60BU2025	DGI60BC2025	DGI60BD2025	DGI60BE2025	DGI60BF2025
		.015" (.38mm) radius	DGI60BU	DGI60BC	DGI60BD	DGI60BE	DGI60BF
		.020" (.50mm) radius	DGI60BU2050	DGI60BC2050	DGI60BD2050	DGI60BE2050	DGI60BF2050
		.030" (.75mm) radius	DGI60BU2075	DGI60BC2075	DGI60BD2075	DGI60BE2075	DGI60BF2075
		.040" (1.0mm) radius	DGI60BU2100	DGI60BC2100	DGI60BD2100	DGI60BE2100	DGI60BF2100
		Full Radius	DGI60BU4	DGI60BC4	DGI60BD4	DGI60BE4	DGI60BF4
		15° (+) Top Rake	DGI60BU7P	DGI60BC7P	DGI60BD7P	DGI60BE7P	DGI60BF7P
		15° (-) Top Rake	DGI60BU7N	DGI60BC7N	DGI60BD7N	DGI60BE7N	DGI60BF7N
		7° R.H. Lead Angle	DGI60BU3R	DGI60BC3R	DGI60BD3R	DGI60BE3R	DGI60BF3R
		7° L.H. Lead Angle	DGI60BU3L	DGI60BC3L	DGI60BD3L	DGI60BE3L	DGI60BF3L

ADAPTERS

Adapters

- square and round adapters
- Use for boring bars and solid carbide tooling



Page 7-2

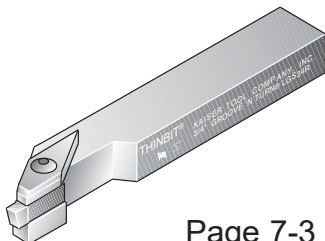
SWISS, CNC & CONVENTIONAL STYLE

Straight Square

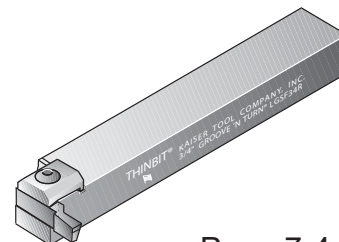
- 5/16", 3/8", 1/2", 5/8", 3/4", 1", 1-1/4" and metric shanks
- Right and Left Hand
- Use for grooving, face grooving, profiling, threading and parting

90° Square

- 5/16", 3/8", 1/2", 5/8", 3/4", 1", 1-1/4" and metric shanks
- Right and Left Hand
- Use for grooving, face grooving, profiling, threading and parting



Page 7-3



Page 7-4

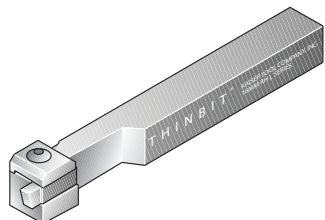
SWISS STYLE

Swiss Straight

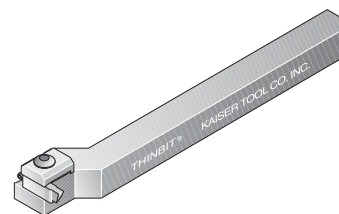
- 3/8", 1/2", 10mm, 12mm & 16 mm square shanks
- Right and Left Hand
- Use for OD grooving, profiling, threading and parting

Swiss Face

- 3/8", 1/2", 10mm, 12mm & 16mm square shanks
- Right Hand
- Use for face grooving



Page 7-5



Page 7-6

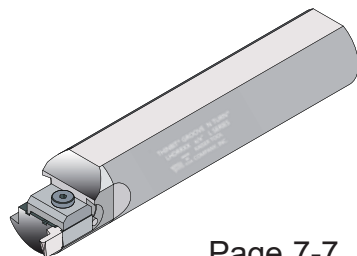
ROUND STYLE

Reversible

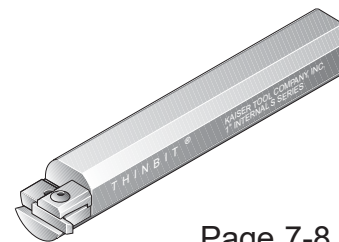
- 1/2", 5/8", 3/4" & 1" shanks
- Right and Left Hand
- Use for grooving, face grooving, profiling, threading and parting

Internal

- 1/2", 5/8", 3/4" & 1" shanks
- Right and Left Hand
- Use for grooving, face grooving, profiling, threading and parting



Page 7-7



Page 7-8

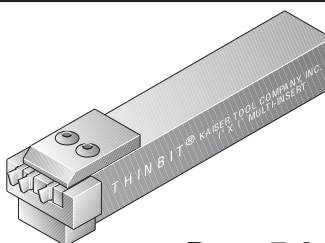
MULTI-INSERT STYLE

Square

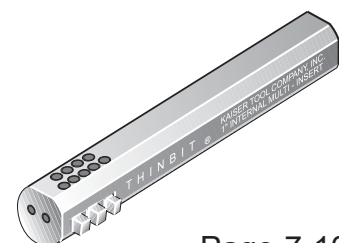
- 3/8", 1/2", 5/8", 3/4" & 1" shanks
- 1" & 2" pockets
- Use for grooving

Round

- 1" shank
- 1" pocket
- Use for grooving



Page 7-9



Page 7-10

UNDERCUT STYLE

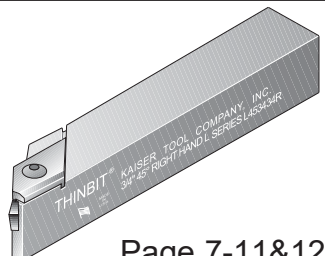
30°/45°/60° Square

- 3/8", 1/2", 5/8", 3/4" and 1" shanks
- Right and Left Hand
- Use for making undercuts and profiling

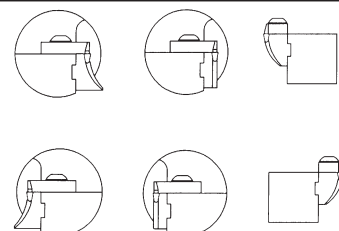
ALTERNATE DGP

Round & Square

- Alternate combinations of Deepgroove® heads and shanks
- OD/ID grooving
- Face grooving



Page 7-11&12



Page 7-15 & 16

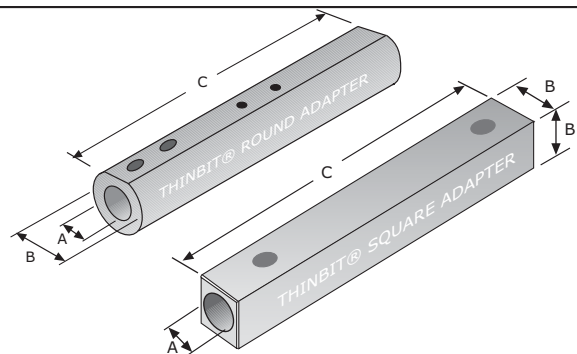
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ROUND & SQUARE ADAPTERS

PRODUCT INFORMATION

- Designed to adapt round tooling to lathe workholding
- ID sizes 1/8", 5/32", 3/16", 1/4", 5/16" and 3/8".
- Round sizes 1/4", 3/8", 1/2", 5/8" and 3/4".
- Square sizes 5/16", 3/8", 1/2", 5/8", 3/4", 1" and 1-1/4".
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



TOOL SELECTIONS

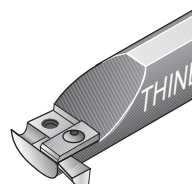
SOLID CARBIDE

Grooving
Page 1-3
Face Grooving
Page 2-3
Boring
Page 3-3
Threading
Page 4-3 & 4-5



GROOVING BARS

Grooving
Page 1-5
Face Grooving
Page 2-5



BORING BARS

MBA
Page 3-13
MBB
Page 3-15
MBC
Page 3-17
MBE
Page 3-8

MBF
Page 3-9
MBG
Page 3-10



ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of adapter dimensions.

EXAMPLE:

The **ORDER CODE** for a .375" ID x .625" OD round adapter is:

AD3762

SPECIFICATIONS				ORDER CODE			
Adapter Style	Shank Dimensions			Adapter Includes Adapter and Hardware	Replacement Parts		
	'A'	'B'	'C'		Screw	Wrench	Pin
Round	.125"	.250"	3.000"	AD1225	S1402M	W0050	P0203
		.375"		AD1237	S1402	W0050	P0203
		.500"		AD1250	S1402	W0050	P0204
		.625"		AD1262	S1404	W0050	P0204
		.750"		AD1275	S1404	W0050	P0204
		1.000"		AD1210	S1404	W0050	P0204
	.156"	.375"	3.000"	AD1537	S1402M	W0050	---
		.500"		AD1550	S1402	W0050	---
		.625"		AD1562	S1403	W0050	---
	.187"	.375"	3.000"	AD1837	S1402M	W0050	P0203
		.500"		AD1850	S1802	W1005	P0204
		.625"		AD1862	S1802	W1005	P0206
		.750"		AD1875	S1804	W1005	P0206
		1.000"		AD1810	S1404	W0050	P0206
	.250"	.375"	4.000"	AD2537	S1402M	W0050	P0203
		.500"		AD2550	S1802	W1005	P0204
		.625"		AD2562	S1802	W1005	P0206
		.750"		AD2575	S1804	W1005	P0206
		1.000"		AD2510	S1804	W1005	P0206

SPECIFICATIONS				ORDER CODE			
Adapter Style	Shank Dimensions			Adapter Includes Adapter and Hardware	Replacement Parts		
	'A'	'B'	'C'		Screw	Wrench	Pin
Round	.312"	.500"	4.000"	AD3150	S1802	W1005	P0204
		.625"		AD3162	S1802	W1005	P0206
		.750"		AD3175	S1802	W1005	P0206
		1.000"		AD3110	S1804	W1005	P0206
	.375"	.625"	4.000"	AD3762	S1802	W1005	P0206
		.750"		AD3775	S1802	W1005	P0206
		1.000"		AD3710	S1804	W1005	P0206
	.500"	.750"	4.000"	AD5075	S1802	W1005	P0206
		1.000"		AD5010	S1804	W1005	P0206
	.750"	1.000"	4.000"	AD7510	S1802	W1005	---

Square	.250"	.312"	3.000"	AD56	---	---	---
		.375"		AD38	S1802	W1005	---
	.250" & .375"	.500"	3.000"	AD12	S1802	W1005	---
		.625"		AD58	S1802	W1005	---
		.750"		AD34	S1802	W1005	---
		1.000"		AD01	S1802	W1005	---
		1.250"		AD14	S1802	W1005	---

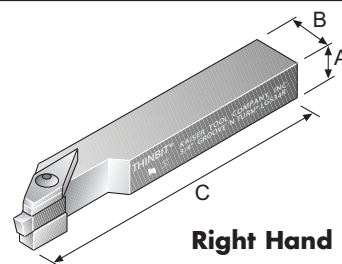
TOOLHOLDERS

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PRODUCT INFORMATION

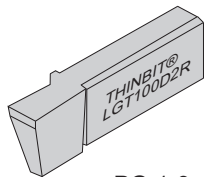
- Designed for CNC, conventional and top slide position on Swiss screw machines.
- Shank sizes 5/16", 3/8", 1/2", 5/8", 3/4", 1" and 1-1/4". Metric sizes also available.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



Right Hand Illustrated

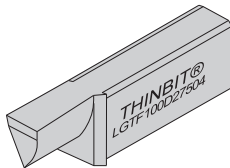
INSERT SELECTIONS

GROOVING



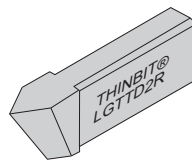
PG 1-9

FACE GROOVING



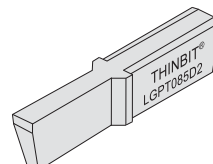
PG 2-9

THREADING



PG 4-9

PARTING



PG 5-3

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank dimensions.

EXAMPLE:

The **ORDER CODE** for a .750" right hand square shank for inserts beginning with 'L' is:

LGS34R

SPECIFICATIONS				ORDER CODE					
Shank Orientation	Shank Dimensions			Toolholder Package Includes Shank, Clamp and Hardware		Replacement Parts			
	'A'	'B'	'C'	For Inserts Beginning With 'L'		Clamp	Screw	Wrench	Pin
				RIGHT HAND	LEFT HAND				
Straight Use right hand holder with right hand inserts Use left hand holder with left hand inserts	.312"	.500"	4.840"	LGS56R	LGS56L	Right Hand: Clamp X Left Hand: Clamp Y	S3808	W1005	*P0206 *P0306
	.375"	.500"	4.840"	LGS38R	LGS38L				
	.500"	.500"	4.840"	LGS12R	LGS12L				
	.625"	.625"	4.840"	LGS58R	LGS58L				
	.750"	.750"	4.840"	LGS34R	LGS34L				
	1.000"	1.000"	4.840"	LGS01R	LGS01L				
	1.250"	1.250"	4.840"	LGS14R	LGS14L				
	8mm	12.7mm	4.840"	LGS08RM	LGS08LM				
	10mm	12.7mm	4.840"	LGS10RM	LGS10LM				
	12mm	12.7mm	4.840"	LGS12RM	LGS12LM				
	16mm	19.0mm	4.840"	LGS16RM	LGS16LM				
	20mm	25.4mm	4.840"	LGS20RM	LGS20LM				
	25mm	25.4mm	4.840"	LGS25RM	LGS25LM				

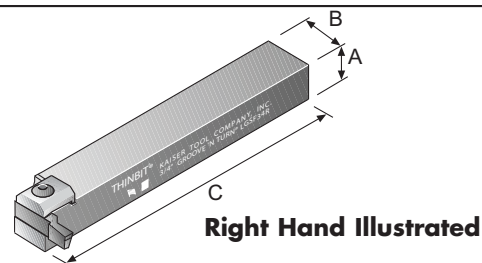
*Both pins will be shipped on replacement orders.

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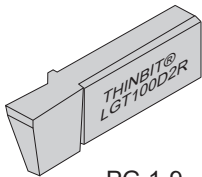
PRODUCT INFORMATION

- Designed for CNC and conventional machines.
- Shank sizes 5/16", 3/8", 1/2", 5/8", 3/4", 1" and 1-1/4". Metric sizes also available.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



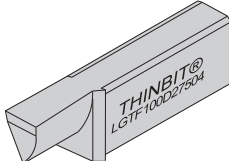
INSERT SELECTIONS

GROOVING



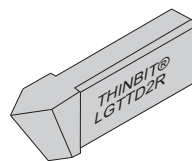
PG 1-9

FACE GROOVING



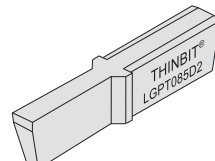
PG 2-9

THREADING



PG 4-9

PARTING



PG 5-3

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

EXAMPLE:

The **ORDER CODE** for a .750" right hand shank for inserts beginning with 'L' is:
LGSF34R

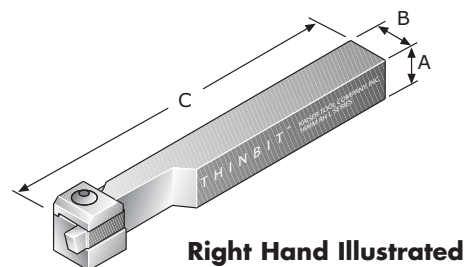
SPECIFICATIONS				ORDER CODE					
Shank Orientation	Shank Dimensions			Toolholder Package Includes Shank, Clamp and Hardware For Inserts Beginning With 'L'		Replacement Parts			
	'A'	'B'	'C'	RIGHT HAND	LEFT HAND	Clamp	Screw	Wrench	Pin
90° Use right hand holder with left hand inserts Use left hand holder with right hand inserts	.312"	.500"	4.840"	LGSF56R		Clamp C	S3808	W1005	P0312
	.375"	.500"	4.840"	LGSF38R					
	.500"	.500"	4.840"	LGSF12R					
	.625"	.625"	4.840"	LGSF58R	LGSF58L				
	.750"	.750"	4.840"	LGSF34R	LGSF34L				
	1.000"	1.000"	4.840"	LGSF01R	LGSF01L				
	1.250"	1.250"	4.840"	LGSF14R	LGSF14L				
	8mm	12.7mm	4.840"	LGSF08RM					
	10mm	12.7mm	4.840"	LGSF10RM					
	12mm	12.7mm	4.840"	LGSF12RM					
	16mm	19.0mm	4.840"	LGSF16RM	LGSF16LM				
	20mm	25.4mm	4.840"	LGSF20RM	LGSF20LM				
	25mm	25.4mm	4.840"	LGSF25RM	LGSF25LM				

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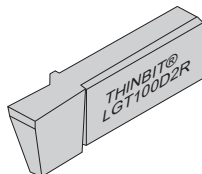
**PRODUCT
INFORMATION**

- Designed for top slide position on Swiss screw machines.
- Shank sizes 1/2", 12mm and 16mm in right hand orientation.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



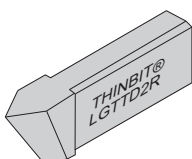
**INSERT
SELECTIONS**

GROOVING



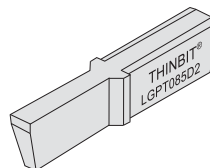
PG 1-9

THREADING



PG 4-9

PARTING



PG 5-3

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

EXAMPLE:

The **ORDER CODE** for a .500" shank, right hand tool for inserts beginning with 'L' is:

LSS12R

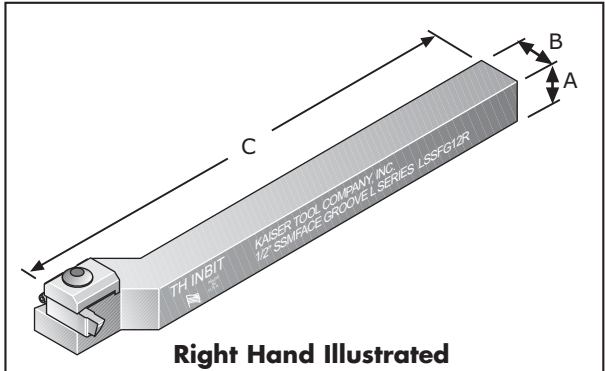
SPECIFICATIONS				ORDER CODE				
Shank Orientation	Shank Dimensions			Toolholder Package Includes Shank, Clamp and Hardware	Replacement Parts			
	'A'	'B'	'C'	For Inserts Beginning With 'L'	Clamp	Screw	Wrench	Pin
Right Hand	.500"	.500"	4.840"	LSS12R	Clamp C	S3808	W1005	P0305
Use with right hand and centered inserts	12mm	12mm		LSS12RM				
	16mm	16mm		LSS16RM				
Left Hand	.500"	.500"	4.840"	LSS12L				
Use with left hand and centered inserts	12mm	12mm		LSS12LM				
	16mm	16mm		LSS16LM				

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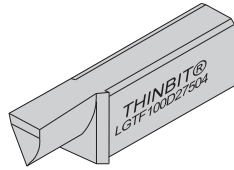
**PRODUCT
INFORMATION**

- Designed for top slide position on Swiss screw machines.
- Shank sizes 3/8", 1/2", 10mm, 12mm and 16mm in right hand orientation.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



**INSERT
SELECTIONS**

FACE GROOVING



PG 2-9

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

EXAMPLE:

The **ORDER CODE** for a .375" right hand shank for inserts beginning with 'L' is:

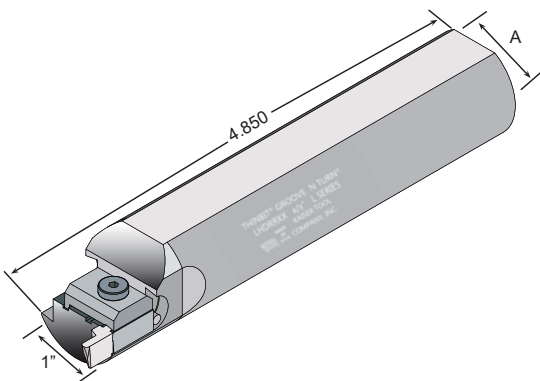
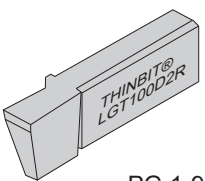
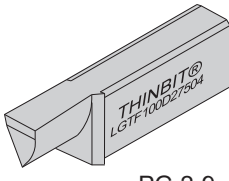
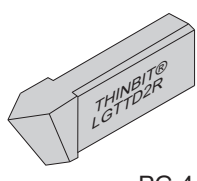
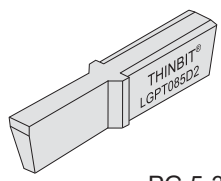
LSSFG38R

SPECIFICATIONS				ORDER CODE				
Shank Orientation	Shank Dimensions			Toolholder Package Includes Shank, Clamp and Hardware	Replacement Parts			
	'A'	'B'	'C'	For Inserts Beginning With 'L'	Clamp	Screw	Wrench	Pin
Right Hand Use with left hand and centered inserts for counter-clockwise rotation	.375"	.375"	4.840"	LSSFG38R	Clamp C	S3808	W1005	P0203
	.500"	.500"	4.840"	LSSFG12R				
	10mm	10mm	4.840"	LSSFG10RM				
	12mm	12mm	4.840"	LSSFG12RM				
	16mm	16mm	4.840"	LSSFG16RM				

SWISS
TOOLHOLDERS

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PRODUCT INFORMATION	- Designed for boring bar positions on all machines. - Can be used with a boring head to trepan on a mill. Shank may need to be shortened. - Toolholder reversible by changing clamp to other side. - Shank sizes 12mm, 1/2", 5/8", 16mm, 3/4" 20mm, 22mm, 25mm and 1". - All 1/2", 5/8" and 3/4" shanks are made from 1" shank. - For a shortened shank see page 11-2. - Modifications can be provided on any of our tooling. Please contact us with your application requirements.	 Heavy Duty Round Reversible Toolholder		
INSERT SELECTIONS	GROOVING	FACE GROOVING	THREADING	PARTING
	 PG 1-9	 PG 2-9	 PG 4-9	 PG 5-3

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank dimensions.

EXAMPLE:

The **ORDER CODE** for a 3/4" round shank for inserts beginning with 'L' is:

LHDDR34

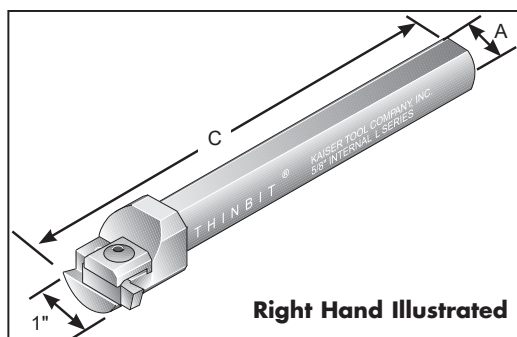
SPECIFICATIONS		ORDER CODE		
Shank Orientation	Shank Dimensions	Toolholder Package Includes Shank, Clamp and Hardware		
	'A'	For Inserts Beginning With 'L'	Clamp	Clamp Hardware
Right Hand or Left Hand Use as right hand with right hand inserts Use as left hand with left hand inserts Use as either hand with centered inserts	.500"	LHDDR12	Clamp C	Screw: S3808 Wrench: W1005 Pin: P0305
	.625"	LHDDR58		
	.750"	LHDDR34		
	1.00"	LHDDR01		
	12 mm	LHDDR12M		
	16 mm	LHDDR16M		
	20 mm	LHDDR20M		
	22 mm	LHDDR22M		
	25 mm	LHDDR25M		

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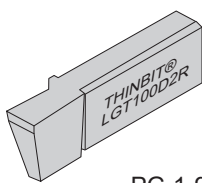
PRODUCT INFORMATION

- Designed for boring bar positions on all machines.
- Toolholder reversible for left and right hand orientation.
- Shank sizes 1/2", 5/8", 3/4" and 1".
- All 1/2", 5/8" and 3/4" shanks are made from 1" shank.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



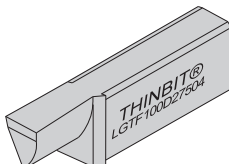
INSERT SELECTIONS

GROOVING



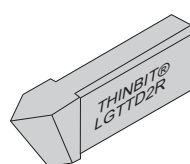
PG 1-9

FACE GROOVING



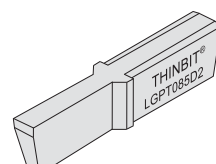
PG 2-9

THREADING



PG 4-9

PARTING



PG 5-3

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

EXAMPLE:

The **ORDER CODE** for a .625" right hand shank for inserts beginning with 'L' is:

LR5806

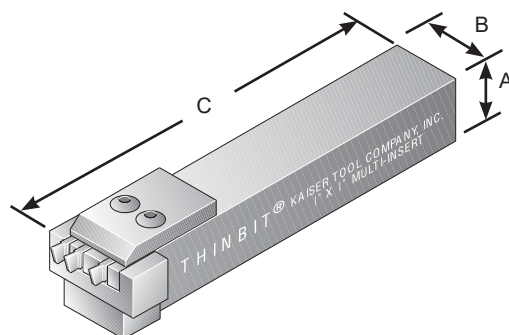
SPECIFICATIONS				ORDER CODE				
Shank Orientation	Minimum Bore Diameter	Shank Dimensions		Toolholder Package Includes Shank, Clamp and Hardware For Inserts Beginning With 'L'	Replacement Parts			
		'A'	'C'		Clamp	Screw	Wrench	Pin
Right Hand or Left Hand Use as right hand with left hand inserts; Use as left hand with right hand inserts; Use as either hand with centered inserts.	1.250"	.500"	5.500"	LR1206	Clamp C	S3808	W1005	P0305
		.625"		LR5806				
		.750"		LR3406				
		1.000"	5.500"	LR0106				
			11.875"	LR0112				
		20mm	5.500"	LRO2015M				
		25mm		LRO2515M				

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PRODUCT INFORMATION

- Designed to reduce cycle time on those machines with adequate horsepower to handle the tool pressure.
- Pocket is filled with any selection of insert geometry and lengths. Proper edge to edge relation maintained with spacer blocks.
- Shank sizes 3/8", 1/2", 5/8", 3/4" and 1".
- Pocket sizes 1" and 2".
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



INSERT SELECTION

Due to the potential complexity of configuring these toolholders, we recommend calling for assistance.
See Page 8-7

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank dimensions.

EXAMPLE:

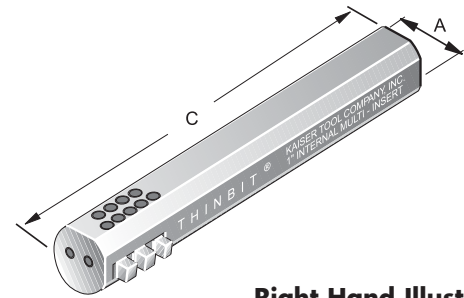
The **ORDER CODE** for a 1" pocket on a 1" square shank is:
EM010101

SPECIFICATIONS				ORDER CODE						
Pocket Size	Shank Dimensions			Toolholder Package Includes Shank, Pocket, Clamp and Hardware	Replacement Parts					
	'A'	'B'	'C'		Pocket Includes Hardware	Pocket Hardware	Backplate	Shank	Clamp	Clamp Hardware
1" Pocket	.375"	1.000"	4.840"	EM013801	HM0101	Screw: 2 each S1604 S3810	---	ESM0138	Clamp M	Screw: 2 each S3808
	.500"			EM011201				ESM0112		
	.625"			EM015801				ESM0158		
	.750"			EM013401				ESM0134		
	1.000"			EM010101				ESM0101		
2" Pocket	.375"	1.000"	4.840"	EM013802	HM0102	Wrench: 1 each: W1004 W1005	Backplate: BP0002 Screws: 4 each S5404	ESM0138	Clamp N	Wrench: W1005
	.500"			EM011202				ESM0112		
	.625"			EM015802				ESM0158		
	.750"			EM013402				ESM0134		
	1.000"			EM010102				ESM0101		

KAISER TOOL COMPANY, INC.

**PRODUCT
INFORMATION**

- Designed to reduce cycle time on those machines with adequate horsepower to handle the tool pressure.
- Pocket is filled with any selection of insert geometry and lengths. Proper edge to edge relation maintained with spacer blocks.
- Shank size 1".
- Pocket size 1".
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



Right Hand Illustrated

**INSERT
SELECTION**

Due to the potential complexity of configuring these toolholders, we recommend calling for assistance.
See Page 8-7

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank dimensions.

EXAMPLE:

The **ORDER CODE** for a 1" right hand shank, 5.5" long is:

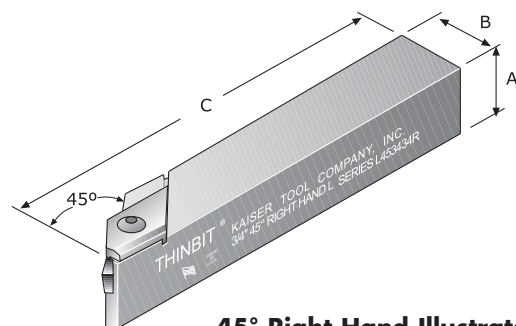
ROM0106

SPECIFICATIONS				ORDER CODE				
Pocket Size & Shank Orientation	Minimum Bore Diameter	Shank Dimensions		Toolholder Package Includes Shank and Hardware Call For Inserts	Replacement Parts			
		'A'	'C'		End Screws	Clamping Screws	Wrench	Pin
1" Pocket Right Hand	1.125" Varies depending on configuration	1.000"	5.500"	ROM0106	1 each: S1804	9 each: S1808	W1005	P0001
			11.875"	ROM0112				

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PRODUCT INFORMATION

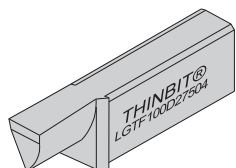
- Designed for making angled undercuts.
- Toolholder must be used with inserts that have radial relief.
- Groove widths less than .080" may require a special insert.
- Shank sizes 3/8", 1/2", 5/8", 3/4" and 1".
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



45° Right Hand Illustrated

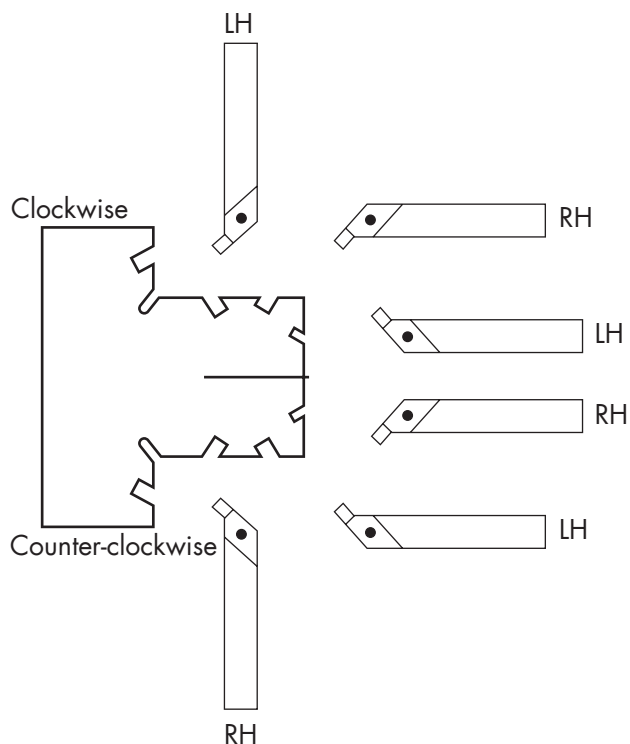
INSERT SELECTIONS

FACE GROOVING

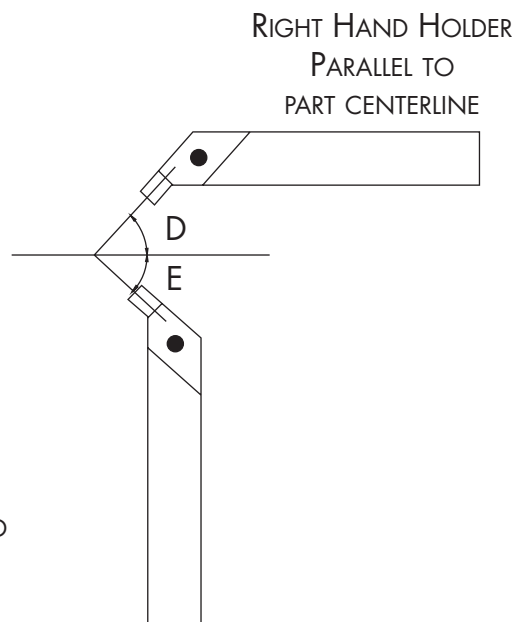


PG 2-9

Due to the potential complexity of configuring these toolholders, we recommend calling for assistance.



APPLICATION EXAMPLES
TOP VIEW, CUTTING EDGE UP



45° ILLUSTRATED

RIGHT HAND HOLDER
PERPENDICULAR TO
PART CENTERLINE

KAISER TOOL COMPANY, INC.

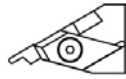
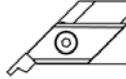
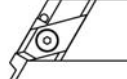
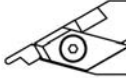
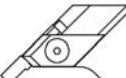
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ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

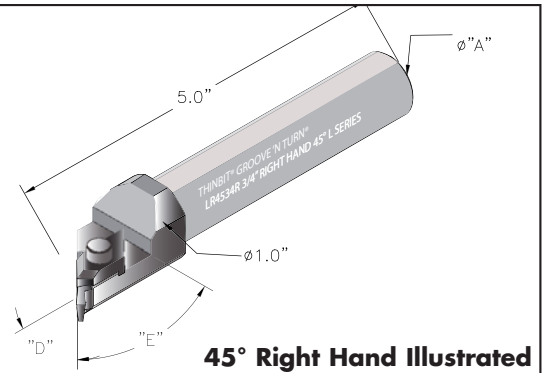
EXAMPLE:

The **ORDER CODE** for a 45° holder with a .750" right hand shank is:
L453434R

SPECIFICATIONS (Page 7-11)				ORDER CODE																		
Shank Orientation	Shank Dimensions			Toolholder Package Includes Shank, Clamp and Hardware																		
	Height "A"	Width "B"		Shank Angle "D" = 30° "E" = 60°	Clamp	Shank Angle "D" = 45° "E" = 45°	Clamp	Shank Angle "D" = 60° "E" = 30°	Clamp	Hardware												
Right Hand Inserts are application specific (See page 7-11)										Screw: S3808 Wrench: W1005 Pin: P0305 *C0509												
	.375"	.750"	4.840"	L303438R	Clamp Y	L453438R	Clamp Q	L363438R	Clamp Y													
	.500"			L303412R		L453412R		L363412R														
	.625"			L303458R		L453458R		L363458R														
	.750"			L303434R		L453434R		L363434R														
	1.00"	1.00"		L300101R		L450101R		L360101R														
Left Hand Inserts are application specific (See page 7-11)																						
	.375"	.750"	4.840"	L303438L	Clamp X	L453438L	Clamp R	L363438L	Clamp X													
	.500"			L303412L		L453412L		L363412L														
	.625"			L303458L		L453458L		L363458L														
	.750"			L303434L		L453434L		L363434L														
	1.00"	1.00"		L300101L		L450101L		L360101L														
Right Hand Swiss Angle Style Inserts are application specific (See page 7-11)																						
	.375"	.750"	4.840"	L303438R	Clamp Y																	
	.500"			L303412R																		
	.625"			L303458R																		
	.750"			L303434R																		
	1.00"	1.00"		L300101R																		
	10mm	19.0mm	4.840"	L303410RM																		
	12mm			L303412RM																		
	16mm			L303416RM																		
	.375"	.902"																				
	.500"																					
	10mm																					
	12mm																					
	16mm																					
		22.9mm																				
	.375"																					
.500"																						
10mm																						
12mm																						
16mm																						

PRODUCT INFORMATION

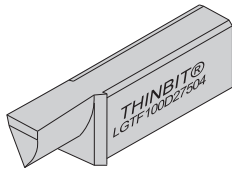
- Designed for CNC, conventional and end working position on Swiss screw machines.
- Position the insert at 30°, 45° or 60° angles for reliefs, undercuts and angled OD and face grooves.
- Shank sizes 1/2", 5/8", 3/4", 1", 20mm and 25mm.
- For use with THINBIT® inserts - See pages 2-9 & 2-10.
- Modifications can be provided on any of our tooling. Please contact us with your application requirements.



45° Right Hand Illustrated

FACE GROOVING

INSERT SELECTIONS



PG 2-9

Due to the potential complexity of configuring these toolholders, we recommend calling for assistance.

APPLICATION EXAMPLES TOP VIEW, CUTTING EDGE UP

D = Insert angle when toolholder centerline is parallel to centerline.
E = Insert angle when toolholder centerline is perpendicular to part centerline.

Left Hand Holders

Right Hand Holders

30°
D=30°
E=60°

Custom inserts are required for internal grooving.

45°
D=45°
E=45°

1.125 Minimum bore required for internal grooving.

60°
D=60°
E=30°

1.170 Minimum bore required for internal grooving.

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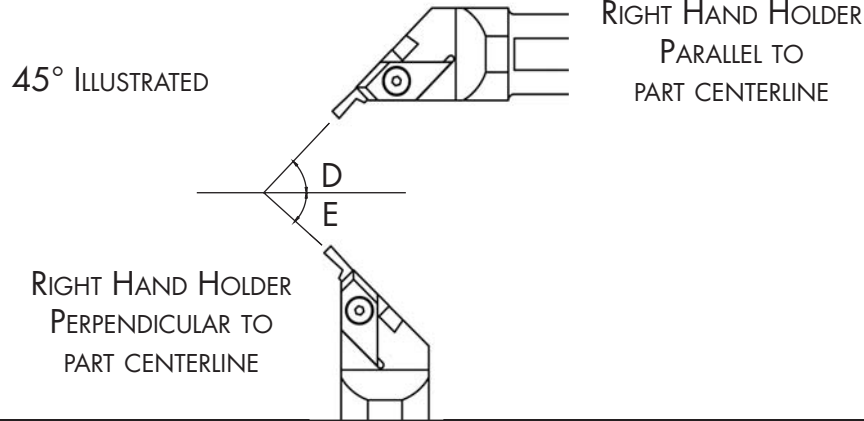
ORDERING INSTRUCTIONS

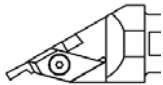
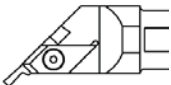
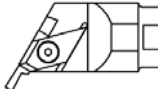
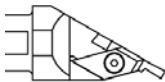
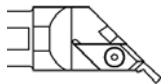
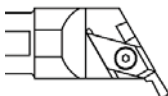
Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

EXAMPLE:

The **ORDER CODE** for a 45° holder with a 3/4" right hand shank is:

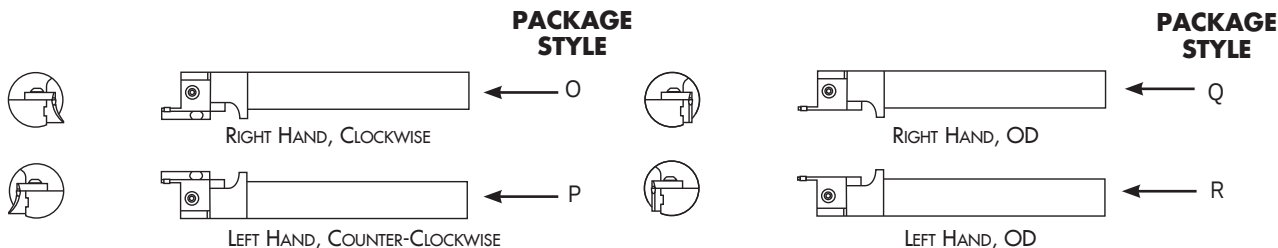
LR4534R



SPECIFICATIONS (Page 7-13)		ORDER CODE						
Shank Orientation	Shank Size	Toolholder Package Includes Shank, Clamp and Hardware Shank Angle			Length	Replacement Parts		
	"A"	"D" = 30° "E" = 60°	"D" = 45° "E" = 45°	"D" = 60° "E" = 30°		Clamp	Hardware	
Right Hand Inserts are application specific (See page 7-13)					5"	Clamp Y	Screw: S3808 Wrench: W1005	
	.500"	LR3012R	LR4512R	LR6012R				
	.625"	LR3058R	LR4558R	LR6058R				
	.750"	LR3034R	LR4534R	LR6034R				
	1.00"	LR3001R	LR4501R	LR6001R				
	20mm	LR3020RM	LR4520RM	LR6020RM				
	25mm	LR3025RM	LR4525RM	LR6025RM				
Left Hand Inserts are application specific (See page 7-13)						Clamp X		Pin: P0305
	.500"	LR3012L	LR4512L	LR6012L				
	.625"	LR3058L	LR4558L	LR6058L				
	.750"	LR3034L	LR4534L	LR6034L				
	1.00"	LR3001L	LR4501L	LR6001L				
	20mm	LR3020LM	LR4520LM	LR6020LM				
	25mm	LR3025LM	LR4525LM	LR6025LM				

45° & 30° & 60°

KAISER TOOL COMPANY, INC.



SPECIFICATIONS				ORDER CODE												
Insert Width	Depth of Cut	Package Style	Inserts Page 6-1	Toolholder Package Includes Shank, Head, Clamp and Hardware			Inserts Use Inserts Beginning With	Replacement Parts								
		See Above	Use Inserts Beginning With	3/4" Shank 3/4"Ø x 7"	1" Shank 1"Ø x 7"	Metric Shanks 20=20x1"x125mm 25=25x1"x125mm		Head	Head Hardware	Shank 34 = 3/4" 01 = 1" 20 = 20mm 25 = 25mm	Clamp	Clamp Hardware				
2mm (.078")	13mm (1/2")	O	'DGI2'	DGPO201334__	DGPO201301__	DGPO2013_____	'DGI2' (Page 6-1)	DGH32013__	Screw: 2 each S7552 Wrench: W4025	DGS__ZR	DGC12013	Screw: S6552 Wrench: W4025				
		Q*		DGPQ201334__	DGPQ201301__	DGPQ2013_____		DGH12013								
		P		DGPP201334__	DGPP201301__	DGPP2013_____		DGH42013__								
		R*		DGPR201334__	DGPR201301__	DGPR2013_____		DGH22013								
3mm (.118")	13mm (1/2")	O	Use 'DGMi3' for major diameter codes '02'&'25' 'DGI3' for all others	DGPO301334__	DGPO301301__	DGPO3013_____	Use 'DGMi3' for major diameter codes '02'&'25' 'DGI3' for all others (Page 6-1)	DGH33013__		DGS__ZR	DGC13013					
		Q*		DGPQ301334__	DGPQ301301__	DGPQ3013_____		DGH13013								
		P		DGPP301334__	DGPP301301__	DGPP3013_____		DGH43013__								
		R*		DGPR301334__	DGPR301301__	DGPR3013_____		DGH23013								
4mm (.157")	13mm (1/2")	O	Use 'DGMi4' for major diameter codes '02'&'25' 'DGI4' for all others	DGPO401334__	DGPO401301__	DGPO4013_____	Use 'DGMi4' for major diameter codes '02'&'25' 'DGI4' for all others (Page 6-1)	DGH34013__		DGS__ZR	DGC14013					
		Q*		DGPQ401334__	DGPQ401301__	DGPQ4013_____		DGH14013								
		P		DGPP401334__	DGPP401301__	DGPP4013_____		DGH44013__								
		R*		DGPR401334__	DGPR401301__	DGPR4013_____		DGH24013								
	20mm (3/4")	O		DGPO402034__	DGPO402001__	DGPO4020_____		DGH34020__					DGS__ZR	DGC14020		
		Q*		DGPQ402034__	DGPQ402001__	DGPQ4020_____		DGH14020								
		P		DGPP402034__	DGPP402001__	DGPP4020_____		DGH44020__							DGS__ZL	DGC24013
		R*		DGPR402034__	DGPR402001__	DGPR4020_____		DGH24020								
5mm (.197")	13mm (1/2")	O	'DGI5'	DGPO501334__	DGPO501301__	DGPO5013_____	'DGI5' (Page 6-1)	DGH35013__		DGS__ZR	DGC15013					
		Q*		DGPQ501334__	DGPQ501301__	DGPQ5013_____		DGH15013								
		P		DGPP501334__	DGPP501301__	DGPP5013_____		DGH45013__								
		R*		DGPR501334__	DGPR501301__	DGPR5013_____		DGH25013								
	25mm (1")	O		DGPO502534__	DGPO502501__	DGPO5025_____		DGH35025__					DGS__ZR	DGC15025		
		Q*		DGPQ502534__	DGPQ502501__	DGPQ5025_____		DGH15025								
		P		DGPP502534__	DGPP502501__	DGPP5025_____		DGH45025__							DGS__ZL	DGC25013
		R*		DGPR502534__	DGPR502501__	DGPR5025_____		DGH25025								
6mm (.236")	13mm (1/2")	O	'DGI6'	DGPO601334__	DGPO601301__	DGPO6013_____	'DGI6' (Page 6-1)	DGH36013__		DGS__ZR	DGC16013					
		Q*		DGPQ601334__	DGPQ601301__	DGPQ6013_____		DGH16013								
		P		DGPP601334__	DGPP601301__	DGPP6013_____		DGH46013__								
		R*		DGPR601334__	DGPR601301__	DGPR6013_____		DGH26013								
	25mm (1")	O		DGPO602534__	DGPO602501__	DGPO6025_____		DGH36025__					DGS__ZR	DGC16025		
		Q*		DGPQ602534__	DGPQ602501__	DGPQ6025_____		DGH16025								
		P		DGPP602534__	DGPP602501__	DGPP6025_____		DGH46025__							DGS__ZL	DGC26013
		R*		DGPR602534__	DGPR602501__	DGPR6025_____		DGH26025								

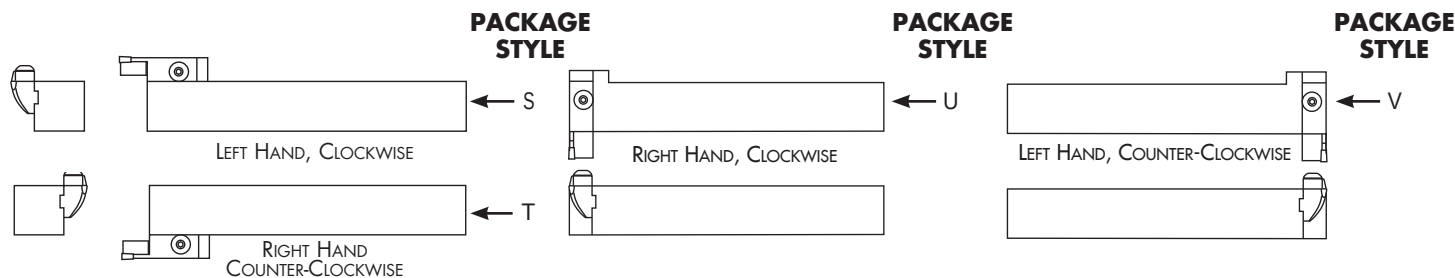
* Codes not required on Q and R packages

Major Diameter Range	Insert Width	Code	Insert Style	Major Diameter Range	Insert Width	Code	Insert Style
.787"-.885" (20-22.5mm)	2mm	02	DGI	1.377"-1.574" (35-40mm)	2mm	50	DGI
	3 & 4mm	02	DGMI		3, 4, 5 & 6mm	34	DGI
.885"-.984" (22.5-25mm)	2mm	25	DGI	1.574"-1.968" (40-50mm)	All	45	DGI
	3 & 4mm	25	DGMI	1.968"-2.362" (50-60mm)		56	DGI
.984"-1.082" (25-27.5mm)	2mm	57	DGI	2.362"-2.952" (60-75mm)		67	DGI
	3, 4, 5 & 6mm	23	DGI	2.952"-3.937" (75-100mm)		71	DGI
1.082"-1.181" (27.5-30mm)	2mm	70	DGI	3.937"-5.905" (100-150mm)		11	DGI
	3, 4, 5 & 6mm	23	DGI	5.905"-11.811" (150-300mm)		13	DGI
1.181"-1.377" (30-35mm)	2mm	05	DGI	11.811" - ∞ (300mm-∞)		30	DGI
	3, 4, 5 & 6mm	34	DGI				

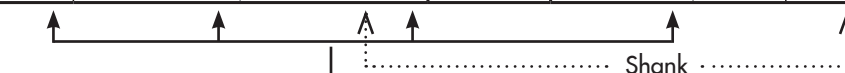
Note:
As long as first plunge is made within major diameter range and each following plunge overlaps, groove width can be increased toward or away from center of part.

DEEPGROOVE® SQUARE SHANKS WITH INTERNAL FACE GROOVING HEADS

U.S. PATENT NO. 5,638,728



SPECIFICATIONS			ORDER CODE								
Insert Width	Depth of Cut	Package Style	Toolholder Package Includes Shank, Head, Clamp and Hardware			Inserts Use Inserts Beginning With	Replacement Parts				
			3/4" Shank 3/4"x3/4"x5"	1" Shank 1"x1"x5"	Metric Shanks 16 = 16x16x125mm 20 = 20x1"x125mm 25 = 25x1"x125mm		Head	Head Hardware	Shank 34 = 3/4" 01 = 1" 16 = 16mm 20 = 20mm 25 = 25mm	Clamp	Clamp Hardware
2mm (.078")	13mm (1/2")	S	DGPS201334_	DGPS201301_	DGPS2013_	'DGI2' (Page 6-1)	DGH52013_	Screw: 2 each S7552 Wrench: W4025	DGS_ _XL	DGC52013	Screw: S6552 Wrench: W4025
		U	DGPU201334_	DGPU201301_	DGPU2013_		DGH62013_		DGS_ _YR	DGC62013	
		T	DGPT201334_	DGPT201301_	DGPT2013_				DGS_ _XR		
		V	DGPV201334_	DGPV201301_	DGPV2013_				DGS_ _YL		
3mm (.118")	13mm (1/2")	S	DGPS301334_	DGPS301301_	DGPS3013_	'DGI3' (Page 6-1)	DGH53013_		DGS_ _XL	DGC53013	
		U	DGPU301334_	DGPU301301_	DGPU3013_		DGH63013_		DGS_ _YR	DGC63013	
		T	DGPT301334_	DGPT301301_	DGPT3013_				DGS_ _XR		
		V	DGPV301334_	DGPV301301_	DGPV3013_				DGS_ _YL		
4mm (.157")	13mm (1/2")	S	DGPS401334_	DGPS401301_	DGPS4013_	'DGI4' (Page 6-1)	DGH54013_		DGS_ _XL	DGC54013	
		U	DGPU401334_	DGPU401301_	DGPU4013_		DGH64013_		DGS_ _YR	DGC64013	
		T	DGPT401334_	DGPT401301_	DGPT4013_				DGS_ _XR		
		V	DGPV401334_	DGPV401301_	DGPV4013_				DGS_ _YL		
	20mm (3/4")	S	DGPS402034_	DGPS402001_	DGPS4020_		DGH54020_		DGS_ _XL	DGC54020	
		U	DGPU402034_	DGPU402001_	DGPU4020_		DGH64020_		DGS_ _YR	DGC64020	
		T	DGPT402034_	DGPT402001_	DGPT4020_				DGS_ _XR		
		V	DGPV402034_	DGPV402001_	DGPV4020_				DGS_ _YL		
5mm (.197")	13mm (1/2")	S	DGPS501334_	DGPS501301_	DGPS5013_	'DGI5' (Page 6-1)	DGH55013_		DGS_ _XL	DGC55013	
		U	DGPU501334_	DGPU501301_	DGPU5013_		DGH65013_		DGS_ _YR	DGC65013	
		T	DGPT501334_	DGPT501301_	DGPT5013_				DGS_ _XR		
		V	DGPV501334_	DGPV501301_	DGPV5013_				DGS_ _YL		
	25mm (1")	S	DGPS502534_	DGPS502501_	DGPS5025_		DGH55025_		DGS_ _XL	DGC55025	
		U	DGPU502534_	DGPU502501_	DGPU5025_		DGH65025_		DGS_ _YR	DGC65025	
		T	DGPT502534_	DGPT502501_	DGPT5025_				DGS_ _XR		
		V	DGPV502534_	DGPV502501_	DGPV5025_				DGS_ _YL		
6mm (.236")	13mm (1/2")	S	DGPS601334_	DGPS601301_	DGPS6013_	'DGI6' (Page 6-1)	DGH56013_		DGS_ _XL	DGC56013	
		U	DGPU601334_	DGPU601301_	DGPU6013_		DGH66013_		DGS_ _YR	DGC66013	
		T	DGPT601334_	DGPT601301_	DGPT6013_				DGS_ _XR		
		V	DGPV601334_	DGPV601301_	DGPV6013_				DGS_ _YL		
	25mm (1")	S	DGPS602534_	DGPS602501_	DGPS6025_		DGH56025_		DGS_ _XL	DGC56025	
		U	DGPU602534_	DGPU602501_	DGPU6025_		DGH66025_		DGS_ _YR	DGC66025	
		T	DGPT602534_	DGPT602501_	DGPT6025_				DGS_ _XR		
		V	DGPV602534_	DGPV602501_	DGPV6025_				DGS_ _YL		



Major Diameter Range	Code
1.574"-1.968" (40-50mm)	45
1.968"-2.362" (50-60mm)	56
2.362"-2.952" (60-75mm)	67
2.952"-3.937" (75-100mm)	71
3.937"-5.905" (100-150mm)	11
5.905"-11.811" (150-300mm)	13
11.811"- ∞ (300mm-∞)	30

Note:

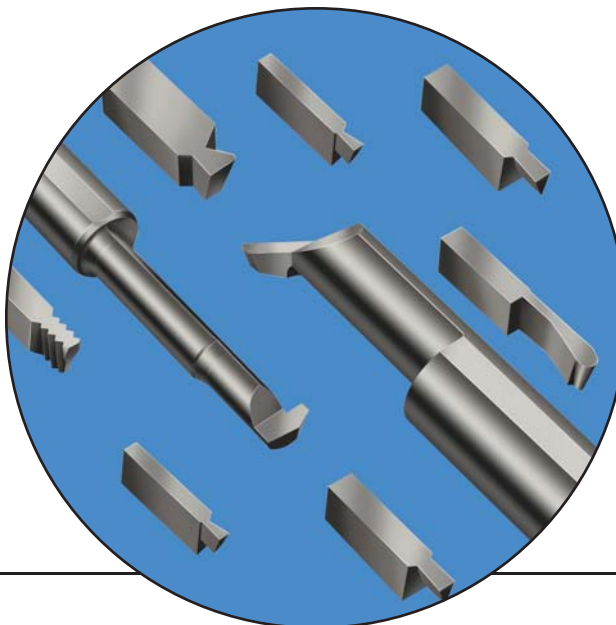
As long as first plunge is made within major diameter range and each following plunge overlaps, groove width can be increased toward or away from center of part.

DEEPGROOVE®
ALTERNATE PKGS

If you require a modification other than those detailed on the following pages, please call or submit your application print to our sales office.

<u>PAGE</u>	<u>MODIFICATION TYPE</u>
8-2	Face grooving
8-3	Definition of modifications
8-4	Modification specification sheet
8-5	Custom threads
8-6	Solid carbide custom blanks
8-7	Form tools

We are an industry leader at making custom tooling with competitive prices and fast delivery.



Our staff of sales associates and applications engineers process your quotes within 48 hours!

QUOTATION TO ORDER PROCESS

- | | |
|--|---|
| <ul style="list-style-type: none"> • Submit an application print or catalog sheet detailing your requirements. Include company name, contact name, email and telephone numbers. Submissions can be emailed to: quotes@thinbit.com. • A quote will be returned within 48 hours which will include CAD drawings, price, delivery and payment terms. | <ul style="list-style-type: none"> • Review the quote information and CAD drawings. Fill in the 'Quote Summary Sheet' with item quantities and approval signatures. • Email the 'Quote Summary Sheet' to our sales office. • The order will be confirmed. The confirmation will summarize order and include delivery date. |
|--|---|

Please review drawings carefully and be aware that once approved, special made items are not returnable.

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PROVIDE THESE TOOLING SPECIFICATIONS

FACE GROOVE TYPE:

- ☐ Flat Face ☐ Shoulder Face
☐ Internal ☐ Angled

SPINDLE ROTATION: (Looking at spindle face)

- ☐ Clockwise ☐ Counter-Clockwise

WIDTH ('A'): _____

(.004" minimum suggested)

DEPTH OF CUT ('B'): _____

(as required)

MAJOR DIAMETER ('C'): _____

(.200" minimum suggested)

DEPTH INTO BORE ('D'): _____

(as required)

ANGLE ('E'): _____

(as required)

MATERIAL BEING MACHINED: _____

COATING OPTIONS:

- ☐ TiN ☐ TiCN
☐ TiAlN ☐ Diamond

TOOLHOLDER OPTIONS:

- ☐ Square ☐ Straight ☐ Right Hand Shank
☐ Round ☐ 90° ☐ Left Hand Size: _____

Submitting this form will generate a quote within 48 hours which will include price, delivery and CAD drawing(s) for your review and approval. If possible, please include an application print or sketch.

Return quote to:

Name: _____

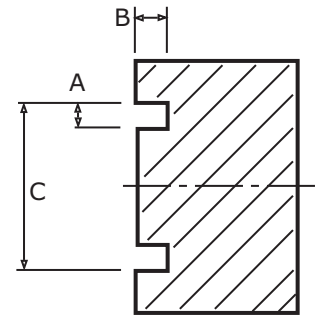
Company: _____

Address: _____

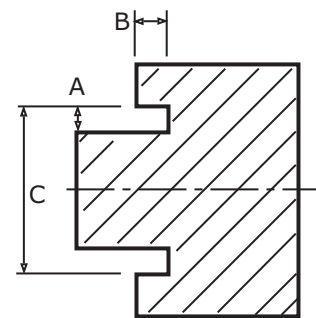
Phone: (____) - _____ - _____

Email Address: _____

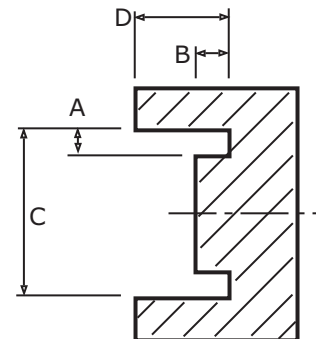
Flat Face Groove



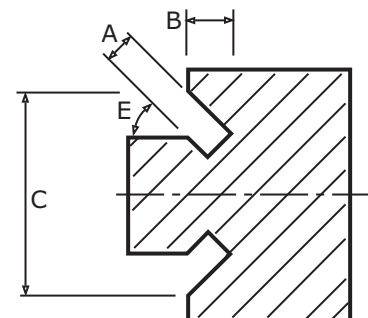
Shoulder Face Groove



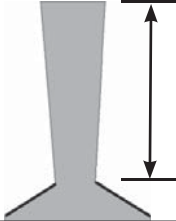
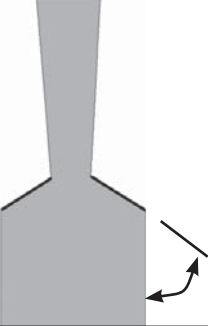
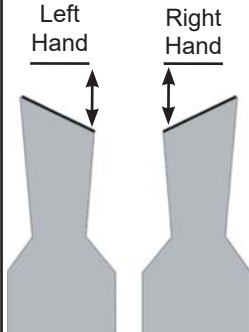
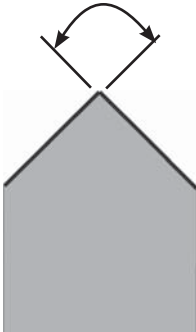
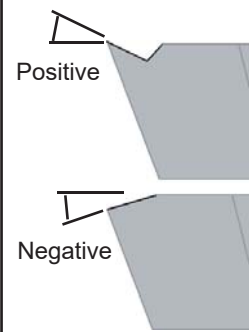
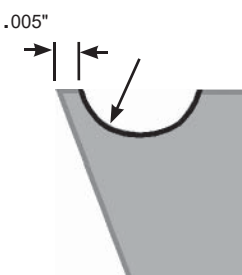
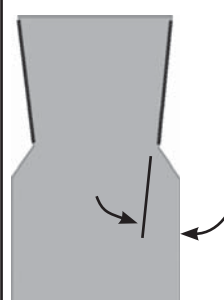
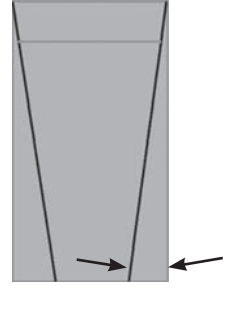
Internal Face Groove



Angled Face Groove



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 SIZING Looking at the top of the insert, sizing is the width of the cutting edge.	 RADIUS Looking at the top of the insert, the radii are the rounded corners of the cutting edge. A full radius means each radius is one half the width of the insert.
 DEPTH OF CUT Looking at the top of the insert, depth of cut is the depth the insert will cut into part before edge(s) drag.	 CHAMFER Looking at the top of the insert, chamfer is a secondary cutting edge. Standard angle is 45°.
 LEAD ANGLE Looking at the top of the insert, lead angle is the angle along the cutting edge of the insert.	 INCLUDED ANGLE Looking at the top of the insert, the included angle is the angle between the cutting edges.
 TOP RAKE Looking at the side of the insert, top rake is the angle between the top of the insert and the cutting edge.	 CHIPBREAKER Looking at the side of the insert, a chipbreaker is a 1/32" radius ground .005" back from the cutting edge.
 BACK CLEARANCE Looking at the top of the insert, back clearance is the angle behind the cutting edge.	 SIDE CLEARANCE Looking at the front of the insert, side clearance is the angle from the top of the insert to the bottom of the insert.

BASE TOOL:

MATERIAL BEING MACHINED:

COATING OPTIONS: (Select 1 only)

- ☐ TiN ☐ TiCN
☐ TiAlN ☐ Diamond

TOOLHOLDER OPTIONS: Size

- ☐ Square ☐ Straight ☐ Right Hand
☐ Round ☐ 90° ☐ Left Hand

SPINDLE ROTATION (Looking at spindle face)

- ☐ Clockwise ☐ Counter-Clockwise

SKETCH AREA

Submitting this form will generate a quote within 48 hours which will include price, delivery and CAD drawing(s) for your review and approval. If possible, please include an application print or sketch.

Return quote to:

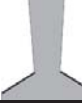
Name: _____

Company: _____

Address: _____

Phone: (____) - ____ - ____

Email Address: _____

	Left Hand Side Geometry	Right Hand Side Geometry
	_____ Insert Width in .xxx" _____ Tolerance in +.xxx"/-.xxx" (± .001" standard)	
	☐ Full Radius	
	_____ Corner Radius in .xxx" _____ Tolerance in +.xxx"/-.xxx" (± .002" standard)	_____ Corner Radius in .xxx" _____ Tolerance in +.xxx"/-.xxx" (± .002" standard)
	_____ Total Depth of Cut in .xxx"	_____ Total Depth of Cut in .xxx"
	_____ Chamfer Angle in x° _____ Total Depth of Chamfer required in .xxx" _____ Tolerance in +.xxx"/-.xxx" (± .001" standard)	_____ Chamfer Angle in x° _____ Total Depth of Chamfer required in .xxx" _____ Tolerance in +.xxx"/-.xxx" (± .001" standard)
	_____ Lead Angle in x° _____ Tolerance in +x°/-x° (± .5° standard)	_____ Lead Angle in x° _____ Tolerance in +x°/-x° (± .5° standard)
	_____ Included Angle in x° _____ Tolerance in +x°/-x° (± .5° standard)	
	_____ Top Rake Angle in x° ☐ Positive ☐ Negative _____ Tolerance in +x°/-x° (± .5° standard)	
	☐ 1/32" Radius Chipbreaker with .005" land	
	_____ Back Clearance in x° _____ Tolerance in +x°/-x° (± .5° standard)	_____ Back Clearance in x° _____ Tolerance in +x°/-x° (± .5° standard)
	_____ Side Clearance in x° _____ Tolerance in +x°/-x° (± .5° standard)	_____ Side Clearance in x° _____ Tolerance in +x°/-x° (± .5° standard)

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PROVIDE THESE TOOLING SPECIFICATIONS

THREAD TYPE:

☐ EXTERNAL

☐ INTERNAL BORE DIAMETER: _____

REACH INTO BORE: _____

ORIENTATION:

☐ RIGHT HAND

☐ LEFT HAND

FEED DIRECTION:

☐ Toward Spindle

☐ Away from Spindle

ANSI THREAD FORM: _____

THREAD FORM: _____

(Acme, Buttress, Square, etc.)

THREADS PER INCH: _____

NUMBER OF STARTS: _____

MAJOR DIAMETER: _____

(Largest diameter of thread)

MINOR DIAMETER: _____

(Smallest diameter of thread)

MATERIAL BEING MACHINED: _____

COATING OPTIONS:

☐ TIN

☐ TiCN

☐ TiAlN

☐ DIAMOND

TOOLHOLDER OPTIONS:

☐ Square

☐ Straight

☐ Right Hand

☐ Round

☐ 90°

☐ Left Hand

SHANK SIZE: _____

SKETCH AREA

Submitting this form will generate a quote within 48 hours which will include price, delivery and CAD drawing(s) for your review and approval. If possible, please include an application print or sketch.

Return quote to:

Name: _____

Company: _____

Address: _____

Phone: (____) - ____ - ____

Email Address: _____

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PROVIDE THESE TOOLING SPECIFICATIONS

TOOL TYPE:

- ☐ Grooving ☐ Face Grooving
☐ Boring ☐ Threading

ORIENTATION:

- ☐ Right Hand ☐ Left Hand

WIDTH ('A'): _____
(.004" minimum)

SHANK DIAMETER ('B'): _____
(1/8", 3/16", 1/4", 5/16", 3/8", 1/2")

MINIMUM

BORE DIAMETER ('C'): _____
(.073" minimum suggested)

OVERALL LENGTH ('D'): _____
(.875" minimum, 4" maximum suggested;
stock lengths may be substituted)

REACH ('E'): _____
(.250" minimum, 4 times 'B' maximum suggested)

PROJECTION ('F'): _____
(3 times 'A' maximum suggested;
for threading tool, specify threads per inch)

MATERIAL BEING MACHINED: _____

COATING OPTIONS:

- ☐ TiN ☐ TiCN
☐ TiAlN ☐ DIAMOND

Submitting this form will generate a quote within 48 hours which will include price, delivery and CAD drawing(s) for your review and approval. If possible, please include an application print or sketch.

Return quote to:

Name: _____

Company: _____

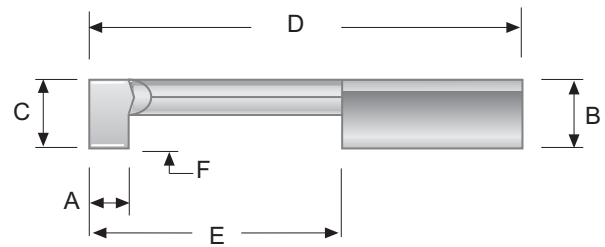
Address: _____

Phone: (____) - ____ - ____

Email Address: _____

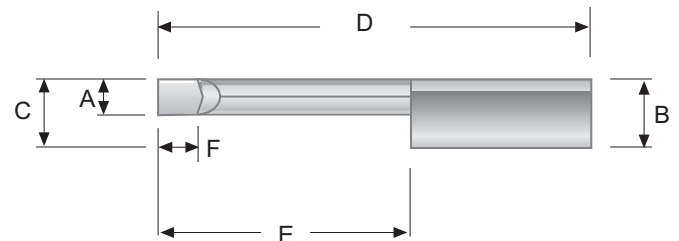
Grooving Tool Geometry

Right hand shown. See Page 1-4 for standard cutting geometry.



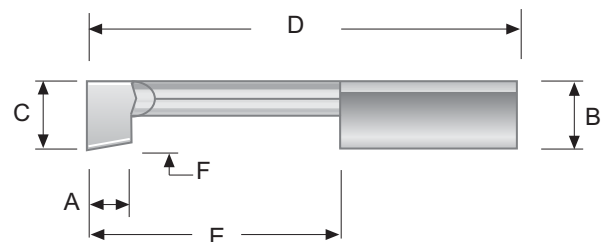
Face Grooving Tool Geometry

Clockwise shown. See Page 2-4 for standard cutting geometry.



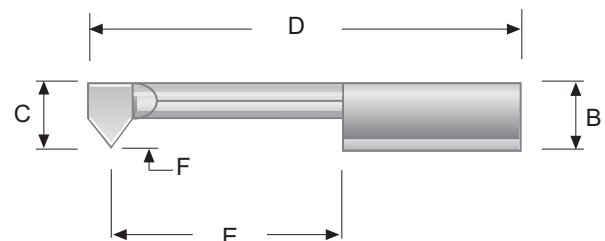
Boring Tool Geometry

Right hand shown. See Page 3-4 for standard cutting geometry.



Threading Tool Geometry

Right hand shown. See Page 4-4 & 4-6 for standard cutting geometry.



CUSTOM BLANKS
MODIFICATIONS

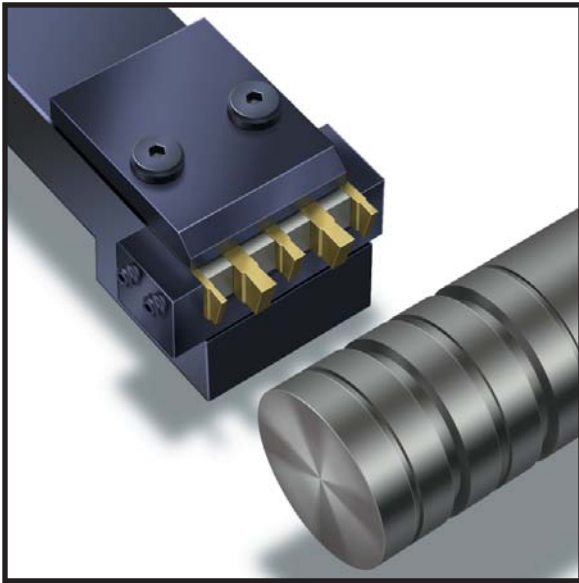
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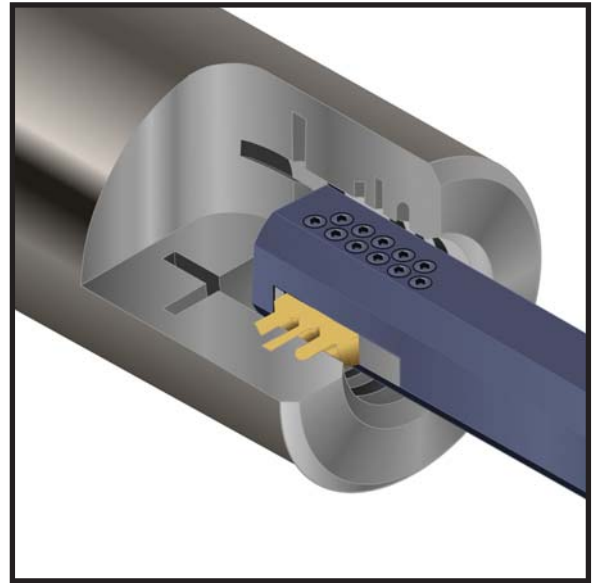
FORM-A-GROOVE® tools can consist of combinations of simple grooves or more complex combinations of grooves, arcs, angles, convex and concave radii, as well as special thread forms.

FORM-A-GROOVE® tools can simplify programming, increase production and free tool locations for other tools.



External and Face applications

- Up to 2" wide
- Made from stacking individual inserts or from a solid block of carbide



Internal applications

- Up to 1" wide
- Starting at .125" minimum bore

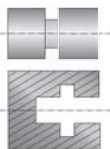
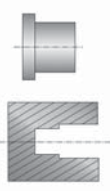
QUOTATION TO ORDER PROCESS

- | | |
|---|---|
| <ul style="list-style-type: none">• Submit an application print detailing your requirements. Include company name, contact name, email, and telephone numbers. If possible, please include an application print or sketch. Submissions can be emailed to: quotes@thinbit.com.• A quote will be returned within 48 hours which will include CAD drawings, price, delivery and payment terms. | <ul style="list-style-type: none">• Review the quote information and CAD drawings. Fill in the 'Quote Summary Sheet' with item quantities and approval signatures.• Email the 'Quote Summary Sheet' to our sales office.• The order will be confirmed. The confirmation will summarize order and include delivery date. |
|---|---|

If you require a modification other than those detailed on this page, please call or submit your application print to our sales office.

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	GENERAL TECHNICAL INFORMATION PAGE 9-2 PAGE OMITTED PAGE 9-3 EXTERNAL APPLICATION REFERENCE PAGE 9-4 INTERNAL APPLICATION REFERENCE PAGE 9-5 INSERT GRADE INFORMATION PAGE 9-6 INSERT COATING INFORMATION PAGE 9-7 TROUBLESHOOTING INFORMATION PAGE 9-8 GENERAL TOOLHOLDER INFORMATION
	GROOVING - CATALOG SECTION 1 PAGE 9-9 GEOMETRY AND SET-UP INFORMATION PAGE 9-10 SPEEDS AND FEEDS
	FACE GROOVING - CATALOG SECTION 2 PAGE 9-11 GEOMETRY AND SET-UP INFORMATION PAGE 9-12 SPEEDS AND FEEDS
	BORING & TURNING - CATALOG SECTION 3 PAGE 9-13 GEOMETRY AND SET-UP INFORMATION PAGE 9-14 SPEEDS AND FEEDS FOR MBE, MBF AND MBG SERIES BORING BARS PAGE 9-15 SPEEDS AND FEEDS FOR MBZ, MBA, MBB AND MBC SERIES BORING BARS AND MICROBIT[®] SOLID CARBIDE BORING TOOLS PAGE 9-16 SPEEDS AND FEEDS FOR MBA, MBB AND MBC PCD AND CBN TIPPED INSERTS
	THREADING - CATALOG SECTION 4 PAGE 9-17 GEOMETRY AND SET-UP INFORMATION PAGE 9-18 SPEEDS AND FEEDS
	PARTING - CATALOG SECTION 5 PAGE 9-19 GEOMETRY AND SET-UP INFORMATION PAGE 9-20 SPEEDS AND FEEDS

HOURS:

OUR BUSINESS HOURS ARE:

MONDAY - THURSDAY **7:30AM** TO **5:00PM** EASTERN STANDARD TIME.

PROCESSING FOR SAME DAY SHIPMENT STOPS AT **3:00PM** EASTERN STANDARD TIME.

FRIDAY **7:30AM** TO **2:00PM** EASTERN STANDARD TIME.

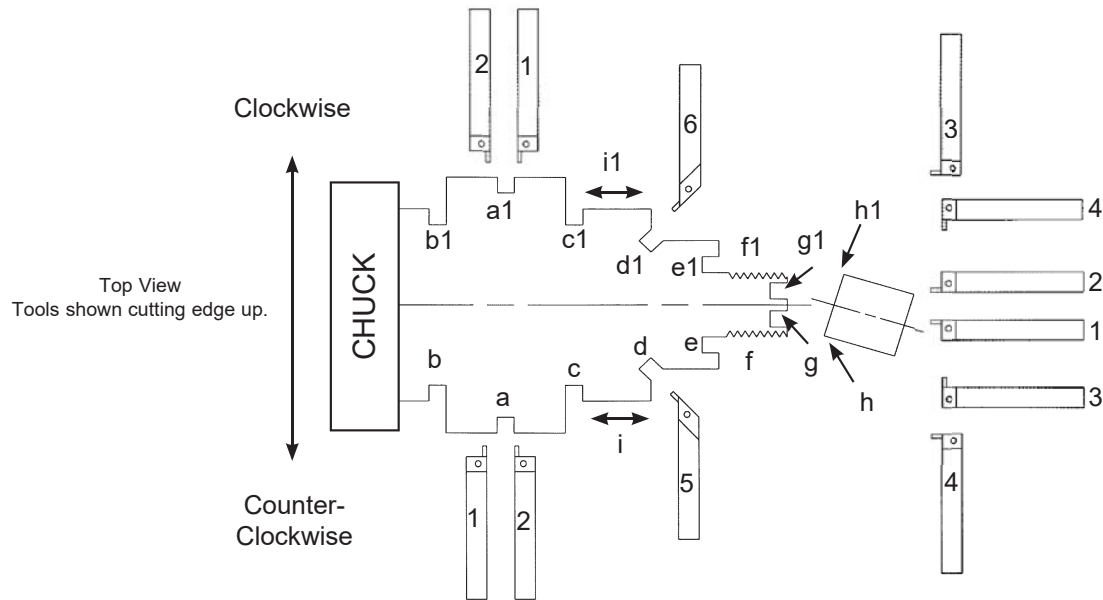
PROCESSING FOR SAME DAY SHIPMENT STOPS AT **12:00PM** EASTERN STANDARD TIME.

LOT NUMBERS: MOST PRODUCTS HAVE A 6 DIGIT LOT NUMBER LASER ENGRAVED ALONG WITH THE PART NUMBER. THIS NUMBER MAY REQUIRE 10X MAGNIFICATION TO READ.

NOTE: REGISTERED PATENTS AND TRADEMARKS LICENSED TO KAISER TOOL COMPANY, INC. ARE LOCATED ON OUR WEBSITE AT:
[HTTP://WWW.THINBIT.COM/ABOUT/TRADE_NAMES.HTML](http://www.thinbit.com/about/TRADE_NAMES.HTML)

KAISER TOOL COMPANY, INC.

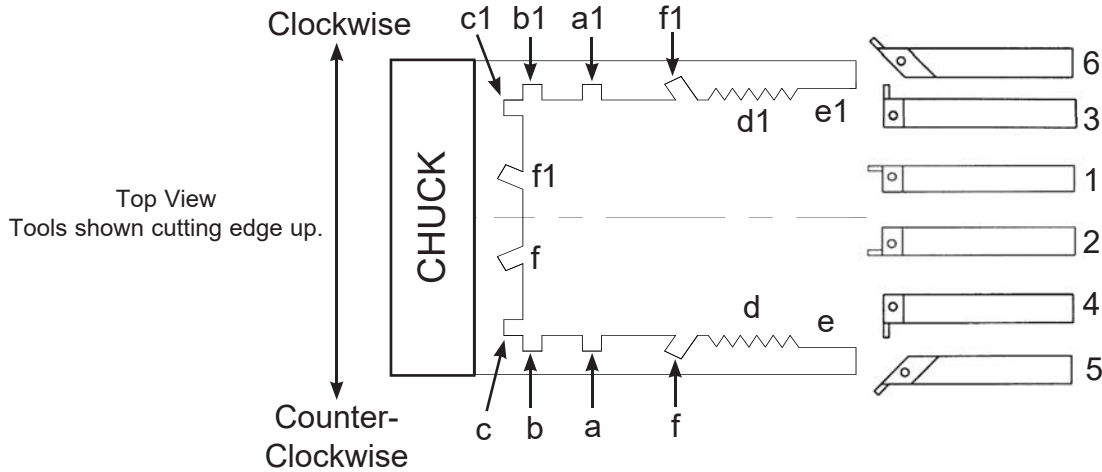
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External Application Reference						
Description	Specification	Operation	Insert Orientation	Insert Page	Toolholder Compatibility	Toolholder Page
OD Groove Reference: a,a1	.004" - .150" insert widths in .001" increments; Depths of cut 2.5 to 3 times width; For grooving, turning and generating profiles; Carbide and High Speed Steel.	a	Right Hand	1-10	2,3	7-1
		a1	Left Hand	1-10	1,4	7-1
	2,3,4,5 & 6mm insert widths; Depths of cut .5" to 1".	a	---	6-2	2,3	1-11
		a1	---	6-2	1,4	1-11
OD Groove at a shoulder Reference: b,b1,c,c1	.004" - .150" insert widths in .001" increments; Depths of cut 2.5 to 3 times width; For grooving, turning and generating profiles; Carbide and High Speed Steel.	b & c1	Left Hand	1-10	1,4	7-1
		b1 & c	Right Hand	1-10	2,3	7-1
	2,3,4,5 & 6mm insert widths; Depths of cut .5" to 1".	b & c1	---	6-2	1,4	1-11
		b1 & c	---	6-2	2,3	1-11
30°/45°/60° Undercut Reference: d,d1	.004" - .150" insert widths in .001" increments; Depths of cut 2.5 to 3 times width; .300", .750", 1.250" & 3" major diameters.	d	Counter-Clockwise	2-10	5	7-11, 7-15 & 7-16
		d1	Clockwise	2-10	6	7-11, 7-15 & 7-16
Face Groove Reference: e,e1,g,g1	.004" - .150" insert widths in .001" increments; Depths of cut 2.5 to 3 times width; For grooving, turning and generating profiles; Carbide and High Speed Steel.	e & g	Counter-Clockwise	2-10	1,4	7-1
		e1 & g1	Clockwise	2-10	2,3	7-1
	2,3,4,5 & 6mm insert widths; Depths of cut .5" to 1".	e & g	---	6-2	1,4	2-11
		e1 & g1	---	6-2	2,3	2-11
Threading Reference: f,f1	8 Threads Per Inch and greater Carbide and High Speed Steel.	f	Right Hand	4-10	2,3	7-1
		f1	Left Hand	4-10	1,4	7-1
	Acme threading 4 Threads Per Inch and greater Carbide and High Speed Steel.	f & f1	Right Hand	4-12	2,3	7-1
Parting Reference: h,h1	.025", .045", .062", .085" & .115" insert widths; Depths of cut .200" and .500"; Carbide and High Speed Steel.	h	---	5-4	2,3	7-1
		h1	---	5-4	1,4	7-1
Turning Reference: i,i1	TD and TP style inserts.	i	---	3-16,3-18	2,3	3-20
		i1	---	3-16,3-18	1,4	3-20

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Internal Application Reference						
Description	Specification	Operation	Insert Orientation	Insert Page	Toolholder Compatibility	Toolholder Page
Groove Reference: a,a1,b,b1	For internal diameters .125" and larger; .004" - .250" insert widths in .001" increments; Depths of cut to .150"; 1/8", 3/16", 1/4", 5/16", 1/2" solid carbide shanks.	a,b	Right Hand	1-4	---	7-2
		a1 & b1	Left Hand	1-4	---	7-2
	For internal diameters .325" and larger; .004" - .125" insert widths in .001" increments; Depths of cut to .125"; For grooving, boring and generating profiles.	a & b	Left Hand	2-5	4	1-6
		a1 & b1	Right Hand	2-5	3	1-6
	For internal diameters 1" and larger; 2,3 & 4mm insert widths; Depths of cut .5".	a & b	Right Hand Only	6-2	4	1-8
		a & b	Left Hand	1-10	4	7-8
	For internal diameters 1.250" and larger; .004" - .150" insert widths in .001" increments; Depths of cut 2.5 to 3 times width; For grooving, turning and generating profiles; Carbide and High Speed Steel.	a1 & b1	Right Hand	1-10	3	7-8
		a1 & b1	Left Hand	1-10	3	7-8
Face Groove Reference: c,c1	For internal diameters .125" and larger; .004" - .250" insert widths in .001" increments; Depths of cut to .150"; 1/8", 3/16", 1/4", 5/16", 1/2" solid carbide shanks.	c	Right Hand	2-4	---	7-2
		c1	Left Hand	2-4	---	7-2
	.004" - .150" insert widths in .001" increments; Depths of cut 2.5 to 3 times width; For grooving, turning and generating profiles; Carbide and High Speed Steel.	c	Counter-Clockwise	2-10	1,4	7-1
		c	Right Hand	2-5	2	2-6
	For internal diameters .415" and larger; .004" - .125" insert widths in .001" increments; Depths of cut to .125"; For grooving, boring and generating profiles.	c1	Left Hand	2-5	1	2-6
		c1	Left Hand	2-5	1	2-6
	For internal diameters 1.574" and larger; 2,3,4,5 & 6mm insert widths; Depths of cut .5" to 1".	c	---	6-2	2	2-8
		c1	---	6-2	1	2-8
Threading Reference: d,d1	For internal diameters .077" and larger; 4 Threads per Inch and greater; 1/8", 3/16", 1/4", 5/16", 1/2" solid carbide shanks.	d	Right Hand	4-4	---	7-2
		d1	Left Hand	4-4	---	7-2
	For internal Acme diameters .187" and larger 6 Threads per Inch and greater 3/16", 1/4", 5/16", 3/8" solid carbide shanks.	d	Right Hand	4-6	---	7-2
		d1	Left Hand	4-6	---	7-2
	For internal diameters .325" and larger; 9 Threads per Inch and greater.	d	Left Hand	4-8	4	1-6
		d1	Right Hand	4-8	3	1-6
	For internal diameters 1.250" and larger; 8 Threads per Inch and greater; Carbide and High Speed Steel.	d	Right Hand	4-10	4	7-8
		d1	Left Hand	4-10	3	7-8
Boring Reference: e,e1	For internal diameters .073" and larger; 1/8", 3/16", 1/4", 5/16", 1/2" solid carbide shanks.	d & d1	Right Hand	4-12	3,4	7-1
		d & d1	Right Hand	4-12	3,4	7-1
	For internal diameters .165" and larger; WCGT, CD, TD and TP style inserts.	e	Right Hand	3-4	---	7-2
		e1	Left Hand	3-4	---	7-2
30/45/60 Undercut f, f1	Minimum bore requirements: 45° is 1.125, Left Hand 30° and Right Hand 60° is 1.170; Left Hand 60° and Right Hand 30° require custom inserts. Shank Diameters in 1/2", 5/8", 3/4", 1", 20mm and 25mm	e	---	3-1	4	3-1
		e1	---	3-1	3	3-1
		f	Right Hand	2-10	5	7-14
		f1	Left Hand	2-10	6	7-14

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DURA-MAX® 2000 CARBIDE

DURA-MAX® 2000 is a versatile and tough sub-micron grain carbide. Because of its high transverse rupture strength and fine grain structure, **DURA-MAX® 2000** performs well with interrupted cuts. This grade is recommended for cutting steel, cast iron, stainless steel and applications where there are interrupted cuts.

DURA-MAX® 2000 approximates an ANSI C4/C5.

DURA-MAX® 3000 CARBIDE

DURA-MAX® 3000 is a hard and wear resistant sub-micron grain carbide. **DURA-MAX® 3000** is designed for light finish cuts. This grade is recommended for cutting steels and applications where precision finish cuts are required.

DURA-MAX® 3000 approximates an ANSI C7/C8.

DURA-MAX® 3000 inserts are only available on MINI-BORE® style inserts. See Section 3 of this catalog for further detail.

DURA-MAX® 4000 CARBIDE

DURA-MAX® 4000 is a tough, general purpose sub-micron grain carbide. **DURA-MAX® 4000** is designed for roughing. This grade is recommended for cutting steels, stainless steel, nickel based alloys and applications where there are interrupted cuts.

DURA-MAX® 4000 approximates an ANSI C5/C6.

DURA-MAX® 4000 inserts are only available on MINI-BORE® style inserts. See Section 3 of this catalog for further detail.

DURA-MAX® 5000 CARBIDE

DURA-MAX® 5000 is a hard, abrasion resistant, sub-micron grain carbide. Because of its hardness and fine grain structure, **DURA-MAX® 5000** provides excellent edge and corner retention. This grade is recommended for cutting abrasive materials, non-ferrous alloys, aluminum, plastic and applications where there are no interrupted cuts.

DURA-MAX® 5000 approximates an ANSI C2/C3.

DURA-MAX® 8000 CBN

DURA-MAX® 8000 is a **CBN** tipped insert which provides an increased production rate, improved surface finish and dimensional control when used on high-temperature alloys such as inconel, nickel base alloys and materials with a hardness of Rockwell C-35 or harder.

DURA-MAX® 9000 PCD

DURA-MAX® 9000 is a **PCD** tipped insert which provides an increased production rate, improved surface finish and dimensional control when used on non-ferrous and abrasive metals such as aluminum, brass and copper.

HIGH SPEED STEEL

High Speed Steel will cut most materials. It will take considerable abuse. However, high speed steel will not wear as well as carbide. We suggest the use of high speed steel for jobs of 500 cuts or less. It also works well on older machines which do not have high enough spindle speeds to take advantage of carbide.

High Speed Steel is an M42 grade.

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TiN (TITANIUM NITRIDE) Code "C"	Excellent general purpose PVD coating for most applications. TiN offers excellent wear resistance and allows 10% - 30% increase in speeds and feeds. TiN also increases lubricity at cutting edge which reduces galling and welding. TiN is not recommended for Nickel alloys or Titanium. Color: Yellow/gold Thickness: 2-4 microns (.0001"-.0002")
TiCN (TITANIUM CARBONITRIDE) Code "D"	A multi-layer, PVD coating good for cutting Aluminum, Brass, Bronze, Copper and its alloys and Cast Iron. TiCN improves tool life and allows increased speeds and feeds. Should out-perform TiN in abrasive and difficult to machine materials. TiCN is harder and more impact resistant than TiN. Color: Gray/bronze Thickness: 2-6 microns (.0001"-.0004")
TiAlN (TITANIUM ALUMINUM NITRIDE) Code "E"	A high performance PVD coating which excels in cutting abrasive or difficult-to-machine materials such as Titanium, Inconel, Waspaloy, Hastelloy, High Nickel Alloys, harder varieties of Stainless Steel. Good performance with interrupted cuts, high temperatures and dry machining. Color: Dark gray/black Thickness: 2-4 microns (.0001"-.0002")
DIAMOND Code "F"	Works well in cutting Aircraft Aluminum, Automotive Cast Aluminum, Copper, Brass, Graphite, Carbon, Various Plastics, Nylon, Natural Wood, Composite Woods and Kurtzite. Diamond coating is not recommended for cutting steels or other ferrous metals. Color: Silver Thickness: 2-6 microns (.0001"-.0004") May require a 5 piece minimum order.

Note on coolants:

THINBIT® inserts are compatible with all coolant types. Carbide and High Speed Steel give best performance on most materials when run flooded with coolant. Carbide does not perform well in thermal shock situations. Keep insert flooded or run dry.

Note on coatings:

Part numbers may not always include coating designation.

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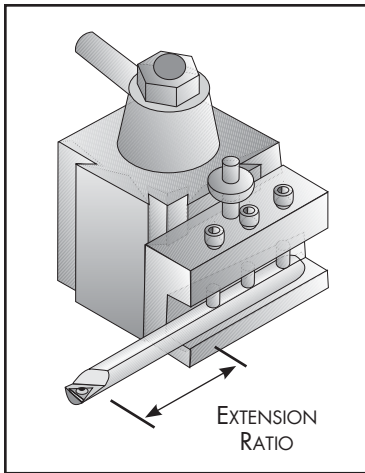
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It is critical for small tooling to have correct set ups. Speeds and feeds, condition of toolholder, insert and machine, centerline heights, squareness of cutting edge to machine, rigid machine to toolholder relationships are vital for proper performance in all applications. The items listed are general guides, but will not solve all problems. Please call our sales office for additional assistance.

Problem	Things to try
Grooving	
Cutting oversized; Groove walls not square	Check insert squareness; Check toolholder condition; Check insert centerline; Check machine alignment; Decrease IPR
Chatter; Poor finish	Increase speed; Reduce feed; Check toolholder condition; Check centerline; Stub toolholder and review toolholder size and machine set up for maximum rigidity; Add coating; Add top rake
Built up edge; Insert chipping	Increase feed; Increase speed; Run with coolant; Use coated insert; Check insert centerline
Burr on part	Add chamfer to insert; Turn or bore diameter after groove
Insert breaking	Check insert squareness; Check toolholder condition; Check insert centerline; Check machine condition; Decrease IPR; Review speeds and feeds; Verify insert grade
Chip control	Increase feed; Use peck cycle; Mount with cutting edge down; Flood with coolant; Add chip control to insert
Face Grooving	
Cutting oversized; Groove walls not square	Check insert squareness; Check toolholder condition; Check insert centerline; Check machine alignment; Decrease IPR
Chatter; Poor finish	Increase speed; Reduce feed; Check toolholder condition; Check centerline; Stub toolholder and review toolholder size and machine set up for maximum rigidity; Add coating; Add top rake
Built up edge; Insert chipping	Increase feed; Increase speed; Run with coolant; Use coated insert; Check insert centerline
Burr on part	Add chamfer to insert; Turn or bore diameter after groove
Insert breaking	Check insert squareness; Verify clearance diameter; Check insert centerline; Check toolholder condition; Check machine condition; Decrease IPR; Review speeds and feeds; Verify insert grade
Chip control	Increase feed; Use peck cycle; Mount with cutting edge down; Flood with coolant; Add chip control to insert
Boring/Turning	
Chatter; Poor Finish	Increase speed; Reduce feed; Check toolholder condition; Check centerline; Verify chip evacuation; Verify coolant reaching cutting edge; Stub toolholder and review toolholder size and machine set up for maximum rigidity; Add coating; Add top rake
Built up edge; Insert chipping	Increase feed; Increase speed; Increase corner radius; Run with coolant; Use coated insert; Check insert centerline
Insert breaking	Check squareness; Verify clearance diameter; Check centerline; Check toolholder condition; Check machine condition; Decrease IPR; Review speeds and feeds; Verify insert grade
Chip control	Increase feed; Mount with cutting edge down; Flood with coolant; Add chip control to insert
Threading	
Chatter; Poor finish	Increase speed; Reduce depth of cut per pass; Check toolholder condition; Check centerline; Verify chip evacuation; Verify coolant reaching cutting edge; Stub toolholder and review toolholder size and machine set up for maximum rigidity; Add coating
Built up edge; Insert chipping	Increase depth of cut per pass; Increase speed; Increase corner radius; Run with coolant; Use coated insert; Check insert centerline
Insert breaking	Check squareness; Check centerline; Check toolholder condition; Check machine condition; Decrease depth of cut per pass; Review speeds and feeds; Verify insert grade
Parting	
Insert leading; Faces not square	Check insert squareness; Check toolholder condition; Check insert centerline; Check machine alignment; Decrease IPR; Add lead angle
Chatter; Poor finish	Increase speed; Reduce feed; Check toolholder condition; Check centerline; Stub toolholder and review toolholder size and machine set up for maximum rigidity; Add coating; Add top rake
Built up edge; Insert chipping	Increase feed; Increase speed; Run with coolant; Use coated insert; Check insert centerline
Burr on part	Chamfer before parting; Add lead angle to drop side of insert
Insert breaking	Check insert squareness; Check toolholder condition; Check insert centerline; Check machine condition; Decrease IPR; Review speeds and feeds; Verify insert grade
Chip control	Increase feed; Use peck cycle; Mount with cutting edge down; Flood with coolant; Add chip control to insert

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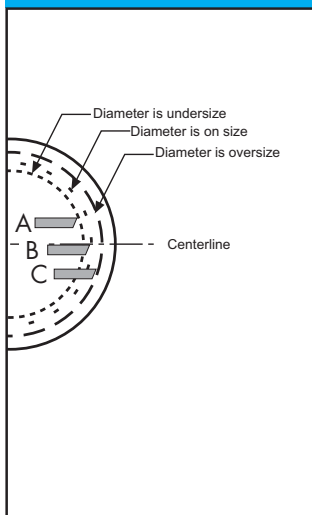
Extension Ratios					
Bar Diameter	Steel 4 x ø	Heavy Metal 6 x ø	Carbide 8 x ø	Shank Height	Steel
.156"	.625"	.937"	1.250"	.312"	1.250"
.187"	.750"	1.125"	1.500"	.375"	1.500"
.250"	1.000"	1.500"	2.000"	.500"	2.000"
.312"	1.250"	1.875"	2.500"	.625"	2.500"
.375"	1.500"	2.250"	3.000"	.750"	2.500"
.500"	2.000"	3.000"	4.000"	1.000"	2.500"
.625"	2.500"	3.750"	5.000"	1.250"	2.500"
.750"	3.000"				
1.000"	4.000"				

Extending a toolholder beyond these recommendations can cause excessive deflection which will result in poor surface finish and reduced insert life. These recommendations may need to be reduced if cutting materials with low machinability, taking heavy cuts or using the tooling in non-rigid machine set-ups.

Toolholder Notes:

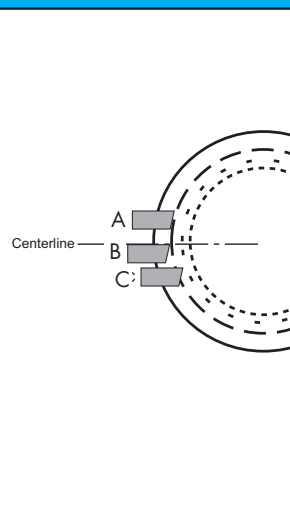
- To avoid burrs on your shanks, use only dog point screws. The use of cup point screws promotes burrs on the shanks and can result in problems removing or re-installing bars.
- Complete toolholders may be an assembly of several components each having an individual part number.
- Heavy Metal is a high density Tungsten based alloy that is very tough, stiff and vibration resistant.

INTERNAL TOOL & FACE GROOVING CUTTING HEIGHTS



- Normal cutting forces cause tool deflection, therefore internal tools are manufactured to cut .002" to .010" above centerline.
- Setting tool above 'A' will cause diameter to be under desired size.
- Setting tool to cut at 'A' will cause insert to deflect to 'B' and cut desired diameter.
- Setting tool below 'A' will cause insert to deflect to 'C' and cause diameter to be oversized.
- Keep in mind if tools are mounted cutting edge toward floor, above center is toward floor.

EXTERNAL TOOL CUTTING HEIGHTS



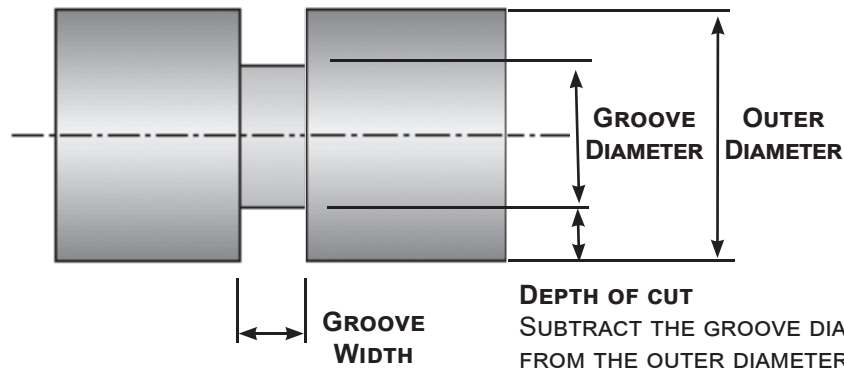
- External tools are manufactured to cut on center to .005" below centerline.
- Setting tool to cut at 'A' can cause heel of insert to rub or cause failure.
- Setting tool to cut at 'B' will cause insert to deflect slightly and cut at 'C'.
- Setting tool below 'C' can cause insert to grab or fail.
- Keep in mind if tools are mounted cutting edge toward floor, below center is toward ceiling.

DEEPGROOVE® Head and Shank Compatibility Chart

Shank	Package	Page	Head	Clamp	Shank	Package	Page	Head	Clamp	Shank	Package	Page	Head	Clamp
DGS__XL	C	2-16	DGH4	DGC2	DGS__XR	B	2-16	DGH3	DGC1	DGS__ZR	N	2-8	DGH6	DGC6
	E	1-14	DGH2	DGC2		F	1-14	DGH1	DGC1		O	7-15	DGH3	DGC1
	S	7-16	DGH5	DGC5		T	7-16	DGH6	DGC6		Q	7-15	DGH1	DGC1
DGS__YR	D	2-16	DGH4	DGC2	DGS__YL	A	2-16	DGH3	DGC1	DGS__ZL	M	2-8	DGH5	DGC5
	G	1-14	DGH2	DGC2		H	1-14	DGH1	DGC1		P	7-15	DGH4	DGC2
	U	7-16	DGH5	DGC5		V	7-16	DGH6	DGC6		R	7-15	DGH2	DGC2

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DEPTH OF CUT
SUBTRACT THE GROOVE DIAMETER FROM THE OUTER DIAMETER AND DIVIDE BY 2.
Example: 1" outer diameter with .75" groove diameter.
$$\frac{1" - .75"}{2} = .125" \text{ depth of cut}$$

External Grooving Applications

Decrease surface speed (SFM)

Increase feed (IPR)

Set tool on center to .005" below center. Keep smaller inserts closer to center.

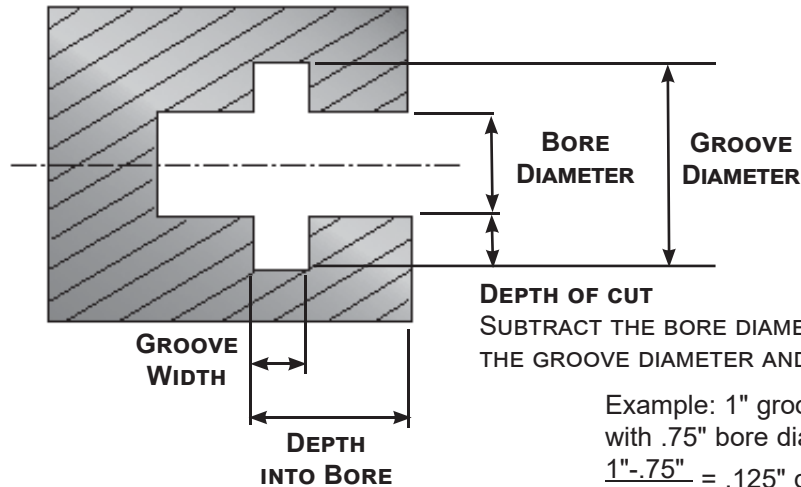
Insert width:	Modify Parameter												
	.004"	.020"	.040"	.060"	.080"	.100"	.120"	.140"	.160"	.180"	.200"	.220"	.250"
	Modify Parameter												

Internal Grooving Applications

Decrease surface speed (SFM)

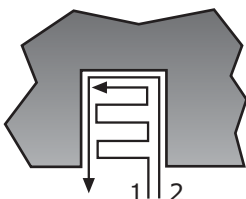
Increase feed (IPR)

Set tool .002" to .010" above center. Keep smaller inserts closer to center.

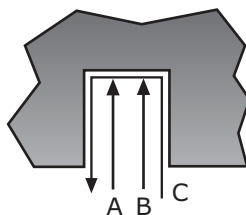


DEPTH OF CUT
SUBTRACT THE BORE DIAMETER FROM THE GROOVE DIAMETER AND DIVIDE BY 2.
Example: 1" groove diameter with .75" bore diameter.
$$\frac{1" - .75"}{2} = .125" \text{ depth of cut}$$

Insert begins with:
LGT, MGTI, GT



Insert begins with:
DGI, DGMI



Cutting Paths

Use these diagrams for expanding the size of grooves.

Note: Side load on path 1 should be 10% to 30% of depth of cut on insert.

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Speeds & Feeds - Grooving						
Material To Be Cut		Carbide			High Speed Steel	
		Carbide Grade	Speed (SFM)	Feed (IPR)	Speed (SFM)	Feed (IPR)
Aluminum	2021-6061	DURA-MAX® 5000	1000	.002	500	.002
Brass		DURA-MAX® 5000	250	.001	75	.001
Bronze		DURA-MAX® 5000	250	.001	70	.001
Cast Iron	Gray	DURA-MAX® 5000	120-345	.0015-.004	35-125	.0015-.004
	Ductile	DURA-MAX® 2000	70-345	.001-.004	15-125	.001-.004
	Malleable	DURA-MAX® 2000	75-525	.0015-.003	35-170	.0015-.003
Copper	101-757	DURA-MAX® 5000	150-170	.002	85-90	.002
	834-978	DURA-MAX® 5000	600	.003	340	.003
Magnesium	AZ, AM, EZ, ZE, HK Types	DURA-MAX® 5000	1000	.002	500	.002
Nickel	Nickel 200-230	DURA-MAX® 5000	225	.002	85	.002
	Monel	DURA-MAX® 5000	150	.001-.0015	15-60	.001-.0015
	Inconel, Waspaloy	DURA-MAX® 5000	45	.002	15	.002
	Hastelloy	DURA-MAX® 5000	75-95	.002	10-15	.002
Plastic	Teflon (TFE, CTFE)	DURA-MAX® 5000	400	.002	250	.002
	Nylon	DURA-MAX® 5000	350-600	.002-.003	350	.002-.003
	Phenolic	DURA-MAX® 5000	600	.003	350	.003
	Glass Filled	DURA-MAX® 5000	250	.002	NA	NA
Stainless Steel	201-385	DURA-MAX® 5000	225-275	.001-.0015	65-85	.001-.0015
	405-446	DURA-MAX® 2000	300	.0011	90	.0011
	14-4, 15-5, 16-6, 17-4 PH	DURA-MAX® 2000	110-205	.0006-.0012	30-60	.0006-.0012
Steel	1005-1029	DURA-MAX® 2000	255-450	.001-.002	80-140	.001-.002
	1030-1055	DURA-MAX® 2000	115-370	.0009-.0015	35-115	.0009-.0015
	1060-1095	DURA-MAX® 2000	95-255	.0007-.001	30-80	.0007-.001
	10L45-10L50	DURA-MAX® 2000	130-450	.0009-.0015	40-140	.0009-.0015
	12L13-12L15	DURA-MAX® 2000	550-600	.003-.0035	225-280	.003-.0035
	41L30-41L50	DURA-MAX® 2000	65-350	.0007-.0015	20-110	.0007-.0015
	4140-4150	DURA-MAX® 2000	65-370	.0007-.0015	20-115	.0007-.0015
	4140 (35 HRC)	DURA-MAX® 2000	200	.001	70	.001
	8617-8622	DURA-MAX® 2000	125-390	.001-.0016	40-120	.001-.0016
	M1-M6	DURA-MAX® 2000	190	.0013	60	.0013
	H10-H19	DURA-MAX® 2000	65-255	.0007-.0011	20-80	.007-.0011
	D2-D7	DURA-MAX® 2000	150-205	.001	45-60	.001
	A2-A9, 01-07	DURA-MAX® 2000	150-205	.001	45-60	.001
	W1, W2	DURA-MAX® 2000	375	.0015	110	.0015
	M-50, 52100	DURA-MAX® 2000	65-275	.0007-.0015	20-85	.0007-.0015
Titanium	Ti-6Al-6V	DURA-MAX® 5000	95	.001	45	.001

THESE SPEEDS AND FEEDS ARE GIVEN AS A STARTING POINT ONLY AND MAY BE ADJUSTED UP OR DOWN DEPENDING ON CONDITIONS.
ANY TIME THERE IS AN INTERRUPTED CUT IN YOUR OPERATION, **DURA-MAX® 2000** CARBIDE IS RECOMMENDED.

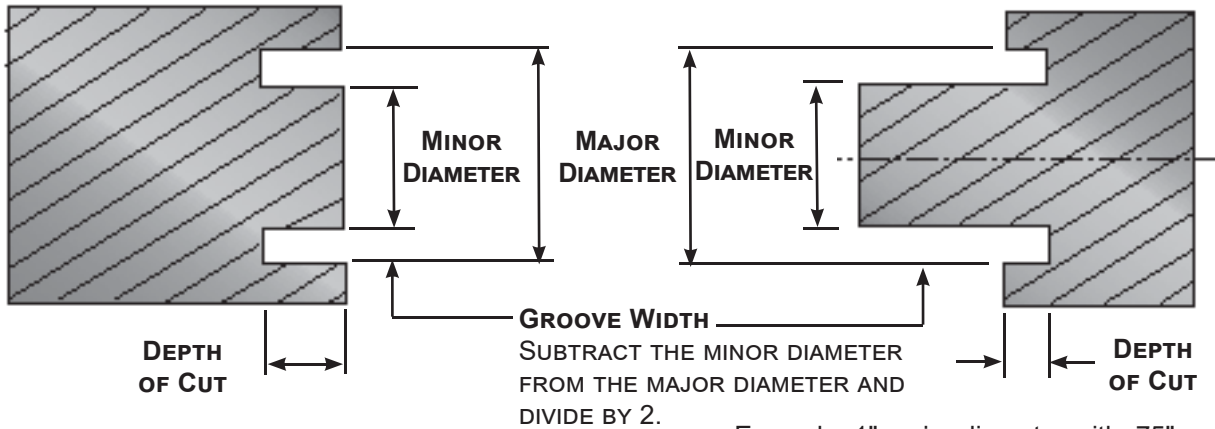
FORMULA FOR CONVERSION FROM SFM TO RPM

SFM = SURFACE FEET PER MINUTE RPM = REVOLUTIONS PER MINUTE IPR = INCHES PER REVOLUTION DIAMETER = CUTTING DIAMETER $\pi = 3.14$

$$RPM = \frac{SFM \times 12}{(\pi) \times DIAMETER}$$

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Example: 1" major diameter with .75" minor diameter.

$$\frac{1" - .75"}{2} = .125" \text{ Groove Width}$$

External Face Grooving Applications

Decrease surface speed (SFM)

Increase feed (IPR)

Set tool on .002" to .010" above center. Keep smaller inserts closer to center.

Modify Parameter

Insert width: .004" .020" .040" .060" .080" .100" .120" .140" .160" .180" .200" .220" .250"

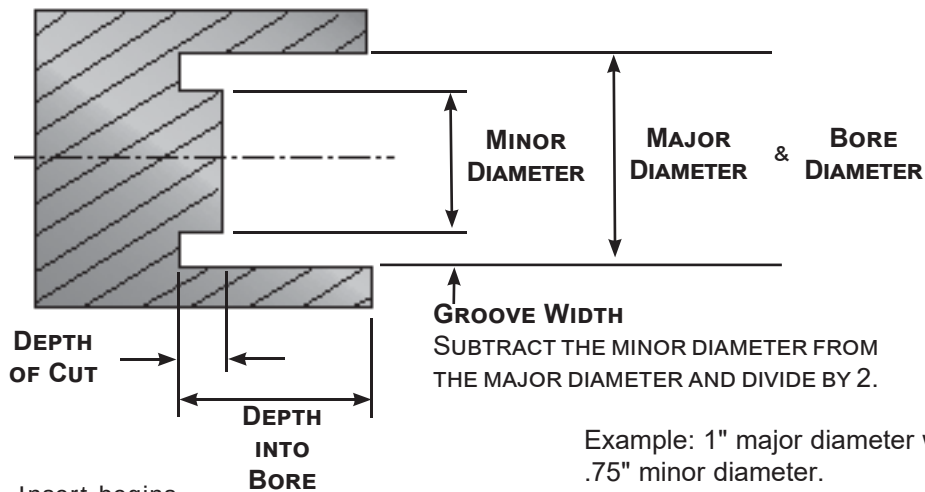
Modify Parameter

Internal Face Grooving Applications

Decrease surface speed (SFM)

Increase feed (IPR)

Set tool .002" to .010" above center. Keep smaller inserts closer to center.



Example: 1" major diameter with .75" minor diameter.

$$\frac{1" - .75"}{2} = .125" \text{ Groove Width}$$

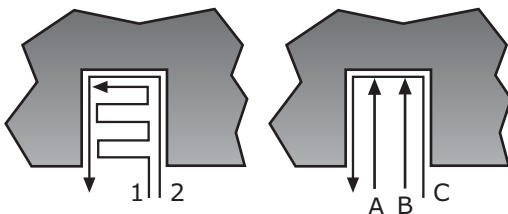
Insert begins with:
LGT, MGT1, FT

Insert begins with:
DGI, DGMI

Cutting Paths

Use these diagrams for expanding the size of grooves.

Note: Side load on path 1 should be 10% to 30% of depth of cut on insert.



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Speeds & Feeds - Face Grooving						
Material To Be Cut		Carbide			High Speed Steel	
		Carbide Grade	Speed (SFM)	Feed (IPR)	Speed (SFM)	Feed (IPR)
Aluminum	2021-6061	DURA-MAX® 5000	1000	.002-.003	525	.002-.003
Brass		DURA-MAX® 5000	250	.001	75	.001
Bronze		DURA-MAX® 5000	250	.001	70	.001
Cast Iron	Gray	DURA-MAX® 5000	300-500	.0017-.0027	35-115	.0017-.0027
	Ductile	DURA-MAX® 2000	250-425	.0013-.0027	30-75	.0013-.0027
	Malleable	DURA-MAX® 2000	300-600	.0013-.0027	35-120	.0013-.0027
Copper	101-757	DURA-MAX® 5000	450-550	.002	80-90	.0013-.0017
	834-978	DURA-MAX® 5000	600	.003	325	.0017
Magnesium	AZ, AM, EZ, ZE, HK Types	DURA-MAX® 5000	1000	.001-.002	650	.001-.002
Nickel	Nickel 200-230	DURA-MAX® 5000	225	.002	80	.001
	Monel	DURA-MAX® 5000	45-150	.001-.002	40-55	.001-.002
	Inconel, Waspaloy	DURA-MAX® 5000	75-100	.0013	10	.001
	Hastelloy	DURA-MAX® 5000	100-125	.0013-.0017	10-15	.001-.0015
Plastic	Teflon (TFE, CTFE)	DURA-MAX® 5000	400	.003	250	.003
	Nylon	DURA-MAX® 5000	350-600	.002-.003	350	.002-.003
	Phenolic	DURA-MAX® 5000	600	.003	350	.003
	Glass Filled	DURA-MAX® 5000	250	.002	N/A	N/A
Stainless Steel	201-385	DURA-MAX® 5000	225-275	.0013-.002	60-65	.001
	405-446	DURA-MAX® 2000	275	.002	90	.001
	14-4, 15-5, 16-6, 17-4 PH	DURA-MAX® 2000	125-150	.0013-.002	40-50	.001
Steel	1005-1029	DURA-MAX® 2000	400-500	.002-.003	75-110	.002-.003
	1030-1055	DURA-MAX® 2000	325-450	.0013-.0027	30-85	.0013-.0027
	1060-1095	DURA-MAX® 2000	325-400	.0016-.0027	30-70	.0016-.0027
	10L45-10L50	DURA-MAX® 2000	300-600	.0017-.0027	35-130	.0017-.0027
	12L13-12L15	DURA-MAX® 2000	500-600	.002-.003	105-130	.002-.003
	41L30-41L50	DURA-MAX® 2000	325-500	.0013-.0027	30-105	.0013-.0027
	4140-4150	DURA-MAX® 2000	325-450	.0013-.0027	30-95	.0013-.0027
	4140 (35 HRC)	DURA-MAX® 2000	350	.0013	45	.0013
	8617-8622	DURA-MAX® 2000	250-475	.001-.0023	30-90	.001-.0023
	M1-M6	DURA-MAX® 2000	350	.002	50	.001
	H10-H19	DURA-MAX® 2000	300-425	.001-.002	35-75	.001-.002
	D2-D7	DURA-MAX® 2000	300-375	.002	35-60	.0015-.002
	A2-A9, 01-07	DURA-MAX® 2000	300-375	.002	35-60	.0015-.002
	W1, W2	DURA-MAX® 2000	425	.002	75	.002
	M-50, 52100	DURA-MAX® 2000	350	.002	55	.002
Titanium	Ti-6Al-6V	DURA-MAX® 5000	95	.001	40	.002

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ANY TIME THERE IS AN INTERRUPTED CUT IN YOUR OPERATION, **DURA-MAX® 2000** CARBIDE IS RECOMMENDED.

FORMULA FOR CONVERSION FROM SFM TO RPM

SFM = SURFACE FEET PER MINUTE RPM = REVOLUTIONS PER MINUTE

IPR = INCHES PER REVOLUTION

DIAMETER = CUTTING DIAMETER

$\pi = 3.14$

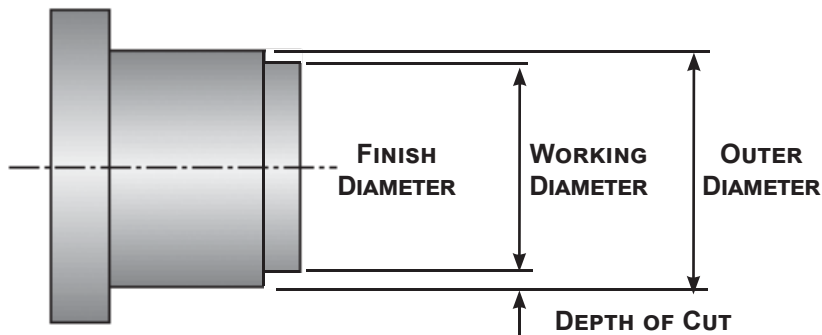
For Milling -

Convert RPM to Inches per minute per chip load.

$$RPM = \frac{SFM \times 12}{(\pi) \times DIAMETER}$$

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SUBTRACT THE WORKING DIAMETER FROM THE OUTER DIAMETER AND DIVIDE BY 2.

Example: 1" outer diameter with .976" working diameter.

$$\frac{1" - .976"}{2} = .012" \text{ depth of cut}$$

Turning Applications

Decrease surface speed (SFM)

Increase feed (IPR)

Increase depth of cut

Set tool on center to .005" below center. Keep smaller inserts closer to center.

Modify Parameter →

MBZ MBA MBE MBB MBF MBC MBG

Tool starts with:

BT21 BT31 BT41 BT51 BT61 BT81

← Modify Parameter

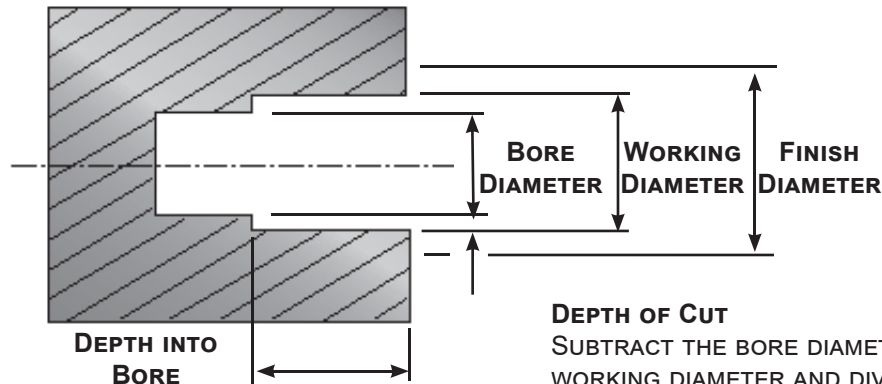
Boring Applications

Decrease surface speed (SFM)

Increase feed (IPR)

Increase depth of cut

Set tool .002" to .010" above center. Keep smaller tools closer to center.



DEPTH OF CUT

SUBTRACT THE BORE DIAMETER FROM THE WORKING DIAMETER AND DIVIDE BY 2.

Example: 1" working diameter with .976" bore diameter.

$$\frac{1" - .976"}{2} = .012" \text{ depth of cut}$$

Cutting Paths:

- Internal tools designed for feeding into bore.
- External tools designed for feeding toward chuck.

NUMBER OF PASSES

SUBTRACT THE FINISH DIAMETER FROM THE OUTER DIAMETER AND DIVIDE BY 2 TIMES THE DEPTH OF CUT PER PASS.

Example: 1" outer diameter with .875" finish diameter and .012" per pass.

$$\frac{1" - .875"}{2 \times .012"} = 5.2 \text{ or } 6 \text{ passes}$$

Note: Leave 30% - 50% of depth of cut for finish pass.

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Speeds & Feeds - MBE, MBF & MBG Style Inserts							
Material To Be Cut		Carbide Grade	Speed (SFM)	Feed (IPR)	Depth of Cut		
					MBE	MBF	MBG
Aluminum	2021-6061	DURA-MAX [®] 5000	450-1000	.005-.012	.012	.014	.016
Brass		DURA-MAX [®] 5000	300-400	.002-.005	.010	.010	.012
Bronze		DURA-MAX [®] 5000	300-400	.002-.005	.009	.010	.012
Cast Iron	Gray	DURA-MAX [®] 5000	200-300	.005-.010	.010	.012	.015
	Ductile	DURA-MAX [®] 4000	200-300	.005-.010	.010	.012	.015
	Malleable	DURA-MAX [®] 4000	100-300	.005-.010	.010	.012	.015
Copper	101-757	DURA-MAX [®] 4000	400-750	.003-.005	.012	.014	.016
	834-978	DURA-MAX [®] 5000	300-700	.003-.005	.012	.014	.016
Magnesium	AZ, AM, EZ, ZE, HK Types	DURA-MAX [®] 5000	700-1300	.005-.012	.012	.014	.016
Nickel	Nickel 200-230	DURA-MAX [®] 4000	100-250	.002-.005	.008	.008	.008
	Monel	DURA-MAX [®] 4000	80-120	.0005-.001	.008	.008	.008
	Inconel, Waspaloy	DURA-MAX [®] 4000	70-95	.001-.003	.008	.008	.008
	Hastelloy	DURA-MAX [®] 4000	50-80	.001-.003	.008	.008	.008
Plastic	Teflon (TFE, CTFE)	DURA-MAX [®] 5000	500-850	.004-.008	.010	.012	.015
	Nylon	DURA-MAX [®] 5000	700-1000	.002-.005	.010	.012	.015
	Phenolic	DURA-MAX [®] 5000	700-1000	.005	.010	.012	.015
	Glass Filled	DURA-MAX [®] 5000	700-1000	.005	.008	.012	.015
Stainless Steel	201-385	DURA-MAX [®] 4000	100-225	.002-.004	.009	.010	.012
	405-446	DURA-MAX [®] 4000	100-225	.002-.004	.008	.009	.010
	14-4, 15-5, 16-6, 17-4 PH	DURA-MAX [®] 4000	300-400	.002-.004	.008	.009	.010
Steel	1005-1029	DURA-MAX [®] 4000	100-250	.003-.007	.010	.012	.015
	1030-1055	DURA-MAX [®] 4000	100-250	.003-.007	.010	.012	.015
	1060-1095	DURA-MAX [®] 4000	100-350	.003-.007	.010	.012	.015
	10L45-10L50	DURA-MAX [®] 4000	250-450	.006-.008	.010	.012	.015
	12L13-12L15	DURA-MAX [®] 4000	250-450	.004-.006	.010	.012	.015
	41L30-41L50	DURA-MAX [®] 4000	150-350	.003-.007	.010	.012	.015
	4140-4150	DURA-MAX [®] 4000	100-350	.003-.007	.010	.012	.015
	4140 (35 HRc)	DURA-MAX [®] 4000	90-125	.003-.007	.008	.008	.010
	8617-8622	DURA-MAX [®] 4000	100-200	.004-.008	.010	.012	.015
	M1-M6	DURA-MAX [®] 4000	100-200	.004-.008	.008	.010	.012
	H10-H19	DURA-MAX [®] 4000	100-200	.004-.008	.008	.010	.012
	D2-D7	DURA-MAX [®] 4000	100-200	.004-.008	.008	.010	.012
	A2-A9, 01-07	DURA-MAX [®] 4000	100-200	.004-.008	.008	.010	.012
	W1, W2	DURA-MAX [®] 4000	100-200	.004-.008	.008	.010	.012
	M-50, 52100	DURA-MAX [®] 4000	200-300	.005-.010	.010	.012	.015
Titanium	Ti-6Al-6V	DURA-MAX [®] 5000	90-250	.001-.003	.008	.009	.010

THESE SPEEDS AND FEEDS ARE GIVEN AS A STARTING POINT ONLY AND MAY BE ADJUSTED UP OR DOWN DEPENDING ON CONDITIONS.
 ANY TIME THERE IS AN INTERRUPTED CUT IN YOUR OPERATION, **DURA-MAX[®] 4000** CARBIDE IS RECOMMENDED.

FORMULA FOR CONVERSION FROM SFM TO RPM

SFM = SURFACE FEET PER MINUTE RPM = REVOLUTIONS PER MINUTE IPR = INCHES PER REVOLUTION DIAMETER = CUTTING DIAMETER $\pi = 3.14$

$$RPM = \frac{SFM \times 12}{(\pi) \times DIAMETER}$$

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Speeds & Feeds - MBZ, MBA, MBB, MBC Style Inserts & MICROBIT® Solid Carbide Tools							
Material To Be Cut		Carbide Grade			Depth of Cut		
		MBA, MBB, MBC, MBZ	Speed (SFM)	Feed (IPR)	MBA, MBZ, BT2, BT3	MBB, BT4, BT5	MBC, BT6, BT8
Aluminum	2021-6061	DURA-MAX® 5000	700-1400	.005-.012	.008	.008	.016
Brass		DURA-MAX® 5000	350-400	.001-.003	.006	.006	.012
Bronze		DURA-MAX® 5000	300-400	.001-.002	.006	.006	.012
Cast Iron	Gray	DURA-MAX® 5000	250-350	.004-.010	.007	.007	.015
	Ductile	DURA-MAX® 5000	250-350	.004-.010	.007	.007	.015
	Malleable	DURA-MAX® 5000	250-350	.004-.010	.007	.007	.015
Copper	101-757	DURA-MAX® 5000	600-800	.003-.005	.008	.008	.016
	834-978	DURA-MAX® 5000	600-800	.003-.005	.008	.008	.016
Magnesium	AZ, AM, EZ, ZE, HK Types	DURA-MAX® 5000	750-1500	.005-.012	.008	.008	.016
Nickel	Nickel 200-230	DURA-MAX® 5000	100-250	.002-.005	.004	.004	.008
	Monel	DURA-MAX® 5000	80-120	.001-.003	.004	.004	.008
	Inconel, Waspaloy	DURA-MAX® 5000	80-120	.001-.003	.004	.004	.008
	Hastelloy	DURA-MAX® 5000	80-120	.001-.003	.004	.004	.008
Plastic	Teflon (TFE, CTFE)	DURA-MAX® 5000	500-600	.003-.006	.007	.007	.015
	Nylon	DURA-MAX® 5000	700-800	.001-.003	.007	.007	.015
	Phenolic	DURA-MAX® 5000	700-800	.001-.003	.007	.007	.015
	Glass Filled	DURA-MAX® 5000	700-800	.001-.003	.005	.005	.015
Stainless Steels	201-385	DURA-MAX® 5000	100-250	.0015-.004	.005	.005	.010
	405-446	DURA-MAX® 5000	100-250	.0015-.004	.005	.005	.010
	14-4, 15-5, 16-6, 17-4 PH	DURA-MAX® 5000	300-400	.002-.004	.005	.005	.010
Steel	1005-1029	DURA-MAX® 3000/4000	100-300	.003-.007	.007	.007	.015
	1030-1055	DURA-MAX® 3000/4000	100-300	.003-.007	.007	.007	.015
	1060-1095	DURA-MAX® 3000/4000	150-400	.003-.005	.007	.007	.015
	10L45-10L50	DURA-MAX® 3000/4000	300-500	.004-.006	.007	.007	.015
	12L13-12L15	DURA-MAX® 3000/4000	300-500	.003-.005	.007	.007	.015
	41L30-41L50	DURA-MAX® 3000/4000	200-400	.003-.005	.007	.007	.015
	4140-4150	DURA-MAX® 3000/4000	150-400	.003-.005	.007	.007	.015
	4140 (35 HRC)	DURA-MAX® 3000/4000	90-125	.001-.004	.004	.004	.008
	8617-8622	DURA-MAX® 3000/4000	100-300	.002-.004	.007	.007	.015
	M1-M6	DURA-MAX® 3000/4000	150-250	.003-.008	.006	.006	.012
	H10-H19	DURA-MAX® 3000/4000	150-250	.003-.007	.006	.006	.012
	D2-D7	DURA-MAX® 3000/4000	150-250	.004-.010	.006	.006	.012
	A2-A9, 01-07	DURA-MAX® 3000/4000	150-250	.003-.008	.006	.006	.012
	W1, W2	DURA-MAX® 3000/4000	150-250	.003-.008	.006	.006	.012
	M-50, 52100	DURA-MAX® 3000/4000	300-400	.004-.010	.007	.007	.015
Titanium	Ti-6Al-6V	DURA-MAX® 5000	90-250	.001-.003	.005	.005	.010

THESE SPEEDS AND FEEDS ARE GIVEN AS A STARTING POINT ONLY AND MAY BE ADJUSTED UP OR DOWN DEPENDING ON CONDITIONS.
 ANY TIME THERE IS AN INTERRUPTED CUT IN YOUR OPERATION, **DURA-MAX® 3000/4000** CARBIDE IS RECOMMENDED.

FORMULA FOR CONVERSION FROM SFM TO RPM

SFM = SURFACE FEET PER MINUTE RPM = REVOLUTIONS PER MINUTE IPR = INCHES PER REVOLUTION DIAMETER = CUTTING DIAMETER $\pi = 3.14$

$$RPM = \frac{SFM \times 12}{(\pi) \times DIAMETER}$$

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Speeds & Feeds - DURA-MAX® 9000 (PCD Tipped) Insert					
Material To Be Cut	Speed (SFM)	Feed (IPR)	Depth of Cut		
			MBA	MBB	MBC
Aluminum (High Silicon)	1000-2000	.003-.010	.001-.007	.002-.008	.003-.012
Bronze, Brass	800-1500	.003-.010	.001-.007	.002-.008	.003-.012
Copper Alloys	800-1200	.003-.010	.001-.007	.002-.008	.003-.012
Fiberglass	500-900	.001-.005	.001-.007	.002-.008	.003-.012
Green Carbide	500-1400	.001-.004	.001-.007	.002-.008	.003-.012
Monel	1000-2000	.003-.010	.001-.007	.002-.008	.003-.012
Phenolic	500-900	.001-.005	.001-.007	.002-.008	.003-.012
Plastics	500-900	.001-.004	.001-.007	.002-.008	.003-.012

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ANY TIME THERE IS AN INTERRUPTED CUT IN YOUR OPERATION, **DURA-MAX® 3000 & 4000** CARBIDES ARE RECOMMENDED.

Speeds & Feeds - DURA-MAX® 8000 (CBN Tipped) Insert					
Material To Be Cut	Speed (SFM)	Feed (IPR)	Depth of Cut		
			MBA	MBB	MBC
52100 (58-62 HRC)	300-500	.003-.007	.001-.007	.002-.008	.003-.012
Hardened Alloy Steel	200-400	.003-.007	.001-.007	.002-.008	.003-.012
Hardened High Carbon Steel	300-500	.003-.007	.001-.007	.002-.008	.003-.012
Hardened Tool Steel	150-300	.002-.005	.001-.007	.002-.008	.003-.012
NI-Hard Cast Iron	100-300	.007-.015	.001-.007	.002-.008	.003-.012
Pearlitic Gray Cast Iron	800-1800	.007-.015	.001-.007	.002-.008	.003-.012
Powdered Metal	350-500	.003-.007	.001-.007	.002-.008	.003-.012
Stellite	100-200	.002-.004	.001-.007	.002-.008	.003-.012
Super Alloys	400-900	.003-.007	.001-.007	.002-.008	.003-.012
Thermal Spray Co Based	200-600	.002-.005	.001-.007	.002-.008	.003-.012
Thermal Spray Ni Based	150-450	.002-.007	.001-.007	.002-.008	.003-.012

FORMULA FOR CONVERSION FROM SFM TO RPM

SFM = SURFACE FEET PER MINUTE
RPM = REVOLUTIONS PER MINUTE
IPR = INCHES PER REVOLUTION
DIAMETER = CUTTING DIAMETER
 $\pi = 3.14$

$$RPM = \frac{SFM \times 12}{(\pi) \times DIAMETER}$$

ANSI STANDARD INSERT IDENTIFICATION SYSTEM

References to "insert type" in this catalog are based upon the ANSI B212.4-1995 system. The two letter codes refer to shape and relief angle. The use of four letter codes adds the tolerances and type (or configuration) to the first two letters. Following are the codes used for our inserts:

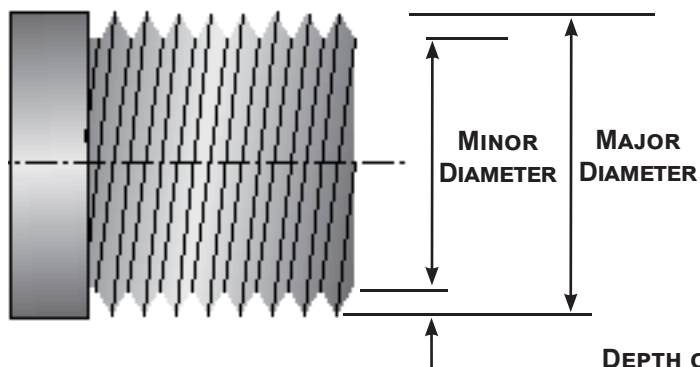
SHAPE	
C	Diamond (80°)
T	Triangle
W	Trigon

RELIEF ANGLE	
C	17°
P	11°
D	15°

TOLERANCES		
	Insert I.C.	Thickness
A	+/- .0002"	+/- .001
C	+/- .0005"	+/- .001
G	+/- .001"	+/- .002

TYPE (CONFIGURATION)	
B	With Hole & Countersink
D	Smaller than .250" I.C. With Hole
H	Hole, Countersink & Molded Chipbreaker
G	Hole, Countersink & Ground Chipbreaker
T	Hole, Countersink & Ground Chipbreaker One Side

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DEPTH OF THREAD

SUBTRACT THE MINOR DIAMETER FROM THE MAJOR DIAMETER AND DIVIDE BY 2.

Example: 1" major diameter with .754" minor diameter.

$$\frac{1" - .754"}{2} = .123" \text{ depth of thread}$$

External Threading Applications

Decrease surface speed (SFM)

Increase depth of cut per pass

Set tool on center to .005" below center. Keep smaller inserts closer to center.

Modify Parameter

MGTT

STT LTT LGTT LGAT

Tool starts with:

TT21 TT20 TT31 TT30 TT41 TT40 TT51 TT50 TT61 TT60 TT81 TT80
AT31 AT41 AT51 AT61

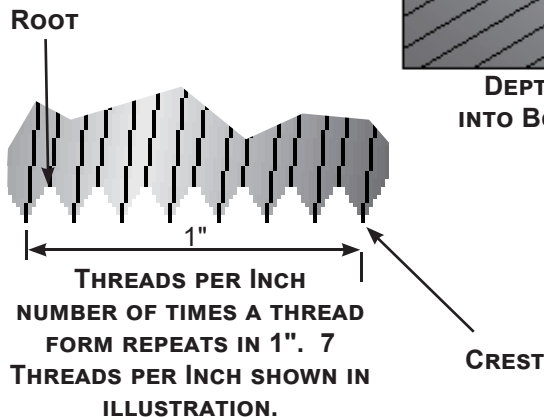
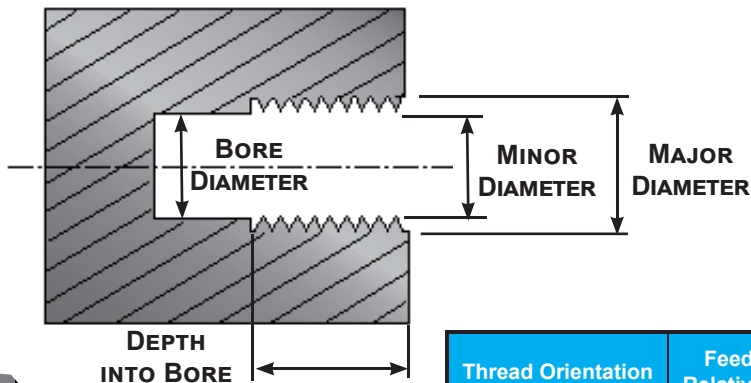
Modify Parameter

Internal Threading Applications

Decrease surface speed (SFM)

Decrease depth of cut per pass

Set tool .002" to .010" above center. Keep smaller tools closer to center.



PITCH = 1/THREADS PER INCH

DEPTH OF INTERNAL THREADS = .54127 x PITCH

DEPTH OF EXTERNAL THREADS = .86603 x PITCH

Thread Orientation	Feed Direction Relative to Spindle	Chuck Rotation
Right Hand, External	Toward	Counter-Clockwise
	Away	Clockwise
Left Hand, External	Toward	Clockwise
	Away	Counter-Clockwise
Right Hand, Internal	Toward	Counter-Clockwise
	Away	Clockwise
Left Hand, Internal	Toward	Clockwise
	Away	Counter-Clockwise

KAISER TOOL COMPANY, INC.

Speeds & Feeds - Threading						
Material To Be Cut		Carbide Grade	Speed (SFM)		Infeed Per Pass (IPR)	
			Carbide	HSS	1st Pass	Last Pass
Aluminum	2021-6061	DURA-MAX [®] 5000	100-200	80-150	.020	.001
Brass		DURA-MAX [®] 5000	200-300	50-150	.010	.001
Bronze		DURA-MAX [®] 5000	200-300	50-150	.010	.001
Cast Iron	Gray, Ductile, Malleable	DURA-MAX [®] 2000	85-140	25-50	.015	.0005
Copper	101-757, 834-978	DURA-MAX [®] 5000	100-200	30-100	.010	.001
Magnesium	AZ, AM, EZ, ZE, HK Types	DURA-MAX [®] 5000	100-200	80-150	.020	.001
Nickel	Nickel 200-230, Monel, Inconel	DURA-MAX [®] 5000	40-100	20-25	.015	.001
	Waspaloy, Hastelloy	DURA-MAX [®] 5000	40-100	20-25	.015	.001
Plastic	Teflon (TFE, CTFE)	DURA-MAX [®] 5000	250-400	100-300	.015	.001
	Nylon	DURA-MAX [®] 5000	250-400	100-300	.015	.001
	Phenolic	DURA-MAX [®] 5000	250-400	100-300	.015	.001
	Glass Filled	DURA-MAX [®] 5000	250-400	NA	.015	.001
Stainless Steel	201-385	DURA-MAX [®] 5000	65-100	8-20	.015	.001
	405-446	DURA-MAX [®] 2000	65-100	8-20	.015	.001
	14-4, 15-5, 16-6, 17-4 PH	DURA-MAX [®] 2000	65-100	8-20	.015	.001
Steel	1005-1029, 1030-1055	DURA-MAX [®] 2000	50-150	30-40	.015	.001
	1060-1095, 10L45-10L50	DURA-MAX [®] 2000	50-150	30-40	.015	.001
	12L13-12L15, 41L30-41L50	DURA-MAX [®] 2000	50-150	30-40	.015	.001
	4140-4150, 4140 (35 HRC)	DURA-MAX [®] 2000	50-150	30-40	.015	.001
	8617-8622, M1-M6	DURA-MAX [®] 2000	50-150	30-40	.015	.001
	D2-D7, A2-A9, 01-07	DURA-MAX [®] 2000	50-150	30-40	.015	.001
	W1, W2, M-50, 52100	DURA-MAX [®] 2000	50-150	30-40	.015	.001
Titanium	Ti-6Al-6V	DURA-MAX [®] 5000	40-65	5-9	.020	.0005

Single Point Threading - Roughing Infeed Depth per Pass													
(Based on Equal Areas of Material Removal per Pass)													
Pass	Threads Per Inch												
	8	10	11	12	13	14	16	18	20	24	28	32	40
1st	.017	.015	.013	.013	.012	.011	.011	.011	.010	.009	.008	.008	.008
2nd	.028	.024	.022	.022	.020	.019	.018	.018	.016	.015	.013	.013	.013
3rd	.037	.032	.029	.029	.026	.024	.023	.023	.021	.019	.016	.017	.015
4th	.045	.038	.035	.035	.032	.029	.028	.028	.025	.023	.019		
5th	.052	.044	.040	.040	.036	.034	.032	.032	.028				
6th	.058	.049	.045	.044	.041	.038	.036						
7th	.064	.054	.049	.049	.045	.041							
8th	.069	.059	.053										
9th	.074												

Note: One or more finish passes will be necessary to finish the thread

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ANY TIME THERE IS AN INTERRUPTED CUT IN YOUR OPERATION, **DURA-MAX[®] 2000** CARBIDE IS RECOMMENDED.

FORMULA FOR CONVERSION FROM SFM TO RPM

SFM = SURFACE FEET PER MINUTE RPM = REVOLUTIONS PER MINUTE

IPR = INCHES PER REVOLUTION

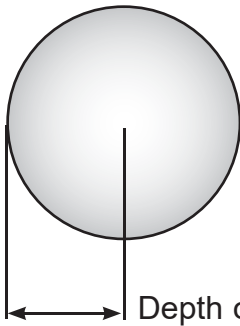
DIAMETER = CUTTING DIAMETER

$\pi = 3.14$

$$RPM = \frac{SFM \times 12}{\pi \times DIAMETER}$$

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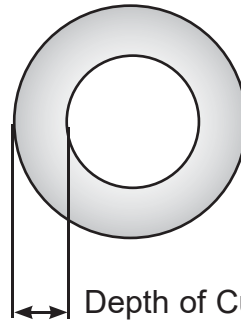


Depth of Cut to part
Solid:

Divide outside diameter by 2

Example: 1" outside diameter

$$\frac{1"}{2} = .5" \text{ depth of cut to part}$$



Depth of Cut to part
Tubing:

Subtract inside diameter from
outside diameter and divide by 2

Example: 1" outside diameter with
.5" inside diameter.

$$\frac{1" - .5"}{2} = .25" \text{ depth of cut to part}$$

External Parting Applications

Decrease surface speed (SFM)

Increase depth of cut per pass

Set tool on center to .005" below center. Keep smaller inserts closer to center.

Modify Parameter →

Tool starts with:	LGPT025 SPT025	LGPT045 SPT045	LGPT062 SPT062	LGPT085 LPT085	LGPT115 LPT115
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Speeds & Feeds - Parting						
Material To Be Cut		Carbide Grade	Carbide		High Speed Steel	
			Speed (SFM)	Feed (IPR)	Speed (SFM)	Feed (IPR)
Aluminum	2021-6061	DURA-MAX [®] 5000	650-1100	.002-.004	300-500	.002-.004
Brass		DURA-MAX [®] 5000	200-350	.001-.003	50-100	.001-.003
Bronze		DURA-MAX [®] 5000	200-350	.001-.003	50-100	.001-.003
Cast Iron	Gray	DURA-MAX [®] 5000	100-350	.0015-.005	30-125	.0015-.005
	Ductile	DURA-MAX [®] 2000	200-400	.003-.006	100-200	.003-.006
	Malleable	DURA-MAX [®] 2000	250-550	.003-.006	100-200	.003-.006
Copper	101-757	DURA-MAX [®] 5000	150-300	.002-.004	50-150	.002-.004
	834-978	DURA-MAX [®] 5000	250-600	.002-.006	100-450	.002-.006
Magnesium	AZ, AM, EZ, ZE, HK Types	DURA-MAX [®] 5000	600-1000	.002-.004	300-500	.002-.004
Nickel	Nickel 200-230	DURA-MAX [®] 5000	200-350	.002-.004	50-100	.002-.004
	Monel	DURA-MAX [®] 5000	100-250	.0025-.003	30-80	.002-.003
	Inconel, Waspaloy	DURA-MAX [®] 5000	50-150	.002-.004	25-75	.001-.003
	Hastelloy	DURA-MAX [®] 5000	50-150	.002-.004	25-75	.001-.003
Plastic	Teflon (TFE, CTFE)	DURA-MAX [®] 5000	300-600	.002-.006	100-300	.002-.006
	Nylon	DURA-MAX [®] 5000	250-400	.002-.005	NA	NA
	Phenolic	DURA-MAX [®] 5000	250-400	.002-.005	200-350	.002-.005
	Glass Filled	DURA-MAX [®] 5000	200-350	.002-.007	NA	NA
Stainless Steel	201-385	DURA-MAX [®] 5000	200-350	.002-.004	75-150	.001-.003
	405-446	DURA-MAX [®] 2000	250-450	.002-.003	50-100	.001-.003
	14-4, 15-5, 16-6, 17-4 PH	DURA-MAX [®] 2000	200-350	.002-.003	50-100	.001-.003
Steel	1005-1029	DURA-MAX [®] 2000	250-400	.0015-.004	100-200	.0015-.004
	1030-1055	DURA-MAX [®] 2000	200-325	.001-.003	75-100	.001-.003
	1060-1095	DURA-MAX [®] 2000	150-300	.001-.003	60-100	.001-.003
	10L45-10L50	DURA-MAX [®] 2000	250-400	.001-.003	100-200	.001-.003
	12L13-12L15	DURA-MAX [®] 2000	250-550	.002-.005	100-300	.002-.005
	41L30-41L50	DURA-MAX [®] 2000	150-400	.002-.005	45-150	.002-.005
	4140-4150	DURA-MAX [®] 2000	150-400	.002-.005	45-150	.002-.005
	4140 (35 HRc)	DURA-MAX [®] 2000	100-250	.001-.004	30-75	.001-.004
	8617-8622	DURA-MAX [®] 2000	150-400	.002-.004	50-150	.001-.004
	M1-M6	DURA-MAX [®] 2000	150-300	.001-.002	50-150	.001-.002
	H10-H19	DURA-MAX [®] 2000	100-350	.001-.002	50-150	.001-.002
	D2-D7	DURA-MAX [®] 2000	100-300	.001-.002	50-100	.001-.002
	A2-A9, 01-07	DURA-MAX [®] 2000	100-300	.001-.0025	100-200	.001-.002
	W1, W2	DURA-MAX [®] 2000	200-400	.002-.0035	75-175	.001-.003
	M-50, 52100	DURA-MAX [®] 2000	175-350	.0015-.004	50-125	.001-.0035
Titanium	Ti-6Al-6V	DURA-MAX [®] 5000	150-350	.0015-.004	30-100	.001-.003

THESE SPEEDS AND FEEDS ARE GIVEN AS A STARTING POINT ONLY AND MAY BE ADJUSTED UP OR DOWN DEPENDING ON CONDITIONS.
 ANY TIME THERE IS AN INTERRUPTED CUT IN YOUR OPERATION, **DURA-MAX[®] 2000** CARBIDE IS RECOMMENDED.

FORMULA FOR CONVERSION FROM SFM TO RPM

SFM = SURFACE FEET PER MINUTE RPM = REVOLUTIONS PER MINUTE

IPR = INCHES PER REVOLUTION

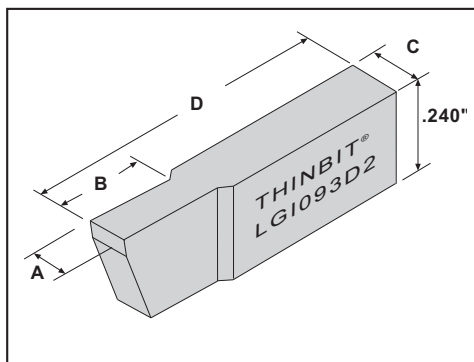
DIAMETER = CUTTING DIAMETER

$\pi = 3.14$

$$RPM = \frac{SFM \times 12}{(\pi) \times DIAMETER}$$

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FRONT RAKE:

CARBIDE: Primary 10° honed, Secondary 15°

HIGH SPEED STEEL: 15°

BACK CLEARANCE: 2-1/2° both sides

SIDE CLEARANCE: 0° both sides

RADIUS: Sharp corner through full radius available

TOP RAKE: 0°

LEAD ANGLE: 0°

'A' TOLERANCE:

.004" - .063": +.0009"/-.0000"

.064" - .125": +.001"/-.001"

PRODUCT INFORMATION

- This insert style will cut to within 1/16" of a shoulder. To work against a shoulder see Page 1-10.
- Sub-micron grain **DURA-MAX® 2000** and **5000** Carbides and High Speed Steel.
- Inserts available with TiN, TiAlN, TiCN and Diamond coating.

TECHNICAL SECTIONS	SPEEDS AND FEEDS	APPLICATION REFERENCE	TROUBLESHOOTING
	PG 9-10	PGS 9-3 & 9-4	PG 9-7

ORDERING INSTRUCTIONS

Complete the **ORDER CODE** in the table below that represents your selection of groove width and insert grade.

EXAMPLE:

The **ORDER CODE** for an .093" groove width insert in **DURA-MAX® 2000** is:

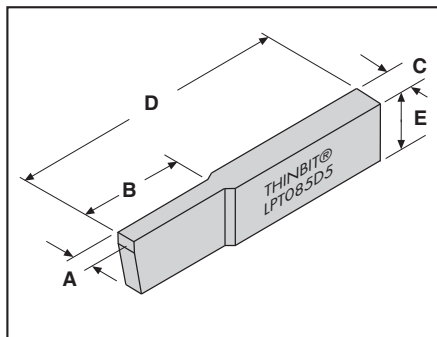
LG1 093 D2

Specify the Tool Width 'A' _____ ↑

SPECIFICATIONS		ORDER CODE						INFORMATION		
Insert Width Range	Depth of Cut	Insert Grades See Page 9-5 for expanded material descriptions and Page 9-10 for Speeds and Feeds information			Add-ons Use 'Order Code' and Add			Blank Width	Overall Length	Toolholder Catalog Section 7 & 10
'A'	'B'	DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	High Speed Steel	Full Radius Page 8-3	Corner Radius Page 8-3	Coating Page 9-6	'C'	'D'	Use Toolholders Beginning With
.004"-.034"	3 x 'A'	SGI _ _ _ D2	SGI _ _ _ D5	SGI _ _ _ HS	add 'FR'	add 'CR _ _ _' (indicate size in .xxx")	TiN add 'C' TiCN add 'D' TiAlN add 'E' Diamond add 'F'	.068"	.650"	'S' 'EM' 'ROM' Page 10-5 through 10-8
.035"-.063"	.100"									
.064"-.125"	1.5 x 'A'	LGI _ _ _ D2	LGI _ _ _ D5	LGI _ _ _ HS				.130"	.721"	'L' 'EM' 'ROM' Section 7 Page 10-5 through 10-8

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FRONT RAKE:
 CARBIDE: Primary 7° honed, Secondary 15°
 HIGH SPEED STEEL: 15° on SPT025HS,
 7° all others
 BACK CLEARANCE: 0° SPT045HS and
 SPT062HS; 1° all others
 SIDE CLEARANCE: 1°
 RADIUS: None
 TOP RAKE: 0°
 LEAD ANGLE: 0°
 'A' TOLERANCE: .025" - .115": +.001"/-.001"

PRODUCT INFORMATION

- This insert style will cut to within 1/16" of a shoulder.
- .025", .045", .062", .085" and .115"
- Parting off up to 1" diameter
- Centered
- Sub-micron grain **DURA-MAX® 2000** and **5000** Carbides and High Speed Steel.
- Inserts available with TiN, TiAlN, TiCN and Diamond coating.

TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-20

APPLICATION REFERENCE

PG 9-4

TROUBLESHOOTING

PG 9-7

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of groove width and insert grade.

EXAMPLE:

The **ORDER CODE** for an .085" wide parting insert in **DURA-MAX® 5000** is:
LPT085D5

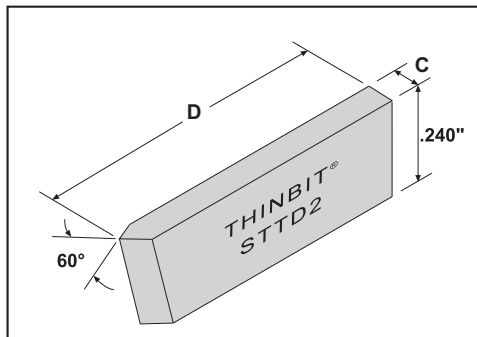
SPECIFICATIONS		ORDER CODE							INFORMATION			
Groove Width	Depth of Cut	Insert Grades See Pages 9-5 for expanded material descriptions and Page 9-20 for Speeds and Feeds information			Coatings See Page 9-6 for expanded coating descriptions				Blank Width	Overall Length	Blank Height	Toolholder Catalog Section 7 & 10
'A'	'B'	DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	High Speed Steel	Use uncoated part number and add coating code				'C'	'D'	'E'	Use Toolholders Beginning With
					TiN	TiCN	TiAlN	Diamond				
.025"	.200"	SPT025D2	SPT025D5	SPT025HS	add 'C'	add 'D'	add 'E'	add 'F'	.068"	.650"	.240"	'S' 'EM' 'ROM' Page 10-5 through 10-8
.045"	.500"	SPT045D2	SPT045D5	SPT045HS						1.000"		
.062"		SPT062D2	SPT062D5	SPT062HS								
.085"	.500"	LPT085D2	LPT085D5		add 'C'	add 'D'	add 'E'	add 'F'	.125"	1.000"	.238"	'L' 'EM' 'ROM' Section 7 Page 10-5 through 10-8
.115"		LPT115D2	LPT115D5								.232"	

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Insert Shown in
Right Hand
Toolholder



FRONT RAKE: 15°
RADIUS: .002" or .000"
TOP RAKE: 0°
PROFILE: 60°

PRODUCT INFORMATION

- External threading within .046" of a shoulder.
- Internal threading with 1.250" minimum bore diameter.
- 8 Threads Per Inch and greater.
- Sub-micron grain **DURA-MAX® 2000** and **5000** Carbides and High Speed Steel.
- Inserts can be coated with TiN, TiAlN, TiCN and Diamond coating.

TECHNICAL SECTIONS

SPEEDS AND FEEDS

PG 9-18

APPLICATION REFERENCE

PG 9-4

TROUBLESHOOTING

PG 9-7

ORDERING INSTRUCTIONS

Complete the **ORDER CODE** in the table below that represents your selection of Threads Per Inch and insert grade.

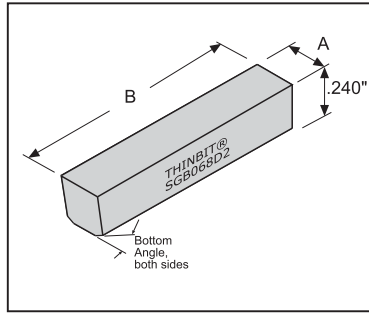
EXAMPLE:

The **ORDER CODE** for an 15-56 TPI insert in **DURA-MAX® 2000** is:
STTD2

SPECIFICATIONS		ORDER CODE							INFO.		
Insert Orientation	Threads Per Inch	Insert Grades See Page 9-5 for expanded material selections and Page 9-18 for Speeds and Feeds information			Coatings See Page 9-6 for Expanded Coating Descriptions				Blank Width	Overall Length	Toolholder Catalog Section 7 & 10
		DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Non-ferrous	High Speed Steel	Use Uncoated Part Number and Add Coating Code						
		TiN	TiCN	TiAlN	Diamond	'C'	'D'	Use Toolholders Beginning With			
Centered For either right hand or left hand	15 to 56	STTD2	STTD5	STTHS	add 'C'	add 'D'	add 'E'	add 'F'	.068"	.650"	'S'
	Greater than 56	STTD21	STTD51	STTHS1							Page 10-5 through 10-8
	8 to 56	LTTD2	LTTD5	LTTHS	add 'C'	add 'D'	add 'E'	add 'F'	.130"	.721"	'L'
	Greater than 56	LTTD21	LTTD51	LTTHS1							Section 7 Page 10-5 through 10-8

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FRONT RAKE: 7° on SGP068HS; 15° all others

GROUND BLANK ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of blank width and insert grade.

EXAMPLE:

The **ORDER CODE** for a .068" wide blank and .654" length in

DURA-MAX® 2000 is:

SGB068D2

SPECIFICATIONS			ORDER CODE			INFO.
Blank Width 'A'	Overall Length 'B'	Bottom Angle	Insert Grades See Page 9-5 for expanded material descriptions			Use Toolholders Beginning With
			DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting	DURA-MAX® 5000 Carbide For Aluminum & Nonferrous	High Speed Steel	
.068"	.654"	0°	SGB068D2	SGB068D5	SGB068HS	'S'
	1.004"	0°	SGP068D2	SGP068D5	SGP068HS	
.125"	1.004"	0°	LGP125D2	LGP125D5		'L'
.130"	.725"	10°	LGB130D2	LGB130D5	LGB130HS	

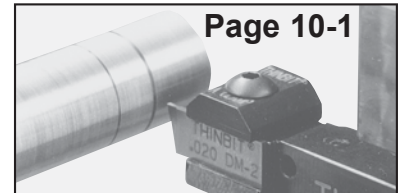
SET ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of insert width(s) and insert grade.

For '1 Each' set types, specify the size range with the 'Order Code'

EXAMPLE:

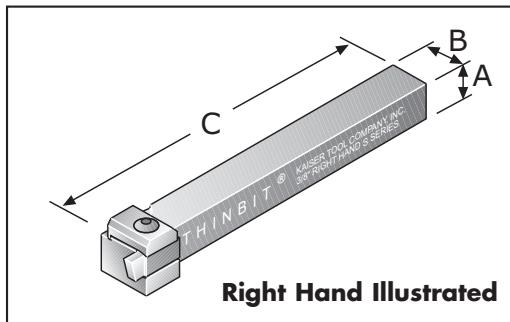
The **ORDER CODE** for a '1 Each' set type, in **DURA-MAX® 2000** with a groove width range of .010"-.030" is: **SSET2D2**



SPECIFICATIONS			ORDER CODE		
Toolholder Type	Set Type	Insert Width 'A' See Page 10-1	Insert Grades See Page 9-5 for expanded material descriptions and Page 9-10 for Speeds and Feeds information		
			DURA-MAX® 2000 Carbide For Steel & Interrupted Cutting Uncoated	DURA-MAX® 5000 Carbide For Aluminum & Non-ferrous Uncoated	High Speed Steel
Inserts only; Use toolholders beginning with 'S' Page 10-5 through 10-8	1 Each, by .001" increments Inserts Only	.004"-.009"	SSET1D2	SSET1D5	SSET1HS
		.010"-.030"	SSET2D2	SSET2D5	SSET2HS
		.031"-.050"	SSET3D2	SSET3D5	SSET3HS
		.051"-.063"	SSET4D2	SSET4D5	SSET4HS
Inserts only; Use toolholders beginning with 'L' Section 7 Page 10-5 through 10-8	1 Each, by .001" increments Inserts Only	.064"-.084"	LSET1D2	LSET1D5	LSET1HS
		.085"-.105"	LSET2D2	LSET2D5	LSET2HS
		.106"-.125"	LSET3D2	LSET3D5	LSET3HS

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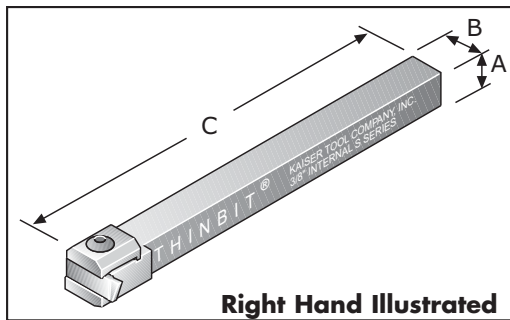
FLUSHTOP ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

EXAMPLE:

The **ORDER CODE** for a .375" shank, right hand flushtop tool for inserts beginning with 'L' is:
LFT38R

SPECIFICATIONS				ORDER CODE					
Shank Orientation	Shank Dimensions			Toolholder Package Includes Shank, Clamp and Hardware		Replacement Parts			
	'A'	'B'	'C'	For Inserts Beginning With (See pages 10-1, 10-2, 10-3 & 10-4)		Clamp	Screw	Wrench	Pin
Right Hand Use with right hand and centered inserts	.312"	.312"	4.840"	SFT56R	- - -	Clamp A	S5608	W1005	P0308
				- - -	LFT56R	Clamp C	S3808		
	.375"	.375"	4.840"	SFT38R	- - -	Clamp A	S5608		
				- - -	LFT38R	Clamp C	S3808		
	.500"	.500"	4.840"	SFT12R	LFT12R	Clamp C	S3808		
	.625"	.625"	4.840"	SFT58R	LFT58R	Clamp C	S3808		
Left Hand Use with left hand and centered inserts	.312"	.312"	4.840"	SFT56L	- - -	Clamp A	S5608		
				- - -	LFT56L	Clamp C	S3808		
	.375"	.375"	4.840"	SFT38L	- - -	Clamp A	S5608		
				- - -	LFT38L	Clamp C	S3808		
	.500"	.500"	4.840"	SFT12L	LFT12L	Clamp C	S3808		
	.625"	.625"	4.840"	SFT58L	LFT58L	Clamp C	S3808		



HARDINGE ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

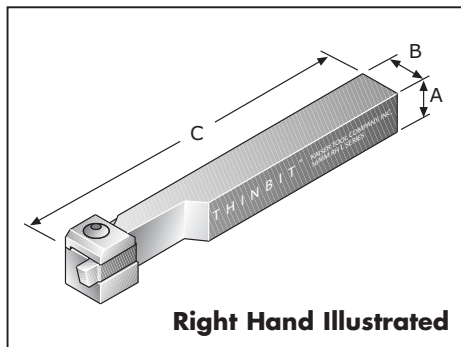
EXAMPLE:

The **ORDER CODE** for a .375" shank, right hand tool for inserts beginning with 'L' is:
LHA38

SPECIFICATIONS					ORDER CODE					
Shank Orientation	Shank Dimensions			Minimum Bore Diameter	Toolholder Package Includes Shank, Clamp and Hardware		Replacement Parts			
	'A'	'B'	'C'	with 'S' inserts; add .071" for 'L' inserts	For Inserts Beginning With (See pages 10-1, 10-2, 10-3 & 10-4)		Clamp	Screw	Wrench	Pin
					'S'	'L'				
Right Hand	.375"	.375"	4.840"	1.050"	SHA38	- - -	Clamp C	S3808	W1005	P0204
Use with left hand and centered inserts					- - -	LHA38				
	.500"	.500"	4.840"	1.290"	SHA12	LHA12				
Left Hand	.375"	.375"	4.840"	1.050"	SHA38	- - -				
Use with right hand and centered inserts					- - -	LHA38				
	.500"	.500"	4.840"	1.290"	SHA12	LHA12				

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SWISS SCREW ORDERING INSTRUCTIONS

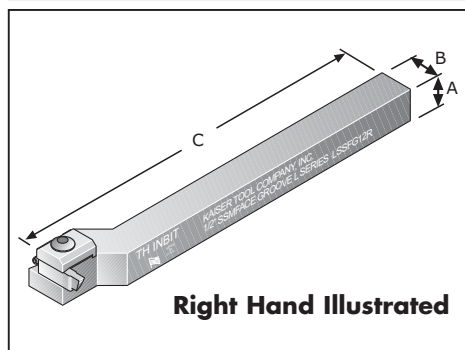
Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

EXAMPLE:

The **ORDER CODE** for a .500" shank, right hand tool for inserts beginning with 'L' is:

LSS12R

SPECIFICATIONS				ORDER CODE							
Shank Orientation	Shank Dimensions			Toolholder Package Includes Shank, Clamp and Hardware		Replacement Parts					
	'A'	'B'	'C'	For Inserts Beginning With (See pages 10-1, 10-2, 10-3 & 10-4)		Clamp		Screw		Wrench	Pin
				'S'	'L'	'S'	'L'	'S'	'L'		
Right Hand Use with right hand and centered inserts	.375"	.375"	4.840"	SSS38R	---	A	--	S5608	---	W1005	P0305
	.500"	.500"		SSS12R	LSS12R	A	C	S5608	S3808		
	8mm	8mm		SSS08RM	---	A	--	S5608	---		
	10mm	10mm		SSS10RM	---	A	--	S5608	---		
	12mm	12mm		SSS12RM	LSS12RM	A	C	S5608	S3808		
	16mm	16mm		SSS16RM	LSS16RM	C	C	S3808	S3808		
Left Hand Use with left hand and centered inserts	.375"	.375"	4.840"	SSS38L	---	A	--	S5608	---		
	.500"	.500"		SSS12L	LSS12L	A	C	S5608	S3808		
	8mm	8mm		SSS08LM	---	A	--	S5608	---		
	10mm	10mm		SSS10LM	---	A	--	S5608	---		
	12mm	12mm		SSS12LM	LSS12LM	A	C	S5608	S3808		
	16mm	16mm		SSS16LM	LSS16LM	C	C	S3808	S3808		



SWISS FACE ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

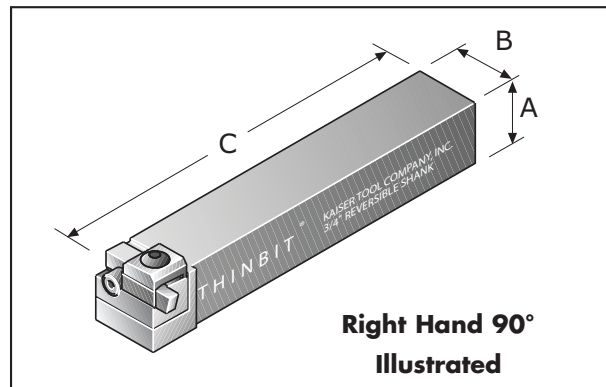
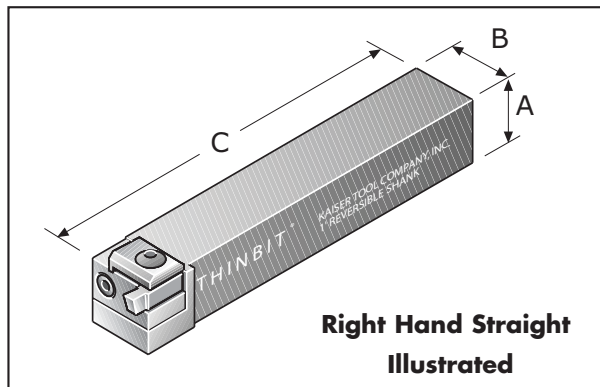
EXAMPLE:

The **ORDER CODE** for a .375" shank, right hand tool for inserts beginning with 'L' is:

LSSFG38R

SPECIFICATIONS				ORDER CODE							
Shank Orientation	Shank Dimensions			Toolholder Package Includes Shank, Clamp and Hardware		Replacement Parts					
	'A'	'B'	'C'	For Inserts Beginning With (See pages 10-1, 10-2, 10-3 & 10-4)		Clamp	Screw		Wrench	Pin	
				'S'	'L'		'S'	'L'			
Right Hand Use with left hand and centered inserts for counter-clockwise rotation	.375"	.375"	4.840"	SSSFG38R	LSSFG38R	Clamp C	S3808	S3808	W1005	P0203	
	.500"	.500"	4.840"	SSSFG12R	LSSFG12R		S3808				
	10mm	10mm	4.840"	SSSFG10RM	LSSFG10RM		S5452				
	12mm	12mm	4.840"	SSSFG12RM	LSSFG12RM		S5452				
	16mm	16mm	4.840"	SSSFG16RM	LSSFG16RM		S3808				

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ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

EXAMPLE:

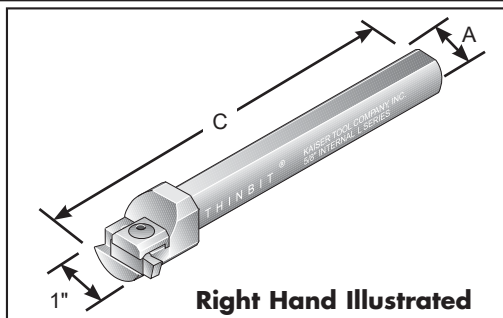
The **ORDER CODE** for a .750" shank and a 90° right hand tool for inserts beginning with 'L' is:

LRI3434R

SPECIFICATIONS				ORDER CODE									
Shank Orientation	Shank Dimensions			Toolholder Package Includes Shank, Head, Clamp and Hardware		Head Only Includes Clamp and Hardware For Inserts Beginning With		Replacement Parts					
	'A'	'B'	'C'	For Inserts Beginning With (See pages 10-1, 10-2, 10-3 & 10-4)		'S'	'L'	Head Screws	Head Wrenches	Head Pin	Shank	Clamp	Clamp Hardware
				'S'	'L'								
Straight Right Hand or Left Hand Use as right hand with right hand inserts; Use as left hand with left hand inserts; Use as either hand with centered inserts.	.375"	.750"	4.840"	SRE3438	LRE3438	SREH34	LREH34	1 each: S3808 S2808	1 each: W1005 W1009		RS3438	Clamp C	Screw: S3808 Wrench: W1005
	.500"			SRE3412	LRE3412						RS3412		
	.625"			SRE3458	LRE3458						RS3458		
	.750"			SRE3434	LRE3434						RS3434		
	.750"	1.000"	4.840"	SRE0134	LRE0134	SREH01	LREH01	1 each: S3812 S2808	1 each: W1005 W1009		RS0134		
	1.000"			SRE0101	LRE0101						RS0101		
	1.000"			SRE1401	LRE1401			1 each: S3816 S2808	1 each: W1005 W1009		RS1401		
	1.250"	1.250"	4.840"	SRE1414	LRE1414						RS1414		
90° Right Hand Use with left hand and centered inserts	.375"	.750"	4.840"	SRI3438R	LRI3438R	SRIH34R	LRIH34R	1 each: S3808 S2812	1 each: W1005 W1009		RS3438	Clamp C	Screw: S3808 Wrench: W1005
	.500"			SRI3412R	LRI3412R						RS3412		
	.625"			SRI3458R	LRI3458R						RS3458		
	.750"			SRI3434R	LRI3434R						RS3434		
	.750"	1.000"	4.840"	SRI0134R	LRI0134R	SRIH01R	LRIH01R	1 each: S3812 S2812	1 each: W1005 W1009	P0305	RS0134		
	1.000"			SRI0101R	LRI0101R						RS0101		
90° Left Hand Use with right hand and centered inserts	.375"	.750"	4.840"	SRI3438L	LRI3438L	SRIH34L	LRIH34L	1 each: S3808 S2812	1 each: W1005 W1009		RS3438		
	.500"			SRI3412L	LRI3412L						RS3412		
	.625"			SRI3458L	LRI3458L						RS3458		
	.750"			SRI3434L	LRI3434L						RS3434		
	.750"	1.000"	4.840"	SRI0134L	LRI0134L	SRIH01L	LRIH01L	1 each: S3812 S2812	1 each: W1005 W1009	P0305	RS0134		
	1.000"			SRI0101L	LRI0101L						RS0101		

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ROUND INTERNAL ORDERING INSTRUCTIONS

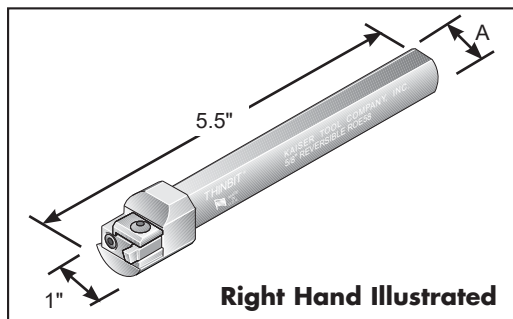
Select the **ORDER CODE** in the table below that represents your selection of shank orientation and dimensions.

EXAMPLE:

The **ORDER CODE** for a .625", 5.5" long round shank for inserts beginning with 'L' is:

LR5806

SPECIFICATIONS				ORDER CODE						
Shank Orientation	Minimum Bore Diameter without pin	Shank Dimensions		Toolholder Package Includes Shank, Clamp and Hardware For Inserts Beginning With (See pages 10-1, 10-2, 10-3 & 10-4)		Replacement Parts				
		'A'	'C'	'S'	'L'	Clamp	Screw	Wrench	Pin	
Right Hand or Left Hand Use as right hand with left hand inserts; Use as left hand with right hand inserts; Use as either hand with centered inserts.	1.125"	.500"	5.500"	SR1206	---	Clamp C	S3808	W1005	P0305	
		.625"		SR5806	---					
		.750"		SR3406	---					
		1.000"		SR0106	---					
	1.187" (1.250" for insert beginning with 'LGT')	.500"	5.500"	---	LR1206					
		.625"		---	LR5806					
		.750"		---	LR3406					
		1.000"		---	LR0106					
				11.875"	---					LR0112



ROUND REVERSIBLE ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank dimensions.

EXAMPLE:

The **ORDER CODE** for a .625" round shank for inserts beginning with 'L' is:

LROE58

SPECIFICATIONS				ORDER CODE						
Shank Orientation	Shank Dimensions 'A'	Toolholder Package Includes Shank, Head, Clamp and Hardware For Inserts Beginning With (See pages 10-1, 10-2, 10-3 & 10-4)		Replacement Parts						
		'S'	'L'	Head Only Includes Clamp and Hardware For Inserts Beginning With		Head Screws	Head Wrenches	Shank	Clamp	Clamp Hardware
Right Hand or Left Hand Use as right hand with right hand inserts; Use as left hand with left hand inserts; Use as either hand with centered inserts.	.500"	SROE12	LROE12	SROEH	LROEH	1 each: S5806 S2810	1 each: W1006 W1009	RROE12	Clamp C	Screw: S3808 Wrench: W1005
	.625"	SROE58	LROE58					RROE58		
	.750"	SROE34	LROE34					RROE34		
	1.000"	SROE01	LROE01					RROE01		

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INTRODUCING

MILLING

MILL A GROOVE®

THINBIT®, by Kaiser Tool Company, presents the **Mill A Groove®** line for trepanning on a CNC or conventional milling machine using a boring holder.

Mill A Groove® enables machining groove diameters that are concentric to the spindle rotation and not the table movement and eliminates secondary lathe operations for face grooving.

Mill A Groove® tooling can produce a groove that is symmetrical, like a typical end mill, or an asymmetrical form that cannot be made with an end mill. One insert can make convex and concave radius grooves, chamfered edges, angles and special profiles.



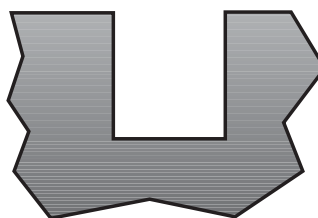
Page 11-3



Page 11-2



Asymmetrical Groove

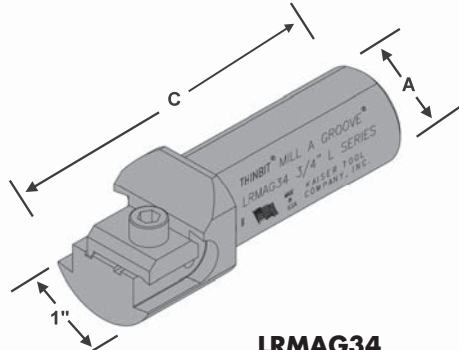


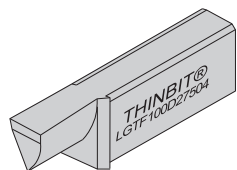
Symmetrical Groove

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THINBIT® MILL A GROOVE®

PRODUCT INFORMATION	- Designed for trepanning on CNC machines. - Enables machining groove diameters that are concentric to the spindle rotation, not the table movement. - Eliminates secondary lathe operations for face grooving. - Groove can be symmetrical or asymmetrical. - One insert can make convex and concave radius grooves, chamfered edges, angles and special profiles.	 LRMAG34
----------------------------	---	--

INSERT SELECTIONS	FACE GROOVING  PG 2-9	TOOLHOLDER Due to the potential complexity of configuring these toolholders, we recommend calling for assistance.	TOOLHOLDER MILL A GROOVE® toolholders are designed to work in combination with boring heads.
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ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank dimensions.

EXAMPLE:

The **ORDER CODE** for a 1/2" round shank for inserts beginning with 'L' is:

LRMAG34

TECHNICAL SECTIONS	SPEEDS AND FEEDS	FORMULA	TROUBLESHOOTING
	PG 9-12 Use Inches Per Revolution for the chip load to calculate the Inches Per Minute on milling machines.	$RPM = \frac{SFM \times 12}{\pi \times DIAMETER}$ $RPM \times \text{Chip Load} = \text{Inches per Minute}$	PG 9-7

Shank Orientation	Shank Dimensions "A"	Toolholder Package (Includes Shank, head, clamp and hardware)	Overall Length "C"	Clamp	Clamp Hardware
Right Hand or Left Hand Use as right hand with right hand inserts Use as left hand with left hand inserts Use as either hand with centered inserts	.500" Ø X 1.50" long	LRMAG12	2.35"	Clamp C	Screw: S2808 Wrench: W1009 Pin: P0305
	.625" Ø X 1.63" long	LRMAG58	2.48"		
	.750" Ø X 1.63" long	LRMAG34	2.48"		
	.787" Ø X 1.63" long	LRMAG20M	2.48"		
	.984" Ø X 1.92" long	LRMAG25M	2.77"		
	1.00" Ø X 1.92" long	LRMAG01	2.77"		

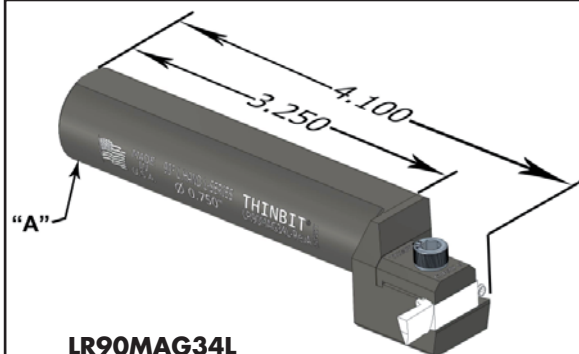
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NEW

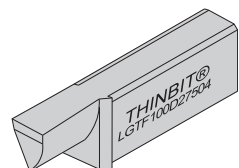
PRODUCT INFORMATION

- Designed for trepanning on CNC machines.
- Enables machining groove diameters that are concentric to the spindle rotation, not the table movement.
- Eliminates secondary lathe operations for face grooving.
- Groove can be symmetrical or asymmetrical.
- One insert can make convex and concave radius grooves, chamfered edges, angles and special profiles.



LR90MAG34L

INSERT SELECTIONS



PG 2-9

FACE GROOVING

TOOLHOLDER

Due to the potential complexity of configuring these toolholders, we recommend calling for assistance.

TOOLHOLDER

MILL A GROOVE® toolholders are designed to work in combination with boring heads.

ORDERING INSTRUCTIONS

Select the **ORDER CODE** in the table below that represents your selection of shank dimensions.

EXAMPLE:

The **ORDER CODE** for a 1/2" round shank for inserts beginning with 'L' is:

LR90MAG34L

TECHNICAL SECTIONS	SPEEDS AND FEEDS	FORMULA	TROUBLESHOOTING
	PG 9-12 Use Inches Per Revolution for the chip load to calculate the Inches Per Minute on milling machines.	$RPM = \frac{SFM \times 12}{\pi \times DIAMETER}$ $RPM \times \text{Chip Load} = \text{Inches per Minute}$	PG 9-7

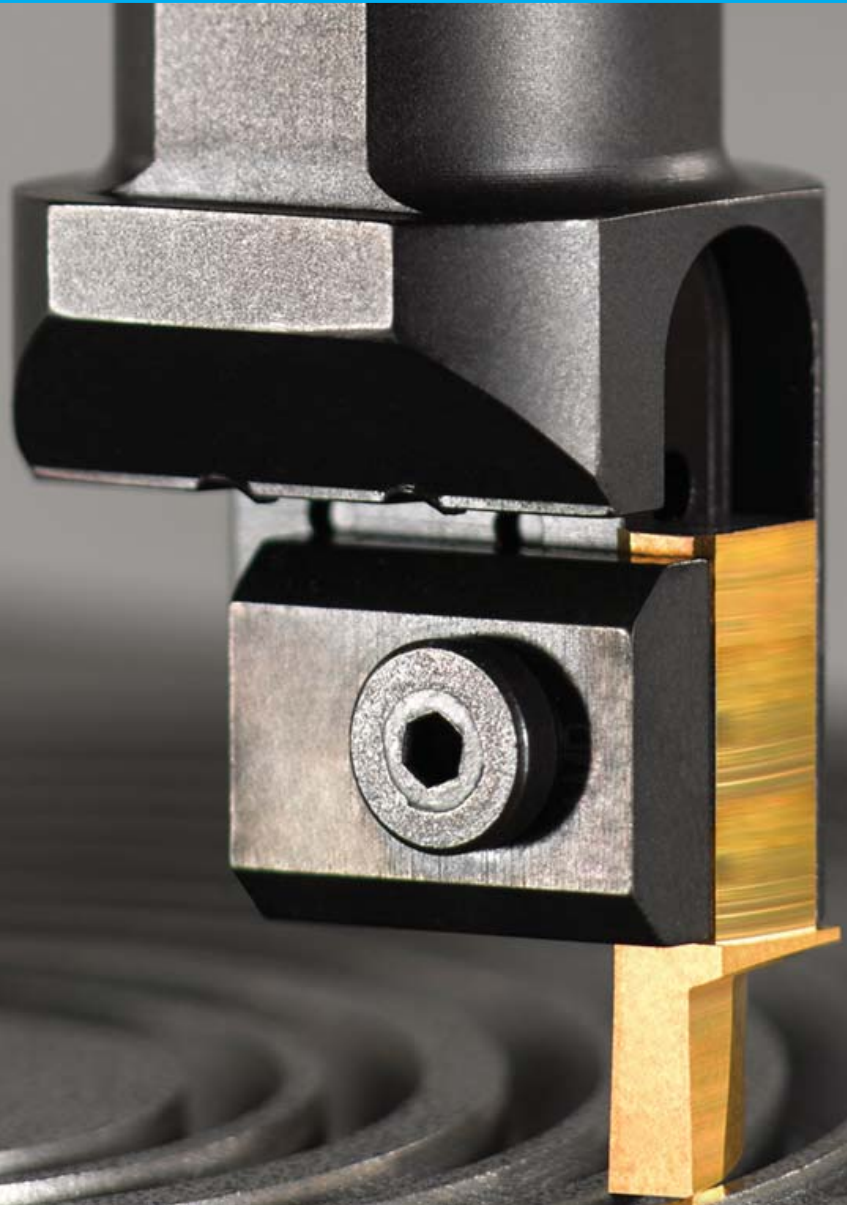
Shank Orientation	Shank Dimensions "A"	Toolholder Package (Includes Shank, head, clamp and hardware)	Clamp	Clamp Hardware
Left Hand Use as left hand with right hand or centered inserts	.500" Ø	LR90MAG12L	Clamp C	Screw: S2808 Wrench: W1009 Pin: P0305
	.625" Ø	LR90MAG58L		
	.750" Ø	LR90MAG34L		
	.787" Ø	LR90MAG20LM		
	.984" Ø	LR90MAG25LM		
	1.00" Ø	LR90MAG01L		

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FORM-A-GROOVE® tools consist of simple grooves or complex combinations of grooves, arcs, angles, convex and concave radii, as well as special thread forms.





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history

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701 Sherman Boulevard
Fort Wayne, IN
1980 - 1994



Kaiser Tool Company, Inc.
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Fort Wayne, IN 46808
1994 - 2024

THINBIT®, by Kaiser Tool Company Inc., specializes in the manufacture of small cutting tools. THINBIT® tools are used for grooving, threading, parting, boring, turning, face grooving, form tooling, mill tooling and custom tooling.

William & Hazel Kaiser began Kaiser Tool Company, Inc. in the 1950's. That was the birth of THINBIT®. The idea of THINBIT® lathe cutting tools, its start and its subsequent growth to where it is today is a wonderful story. You can see Lenore Perry (Kaiser) tell the whole story of how Kaiser Tool Company, Inc. began on our YouTube page: Kaiser THINBIT®. You can follow THINBIT® on YouTube, LinkedIn, Facebook, Twitter and Instagram to keep up with what we are doing now and for tooling tips.

Kaiser Tool Company, Inc. supplies industries ranging from medical to aerospace and stocks more than 100,000 tools for grooving, threading, parting, boring, turning and face grooving.

Kaiser Tool Company, Inc. is made in the Fort Wayne, IN and continues its tradition of dedication to quality products, fast delivery and superior customer service. We are proud to be part of the Fort Wayne community and manufacture our products in the USA. For more information regarding the entire THINBIT® line, please visit our website at www.thinbit.com.

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