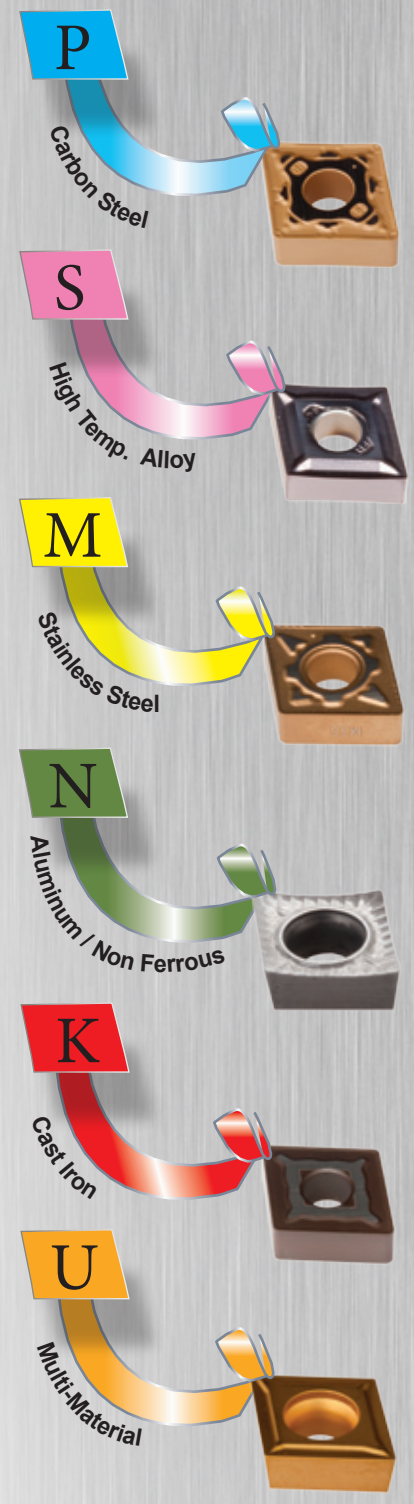
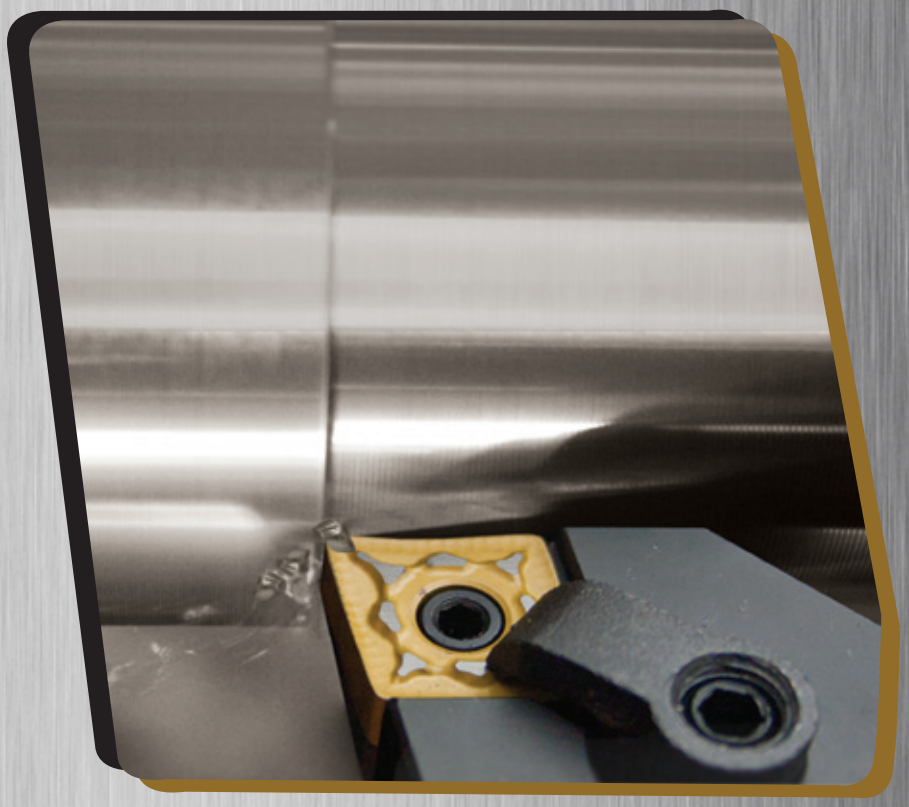
DORIAN INTERNATIONAL TOOL

2013 Turning Catalog

Turning Tools & CARBIDE INSERTS





Performance, Quality & Technology Will Turn Machining Into

PROFIT!

The First Choice

Dorian Tool's Vision and Guiding Principle

"Tomorrow's Technology in Today's Machine Tools", is Dorian Tool's vision and guiding principle. This is reflected by our total commitment to help today's customers achieve their goals by supplying the most advanced tooling with the highest standard of quality and innovative technology in the marketplace. Our highly trained and skilled engineers have developed technologies that set new standards in the industry and changed the machining process forever.

By developing new ideas and promoting new technology, Dorian Tool has continuously improved its products, service, technical support, and delivery to customers.

The Dorian Evolution

The Dorian Tool evolution began in 1982 with the introduction of the Quadra Index Tool Post and its ability to save countless hours in changing one tool for another. The evolution continues strong with innovation and industry improving ideas that create tomorrow's technology. Whether machining parts of any size or complexity for automotive, aerospace, oil, defense or other industrial applications; the unmatched quality of Dorian Tool products "Will Turn Machining Into Profit".

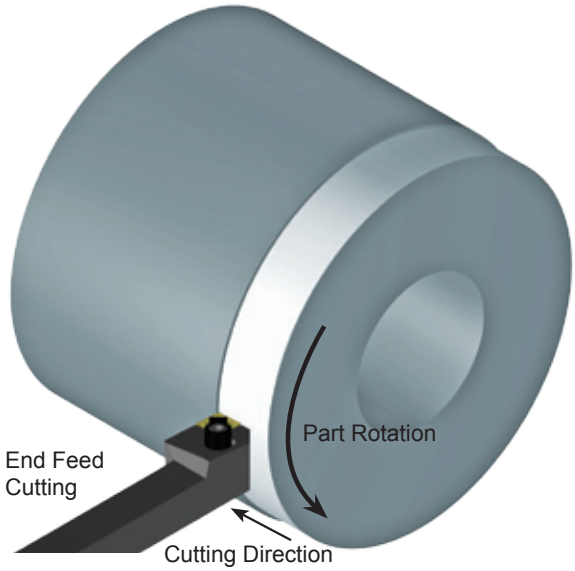
4 Easy Steps for Insert Selection

Dorian Tool Technical Support

Table of Contents

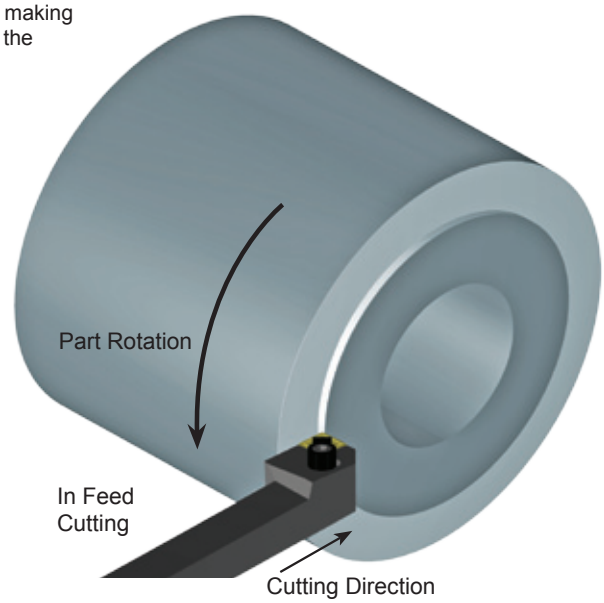
Turning Operation-

A machining process used to generate external, cylindrical forms by removing material, usually with a single-point cutting tool.



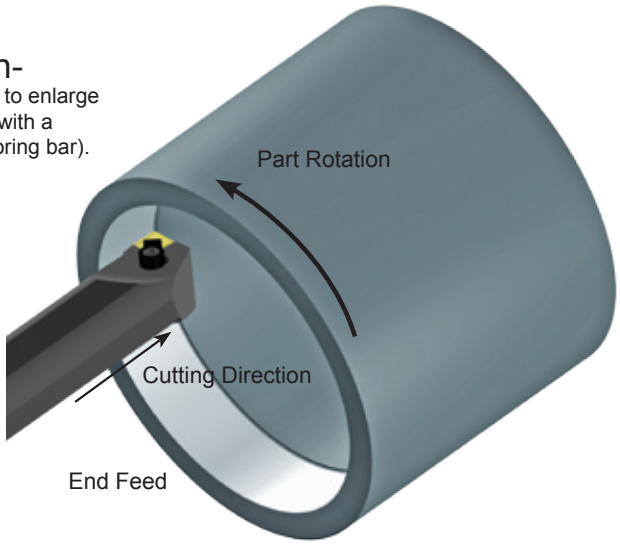
Facing Operation-

The process of making a flat surface at the end of a part.



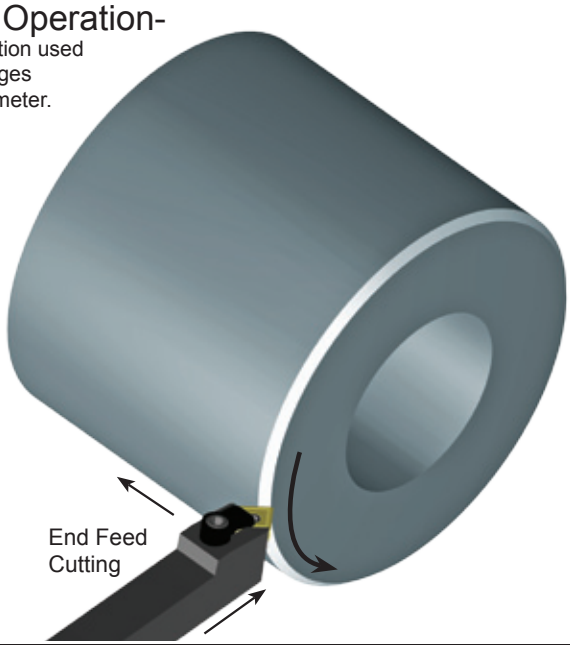
Boring Operation-

A machining process used to enlarge a cylindrical hole, usually with a single-point cutting tool (boring bar).



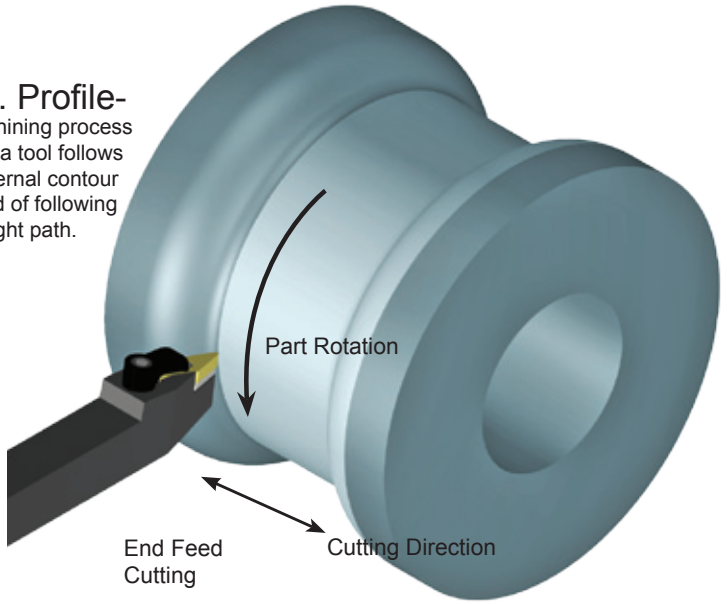
Chamfering Operation-

Metal turning operation used to remove sharp edges from workpiece diameter.



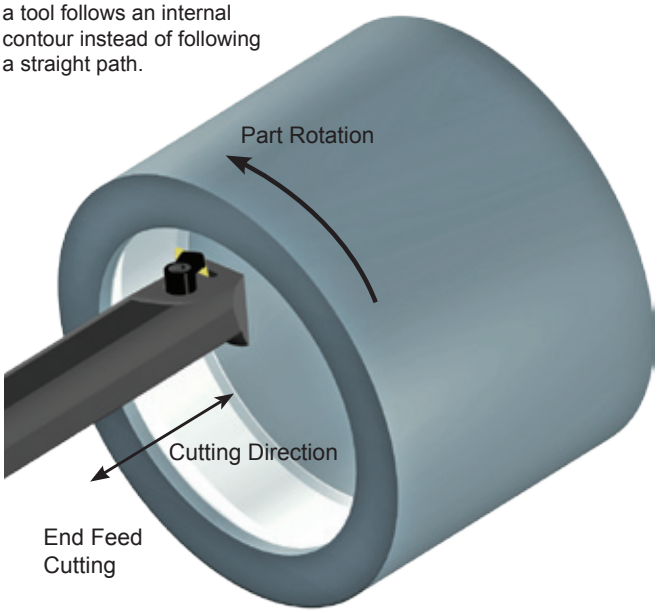
O.D. Profile-

A machining process where a tool follows an external contour instead of following a straight path.



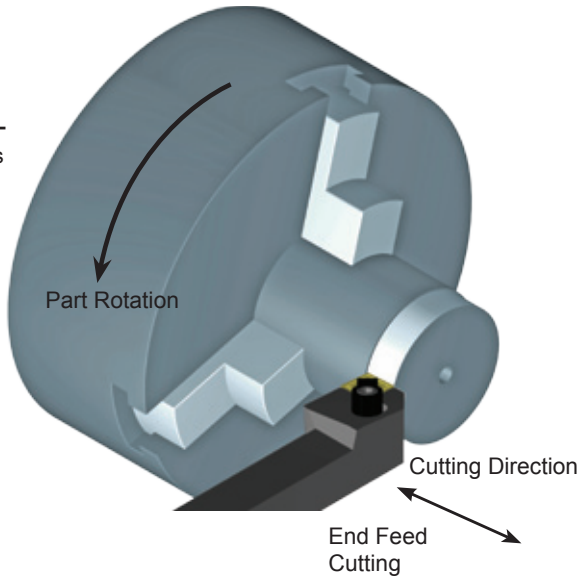
I.D. Profile-

A machining process where a tool follows an internal contour instead of following a straight path.



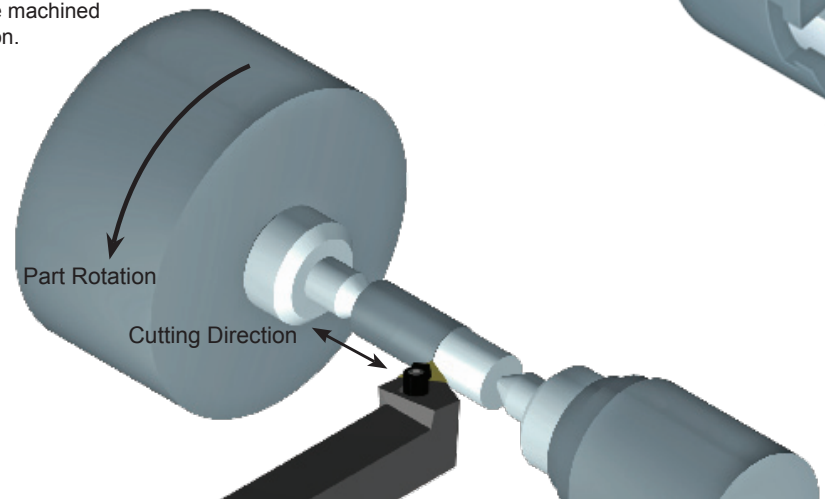
Chuck Work-

A machining process where any type of workpiece has to be held by a chuck.



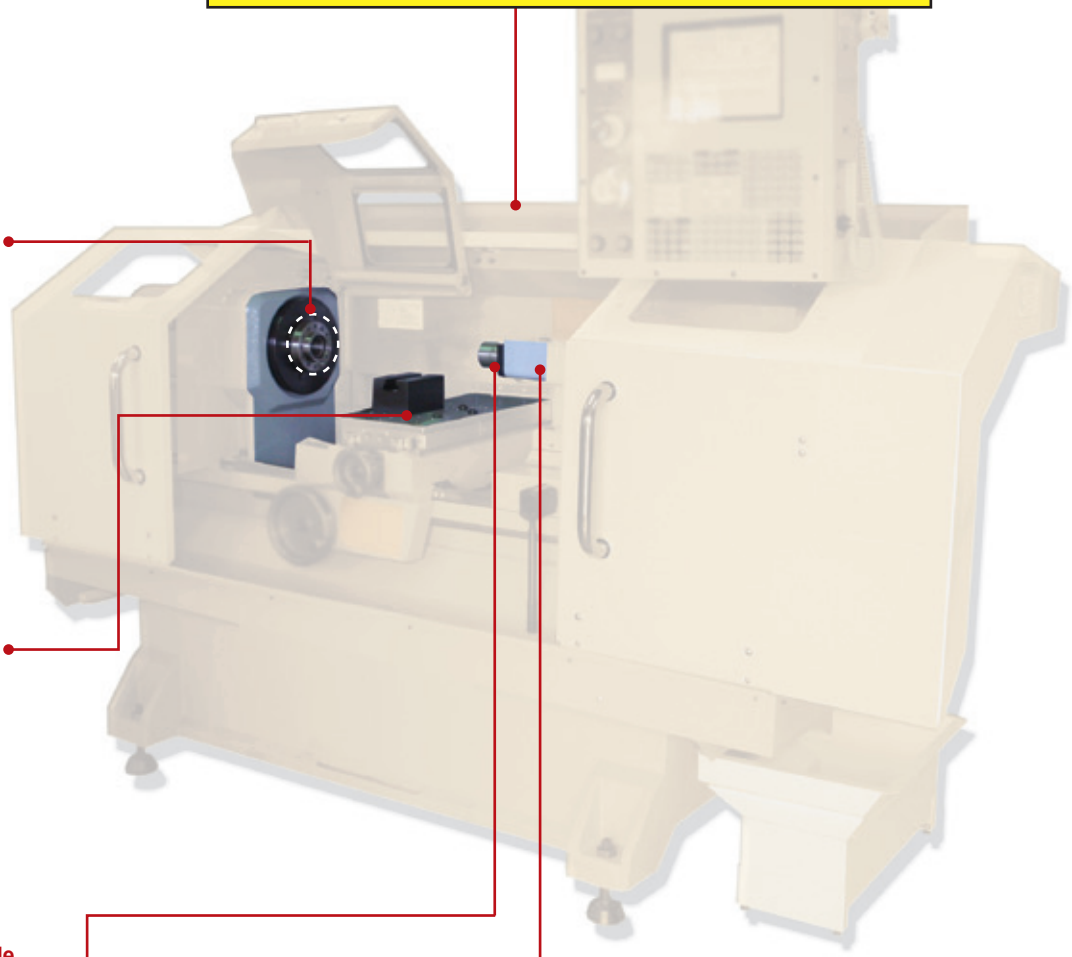
Between Centers Work-

A machining process where a work piece It held by using centers on each end. It allows the entire length of the outside diameter of the part to be machined in one continues operation.

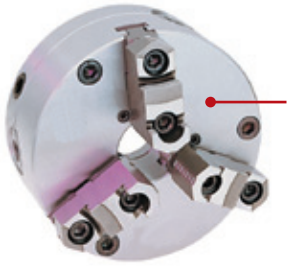


Lathe: A machine where a tool removes material from the turning cylindrical part. Many styles are available, such as: Manual, Combination and CNC. Lathes are usually comprised of these basic parts: A Spindle which is a driving mechanism for supplying power to the chuck (a material holding device) ; a cross-slide compound which carries the tool; tool holding device, or turret; a tailstock for additional support of the work piece; and controls for the operator to interact with the lathe.

All Dorian Turning Toolholders, Boring Bars and Inserts offered in this catalog are engineered for use on both CNC and Manual Lathes.

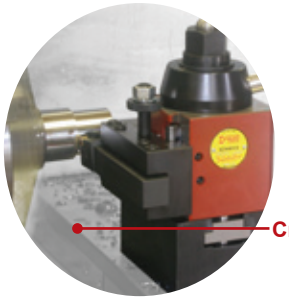


Spindle: Driving mechanism for supplying power to the chuck. The chuck workholding is the device that holds the workpiece.



Chuck

Cross-Slide: Where you set up the toolholding device like the tool post or turret.

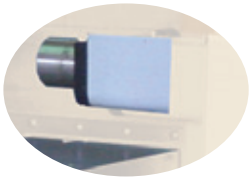


Cross-Slide

Live Center: A tool that is inserted into the tailstock of the lathe to support longer workpieces where the cutting force would deflect the part excessively.

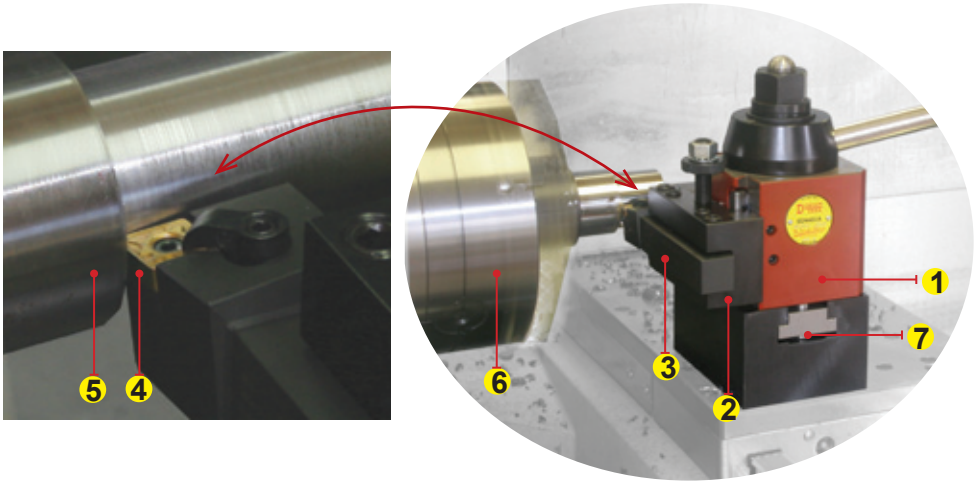
Live Center

Tail Stock: The part of a machine tool such as a lathe or a cylindrical grinder, that supports the end of a workpiece with a center. It may be positioned at any point along the way of the bed and may be offset from center to machine tapers.



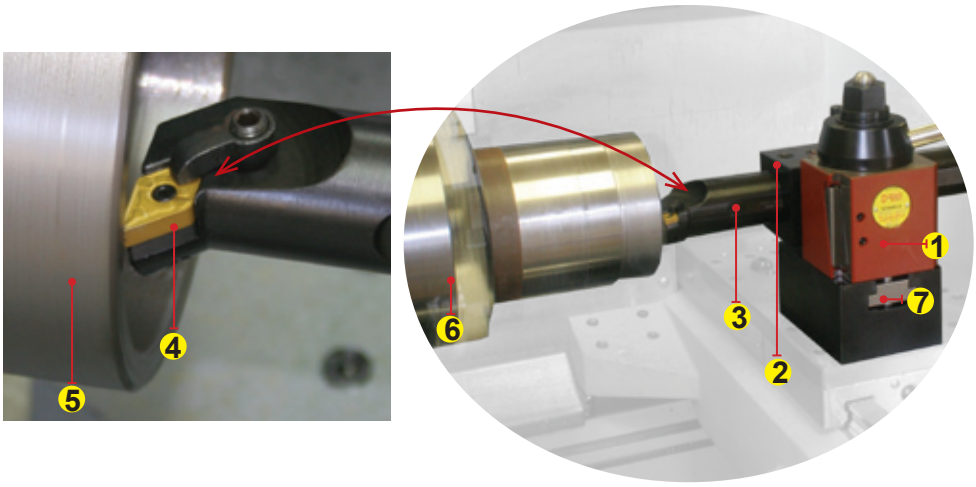
Turning Application with a Manual or Programable Toolroom Lathe

1. Quick Change Tool Post
2. Quick Change Turning and Facing Toolholder
3. Square Shank Toolholder
4. Insert
5. Workpiece
6. Chuck
7. Custom T-Slot



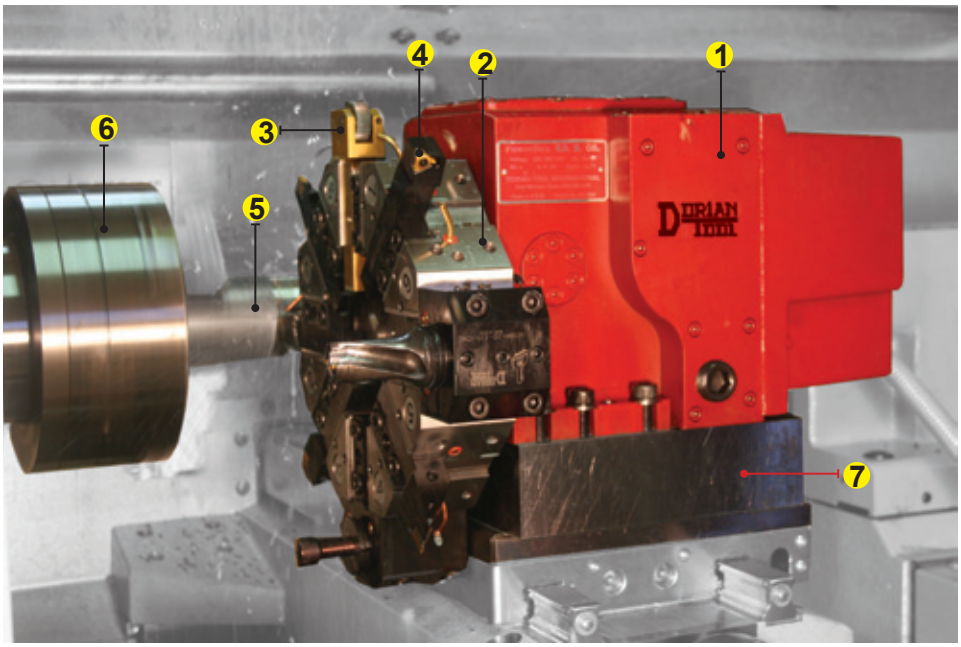
Boring Application with a Manual or Programable Toolroom Lathe

1. Quick Change Tool Post
2. Quick Change Boring Bar Holder
3. Quick Change Boring Bar
4. Insert
5. Workpiece
6. Chuck
7. Custom T-Slot



Automated Turning and Boring Applications with a CNC Machine Center

1. CNC Automated Turret
2. Turret Head
3. Turning, Boring and various cutting operations are all applicable with the CNC Automated Turret.
4. Insert
5. Workpiece
6. Chuck
7. Custom Riser Block

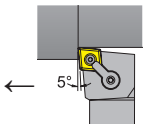


Turning and Boring Operation Selection and Application Form

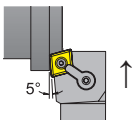
When selecting an indexable cutting tool & Insert you must check the appropriate box ☐ for each area 1-10 below and fax to 979-282-2951.

1. Operations

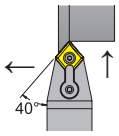
☐ Turning



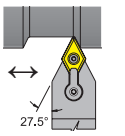
☐ Facing



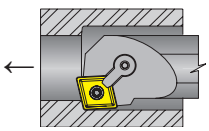
☐ Chamfering



☐ Profiling

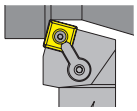


☐ Boring

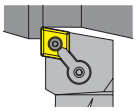


2. Application

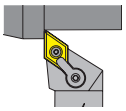
☐ Roughing



☐ Medium



☐ Finishing



3. Material

Carbon Steel	Hardened Steel	PH Series Stainless Steel	300 Series Stainless Steel	Aluminum	Non-Ferrous
Alloy Steel	Martensitic Stainless Steel	400 Series Stainless Steel	Cast Iron	High Temper Alloy	

4. Material Form

☐ Bar Stock ☐ Tubing ☐ Casting ☐ Forging

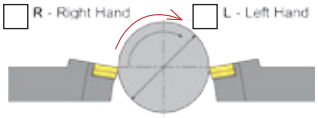
5. Tool Size

Square Shank ☐ Size: _____

Boring Bar ☐ Size: _____

6 A. Turning Direction

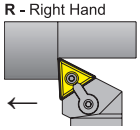
☐ R - Right Hand ☐ L - Left Hand



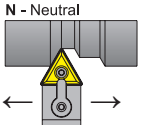
6 B. Cutting Direction

Square Shank

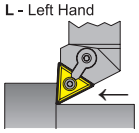
☐ R - Right Hand



☐ N - Neutral

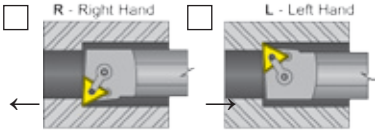


☐ L - Left Hand



Boring Bar

☐ R - Right Hand ☐ L - Left Hand



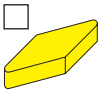
7. Machine Type

☐ Manual ☐ Swiss ☐ CNC ☐ Other

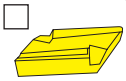
8. Insert Geometry

Finishing - Light Roughing

☐ V - 35° Diamond



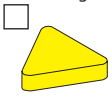
☐ K - 55° Parrellogram



☐ D - 55° Diamond

Multi-application

☐ T - Triangle



☐ W - 80° Trigon

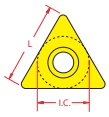
☐ C - 80° Diamond

Roughing

☐ S - Square

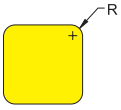
☐ R - Round

9. Insert Size



A.N.S.I ☐	5/32" ☐	7/32" ☐	1/4" ☐	3/8" ☐	1/2" ☐	5/8" ☐	3/4" ☐	1.0" ☐	
I.S.O. ☐	6mm ☐	9mm ☐	11mm ☐	12mm ☐	15mm ☐	16mm ☐	19mm ☐	25mm ☐	

10. Insert Tip Radius



☐ Sharp Point

☐ 1/128"	0,2mm	☐ 1/32"	0,8mm	☐ 1/16"	1,6mm
☐ 1/64"	0,4mm	☐ 5/128"	1,0mm	☐ 3/32"	2,4mm
☐ 5/256"	0,5mm	☐ 3/64"	1,2mm	☐ 1/8"	3,2mm

P.O. No.	Quote No.	
Company Name:	Recommended By :	To be Completed by Dorian Tool Engineering Department
Contact Name:		UPC No. 733101- Description Delivery
Phone No: ( )	Square Shank	
Fax No: ( )	Boring Bar	
Address:	Insert	

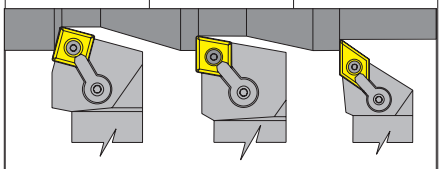
M-Style

Machining Application

External

Internal

Best	Good	Average
Roughing	Medium	Finishing



Negative Insert Shape

Roughing	Medium	Finishing
Round	80° Diamond, Triangle	55° Diamond
Square	80° Trigon	35° Diamond

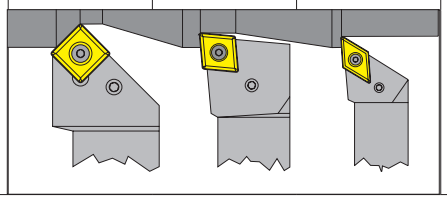
P-Style

Machining Application

External

Internal

Good	Best	Good
Roughing	Medium	Finishing



Negative Insert Shape

Roughing	Medium	Finishing
Square	80° Diamond	55° Diamond

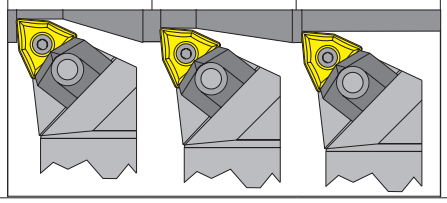
W-Style

Machining Application

External

Internal

Good	Best	Average
Roughing	Medium	Finishing



Negative Insert Shape

Roughing	Medium	Finishing
	Triangle, 80° Trigon	

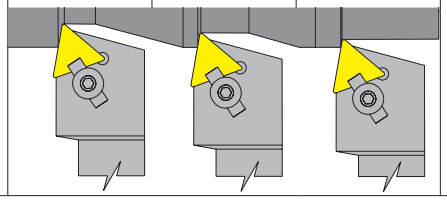
C-Style

Machining Application

External

Internal

NOT Recommended	Best	Average
Roughing	Medium	Finishing



11° Positive Insert Shape

Roughing	Medium	Finishing
	Square, Triangle	

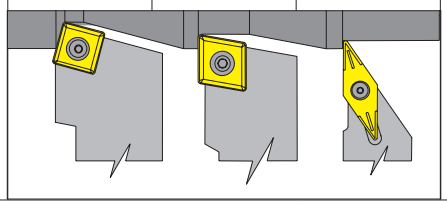
S-Style

Machining Application

External

Internal

NOT Reccommended	Average	Best
Roughing	Medium	Finishing

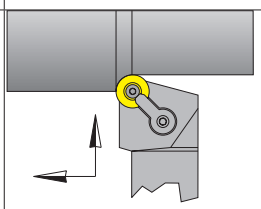
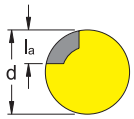
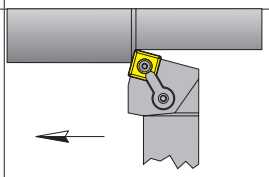
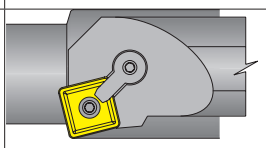
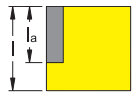
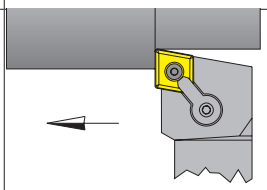
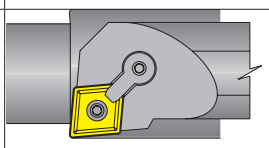
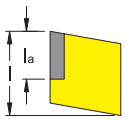
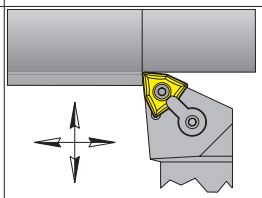
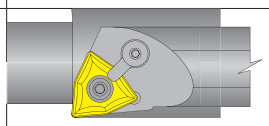
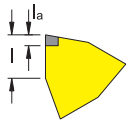
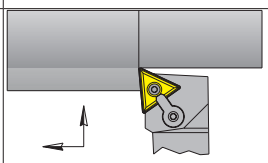
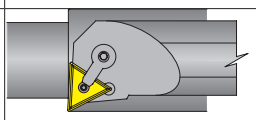
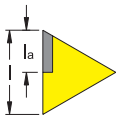
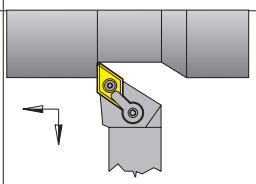
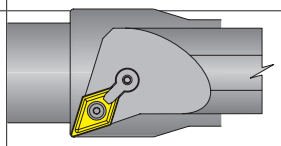
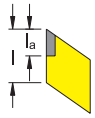
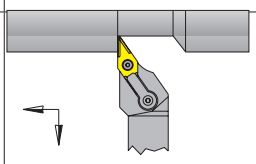
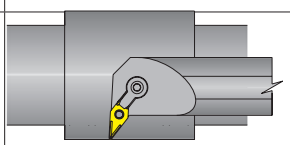
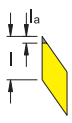


7°/ 11°/ 15° Positive Insert Shape

Roughing	Medium	Finishing
Round	80° Diamond, Triangle	55° Diamond
Square	80° Trigon	35° Diamond

Insert Geometry and Application Selection

Stronger Roughing Low SFM

Insert Geometry	Application	O.D. Turning	I.D. Turning	Max. Depth of Cut
Round	• Heavy Duty Roughing • Facing • Turning		N/A	 l_a = 0.400 x d
Square	• Heavy Duty Roughing • Facing • Turning • Chamfering • I.D. Turning			 l_a = 0.667 x l
80º Diamond	• Roughing • Finishing • Turning • Facing • Chamfering • I.D. Turning			 l_a = 0.667 x l
80º Trigon	• Roughing • Finishing • Turning • Facing • I.D. Turning			 l_a = 0.250 x l
Triangle	• Light Roughing • Finishing • Turning • Facing • Chamfering • I.D. Turning			 l_a = 0.500 x l
55º Diamond	• Light Roughing • Finishing • Turning • O.D. Profiling • I.D. Profiling			 l_a = 0.500 x l
35º Diamond	• Very Light Roughing • Finishing • O.D. Profiling • I.D. Profiling			 l_a = 0.125 x l

Weaker Finishing High SFM

The Indexable Carbide Insert: A cutting bit that has multiple cutting edges and fits in a Toolholder or Boring Bar. Once the insert cutting edge wears a machinist can re-index to a new cutting edge or replace the insert.

Factors For Determining Effective Cutting Edge Length

Shape - As the insert cutting angle becomes smaller, the strength of the insert declines. An 80° triangle insert will be stonger than a 55° diamond insert.

Type - Insert type must be taken into consideration in addition to shape. Some cutting geometries are designed for roughing and some for finishing.

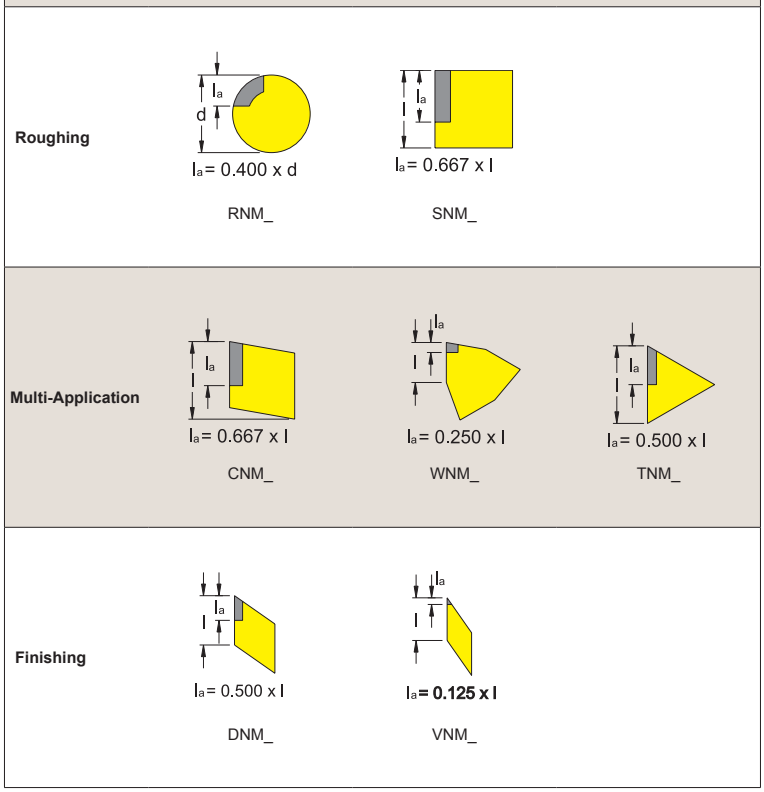
Toolholder lead angle - As the toolholder lead angle increases, the length of the effective cutting edge required for a cut also increases.

If the depth of cut- Is greater than the effective cutting edge, either a smaller depth of cut or a larger size insert should be selected.

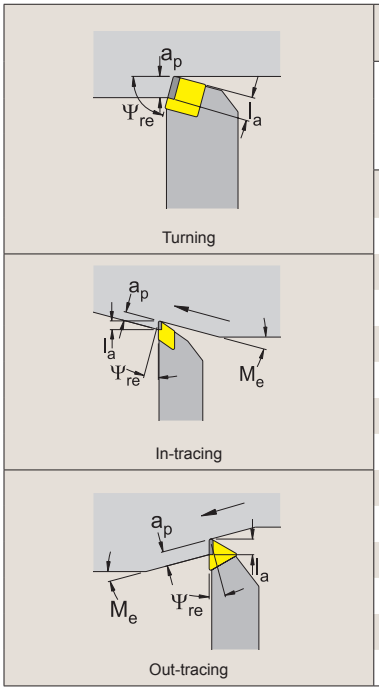
Variables- For Determining Effective Cutting Edge:

a_p = Depth of Cut
l = Total Insert Cutting Edge
l_a = Effective Cutting Edge
M_e = Tracing Angle
Ψ_r = Toolholder Lead Angle
$\Psi_{re} = \Psi_r - M_e$ = Effective Lead Angle

Effective Insert Cutting Edge by Insert Shape



Effective Insert Cutting Edge Length for Selected Lead Angles

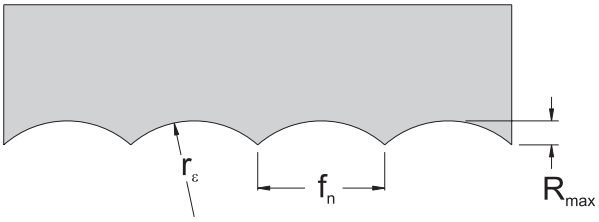


Cutting Depth (a_p)		Lead Angle Ψ_r 0° 3° 5°		15°		30°		45°		60°		75°	
		Effective Insert Cutting Edge Length (l_a) of the Insert											
Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
0.010	0,25	0.010	0,25	0.010	0,25	0.012	0,30	0.014	0,35	0.020	0,50	0.036	0,90
0.020	0,50	0.020	0,50	0.021	0,53	0.023	0,58	0.028	0,70	0.039	0,98	0.072	1,80
0.040	1,00	0.040	1,00	0.041	1,03	0.046	1,15	0.056	1,40	0.078	1.95	0.145	3.63
0.080	2,00	0.080	2,00	0.083	2,08	0.092	2,30	0.113	2,83	0.156	3,90	0.290	7,25
0.120	3,00	0.120	3,00	0.124	3,10	0.138	3,45	0.169	4,23	0.234	5,85	0.434	10,85
0.160	4,00	0.160	4,00	0.166	4,15	0.184	4,60	0.226	5,65	0.312	7,80	0.579	14,48
0.200	5,00	0.200	5,00	0.207	5,18	0.230	5,75	0.282	7,05	0.390	9,75	0.724	18,10
0.240	6,00	0.240	6,00	0.248	6,20	0.276	6,90	0.338	8,45	0.468	11,70	0.869	21,73
0.280	7,00	0.280	7,00	0.290	7,25	0.322	8,05	0.395	9,88	0.546	13,65	1.014	25,35
0.315	7,88	0.315	7,88	0.326	8,15	0.362	9,05	0.444	11,10	0.614	15,35	1.140	28,50
0.350	8,75	0.350	8,75	0.362	9,05	0.403	10,08	0.494	12,35	0.683	17,05	1.267	31,68
0.400	10,00	0.400	10,00	0.414	10,35	0.460	11,50	0.564	14,10	0.780	19,50	1.448	36,20
0.600	15,00	0.600	15,00	0.621	15,53	0.690	17,25	0.846	21,15	1.170	29,25	2.172	54,30

R_{max} Conversion Chart

R_{max} µinch	R_{max} µm	$R_{a=CLA=AA}$ µinch	$R_{a=CLA=AA}$ µm	RMS µinch	RMS µm	Roughness Grade No.	Triangle Symbol
60	1,6	12.0	0,30	13.3	0,34	N5	
70	1,8	14.0	0,36	15.5	0,39		
80	2,0	16.0	0,41	17.8	0,45		
90	2,2	18.0	0,46	20.0	0,51	N6	
100	2,4	20.0	0,51	22.2	0,56		
110	2,8	22.2	0,56	24.4	0,62		
120	3,0	24.0	0,61	26.6	0,68		
140	3,5	28.0	0,71	31.1	0,79		
160	4,0	32.0	0,81	35.5	0,90		
180	4,5	36.0	0,91	40.0	1,0		
200	5,0	40.0	1,0	44.4	1,1	N7	
240	6,0	48.0	1,2	53.3	1,4		
280	7,0	56.0	1,4	62.2	1,6		
320	8,0	64.0	1,6	71.0	1,8		
360	9,0	72.0	2,8	79.9	2,0		
400	10,0	82.0	2,1	90.7	2,3	N8	
600	15,0	127.0	3,2	141.0	3,6		
800	20,0	177.0	4,5	196.0	5,0		
1000	25,0	230.0	5,8	255.0	6,5	N9	
1050	27,0	242.0	6,1	268.0	6,8		
1200	30,0	288.0	7,3	320.0	8,1		
1400	44,5	352.0	8,9	390.0	9,9	N10	
1600	53,5	421.0	10,7	467.0	11,9		
1800	63,0	497.0	12,6	552.0	14,0		
2000	74,0	582.0	14,8	646.0	16,4		

Finding R_{max}



R_{max} = profile depth in µinch/µmeter
r_ε = nose radius in inch/millimeter
f_n = feed in inch/millimeter per revolution

$$R_{max} = \frac{f_n^2 \times 10^6}{8r_\varepsilon}$$

Theoretical Surface Finish

$$f_n = \sqrt{\frac{R_{max} \times 8r_\varepsilon}{10^6}}$$

Feed Rate

$$r_\varepsilon = \frac{f_n^2 \times 10^6}{8 \times R_{max}}$$

Radius

Nose Radius and Feed

Insert Radius (re)		Maximum Feed FPR (fn)	
inch	mm	inch	mm
0.004	0,10	0.002	0,05
0.008	0,20	0.004	0,10
0.016	0,40	0.008	0,20
0.032	0,80	0.016	0,40
0.047	1,20	0.023	0,60
0.062	1,6	0.031	0,80
0.093	2,4	0.046	1,2

Insert Nose Radius

Insert nose radius plays a major role in surface finish. In general, for a given feed rate, the larger the nose radius, the smoother the finish. To help ensure an acceptable finish, the chart at left gives the recommended maximum feed rates for selected insert nose radii.

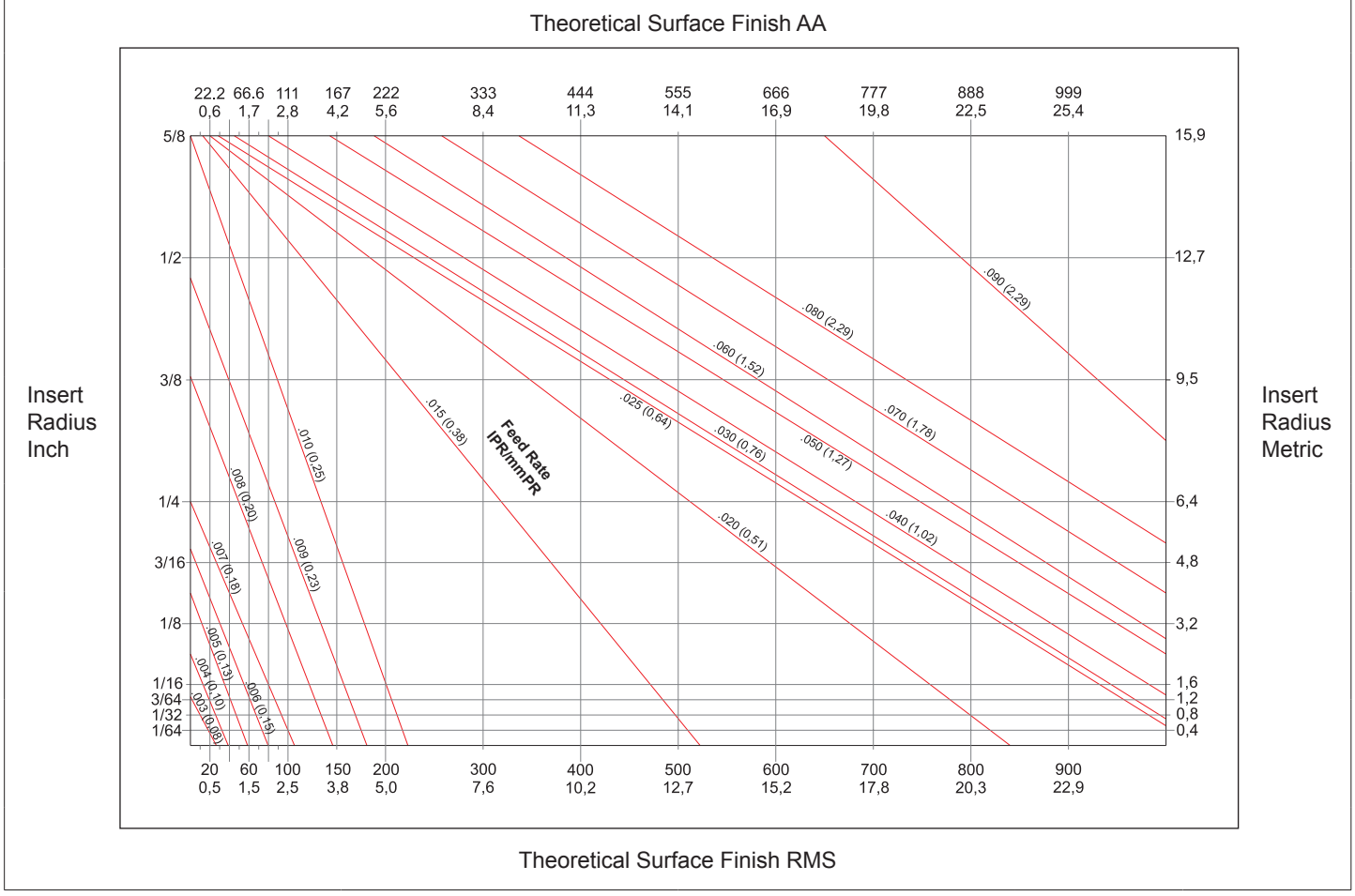
Roughing Application

- Use the largest possible radius of the insert nose to allow for greater feed rates. This will result in better stability and lengthen the insert life.
- If vibration is a problem, use a smaller radius.
- The maximum feed rate (fn) should never exceed 1/2 of the insert nose radius.

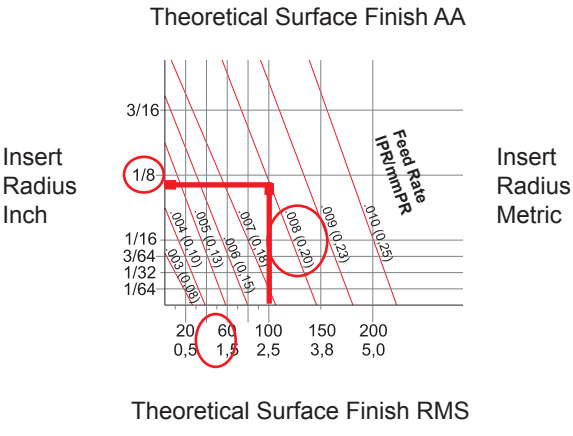
Finishing Application

- Nose radius and feed along with workpiece stability and chucking rigidity are the major factors in surface finish and tolerance.
- To improve surface finish, use higher cutting speeds.
- Use a small radius insert in order to limit vibration. If vibration is still a problem, use a smaller radius.
- Choosing the correct insert grade is essential for a quality finish.

Insert Radius Selection Chart



Sample Radius Selection



Using the Insert Radius Selection Chart

1. Select the desired surface finish, AA or RMS (Example to the left uses a surface finish of 100 RMS).
2. Draw a vertical line from the desired surface finish to the desired feed rate (In the Example, .008 IPR).
3. Draw a horizontal line from the intersection of the surface finish and feed rate to find the recomended insert radius. If this line falls between two radii, chose the larger (1/8 in the example). If the recommended radius is larger than desired, choose a smaller feed rate and repeat step 3.

This chart may also be used to find a theoretical surface finish by simply using a known insert radius and feed rate.

Note: Information provided in this chart is to be used as a starting point only and may need to be adjusted to accommodate actual working conditions.

Carbide, also called **Hardmetal** or **Widia**, is a hard metal used in machining Ferrous and non Ferrous Materials. **Carbide Inserts** will withstand higher cutting temperatures (higher than standard high speed steel tools), allow faster machining with better finishes, closer tolerances on the part and longer tool life.

The initial development of cemented and sintered carbide occurred in Germany in the 1920s to replace diamonds as a material for machining metal. The carbide insert found its way onto the German market under the name **WIDIA** (acronym for **WI**e **DIA**mant *meaning like diamond*) and reached the United States market in 1928.

Today, most carbide inserts are made from a combination of Tungsten Carbide (WC), Titanium Carbide (TiC), and Cobalt (Co); the bonding metal. Tungsten and Titanium carbide hard particles provide the insert with the hardness, while the Cobalt makes the insert tougher and impact resistant.

Negative Insert

Double Sided Cutting Edge with a Negative Relief Angle.

The First Choice for high metal removal and high precision applications. Available molded or precision ground with a wide range of geometries, chipbreakers and grades.

Positive Insert

Single Sided Cutting Edge with a Positive Relief Angle.

The First Choice for light roughing to precision finishing applications. Available in multiple varieties of relief angles, geometries and chipbreakers in both ANSI and ISO styles, precision grounded or molded.

Insert Application Guide

Finishing	Universal	Roughing
• Hard and Wear resistant	• Wear Resistant and Tough	• Tough and Impact Resistant
• PVD and CVD Coating	• PVD and CVD Coating	• PVD and CVD Coating
• Small Nose radius	• Medium Nose Radius	• Large Nose Radius
• Light Honed Edge	• Medium Honed Cutting Edge	• Heavy Honed Cutting Edge
• Small Chipbreaker	• Medium Chipbreaker	• Large Chip Breaker

Cutting Data

• Small Depth of cut (a_p)	• Medium Depth of cut (a_p)	• Large Depth of cut (a_p)
• Small Feed per Revolution (f_n)	• Medium Feed per Revolution (f_n)	• High Feed per Revolution (f_n)
• High Surface Cutting Speed (Vc)	• Medium Surface Cutting Speed (Vc)	• Low Surface Cutting Speed (Vc)
• Use Coolant if Insert Allows	• Use Coolant if Insert Allows	• Use Coolant if Insert Allows

Insert Best Performance

Starting: Follow the recommended use and cutting parameters of the insert according to material and application.

Application: **For Roughing**, use a tough coated insert grade with a large nose radius, heavy honed cutting edge and large chipbreaker. Cut at a low SFM with a large Depth of Cut (a_p) and high Feed Rate per Rev. (f_n)

For Universal, use a hard, tough & wear resistant coated insert grade with a medium nose radius, honed cutting edge and medium chipbreaker. Cut at a medium SFM with a medium Depth of Cut (a_p) and medium Feed Rate per Rev. (f_n)

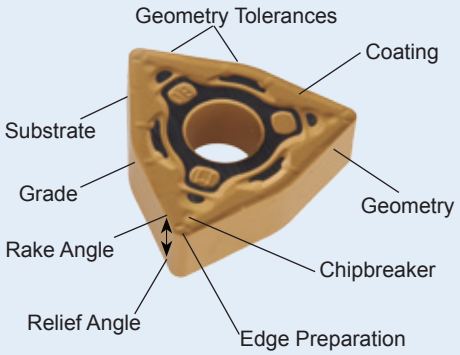
For Finishing, use a hard & wear resistant coated insert grade with a small nose radius, sharp to light honed cutting edge and small chipbreaker. Cut at a high SFM with a medium Depth of Cut (ap) and medium Feed Rate per Rev. (f_n)

Optimum: **Insert Wear**, decrease Spindle Speed (n) and/or increase Feed (f_n) or change to a harder insert grade.

Insert Chipping, increase Spindle Speed (n), decrease Feed (f_n), and/or change to a heavier honed edge or change to a tougher insert grade.

Coolant: **Use Coolant**, if the insert grade allows, and always use high pressure coolant to remove the hot chips and heat from the insert to reduce thermal shock.

Anatomy of Insert



1. Substrate - The alloy carbide's properties, grain size, and cobalt content.

2. Geometry - The physical characteristics of an insert that differentiates one shape from the next.

3. Tolerances - The allowed deviation of all insert dimensions.

4. Relief Angle - The angle measured from the vertical line perpendicular to the cutting edge of the insert and the cutting face of the insert.

5. Rake Angle - The angle formed on the insert from the top surface area and the bottom of the insert chip flow area when parallel to the floor.

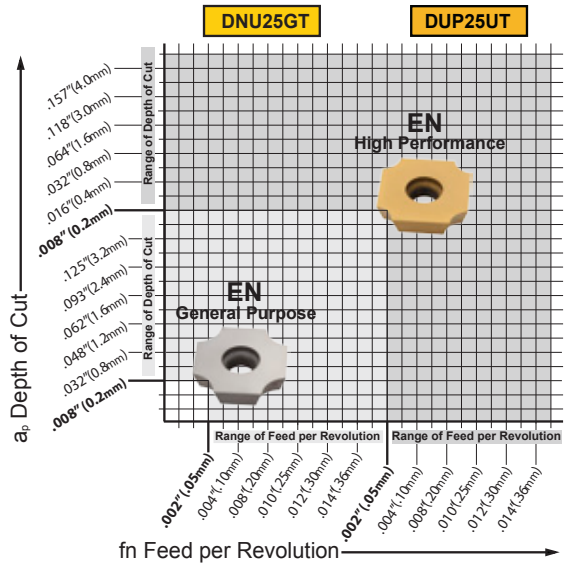
6. Chipbreaker - The formed groove or recess along the cutting edge of the insert that breaks chips into small manageable lengths.

7. Edge Preperation - The process used to prepare the insert's edge cutting condition for specific application and material. Achieved by honing, chamfering, "T" land or any combination there of.

8. Coating - Thin layer of titanium nitrade on the surface of the insert that allows for greater cutting speeds, wear resistance and longer insert life.

9. Grade - A combination of substrate and coating that determines the hardness and toughness of the insert.

U Multi Material | Positive Ground Turning Inserts | Application



O.D. & I.D. Convex Radius

Relative Depth of Cut (ap) and Feed Rate per Revolution (fn)

High Performance: DUP25UT insert grade has a tough wear resistant substrate with a multi PVD TiN/TiAlN/TiN coating. Inserts have a *positive* geometry, multi convex radius nose and a light honed cutting edge. For *Multi Pupose Materials.*

Cut at a *medium* to *high* SFM to a full radius and *medium* Feed Rate per Revolution (fn). Use coolant.

General Purpose: DNU25GT insert grade has an uncoated hard micro-grained tough substrate. Inserts have a *positive* geometry, multi convex radius nose and a light honed cutting edge. For *Non Ferrous Metals, Aluminum and Plastics.*

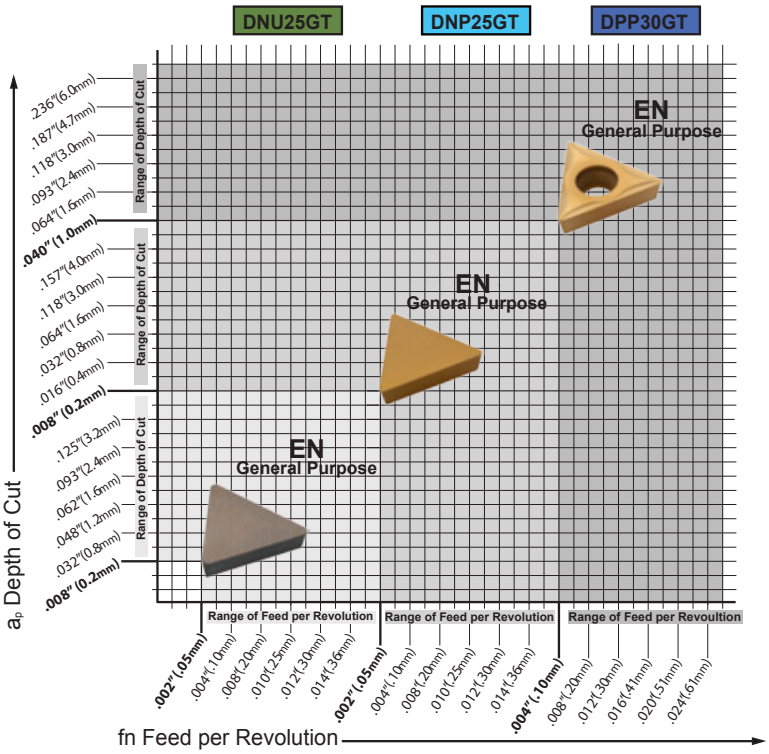
Cut at a low to *medium* SFM to a full radius with a *small* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

Cutting Speed for Specific Material:
N/A
Insert Selection:
See page 72.

EN Chipbreaker

P Alloy Steel / Stainless Steel M | Positive Ground Turning Insert | Application



General Turning and Boring

Relative Depth of Cut (ap) and Feed Rate per Revolution (fn)

General Purpose: DPP30GT insert grade has a thermal deformative and abrasive resistant substrate, a cobalt and enriched periphery, and a PVD TiN coating. Inserts have a *positive* geometry, a *multi* radius nose and a honed cutting edge.

Cut at a *medium* SFM with a *medium* Depth of Cut (ap) and a *medium* Feed Rate per Revolution (fn). Use coolant.

General Purpose: DNP25GT insert grade has a hard micro-grained tough substrate, a high viscosity, a hard cutting edge and a PVD TiN coating. Inserts have a *positive* geometry, multi radius nose and a honed cutting edge.

Cut at a *medium* SFM with a *medium* Depth of Cut (ap) and a *medium* Feed Rate per Revolution (fn). Use coolant.

General Purpose: DNU25GT insert grade has an uncoated, hard, tough, wear, abrasive resistant, micro-grained substrate with a hard cutting edge.

Cut at a *low* SFM with a *small* Depth of Cut (ap) and *low* Feed Rate per Revolution (fn). Use coolant.

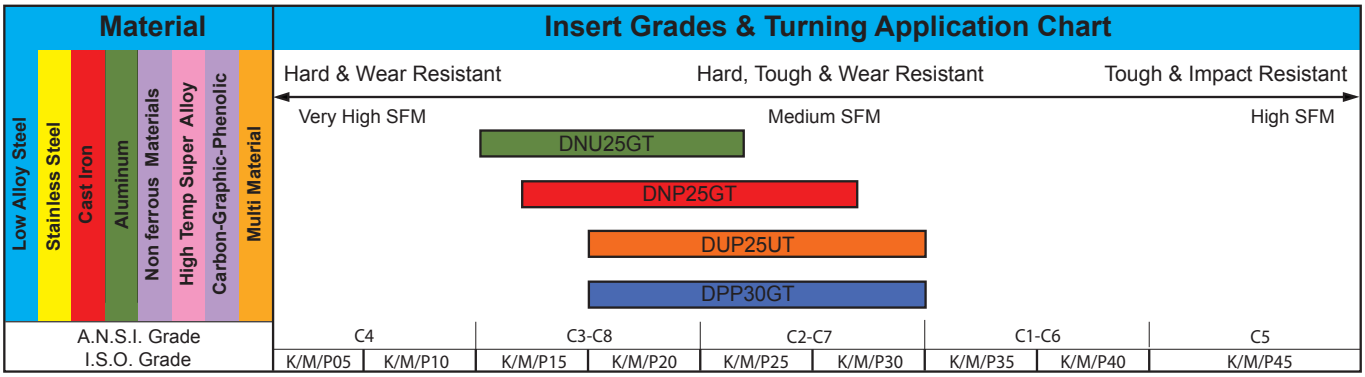
Reference Pages

Cutting Speed for Specific Material:
See page 40, 42, 47

Insert Selection:
See page 68-69.

EN Chipbreaker

Material | Insert Grades & Turning Application Chart



The GX Style Super Precision Ground Positive Inserts

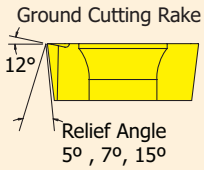
For Precise Turning and Boring Applications

UEF Chipbreaker

The **GX Style Super Precision Ground Positive Inserts** are ground with a very close tolerance of less than .0003" TIR. This close tolerance assures inserts have accurate indexing and repeatability every time the insert is changed, making the turning operation simple and precise. No off-setting is required when changing the insert.

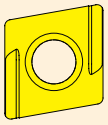
The **GX Style Super Precision Ground Positive Inserts** have a 12° positive, sharp, precise and ground cutting rake angle and nose radius. A minimized contact of the cutting edge with the machined surface reduces friction, heat, cutting force and vibration while maximizing surface finish and machining tolerances.

Relief Angle



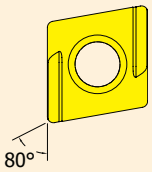
The **GX Style** Positive Turning Inserts are available in 5°, 7° and 15° relief cutting angles.

Geometry



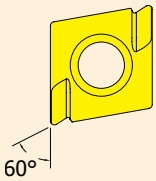
The **GX Style** Positive Turning Inserts are available in 80°, 55°, and 35° Diamond and 60° Triangle. These geometries cover all possible precision turning and boring applications.

80º CCGX-UEF



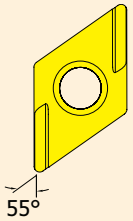
The 80° **CCGX** Super Precision Ground Positive Inserts are designed for light roughing and precision finishing in turning and boring applications.

80º CDGX-UEF



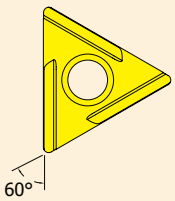
The 80° CDGX Positive Turning Inserts have a 15° relief angle, 60° cutting angle and 30° relief angle minimizing vibration and allowing chip evacuation in small boring applications.

55º DCGX-UEF



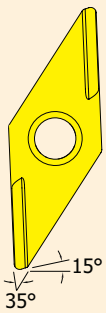
The 55° **DCGX** Super Precision Ground Positive Inserts have a 7° relief angle. Best used for precision turning, boring and profiling applications.

60º TCGX-UEF



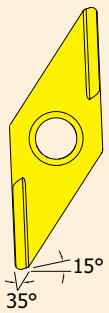
The 60° **TCGX** Super Precision Ground Positive Inserts have a 7° relief angle. Best used for all general precision turning and boring applications.

35º VBGX-UEF



The 35° **VBGX** Super Precision Ground Positive Inserts have long reach for profiling. The 5° relief angle and a 15° wiper angle increases the cutting edge strength and life of the insert, improving SFM, chip control and surface finish.

35º VCGX-UEF



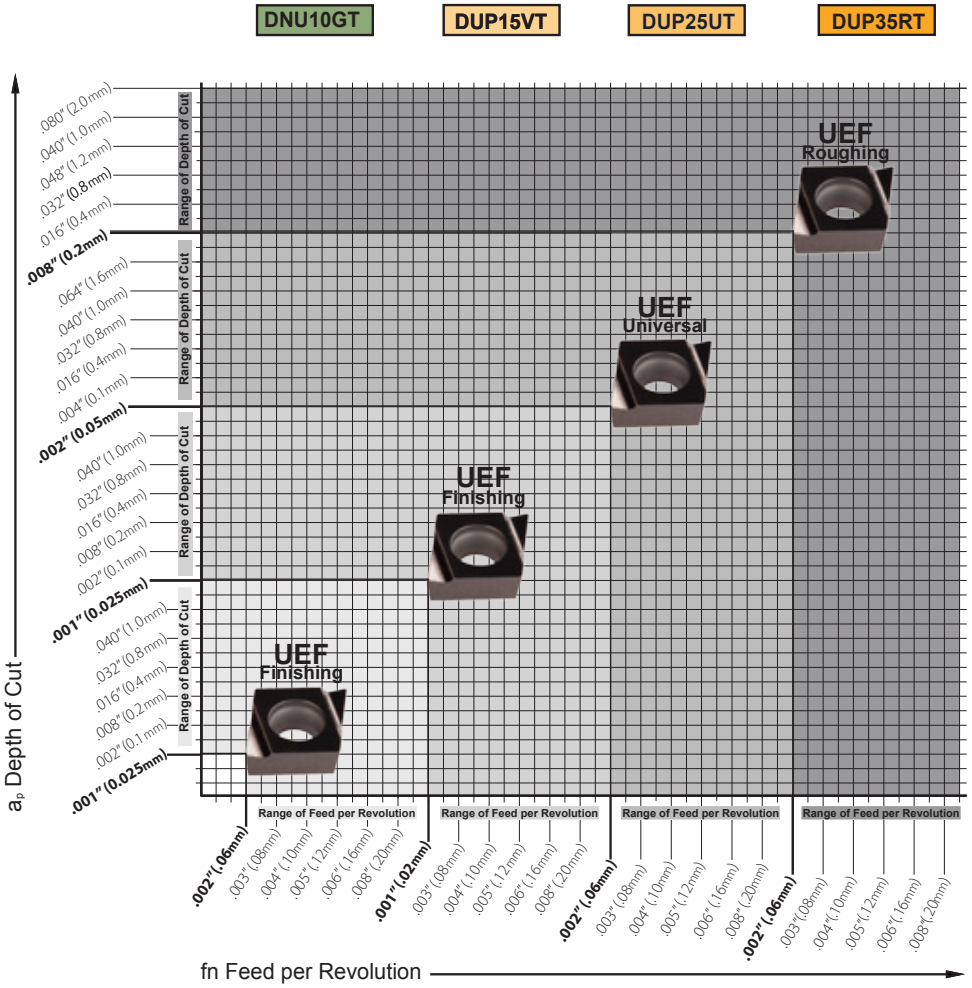
The 35° **VCGX** Super Precision Ground Positive Inserts have a long reach for profiling. The 7° relief angle and a 15° wiper angle increases the cutting edge strength and life of the insert, improving SFM, chip control and surface finish.

U Multi Material High Temper Super Alloy **S** Super Precision Positive Ground Insert

Application

Precision Turning and Boring

Relative Depth of Cut (ap) and Feed Rate per Revolution (fn)



Roughing: DUP35RT insert grade has a tough wear and impact resistant substrate with a PVD TiAlN/WC/C coating.

For precision light roughing and unstable turning and boring. Cut at a *high* SFM, *small* Depth of Cut (ap) and *low* Feed Rate per Revolution (fn). Use wet or dry.

Universal: DUP25UT insert grade has a tough wear resistant substrate with a multi PVD TiN/TiAlN/TiN coating.

For precision universal turning and boring. Cut at a *medium* SFM, *medium* Depth of Cut (ap) and *medium* Feed Rate per Revolution (fn). Use dry.

Finishing: DUP15VT insert grade has a high wear and abrasive resistant substrate with a PVD AlCrN coating.

For precision high performance turning and boring. Cut at a *high* SFM, *small* Depth of Cut (ap) and a *small* Feed Rate per Revolution (fn). Use dry.

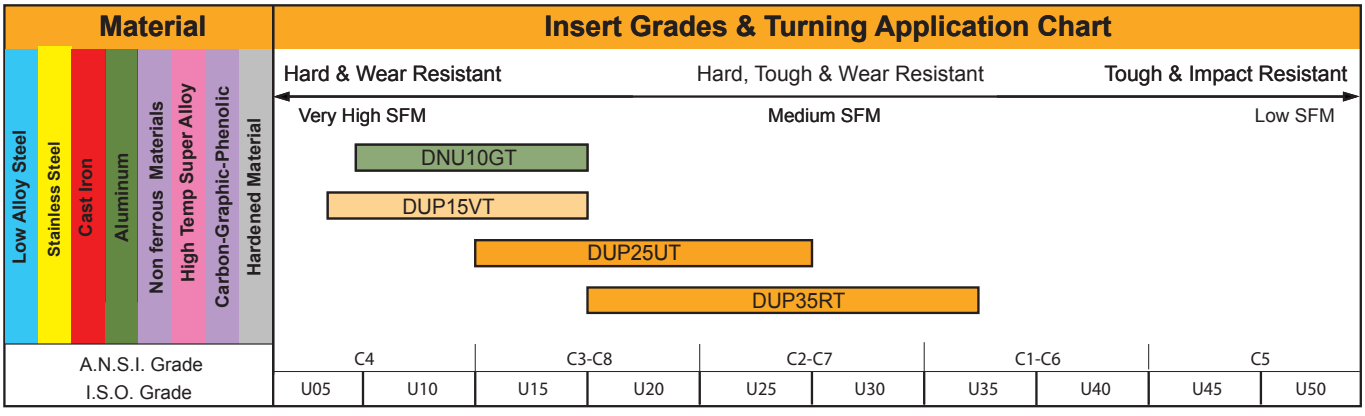
Finishing: DNU10GT insert grade has an uncoated high wear resistant substrate.

For precision general turning and boring. Cut at a *low* SFM, *small* Depth of Cut (ap) and *small* Feed Rate per Revolution (fn). Use wet.

Reference Pages

Cutting Speed for Specific Material:
See page 45, 46-47.

Insert Selection:
See page 56-57.

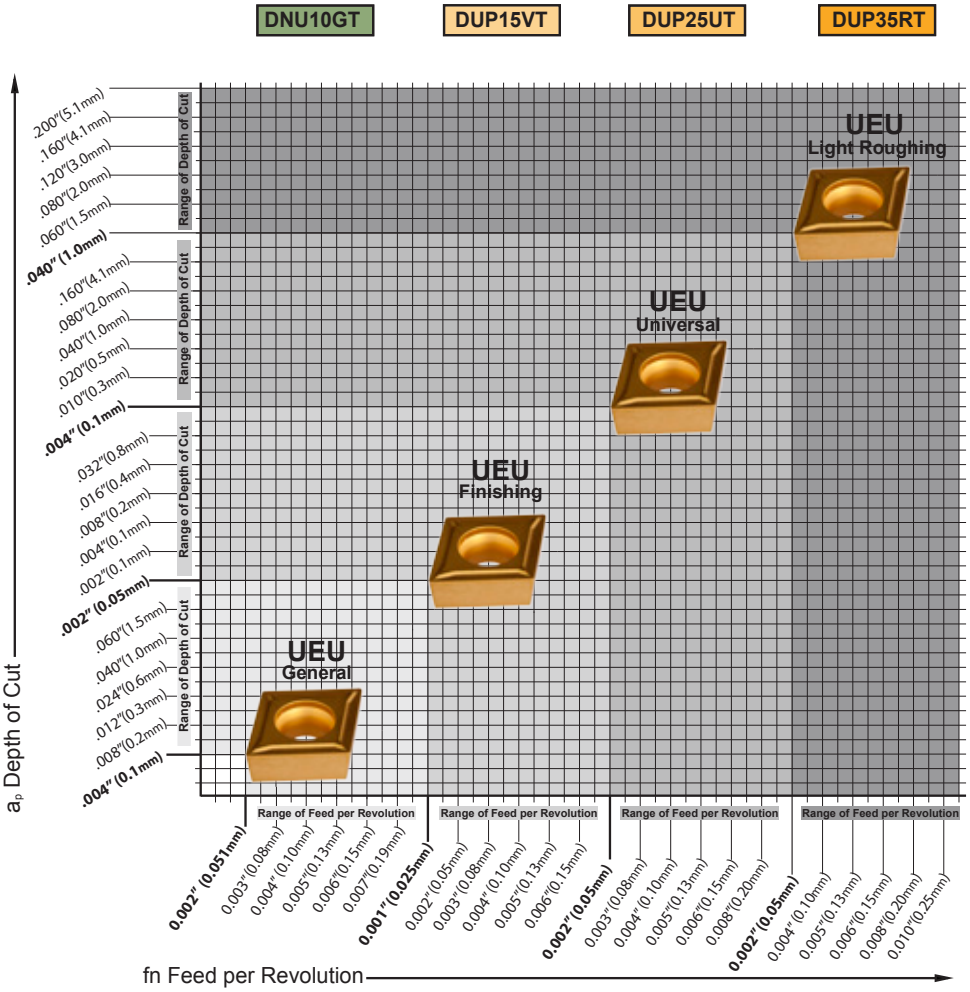


U Multi Material High Temp Super Alloy **S** Super Precision Positive Ground Insert

Application

Universal Turning and Boring

Relative Depth of Cut (ap) and Feed Rate per Revolution (fn)



Light Roughing: DUP35RT insert grade has a tough wear and impact resistant substrate with a PVD TiAlN/WC/C coating.

For roughing and unstable turning and boring conditions. Cut at a *high* SFM, *small* Depth of Cut (ap) and *low* Feed Rate per Revolution (fn). Use wet or dry.

Universal: DUP25UT insert grade has a tough wear resistant substrate with a multi PVD TiN/TiAlN/TiN coating.

For universal turning and boring. Cut at a *medium* SFM, *medium* Depth of Cut (ap) and *medium* Feed Rate per Revolution (fn). Use wet.

Finishing: DUP15VT insert grade has a high wear and abrasive resistant substrate with a PVD AlCrN coating.

For precision high performance turning and boring. Cut at a *high* SFM, *small* Depth of Cut (ap) and *small* Feed Rate per Revolution (fn). Use dry.

General: DNU10GT, high an uncoated wear resistant substrate.

For general turning and boring. Cut at a *low* SFM, *small* Depth of Cut (ap) and *small* Feed Rate per Revolution (fn). Use wet.

Reference Pages

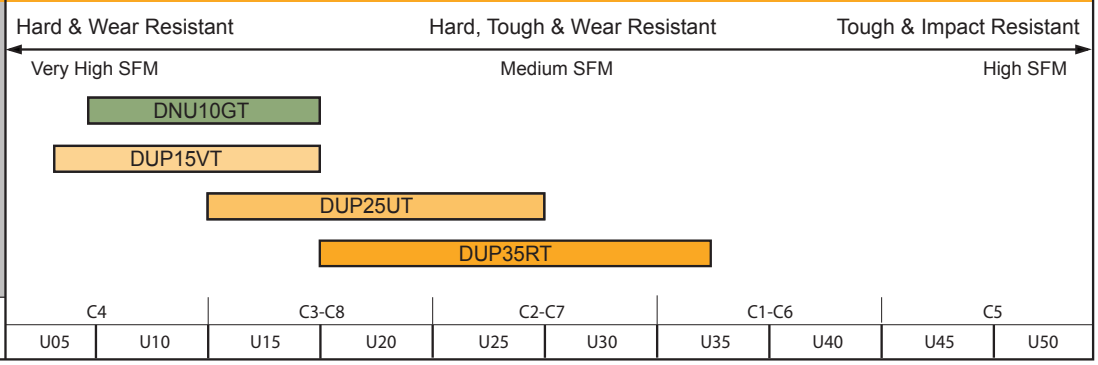
Cutting Speed for Specific Material:
See page 45, 46-47.

Insert Selection:
See page 58-59.

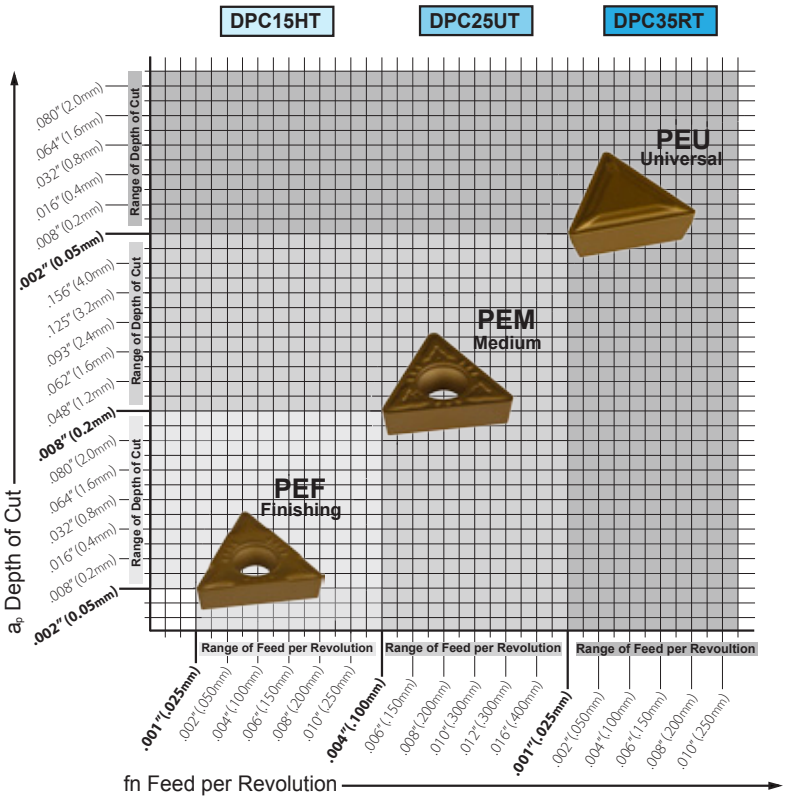
Material

Low Alloy Steel
Stainless Steel
Cast Iron
Aluminum
Non Ferrous Materials
High Temp Super Alloy
Carbon-Graphic-Phenolic
Hardened Material

Insert Grades & Turning Application Chart



P Alloy Steel | Molded Positive Insert | Application



General Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)

Universal: The DPC35RT insert grade has a hard, tough and impact resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *positive* chip breaker geometry, a *medium* radius nose and a honed cutting edge.

Cut at a *medium* SFM with a *small* Depth of Cut (ap) and a *Medium* Feed Rate per Revolution (fn). Use coolant.

Medium: The DPC25UT insert grade has a hard, tough and wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *medium* chip breaker geometry, a *medium* radius nose and a honed cutting edge.

Cut at a *low to medium* SFM with a *medium* Depth of Cut (a_p) and a *medium* Feed Rate per Revolution (fn). Use coolant.

Finishing: The DPC15HT insert grade has a hard and high wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *small* chip breaker geometry, a *small* radius nose and a honed cutting edge.

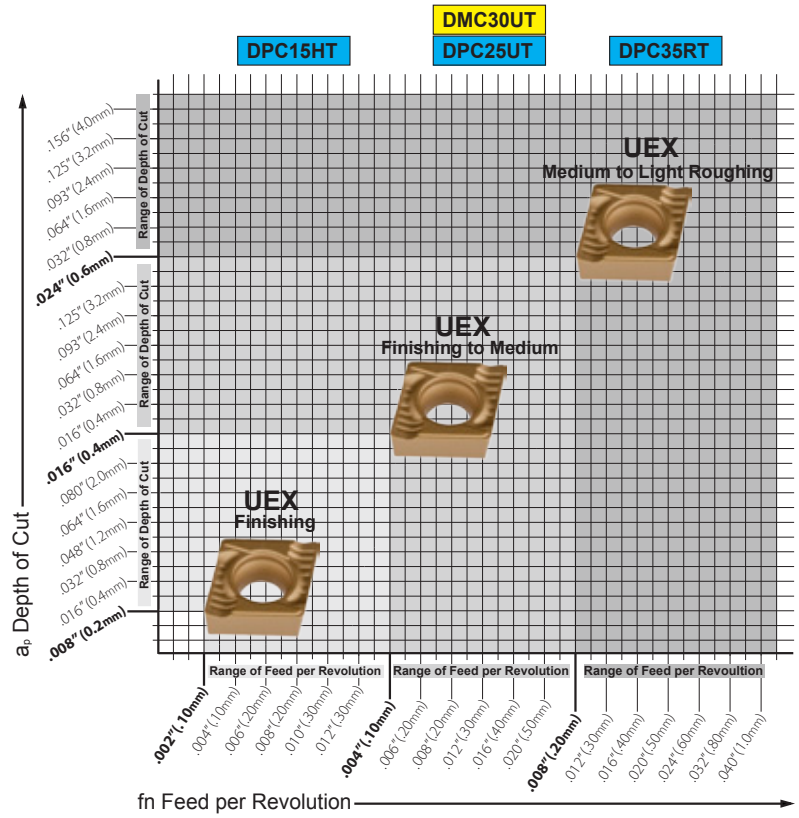
Cut at a *high* SFM with a *small* Depth of Cut (a_p) and a *low* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

Cutting Speed for Specific Material:
See page 40.

Insert Selection:
See page **60-61.**

P Alloy Steel / Stainless Steel M | Precision Positive Ground Insert | Application



Low Pressure Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)

Medium to Light Roughing: DPC35RT insert grade has a Tough and high impact resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating for alloy steel. Inserts have a *high positive* chip breaker geometry, a *large* radius nose and a honed cutting edge.

Cut at a *low* SFM with a *large* Depth of Cut (a_p) and a *high* Feed Rate per Revolution (fn). Use coolant.

Finishing to Medium: DPC25UT insert grade has a hard, tough wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating for alloy steel. DMC30UT insert grade is for stainless steel and has a CVD TiCN/TiN coating. Both insert grades have a *high positive* chip breaker geometry, a *medium* radius nose and a honed cutting edge.

Cut at a *medium* SFM, *medium* Depth of Cut (ap) and *a medium* Feed Rate per Revolution (fn). Use coolant.

Finishing: DPC15HT insert grade has a hard and wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating for alloy steel. Inserts have a *high positive* chip breaker geometry, a *small* radius nose and a honed cutting edge.

Cut at a *high* SFM, *small* Depth of Cut (ap) and a *low* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

Cutting Speed for Specific Material:
See page 40, 41

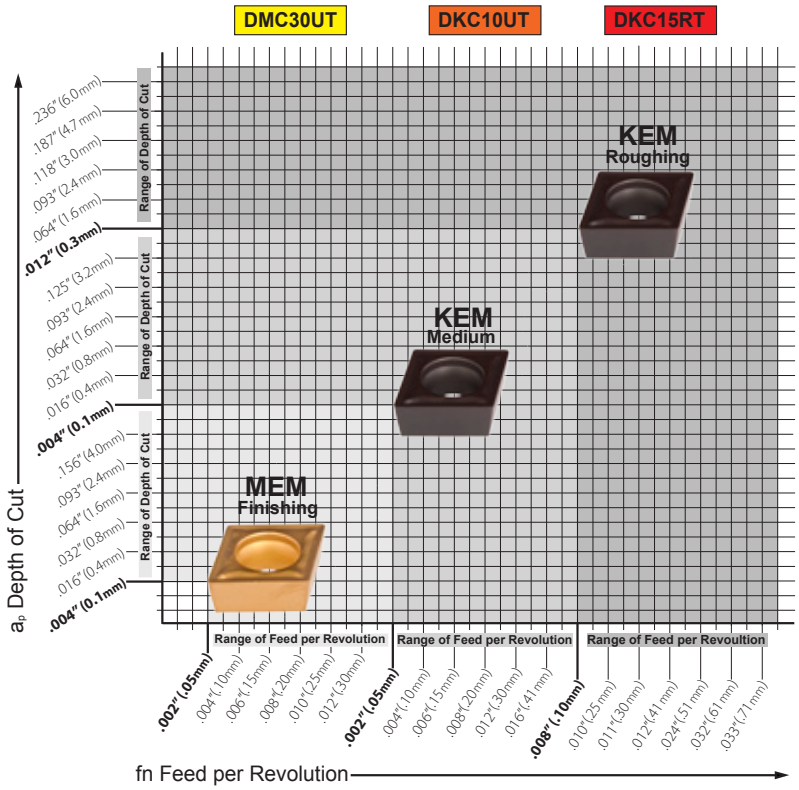
Insert Selection:
See page 70.

KEM/MEM Chipbreaker

M Stainless Steel / Cast Iron K

Positive Molded Insert

Application



General Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)

Roughing: DKC15RT insert grade has a tough, impact and abrasive resistant substrate with a CVD TiN/TiCNB/Al_2/TiO_3/$3Al_2O_3$ coating. Inserts have a *positive* chip breaker geometry, a *large* radius nose and a honed cutting edge.

Cut at a *low to high* SFM with a *large* Depth of Cut (ap) and a *high* Feed Rate per Revolution (fn). Use coolant.

Medium: DKC10UT insert grade has a tough and abrasive resistant substrate with a CVD TiN/TiCNB/Al_2/TiO_3/$3Al_2O_3$ coating. Inserts have a *positive* chip breaker geometry, a *small* radius nose and a honed cutting edge.

Cut at a *high* SFM, *small* Depth of Cut (a_p) and *a low* Feed Rate per Revolution (fn). Use coolant.

Finishing: DMC30UT insert grade has a tough, impact and abrasive resistant substrate with a CVD TiCN/TiN coating. Inserts have a *positive* chip breaker geometry, a *small* radius nose and a honed cutting edge.

Cut at a *high* SFM, *small* Depth of Cut (ap) and a *low* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

Cutting Speed for Specific Material:
See page 41, 42.

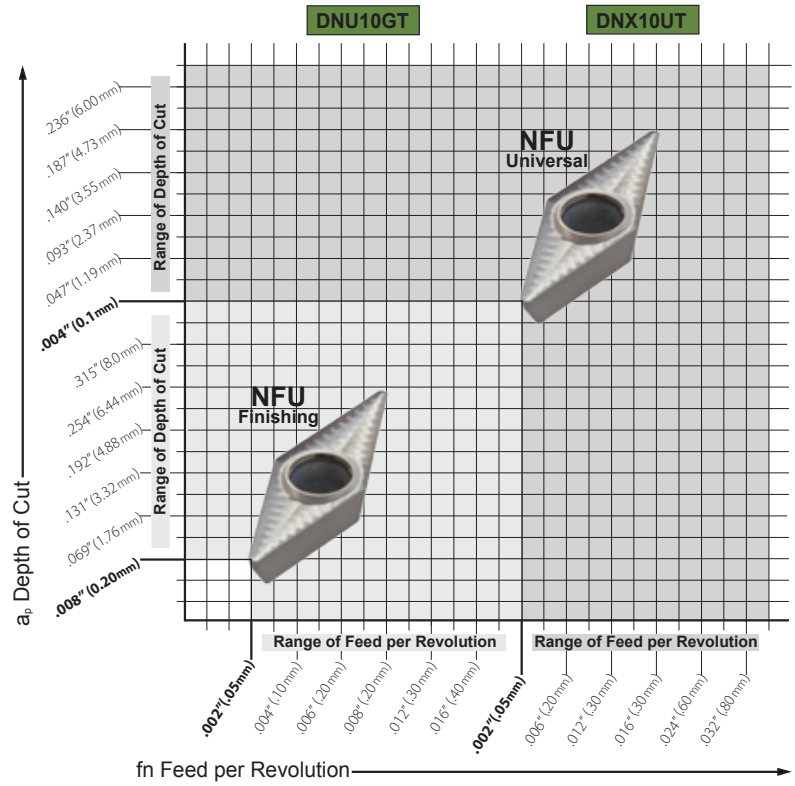
Insert Selection:
See page 62-63.

NFU Chipbreaker

N Alluminum / Non Ferrous

Precision Positive Ground Insert

Application



Universal Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)

Universal: DNX10UT insert grade has a hard and high abrasive resistant substrate with a microplus® plasma TiAlN coating. The PVD microplus® plasma coating is a *high positive* precision ground coating for turning silicone and areospace aluminum.

Cut at a *high* SFM with a *medium* Depth of Cut (ap) and a *high* Feed Rate per Revolution (fn). Use coolant.

Finishing: DNU10GT insert grade has a hard and high abrasive resistantant substrate with no coating. The *High positive* precision ground insert is for general turning applications for aluminum and non ferrous material.

Cut at a *medium* SFM with a *large* Depth of Cut (ap) and a *medium* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

Cutting Speed for Specific Material:
See page 44.

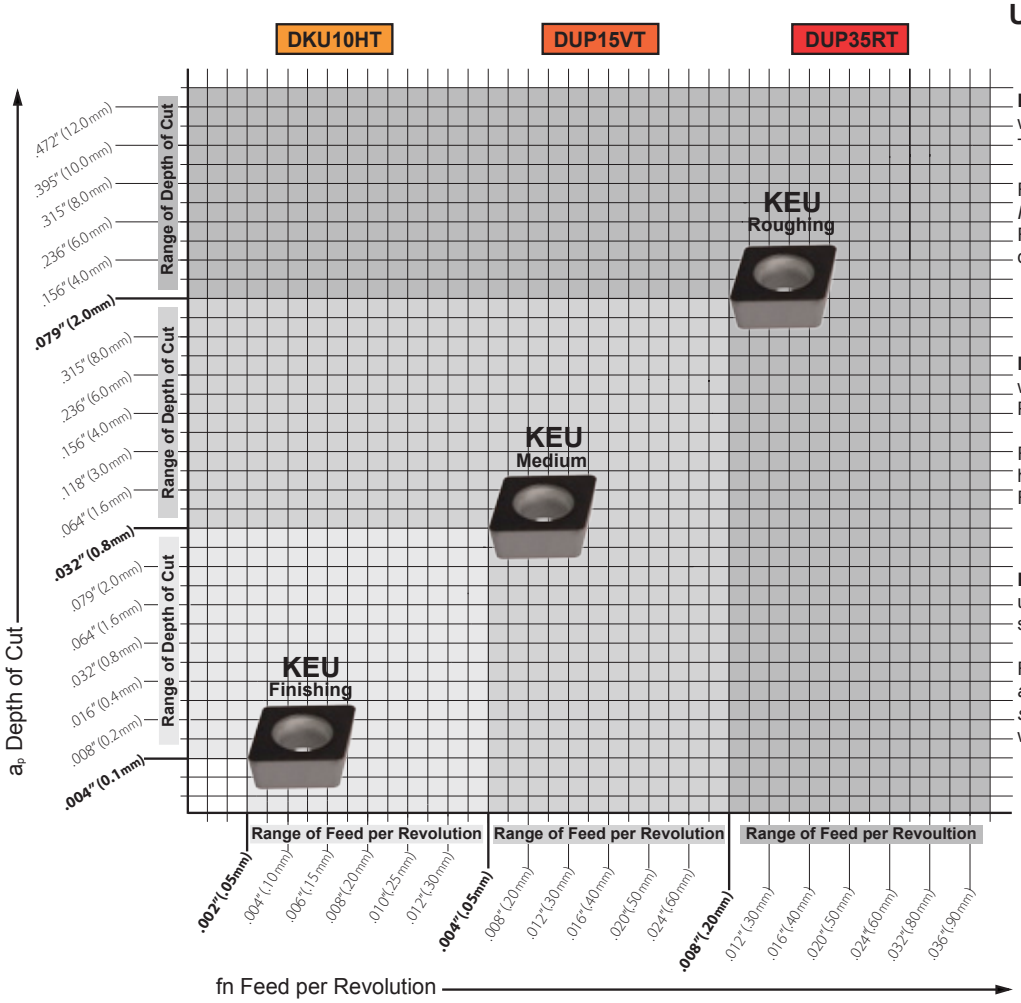
Insert Selection:
See page 66-67.

K Cast Iron | Precision Positive Ground Insert | Application

KEU Chipbreaker

Universal Turning and Boring

Relative Depth of Cut (ap) and Feed Rate per Revolution (fn)



Roughing: DUP35RT insert grade has a tough wear and impact resistant substrate with a PVD TiAlN/WC/C coating and negative rake angle.

For roughing and unstable turning conditions. *High* SFM, *small* Depth of Cut (ap) and a *low* Feed Rate per Revolution (fn). Use wet or dry.

Medium: DUP15VT insert grade has a high wear and abrasive resistant substrate with a PVD AlCrN coating and negative rake angle.

For high performance turning application, at a h*igh* SFM, *small* Depth of Cut (ap) and *small* Feed Rate per Revolution (fn). Use dry.

Finishing: DKU10HT insert grade has an uncoated, wear and abrasive resistant substrate with a negative rake angle.

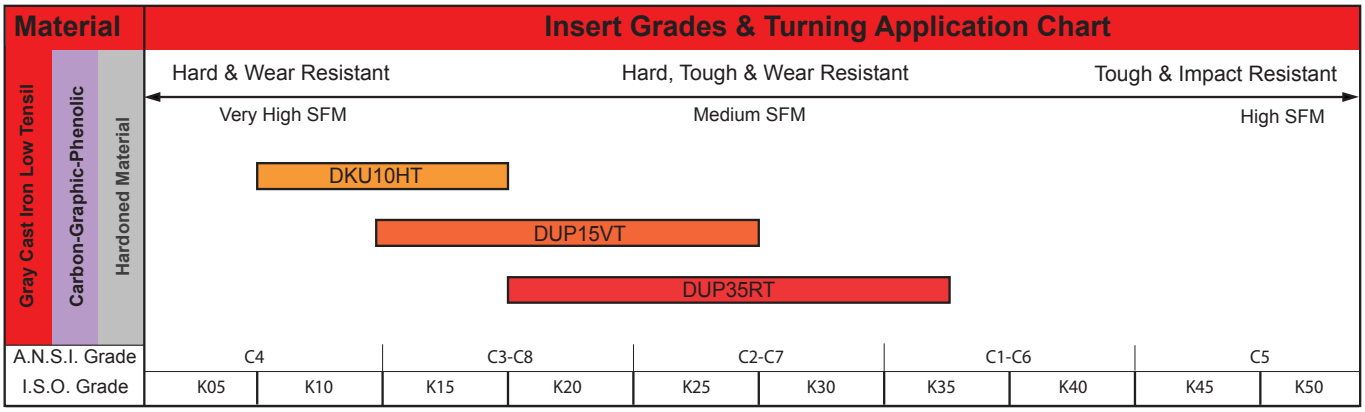
For general turning and boring applications, *at a medium* SFM, *small* Depth of Cut (ap) and *small* Feed Rate per Revolution (fn). Use wet.

Reference Pages

Cutting Speed for Specific Material:
See page 43 - 45.

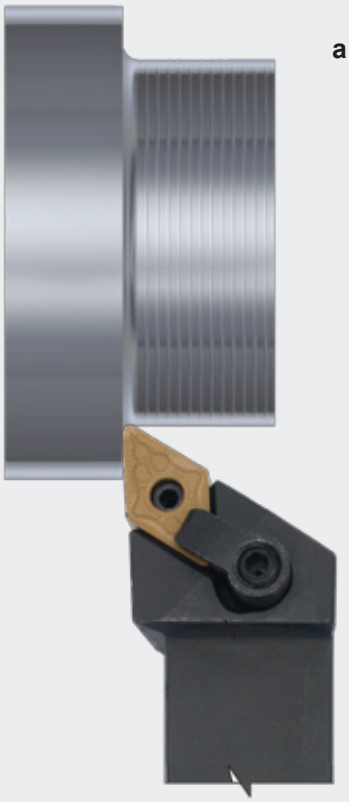
Insert Selection:
See page 64-65.

Material | Insert Grades & Turning Application Chart



Wiper Insert Technology for High Performance Turning Applications

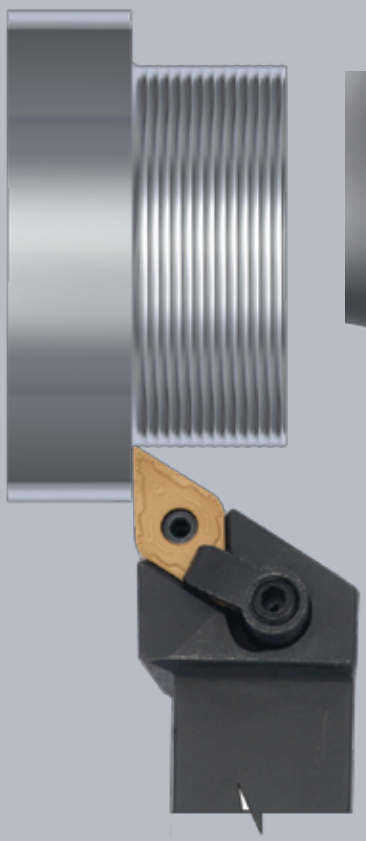
- High Material Removal
- High Surface Finish
- Close Cutting Tolerance (± .0002", ± .005mm)



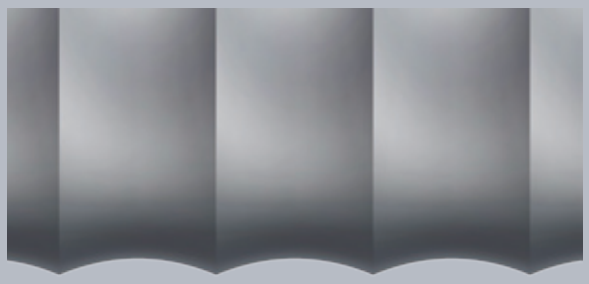
Surface Finish with a High Performance Dorian Tool Wiper Insert

Magnified Turning Surface
Not actual size.

Turning With Conventional Inserts

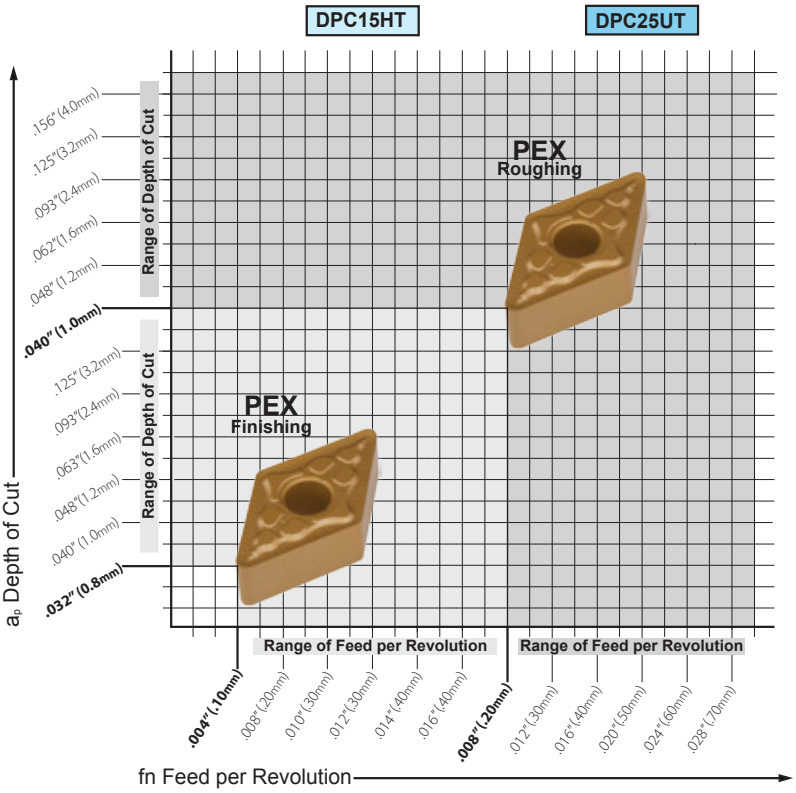


Surface Finish with a Conventional Turning Insert



Magnified Turning Surface
Not actual size.

P | **Alloy Steel** | **Molded Negative Insert** | **Application**



High Performance Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)

Roughing: DPC25UT insert grade has a tough and high impact resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *high performance* chip breaker geometry, a *wiper* nose geometry and a honed cutting edge.

Cut at a *medium* SFM with a *medium* Depth of Cut (a_p) and a *medium* Feed Rate per Revolution (fn). Use coolant in high performance applications.

Finishing: DPC15HT insert grade has a hard and high abrasive resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *high performance* chip breaker and a *wiper* nose geometry with a honed cutting edge.

Cut at a *high* SFM with a *small* Depth of Cut (a_p) and a *low* Feed Rate per Revolution (fn). Use coolant in high performance applications.

Reference Pages

Cutting Speed for Specific Material:
See page 40.

Insert Selection:
See page 73.

Wiper Insert Technology

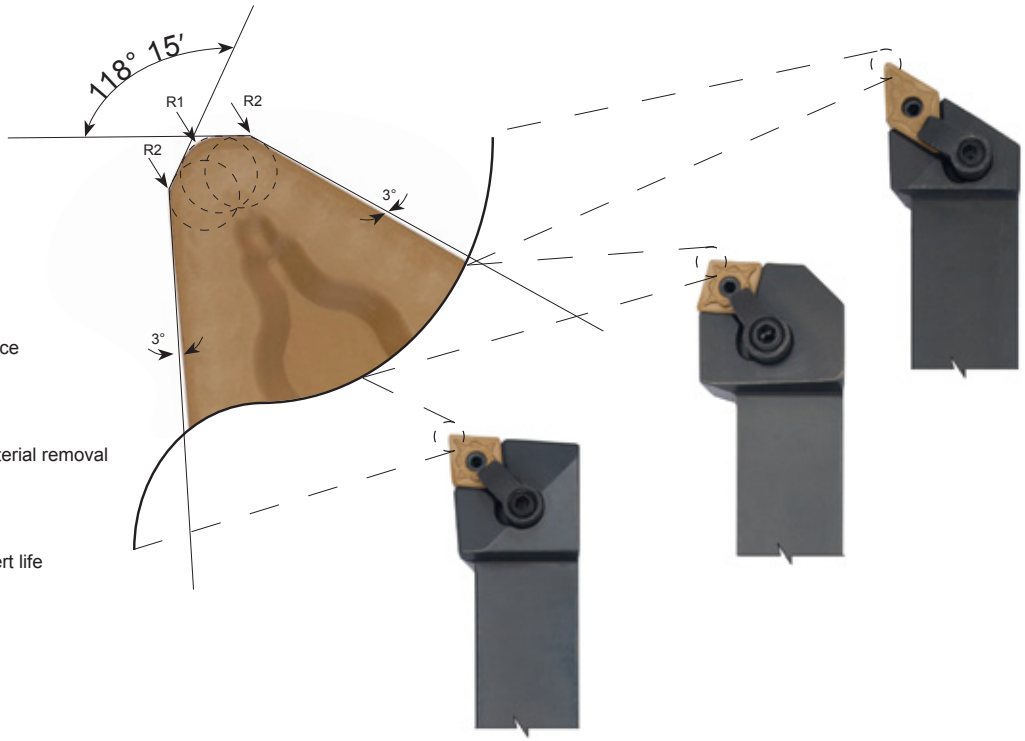
Double Leading Angle
To maximize insert cutting edge strength

Triple Nose Radius
To minimize cutting friction

Wiper Angle
For high surface finish and close turning tolerance

Rake Angle
For chip control evacuation and high rate of material removal

Cutting Edge Preparation
To minimize cutting pressure and maximize insert life

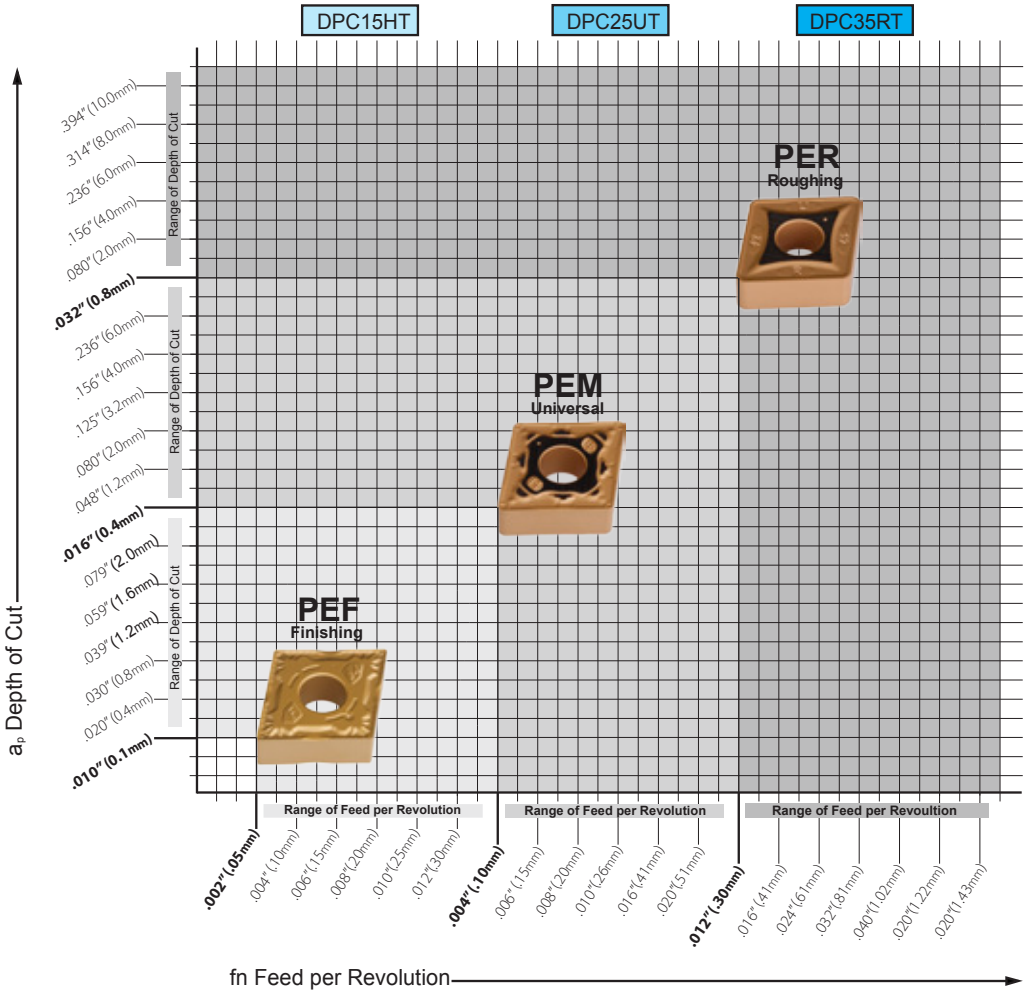


PER/PEM/PEF Chipbreaker

P | **Alloy Steel** | **Molded Negative Insert** | **Application**

Universal Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)



Roughing: DPC35RT insert grade has a tough and high impact resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a large chip breaker geometry, large radius nose and honed cutting edge.

Cut at a low SFM with a large Depth of Cut (a_p) and high Feed Rate per Revolution (fn). Use coolant.

Universal: DPC25UT insert grade has a tough hard and wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a large medium chip breaker geometry, medium radius nose and honed cutting edge.

Cut at a low to medium SFM with a medium Depth of Cut (a_p) and medium Feed Rate per Revolution (fn). Use coolant.

Finishing: DPC15HT insert grade has a hard and high wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a large small chip breaker geometry, small radius nose and honed cutting edge.

Cut at a high SFM with a small Depth of Cut (a_p) and small Feed Rate per Revolution (fn). Use coolant.

Reference Pages

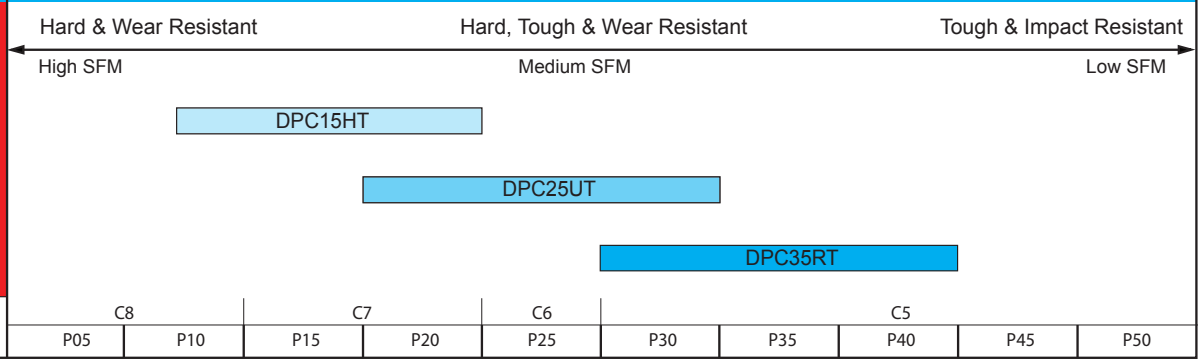
Cutting Speed for Specific Material:
See page 40.

Insert Selection:
See page 74-75.

Material

Carbon Steel Annealed
Low Alloy Steel
Alloy Carbon Steel Heat Treated
Stainless steel
Grey Cast Iron

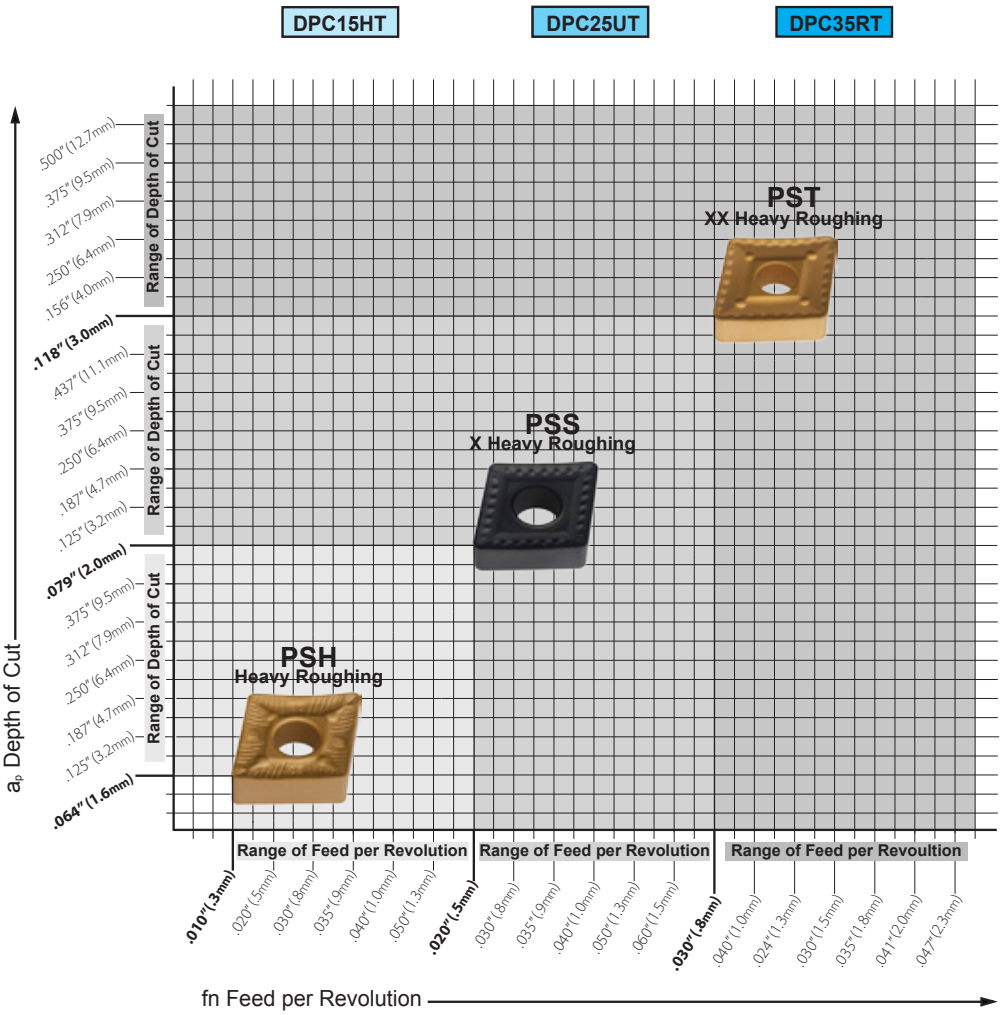
Insert Grades & Turning Application Chart



P | **Alloy Steel** | **Molded Negative Insert** | **Application**

Roughing Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)



XX Heavy Roughing: DPC35RT insert grade has a single sided, hard, tough and impact resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have an *extra large* chip breaker geometry with a *large* radius nose and a honed cutting edge.

Use for heavy roughing on smooth surfaces. Cut at a *low* SFM with a *large* Depth of Cut (a_p) and a *medium* Feed Rate per Revolution (fn). Use coolant.

X Heavy Roughing: DPC25UT insert grade has a single sided, hard, tough and wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have *a Large* chip breaker geometry, *large* radius nose and a honed cutting edge.

Use for roughing with interupted cuts. Cut at a *medium* SFM with a *medium* Depth of Cut (a_p) and *medium* Feed Rate per Revolution (fn). Use coolant.

Heavy Roughing: DPC15HT insert grade has a single sided, hard and wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *large* chip breaker geometry, *large* radius nose and honed cutting edge.

Use for difficult and unstable working conditions. Cut at a *medium* to *high* SFM with a *small* Depth of Cut (a_p) and *small* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

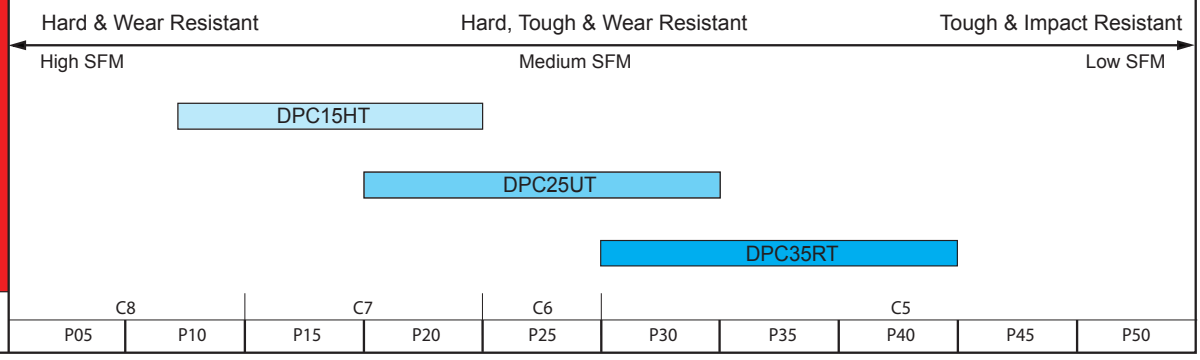
Cutting Speed for Specific Material:
See page 40.

Insert Selection:
See page 78-79.

Material

Carbon Steel Annealed
Low Alloy Steel
Alloy Carbon Steel Heat Treated
Stainless steel
Grey Cast Iron

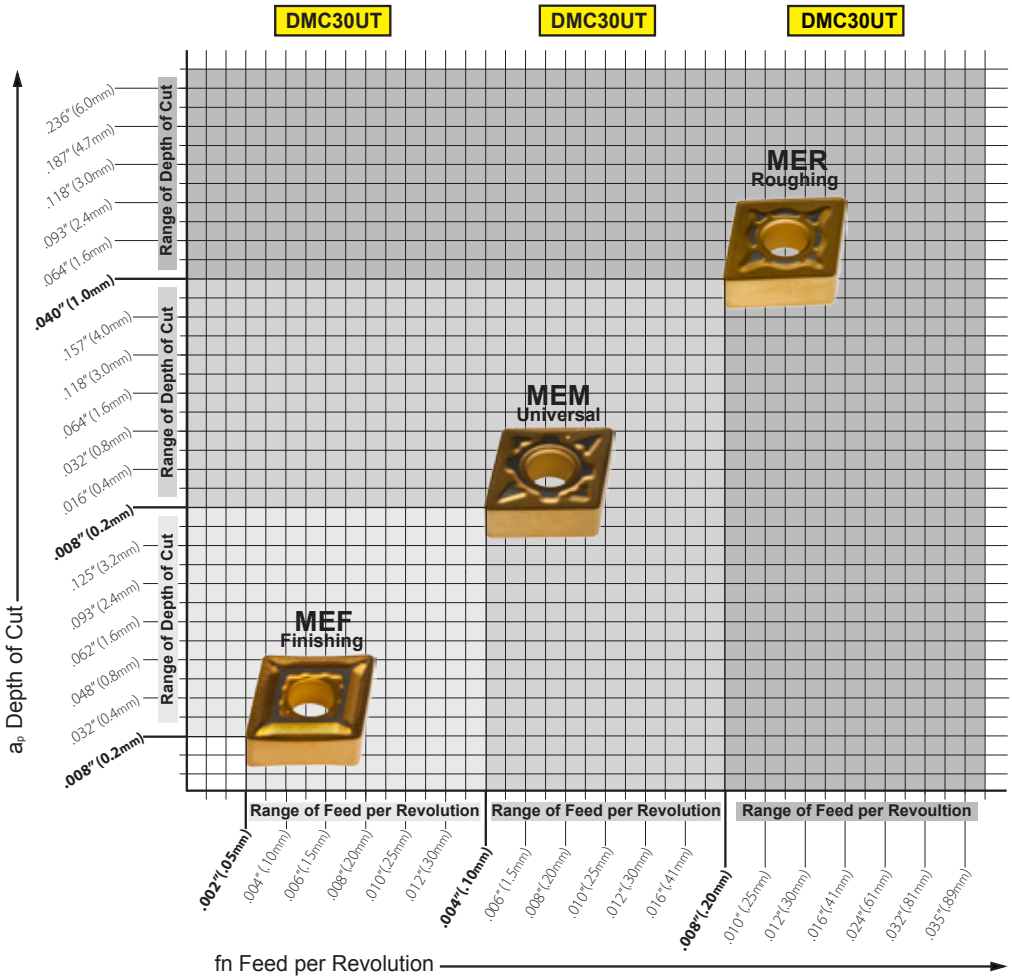
Insert Grades & Turning Application Chart



M | **Stainless Steel** | **Molded Negative Turning Insert** | **Application**

General Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)



Roughing: DMC30UT insert grade has a tough, impact and abrasive resistant substrate with a CVD TiCN/TiN coating. Inserts have a *large* chip breaker geometry, large radius nose and a honed cutting edge.

Cut at a *low* SFM with a *large* Depth of Cut (a_p) and a *high* Feed Rate per Revolution (fn). Use coolant.

Universal: DMC30UT insert grade has a tough, impact and abrasive resistant substrate with a CVD TiCN/TiN coating. Inserts have a *medium* chip breaker geometry, *medium* radius nose and a honed cutting edge.

Cut at a *medium* SFM with a *medium* Depth of Cut (a_p) and a *medium* Feed Rate per Revolution (fn). Use coolant.

Finishing: DMC30UT insert grade has a tough, impact and abrasive resistant substrate with a CVD TiCN/TiN coating. Inserts have a positive chip breaker geometry, a small radius nose and a honed cutting edge.

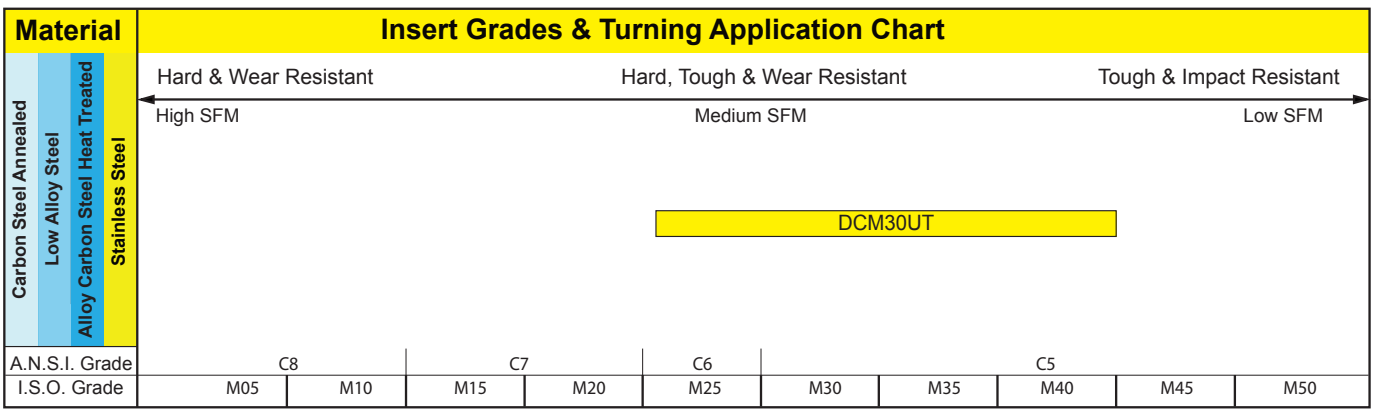
Cut at a *high* SFM with a *small* Depth of Cut (a_p) and a *low* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

Cutting Speed for Specific Material:
See page 41.

Insert Selection:
See page 80-81.

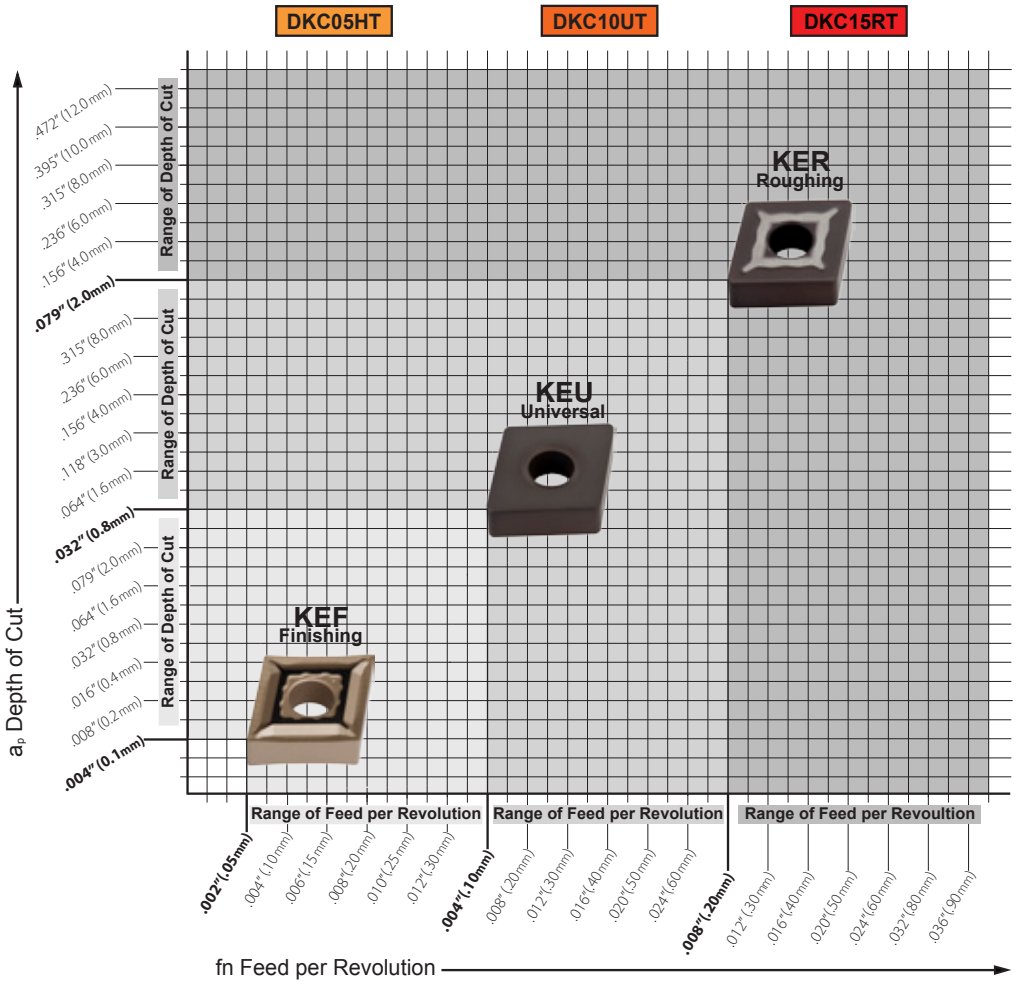
Material | Insert Grades & Turning Application Chart



K | **Cast Iron** | **Molded Negative Turning Insert** | **Application**

General Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)



Roughing: DKC15RT insert grade has a tough, impact and abrasive resistant coating with a CVD TiN/TiCNB/Al_2/TiO_2/$3Al_2O_3$ coating. Inserts have a *large* chip breaker geometry, large radius nose and a honed cutting edge.

Cut at a *low* SFM with a *large* Depth of Cut (a_p) and a *high* Feed Rate per Revolution (fn). Use coolant.

Universal: DKC10UT insert grade has a tough and abrasive resistant coating with a CVD TiN/TiCNB/Al_2/TiO_2/$3Al_2O_3$ coating. Inserts have a *negative* chip breaker geometry, *medium* to large radius nose and honed cutting edge.

Cut at a *medium* SFM with a *medium* Depth of Cut (a_p) and a *medium* Feed Rate per Revolution (fn). Use coolant.

Finishing: DKC05HT insert grade has a high abrasive resistance with a CVD TiN/TiCN/Al_2TiO_5/$3Al_2O_3$ coating. *Inserts have a positive chip* breaker geometry, *small* radius nose and honed cutting edge.

Cut at a *high* SFM with a *small* Depth of Cut (a_p) and a *small* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

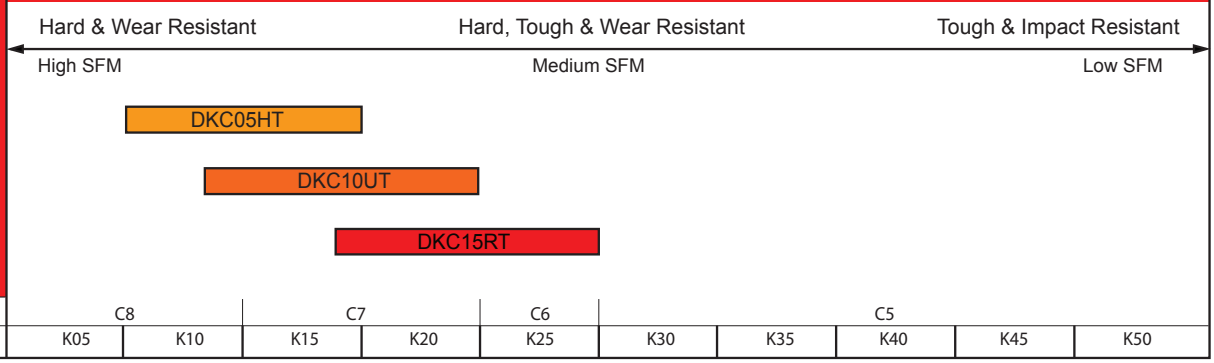
Cutting Speed for Specific Material:
See page 42.

Insert Selection:
See page 82-83.

Material

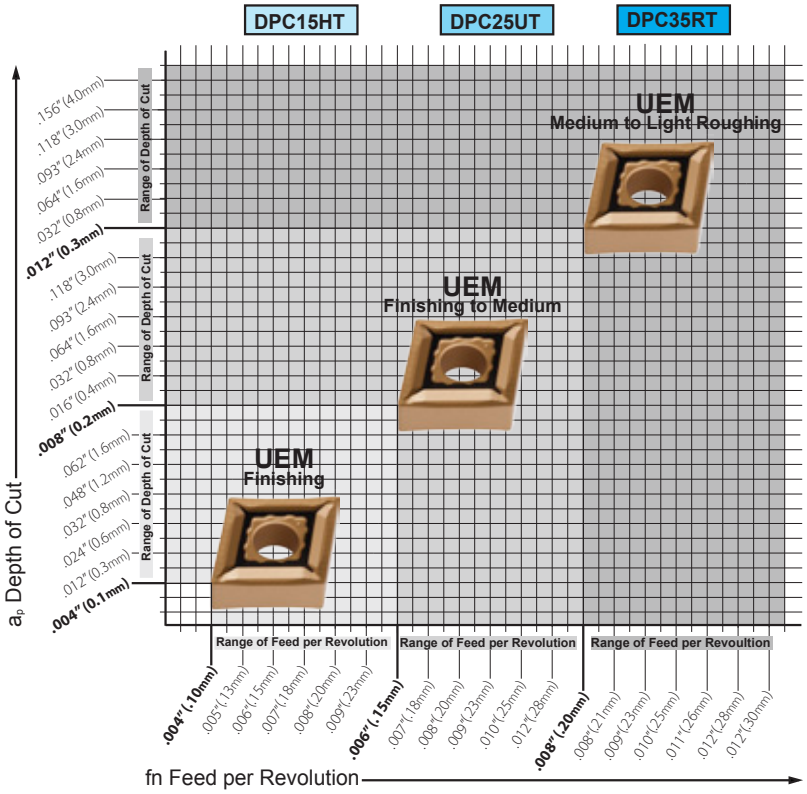
Carbon Steel Annealed
Low Alloy Steel
Alloy Carbon Steel Heat Treated
Stainless Steel
Gray Cast Iron

Insert Grades & Turning Application Chart



KER Chipbreaker

P Alloy Steel | Negative Molded Insert | Application



Precision Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)

Medium to light Roughing: DPC35RT insert grade has a hard and tough impact resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *large* chip breaker geometry, a *large* radius nose and a honed cutting edge.

Cut at a *low* SFM with a *large* Depth of Cut (ap) and a *high* Feed Rate per Revolution (fn). Use coolant.

Finishing to medium: DPC25UT insert grade has a hard, tough and wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *positive* chip breaker geometry, a *medium* radius nose and a honed cutting edge.

Cut at a *medium* SFM with a *medium* Depth of Cut (ap) and a *medium* Feed Rate per Revolution (fn). Use coolant.

Finishing: DPC15HT insert grade has a hard and wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *positive* chip breaker geometry, a *small* radius nose and a honed cutting edge.

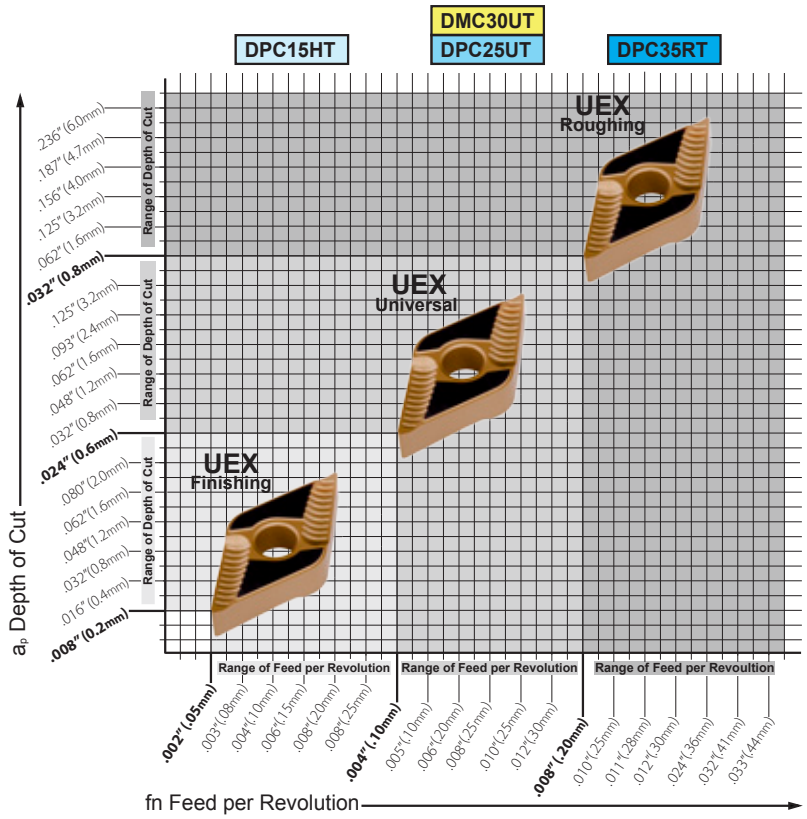
Cut at a *high* SFM with a *small* Depth of Cut (a_p) and a *low* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

Cutting Speed for Specific Material:
See page 40.

Insert Selection:
See page 76-77.

P Alloy Steel / Stainless Steel M | Negative Ground Insert | Application



Low Pressure Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)

Roughing: DPC35RT insert grade has a tough and high impact resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *high positive* chip breaker geometry, a *large* radius nose and a honed cutting edge.

Cut at a *low* SFM with a *large* Depth of Cut (ap) and a *high* Feed Rate per Revolution (fn). Use coolant.

Universal: DPC25UT insert grade has a hard, tough and wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. DMC30UT insert grade has a hard, tough and wear resistance CVD TiCN/TiN coating for stainless steel. Both Inserts grades have a *high positive* chip breaker geometry, a *medium* radius nose and a honed cutting edge.

Cut at a *medium* SFM, *medium* Depth of Cut (ap) and *a medium* Feed Rate per Revolution (fn). Use coolant.

Finishing: DPC15HT insert grade has a hard and wear resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating. Inserts have a *high positive* chip breaker geometry, a *small* radius nose and a honed cutting edge.

Cut at a *high* SFM, *small* Depth of Cut (ap) and a *low* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

Cutting Speed for Specific Material:
See page 40, 41.

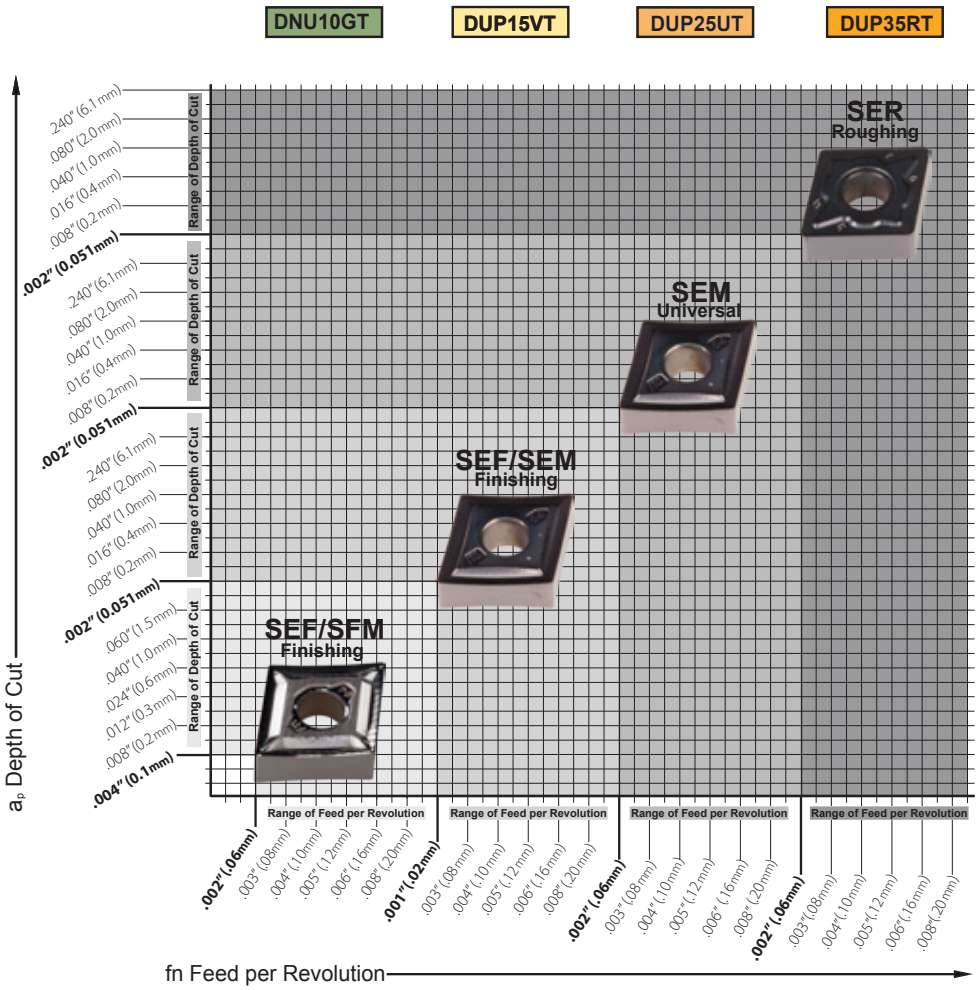
Insert Selection:
See page 71.

U Multi Material / High Temp Super Alloy **S** Super Precision Positive Ground Insert

Application

Universal Turning and Boring

Relative Depth of Cut (ap) and Feed Rate per Revolution (fn)



Roughing: DUP35RT insert grade has a tough wear resistant substrate with a PVD TiAlN/WC/C coating. Inserts have a large chip breaker geometry, large multi radius nose and a honed cutting edge. Cut at low to medium SFM with a large Depth of Cut (ap) and Feed Rate per Revolution (fn). Use coolant.

Universal: DUP25UT insert grade has an abrasive resistant substrate with a PVD TiN/TiAlN/TiN coating. Positive chip breaker geometry, multi radius nose and a honed cutting edge. Cut at a medium SFM, medium Depth of Cut (ap) and Feed Rate per Revolution (fn). Use coolant.

Finishing: DUP15VT insert grade has a high wear and abrasive resistant inserts with a PVD AlCrN coating. For high performance turning and boring applications. Cut at a high SFM, small to medium depth of Cut (ap), and Feed Rate per Revolution (fn). Use Dry.

Finishing: DNU10GT insert grade has a hard and high abrasive resistant substrate with no coating. Inserts have a ground and polished positive chip breaker, for aluminum and non ferrous material turning and boring application. Cut at a high SFM, small to medium Depth of Cut (ap), and Feed Rate per Revolution (fn). Use coolant

Reference Pages

Cutting Speed for Specific Material:
See page 44 -45.

Insert Selection:
See page 84-85.

Material

Low Alloy Steel
Stainless Steel
Cast Iron
Aluminum
Non ferrous Materials
High Temp Super Alloy
Carbon-Graphic-Phenolic
Hardened Material

Insert Grades & Turning Application Chart

Hard & Wear Resistant — Hard, Tough & Wear Resistant — Tough & Impact Resistant

Very High SFM — Medium SFM — Low SFM

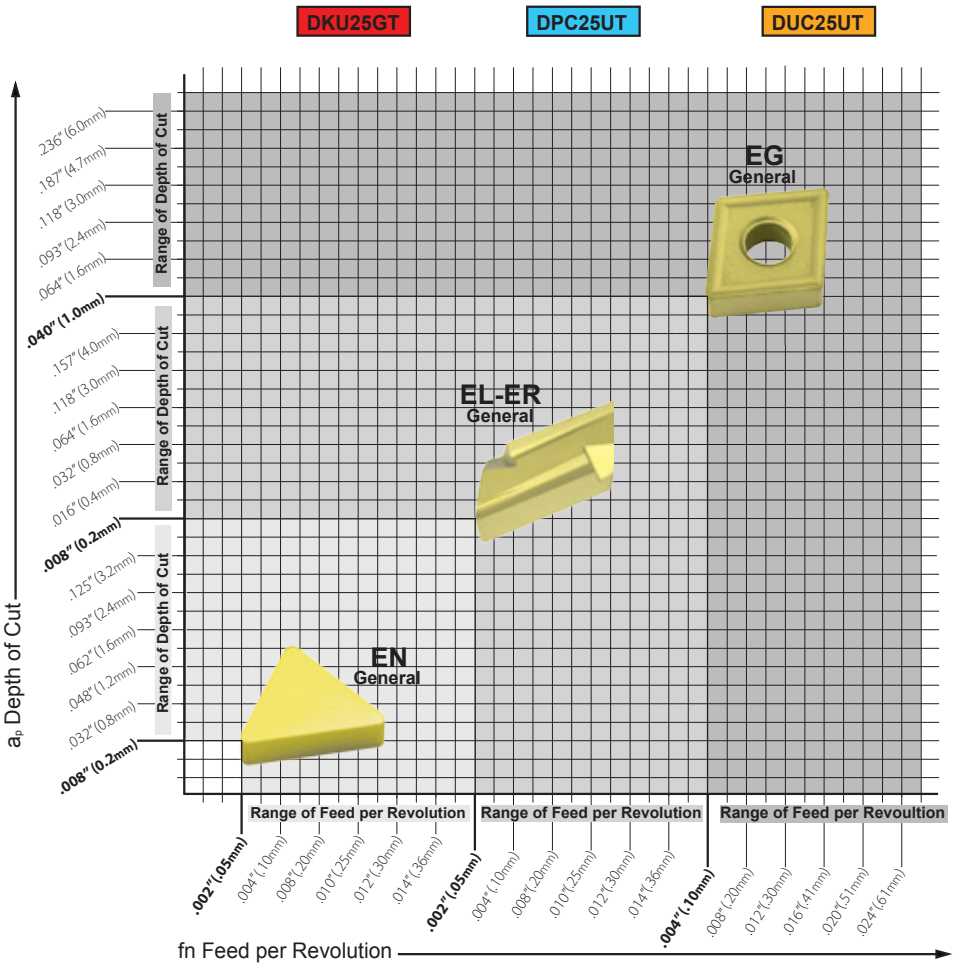
DNU10GT
DUP15VT
DUP25UT
DUP35RT

A.N.S.I. Grade	C4		C3-C8		C2-C7		C1-C6		C5	
I.S.O. Grade	U05	U10	U15	U20	U25	U30	U35	U40	U45	U50

U Multi Material Carbon Alloy Steel **S** | **Negative Molded Insert** | **Application**

General Turning and Boring

Relative Depth of Cut (a_p) and Feed Rate per Revolution (fn)



General: DUC25UT insert grade has a tough impact and abrasive resistant substrate with a CVD TiN/TiC/TiCN/TiN coating. Inserts have a *medium* chip breaker geometry, a *multi* radius nose and a honed cutting edge.

Muli material application cut at a *medium* SFM with a *medium to large* Depth of Cut (ap) and a *medium to high* Feed Rate per Revolution (fn). Use coolant.

General: DPC25UT insert grade has a tough, impact and abrasive resistant substrate with a CVD Al_2O_3/TiN/Al_2O_3/TiN coating. Top and bottom ground, *multi* radius nose and a honed cutting edge.

Cut at a *medium* SFM with a *medium* Depth of Cut (ap) and a *medium* Feed Rate per Revolution (fn). Use coolant.

General: DKU25GT insert grade has a tough, impact and abrasive resistantant substrate with no coating. Inserts have a top and bottom ground *multi* radius nose with a honed cutting edge.

Non Ferrous and heat treated steel. Cut at a *low* SFM with a *medium* Depth of Cut (ap) and *low* Feed Rate per Revolution (fn). Use coolant.

Reference Pages

Cutting Speed for Specific Material:
See page 40.

Insert Selection:
See page 86-87.

Material

Carbon Alloy Steel
Stainless Steel
Cast Iron
Aluminum
Non Ferrous Materials
High Temp Super Alloy
Carbon-Graphic-Phenolic
Hardened Material

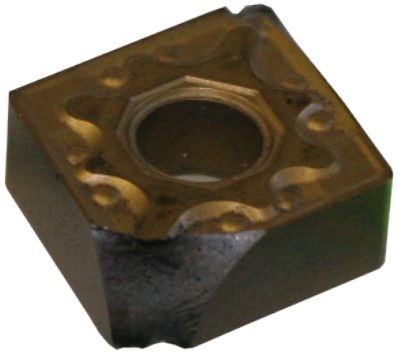
Insert Grades & Turning Application Chart

Hard & Wear Resistant — Hard, Tough & Wear Resistant — Tough & Impact Resistant

Very High SFM — Medium SFM — High SFM

DKU25GT
DPC25UT
DUC25UT

A.N.S.I. Grade	C4		C3-C8		C2-C7		C1-C6		C5
I.S.O. Grade	K/M/P05	K/M/P10	K/M/P15	K/M/P20	K/M/P25	K/M/P30	K/M/P35	K/M/P40	K/M/P45



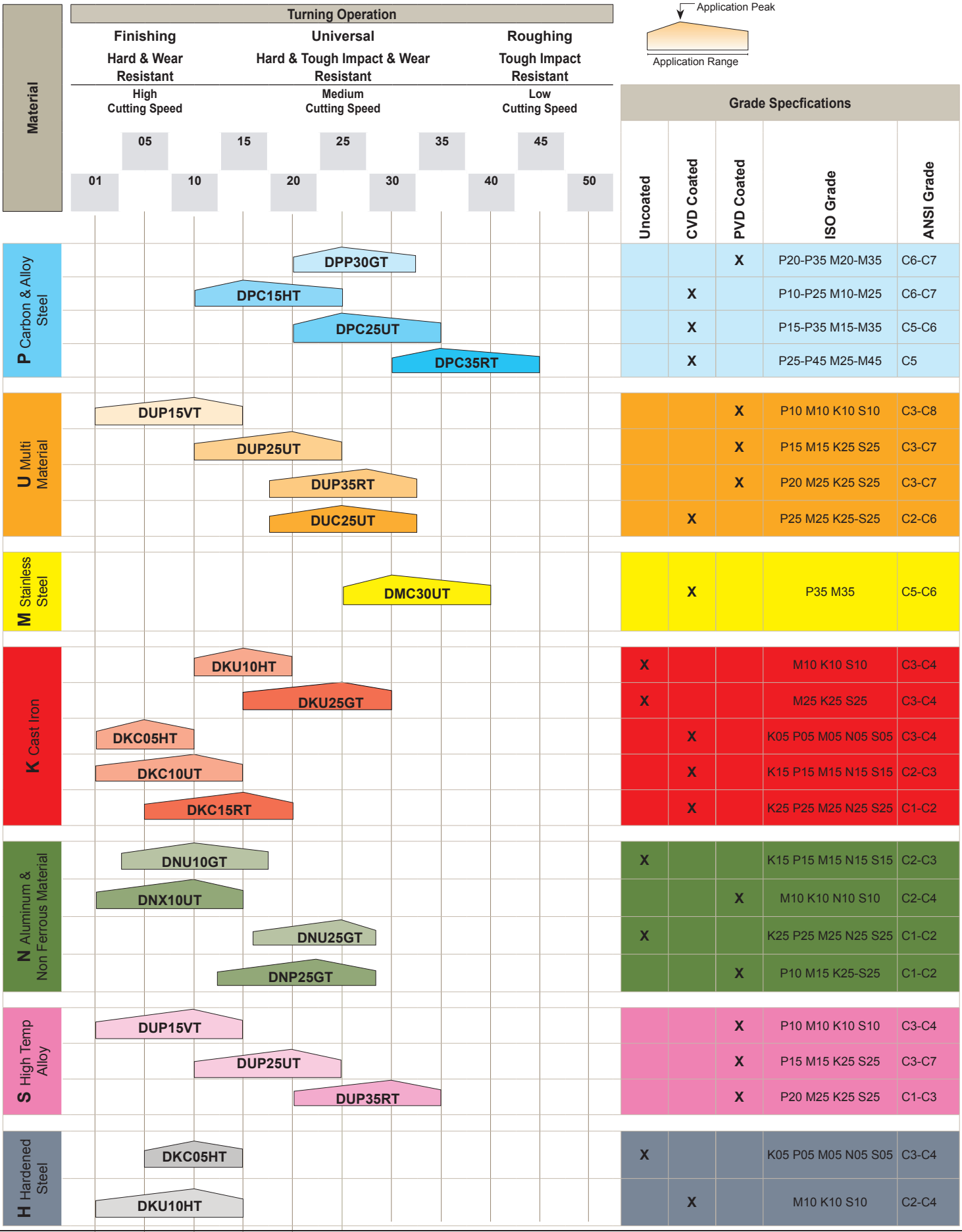
At Dorian Tool we constantly search new methods to improve performance and reduce insert failure.

The type of insert wear will suggest the problem how it directly relates to a correcting procedure to improve tool life and cutting performance.

Listed below are the types of insert failure modes we have tested along with a cause and solution.

Type of Failure	Cause	Solution
Edge Wear	• Cutting speed too high • Insufficient wear resistance	• Increase feed • Reduce speed • Use insert with a more wear resistance grade • Apply coolant at a constant rate
Thermal Cracking	• Temperature Change • Intermittent machining • Varying coolant supply	• Constant Temperature • Reduce speed and feed • Apply coolant at a constant rate
Chipping	• Sharp cutting edge • Excessive load • Cutting speed too high • Insufficient wear resistance	• Change edge preparation • Check rigidity of the insert • Reduce speed • Use insert with a more wear resistance grade • Apply coolant at a constant rate
Edge Build Up	• Poor lubricity • Cutting temperature too low • Low cutting speed • Negative cutting geometry	• Increase feed • Increase speed • Apply coolant at a constant rate • PVD coated insert
Depth of Cut Notching	• Hard surface material • Excessive load • Cutting speed too high • Insufficient wear resistance • Cutting feed too high	• Change lead angle • Use different grade • Adjust feed rate • Apply coolant at a constant rate
Heat Deformation	• Cutting temperature too high • Pressure too high	• Reduce speed and feed • Apply coolant at a constant rate • Reduce depth of cut
Crater	• Interupted cut • Cutting temperatures on the insert rake face too high	• Reduce speed and feed • Apply coolant at a constant rate
Insert Breakage	• Grade too brittle • Excessive load • Weak insert geometry • Insert too small • Low cutting speed	• Reduce depth of cut • Increase speed • Reduce cutting feed • Apply coolant at a constant rate • Check ridigity of the insert • Use stronger insert geometry

Insert Grade Chart



Grade Specfications				
Uncoated	CVD Coated	PVD Coated	ISO Grade	ANSI Grade
		X	P20-P35 M20-M35	C6-C7
	X		P10-P25 M10-M25	C6-C7
	X		P15-P35 M15-M35	C5-C6
	X		P25-P45 M25-M45	C5
		X	P10 M10 K10 S10	C3-C8
		X	P15 M15 K25 S25	C3-C7
		X	P20 M25 K25 S25	C3-C7
	X		P25 M25 K25-S25	C2-C6
	X		P35 M35	C5-C6
X			M10 K10 S10	C3-C4
X			M25 K25 S25	C3-C4
	X		K05 P05 M05 N05 S05	C3-C4
	X		K15 P15 M15 N15 S15	C2-C3
	X		K25 P25 M25 N25 S25	C1-C2
X			K15 P15 M15 N15 S15	C2-C3
		X	M10 K10 N10 S10	C2-C4
X			K25 P25 M25 N25 S25	C1-C2
		X	P10 M15 K25-S25	C1-C2
		X	P10 M10 K10 S10	C3-C4
		X	P15 M15 K25 S25	C3-C7
		X	P20 M25 K25 S25	C1-C3
X			K05 P05 M05 N05 S05	C3-C4
	X		M10 K10 S10	C2-C4

How to Choose the Best Insert for the Turning Application

1 For Finishing:	Use a hard and wear resistant coated insert grade with a small nose radius, a sharp to light honed cutting edge and a small chipbreaker. Cut at a high SFM with a small Depth of Cut (a_p) and Feed Rate per Rev. (fn).
2 For Universal:	Use a hard, tough and wear resistant coated insert grade with a medium nose radius, honed cutting edge and medium chipbreaker. Cut at a medium SFM with a medium Depth of Cut (a_p) and medium Feed Rate per Rev. (fn)
3 For Roughing:	Use a tough coated insert grade with a large nose radius, a heavy honed cutting edge and a large chipbreaker. Cut at a low SFM with a large Depth of Cut (a_p) and high Feed Rate per Rev. (fn).
4 Cutting Edge:	If insert wears, reduce Spindle Speed RPM (n), increase Feed (fn) or change to a harder insert grade. If insert chips, increase Spindle Speed (n), decrease Feed (fn) and/or to a heavier honed edge, or change to a tougher insert grade. For smooth surface and hard material use hard insert, for interrupt cut and large depth of cut use a tough insert.

Extended Turning Grade Material's Use & Application

F Finish-Application
M Medium-Application
R Roughing and Unstable-Application

Grade	Description	Cutting Condition	Steel & Alloy Steel (P)			Stainless Steel (M)			Cast Iron (K)			Aluminum & Non Ferrous (N)			High Temper Alloy (S)			Hardened Steel (H)		
			F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
DPP30GT	First Choice: For general turning applications at a medium SFM. Use inserts to cut Alloy Steel and Stainless Steel. Inserts have a thermal deformative and abrasive resistant substrate with a single layer PVD TiN coating.	Wet		O			O			0										
DPC15HT	First Choice: For finishing turning applications at a high SFM. Use inserts to cut Steel and Stainless Steel. Inserts have a hard, wear and abrasive resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating (not for interrupted cuts).	Wet	O			O			0											
DPC25UT	First Choice: For universal turning applications at a medium SFM. Use inserts to cut Alloy Steel and Stainless Steel. Inserts have a hard, tough, impact, wear and abrasive resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating.	Wet		O			O													
DPC35RT	First Choice: For roughing turning applications at a low SFM. Use inserts to cut Alloy Steel and Stainless Steel. Inserts have a tough and impact resistant substrate with a CVD Al_2O_3/TiCN/Al_2O_3/TiCN coating.	Wet			O			O													
DUP15VT	First Choice: For finishing turning applications at a very high SFM. Use inserts to cut Multi Materials; Ferrous and non Ferrous including all High Temp Super Alloys. Inserts have a very hard, high, wear and abrasive resistant substrate with a PVD AlCrN Coating.	Dry	O			O			O			0			O			O		
DUP25UT	First Choice: For universal turning applications at a high SFM. Use inserts to cut Multi Materials; Ferrous and non Ferrous including all High Temp Super Alloys. Inserts have a hard and wear resistant substrate with a PVD Tin/TiAlN/TiN Coating.	Wet		O			O			O			0			O			O	
DUP35RT	First Choice: For unstable turning applications at a medium SFM. Use inserts to cut Multi Materials; Ferrous and non Ferrous including all High Temp Super Alloys. Inserts have a wear, toug and impact resistant substrate with a PVD TiAlN/WC/C coating.	Wet/Dry			O			O			O			0			O			O
DUC25UT	First Choice: For general turning applications at a medium SFM. Use inserts to cut Multi Materials; Ferrous and non Ferrous. Inserts have a hard, tough, wear, abrasive and shock resistant substrate with a CVD TiN/TiCN/Al_2O_3/TiN coating.	Wet		O			O			O							O			O
DMC30UT	First Choice: For general turning applications at a medium SFM. Use inserts to cut 300, 400 and PH series Austenitic Stainless Steel. Inserts have a hard, tough, impact, abrasive and thermal shock resistant substrate with a CVD TiCN/TiN coating.	Wet		0			O													
DKU10HT	First Choice: For general turning applications at a medium SFM. Use inserts to cut all non Ferrous materials including Gray Iron and Ductile Iron. Also, use inserts to cut Aluminum, Stainless Steel and Hardened Steel. Inserts have an uncoated, wear and abrasive resistant substrate.	Wet/Dry					0			O			O							O
DKU25GT	First Choice: For general turning applications at a low SFM. Use inserts to cut all non Ferrous Materials including Gray Iron and Ductile Iron. Also, use inserts to cut Aluminum, Stainless Steel and Hardened Steel. Insert have an uncoated, tough, impact and abrasive resistant substrate.	Wet/Dry					0			O			O							
DKC05HT	First Choice: For finishing to roughing applications at a high SFM. Use inserts to cut Gray Iron, Modular Cast Iron and Ductile Iron. Inserts have a high wear resistant substrate and cutting edge with a CVD TiN/TiCN/Al_2TiO_5/Al_2O_3 coating.	Wet/Dry								O									O	
DKC10UT	First Choice: For general turning applications at a medium to high SFM. Use inserts to cut Gray Iron, Modular Cast Iron and Ductile Iron. Inserts have a high thermal deformative wear resistant substrate and cutting edge with a CVD TiN/TiCNB/Al_2/TiO_2/$3Al_2O_3$ coating.	Wet/Dry								O									O	
DKC15RT	First Choice: For roughing applications at a medium SFM. Use inserts to cut Gray Iron, Modular Cast Iron and Ductile Iron. Inserts have a wear, tough and impact resistant substrate with a CVD TiN/TiCNB/Al_2/TiO_2/3 Al_2O_3 coating to withstand interrupted cutting conditions.	Wet/Dry									O									O
DNU10GT	First Choice: For general turning applications at a high SFM. Use inserts to cut all non Ferrous metals including Aluminum and Plastic. Inserts have an uncoated, hard, high, abrasive resistant micro-grained substrate with a hard cutting edge.	Wet					0			0			O			O			0	
DNX10UT	First Choice: For universal turning at a very high SFM. Use inserts to cut all non Ferrous materials including Aluminum, Stainless Steel, Plastic, High Temp Super Alloys and low Silicone Aerospace Aluminum. Inserts have a hard, abrasive resistant substrate and a microplus® plasma TiAlN coating.	Wet					0			0			O			O			0	
DNU25GT	First Choice: For general turning applications at a medium SFM. Use inserts to cut all non Ferrous materials including Aluminum and Plastic. Inserts have an uncoated, hard micro-grained substrate with a hard cutting edge and toughness for interrupted cuts.	Wet						0			0			O			O			0
DNP25GT	First Choice: For general turning applications at a high SFM. Use inserts to cut all non Ferrous metals including Aluminum and Plastic. Inserts have a PVD TiN coating and a hard, tough, shock resistant, micro grained substrate with a hard cutting edge for interrupted cuts.	Wet					0			0			O			O			0	
DUP15VT	First Choice: For finishing turning applications at a very high SFM. Use inserts to cut all non Ferrous materials including High Temp Super Alloys. Also, use inserts to cut all Ferrous materials. Inserts have a very hard, wear and high abrasive resistant substrate with a PVD AlCrN coating.	Dry	O			O			0			0			O			0		
DUP25UT	First Choice: For general turning applications at a high SFM. Use inserts to cut all non Ferrous materials including High Temp Super Alloys. Also, use inserts to cut all Ferrous materials. Inserts have a hard, tough and wear resistant substrate with a PVD Tin/TiAlN/TiN Coating.	Wet		O			O			0			0			O			0	
DUP35RT	First Choice: For unstable and roughing turning applications at a medium SFM. Use inserts to cut all non Ferrous materials including High Temp Super Alloys. Also, use inserts to cut all Ferrous materials. Inserts have an tough and impact resistant substrate with a PVD TiAlN/WC/C coating.	Wet/Dry			O			O			0			0			O			0
DKC05HT	First Choice: For turning applications at a medium SFM on up to 65 HRC hardened steel. Inserts have a high wear resistant substrate and cutting edge with a CVD TiN/TiCN/Al_2TiO_5/Al_2O_3 coating.	Wet								O									O	
DKU10HT	First Choice: For turning applications at a low SFM on up to 65 HRC hardened steel. Inserts have an uncoated wear resistant substrate and cutting edge.	Wet								O									O	

Insert Cutting Formula - Inch

a_p	= Depth of cut (DOC)	Inch	k_c	= Specific cutting force	Lb/Inch^2
D_m	= Diameter of part (DIA) Inch		n	= Spindle speed (RPM)	Rev/Min
f_n	= Feed per revolution (FEED)	Inch/Rev	v_c	= Cutting speed (SFM)	Feet/Min
l_m	= Machined length (LEN)	Inch	T_c	= Cutting time (TIM)	Min
Q	= Metal removal rate (MMR)	Inch^3/Min	R_{max}	= Profile depth	µInch
P_c	= Power requirements (POW)	Hp	r_ε	= Insert nose radius	inch

Cutting Speed Surface Feet per Minute

$$v_c = \frac{\pi \times D_m \times n}{12}$$

Example: Determine the cutting speed (v_c) required for turning a 2-1/2" diameter part with a spindle speed of 600 RPM.

$$v_c = \frac{\pi \times 2.5 \times 600}{12} = 392.70 \text{ Feet/Min}$$

Spindle Speed Revolution Per Minute

$$n = \frac{v_c \times 12}{\pi \times D_m}$$

Example: Determine the spindle speed (n) required for turning a 2-1/2" diameter part with a cutting speed of 400 SFM.

$$n = \frac{400 \times 12}{\pi \times 2.5} = 611.15 \text{ Rev/Min}$$

Metal Removal Rate Inch^3/Min

$$Q = v_c \times a_p \times f_n \times 12$$

Example: Determine the metal removal rate (Q) required for cutting with a depth of .062 with a cutting speed of 400 SFM and feed rate of .015 IPR.

$Q = 400 \times .062 \times .015 \times 12 = 4.464$ inch^3/min

Power Requirement Horsepower

$$P_c = \frac{v_c \times a_p \times f_n \times k_c}{33{,}000}$$

Example: Determine the power requirement (P_c) for turning a material with a cutting force of 181,750, a depth of .062, a cutting speed of 400 SFM, and feed rate of .015 IPR.

$$P_c = \frac{400 \times .062 \times .015 \times 181{,}750}{33{,}000} = 2.05 \text{ HP}$$

Cutting Time Minute

$$T_c = \frac{l_m}{f_n \times n}$$

Example: Determine the amount of time required to machine a 6" long part with a spindle speed of 600 RPM and feed rate of .015 IPR.

$$T_c = \frac{6}{.015 \times 600} = .67 \text{ Min (40 Sec)}$$

Profile Depth (µinch)

$$R_{max} = \frac{f_n^2 \times 10^6}{8 r_\varepsilon}$$

Example: Determine the profile depth (R_{max}) of a surface machined using an insert with a nose radius of .032 and a feed rate of .015 IPR.

$$R_{max} = \frac{.015^2 \times 10^6}{8 \times .032} = 879 \text{ µinch}$$

Insert Cutting Formula - Metric

a_p	= Depth of cut	mm	k_c	= Specific cutting force	Nm
D_m	= Diameter of part	mm	n	= Spindle speed	Rev/Min
f_n	= Feed per revolution	mm/Rev	v_c	= Cutting speed	m/Min
l_m	= Machined length	mm	T_c	= Cutting time	Min
Q	= Metal removal rate	mm^3/Min	R_{max}	= Profile depth	µm
P_c	= Power requirements	kW	r_ε	= Insert nose radius	mm

Cutting Speed Surface Meters per Minute

$$v_c = \frac{\pi \times D_m \times n}{1000}$$

Example: Determine the cutting speed (v_c) required for turning a 50mm diameter part with a spindle speed of 600 RPM.

$$v_c = \frac{\pi \times 50 \times 600}{1000} = 94{,}25 \text{ m/Min}$$

Spindle Speed Revolution Per Minute

$$n = \frac{v_c \times 1000}{\pi \times D_m}$$

Example: Determine the spindle speed (n) required for turning a 32mm diameter part with a cutting speed of 100 m/Min.

$$n = \frac{100 \times 1000}{\pi \times 32} = 994{,}72 \text{ Rev/Min}$$

Metal Removal Rate mm^3/Min

$$Q = v_c \times a_p \times f_n \times 1000$$

Example: Determine the metal removal rate (Q) required for cutting with a depth of 1,5 with a cutting speed of 200 m/Min and feed rate of 0,4 mmPR.

$Q = 200 \times 1{,}5 \times 0{,}4 \times 1000 = 120.000 \ mm^3/min$

Power Requirement Kilowatts

$$P_c = \frac{v_c \times a_p \times f_n \times k_c}{1.460.000}$$

Example: Determine the power requirement (P_c) for turning a material with a specific cutting force of 20.500, a depth of 1,5, a cutting speed of 200 m/Min, and feed rate of 0,4 mmPR.

$$P_c = \frac{200 \times 1{,}5 \times 0{,}4 \times 20.500}{1.460.000} = 1{,}68 \text{ kW}$$

Cutting Time Minute

$$T_c = \frac{l_m}{f_n \times n}$$

Example: Determine the amount of time required to machine a 200mm long part with a spindle speed of 600 RPM and feed rate of 0,4 mmPR.

$$T_c = \frac{200}{0{,}4 \times 600} = {,}83 \text{ Min (50 Sec)}$$

Profile Depth (µinch)

$$R_{max} = \frac{f_n^2 \times 10^6}{8r_\varepsilon}$$

Example: Determine the profile depth (R_{max}) of a surface machined using an insert with a nose radius of 0,8 and a feed rate of 0,4 mmPR.

$$R_{max} = \frac{0{,}4^2 \times 10^6}{8 \times 0{,}8} = 25 \ \mu m$$

Material	Material Characteristics	
Low Carbon Steel: Under 0.03% Carbon **Alloy Steel, AISI:** 1008, 1010, 1018, 10201026,10L18,10L45, 10L50, 1108,1117, 1141, 11L44, 1214, 12L14	**Low Carbon** • Soft and gummy • Difficult chip control • Rough finish • Burrs and sharp edge • Poor surface finish • Poor tolerance • Difficult to machine close tolerance	**Free Machining** • Easy to machine • High speed machining • High depth of cut • Poor surface finish • Good tolerance • Semi-difficult chip control

Problems and Solutions

Chip Control	Insert Crater Wear	Built-up Edge	Interrupted Cut	Poor Surface Finish	Sharp Edge Burrs
1 For finishing operations use inserts with **PEF** or **PEM** insert chipbreaker geometries 2 Increase feed rate 3 Change the insert lead angle 4 Use an insert with smaller nose radius 5 Increase coolant flow and pressure	1 Reduce cutting speed 2 Reduce feed rate 3 Change to a higher wear resistant and an alumina grade insert like **DPC15HT or DPC25UT** 4 Increase the coolant flow and pressure	1 Use a sharper edge **SEF, PEF, or UEM** chipbreaker geomerty 2 Increase the coolant flow and pressure 3 Change insert grade to a PVD coating,like **DUP15VT, DUP25UT, or DUP35RT**	1 The machined part must be held rigid 2 Decrease the feed rate 3 Increase the cutting speed 4 Use insert with a larger nose radius 5 Use an insert with a good edge strength like **DUP35RT**	1 Decrease the feed rate 2 Increase the cutting speed 3 Use a sharper edge **SEF, SFM, PEF,or PEM** chipbreaker geometry 4 Use a **DUP15VT or DUP35RT** Insert grade 5 Increase coolant flow and pressure	1 Use high positive rake insert geometry like **SEF, SFM, PEF,or PEM** chipbreaker geometry 2 Decrease the feed rate 3 Increase the cutting speed 4 Change the insert before wearing 5 Decrease feed and increase speed

Material	Material Characteristics
Carbon Steel, Alloy Steel, and Tool Steel Under 36 HRC: **Medium and High Carbon Steel, AISI:** 1035, 1040, 1045, 1050, 1080, **Alloy Steel, AISI Series:** 1300, 200, 3000, 4000, 5000, 6000, 7000, 8000, 9000 **Tool Steel and High Speed Steel, SAE Classes:** A, D, M, O, T, and S **High and Low Carbon Alloy:** W1, W2, L2, P1, P6, and P20	• Higher carbon content • Higher chrome, nickel, and moly content • Tough material to machine • Low machining speed • Difficult to break and control the chip flow • The material surface will harden when machined at high speed • Good surface finish

Problems and Solutions

Insert Crater Wear	Insert Edge Wear	Built-up Edge	Thermal Deformation	Dull Surface Finish
1 Reduce cutting speed 2 Reduce feed rate 3 Increase the coolant flow and pressure 4 Change to a higher wear resistant and alumina grade insert like **DPC15HT or DPC25UT**	1 Increase feed rate 2 Reduce cutting speed 3 Increase depth of cut 4 Increase the coolant flow and pressure 5 Change to a higher wear resistant and alumina grade insert like **DPC15HT or DPC25UT**	1 Use a sharper edge insert, like **SEF, PEF, or UEM** chipbreaker geomerty 2 Increase the coolant flow and pressure 3 Change insert grade to a PVD coating,like **DUP15VT, DUP25UT, or DUP35RT**	1 Reduce cutting speed 2 Increase the coolant flow and pressure 3 Change to a higher wear resistant and alumina grade insert like **DPC15HT or DPC25UT**	1 Increase feed rate 2 Use an **SEF** or **PEF** free cutting insert chipbreaker geometry 3 Increase the depth of cut in order to machine under the hardened surface created by the previous cut 4 Change to a higher wear resistant and alumina grade insert like **DPC15HT or DPC25UT**

Material	Material Characteristics
Carbon Steel, Alloy Steel and Tool Steel 36-48 HRC: **Alloy Steel, AISI Series:** 1335, 4130, 4135, 4140,4150, 4330, 4340, 5046, 5140, 5210, 8625, 8640 **Tool Steel and High Speed Steel, SAE Classes:** A, D, M, O, T, and S **High and Low Carbon Alloy:** W1, W2, L2, P1, P6, and P20	• Higher carbon content • Higher chrome, nickel, and moly content • Tough material to machine • Abrasive • Difficult to break and control the chip flow • The material surface will harden when machined at high speed • Good surface finish

Problems and Solutions

Insert Crater Wear	Insert Edge Wear	Depth-of-Cut Notch	Insert Chipping	Thermal Deformation	Dull Surface Finish
1 Reduce cutting speed 2 Reduce feed rate 3 Increase insert lead angle 4 Increase the coolant flow and pressure 5 Change to a higher wear resistant and alumina grade insert like **DPC15HT or DPC25UT**	1 Increase feed rate 2 Reduce cutting speed 3 Increase depth of cut 4 Change to a higher wear resistant and aluminagrade insert like **DPC15HT** or **DPC25UT** 5 Increase the coolant flow and pressure	1 Feed min. .005 in/rev 2 Change the depth of cut 3 Increase insert lead angle 4 Use the strongest permissible insert geometry 5 Use a **DMC30UT** grade 6 Use a depth of cut of .005 greater than the hardened surface layer	1 Check toolholder rigidity 2 Check insert rigidity 3 The machined part must be held rigid 4 Use the strongest permissible insert geometry 5 Use an alumina grade insert like **DMC30UT**	1 Reduce cutting speed 2 Increase the coolant flow and pressure 3 Change to a higher wear resistant and alumina grade insert like **DPC15HT** or **DPC25UT**	1 Increase feed rate 2 Use **UEM** or **PEF** free cutting insert chipbreaker geometry 3 Increase the depth of cut in order to machine under the hardened surface created by the previous cut 4 Change to a higher wear resistant and alumina grade insert like **DPC15HT** or **DPC25UT**

Material	Material Characteristics
Ferritic, Martensitic, and PH Stainless Steel under 48 HRC: **400 series AISI:** 410, 416, 416Se, 420F, 440, 440C **500 series AISI:** 502, 504 **PH series (precipitation hardening):** 17-4PH, PH 13-8 Mo, 15-5 PH	• Brittle • Stringy chips • High cutting force • The material will harden when machined at high speed.

Problems and Solutions

Insert Crater Wear	Built-up Edge	Insert Chipping	Dull Surface Finish
1 Reduce feed and speed 2 Use a high wear resistant insert like **DUP15VT or DUP35RT** 3 Use a free-cutting chip control insert like **SEF** or **UEM** chipbreaker geometry 4 Increase coolant flow and pressure	1 Increase cutting speed 2 Use a high wear resistant insert like **DUP15VT or DUP35RT** 3 Use a free-cutting chip control insert like **SEF** and **UEM** chipbreaker geometry 4 Increase coolant flow and pressure	1 Check toolholder rigidity 2 Check insert rigidity 3 The machined part must be held rigid 4 Use the strongest permissible insert geometry 5 Use an alumina grade insert like **DMC30UT**	1 Increase cutting speed 2 Use a **SEF** or **PEF** free cutting insert chipbreaker geometry 3 Increase the depth of cut in order to machine under the hardened surface created by the previous cut 4 Change to a higher wear resistant and alumina grade insert like **DKC15RT** or **DPC25UT**

Material	Material Characteristics
Austenitic Stainless Steel: **200 series , ANSI:** 200, 209, 219 **300 series , ANSI:** 302, 303, 304, 304l, 310, 316, 316L, 312, 329, 347, 384 **Duplex, AS TM :** XM-1, XM5, XM7, XM21, C F -8M	• Becomes gummy under machining operations due to nickel content • Very difficult to machine in soft conditions • Very difficult to machine at a small depth of cut • Develops a tough string of chips that are difficult to control. Forms a build-up on the insert tip • Low thermal conductivity results in excess heat at the insert tip • Material surface will harden due to high chromium content

Problems and Solutions

Chip Control	Built-up Edge	Insert Chipping	Depth-of-Cut Notch	Surface Glazing
1 Use **MEF, MEM, or SEM** chipbreaker geometry	1 Increase cutting speed	1 Keep constant speed and feed	1 Feed min. .005 in/rev	1 Decrease cutting speed
2 Increase cutting speed	2 Reduce feed rate	2 Avoid edge build up	2 Vary the depth of cut	2 Increase feed rate
3 Change the insert lead angle	3 Use **MEF, MEM, or SEM** chipbreaker geometry	3 Ensure toolholder, insert and workpiece rigidity	3 Increase insert lead angle	3 Keep a feed rate of at least .003 ipr
4 Use a smaller nose radius insert	4 Change insert grade to a PVD coating,like **DUP15VT,** or CVD coating **DKC10UT, DKC15RT**	4 Increase toolholder lead angle	4 Use the strongest permissible insert geometry	4 Use a smaller nose radius insert
5 Increase the coolant flow and pressure	5 Increase the coolant flow and pressure	5 Use the strongest permissible insert geometry	5 Use a **DMC30UT** grade	5 Use a positive insert
6 Change the insert before losing the cutting edge		6 Use a tougher grade insert like **DMC30UT**	6 Depth of cut to be .005 greater than the hardened surface layer	6 Change to a higher wear resistant and alumina grade insert like **DUP15VT**
			7 Ensure workpiece rigidity	

Material	Material Characteristics
Ductile and Malleable Cast Iron: **Ductile Cast Iron, Ferritic-Pearlitic ASTM:** 60-40-18, 65-45-12, 80-55-06, 100-70-03 **SAE J 434:** D4018, D4512, D5506, D7003 **Malleable Cast Iron, Pearlitic-Martensitic ASTM A47:** 32510, 35018 **SAE J 148:** M3210, M4504, M5003	• Very difficult to machine • Small depth of cut • Spherical form graphite makes machining difficult • The carbide concentration creates hard spots • The material structure is not uniform • The crater wear and flank of the insert makes machining difficult • The insert tool life is less than gray cast iron

Problems and Solutions

Insert Crater Wear	Insert Edge Wear	Insert Chipping	Chatter and Vibration	Dull Surface Finish
1 Increase feed rate	1 Increase feed rate	1 Check toolholder rigidity	1 Use a smaller nose radius insert	1 Increase cutting speed
2 Reduce cutting speed	2 Reduce cutting speed	2 Check insert rigidity	2 Use **KEF** chipbreaker geometry	2 Use a larger nose radius insert
3 Increase depth of cut	3 Increase depth of cut	3 Unbalanced workpiece	3 Check toolholder rigidity	3 Use **KEF** chipbreaker geometry
4 Use **DUP15VT** grade for finishing	4 Use **DUP15VT** grade for finishing	4 The machined part must be held rigid	4 Toolholder may be too extended	
5 Use **DKC10UT** grade for general purpose	5 Use **DKC10UT** grade for general purpose	5 Use the strongest permissible insert geometry	5 Check insert rigidity	
6 Use **DKC15RT** grade for roughing and interupted cuts	6 Use **DKC15RT** grade for roughing and interupted cuts	6 Use a T-edge insert geometry	6 Unbalanced workpiece	
7 Increase the coolant flow and pressure	7 Increase the coolant flow and pressure	7 Use the **DKC15RT** grade insert	7 The machined part must be held rigid	
		8 Increase insert lead angle		

Material	Material Characteristics
Gray Cast Iron: **AS TM A48:** Class 20B , 25B , 30B , 35B , 40B , 45B , 50B , 56B **SAE J 431:** G1800, G3000, G3500, G4000	• Flake form of graphite makes machining easy • Contains scale, inclusions and sand in the surface • The material will break easily on the end of the cut • Tendency to chatter and vibrate on thin wall section • Chucking and rigidity of the workpiece is extremely important to minimize distortion, to achieve a good finish and close tolerance

Problems and Solutions

Insert Crater Wear	Insert Edge Wear	Insert Chipping	Chatter and Vibration	Dull Surface Finish
1 Increase feed rate	1 Increase feed rate	1 Check toolholder rigidity	1 Use a smaller nose radius insert	1 Increase cutting speed
2 Reduce cutting speed	2 Reduce cutting speed	2 Check insert rigidity	2 Use **KEF** chipbreaker geometry	2 Use a larger nose radius insert
3 Increase depth of cut	3 Increase depth of cut	3 Unbalanced workpiece	3 Check toolholder rigidity	3 Use **KEF** chipbreaker geometry
4 Use **DUP15VT** grade for finishing	4 Use **DUP15VT** grade for finishing	4 The machined part must be held rigid	4 Toolholder may be too extended	
5 Use **DKC10UT** grade for general purpose	5 Use **DKC10UT** grade for general purpose	5 Use the strongest permissible insert geometry	5 Check insert rigidity	
6 Use **DKC15RT** grade for roughing and interupted cuts	6 Use **DKC15RT** grade for roughing and interupted cuts	6 Use a T-edge insert geometry	6 Unbalanced workpiece	
7 Increase the coolant flow and pressure	7 Increase the coolant flow and pressure	7 Use the **DKC15RT** grade insert	7 The machined part must be held rigid	
		8 Increase insert lead angle		

Material	Material Characteristics	
Aluminum: **Free Machining Aluminum:** AA; 2024-T4, 2014-T6, 2001-T3, 6061-t6 **Low-Silicon Aluminum Alloy <12.2% Si** **High-Silicon Aluminum Alloy >12.2% Si**	**Low-Silicon Aluminum Alloy <12.2% Si** • Easy to machine at high surface speed • Soft and gummy with a low melting temperature; tendency to stick to cutting tool • Edge build up will cause surface finish problems • Develops a string of chips that are difficult to control. Forms a build-up on the insert tip • Low coeffecient of elasticity, high ductility • Greater tendency to yield under pressure of the cutting tool	**High-Silicon Aluminum Alloy >12.2% Si** • The high silicon content makes it difficult to machine at a high surface speed • The high silicon content makes the material very abrasive and hard on the insert causing rapid tool wear • High cutting forces are generated to overcome the abrasiveness resulting from the high silicon content.

Problems and Solutions

Insert Crater Wear	Insert Chipping	Poor Surface Finish
1 Use and maintain a sharp cutting edge	1 Make sure the insert will not have a built-up edge	1 Use an F-edge insert geometry to achieve the best surface finish
2 Change the insert before losing the cutting edge	2 Avoid edge build up	2 Increase speed
3 Use E-edge insert geometry	3 Ensure toolholder, insert and workpiece rigidity	3 Increase insert lead angle
4 Use F-edge insert geometry for finishing	4 Increase toolholder lead angle	4 Use a large nose radius insert
5 Use a **NFU, SEF or SFM** chipbreaker geometry	5 Unbalanced workpiece	5 Make sure the insert will not have a built-up edge
	6 Use the strongest insert geometry possible	6 Use coolant designed to machine aluminum
	7 Use a round edge insert	
	8 Use a **DNU10GT** grade insert	

Material	Material Characteristics
Non Ferrous Copper	• Mildly abrasive and gummy alloy • Easy to machine • Develops a string of chips that are difficult to control especially in internal boring operations. • Use a high positive insert with a honed edge for roughing and a sharp edge for finishing. Choose a hard grade like **DUP15VT, DUP25UT or DUP35RT**.
Non Ferrous Brass , Bronze Lead Alloys, Zinc	• Abrasive and tougher alloys than copper • Easy to machine and good chip control. • Use a high positive insert with a honed edge for finishing, using a hard grade like **DUP15VT, DUP25UT or DUP35RT.** For roughing castings , use **SER** chipbreaker.
Non Ferrous Magnesium	• Tougher material than aluminum • Fire hazard present when machined at high speeds • Use oil base coolant with good ventilation • High depth of cut is possible with a high feed rate and good chip control • Use a high positive insert with a honed edge for roughing, and sharp edge for finishing. Choose a hard grade like **DUP15VT, DUP25UT or DUP35RT** .
Non Ferrous Nylon, Plastic , Rubber	• Mildly abrasive • Extremely soft and gummy materials with a very low melting temperature • Easy to machine at high surface speeds • Develops a long and soft string of chips • Difficult to achieve high surface-finish and maintain close tolerances • Use a high positive insert with a honed edge for roughing, and sharp edge for finishing. Choose a hard grade like **DNU10GT or DKU10HT.**
Non Ferrous Carbon and Graphite Phenolics , Resins	• Very abrasive, soft and porous materials • Difficult to machine • Material will break easy on the end of the cut, and chips will develop in the form of dust • Machining this material is very hard on the inserts • Use a high positive insert with a honed edge for roughing, and a sharp edge for finishing. Choose a hard grade like **DUP15VT, DUP25UT or DUP35RT.**

Material	Material Characteristics
Iron-Base, High Temp Super Alloys Under 34 HRC: **Wrought:** A-286, Discaloy, Incoloy 801, N-155,16-25-6, 19-9 DL **Cast: AS TM:** A297, A351, A608, A567	• Very difficult to machine small depth of cut • Insert tool life is relatively poor • Material surface will harden rapidly • Material is abrasive • Cast material is more difficult to machine than wrought • Develops tough, stringy chips that are difficult to control and form a build-up on the insert tip

Problems and Solutions

Depth-of-Cut Notch	Built-up Edge	Surface Glazing	Dull Surface Finish
1 Feed min. .005 in/rev 2 Vary the depth of cut 3 Increase insert lead angle 4 Increase coolant flow and pressure 5 tougher grade insert like **DUP35UT** 6 Use a depth of cut .005 greater than the hardened surface layer	1 Increase cutting speed 2 Change insert grade to a PVD coating, like **DUP15VT**	1 Increase depth of cut 2 Increase feed rate 3 Reduce cutting speed 4 Reduce insert nose radius 5 Use **SEF or SEM** free cutting insert chipbreaker geometry 6 Change insert grade to a PVD coating, like **DUP15VT**	1 Increase cutting speed 2 Reduce feed rate 3 Increase coolant flow and pressure

Material	Material Characteristics
Nickel-Base, High Temp Super Alloys Under 48 HRC: **Astroloy, Has telloy, B /C /C -276/X, Inconel:** 601, 617,625, 700, 706, 718 IN100, Incoloy 901, Mar-M200, Nimonic, Rene 41, Udimet, Waspaloy, Monel **Cobalt-Base, High Temper Alloys Under 45 HRC Wrought:** AiResist 213, Haynes 25 (L605), Haynes 188, J -1570, Stellite **Cast:** AiResist 13, Haynes 21, Mar-M302, Mar-M509, Nasa CO-W-R E , Wi-52	• Very difficult to machine a small depth of cut • Insert tool life is relatively poor • Material surface will harden rapidly • Material is abrasive • Cast material is more difficult to machine than wrought • High cutting force • Excessive heat at the insert tip • Insert failure by plastic deformation tends to result at high speeds

Problems and Solutions

Depth-of-Cut Notch	Built-up Edge	Surface Glazing	Dull Surface Finish
1 Feed min. .005 in/rev 2 Vary the depth of cut 3 Increase insert lead angle 4 Use min. .025 depth-of-cut 5 Use a tougher grade insert like **DUP35RT** 6 Use strongest insert shape possible, preferably round 7 Depth of cut to be .005 greater than the hardened surface layer.	1 Increase cutting speed 2 Change insert grade to a PVD coating, like **DUP15VT** 3 Increase coolant flow and pressure	1 Use PF free cutting insert chipbreaker geometry 2 For interrupted cutting,maintain cutting speed and reduce feed rate	1 Increase cutting speed 2 Reduce feed rate 3 Use **SEF OR SEM** chipbreaker geometry

Material	Material Characteristics
Titanium and Titanium Alloys Under 48 HRC: **Alloyed:** TiAl2.5Sn, Ti-6Al-4V, Ti6AlSn-4Zr-2Mo, Ti3Al-8V-6Cr-4Mo-4Zr, Ti10V-2Fe-3Al, Ti-13V-11Cr-3Al	• Insert tool life is relatively poor • Produces abrasive, tough, and stringy chips • Low thermal conductivity results in excess heat at the insert tip • Low coeffecient of elasticity • Material surface will harden rapidly • High chemical reactivity causes chips to gall and weld to the cutting edge

Problems and Solutions

Depth-of-Cut Notch	Built-up Edge	Insert Chipping	Surface Glazing	Dull Surface Finish
1 Depth of cut to be .005 greater than the hardened surface layer 2 Use the strongest permissible insert shape 3 Vary the depth of cut	1 Maintain sharp cutting edges, index often 2 Change insert grade to a PVD coating, like **DUP15VT** 3 Use **SEF OR SEM** chipbreaker geometry 4 Increase coolant flow and pressure	1 Avoid built-up edge 2 Maintain speed and reduce feed 3 Increase insert lead angle 4 Use MP chipbreaker geometry 5 Use a tougher grade insert like **DUP35RT** 6 Ensure proper insert seating 7 Increase coolant flow and pressure	1 Increase depth of cut 2 Index insert to sharp edge 3 Reduce insert nose radius	1 Increase feed rate and reduce cutting speed 2 Use positive rake, sharp PVD coated grade insert like **DUP15VT** 3 Increase speed 4 Increase coolant flow and pressure

Material		Grade - Material - Cutting Data

				Grade	DPP30GT		DPC15HT		DPC25UT		DPC35RT	
Alloy Steel	BEST			Coating	PVD Coated		CVD Coated		CVD Coated		CVD Coated	
Stainless Steel	Good				Wear Resistant		Wear Resistant		Medium		Impact Resistant	
Cast Iron	Fair				Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
				Depth of Cut ap	.004 - .079	0.10 - 2.00	.002 - .039	0.05 - 1.00	.004 - .079	0.10 - 2.00	.008 - .236	0.20 - 6.00
				Feed per Rev. fn	.004 - .020	0.10 - 0.50	.002 - .008	0.05 - 0.20	.004 - .020	0.10 - 0.50	.008 - .031	0.20 - 0.80
					SFM (Vc)		SFM (Vc)		SFM (Vc)		SFM (Vc)	
		HB	HRC		Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Unalloyed Carbon Steel												
C=0.1-0.25%	Annealed	125			969 - 582	294 - 176	1616 - 969	490 - 294	1346 - 808	408 - 245	1122 - 528	340 - 160
C=0.25-0.55%	Annealed	150			855 - 513	259 - 156	1426 - 855	432 - 259	1188 - 713	360 - 216	990 - 495	300 - 150
C=0.55-0.80%	Annealed	170	8		827 - 496	251 - 150	1378 - 827	418 - 251	1148 - 689	348 - 209	957 - 479	290 - 145
Low Alloy Steel ≤ 5%												
Annealed		180	10		684 - 411	207 - 124	1140 - 684	346 - 207	950 - 570	288 - 173	792 - 396	240 - 120
Ball Bearing Steel		210	17		570 - 342	173 - 104	950 - 570	288 - 173	792 - 475	240 - 144	660 - 330	200 - 100
Hardened & Tempered		275	28		428 - 257	130 - 78	713 - 428	216 - 130	594 - 356	180 - 108	495 - 248	150 - 75
Hardened & Tempered		350	38		342 - 205	104 - 62	570 - 342	173 - 104	475 - 285	144 - 86	396 - 198	120 - 60
High Alloy Steel > 5%												
Annealed		200	15		542 - 325	164 - 98	903 - 542	274 - 164	752 - 451	228 - 137	627 - 314	190 - 95
Hardened Tool Steel		325	35		257 - 154	78 - 47	428 - 257	130 - 78	356 - 214	108 - 65	297 - 149	90 - 45
Steel Castings												
Unalloyed Carbon Steel		180	10		428 - 257	130 - 78	713 - 428	216 - 130	594 - 356	180 - 108	495 - 248	150 - 75
Low Alloy Steel ≤ 5%		200	15		371 - 222	112 - 67	618 - 371	187 - 112	515 - 309	156 - 94	429 - 215	130 - 65
High Alloy Steel > 5%		225	20		328 - 197	99 - 60	546 - 328	166 - 99	455 - 273	138 - 83	380 - 190	115 - 58
Stainless Steel												
Austenitic 200 & 300 Series		180	10		875 - 495	265 - 150	776 - 528	235 - 125	677 - 413	205 - 125	561 - 330	170 - 100
Stainless Steel												
Ferretic/Martensitic 400 Series		200	15		542 - 325	164 - 98	903 - 542	228 - 137	752 - 451	228 - 137	627 - 314	190 - 95
Unalloyed Cast Iron												
Low Tensile Strength		180	10		594 - 356	180 - 108	990 - 693	300 - 210				
High Tensile Strength		220	20		713 - 561	216 - 170	792 - 561	240 - 170				
Modular Graphite Cast Iron												
Ferritic		160	6		475 - 285	144 - 86	792 - 545	240 - 165				
Pearlitic		250	24		426 - 255	129 - 77	710 - 495	215 - 150				
Martensitic		360	39		327 - 196	99 - 59	545 - 380	165 - 115				
Malleable Cast Iron												
Ferritic (Short Chips)		130			515 - 309	156 - 94	858 - 611	260 - 185				
Pearlitic (Long Chips)		230	20		416 - 249	126 - 76	693 - 495	210 - 150				

Material			Grade - Material - Cutting Data					
		Dorian Insert Grade	DMC30UT		DMC30UT		DMC30UT	
M-Stainless Steel	BEST	Insert Coating	CVD Coated		CVD Coated		CVD Coated	
			Finishing		Medium		Roughing	
			Inch	Metric	Inch	Metric	Inch	Metric
		Depth of Cut ap	.002 - .039	0.05 - 1.00	.004 - .079	0.10 - 2.00	.008 - .157	0.20 - 4.00
		Feed per Rev. fn	.002 - .008	0.05 - 0.20	.004 - .020	0.10 - 0.50	.008 - .031	0.20 - 0.80
			SFM (Vc)		SFM (Vc)		SFM (Vc)	
	HB	HRC	Inch	Metric	Inch	Metric	Inch	Metric
Stainless Steel Austenic Bars 200 & 300 Series								
Bars & Forged Austenic 303	180	10	878 - 527	266 - 160	799 - 479	242 - 145	726 - 436	220 - 132
Bars & Forged Austenic 302-304-316	200	15	739 - 443	224 - 134	672 - 403	204 - 122	611 - 366	185 - 111
Bars & Forged Austenic PH-Hardened	330	35	619 - 371	188 - 113	563 - 338	171 - 102	512 - 307	155 - 93
Stainless Steel Austenic Cast 200 & 300 Series								
Casting Austenic 303	180	10	799 - 479	242 - 145	726 - 436	220 - 132	660 - 396	200 - 120
Casting Austenic 302-304-316	200	15	659 - 395	200 - 120	599 - 359	182 - 109	545 - 327	165 - 99
Casting Austenic PH-Hardened	330	35	539 - 323	163 - 98	490 - 294	149 - 89	446 - 267	135 - 81
Stainless Steel Ferritic/ Martensitic Bars 400 Series, 17-4 PH								
Bars & Forged Ferritic/Martensitic 400 Series	180	10	958 - 575	290 - 174	871 - 523	264 - 158	792 - 475	240 - 144
Bars & Forged Ferritic/Martensitic 400 Series	330	15	559 - 335	169 - 102	508 - 305	154 - 92	462 - 277	140 - 84
Bars & Forged Masteric PH-Hardened	330	35	499 - 299	151 - 91	454 - 272	138 - 83	413 - 248	125 - 75
Stainless Steel Ferritic/ Martensitic Cast 400 Series, 17-4 PH								
Casting Ferritic/Martensitic 400 Series	180	10	878 - 527	266 - 160	799 - 479	242 - 145	726 - 436	220 - 132
Casting Ferritic/Martensitic 400 Series	200	15	539 - 323	163 - 98	490 - 294	149 - 89	446 - 267	135 - 81
Casting Martensitic PH-Hardened	330	35	479 - 287	145 - 87	436 - 261	132 - 79	396 - 238	120 - 72
Stainless Steel Austenic-Ferretic Duplex								
Stainless Steel Austenic-Ferretic Duplex 2304			639 - 383	194 - 116	581 - 348	176 - 106	528 - 317	160 - 96
Stainless Steel Austenic-Ferretic Duplex 2205			479 - 287	145 - 87	436 - 261	132 - 79	396 - 238	120 - 72
Stainless Steel Austenic-Ferretic Duplex 2207			280 - 168	85 - 51	254 - 152	77 - 46	231 - 139	70 - 42

Material		Grade - Material - Cutting Data							
		Dorian Insert Grade	DKP10HT		DKC05HT		DKC10UT		DKC15RT	
Cast Iron	BEST	Insert Coating	PVD Coated		CVD Coated		CVD Coated		CVD Coated	
Hardened Steel	BEST		Wear Resistant		Wear Resistant		Medium		Impact Resistant	
			Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
		Depth of Cut ap	.002 - .039	0.05 - 1.00	.004 - .079	0.10 - 2.00	.004 - .079	0.10 - 2.00	.008 - .157	0.20 - 4.00
		Feed per Rev. fn	.002 - .008	0.05 - 0.20	.004 - .020	0.10 - 0.50	.004 - .020	0.10 - 0.50	.008 - .031	0.20 - 0.80
			SFM (Vc)		SFM (Vc)		SFM (Vc)		SFM (Vc)	
	HB	HRC	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Gray Cast Iron										
Low Tensile Strength	180	10	1114 - 668	338 - 203	1671 - 1002	506 - 304	1114 - 668	338 - 203	743 - 520	225 - 158
High Tensile Strength	220	20	941 - 564	285 - 171	1411 - 846	428 - 257	941 - 564	285 - 171	627 - 439	190 - 133
Modular Graphite Cast Iron										
Low Tensile Strength	160	6	1064 - 639	323 - 194	1596 - 958	484 - 290	1064 - 639	323 - 194	710 - 497	215 - 151
Low Tensile Strength	250	24	965 - 579	293 - 176	1448 - 869	439 - 263	965 - 579	293 - 176	644 - 450	195 - 137
Low Tensile Strength	360	39	743 - 446	225 - 135	1114 - 668	338 - 203	743 - 446	225 - 135	495 - 347	150 - 105
Malleable Cast Iron										
Hardened and Tempered	130		990 - 594	300 - 180	1485 - 891	450 - 270	990 - 594	300 - 180	660 - 462	200 - 140
Pearlitic (Long Chips)	230	20	941 - 564	285 - 171	1411 - 846	428 - 257	941 - 564	285 - 171	627 - 439	190 - 133
Hardened Steel										
Hardened and Tempered	45 HRC		129 - 77	39 - 23	167 - 100	51 - 30	129 - 77	39 - 23	99 - 69	30 - 21
Hardened and Tempered	50 HRC		120 - 72	36 - 22	156 - 94	47 - 28	120 - 72	36 - 22	92 - 65	28 - 20
Hardened and Tempered	55 HRC		107 - 64	33 - 20	139 - 84	42 - 25	107 - 64	33 - 20	83 - 58	25 - 18
Extra Hardened Material										
Hardened and Tempered	60 HRC		99 - 59	30 - 18	128 - 77	39 - 23	99 - 59	30 - 18	76 - 53	23 - 16
Hardened and Tempered	65 HRC		82 - 49	25 - 15	106 - 64	32 - 19	82 - 49	25 - 15	63 - 44	19 - 13

Material		Grade - Material - Cutting Data								
Alloy Steel	Good	Dorian Insert Grade	DKU10HT		DKP10HT		DKU25GT		DUC25UT	
Stainless Steel	Good									
Cast Iron	Good	Insert Coating	Uncoated		PVD Coated		Uncoated		CVD Coated	
Aluminum	BEST		Finishing-Medium Roughing		Finishing-Medium Roughing		Finishing-Medium Roughing		Finishing-Medium Roughing	
Magnesium-Zinc	BEST									
Non Ferrous Material	BEST		Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Nylon- Plastic & Rubber	BEST									
Carbon-Graphite-Phenolics	BEST	Depth of Cut ap	.004 - .118	0.10 - 3.00	.004 - .118	0.10 - 3.00	.004 - .118	0.10 - 3.00	.020 - .118	0.50 - 3.00
		Feed per Rev. fn	.002 - .031	0.05 - 0.80	.002 - .031	0.05 - 0.80	.002 - .031	0.05 - 0.80	.002 - .031	0.05 - 0.80
			High SFM (Vc)		Medium SFM (Vc)		High SFM (Vc)		High SFM (Vc)	
		HB HRC	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Free Machining Low Carbon Steel										
C=0.1-0.25%	Annealed	125			1122 - 528	340 - 160			1010 - 404	306 - 122
Alloy Steel > 5%										
Hardened & Tempered	Heat Treated	275 28			495 - 248	150 - 75			446 - 178	135 - 54
Hardened & Tempered	Heat Treated	350 38			396 - 198	120 - 60			356 - 143	108 - 43
Stainless Steel										
Austenic 200 & 300 Series		180 10	644 - 193	195 - 59	837 - 251	254 - 76	515 - 206	156 - 62	753 - 301	228 - 91
Ferretic/Martensitic 400 Series		200 15	693 - 208	210 - 63	901 - 270	273 - 82	554 - 222	168 - 67	811 - 324	246 - 98
Gray Cast Iron										
Low Tensile Strength		180 10	858 - 257	260 - 78	1115 - 335	338 - 101	686 - 275	208 - 83	1004 - 402	304 - 122
High Tensile Strength		220 20	759 - 228	230 - 69	987 - 296	299 - 90	607 - 243	184 - 74	888 - 355	269 - 108
Aluminum Alloys										
Forged	Annealed	50 70	5445 - 1634	1650 - 495			3812 - 1525	1155 - 462		
Forged	Hardened	90 110	2376 - 713	720 - 216			1663 - 665	504 - 202		
Cast	Annealed	70 80	2376 - 713	720 - 216			1663 - 665	504 - 202		
Cast	Hardened	80 100	1353 - 406	410 - 123			947 - 379	287 - 115		
Copper and Copper Alloys										
Free Cutting Copper Alloy		90 110	1475 - 738	447 - 224	1918 - 959	581 - 291	1033 - 413	313 - 125	1239 - 496	375 - 150
Unleaded Copper		90 110	825 - 495	250 - 150	1073 - 644	325 - 195	578 - 231	175 - 70	693 - 277	210 - 84
Electrolytic Copper		90 110	891 - 535	270 - 162	1158 - 695	351 - 211	624 - 249	189 - 76	748 - 299	227 - 91
Brass and Bronze										
Brass		80 100	825 - 413	250 - 125	1073 - 536	325 - 163	578 - 231	175 - 70	693 - 277	210 - 84
Unleaded Bronze		80 100	858 - 429	260 - 130	1115 - 558	338 - 169	601 - 240	182 - 73	721 - 288	218 - 87
Leaded Bronze		90 110	891 - 535	270 - 162	1158 - 695	351 - 211	624 - 249	189 - 76	748 - 299	227 - 91
Magnesium-Zinc										
Annealed		80 100	2261 - 678	685 - 206	2939 - 882	891 - 267	1582 - 633	480 - 192	1899 - 760	575 - 230
Nylon- Plastic & Rubber										
Annealed			2244 - 673	680 - 204	2917 - 875	884 - 265	1571 - 628	476 - 190	1885 - 754	571 - 228
Carbon-Graphite-Phenolics										
Annealed			396 - 198	120 - 60	515 - 257	156 - 78	277 - 111	84 - 34	333 - 133	101 - 40

Material			Grade - Material - Cutting Data							
Alloy Steel	Good	Dorian Insert Grade	DNU10GT		DNX10UT		DNU25GT		DNP25GT	
Stainless Steel	Good									
Cast Iron	Good	Insert Coating	Uncoated		PVD Coated		Uncoated		PVD Coated	
Aluminum	BEST		Finishing-Medium		Finishing-Medium Roughing		Medium-Roughing		Finishing-Medium Roughing	
Magnesium-Zinc	BEST									
Non Ferrous Material	BEST		Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Nylon- Plastic & Rubber	BEST									
Carbon-Graphite-Phenolics	BEST	Depth of Cut ap	.002 - .118	0.05 - 3.00	.002 - .118	0.05 - 3.00	.004 - .118	0.10 - 3.00	.016 - .118	0.40 - 3.00
		Feed per Rev. fn	.002 - .031	0.05 - 0.80	.002 - .031	0.05 - 0.80	.002 - .031	0.05 - 0.80	.002 - .031	0.05 - 0.80
			High SFM (Vc)		Medium SFM (Vc)		High SFM (Vc)		High SFM (Vc)	
		HB HRC	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Free Machining Low Carbon Steel										
C=0.1-0.25%	Annealed	125			1122 - 528	340 - 160			1010 - 404	306 - 122
Alloy Steel > 5%										
Hardened & Tempered	Heat Treated	275 28			495 - 248	150 - 75			446 - 178	135 - 54
Hardened & Tempered	Heat Treated	350 38			396 - 198	120 - 60			356 - 143	108 - 43
Stainless Steel										
Austenic 200 & 300 Series		180 10	644 - 193	195 - 59	837 - 251	254 - 76	515 - 206	156 - 62	618 - 247	187 - 75
Ferretic/Martensitic 400 Series		200 15	693 - 208	210 - 63	901 - 270	273 - 82	554 - 222	168 - 67	665 - 266	202 - 81
Gray Cast Iron										
Low Tensile Strength		180 10	858 - 257	260 - 78	1115 - 335	338 - 101	686 - 275	208 - 83	824 - 329	250 - 100
High Tensile Strength		220 20	759 - 228	230 - 69	987 - 296	299 - 90	607 - 243	184 - 74	729 - 291	221 - 88
Aluminum Alloys										
Forged	Annealed	50 70	6353 - 1906	1925 - 578	8258 - 2477	2503 - 751	4447 - 1779	1348 - 539		
Forged	Hardened	90 110	2838 - 851	860 - 258	3689 - 1107	1118 - 335	1987 - 795	602 - 241		
Cast	Annealed	70 80	2838 - 851	860 - 258	3689 - 1107	1118 - 335	1987 - 795	602 - 241		
Cast	Hardened	80 100	1617 - 485	490 - 147	2102 - 631	637 - 191	1132 - 453	343 - 137		
Copper and Copper Alloys										
Free Cutting Copper Alloy		90 110	1475 - 738	447 - 224	1918 - 959	581 - 291	1033 - 413	313 - 125	1239 - 496	375 - 150
Unleaded Copper		90 110	825 - 495	250 - 150	1073 - 644	325 - 195	578 - 231	175 - 70	693 - 277	210 - 84
Electrolytic Copper		90 110	891 - 535	270 - 162	1158 - 695	351 - 211	624 - 249	189 - 76	748 - 299	227 - 91
Brass and Bronze										
Brass		80 100	825 - 413	250 - 125	1073 - 536	325 - 163	578 - 231	175 - 70	693 - 277	210 - 84
Unleaded Bronze		80 100	858 - 429	260 - 130	1115 - 558	338 - 169	601 - 240	182 - 73	721 - 288	218 - 87
Leaded Bronze		90 110	891 - 535	270 - 162	1158 - 695	351 - 211	624 - 249	189 - 76	748 - 299	227 - 91
Magnesium-Zinc										
Annealed		80 100	2261 - 678	685 - 206	2939 - 882	891 - 267	1582 - 633	480 - 192	1899 - 760	575 - 230
Nylon- Plastic & Rubber										
Annealed			2244 - 673	680 - 204	2917 - 875	884 - 265	1571 - 628	476 - 190	1885 - 754	571 - 228
Carbon-Graphite-Phenolics										
Annealed			304 - 121	92 - 37	395 - 158	120 - 48	277 - 111	84 - 034	333 - 133	101 - 40

Material		Grade - Material - Cutting Data									
Carbon & Alloy Steel	Good	Dorian Insert Grade		DNU10GT		DUP15VT		DUP25UT		DUP35RT	
Stainless Steel	Good	Insert Coating		Uncoated		PVD Coated		PVD Coated		PVD Coated	
Cast Iron	Good			Wear Resistant		Hard and Wear Resistant		Hard and Tough		Tougher and Impact Resistant	
Aluminum	BEST			Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
High Temp Super Alloy	BEST	Depth of Cut ap		.002 - .039	0.05 - 1.00	.002 - .039	0.05 - 1.00	.004 - .079	0.10 - 2.00	0.008 - 0.079	0.20 - 2.00
Hardened Material	BEST	Feed per Rev. fn		.002 - .008	0.05 - 0.20	.002 - .008	0.05 - 0.20	.002 - .008	0.05 - 0.20	0.002 - 0.008	0.05 - 0.20
Carbon-Graphite-Phenolics	BEST			SFM (Vc)		SFM (Vc)		SFM (Vc)		SFM (Vc)	
			HB HRC	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Unalloyed Carbon Steel											
C=0.1-0.25%	Annealed		125			1871 - 1123	567 - 340	1247 - 748	378 - 227	1386 - 693	420 - 210
C=0.25-0.55%	Annealed		150			1693 - 1016	513 - 308	1129 - 677	342 - 205	1254 - 627	380 - 190
C=0.55-0.80%	Annealed		170 8			1604 - 962	486 - 292	1069 - 642	324 - 194	1188 - 594	360 - 180
Low Alloy Steel ≤ 5%											
Annealed			180 10			1470 - 882	446 - 267	980 - 588	297 - 178	1089 - 545	330 - 165
Ball Bearing Steel			210 17			1648 - 989	500 - 300	1099 - 659	333 - 200	1221 - 611	370 - 185
Hardened & Tempered			275 28			1426 - 855	432 - 259	950 - 570	288 - 173	1056 - 528	320 - 160
Hardened & Tempered			350 38			1069 - 642	324 - 194	713 - 428	216 - 130	792 - 396	240 - 120
High Temp Super Alloy Steel > 5%											
Annealed			200 15			1158 - 695	351 - 211	772 - 463	234 - 140	858 - 429	260 - 130
Hardened Tool Steel			325 35			1025 - 615	311 - 186	683 - 410	207 - 124	759 - 380	230 - 115
Steel Castings											
Unalloyed Carbon Steel			180 10			1247 - 748	378 - 227	832 - 499	252 - 151	924 - 462	280 - 140
Low Alloy Steel ≤ 5%			200 15			1158 - 695	351 - 211	772 - 463	234 - 140	858 - 429	260 - 130
High Alloy Steel > 5%			225 20			1069 - 642	324 - 194	713 - 428	216 - 130	792 - 396	240 - 120
Stainless Steel Austenic Bars 200 & 300 Series											
Bars & Forged Austenic 303			180 10	579 - 347	176 - 105	965 - 579	293 - 176	743 - 446	225 - 135	825 - 495	250 - 150
Bars & Forged Austenic 302-304-316			200 15	475 - 285	144 - 86	792 - 475	240 - 144	609 - 365	185 - 111	677 - 406	205 - 123
Bars & Forged Austenic PH-Hardened			330 35	394 - 236	119 - 72	656 - 394	199 - 119	505 - 303	153 - 92	561 - 337	170 - 102
Stainless Steel Austenic Bars 200 & 300 Series											
Casting Austenic 303			180 10	510 - 306	154 - 93	849 - 510	257 - 154	653 - 392	198 - 119	726 - 436	220 - 132
Casting Austenic 302-304-316			200 15	417 - 250	126 - 76	695 - 417	211 - 126	535 - 321	162 - 97	594 - 356	180 - 108
Casting Austenic PH-Hardened			330 35	347 - 208	105 - 63	579 - 347	176 - 105	446 - 267	135 - 81	495 - 297	150 - 90
Stainless Steel Ferritic/ Martensitic Bars 400 Series, 17-4 PH											
Bars & Forged Ferritic/Martensitic 400 Series			180 10	614 - 368	186 - 112	1023 - 614	310 - 186	787 - 472	239 - 143	875 - 525	265 - 159
Bars & Forged Ferritic/Martensitic 400 Series			200 15	382 - 229	116 - 69	637 - 382	193 - 116	490 - 294	149 - 89	545 - 327	165 - 99
Bars & Forged Martensitic PH-Hardened			330 35	359 - 215	109 - 65	598 - 359	181 - 109	460 - 276	140 - 84	512 - 307	155 - 93
Stainless Steel Ferritic/ Martensitic Bars 400 Series, 17-4 PH											
Casting Ferritic/Martensitic 400 Series			180 10	568 - 341	172 - 103	946 - 568	287 - 172	728 - 437	221 - 132	809 - 485	245 - 147
Casting Ferritic/Martensitic 400 Series			200 15	347 - 208	105 - 63	579 - 347	176 - 105	446 - 267	135 - 81	495 - 297	150 - 90
Casting Martensitic PH-Hardened			330 35	313 - 188	95 - 57	521 - 313	158 - 95	401 - 241	122 - 73	446 - 267	135 - 81
Stainless Steel Austenic-Ferretic Duplex											
Stainless Steel Austenic-Ferretic Duplex 2304			180 10	405 - 243	123 - 74	676 - 405	205 - 123	520 - 312	158 - 95	578 - 347	175 - 105
Stainless Steel Austenic-Ferretic Duplex 2205			200 15	313 - 188	95 - 57	521 - 313	158 - 095	401 - 241	122 - 73	446 - 267	135 - 81
Stainless Steel Austenic-Ferretic Duplex 2207			330 35	178 - 107	54 - 32	297 - 178	90 - 54	229 - 137	69 - 42	254 - 152	77 - 46

Material		Grade - Material - Cutting Data

Carbon & Alloy Steel	Good	Dorian Insert Grade	DNU10GT		DUP15VT		DUP25UT		DUP35RT	
Stainless Steel	Good	Insert Coating	Uncoated		PVD Coated		PVD Coated		PVD Coated	
Cast Iron	Good		Wear Resistant		Hard and Wear Resistant		Hard and Tough		Tougher and Impact Resistant	
N- Aluminum	BEST		Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
High Temp Super Alloy	BEST	Depth of Cut ap	.002 - .039	0.05 - 1.00	.002 - .039	0.05 - 1.00	.004 - .079	0.10 - 2.00	.008 - .079	0.20 - 2.00
Hardened Material	BEST	Feed per Rev. fn	.002 - .008	0.05 - 0.20	.002 - .008	0.05 - 0.20	.002 - .008	0.05 - 0.20	.002 - .008	0.05 - 0.20
Carbon-Graphite-Phenolics	BEST		SFM (Vc)		SFM (Vc)		SFM (Vc)		SFM (Vc)	
		HB HRC	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Gray Cast Iron										
Low Tensile Strength		180 10	625 - 375	190 - 114	1042 - 625	316 - 190	802 - 481	243 - 146	891 - 624	270 - 189
High Tensile Strength		220 20	498 - 299	151 - 91	830 - 498	252 - 151	639 - 383	194 - 116	710 - 497	215 - 151
Modular Graphite Cast Iron										
Ferritic		160 6	498 - 299	151 - 91	830 - 498	252 - 151	639 - 383	194 - 116	710 - 497	215 - 151
Pearlitic		250 24	440 - 264	133 - 80	734 - 440	222 - 133	564 - 339	171 - 103	627 - 439	190 - 133
Martensitic		360 39	347 - 208	105 - 63	579 - 347	176 - 105	446 - 267	135 - 81	495 - 347	150 - 105
Malleable Cast Iron										
Ferritic (Short Chips)		130	533 - 320	161 - 97	888 - 533	269 - 161	683 - 410	207 - 124	759 - 531	230 - 161
Pearlitic (Long Chips)		230 20	440 - 264	133 - 80	734 - 440	222 - 133	564 - 339	171 - 103	627 - 439	190 - 133

Material		Grade - Material - Cutting Data									
Aluminum	BEST	Dorian Insert Grade			DNU10GT		DUP15VT		DUP25UT		DUP35RT	
Magnesium-Zinc	BEST	Insert Coating			Uncoated		PVD Coated		PVD Coated		PVD Coated	
Non Ferrous Material	BEST				Finishing-Medium Roughing		Finishing-Medium Roughing		Finishing-Medium Roughing		Finishing-Medium Roughing	
Nylon- Plastic & Rubber	BEST				Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Carbon-Graphite-Phenolics	BEST	Depth of Cut ap			.002 - .118	0.05 - 3.00	.002 - .118	0.05 - 3.00	.002 - .118	0.05 - 3.00	.002 - .118	0.05 - 3.00
		Feed per Rev. fn			.002 - .031	0.05 - 0.80	.002 - .031	0.05 - 0.80	.002 - .031	0.05 - 0.80	.002 - .031	0.05 - 0.80
					Medium SFM (Vc)		High SFM (Vc)		Medium SFM (Vc)		Medium SFM (Vc)	
			HB	HRC	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Aluminum Alloys												
Forged	Annealed		50	70	6353 - 1906	1925 - 578					8258 - 2477	2503 - 751
Forged	Hardened		90	110	2838 - 851	860 - 258					3689 - 1107	1118 - 335
Cast	Annealed		70	80	2838 - 851	860 - 258					2838 - 851	860 - 258
Cast	Hardened		80	100	1617 - 485	490 - 147					1617 - 485	490 - 147
Copper and Copper Alloys												
Free cutting Copper Alloy			90	110	1475 - 738	447 - 224	2071 - 1036	628 - 314	1726 - 863	523 - 261	1918 - 959	581 - 291
Unleaded Copper			90	110	825 - 495	250 - 150	1158 - 579	351 - 176	965 - 483	293 - 146	1073 - 644	325 - 195
Electrolytic Copper			90	110	891 - 535	270 - 162	1251 - 625	379 - 190	1042 - 521	316 - 158	1158 - 695	351 - 211
Brass and Bronze												
Brass			80	100	1240 - 620	376 - 188	2067 - 1034	626 - 313	1723 - 861	522 - 261	1914 - 957	580 - 290
Unleaded Bronze			80	100	535 - 267	162 - 81	891 - 446	270 - 135	743 - 371	225 - 113	825 - 495	250 - 150
Leaded Bronze			90	110	577 - 289	175 - 87	962 - 481	292 - 146	802 - 401	243 - 122	891 - 535	270 - 162
Magnesium-Zinc												
Annealed			80	100	984 - 492	298 - 149	1639 - 820	497 - 248	1366 - 683	414 - 207	1518 - 455	460 - 138
Nylon- Plastic & Rubber												
					1454 - 727	441 - 220	2424 - 1212	734 - 367	2020 - 1010	612 - 306	2244 - 1571	680 - 476
Carbon-Graphite-Phenolics												
					171 - 86	52 - 26	285 - 143	86 - 43	238 - 119	72 - 36	264 - 211	80 - 64
High Temp Super Alloys												
Annealed			200	15	174 - 104	53 - 32	290 - 174	88 - 53	223 - 134	68 - 41	248 - 149	75 - 45
Aged or Solution Treated and Aged			280	29	127 - 76	39 - 23	212 - 127	64 - 39	163 - 98	50 - 30	182 - 109	55 - 33
Heat Resistant Super Alloy Nickel Base												
Annealed or Solution Treated			250	25	104 - 63	32 - 19	174 - 104	53 - 32	134 - 80	41 - 24	149 - 89	45 - 27
Aged or Solution Treated and Aged			350	37	81 - 49	25 - 15	135 - 81	41 - 25	104 - 62	32 - 19	116 - 69	35 - 21
Cast and Aged			320	34	53 - 32	16 - 10	89 - 53	27 - 016	68 - 41	21 - 12	76 - 46	23 - 14
Heat Resistant Super Alloy Cobalt Base												
Annealed or Solution Treated			200	15	104 - 63	32 - 19	174 - 104	53 - 32	134 - 80	41 - 24	149 - 89	45 - 27
Aged or Solution Treated and Aged			300	32	81 - 49	25 - 15	135 - 81	41 - 25	104 - 62	32 - 19	116 - 69	35 - 21
Cast and Aged			320	34	53 - 32	16 - 10	89 - 53	27 - 16	68 - 41	21 - 12	76 - 46	23 - 14
Titanium Alloys												
Commercial pure (99.5%)			400		301 - 181	91 - 55	502 - 301	152 - 91	386 - 232	117 - 70	429 - 257	130 - 78
Alloys Annealed			950		127 - 76	39 - 23	212 - 127	64 - 39	163 - 98	50 - 30	182 - 109	55 - 33
Alloys In Aged condition			1050		93 - 56	28 - 17	154 - 93	47 - 28	119 - 71	36 - 22	132 - 79	40 - 24
Hardened Materials												
Hardened and Tempered				45	69 - 42	21 - 13	116 - 69	35 - 21	89 - 53	27 - 16	99 - 69	30 - 21
Hardened and Tempered				50	65 - 39	20 - 12	108 - 65	33 - 20	83 - 50	25 - 15	92 - 65	28 - 20
Hardened and Tempered				55	58 - 35	18 - 11	97 - 58	29 - 18	74 - 45	23 - 14	83 - 58	25 - 18

Insert Geometry Application

VNM_	DNM_	TNM_	WNM_	CNM_	SNM_	RNM_

Finishing
The smaller insert angles of the 55° diamond and 35° diamond inserts are the best choice. These inserts allow for a finer finish.

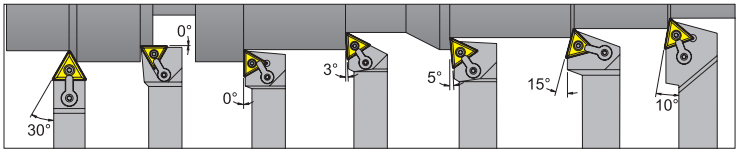
Multi-Application
When turning, facing, chamfering, profiling, or light roughing, use the 80° diamond, 80° trigon, or triangle for best results. Though these inserts combine some of the best features of both the roughing and finishing inserts, they should not be The First Choice for either heavy roughing or extreme finishing.

Roughing
Round or square inserts are the best choice because of their superior strength due to large insert angles.

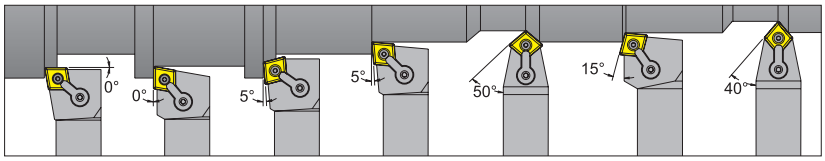
	Insert Properties	
Minimum ←	Cutting Edge Strength	→ Maximum
Weaker ←	Insert Attitude	→ Stronger
Finishing ←	Turning Application	→ Roughing
Multi ←	Turning Operation	→ Single
Smooth ←	Surface Finishing	→ Vibration
Low ←	Cutting Force	→ High
High ←	Revolution Per Minute	→ Low
Low ←	Feed Per Revolution	→ High

Insert Versatility

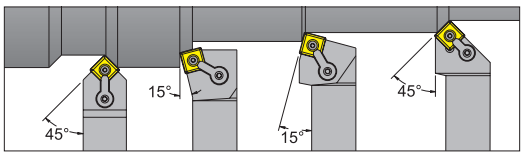
Triangle



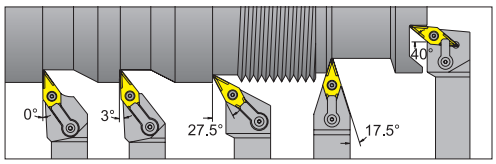
80º Diamond



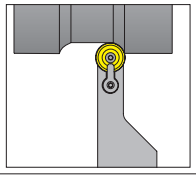
Square



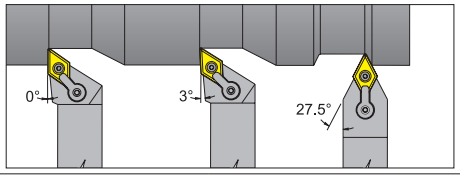
35º Diamond



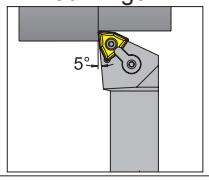
Round



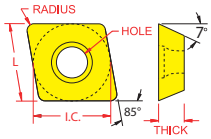
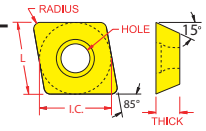
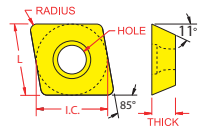
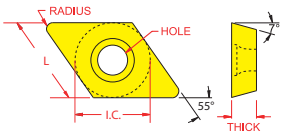
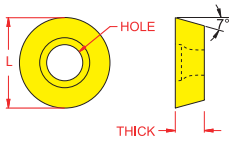
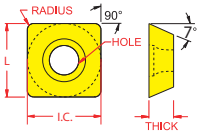
55º Diamond



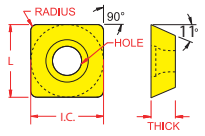
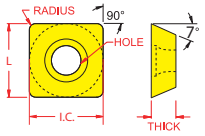
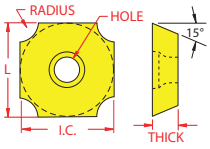
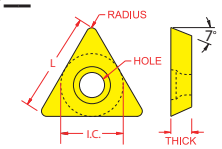
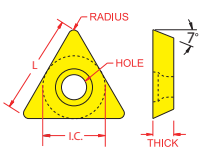
80º Trigon



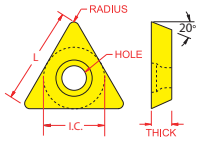
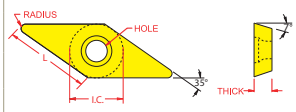
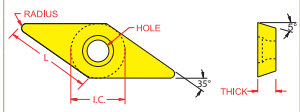
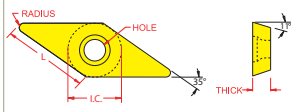
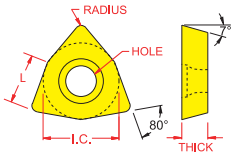
Positive Insert ANSI - ISO Crossover Chart

Geometry	ANSI (Inch) Description	ANSI (Inch) Dimensions I.C.	Thick	Radius (± .004)	Hole Diameter	ISO (mm) Description	ISO (mm) Dimensions L	Thick	Radius (± 0,1)	Hole Diameter
CC__ 	CC__ -21.50.5	.2500	.0937	.0080	.107	CC__ -060202	6,35	2,38	0,2	2,7
	CC__ -21.51	.2500	.0937	.0156	.107	CC__ -060204	6,35	2,38	0,4	2,7
	CC__ -21.52	.2500	.0937	.0312	.107	CC__ -060208	6,35	2,38	0,8	2,7
	CC__ -32.50.5	.3750	.1562	.0080	.178	CC__ -09T302	9,52	3,97	0,2	4,5
	CC__ -32.51	.3750	.1562	.0156	.178	CC__ -09T304	9,52	3,97	0,4	4,5
	CC__ -32.52	.3750	.1562	.0312	.178	CC__ -09T308	9,52	3,97	0,8	4,5
	CC__ -431	.5000	.1875	.0156	.220	CC__ -120404	12,70	4,76	0,4	5,6
	CC__ -432	.5000	.1875	.0312	.220	CC__ -120408	12,70	4,76	0,8	5,6
	CC__ -433	.5000	.1875	.0468	.220	CC__ -120412	12,70	4,76	1,2	5,6
CD__ 	CD__ -1.20.60.2	.1563	.0400	.0040	.084	CD__ -S4T001	3,97	1,00	0,1	2,1
	CD__ -1.20.60.5	.1563	.0400	.0080	.084	CD__ -S4T002	3,97	1,00	0,2	2,1
	CD__ -1.510.5	.1875	.0625	.0080	.084	CD__ -040102	4,76	1,59	0,2	2,1
	CD__ -1.511	.1875	.0625	.0156	.084	CD__ -040104	4,76	1,59	0,4	2,1
CP__ 	CP__ -1.81.20.5	.2188	.075	.0080	.084	CP__ -05T102	5,56	1,98	0,2	2,1
	CP__ -1.81.21	.2188	.075	.0156	.084	CP__ -05T104	5,56	1,98	0,4	2,1
	CP__ -21.50.5	.2500	.0937	.0080	.107	CP__ -060202	6,53	2,38	0,2	2,7
	CP__ -21.51	.2500	.0937	.0156	.107	CP__ -060204	6,53	2,38	0,4	2,7
	CP__ -32.51	.3750	.1562	.0156	.178	CP__ -09T304	9,53	3,97	0,4	4,5
	CP__ -32.52	.3750	.1562	.0312	.178	CP__ -09T308	9,53	3,97	0,8	4,5
DC__ 	DC__ -21.50.2	.2500	.0937	.0040	.107	DC__ -070201	6,35	2,38	0,1	2,7
	DC__ -21.50.5	.2500	.0937	.0080	.107	DC__ -070202	6,35	2,38	0,2	2,7
	DC__ -21.51	.2500	.0937	.0156	.107	DC__ -070204	6,35	2,38	0,4	2,7
	DC__ -21.52	.2500	.0937	.0312	.107	DC__ -070208	6,35	2,38	0,8	2,7
	DC__ -32.50.5	.3750	.1562	.0080	.178	DC__ -11T302	11,00	3,97	0,2	4,5
	DC__ -32.51	.3750	.1562	.0156	.178	DC__ -11T304	11,00	3,97	0,4	4,5
	DC__ -32.52	.3750	.1562	.0312	.178	DC__ -11T308	11,00	3,97	0,8	4,5
	DC__ -431	.5000	.1875	.0156	.220	DC__ -150404	15,88	4,76	0,4	5,6
	DC__ -432	.5000	.1875	.0312	.220	DC__ -150408	15,88	4,76	0,8	5,6
RC__ 	N/A					RC__ -0602MO	6.00	2,38	N/A	2,7
						RC__ -0803MO	8.00	3,18	N/A	3,4
						RC__ -1003MO	10.00	3,18	N/A	4,5
						RC__ -1204MO	12.00	4,76	N/A	4,5
						RC__ -1606MO	16.00	6,35	N/A	5,6
						RC__ -2006MO	20.00	6,35	N/A	5,6
						RC__ -3209MO	32.00	9,52	N/A	5,6
SC__ 	SC__ -32.51	.375	.1562	.0156	.178	SC__ -09T304	9,53	3,97	0,4	4,5
	SC__ -32.52	.375	.1562	.0312	.178	SC__ -09T308	9,53	3,97	0,8	4,5
	SC__ -431	.500	.1875	.0156	.220	SC__ -120404	12,70	4,76	0,4	5,6
	SC__ -432	.500	.1875	.0312	.220	SC__ -120408	12,70	4,76	0,8	5,6
	SC__ -433	.500	.1875	.0468	.220	SC__ -120412	12,70	4,76	1,2	5,6

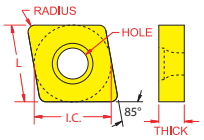
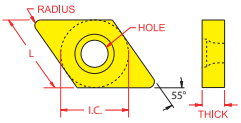
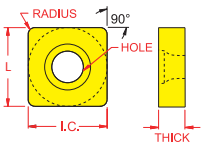
Positive Insert ANSI - ISO Crossover Chart

Geometry	ANSI (Inch)					ISO (mm)				
	Description	Dimensions				Description	Dimensions			
		I.C.	Thick	Radius (± .004)	Hole Diameter		L	Thick	Radius (± 0,1)	Hole Diameter
SP__ 	SP__ -321	.3750	.1250	.0156	.178	SP__ -090304	9,53	3,18	0,4	4,5
	SP__ -322	.3750	.1250	.0312	.178	SP__ -090308	9,53	3,18	0,8	4,5
	SP__ -422	.5000	.1250	.0312	.220	SP__ -120308	12,70	3,18	0,8	5,6
	SP__ -432	.5000	.1875	.0312	.220	SP__ -120408	12,70	7,6	0,8	5,6
SD__ 	SD__ -322	.3750	.1250	.0312	.158	SD__ -090308	9,53	3,18	0,8	4,5
	SD__ -422	.5000	.1250	.0312	.178	SD__ -120308	12,70	3,18	0,8	4,5
	SD__ -532	.6250	.1875	.0312	.203	SD__ -150408	15,88	4,76	0,8	5,2
	SD__ -09C01	.3750	.1563	.0156	.178	SD__ -09T3C04	9,53	3,97	0,4	4,5
	SD__ -09C02	.3750	.1563	.0312	.178	SD__ -09T3C08	9,53	3,97	0,8	4,5
	SD__ -09C03	.3750	.1563	.0468	.178	SD__ -09T3C12	9,53	3,97	1,2	4,5
	SD__ -09C04	.3750	.1563	.0625	.178	SD__ -09T3C16	9,53	3,97	1,6	4,5
	SD__ -19C05	.7500	.1875	.0781	.220	SD__ -1904C20	19,05	4,76	2,0	5,6
	SD__ -19C06	.7500	.1875	.0937	.220	SD__ -1904C24	19,05	4,76	2,4	5,6
	SD__ -19C07	.7500	.1875	.1094	.220	SD__ -1904C28	19,05	4,76	2,8	5,6
	SD__ -19C08	.7500	.1875	.1250	.220	SD__ -1904C32	19,05	4,76	3,2	5,6
	SD__ -19C09	.7500	.1875	.1406	.220	SD__ -1904C36	19,05	4,76	3,6	5,6
	SD__ -19C10	.7500	.1875	.1562	.220	SD__ -1904C40	19,05	4,76	4,0	5,6
	SD__ -19C11	.7500	.1875	.1719	.220	SD__ -1904C44	19,05	4,76	4,4	5,6
	SD__ -19C12	.7500	.1875	.1875	.220	SD__ -1904C48	19,05	4,76	4,8	5,6
	SD__ -19C13	.7500	.1875	.2031	.220	SD__ -1904C52	19,05	4,76	5,2	5,6
	SD__ -19C14	.7500	.1875	.2187	.220	SD__ -1904C56	19,05	4,76	5,6	5,6
	SD__ -19C15	.7500	.1875	.2344	.220	SD__ -1904C60	19,05	4,76	6,0	5,6
	SD__ -19C16	.7500	.1875	.2500	.220	SD__ -1904C64	19,05	4,76	6,4	5,6
TC__ 	TC__ -1.21.20.2	.1563	.0750	.0040		TC__ -06T101	6,53	1,98	0,1	
	TC__ -21.50.2	.2500	.0937	.0040	.107	TC__ -110201	11,00	2,38	0,1	2,7
	TC__ -21.50.5	.2500	.0937	.0080	.107	TC__ -110202	11,00	2,38	0,2	2,7
	TC__ -21.51	.2500	.0937	.0156	.107	TC__ -110204	11,00	2,38	0,4	2,7
	TC__ -21.52	.2500	.0937	.0312	.107	TC__ -110208	11,00	2,38	0,8	2,7
	TC__ -32.51	.3750	.1562	.0156	.178	TC__ -16T304	16,50	3,97	0,4	4,5
	TC__ -32.52	.3750	.1562	.0312	.178	TC__ -16T308	16,50	3,97	0,8	4,5
TP__ 	TP__ -21.50.5	.2500	.0937	.0080	.107	TP__ -110202	11,00	2,38	0,2	2,7
	TP__ -21.51	.2500	.0937	.0312	.107	TP__ -110204	11,00	2,38	0,4	2,7
	TP__ -21.52	.2500	.0938	.0313	.107	TP__ -110208	11,00	2,38	0,8	2,7
	TP__ -221	.2500	.1250	.0156	.107	TP__ -110304	11,00	3,18	0,4	2,7
	TP__ -222	.2500	.1250	.0312	.107	TP__ -110308	11,00	3,18	0,8	2,7
	TP__ -321	.3750	.1250	.0156	.178	TP__ -160304	16,50	3,18	0,4	4,5
	TP__ -322	.3750	.1250	.0313	.178	TP__ -160308	16,50	3,18	0,8	4,5
	TP__ -32.51	.3750	.1562	.0156	.178	TP__ -16T304	16,50	3,97	0,4	4,5
	TP__ -32.52	.3750	.1562	.0312	.178	TP__ -16T308	16,50	3,97	0,8	4,5
	TP__ -431	.5000	.1875	.0156	.220	TP__ -220404	22,00	4,76	0,4	5,6
	TP__ -432	.5000	.1875	.0312	.320	TP__ -220408	22,00	4,76	0,8	5,6

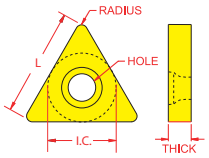
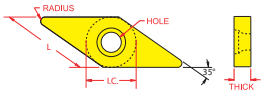
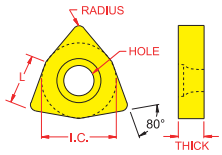
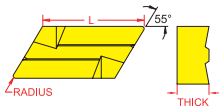
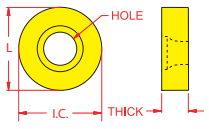
Positive Insert ANSI - ISO Crossover Chart

Geometry	ANSI (Inch) Description	ANSI (Inch) Dimensions I.C.	Thick	Radius (± .004)	Hole Diameter	ISO (mm) Description	ISO (mm) Dimensions L	Thick	Radius (± 0,1)	Hole Diameter
TE__ 	TE__ -1.81.51	.2188	.0937	.100204	.104	TE__ -100404	6,93	2,38	0,4	2,7
VC__ 	VC__ -220.5	.2500	.1250	.0080	.107	VC__ -110302	11,00	3,18	0,2	2,7
	VC__ -220.5	.2500	.1250	.0080	.107	VC__ -110302	11,00	3,18	0,2	2,7
	VC__ -221	.2500	.1250	.0156	.107	VC__ -110304	11,00	3,18	0,4	2,7
	VC__ -330.5	.3750	.1875	.0080	.178	VC__ -160402	16,50	4,76	0,2	4,5
	VC__ -331	.3750	.1875	.0156	.178	VC__ -160404	16,50	4,76	0,4	4,5
	VC__ -332	.3750	.1875	.0312	.178	VC__ -160408	16,50	4,76	0,8	4,5
	VC__ -333	.3750	.1875	.0468	.178	VC__ -160412	16,50	4,76	1,2	4,5
	VC__ -448	.5000	.2500	.1250	.220	VC__ -220530	22,00	5,56	3,0	5,6
VB__ 	VB__ -221	.2500	.1250	.0156	.107	VB__ -110304	11,00	3,18	0,4	2,7
	VB__ -330.5	.3750	.1875	.0080	.178	VB__ -160402	16,50	4,76	0,2	4,5
	VB__ -331	.3750	.1875	.0156	.178	VB__ -160404	16,50	4,76	0,4	4,5
	VB__ -332	.3750	.1875	.0312	.178	VB__ -160408	16,50	4,76	0,8	4,5
	VB__ -333	.3750	.1875	.0468	.178	VB__ -160412	16,50	4,76	1,2	4,5
VP__ 	VP__ -221	.2500	.1250	.0156	.107	VP__ -110304	11,00	3,18	0,4	2,7
	VP__ -333	.3750	.1875	.0468	.178	VP__ -160412	16,50	4,76	1,2	4,5
	VP__ -444	.5000	.2500	.0625	.220	VP__ -220516	22,00	5,56	1,6	5,6
WC__ 	WC__ -1.210.2	.1563	.0625	.0040	.084	WC__ -S20101	3,55	1,59	0,1	2,1
	WC__ -1.51.50.2	.1875	.0937	.0040	.084	WC__ -S30201	4,34	2,38	0,1	2,1
	WC__ -1.51.50.5	.1875	.0937	.0080	.084	WC__ -S30202	4,34	2,38	0,2	2,1
	WC__ -21.51	.2500	.0937	.0156	.107	WC__ -040204	4,34	2,38	0,4	2,7
	WC__ -32.50.5	.3750	.1562	.0080	.178	WC__ -06T302	6,52	3,97	0,2	4,5
	WC__ -32.51	.3750	.1562	.0156	.178	WC__ -06T304	6,52	3,97	0,4	4,5
	WC__ -32.52	.3750	.1562	.0312	.178	WC__ -06T308	6,52	3,97	0,8	4,5
	WC__ -431	.5000	.1875	.0156	.220	WC__ -080404	8,69	4,76	0,4	5,6
	WC__ -432	.5000	.1875	.0312	.220	WC__ -080408	8,69	4,76	0,8	5,6

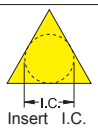
Negative Insert ANSI - ISO Crossover Chart

Geometry	ANSI (Inch)					ISO (mm)				
	Description	Dimensions				Description	Dimensions			
		I.C.	Thick	Radius (± .004)	Hole Diameter		L	Thick	Radius (± 0,1)	Hole Diameter
CN__ 	CN__ -321	.3750	.1250	.0156	.150	CN__ -090304	9,5	3,18	0,4	3,8
	CN__ -322	.3750	.1250	.0312	.150	CN__ -090308	9,5	3,18	0,8	3,8
	CN__ -431	.5000	.1875	.0156	.203	CN__ -120404	12,7	4,76	0,4	5,2
	CN__ -432	.5000	.1875	.0312	.203	CN__ -120408	12,7	4,76	0,8	5,2
	CN__ -433	.5000	.1875	.0468	.203	CN__ -120412	12,7	4,76	1,2	5,2
	CN__ -434	.5000	.1875	.0625	.203	CN__ -120416	12,7	4,76	1,6	5,2
	CN__ -542	.6250	.2500	.0312	.250	CN__ -160608	16,5	6,35	0,8	6,4
	CN__ -543	.6250	.2500	.0468	.250	CN__ -160612	16,5	6,35	1,2	6,4
	CN__ -544	.6250	.2500	.0625	.250	CN__ -160616	16,5	6,35	1,6	6,4
	CN__ -643	.7500	.2500	.0468	.312	CN__ -190612	19,05	6,35	1,2	7,9
	CN__ -644	.7500	.2500	.0625	.312	CN__ -190616	19,05	6,35	1,6	7,9
	CN__ -646	.7500	.2500	.0937	.312	CN__ -190624	19,05	6,35	2,4	7,9
	CN__ -856	1.0000	.3125	.0937	.359	CN__ -250724	25,40	7,94	2,4	9,1
	CN__ -866	1.0000	.3750	.0937	.359	CN__ -250924	25,40	9,52	2,4	9,1
DN__ 	DN__ -331	.3750	.1875	.0156	.150	DN__ -110404	11,00	4,76	0,4	3,8
	DN__ -332	.3750	.1875	.0312	.150	DN__ -110408	11,00	4,76	0,8	3,8
	DN__ -431	.5000	.1875	.0156	.203	DN__ -150404	15,88	4,76	0,4	5,2
	DN__ -432	.5000	.1875	.0312	.203	DN__ -150408	15,88	4,76	0,8	5,2
	DN__ -433	.5000	.1875	.0468	.203	DN__ -150612	15,88	6,35	1,2	5,2
	DN__ -441	.5000	.2500	.0156	.203	DN__ -150404	15,88	4,76	0,4	5,2
	DN__ -442	.5000	.2500	.0312	.203	DN__ -150608	15,88	6,35	0,8	5,2
	DN__ -443	.5000	.2500	.0468	.203	DN__ -150412	15,88	4,76	1,2	5,2
	DN__ -444	.5000	.2500	.0625	.203	DN__ -150616	15,88	6,35	1,6	5,2
SN__ 	SN__ -321	.3750	.1250	.0156	.150	SN__ -090304	9,53	3,18	0,4	3,8
	SN__ -322	.3750	.1250	.0312	.150	SN__ -090308	9,53	3,18	0,8	3,8
	SN__ -431	.5000	.1875	.0156	.203	SN__ -120404	12,70	4,76	0,4	5,2
	SN__ -432	.5000	.1875	.0312	.203	SN__ -120408	12,70	4,76	0,8	5,2
	SN__ -433	.5000	.1875	.0469	.203	SN__ -120412	12,70	4,76	1,2	5,2
	SN__ -434	.5000	.1875	.0625	.203	SN__ -120416	12,70	4,76	1,6	5,2
	SN__ -542	.6250	.2500	.0312	.250	SN__ -150608	15,88	6,35	0,8	6,4
	SN__ -543	.6250	.2500	.0468	.250	SN__ -150612	15,88	6,35	1,2	6,4
	SN__ -544	.6250	.2500	.0625	.250	SN__ -150616	15,88	6,35	1,6	6,4
	SN__ -633	.7500	.1875	.0468	.312	SN__ -190412	19,05	4,76	1,2	7,9
	SN__ -643	.7500	.2500	.0468	.312	SN__ -190612	19,05	6,35	1,2	7,9
	SN__ -644	.7500	.2500	.0625	.312	SN__ -190616	19,05	6,35	1,6	7,9
	SN__ -646	.7500	.2500	.0937	.312	SN__ -190624	19,05	6,35	2,4	7,9
	SN__ -648	.7500	.2500	.1250	.312	SN__ -190632	19,05	6,35	3,2	7,9
	SN__ -856	1.0000	.3125	.0937	.359	SN__ -250724	25,40	7,94	2,4	9,1
	SN__ -866	1.0000	.3750	.0937	.359	SN__ -250924	25,40	9,52	2,4	9,1

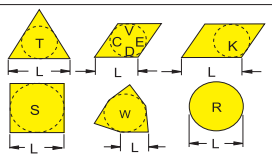
Negative Insert ANSI - ISO Crossover Chart

Geometry	ANSI (Inch)					ISO (mm)				
	Description	Dimensions				Description	Dimensions			
		I.C.	Thick	Radius (± .004)	Hole Diameter		L	Thick	Radius (± 0,1)	Hole Diameter
TN__ 	TN_ -221	.2500	.1250	.0156	.089	TN_ -110304	11,00	3,18	0,4	2,3
	TN_ -222	.2500	.1250	.0312	.089	TN_ -110308	11,00	3,18	0,8	2,3
	TN_ -321	.3750	.1250	.0156	.150	TN_ -160304	16,50	3,18	0,4	3,8
	TN_ -322	.3750	.1250	.0312	.150	TN_ -160408	16,50	4,76	0,8	3,8
	TN_ -331	.3750	.1875	.0156	.150	TN_ -160404	16,50	4,76	0,4	3,8
	TN_ -332	.3750	.1875	.0312	.150	TN_ -160408	16,50	4,76	0,8	3,8
	TN_ -333	.3750	.1875	.0468	.150	TN_ -160412	16,50	4,76	1,2	3,8
	TN_ -431	.5000	.1875	.0156	.203	TN_ -220404	22,00	4,76	0,4	5,2
	TN_ -432	.5000	.1875	.0312	.203	TN_ -220408	22,00	4,76	0,8	5,2
	TN_ -433	.5000	.1875	.0468	.203	TN_ -220412	22,00	4,76	1,2	5,2
	TN_ -434	.5000	.1875	.0625	.203	TN_ -220416	22,00	4,76	1,6	5,2
VN__ 	VN_ -331	.3750	.1875	.0156	.150	VN_ -160404	16,50	4,76	0,4	3,8
	VN_ -332	.3750	.1875	.0312	.150	VN_ -160408	16,50	4,76	0,8	3,8
	VN_ -333	.3750	.1875	.0468	.150	VN_ -160412	16,50	4,76	1,2	3,8
	VN_ -432	.5000	.1875	.0312	.203	VN_ -220408	22,00	4,76	0,8	5,2
	VN_ -433	.5000	.1875	.0469	.203	VN_ -220412	22,00	4,76	1,2	5,2
WN__ 	WN__ -331	.3750	.1875	.0156	.150	WN__ -060404	6,52	4,76	0,4	3,8
	WN__ -332	.3750	.1875	.0312	.150	WN__ -060408	6,85	4,76	0,8	3,8
	WN__ -431	.5000	.1875	.0156	.203	WN__ -080404	8,69	4,76	0,4	3,8
	WN__ -432	.5000	.1875	.0313	.203	WN__ -080408	8,69	4,76	0,8	5,2
	WN__ -433	.5000	.1875	.0468	.203	WN__ -080412	8,69	4,76	1,2	5,2
	WN__ -434	.5000	.1875	.0625	.203	WN__ -080416	8,69	4,76	1,6	5,2
KNUX 	N/A									
						KNUX -160405	16,50	4,76	0,5	N/A
						KNUX -160410	16,50	4,76	1,0	N/A
RN__ 	RN__ -32	.3750	.1250	.1875	.150	RN__ -090300	9,53	3,18	3,76	3,8
	RN__ -43	.5000	.1875	.2500	.203	RN__ -120400	12,70	4,76	6,35	5,2
	RN__ -54	.6250	.2500	.3125	.250	RN__ -150600	15,88	6,43	7,93	6,4
	RN__ -64	.7500	.2500	.3750	.312	RN__ -190600	19,05	6,35	9,52	7,9
	RN__ -84	1.0000	.2500	.5000	.359	RN__ -250600	25,40	6,35	12,7	9,1

Inch / Metric



Insert I.C. (Inscribed Circle): Measures surface in 1/8" increments, **1 unit = 1/8"**
EX: 4 units (4 x 1/8") = 1/2"



Cutting Edge Length (L) by **Shape** (mm) designated with an insert shape symbol

Unit	I.C. inch	I.C. mm	C	D	R	S	T	V	W	K
1.2(5)	5/32	03,97	04	04	03	03	06	–	02	–
1.5(6)	3/16	04,76	04	05	04	04	08	08	S3	08
1.8(7)	7/32	05,56	05	–	–	–	10	–	03	–
2	1/4	06,35	06	07	06	–	11	11	04	–
2.5	5/16	08,00	–	–	08	–	–	–	–	–
3	3/8	09,53	09	11	09	09	16	16	06	16
–	3/8	10,00	–	–	10	–	–	–	–	–
4	1/2	12,70	12	15	12	12	22	22	08	–
5	5/8	15,88	16	19	15	15	27	–	–	–
6	3/4	19,05	19	–	19	19	33	–	–	–
7	7/8	22,22	22	27	22	22	38	38	15	38
–	.984	25,00	–	–	25	–	–	–	–	–
8	1.0	25,40	25	–	25	25	–	–	–	–
–	1.260	32,00	–	–	32	–	–	–	–	–

Note: Old A.N.S.I. standards shown in parenthesis for I.C.s under 1/4"

Inch / Metric

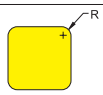
Insert "T" (Thickness): Measures width, expressed in units, **1 unit = 1/16"**
EX: *3 units (3 x 1/16") = 3/16"*

Insert "T" (Thickness): Meaures width, expressed in 1mm increments. Single integers preceded by a 0.

Symbol	Thickness		Symbol
.5(1)	1/32	0,79	-
.6	.040	1,00	T0
1(2)	1/16	1,59	01
1.2	5/64	1,98	T1
1.5(3)	3/32	2,38	02
2	1/8	3,18	03
2.5	5/32	3,97	T3
3	3/16	4,76	04
3.5	7/32	5,56	05
4	1/4	6,35	06
5	5/16	7,94	07
6	3/8	9,52	09
7	7/16	11,11	11
8	1/2	12,70	12

Inch / Metric

Insert "R" (Radius): Measures radius, expressed in units, **1 unit = 1/64"**
EX: *3 units (3 x 1/16") = 3/16"*



Insert "R" (Radius): Measures radius, expressed in 1/10mm increments.

Symbol	Corner Radius		Symbol
X0	.0015	.04	X0
.2	.004	0,1	01
.5	.008	0,2	02
1	1/64	0,4	04
2	1/32	0,8	08
3	3/64	1,2	12
4	1/16	1,6	16
5	5/64	2,0	20
6	3/32	2,4	24
7	7/64	2,8	28
8	1/8	3,2	32
-	round insert (inch)		00
-	round insert (mm)		M0

5. Size / 6. Thickness / 7. Radius

Insert Style

1	2	3	4
T	N	M	G

\-

5	6	7	
4	3	3	Inch
22	04	12	Metric

Insert Size

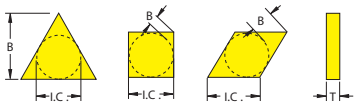
1. Geometry

- **C** 80° Diamond
- **D** 55° Diamond
- **R** Round
- **S** Square
- **T** Triangle
- **W** 80° Trigon
- **V** 35° Diamond
- **K** 55° Parallelogram

2. Clearance Angle

- 3° — **A** Positive
- 5° — **B** Positive
- 7° — **C** Positive
- 15° — **D** Positive
- 20° — **E** Positive
- 25° — **F** Positive
- 30° — **G** Positive
- 0° — **N** Negative
- 11° — **P** Positive
- 10° — **T** Positive

3. Tolerances



Tolerance on Dimensions

	"I.C." Inch	"I.C." Metric	"B" Inch	"B" Metric	"T" Inch	"T" Metric
C	±.0010	±0,025	±.0005	±0,013	±.001	±0,025
E	±.0010	±0,025	±.0010	±0,025	±.001	±0,025
G	±.0010	±0,025	±.0010	±0,025	±.005	±0,13
H	±.0005	±0,013	±.0005	±0,013	±.001	±0,025
M*	*	*	*	*	±.005	±0,13
U*	*	*	*	*	±.005	±0,13

* see chart to the right

Tolerance on Dimensions

I.C. inch	I.C. mm	M* inch	M* mm	U* inch	U* mm
5/32	3,97				
3/16	4,76				
7/32	5,56	.002	0,05	.003	0,06
1/4	6,35				
5/16	7,94				
3/8	9,52				
7/16	11,11				
1/2	12,70	.003	0,06	.005	0,13
9/16	14,29				
5/8	15,88				
11/16	17,46	.004	0,10		
3/4	19,05				
7/8	22,22	.005	0,13	.007	0,18
1	25,40				
1 1/4	31,75	.006	0,15	.010	0,25

4. Type

- **A** Hole, no Chipbreaker
- **B** Hole, 1 Sided Countersink
- **F** No Hole, 2 Sided Chipbreaker
- **G** Hole, 2 Sided Chipbreaker
- **H** Hole, 1 Sided Chipbreaker and 70°- 90° Countersink
- **M** Hole, 1 Sided Chipbreaker
- **N** No Hole, No Chipbreaker
- **P** Hole, 2 Sided Chipbreaker
- **R** No Hole, 1 Sided Chipbreaker
- **S** Hole, 1 Sided Chipbreaker
- **T** Hole, 1 Sided Chipbreaker 40°-60° ISO Countersink
- **W** Hole, 1 Sided 40°-60° ISO Countersink
- **X** Special

Dorian Tool

12. MFG	13. Material	14. Coating	15. ISO	16. Application	17. Operation
	P Carbon & Alloy Steel	U Uncoated	25 ISO Hardness Scale	V Finishing at Higher SFM	T Turning
	M Stainless Steel	C CVD		H Finishing at High SFM	M Milling
	K Cast Iron	P PVD		G General at Medium SFM	D Drilling
	N Aluminum and Non Ferrous	D Diamond Coated		U Universal at Variable SFM	P Turning & Grooving
	S High Temp Super Alloy	X Special		R Roughing at Low SFM	
	H Hardened Material			X Roughing with Heavy Interrupt Cut & Low SFM	
	U Multi Material				

Insert Chip Breaker

8	9	10	11	12	13	14	15	16	17
- P	E	M	R	- D	P	C	25	U	T

Dorian Insert Grade

8. Workpiece Material	9. Edge Preparation	10. Operation	11.Cutting Direction
P Carbon & Alloy Steel	E Honed	F Finishing	N Neutral
M Stainless Steel	F Sharp	M Medium	L Left
K Cast Iron	S Negative Land & Honed	U Universal	R Right
N Aluminum and Non Ferrous	T Negative Land & Round	R Roughing	If no letter is indicated here the insert is neutral
S High Temp Super Alloy		H Heavy Roughing	
H Hardened Material		S X Heavy Roughing	
U Multi Material		T XX Heavy Roughing	
		X Special	

Material

Carbon & Alloy Steel	Good
Stainless Steel	BEST
Cast Iron	BEST
Aluminum	BEST
Non Ferrous Material	BEST
High Temp Super Alloy	BEST
Carbon-Graphite-Phenolics	BEST
Hardened Material	BEST

For Insert Cutting Speed Recommendation Form
see pages 45-47

Application

	General	Finishing	Universal	Roughing
Insert Grade	DNU10GT	DUP15VT	DUP25UT	DUP35RT
Chip Breaker	UEF	UEF	UEF	UEF
ISO Insert Grade	K15 P15 M15 N15 S15	P10 M10 K10 S10	P15 M15 K15 S25	P20 M25 K25 S25
ANSI Insert Grade	C2-C3	C3-C8	C3-C7	C3-C7
Insert Coating	Uncoated	PVD AlCrN	PVD Tin/TiAlN/TiN	PVD TiAlN/WC/C
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Very Hard & Abrasive Resistant Turning at Higher SFM	Hard, Tough & Wear Resistant Turning at Medium SFM	Difficult & Unstable Operation Turning at High SFM
Condition	Wet	Dry	Wet	Wet-Dry

Cutting Data

	General		Finishing		Universal		Roughing	
	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Depth of Cut ap	.002 - .039	0.05 - 1.00	.002 - .039	0.05 - 1.00	.004 - .079	0.10 - 2.00	.008 - .079	0.20 - 2.00
Feed per Rev. fn	.002 - .008	0.05 - 0.20	.002 - .008	0.05 - 0.20	.002 - .012	0.05 - 0.30	.002 - .016	0.05 - 0.40

Material Hardness	HB	HRC	General SFM (Vc)		Finishing SFM (Vc)		Universal SFM (Vc)		Roughing SFM (Vc)	
Low Alloy Steel ≤ 5%	180	10			1470 - 882	446 - 267	980 - 588	297 - 178	1089 - 545	330 - 165
Stainless Steel Austenitic 300 Series	180	10	668 - 347	203 - 105	1114 - 579	338 - 176	743 - 446	225 - 135	825 - 495	250 - 150
Gray Cast Iron Low Tensile Strength	180	10	722 - 375	219 - 114	1203 - 625	365 - 190	802 - 481	243 - 146	891 - 624	270 - 189
Aluminum	60		6353 - 1906	1925 - 578					8258 - 2477	2503 - 751
Non Ferrous Material Free Cutting Copper Alloy	90		1240 - 620	376 - 188	2067 - 1034	626 - 313	1723 - 861	522 - 261	1914 - 957	580 - 290
Heat Resistant High Temp Super Alloy Iron Base	200	15	174 - 104	53 - 32	290 - 174	88 - 53	223 - 134	68 - 41	248 - 149	75 - 45
Carbon-Graphite-Phenolics			171 - 86	52 - 26	285 - 143	86 - 43	238 - 119	72 - 36	264 - 211	80 - 64
Hardened Material		45	69 - 42	21 - 13	116 - 69	35 - 21	89 - 53	27 - 16	99 - 69	3021

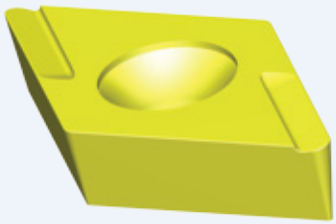
Description	ANSI	ISO	UPC 733101-		UPC 733101-		UPC 733101-		UPC 733101-	
			R.H	L.H.	R.H	L.H.	R.H	L.H.	R.H	L.H.
CDGX-UEF 80° Diamond Universal 	CDGX-1.20.60.2-UEFR/L	CDGX-S4T001-UEFR/L	68540	68545	68541	68546	68543	68548	68544	68549
	CDGX-1.20.60.5-UEFR/L	CDGX-S4T002-UEFR/L	68550	68555	68551	68556	68553	68558	68554	68559
	CDGX-1.510.5-UEFR/L	CDGX-040102-UEFR/L	68560	68565	68561	68566	68563	68568	68564	68569
	CDGX-1.511-UEFR/L	CDGX-040104-UEFR/L	68570	68575	68571	68576	68573	68578	68574	68579
CCGX-UEF 80° Diamond Universal 	CCGX-21.50.5-UEFR/L	CCGX-060202-UEFR/L	68580	68585	68581	68586	68583	68588	68584	68589
	CCGX-21.51-UEFR/L	CCGX-060204-UEFR/L	68590	68595	68591	68596	68593	68598	68594	68599
	CCGX-32.51-UEFR/L	CCGX-09T304-UEFR/L	68610	68615	68611	68616	68613	68618	68614	68619
	CCGX-32.52-UEFR/L	CCGX-09T308-UEFR/L	68620	68625	68621	68626	68623	68628	68624	68629
CPGX-UEF 80° Diamond Universal 	CPGX-1.81.20.5-UEFR/L	CPGX-05T102-UEFR/L	68630	68635	68631	68636	68633	68638	68634	68639
	CPGX-1.81.21-UEFR/L	CPGX-05T104-UEFR/L	68640	68645	68641	68646	68643	68648	68644	68649
	CPGX-21.50.5-UEFR/L	CPGX-060202-UEFR/L	68650	68655	68651	68656	68653	68658	68654	68659
	CPGX-21.51-UEFR/L	CPGX-060204-UEFR/L	68660	68665	68661	68666	68663	68668	68664	68669
	CPGX-32.51-UEFR/L	CPGX- 09T304-UEFR/L	68680	68685	68681	68686	68683	68688	68684	68689
	CPGX-32.52-UEFR/L	CPGX- 09T308-UEFR/L	68690	68695	68691	68696	68693	68698	68694	68699
DCGX-UEF 55° Diamond Universal 	DCGX-21.50.2-UEFR/L	DCGX-070201-UEFR/L	68700	68705	68701	68706	68703	68708	68704	68709
	DCGX-21.51-UEFR/L	DCGX-070204-UEFR/L	68710	68715	68711	68716	68713	68718	68714	68719
	DCGX-32.51-UEFR/L	DCGX-11T304-UEFR/L	68730	68735	68731	68736	68733	68738	68734	68739
	DCGX-32.52-UEFR/L	DCGX-11T308-UEFR/L	68740	68745	68741	68746	68743	68748	68744	68749

Continued From Page 56

Description	ANSI	ISO	Insert Grade	DNU10GT		DUP15VT		DUP25UT		DUP35RT	
				UPC 733101-		UPC 733101-		UPC 733101-		UPC 733101-	
				R.H	L.H.	R.H	L.H.	R.H	L.H.	R.H	L.H.
TCGX-UEF 60° Triangle Universal 	TCGX-21.50.5-UEFR/L	TCGX-110202-UEFR/L		68760	68765	68761	68766	68763	68768	68764	68769
	TCGX-21.51-UEFR/L	TCGX-110204-UEFR/L		68770	68775	68771	68776	68773	68778	68774	68779
	TCGX-32.51-UEFR/L	TCGX-16T304-UEFR/L		68800	68805	68801	68806	68803	68808	68804	68809
	TCGX-32.52-UEFR/L	TCGX-16T308-UEFR/L		68810	68815	68811	68816	68813	68818	68814	68819
TPGX-UEF 60° Triangle Universal 	TPGX-21.50.5-UEFR/L	TPGX-110202-UEFR/L		68830	68835	68831	68836	68833	68838	68834	68839
	TPGX-21.51-UEFR/L	TPGX-110204-UEFR/L		68840	68845	68841	68846	68843	68848	68844	68849
	TPGX-32.51-UEFR/L	TPGX-16T304-UEFR/L		68870	68875	68871	68876	68873	68878	68874	68879
	TPGX-32.52-UEFR/L	TPGX-16T308-UEFR/L		68880	68885	68881	68886	68883	68888	68884	68889
VBGX-UEF 35° Diamond Universal 	VBGX-221-UEFR/L	VBGX-110304-UEFR/L		68900	68905	68901	68906	68903	68908	68904	68909
	VBGX-330.5-UEFR/L	VBGX-160402-UEFR/L		68910	68915	68911	68916	68913	68918	68914	68919
	VBGX-331-UEFR/L	VBGX-160404-UEFR/L		68920	68925	68921	68926	68923	68928	68924	68929
	VBGX-332-UEFR/L	VBGX-160408-UEFR/L		68930	68935	68931	68936	68933	68938	68934	68939
VCGX-UEF 35° Diamond Universal 	VCGX-220.5-UEFR/L	VCGX-110302-UEFR/L		68950	68955	68951	68956	68953	68958	68954	68959
	VCGX-221-UEFR/L	VCGX-110304-UEFR/L		68960	68965	68961	68966	68963	68968	68964	68969
	VCGX-330.5-UEFR/L	VCGX-160402-UEFR/L		68970	68975	68971	68976	68973	68978	68974	68979
	VCGX-331-UEFR/L	VCGX-160404-UEFR/L		68980	68985	68981	68986	68983	68988	68984	68989
	VCGX-332-UEFR/L	VCGX-160408-UEFR/L		68990	68995	68991	68996	68993	68998	68994	68999

Dorian Tool Technical Support

Insert Cutting Direction



External Right Hand Shown
Internal Left Hand Opposite

External Left Hand Shown
Internal Right Hand Opposite

Material

Carbon & Alloy Steel	Good
Stainless Steel	BEST
Cast Iron	BEST
Aluminum	BEST
Non Ferrous Material	BEST
High Temp Super Alloy	BEST
Carbon-Graphite-Phenolics	BEST
Hardened Material	BEST

For Insert Grade Cutting Data
See page 16

For Insert Cutting Speed Recommendation Form
see page 45-47

Application

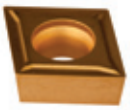
	General	Finishing	Universal	Roughing
Insert Grade	DNU10GT	DUP15VT	DUP25UT	DUP35RT
Chip Breaker	UEU	UEU	UEU	UEU
ISO Insert Grade	K15 P15 M15 N15 S15	P10 M10 K10 S10	P15 M15 K15 S25	P20 M25 K25 S25
ANSI Insert Grade	C2-C3	C3-C8	C3-C7	C3-C7
Insert Coating	Uncoated	PVD AlCrN	PVD TiN/TiAlN/TiN	PVD TiAlN/WC/C
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Very Hard & Abrasive Resistant Turning at Higher SFM	Hard, Tough & Wear Resistant Turning at Medium SFM	Difficult & Unstable Operation Turning at High SFM
Condition	Wet	Dry	Wet	Wet-Dry

Cutting Data

	General		Finishing		Universal		Roughing	
	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Depth of Cut ap	.002 - .039	0.05 - 1.00	.002 - .039	0.05 - 1.00	.004 - .079	0.10 - 2.00	.008 - .079	0.20 - 2.00
Feed per Rev. fn	.002 - .008	0.05 - 0.20	.002 - .008	0.05 - 0.20	.002 - .012	0.05 - 0.30	.002 - .016	0.05 - 0.40

SFM (Vc)

Material Hardness	HB	HRC	General		Finishing		Universal		Roughing	
Low Alloy Steel ≤ 5%	180	10			1470 - 882	446 - 267	980 - 588	297 - 178	1089 - 545	330 - 165
Stainless Steel Austenitic 300 Series	180	10	668 - 347	203 - 105	1114 - 579	338 - 176	743 - 446	225 - 135	825 - 495	250 - 150
Gray Cast Iron Low Tensile Strength	180	10	722 - 375	219 - 114	1203 - 625	365 - 190	802 - 481	243 - 146	891 - 624	270 - 189
Aluminum	60		6353 - 1906	1925 - 578					8258 - 2477	2503 - 751
Non Ferrous Material Free Cutting Copper Alloy	90		1240 - 620	376 - 188	2067 - 1034	626 - 313	1723 - 861	522 - 261	1914 - 0957	580 - 290
High Temp Super Alloy Iron Base	200	15	174 - 104	53 - 32	290 - 174	88 - 53	223 - 134	68 - 41	248 - 149	75 - 45
Carbon-Graphite-Phenolics			171 - 86	52 - 26	285 - 143	86 - 43	238 - 119	72 - 36	264 - 211	80 - 64
Hardened Material		45	69 - 42	21 - 13	116 - 69	35 - 21	89 - 53	27 - 16	99 - 69	30 - 21

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-	UPC 733101-
CCGT-UEU 80° Diamond Universal 	CCGT-21.51-UEU	CCGT-060204-UEU	79455	79456	79458	79459
	CCGT-32.51-UEU	CCGT-09T304-UEU	79465	79466	79468	79469
	CCGT-431-UEU	CCGT-120404-UEU	79475	79476	79478	79479
	CCGT-432-UEU	CCGT-120408-UEU	79480	79481	79483	79484
CPGT-UEU 80° Diamond Universal 	CPGT-1.81.20.5-UEU	CPGT-05T102-UEU	79485	79486	79488	79489
	CPGT-1.81.21-UEU	CPGT-05T104-UEU	79490	79491	79493	79494
	CPGT-21.50.5-UEU	CPGT-060202-UEU	79495	79496	79498	79499
	CPGT-21.51-UEU	CPGT-060204-UEU	79500	79501	79503	79504
	CPGT-32.51-UEU	CPGT-09T304-UEU	79510	79511	79513	79514
DCGT-UEU 55° Diamond Universal 	DCGT-21.51-UEU	DCGT-070204-UEU	79535	79536	79538	79539
	DCGT-32.51-UEU	DCGT-11T304-UEU	79545	79546	79548	79549
	DCGT-32.52-UEU	DCGT-11T308-UEU	79550	79551	79553	79554
	DCGT-431-UEU	DCGT-150404-UEU	79555	79556	79558	79559
	DCGT-432-UEU	DCGT-150408-UEU	79560	79561	79563	79564
SCGT-UEU Square Universal 	SCGT-32.51-UEU	SCGT-09T304-UEU	79565	79566	79568	79569
	SCGT-32.52-UEU	SCGT-09T308-UEU	79570	79571	79573	79574
	SCGT-431-UEU	SCGT-120404-UEU	79575	79576	79578	79579
	SCGT-432-UEU	SCGT-120408-UEU	79580	79581	79583	79584

Continued From Page 59

Description	ANSI	ISO	DNU10GT UPC 733101-	DUP15VT UPC 733101-	DUP25UT UPC 733101-	DUP35RT UPC 733101-
		Insert Grade				
TCGT-UEU 60° Triangle Universal 	TCGT-21.50.2-UEU	TCGT-110201-UEU	79585	79586	79588	79589
	TCGT-21.51-UEU	TCGT-110204-UEU	79595	79596	79598	79599
	TCGT-32.51-UEU	TCGT-16T304-UEU	79610	79611	79613	79614
	TCGT-32.52-UEU	TCGT-16T308-UEU	79615	79616	79618	79619
TPGT-UEU 60° Triangle Universal 	TPGT-21.51-UEU	TPGT-110204-UEU	79630	79631	79633	79634
	TPGT-32.51-UEU	TPGT-6T304-UEU	79645	79646	79648	79649
	TPGT-32.52-UEU	TPGT 16T308-UEU	79650	79651	79653	79654
VBGT-UEU 35° Diamond Universal 	VBGT-221-UEU	VBGT-110304-UEU	79660	79661	79663	79664
	VBGT-331-UEU	VBGT-160404-UEU	79670	79671	79673	79674
	VBGT-332-UEU	VBGT-160408-UEU	79675	79676	79678	79679
VCGT-UEU 35° Diamond Universal 	VCGT-221-UEU	VCGT-110304-UEU	79685	79686	79688	79689
	VCGT-331-UEU	VCGT-160404-UEU	79700	79701	79703	79704
	VCGT-332-UEU	VCGT-160408-UEU	79705	79706	79708	79709
WCGT-UEU 80° Trigon Universal 	WCGT-1.51.50.2-UEU	WCGT-S30201-UEU	79710	79711	79713	79714
	WCGT-1.51.50.5-UEU	WCGT-S30202-UEU	79715	79716	79718	79719
	WCGT-21.51-UEU	WCGT-040204-UEU	79725	79726	79728	79729
	WCGT-32.51-UEU	WCGT-06T304-UEU	79735	79736	79738	79739
	WCGT-32.52-UEU	WCGT-06T308-UEU	79740	79741	79743	79744

Dorian Tool Technical Support

Insert Nose Radius Versus Depth of Cut and Feed Rate

Surface Finish in turning operations have a direct relation to the insert nose radius and the cutting feed rate.

The Nose Radius affects the chip formation and the chip breaking improves with smaller radius.

The Minimum Depth of Cut, greater than or equal to 2/3 of the nose radius or 1/2 of the nose radius in the feed direction will determine best results.

The Maximum Feed Rate, no greater than 1/2 the size of the nose radius will determine the best Feed Rate for Roughing.

the Depth of Cut should be greater than or 1/2 of the nose radius in the feed direction								
Inch	Nose Radius Min.	0.004	0.008	0.016	0.031	0.047	0.062	0.094
	Depth of Cut	0.002	0.004	0.008	0.0155	0.0235	0.031	0.047
Metric	Nose Radius Min.	0.1	0.2	0.4	0.8	1.2	1.6	2.4
	Depth of Cut	0.05	0.1	0.2	0.4	0.6	0.8	1.2
the **Feed Rate** for **Roughing** should not be more than half the size of the nose radius								
Inch	Nose Radius Min.	0.004	0.008	0.016	0.031	0.047	0.062	0.094
	Depth of Cut	0.002	0.004	0.008	0.0155	0.0235	0.031	0.047

Material

Steel Alloy Steel	BEST
Cast Iron	Good
Stainless Steel	Fair

For Insert Grade Cutting Data
See page 17

For Insert Cutting Speed Recommendation Form
see page 40

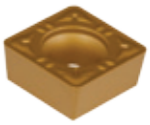
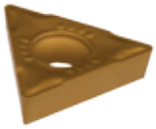
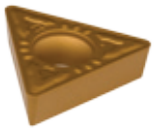
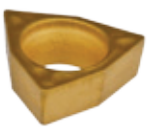
Material Hardness	HB	HRC
Carbon Steel Annealed	125	
Alloy Steel Annealed	180	8
Alloy Steel Heat Treated	300	32
Stainless Steel Austenitic 300 Series	180	8
Gray Cast Iron	180	8

Application

	Finishing		Medium		Roughing	
Insert Grade	DPC15HT		DPC25UT		DPC35RT	
Chip Breaker	PEF/PEM/PEU		PEF/PEM/PEU		PEU	
ISO Insert Grade	P10-P25 M10-M25		P15-P35 M15-M35		P25-P45 M25-M45	
ANSI Insert Grade	C6-C7		C5-C6		C5	
Insert Coating	CVD Al_2O_3/TiCN/Al_2O_3/TiCN		CVD Al_2O_3/TiCN/Al_2O_3/TiCN		CVD Al_2O_3/TiCN/Al_2O_3/TiCN	
Insert Aptitude	Hard & Wear Resistant Turning at High SFM		Tough & Wear Resistant Turning at Medium SFM		Hard, Tough, & Impact Resistant Turning at Low SFM	
Condition	Wet		Wet		Wet	
Cutting Data	Inch	Metric	Inch	Metric	Inch	Metric
Depth of Cut ap	.002 - .039	0.05 - 1.00	.004 - .118	0.10 - 3.00	.008 - .157	0.20 - 4.00
Feed per Rev. fn	.002 - .008	0.05 - 0.20	.004 - .020	0.10 - 0.50	.008 - .031	0.20 - 0.80
SFM (Vc)						
Carbon Steel Annealed	1616 - 969	490 - 294	1346 - 808	408 - 245	1122 - 561	340 - 170
Alloy Steel Annealed	1140 - 684	346 - 207	950 - 570	288 - 173	792 - 396	240 - 120
Alloy Steel Heat Treated	570 - 342	173 - 104	475 - 285	144 - 86	396 - 198	120 - 60
Stainless Steel Austenitic 300 Series	808 - 485	245 - 147	673 - 404	204 - 122	561 - 281	170 - 85
Gray Cast Iron	990 - 693	300 - 210				

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
CCMT-PEF 80° Diamond Finishing 	CCMT-21.51-PEF	CCMT-060204-PEF	71877	71878	
	CCMT-21.52-PEF	CCMT-060208-PEF	71879	71880	
	CCMT-32.51-PEF	CCMT-09T304-PEF	71883	71884	
	CCMT-32.52-PEF	CCMT-09T308-PEF	71885	71886	
	CCMT-431-PEF	CCMT-120404-PEF	71889	71890	
CCMT-PEM 80° Diamond Medium 	CCMT-21.50.5-PEM	CCMT-060202-PEM	71875	71876	
	CCMT-21.51-PEM	CCMT-060204-PEM	71933	71934	
	CCMT-21.52-PEM	CCMT-060208-PEM	71881	71882	
	CCMT-32.51-PEM	CCMT-09T304-PEM	71935	71936	
	CCMT-32.52-PEM	CCMT-09T308-PEM	71887	71988	
	CCMT-431-PEM	CCMT-120404-PEM	71937	71938	
	CCMT-432-PEM	CCMT-120408-PEM	71891	71892	
DCMT-PEF 55° Diamond Finishing 	DCMT-21.51-PEF	DCMT-070204-PEF	71893	71894	
	DCMT-32.51-PEF	DCMT-11T304-PEF	71897	71898	
DCMT-PEM 55° Diamond Finishing 	DCMT-21.51-PEM	DCMT-070204-PEM	71895	71896	
	DCMT-32.51-PEM	DCMT-11T304-PEM	71899	71900	
	DCMT-32.52-PEM	DCMT-11T308-PEM	71901	71902	
SCMT-PEF Square Finishing 	SCMT-32.51-PEF	SCMT-09T304-PEF	71903	71904	

Continued From Page 60

Description	ANSI	ISO	DPC15HT	DPC25UT	DPC35RT
	Insert Grade		UPC 733101-	UPC 733101-	UPC 733101-
SCMT-PEM Square Finishing 	SCMT-32.52-PEM	SCMT-09T308-PEM	71905	71906	
	SCMT-432-PEM	SCMT-120408-PEM	71907	71908	
	SCMT-433-PEM	SCMT-120412-PEM	71939	71940	
TCMT-PEF 60° Triangle Finishing 	TCMT-1.21.20.2-PEF	TCMT-06T101-PEF		80249	
	TCMT-21.50.5-PEF	TCMT-110202-PEF	71909	71910	
	TCMT-21.51-PEF	TCMT-110204-PEF	71911	71912	
TCMT-PEM 60° Triangle Medium 	TCMT-21.51-PEM	TCMT-110204-PEM	71941	71942	
	TCMT-21.52-PEM	TCMT-110208-PEM	71913	71914	
	TCMT-32.51-PEM	TCMT-16T304-PEM	71915	71916	
	TCMT-32.52-PEM	TCMT-16T308-PEM	71917	71918	
TPMR-PEU 60° Triangle Universal 	TPMR-221-PEU	TPMR-110304-PEU	71945	71946	71947
	TPMR-222-PEU	TPMR-110308-PEU	71948	71949	71950
	TPMR-321-PEU	TPMR-160304-PEU	71951	71952	71953
	TPMR-322-PEU	TPMR-160308-PEU	71954	71955	71956
VBMT-PEF 35° Diamond Finishing 	VBMT-331-PEF	VBMT-160404-PEF	71919	71920	
	VBMT-332-PEF	VBMT-160408-PEF	71921	71922	
	VBMT-333-PEF	VBMT-160412-PEF	71923	71924	
VCMT-PEF 35° Diamond Finishing 	VCMT-221-PEF	VCMT-110304-PEF	71925	71926	
	VCMT-331-PEF	VCMT-160404-PEF	71927	71928	
	VCMT-332-PEF	VCMT-160408-PEF	71931	71932	
VCMT-PEM 35° Diamond Medium 	VCMT 331-PEM	VCMT-160404-PEM	71943	71944	
	VCMT 332-PEM	VCMT-160408-PEM	71929	71930	
WCMT-PEF 80° Trigon Finishing 	WCMT-1.210.2-PEF	WCMT-S20101-PEF		80251	

Material

Stainless Steel	BEST
Gray Cast Iron	BEST

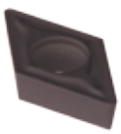
For Insert Grade Cutting Data
See page 18

For Insert Cutting Speed Recommendation Form
see pages 41 and 42

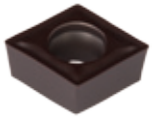
Application

	Finishing	Universal	Roughing
Insert Grade	DMC30UT	DKC10UT	DKC15RT
Chip Breaker	MEM	KEM	KEM
ISO Insert Grade	P35 M35	K15-P15-M15-N15-S15	K25-P25- M25-N25-S25
ANSI Insert Grade	C5-C6	C2-C3	C1-C2
Insert Coating	CVD TiCN/TiN	CVD TiN/TiCNB/Al_2/TiO_3/$3Al_2O_3$	CVD TiN/TiCNB/Al_2/TiO_3/$3Al_2O_3$
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Hard, Tough & Wear Resistant Turning at Medium SFM	Hard, Tough & Impact Resistant Turning at Low SFM
Condition	Wet	Wet	Wet
Cutting Data			
	Inch / Metric	Inch / Metric	Inch / Metric
Depth of Cut ap	.002 - .157 / 0.05 - 4.00	.004 - .079 / 0.10 - 2.00	.008 - .157 / 0.20 - 4.00
Feed per Rev. fn	.004 - .024 / 0.10 - 0.60	.002 - .012 / 0.05 - 0.30	.004 - .016 / 0.10 - 0.40

Material Hardness	HB	HRC	SFM (Vc)	SFM (Vc)	SFM (Vc)
Austenitic Stainless Steel 300 Series	180	8	878 - 527 / 266 - 160		
Ferritic and Martensitic Stainless Steel 400 Series	330	34	559 - 335 / 169 - 102		
Gray Cast Iron	180	8		1114 - 668 / 338 - 203	743 - 520 / 225 - 158
Modular Cast Iron	160	8		1064 - 639 / 323 - 194	710 - 497 / 215 - 151

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
CCMT-MEM 80° Diamond Finishing/ Medium 	CCMT-32.51-MEM	CCMT-09T304-MEM	70750		
	CCMT-32.52-MEM	CCMT-09T308-MEM	70751		
	CCMT-431-MEM	CCMT-120404-MEM	70752		
CCMT-KEM 80° Diamond Finishing/ Medium 	CCMT-32.51-KEM	CCMT-09T304-KEM			70753
	CCMT-32.52-KEM	CCMT-09T308-KEM			70754
	CCMT-432-KEM	CCMT-120408-KEM			70755
DCMT-MEM 55° Diamond Finishing/ Medium 	DCMT-32.51-MEM	DCMT-11T304-MEM	70760		
	DCMT-32.52-MEM	DCMT-11T308-MEM	70761		
DCMT-KEM 55° Diamond Finishing 	DCMT-21.51-KEM	DCMT-070204-KEM		70762	70763
	DCMT-21.52-KEM	DCMT-070208-KEM		70764	70765
	DCMT-32.51-KEM	DCMT-11T304-KEM		70766	70767
	DCMT-32.52-KEM	DCMT-11T308-KEM		70768	70769
SCMT-MEM Square Medium 	SCMT-432-MEM	SCMT-120408-MEM	70772		

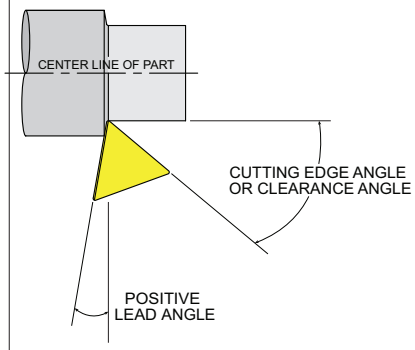
Continued From Page 62

Description	ANSI	ISO	Insert Grade DMC30UT UPC 733101-	DKC10UT UPC 733101-	DKC15RT UPC 733101-
SCMT-KEM Square Medium 	SCMT-432-KEM	SCMT-120408-KEM			70773
TCMT-MEM 60° Triangle Medium 	TCMT-21.51-MEM	TCMT-110204-MEM	70776		
	TCMT-21.51-MEM	TCMT-110208-MEM	70777		
	TCMT-32.51-MEM	TCMT-16T304-MEM	70778		
	TCMT-32.52-MEM	TCMT-16T308-MEM	70779		
VCMT-MEM 35° Diamond Medium 	VCMT-331-MEM	VCMT-160404-MEM	70783		
	VCMT-332-MEM	VCMT-160408-MEM	70784		
	VCMT-333-MEM	VCMT-160412-MEM	70785		

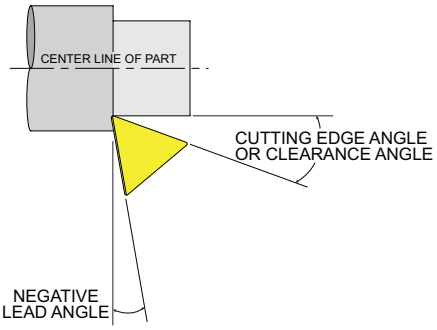
Dorian Tool Technical Support

Insert Cutting Angles

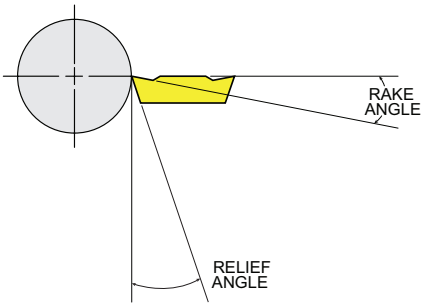
LEAD and **CLEARANCE** ANGLE - Positive



LEAD and **CLEARANCE** ANGLE - Negative



RAKE and **RELIEF** ANGLE



Lead Angle - The angle formed by the side flank of the insert cutting side and the line perpendicular to the workpiece centerline.

A **positive** lead angle moves the cutting side flank ahead of the cutting line.

Clearance Angle (Cutting Edge Angle) - The angle formed by the trailing end flank of the insert.

Lead Angle - The angle formed by the side flank of the insert cutting side and the line perpendicular to the workpiece centerline.

A **negative** lead angle moves the cutting side flank behind the cutting line.

Clearance Angle (Cutting Edge Angle) - The angle formed by the trailing end flank of the insert.

Rake Angle - The angle formed on the insert from the top surface area and the bottom of the insert chip flow area when parallel to the floor.

Relief Angle - The angle measured from the line perpendicular to the cutting edge of the insert and the cutting face of the insert.

Material

Cast Iron	BEST
Carbon-Graphite-Phenolics	BEST
Hardened Material	BEST

For Insert Grade Cutting Data
See page 19

For Insert Cutting Speed Recommendation Form
see pages 42, 43 and 45 - 47.

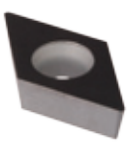
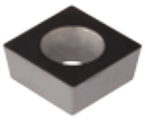
Application

	General	Finishing	Roughing
Insert Grade	DKU10HT	DUP15VT	DUP35RT
Chip Breaker	KEU	KEU	KEU
ISO Insert Grade	M10-K10-S10	P10 M10 K10 S10	P20 M25 K25 S25
ANSI Insert Grade	C3-C4	C3-C8	C3-C7
Insert Coating	Uncoated	PVD AlCrN	PVD TiAlN/WC/C
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Very Hard & Abrasive Resistant Turning at Higher SFM	Difficult & Unstable Operation Turning at High SFM
Condition	Wet	Dry	Wet-Dry

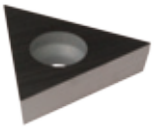
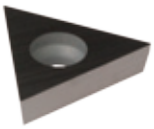
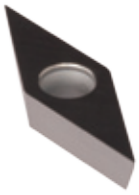
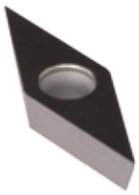
Cutting Data

	General		Finishing		Roughing	
	Inch	Metric	Inch	Metric	Inch	Metric
Depth of Cut ap	.002 - .039	0.05 - 1.00	.002 - .098	0.05 - 2.50	.008 - .157	0.20 - 4.00
Feed per Rev. fn	.002 - .008	0.05 - 0.20	.002 - .008	0.05 - 0.20	.002 - .016	0.05 - 0.40

Material Hardness	HB	HRC	General SFM (Vc)		Finishing SFM (Vc)		Roughing SFM (Vc)	
Gray Cast Iron Low Tensile Strength	180	10	625 - 375	190 - 114	1042 - 625	316 - 190	891 - 624	270 - 189
Carbon-Graphite-Phenolics			228 - 137	69 - 41	380 - 190	115 - 58	264 - 211	80 - 64
Hardened Material		45	69 - 42	21 - 13	116 - 69	35 - 21	99 - 69	30 - 21

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
CDGW-KEU 80° Diamond Universal 	CDGW-1.20.60.2-KEU	CDGW-S4T001-KEU	79340	79341	79343
	CDGW-1.20.60.5-KEU	CDGW-S4T002-KEU	79344	79345	79347
	CDGW-1.510.5-KEU	CDGW-040102-KEU	79348	79349	79351
	CDGW-1.511-KEU	CDGW-040104-KEU	79352	79353	79355
CCGW-KEU **CCMW-KEU** 80° Diamond Universal 	CCGW-21.51-KEU	CCGW-060204-KEU	79356	79357	79359
	CCGW-32.52-KEU	CCGW-09T308-KEU	79364	79365	79367
	CCMW-32.51-KEU	CCMW-09T304-KEU	70757	79360	
	CCMW-431-KEU	CCMW-120404-KEU	70758	79361	
	CCMW-432-KEU	CCMW-120408-KEU	70759	79362	
CPGW-KEU 80° Diamond Universal 	CPGW-1.81.20.5-KEU	CPGW-05T102-KEU	79368	79369	79371
	CPGW-1.81.21-KEU	CPGW-05T104-KEU	79372	79373	79375
	CPGW-21.51-KEU	CPGW-060204-KEU	79376	79377	79379
	CPGW-32.51-KEU	CPGW-09T304-KEU	79380	79381	79383
	CPGW-32.52-KEU	CPGW-09T308-KEU	79384	79385	79387
DCGW-KEU **DCMW-KEU** 55° Diamond Universal 	DCGW-21.51-KEU	DCGW-070204-KEU	79388	79389	79391
	DCMW-32.51-KEU	DCMW-11T304-KEU	70770	79392	
	DCMW-32.52-KEU	DCMW-11T308-KEU	70771	79393	
SCMW-KEU Square Universal 	SCMW-32.51-KEU	SCMW-09T304-KEU	70774	79394	
	SCMW-431-KEU	SCMW-120404-KEU	70775	79395	

Continued From Page 64

Description	ANSI	ISO	Insert Grade DKU10HT UPC 733101-	DUP15VT UPC 733101-	DUP35RT UPC 733101-
TCGW-KEU **TCMW-KEU** 60° Triangle Universal 	TCGW-21.51-KEU	TCGW-110204-KEU	79400	79401	79403
	TCGW-32.52-KEU	TCGW-16T308-KEU	79408	79409	79411
	TCMW-21.51-KEU	TCMW-110204-KEU	70780	79396	
	TCMW-32.51-KEU	TCMW-16T304-KEU	70781	79397	
TPGW-KEU 60° Triangle Universal 	TPGW-21.51-KEU	TPGW-110204-KEU	79412	79413	79415
	TPGW-32.51-KEU	TPGW-16T304-KEU	79416	79417	79419
	TPGW-32.52-KEU	TPGW-16T308-KEU	79420	79421	79423
VBGW-KEU 35° Diamond Universal 	VBGW-221-KEU	VBGW-110304-KEU	79424	79425	79427
	VBGW-331-KEU	VBGW-160404-KEU	79428	79429	79431
	VBGW-332-KEU	VBGW-160408-KEU	79432	79433	79435
VCGW-KEU 35° Diamond Universal 	VCGW-221-KEU	VCGW-110304-KEU	79436	79437	79439
	VCGW-331-KEU	VCGW-160404-KEU	79440	79441	79443
	VCGW-332-KEU	VCGW-160408-KEU	79444	79445	79447

Dorian Tool Technical Support

Insert Best Performance

Starting: Follow the recommended use and cutting parameters of the insert according to material and application.

Application: **For Roughing**, use a tough coated insert grade with a large nose radius, heavy honed cutting edge and large chipbreaker. Cut at a low SFM with a large Depth of Cut (a_p) and high Feed Rate per Rev. (f_n)

For Universal, use a hard, tough and wear resistant coated insert grade with a medium nose radius, honed cutting edge and medium chipbreaker. Cut at a medium SFM with a medium Depth of Cut (a_p) and medium Feed Rate per Rev. (f_n)

For Finishing, use a hard and wear resistant coated insert grade with a small nose radius, sharp to light honed cutting edge and small chipbreaker. Cut at a high SFM with a medium Depth of Cut (a_p) and medium Feed Rate per Rev. (f_n)

Optimum: **Insert Wear**, decrease Spindle Speed (n), and/or increase Feed (f_n), or change to a a harder insert grade.

Insert Chipping, increase Spindle Speed (n), decrease Feed (f_n), and/or change to a heavier honed edge or chnage to a tougher insert grade.

Coolant: **Use Coolant**, if the insert grade allows, and always use high pressure coolant to remove the hot chips and heat from the insert to reduce thermal shock.

Material

Aluminum	Best
Magnesium-Zinc	Best
Copper Alloy	Best
Brass -Bronze	Best
Nylon- Plastic & Rubber	Best
Carbon-Graphite-Phenolics	Best
Brass -Bronze	Best

For Insert Grade Cutting Data
See page 18

For Insert Cutting Speed Recommendation Form
see page 44

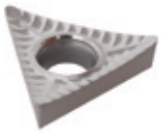
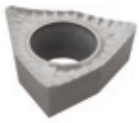
Application

	General	Universal
	DNU10GT	DNX10UT
	NFU/NFF	NFU
	K15 P15 M15 N15 S15	K10 M10 N10 S10
	C2-C3	C2-C4
Insert Coating	Uncoated	Micropuls® Plasma TiAlN
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Very Hard & Abrasive Resistant Turning at Higher SFM
Condition	Wet	Wet
Cutting Data		
	Inch / Metric	Inch / Metric
Depth of Cut ap	.002 - .039 / 0.05 - 1.00	.002 - .157 / 0.05 - 4.00
Feed per Rev. fn	.002 - .008 / 0.05 - 0.20	.002 - .020 / 0.05 - 0.50

Material Hardness	HB	HRC	SFM (Vc)		SFM (Vc)	
Aluminum		70	6353 - 1906	1925 - 578	8250 - 2475	2500 - 750
Magnesium-Zinc		10	2261 - 678	685 - 206	2937 - 881	890 - 267
Copper Alloy			1474 - 737	447 - 223	1914 - 957	580 - 290
Brass -Bronze		10	826 - 413	250 - 125	1073 - 536	325 - 163
Nylon- Plastic & Rubber		0	2246 - 674	681 - 204	2917 - 875	884 - 265
Carbon-Graphite-Phenolics		10	305 - 122	92 - 37	396 - 158	120 - 48

Description	ANSI	ISO	UPC 733101-	UPC 733101-
CCGT-NFU 80° Diamond Universal	CCGT-21.50.5-NFU	CCGT-060202-NFU	80020	80021
	CCGT-21.51-NFU	CCGT-060204-NFU	80024	80025
	CCGT-32.50.5-NFU	CCGT-09T302-NFU	80028	80029
	CCGT-32.51-NFU	CCGT-09T304-NFU	80032	80033
	CCGT-32.52-NFU	CCGT-09T308-NFU	80036	80037
	CCGT-431-NFU	CCGT-120404-NFU	80040	80041
	CCGT-432-NFU	CCGT-120408-NFU	80044	80045
DCGT-NFU 55° Diamond Universal	DCGT-21.50.5-NFU	DCGT-070202-NFU	80048	80049
	DCGT-21.51-NFU	DCGT-070204-NFU	80052	80053
	DCGT-32.50.5-NFU	DCGT-11T302-NFU	80056	80057
	DCGT-32.51-NFU	DCGT-11T304-NFU	80060	80061
	DCGT-32.52-NFU	DCGT-11T308-NFU	80064	80065
RCMT-NFU Round Finishing/Medium	RCMT-0602MO-NFU	RCMT-0602MO-NFU	70798	
RCGT-NFU Round Universal	RCGT-0602MO-NFU	RCGT-0602MO-NFU	80068	80069
	RCGT-0803MO-NFU	RCGT-0803MO-NFU	80072	80073
	RCGT-1003MO-NFU	RCGT-1003MO-NFU	80076	80077

Continued From Page 66

Description	ANSI	ISO	DNU10GT UPC 733101-	DNX10UT UPC 733101-
		Insert Grade		
SCGT-NFU Square Universal 	SCGT-432-NFU	SCGT-120408-NFU	80084	80085
TCGT-NFU 60° Triangle Universal 	TCGT-21.51-NFU	TCGT-110204-NFU	80089	80090
	TCGT-32.51-NFU	TCGT-16T304-NFU	80093	80094
VCGT-NFU 35° Triangle Universal 	VCGT-220.5-NFU	VCGT-110302-NFU	80098	80099
	VCGT-221-NFU	VCGT-110304-NFU	80103	80104
	VCGT-330.5-NFU	VCGT-160402-NFU	80107	80108
	VCGT-331-NFU	VCGT-160404-NFU	80111	80112
	VCGT-332-NFU	VCGT-160408-NFU	80115	80116
	VCGT-333-NFU	VCGT-160412-NFU	80119	80120
	VCGT-448-NFU	VCGT-220530-NFU	80123	80124
VPGT-NFU 35° Triangle Universal 	VPGT-221-NFU	VPGT-110304-NFU	80127	80128
	VPGT-333-NFU	VPGT-160412-NFU	80131	80133
	VPGT-444-NFU	VPGT-220516-NFU	80135	80136
WCGT-NFU 80° Trigon Universal 	WCGT-32.50.5-NFU	WCGT-06T302-NFU	80140	80141
	WCGT-32.51-NFU	WCGT-06T304-NFU	80144	80145
	WCGT-32.52-NFU	WCGT-06T308-NFU	80148	80149
	WCGT-431-NFU	WCGT-080404-NFU	80152	80153
	WCGT-432-NFU	WCGT-080408-NFU	80156	80157

Dorian Tool Technical Support

Insert Application Guide

Finishing

- Hard and Wear resistant
- PVD and CVD Coating
- Small Nose radius
- Light Honed Edge
- Small Chipbreaker

Universal

- Wear Resistant and Tough
- PVD and CVD Coating
- Medium Nose Radius
- Medium Honed Cutting Edge
- Medium Chipbreaker

Roughing

- Tough and Impact Resistant
- PVD and CVD Coating
- Large Nose Radius
- Heavy Honed Cutting Edge
- Large Chip Breaker

Cutting Data

- Small Depth of cut (a_p)
- Small Feed per Revolution (f_n)
- High Surface Cutting Speed (Vc)
- Use Coolant if Insert Allows

- Medium Depth of cut (a_p)
- Medium Feed per Revolution (f_n)
- Medium Surface Cutting Speed (Vc)
- Use Coolant if Insert Allows

- Large Depth of cut (a_p)
- High Feed per Revolution (f_n)
- Low Surface Cutting Speed (Vc)
- Use Coolant if Insert Allows

Material

Carbon & Alloy Steel	Good
Stainless Steel	Good
Cast Iron	Good
Non Ferrous Material	Good

For Insert Grade Cutting Data
See page 13

For Insert Cutting Speed Recommendation Form
see pages 40 and 44.

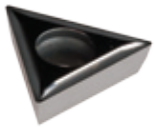
Application

	General Purpose	General Purpose	General Purpose
Insert Grade	DPP30GT	DNU25GT	DNP25GT
Chip Breaker	EN	EN	EN
ISO Insert Grade	P20-P35 M20-M35	K25 P25 M25 N25 S25	P10 M15 K25-S25
ANSI Insert Grade	C6-C7	C1-C2	C1-C2
Insert Coating	PVD TiN	Uncoated	PVD TiN
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Tough & Wear Resistant Turning at Low SFM	Tough & Wear Resistant Turning at Medium SFM
Condition	Wet	Wet	Wet
Cutting Data			
	Inch / Metric	Inch / Metric	Inch / Metric
Depth of Cut ap	.02 - .24 / 0.5 - 6.0	.02 - .24 / 0.5 - 6.0	.02 - .24 / 0.5 - 6.0
Feed per Rev. fn	.004 - .031 / 0.1 - 0.8	.004 - .031 / 0.1 - 0.8	.004 - .031 / 0.1 - 0.8

Material Hardness	HB	HRC	SFM (Vc)		SFM (Vc)		SFM (Vc)	
Carbon & Alloy Steel	125		957 - 578	290 - 175				
Stainless Steel Austenitic 300 Series	180	8	875 - 495	265 - 150	627 - 396	190 - 120	908 - 528	275 - 160
Gray Cast Iron	300	32			726 - 429	220 - 130	957 - 545	290 - 165
Non Ferrous Material	180	8			1188 - 528	360 - 160	1403 - 743	425 - 225

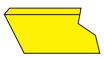
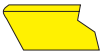
Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
SDP-EN Square General Purpose	SDP-322-EN	SDP-090308-EN	71544	71541	71543
	SDP-422-EN	SDP-120308-EN	71550	71547	71549
	SDP-532-EN	SDP-150408-EN	71556	71553	71555
SPG-EN Square General Purpose	SPG-321-EN	SPG-090304-EN	71562	71559	71561
	SPG-322-EN	SPG-090308-EN	71568	71565	71567
	SPG-422-EN	SPG-120308-EN	71574	71571	71573
	SPG-432-EN	SPG-120408-EN	71579		
TEGE/TPG-EN 60° Triangle General Purpose	TEGE-1.81.51-EN	TEGE-100404-EN		71600	71601
	TPG-221-EN	TPG-110304-EN	71608	71605	71607
	TPG-222-EN	TPG-110308-EN	71614	71611	71613
	TPG-321-EN	TPG-160304-EN	71620	71617	71619
	TPG-322-EN	TPG-160308-EN	71626	71623	71625
	TPG-431-EN	TPG-220404-EN	71632	71629	71631
	TPG-432-EN	TPG-220408-EN	71638	71635	71637
	TPG-542-EN	TPG-270608-EN	71644		
	TPG-543-EN	TPG-270612-EN	71650		
TPGB-EN 60° Triangle General Purpose	TPGB-21.51-EN	TPGB-110204-EN	71654	71652	
	TPGB-21.52-EN	TPGB-110208-EN	71657	71655	
	TPGB-321-EN	TPGB-160404-EN	71661	71659	
	TPGB-322-EN	TPGB-160408-EN	71664	71662	
	TPGB-431-EN	TPGB-220404-EN	71675	71673	
	TPGB-432-EN	TPGB-220408-EN	71678	71676	

Continued From Page 68

Description		ANSI	ISO	DPP30GT UPC 733101-	DNU25GT UPC 733101-	DNP25GT UPC 733101-
TPGH-EN 60° Triangle General Purpose		TPGH-21.51-EN	TPGH-110204-EN-	71704	71700	71703
		TPGH-21.52-EN	TPGH-110208-EN-	71708	71706	71709
		TPGH-321-EN	TPGH-160304-EN-	71715	71712	71716
		TPGH-322-EN	TPGH-160308-EN-	71722	71718	71720
		TPGH-431-EN	TPGH-220404-EN-	71730	71726	71728
		TPGH-432-EN	TPGH-220408-EN-	71736	71734	71737
TPHT-EN 60° Triangle General Purpose		TPHT-32.51-EN	TPHT-16T304-EN	71751	71748	71750
		TPHT-32.52-EN	TPHT-16T308-EN	71756	71753	71755

Dorian Tool Technical Support

Insert Edge Preparation - The process used to prepare the insert's edge cutting condition for specific application and material. Achieved by honing, chamfering, "T" land or any combination there of.

Symbol		Edge Preparation	Material	Application
F		Sharp	Aluminum Nylon Plastics	Roughing - Medium Finishing
E		Honed Light	Carbon Steel Alloy Steel Stainless Steel Cast Iron High Temp Super Alloy All non Ferrous Metals	Finishing
E		Honed Medium	Carbon Steel Alloy Steel Stainless Steel Cast Iron High Temp Super Alloy All non Ferrous Metals	Roughing - Medium
S		Negative Land and Honed	Carbon Steel Alloy Steel Stainless Steel Cast Iron	Heavy Roughing with Interrupted Cuts
T		Negative Land and Round	Carbon Steel Alloy Steel Stainless Steel Cast Iron	Extra Heavy Roughing in Forging and Casting with Heavy Interrupted Cuts

Material

Steel Alloy Steel	BEST
Stainless Steel	Good
Cast Iron	Fair

For Insert Grade Cutting Data
See page 17

For Insert Cutting Speed Recommendation Form
see pages 40 - 41.

Application

	Finishing	Universal	Roughing	Universal
Insert Grade	DPC15HT	DPC25UT	DPC35RT	DMC30UT
Chip Breaker	UEXR/L	UEXR/L	UEXR/L	UEXR/L
ISO Insert Grade	P10-P25 M10-M25	P15-P35 M15-M35	P25-P45 M25-M45	M35-P35
ANSI Insert Grade	C6-C7	C5-C6	C5	C5-C6
Insert Coating	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD TiCN/TiN
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Hard, Tough, & Wear Resistant Turning at Medium SFM	Tough & Impact Resistant Turning at Low SFM	Hard, Tough, & Wear Resistant Turning at Medium SFM
Condition	Wet	Wet	Wet	Wet
Cutting Data				
	Inch / Metric	Inch / Metric	Inch / Metric	Inch / Metric
Depth of Cut ap	.002 - .039 / 0.05 - 1.00	.004 - .079 / 0.10 - 2.00	.008 - .157 / 0.20 - 4.00	.004 - .079 / 0.10 - 2.00
Feed per Rev. fn	.002 - .008 / 0.05 - 0.20	.004 - .020 / 0.10 - 0.50	.008 - .031 / 0.20 - 0.80	.004 - .020 / 0.10 - 0.50

Material Hardness	HB	HRC	SFM (Vc)	SFM (Vc)	SFM (Vc)	SFM (Vc)
Carbon Steel Annealed	125	5	1616 - 969 / 490 - 294	1346 - 808 / 408 - 245	1122 - 561 / 340 - 170	
Alloy Steel Annealed	180	8	1140 - 684 / 346 - 207	950 - 570 / 288 - 173	792 - 396 / 240 - 120	
Alloy Steel Heat Treated	300	32	570 - 342 / 173 - 104	475 - 285 / 144 - 86	396 - 198 / 120 - 60	
Stainless Steel Austenitic 300 Series	180	8	808 - 485 / 245 - 147	673 - 404 / 204 - 122	561 - 281 / 170 - 85	799 - 479 / 242 - 145
Gray Cast Iron	180	8	990 - 693 / 300 - 210			

Description	ANSI	ISO	UPC 733101- R.H	L.H.	R.H	L.H.	R.H	L.H.	R.H	L.H.
CCGT-UEXR/L 80° Diamond Universal 	CCGT-21.51-UEXR/L	CCGT-060204-UEXR/L			70679	70676	70680	70677	70681	70678
	CCGT-21.52-UEXR/L	CCGT-060208-UEXR/L			70685	70682	70686	70683	70687	70684
	CCGT-32.51-UEXR/L	CCGT-09T304-UEXR/L			70691	70688	70692	70689	70693	70690
	CCGT-32.52-UEXR/L	CCGT-09T308-UEXR/L			70697	70694	70698	70695	70699	70696
	CCGT-432-UEXR/L	CCGT-120408-UEXR/L			70703	70700	70704	70701	70705	70702
	CCGT-433-UEXR/L	CCGT-120412-UEXR/L			70709	70706	70710	70707	70711	70708
DCGT-UEXR/L 55° Diamond Universal 	DCGT-21.51-UEXR/L	DCGT-070204-UEXR/L			70715	70712	70716	70713	70717	70714
	DCGT-32.51-UEXR/L	DCGT-11T304-UEXR/L			70721	70718	70722	70719	70723	70720
	DCGT-32.52-UEXR/L	DCGT-11T308-UEXR/L	70728	70724	70729	70725	70730	70726	70731	70727
RCMX-UEX Round Universal 		RCMX-1003MO-UEX					71957			
		RCMX-1204MO-UEX			71958		71959			
		RCMX-1606MO-UEX	71961		71962		71963			
		RCMX-2006MO-UEX	71966		71967		71968			
		RCMX-2507MO-UEX	71971		71972		71973			
		RCMX-3209MO-UEX			71976		71977			
TCGT-UEXR/L 60° Triangle Universal 	TCGT-21.51-UEXR/L	TCGT-110204-UEXR/L			70735	70732	70736	70733	70737	70734
	TCGT-32.51-UEXR/L	TCGT-16T304-UEXR/L			70741	70738	70742	70739	70743	70740
	TCGT-32.52-UEXR/L	TCGT-16T308-UEXR/L			70747	70744	70748	70745	70749	70746

Material

Steel Alloy Steel	BEST
Stainless Steel	Good
Cast Iron	Fair

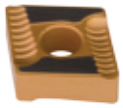
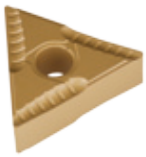
For Insert Grade Cutting Data
See page 26

For Insert Cutting Speed Recommendation Form
see pages 40 - 41.

Application

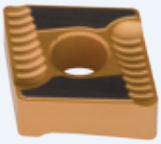
	Finishing	Universal	Roughing	Universal
Insert Grade	DPC15HT	DPC25UT	DPC35RT	DMC30UT
Chip Breaker	UEXR/L	UEXR/L	UEXR/L	UEXR/L
ISO Insert Grade	P15 M15 K15	P25 M25	P35 M35	M20-P35
ANSI Insert Grade	C6-C7	C5-C6	C5	C5-C6
Insert Coating	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD TiCN/TiN
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Hard, Tough, & Wear Resistant Turning at Medium SFM	Hard, Tough, & Impact Resistant Turning at Low SFM	Hard, Tough, & Wear Resistant Turning at Medium SFM
Condition	Wet	Wet	Wet	Wet
Cutting Data				
	Inch / Metric	Inch / Metric	Inch / Metric	Inch / Metric
Depth of Cut ap	.012 - .118 / 0.30 - 3.00	.024 - .157 / 0.60 - 4.00	.031 - .236 / 0.80 - 6.00	.024 - .157 / 0.60 - 4.00
Feed per Rev. fn	.002 - .012 / 0.05 - 0.30	.004 - .020 / 0.10 - 0.50	.008 - .031 / 0.20 - 0.80	.002 - .008 / 0.05 - 0.20

Material Hardness	HB	HRC	SFM (Vc)	SFM (Vc)	SFM (Vc)	SFM (Vc)
Carbon Steel Annealed	125	5	1616 - 969 / 490 - 294	1346 - 808 / 408 - 245	1122 - 561 / 340 - 170	
Alloy Steel Annealed	180	8	1140 - 684 / 346 - 207	950 - 570 / 288 - 173	792 - 396 / 240 - 120	
Alloy Steel Heat Treated	300	32	570 - 342 / 173 - 104	475 - 285 / 144 - 86	396 - 198 / 120 - 60	
Stainless Steel Austenitic 300 Series	180	8	808 - 485 / 245 - 147	673 - 404 / 204 - 122	561 - 281 / 170 - 85	673 - 404 / 204 - 122
Gray Cast Iron	180	8	990 - 693 / 300 - 210			

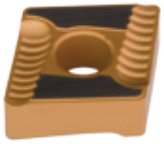
Description	ANSI	ISO	UPC 733101- R.H	UPC 733101- L.H.	UPC 733101- R.H	UPC 733101- L.H.	UPC 733101- R.H	UPC 733101- L.H.	UPC 733101- R.H	UPC 733101- L.H.
CNMX-UEXR/L 80° Diamond Universal 	CNMX-431-UEXR/L	CNMX-120404-UEXR/L			69414	69411	69415	69412	69416	69413
	CNMX-432-UEXR/L	CNMX-120408-UEXR/L			69420	69417	69421	69418	69422	69419
	CNMX-433-UEXR/L	CNMX-120412-UEXR/L			69426	69423	69427	69424	69428	69425
DNMX-UEXR/L 55° Diamond Universal 	DNMX-331-UEXR/L	DNMX-110404-UEXR/L	69432	69429	69433	69430	69434	69431		
	DNMX-332-UEXR/L	DNMX-110408-UEXR/L	69438	69435	69439	69436	69440	69437		
	DNMX-431-UEXR/L	DNMX-150404-UEXR/L			69444	69441	69445	69442	69446	69443
	DNMX-432-UEXR/L	DNMX-150408-UEXR/L			69450	69447	69451	69448	69452	69449
	DNMX-441-UEXR/L	DNMX-150604-UEXR/L	69457	69453	69458	69454	69459	69455	69460	69456
	DNMX-442-UEXR/L	DNMX-150608-UEXR/L	69465	69461	69466	69462	69467	69463	69468	69464
TNMX-UEXR/L 60° Triangle Universal 	TNMX-321-UEXR/L	TNMX-160404-UEXR/L	69473	69469	69474	69470	69475	69471	69476	69472
	TNMX-322-UEXR/L	TNMX-160408-UEXR/L	69481	69477	69482	69478	69483	69479	69484	69480

Dorian Tool Technical Support

Insert Cutting Direction



External Right Hand Shown
Internal Left Hand Opposite



External Left Hand Shown
Internal Right Hand Opposite

Material

Carbon & Alloy Steel	Good
Stainless Steel	Good
Cast Iron	Good
Non Ferrous Material	Good

For Insert Grade Cutting Data
See page 13

For Insert Cutting Speed Recommendation Form
see pages 44 - 47

Material Hardness	HB	HRC
Carbon & Alloy Steel	240	22
Stainless Steel Austenitic 300 Series	180	8
Gray Cast Iron	180	8
Non Ferrous Material	180	8

Application

	General Purpose	General Purpose
Insert Grade	DNU25GT	DUP25UT
Chip Breaker	E	E
ISO Insert Grade	K25 P25 M25 N25 S25	P15 M15 K25 S25
ANSI Insert Grade	C1-C2	C3-C7
Insert Coating	Uncoated	PVD TiN/TiAlN/TiN
Insert Aptitude	Tough & Wear Resistant Turning at Low SFM	Tough & Wear Resistant Turning at Medium SFM
Condition	Wet	Wet
Cutting Data		
	Inch / Metric	Inch / Metric
Depth of Cut ap	.020 - .24 / 0.5 - 6.0	.020 - .24 / 0.5 - 6.0
Feed per Rev. fn	.004 - .031 / 0.1 - 0.8	.004 - .031 / 0.1 - 0.8
SFM (Vc)		
Carbon & Alloy Steel		1056 - 545 / 320 - 165
Stainless Steel Austenitic 300 Series	627 - 396 / 190 - 120	908 - 594 / 275 - 180
Gray Cast Iron	726 - 429 / 220 - 130	957 - 545 / 290 - 165
Non Ferrous Material	1518 - 528 / 460 - 160	1403 - 743 / 425 - 225

Description	ANSI	ISO	Radius in	Radius mm	UPC 733101-	UPC 733101-
SDGX-E 3/8" Square General Purpose 	SDGX-09C01-E	SDGX-09T3C04-E	0.016	0.4	95297	95299
	SDGX-09C02-E	SDGX-09T3C08-E	0.031	0.8	95301	95303
	SDGX-09C03-E	SDGX-09T3C12-E	0.047	1.2	95305	95307
	SDGX-09C04-E	SDGX-09T3C16-E	0.062	1.6	95309	95311
SDGX-E 3/4" Square General Purpose 	SDGX-19C05-E	SDGX-1904C20-E	0.078	2.0	95249	95250
	SDGX-19C06-E	SDGX-1904C24-E	0.094	2.4	95253	95254
	SDGX-19C07-E	SDGX-1904C28-E	0.109	2.8	95257	95258
	SDGX-19C08-E	SDGX-1904C32-E	0.125	3.2	95261	95262
	SDGX-19C09-E	SDGX-1904C36-E	0.141	3.6	95265	95266
	SDGX-19C10-E	SDGX-1904C40-E	0.156	4.0	95269	95270
	SDGX-19C11-E	SDGX-1904C44-E	0.172	4.4	95273	95274
	SDGX-19C12-E	SDGX-1904C48-E	0.188	4.8	95277	95278
	SDGX-19C13-E	SDGX-1904C52-E	0.203	5.2	95281	95282
	SDGX-19C14-E	SDGX-1904C56-E	0.219	5.6	95285	95286
	SDGX-19C15-E	SDGX-1904C60-E	0.234	6.0	95289	95290
	SDGX-19C16-E	SDGX-1904C64-E	0.250	6.4	95293	95294

Material

Steel Alloy Steel BEST

For Insert Grade Cutting Data
See page 21

For Insert Cutting Speed Recommendation Form
see page 40

Material Hardness	HB	HRC
Carbon Steel Annealed	125	
Alloy Steel Annealed	180	10
Alloy Steel Heat Treated	300	32

Application

	High Performance Finishing		High Performance Roughing	
Insert Grade	DPC15HT		DPC25UT	
Chip Breaker	PEX		PEX	
ISO Insert Grade	P10 P25 M10-M25		P15-P35 M15-M35	
ANSI Insert Grade	C6-C7		C5-C6	
Insert Coating	CVD Al_2O_3/TiCN/Al_2O_3/TiCN		CVD Al_2O_3/TiCN/Al_2O_3/TiCN	
Insert Aptitude	Hard & Wear Resistant Turning at High SFM		Hard, Tough, & Wear Resistant Turning at Medium SFM	
Condition	Wet		Wet	
Cutting Data	Inch	Metric	Inch	Metric
Depth of Cut ap	.031 - .126	0.80 - 3.20	.016 - .157	0.40 - 4.00
Feed per Rev. fn	.004 - .016	0.10 - 0.40	.008 - .025	0.20 - 0.63
SFM (Vc)				
Carbon Steel Annealed	1774 - 1064	538 - 323	1478 - 887	448 - 269
Alloy Steel Annealed	982 - 589	298 - 179	818 - 491	248 - 149
Alloy Steel Heat Treated	693 - 416	210 - 126	578 - 347	175 - 105

Description	ANSI	ISO	UPC 733101-	UPC 733101-
CNMG-PEX 80° Diamond High Performance 	CNMG-432-PEX	CNMG-120408-PEX	69485	69486
DNMG-PEX 55° Diamond High Performance 	DNMG-443-PEX	DNMG-150612-PEX	69487	69488

Wiper Insert Technology

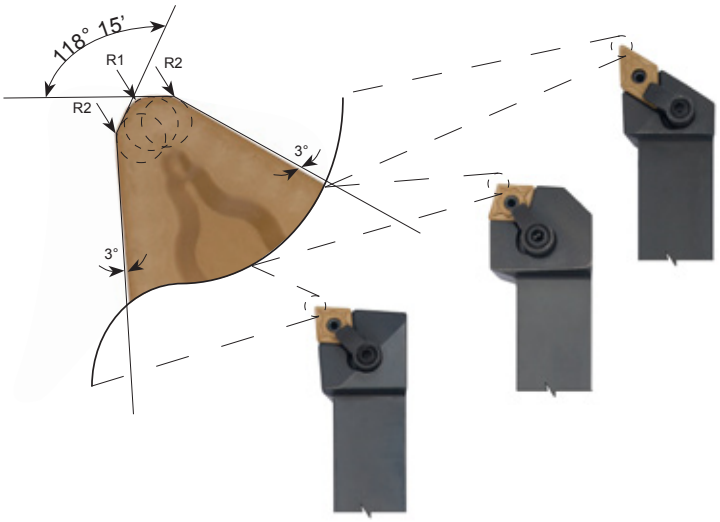
Double Leading Angle
To maximize insert cutting edge strength

Triple Nose Radius
To minimize cutting friction

Wiper Angle
For high surface finish and close turning tolerance

Rake Angle
For chip control evacuation and high rate of material removal

Cutting Edge Preparation
To minimize cutting pressure and maximize insert life



Material

Steel Alloy Steel	BEST
Stainless Steel	Good
Cast Iron	Fair

For Insert Grade Cutting Data
See page 22

For Insert Cutting Speed Recommendation Form
see pages 40

Material Hardness	HB	HRC
Carbon Steel Annealed	125	
Alloy Steel Annealed	180	8
Alloy Steel Heat Treated	300	32
Stainless Steel Austenitic 300 Series	180	8
Gray Cast Iron	180	8

Application

	Finishing		Universal		Roughing	
Insert Grade	DPC15HT		DPC25UT		DPC35RT	
Chip Breaker	PEF/PEM/PER		PEF/PEM/PER		PEF/PEM/PER	
ISO Insert Grade	P10 P25 M10-M25		P15-P35 M15-M35		P25-P45 M25-M45	
ANSI Insert Grade	C6-C7		C5-C6		C5	
Insert Coating	CVD Al_2O_3/TiCN/Al_2O_3/TiCN		CVD Al_2O_3/TiCN/Al_2O_3/TiCN		CVD Al_2O_3/TiCN/Al_2O_3/TiCN	
Insert Aptitude	Hard & Wear Resistant Turning at High SFM		Hard, Tough, & Wear Resistant Turning at Medium SFM		Hard, Tough, & Impact Resistant Turning at Low SFM	
Condition	Wet		Wet		Wet	
Cutting Data						
	Inch	Metric	Inch	Metric	Inch	Metric
Depth of Cut ap	.002 - .039	0.05 - 1.00	.016 - .236	0.40 - 6.00	.031 - .394	0.80 - 10.00
Feed per Rev. fn	.004 - .079	0.10 - 2.00	.004 - .020	0.10 - 0.50	.008 - .031	0.20 - 0.80
SFM (Vc)						
	1616 - 969	490 - 294	1346 - 808	408 - 245	1122 - 561	340 - 170
	1140 - 684	346 - 207	950 - 570	288 - 173	792 - 396	240 - 120
	570 - 342	173 - 104	475 - 285	144 - 86	396 - 198	120 - 60
	808 - 485	245 - 147	673 - 404	204 - 122	561 - 281	170 - 85
	990 - 693	300 - 210				

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
CNMG-PEF 80° Diamond Finishing 	CNMG-431-PEF	CNMG-120404-PEF	69250	69251	
	CNMG-432-PEF	CNMG-120408-PEF	69252	69253	
CNMG-PEM 80° Diamond Medium 	CNMG-322-PEM	CNMG-090308-PEM		69276	69277
	CNMG-432-PEM	CNMG-120408-PEM		69278	69279
	CNMG-433-PEM	CNMG-120412-PEM	69280	69281	69282
	CNMG-542-PEM	CNMG-160608-PEM	69283	69284	69285
	CNMG-543-PEM	CNMG-160612-PEM	69286	69287	69288
	CNMG-544-PEM	CNMG-160616-PEM		69289	69290
	CNMG-643-PEM	CNMG-190612-PEM		69291	69292
	CNMG-644-PEM	CNMG-190616-PEM		69293	69294
CNMG-PER 80° Diamond Roughing 	CNMG-432-PER	CNMG-120408-PER	69351	69352	69353
	CNMG-433-PER	CNMG-120412-PER	69354	69355	69356
	CNMG-542-PER	CNMG-160608-PER	69357	69358	69359
	CNMG-543-PER	CNMG-160612-PER	69360	69361	69362
	CNMG-544-PER	CNMG-160616-PER	69363	69364	69365
	CNMG-643-PER	CNMG-190612-PER	69366	69367	69368
	CNMG-644-PER	CNMG-190616-PER	69369	69370	69371
	CNMG-646-PER	CNMG-190624-PER	69372	69373	69374
DNMG-PEF 55° Diamond Finishing 	DNMG-331-PEF	DNMG-110404-PEF	69254	69255	
	DNMG-332-PEF	DNMG-110408-PEF	69256	69257	
	DNMG-431-PEF	DNMG-150404-PEF	69258	69259	
	DNMG-432-PEF	DNMG-150408-PEF	69260	69261	
	DNMG-441-PEF	DNMG-150604-PEF	69262	69263	
	DNMG-442-PEF	DNMG-150608-PEF	69264	69265	

Continued From page 74

Description		ANSI	ISO	DPC15HT UPC 733101-	DPC25UT UPC 733101-	DPC35RT UPC 733101-
DNMG-PEM 55° Diamond Medium		DNMG-332-PEM	DNMG-110408-PEM	69295	69296	69297
		DNMG-432-PEM	DNMG-150408-PEM	69298	69299	69300
		DNMG-433-PEM	DNMG-150412-PEM	69301	69302	69303
		DNMG-442-PEM	DNMG-150608-PEM	69304	69305	69306
		DNMG-443-PEM	DNMG-150612-PEM	69307	69308	69309
		DNMG-444-PEM	DNMG-150616-PEM	69310	69311	69312
DNMG-PER 55° Diamond Roughing		DNMG-432-PER	DNMG-150408-PER	69375	69376	69377
		DNMG-433-PER	DNMG-150412-PER	69378	69379	69380
		DNMG-442-PER	DNMG-150608-PER	69381	69382	69383
		DNMG-443-PER	DNMG-150612-PER	69384	69385	69386
		DNMG-444-PER	DNMG-150616-PER	69387	69388	69389
SNMG-PEF Square Finishing		SNMG-431-PEF	SNMG-120404-PEF	69266	69267	
SNMG-PEM Square Medium		SNMG-432-PEM	SNMG-120408-PEM	69313	69314	69315
		SNMG-433-PEM	SNMG-120412-PEM	69316	69317	69318
		SNMG-542-PEM	SNMG-150608-PEM	69319	69320	69321
		SNMG-643-PEM	SNMG-190612-PEM	69322	69323	69324
SNMG-PER Square Roughing		SNMG-432-PER	SNMG-120408-PER	69390	69391	69392
		SNMG-433-PER	SNMG-120412-PER	69393	69394	69395
		SNMG-643-PER	SNMG 190612-PER	69396	69397	69398
		SNMG-644-PER	SNMG-190616-PER	69399	69400	69401
TNMG-PEF 60° Triangle Finishing		TNMG-331-PEF	TNMG-160404-PEF	69268	69269	
		TNMG-332-PEF	TNMG-160408-PEF	69270	69271	
TNMG-PEM 60° Triangle Medium		TNMG-332-PEM	TNMG-160408-PEM	69325	69326	69327
		TNMG-333-PEM	TNMG-160412-PEM	69328	69329	69330
		TNMG-432-PEM	TNMG-220408-PEM	69331	69332	69333
		TNMG-433-PEM	TNMG-220412-PEM	69334	69335	
VNMG-PEF 35° Diamond Finishing		VNMG-331-PEF	VNMG-160404-PEF	69272	69273	
		VNMG-332-PEF	VNMG-160408-PEF	69274	69275	
VNMG-PEM 35° Diamond Medium		VNMG-332-PEM	VNMG-160408-PEM	69336	69337	69338
		VNMG-333-PEM	VNMG-160412-PEM	69339	69340	69341
WNMG-PEM 80° Trigon Medium		WNMG-332-PEM	WNMG-060408-PEM	69342	69343	69344
		WNMG-432-PEM	WNMG-080408-PEM	69345	69346	69347
		WNMG-433-PEM	WNMG-080412-PEM	69348	69349	69350
WNMG-PER 80° Trigon Roughing		WNMG-432-PER	WNMG-080408-PER	69402	69403	69404
		WNMG-433-PER	WNMG-080412-PER	69405	69406	69407

Material

Steel Alloy Steel	BEST
Stainless Steel	Good
Cast Iron	Fair

For Insert Grade Cutting Data
See page 26

For Insert Cutting Speed Recommendation Form
see page 40

Application

	Finishing	Universal	Roughing
Insert Grade	DPC15HT	DPC25UT	DPC35RT
Chip Breaker	UEM	UEM	UEM
ISO Insert Grade	P10-P25 M10-M25	P15-P35 M15-M35	P25-P45 M25-M45
ANSI Insert Grade	C6-C7	C5-C6	C5
Insert Coating	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD Al_2O_3/TiCN/Al_2O_3/TiCN
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Hard, Tough, & Wear Resistant Turning at Medium SFM	Hard, Tough, & Impact Resistant Turning at Low SFM
Condition	Wet	Wet	Wet

Material Hardness	HB	HRC	Finishing Cutting Data Inch	Finishing Cutting Data Metric	Universal Cutting Data Inch	Universal Cutting Data Metric	Roughing Cutting Data Inch	Roughing Cutting Data Metric
			Depth of Cut ap					
			.016 - .079	0.40 - 2.00	.016 - .126	0.40 - 3.20	.016 - .157	0.40 - 4.00
			Feed per Rev. fn					
			.004 - .008	0.10 - 0.20	.006 - .010	0.15 - 0.25	.008 - .012	0.20 - 0.30
			SFM (Vc)		SFM (Vc)		SFM (Vc)	
Carbon Steel Annealed	125		1616 - 969	490 - 294	1346 - 808	408 - 245	1122 - 561	340 - 170
Alloy Steel Annealed	180	8	1140 - 684	346 - 207	950 - 570	288 - 173	792 - 396	240 - 120
Alloy Steel Heat Treated	300	32	570 - 342	173 - 104	475 - 285	144 - 86	396 - 198	120 - 60
Stainless Steel Austenitic 300 Series	180	8	808 - 485	245 - 147	673 - 404	204 - 122	561 - 281	170 - 85
Gray Cast Iron	180	8	990 - 693	300 - 210				

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
CNMG-UEM 80° Diamond Universal 	CNMG-431-UEM	CNMG-120404-UEM	69826	69828	69829
	CNMG-432-UEM	CNMG-120408-UEM	69832	69833	69834
DNMG-UEM 55° Diamond Universal 	DNMG-331-UEM	DNMG-110404-UEM	69835	69836	69837
	DNMG-332-UEM	DNMG-110408-UEM	69840	69841	
	DNMG-432-UEM	DNMG-150408-UEM		69844	
	DNMG-441-UEM	DNMG-150604-UEM	69845	69846	69847
	DNMG-442-UEM	DNMG-150608-UEM	69848	69849	69850
SNMG-UEM Square Universal 	SNMG-321-UEM	SNMG-090304-UEM	69851	69852	
TNMG-UEM 60° Diamond Universal 	TNMG-331-UEM	TNMG-160404-UEM	69853	69854	69855
	TNMG-332-UEM	TNMG-160408-UEM	69856	69857	69858
VNMG-UEM 35° Diamond Universal 	VNMG-332-UEM	VNMG-160408-UEM	69859	69860	

Continued From page 76

Description	ANSI	ISO	Insert Grade DPC15HT UPC 733101-	DPC25UT UPC 733101-	DPC35RT UPC 733101-
WNMG-UEM 80° Trigon Universal 	WNMG-331-UEM	WNMG-060404-UEM	69861	69862	69863
	WNMG-332-UEM	WNMG-060408-UEM	69864	69865	69866
	WNMG-431-UEM	WNMG-080404-UEM	69867	69868	69869
	WNMG-432-UEM	WNMG-080408-UEM	69870	69871	69872
	WNMG-433-UEM	WNMG-080412-UEM		69873	

Dorian Tool Technical Support

Chipbreaker:

The formed groove or recess along the cutting edge of the insert that breaks chips into small manageable lengths, allowing the chips to flow freely over the insert, removing heat away from the cutting edge and avoiding edge build up.

How to Select a Chipbreaker:

Choose **The Insert Chipbreaker** according to the cutting material, turning application and depth of cut.

Carbon and Alloy Steel

Roughing Applications:
Use a negative or positive insert with a negative and heavy honed cutting edge, wide and positive rake angle and molded chipbreaker.

General Applications:
Use a negative or positive insert with a small honed cutting edge, medium and positive rake angle and molded chipbreaker.

Finishing Applications:
Use a negative or positive insert with a light honed cutting edge, small and high positive rake angle and molded chipbreaker.

Stainless Steel, Free Machining Steel, non Ferrous and High Temp Super Alloy Metals

Roughing Applications:
Use a negative or positive insert with a honed cutting edge, a wide and high positive rake angle and molded or ground chipbreaker.

General Applications:
Use a negative or positive insert with a small honed cutting edge, medium and high positive rake angle and molded or ground chipbreaker.

Finishing Applications:
Use a negative or positive insert with a light honed cutting edge, small and high positive rake angle, and molded or ground chipbreaker.

Aluminum and Plastics Material

For General Applications:
Use a positive insert with a sharp cutting edge, medium and high positive rake angle, and molded or ground high polished chipbreaker.

To Avoid Edge Build Up and Poor Surface Finish:
Always use coolant.

Cutting Material	Finishing Applications				Medium Applications				Roughing Applications			
	Chipbreaker	ap	fn	Vc	Chipbreaker	ap	fn	Vc	Chipbreaker	ap	fn	Vc
Carbon & AlloySteel	Positive	Small	Low	High	Negative	Medium	Medium	Medium	Negative	Large	High	Low
Stainless Steel	Positive	Small	Low	High	Positive	Medium	Medium	Medium	Positive	Large	High	Low
Cast Iron	Positive	Small	Low	High	Negative	Medium	Medium	Medium	Negative	Large	High	Low
Non Ferrous	Positive	Small	Low	High	Positive	Medium	Medium	Medium	Positive	Large	High	Low
Aluminum & Plastic	Positive	Small	Low	High	Positive	Medium	Medium	Medium	Positive	Large	High	Low

Material

Steel Alloy Steel	BEST
Stainless Steel	Good
Cast Iron	Fair

For Insert Grade Cutting Data
See page 23

For Insert Cutting Speed Recommendation Form
see page 40

Application

	Heavy Roughing	Extra Heavy Roughing with Interrupt Cut	Extra Extra Heavy Roughing in Difficult & Unstable Working Condition
Insert Grade	DPC15HT	DPC25UT	DPC35RT
Chip Breaker	PSH/PST/PSS	PSH/PST/PSS	PSH/PST/PSS
ISO Insert Grade	P10 P25 M10-M25	P15-P35 M15-M35	P25-P45 M25-M45
ANSI Insert Grade	C6-C7	C5-C6	C5
Insert Coating	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	CVD Al_2O_3/TiCN/Al_2O_3/TiCN
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Hard, Tough, & Wear Resistant Turning at Medium SFM	Hard, Tough, & Impact Resistant Turning at Low SFM
Condition	Wet	Wet	Wet
Cutting Data			
	Inch / Metric	Inch / Metric	Inch / Metric
Depth of Cut ap	.039 - .394 / 1.00 - 10.00	.079 - .441 / 2.00 - 11.20	.098 - .492 / 2.50 - 12.50
Feed per Rev. fn	0.008 - .047 / 0.20 - 1.20	0.016 - 0.063 / 0.40 - 1.60	0.031 - 0.079 / 0.80 - 2.00

Material Hardness	HB	HRC	SFM (Vc)	SFM (Vc)	SFM (Vc)
Carbon Steel Annealed	125		1086 - 652 / 329 - 197	987 - 592 / 299 - 180	898 - 449 / 272 - 136
Alloy Steel Annealed	180	8	767 - 460 / 232 - 139	697 - 418 / 211 - 127	634 - 317 / 192 - 96
Alloy Steel Heat Treated	300	32	383 - 230 / 116 - 70	348 - 209 / 106 - 63	317 - 158 / 96 - 48
Stainless Steel Austenitic 300 Series	180	8	543 - 326 / 165 - 99	494 - 296 / 150 - 90	449 - 224 / 136 - 68
Gray Cast Iron	180	8	759 - 693 / 230 - 210		

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
CNMM-PSH 80° Diamond Heavy Duty Roughing 	CNMM-432-PSH	CNMM-120408-PSH	70160	70161	70162
	CNMM-433-PSH	CNMM--120412-PSH	70163	70164	70165
	CNMM-543-PSH	CNMM-160612-PSH	70166	70167	70168
	CNMM-544-PSH	CNMM -160616-PSH	70169	70170	70171
	CNMM-643-PSH	CNMM-190612-PSH	70172	70173	70174
	CNMM-644-PSH	CNMM-190616-PSH	70175	70176	70177
	CNMM-646-PSH	CNMM-190624-PSH	70178	70179	70180
CNMM-PSS 80° Diamond Extra Heavy Duty Roughing 	CNMM-644-PSS	CNMM-190616-PSS	70205	70206	70207
CNMM-PST 80° Diamond Maximum Extra Heavy Duty Roughing 	CNMM-856-PST	CNMM-250724-PST	70216	70217	70218
	CNMM-866-PST	CNMM-250924-PST	70220	70221	70222
SNMM-PSH Square Heavy Duty Roughing 	SNMM-432-PSH	SNMM-120408-PSH	70181	70182	70183
	SNMM-433-PSH	SNMM-120412-PSH	70184	70185	70186
	SNMM-543-PSH	SNMM-150612-PSH	70187	70188	70189
	SNMM-544-PSH	SNMM-150616-PSH	70190	70191	70192
	SNMM-643-PSH	SNMM-190612-PSH	70193	70194	70195
	SNMM-644-PSH	SNMM-190616-PSH	70196	70197	70198
	SNMM-646-PSH	SNMM-190624-PSH	70199	70200	70201
	SNMM-648-PSH	SNMM-190632-PSH	70202	70203	70204

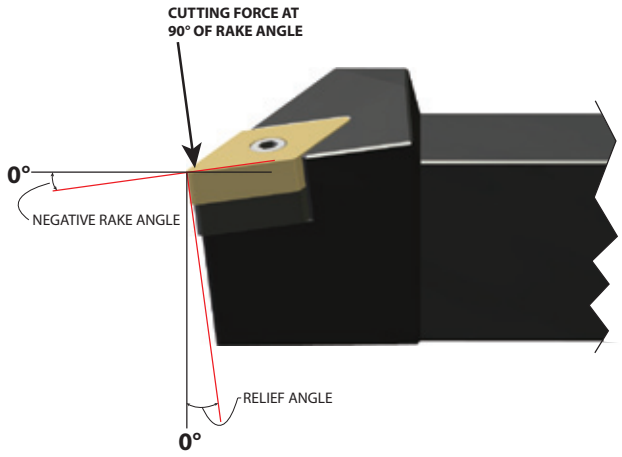
Continued From page 78

Description	ANSI	ISO	Insert Grade DPC15HT UPC 733101-	DPC25UT UPC 733101-	DPC35RT UPC 733101-
SNMM-PSS Square Extra Heavy Duty Roughing 	SNMM-644-PSS	SNMM-190616-PSS	70210	70211	70212
	SNMM-646-PSS	SNMM-190624-PSS	70213	70214	70215
SNMM-PST Square Maximum Extra Heavy Duty Roughing 	SNMM 856-PST	SNMM-250724-PST	70224	70225	70226
	SNMM 866-PST	SNMM-250924-PST	70228	70229	70230

Dorian Tool Technical Support

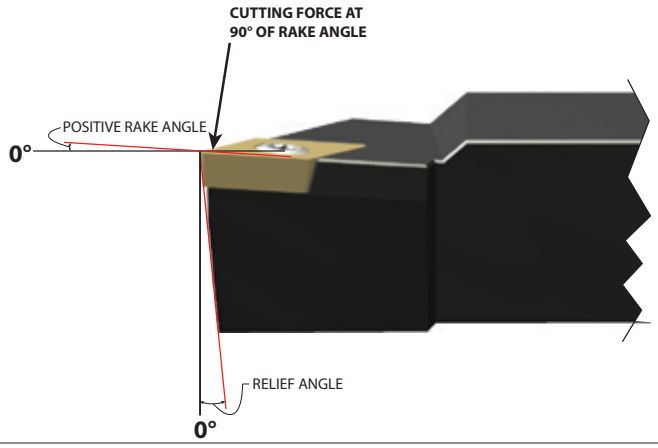
Insert Cutting Force Aptitude and Application

Negative Inserts



Aptitude	Application
Double Sided Cutting Edge	High Material Removal Rate
Stronger Cutting Edge	Heavy Roughing & Interupt Cuts
Larger Body Mass	Large and Solid Workpiece
Multi Geometry	Large and Shallow Boring
Molded & Precision Ground	Multi Turning
Multi Chip Breaker & Rake Angle	
0° Relief Angle	
Higher Cutting Force	

Positive Inserts



Aptitude	Application
Single Side Cutting Edge	Low Material Removal Rate
Weaker Cutting Edge	Light Roughing and Smooth Cuts
Smaller Body Mass	Small and Thin Wall Workpiece
Multi Geometry	Small and Deep Boring
Molded & Precision Ground	High Surface Finish
Multi Chip Breaker & Rake Angle	
Multi Relief Angle	
Lower Cutting Force	

Material

Stainless Steel BEST

For Insert Grade Cutting Data
See page 24

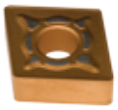
For Insert Cutting Speed Recommendation Form
see page 41

Application

	Finishing	Medium	Roughing
Insert Grade	DMC30UT	DMC30UT	DMC30UT
Chip Breaker	MEF	MEM	MER
ISO Insert Grade	P35-M35	P35-M35	P35-M35
ANSI Insert Grade	C5-C6	C5-C6	C5-C6
Insert Coating	CVD TiCN/TiN	CVD TiCN/TiN	CVD TiCN/TiN
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Hard & Wear Resistant Turning at High SFM	Hard & Wear Resistant Turning at High SFM
Condition	Wet	Wet	Wet

Cutting Data	Finishing		Medium		Roughing	
	Inch	Metric	Inch	Metric	Inch	Metric
Depth of Cut ap	.008 - .118	0.20 - 3.00	.031 - .157	0.80 - 4.00	.039 - .236	1.00 - 6.00
Feed per Rev. fn	.002 - .012	0.05 - 0.30	.004 - .016	0.10 - 0.40	.008 - .031	0.20 - 0.80

Material Hardness	HB	HRC	SFM (Vc)		SFM (Vc)		SFM (Vc)	
Austentic S. S. 300 Series	180	10	878 - 527	266 - 160	799 - 479	242 - 145	726 - 436	220 - 132
Ferritic and Martensitic S.S. 400 Series	330	35	559 - 335	169 - 102	508 - 305	154 - 92	462 - 277	140 - 84
Precipitation Hardening S.S. 17-4-PH	330	35	499 - 299	151 - 91	454 - 272	138 - 83	413 - 248	125 - 75

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
CNMG-MEF 80° Diamond Finishing 	CNMG-321-MEF	CNMG-090304-MEF	69964		
	CNMG-431-MEF	CNMG-120404-MEF	69965		
	CNMG-432-MEF	CNMG-120408-MEF	69966		
	CNMG-433-MEF	CNMG-120412-MEF	69967		
CNMG-MEM 80° Diamond Medium 	CNMG-432-MEM	CNMG-120408-MEM		69968	
	CNMG-433-MEM	CNMG-120412-MEM		69969	
CNMG-MER 80° Diamond Roughing 	CNMG-433-MER	CNMG-120412-MER			69970
	CNMG-543-MER	CNMG-160612-MER			69971
	CNMG-643-MER	CNMG-190612-MER			69972
DNMG-MEF 55° Diamond Finishing 	DNMG-331-MEF	DNMG-110404-MEF	69973		
	DNMG-441-MEF	DNMG-150604-MEF	69974		
	DNMG-442-MEF	DNMG-150608-MEF	69975		
DNMG-MEM 55° Diamond Medium 	DNMG-332-MEM	DNMG-110408-MEM		69976	
	DNMG-432-MEM	DNMG-150408-MEM		69977	
	DNMG-442-MEM	DNMG-150608-MEM		69978	
	DNMG-443-MEM	DNMG-150612-MEM		69979	

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Description	ANSI	ISO	Insert Grade DMC30UT UPC 733101-	DMC30UT UPC 733101-	DMC30UT UPC 733101-
DNMG-MER 55° Diamond Roughing 	DNMG-442-MER	DNMG-150608-MER			69980
	DNMG-443-MER	DNMG-150612-MER			69981
SNMG-MEF Square Finishing 	SNMG-321-MEF	SNMG-090304-MEF	69982		
SNMG-MER Square Roughing 	SNMG-432-MER	SNMG-120408-MER			69983
	SNMG-433-MER	SNMG-120412-MER			69984
	SNMG-643-MER	SNMG-190612-MER			69985
TNMG-MEM 60° Triangle Medium 	TNMG-332-MEM	TNMG-160408-MEM		69986	
	TNMG-432-MEM	TNMG-220408-MEM		69987	
	TNMG-433-MEM	TNMG-220412-MEM		69988	
WNMG-MEF 80° Trigon Finishing 	WNMG-331-MEF	WNMG-060404-MEF	69989		
	WNMG-431-MEF	WNMG-080404-MEF	69990		
	WNMG-432-MEF	WNMG-080408-MEF	69991		
WNMG-MEM 80° Trigon Medium 	WNMG-332-MEM	WNMG-060408-MEM		69992	
	WNMG-432-MEM	WNMG-080408-MEM		69993	
	WNMG-433-MEM	WNMG-080412-MEM		69994	
	WNMG-434-MEM	WNMG-080416-MEM		69995	
WNMG-MER 80° Trigon Roughing 	WNMG-432-MER	WNMG-080408-MER			69996
	WNMG-433-MER	WNMG-080412-MER			69997

Dorian Tool Technical Support

The Insert Nose Radius (r_e) on the insert will determine: The Depth of Cut a_p, Feed Rate f_n, Surface Finish and the best performance in the turning operations.

Selection the nose radius by:	• Depth of cut, a_p	• Feed Rate, f_n
The nose radius controls the:	• Surface finish • Breaking and Size of Chip	• Strength of Insert • Metal Removal Rate
Use a small nose radius for:	• Finishing application • Small Depths of Cut • High Surface Feeds	• To Reduces Vibration • To Reduce Radial Forces • Weak Cutting Edges
Use a large nose radius for:	• Roughing application • Large depths of Cut • High Feed Rates	• High Surface Finish • Increase Radial forces • Strong Cutting Edge

Material

Cast Iron	BEST
Hardened Steel	Good
Brass-Bronze	Good

Application

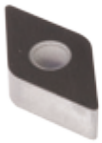
	Finishing	Universal	Roughing in Difficult & Unstable Working Condition
Insert Grade	DKC05HT	DKC10UT	DKC15RT
Chip Breaker	KEF	KEF/KEU/KER	KEU/KER
ISO Insert Grade	K05 P05 M05 N05 S05	K15 P15 M15 N15 S15	K25 P25 M25 N25 S25
ANSI Insert Grade	C3-C4	C2-C3	C1-C2
Insert Coating	CVD TiN/TiCN/Al_2TiO_5/Al_2O_3	CVD TiN/TiCNB/Al_2/TiO_2/$3Al_2O_3$	CVD TiN/TiCNB/Al_2/TiO_2/$3Al_2O_3$
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Hard, Tough, & Wear Resistant Turning at Medium SFM	Hard, Tough, & Impact Resistant Turning at Low SFM
Condition	Wet	Wet	Wet

For Insert Grade Cutting Data
See page 25

For Insert Cutting Speed Recommendation Form
see page 41

	Finishing		Universal		Roughing	
Cutting Data	Inch	Metric	Inch	Metric	Inch	Metric
Depth of Cut ap	.004 - .079	0.10 - 2.00	.031 - .315	0.80 - 8.00	.079 - .472	2.00 - 12.00
Feed per Rev. fn	.002 - .012	0.05 - 0.20	.004 - .024	0.10 - 0.50	.008 - .031	0.20 - 0.80

Material Hardness	HB	HRC	SFM (Vc)		SFM (Vc)		SFM (Vc)	
Gray Cast Iron	180	10	1225 - 735	371 - 223	1114 - 668	338 - 203	743 - 520	225 - 158
Modular Cast Iron	160	6	1171 - 702	355 - 213	1064 - 639	323 - 194	710 - 497	215 - 151
Malleable Cast Iron	130		1089 - 653	330 - 198	990 - 594	300 - 180	660 - 462	200 - 140
H-Hardened Steel		45	64 - 39	20 - 12	129 - 77	39 - 23	99 - 69	30 - 21

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
CNMG-KEF 80° Diamond Finishing 	CNMG-431-KEF	CNMG-120404-KEF	69830	69831	
DNMG-KEF 55° Diamond Finishing 	DNMG-331-KEF	DNMG-110404-KEF	69838	69839	
	DNMG-332-KEF	DNMG-110408-KEF	69842	69843	
CNMA-KEU 80° Diamond General Purpose 	CNMA -432-KEU	CNMA-120408-KEU		69874	69875
	CNMA- 433-KEU	CNMA-120412-KEU		69876	69877
	CNMA -644-KEU	CNMA-190616-KEU			69878
	CNMA -866-KEU	CNMA-250924-KEU			69879
DNMA-KEU 55° Diamond General Purpose 	DNMA-442-KEU	DNMA-150608-KEU			69880
	DNMA-443-KEU	DNMA-150612-KEU			69881

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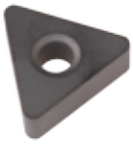
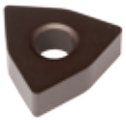
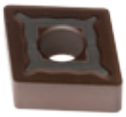
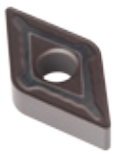
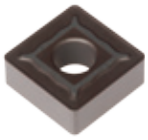
Description	ANSI	ISO	Insert Grade DKC05HT UPC 733101-	DKC10UT UPC 733101-	DKC15RT UPC 733101-
SNMA-KEU Square General Purpose 	SNMA- 432-KEU	SNMA-120408-KEU		69882	69883
	SNMA- 433-KEU	SNMA -120412-KEU		69884	69885
	SNMA- 434-KEU	SNMA -120416-KEU		69886	69887
	SNMA- 644-KEU	SNMA-190616-KEU			69888
	SNMA-856-KEU	SNMA- 250724-KEU			69889
TNMA-KEU Triangle General Purpose 	TNMA-332-KEU	TNMA-160408-KEU		69890	69891
	TNMA-333-KEU	TNMA-160412-KEU		69892	69893
	TNMA-434-KEU	TNMA-220416-KEU		69894	69895
WNMA-KEU 80° Trigon General Purpose 	WNMA-432-KEU	WNMA -080408-KEU		69896	69897
	WNMA-433-KEU	WNMA -080412-KEU		69898	69899
CNMG-KER 80° Diamond Roughing 	CNMG-432-KER	CNMG-120408-KER		69904	69905
	CNMG-433-KER	CNMG-120412-KER		69906	69907
	CNMG-434-KER	CNMG-120416-KER		69908	69909
	CNMG-543-KER	CNMG-160612-KER		69910	69911
	CNMG-544-KER	CNMG-160616-KER		69912	69913
DNMG-KER 55° Diamond Roughing 	DNMG-432-KER	DNMG-150408-KER		69914	69915
	DNMG-433-KER	DNMG-150412-KER		69916	69917
	DNMG-442-KER	DNMG-150608-KER		69918	69919
	DNMG-443-KER	DNMG-150612-KER		69920	69921
SNMG-KER Square Roughing 	SNMG-432-KER	SNMG-120408-KER		69922	69923
	SNMG-433-KER	SNMG-120412-KER		69924	69925
	SNMG-643-KER	SNMG-190612-KER		69926	
	SNMG-644-KER	SNMG-190616-KER		69927	69928
WNMG-KER 80° Trigon Roughing 	WNMG-432-KER	WNMG-080408-KER		69929	69930
	WNMG-433-KER	WNMG-080412-KER			69931

Material

Carbon & Alloy Steel	Good
Stainless Steel	BEST
Cast Iron	BEST
Aluminum	BEST
Non Ferrous Material	BEST
High Temp Super Alloy	BEST
Carbon-Graphite-Phenolics	BEST
Hardened Material	BEST

For Insert Grade Cutting Data
See page 27

For Insert Cutting Speed Recommendation Form
see pages 44 - 45

Application

	General	Finishing	Universal	Medium-Roughing
Insert Grade	DNU10GT	DUP15VT	DUP25UT	DUP35RT
Chip Breaker	SEF/SEM/SFM	SEF/SEM	SEM	SEF/SEM/SER
ISO Insert Grade	K15 P15 M15 N15 S15	P10 M10 K10 S10	P15 M15 K15 S25	P20 M25 K25 S25
ANSI Insert Grade	C2-C3	C3-C8	C3-C7	C3-C7
Insert Coating	Uncoated	PVD AlCrN Multi	PVD TiN/TiAlN/TiN	PVD TiAlN/WC/C
Insert Aptitude	Hard & Wear Resistant Turning at High SFM	Harder & Abrasive Resistant Turning at Higher SFM	Hard, Tough & Wear Resistant Turning at Medium SFM	Difficult & Unstable Operation Turning at High SFM
Condition	Wet	Dry	Wet	Wet-Dry

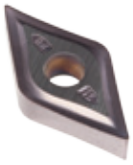
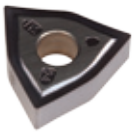
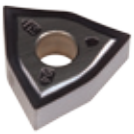
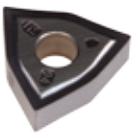
Cutting Data

	General		Finishing		Universal		Medium-Roughing	
	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Depth of Cut ap	.002 - .039	0.05 - 1.00	.002 - .039	0.05 - 1.00	.004 - .079	0.10 - 2.00	.008 - .079	0.20 - 2.00
Feed per Rev. fn	.002 - .008	0.05 - 0.20	.002 - .008	0.05 - 0.20	.002 - .012	0.05 - 0.30	.002 - .016	0.05 - 0.40

Material Hardness	HB	HRC	SFM (Vc)		SFM (Vc)		SFM (Vc)		SFM (Vc)	
Low Alloy Steel ≤ 5%	180	10			1470 - 882	446 - 267	980 - 588	297 - 178	1089 - 545	330 - 165
Stainless Steel Austenitic 300 Series	180	10	668 - 347	203 - 105	1114 - 579	338 - 176	743 - 446	225 - 135	825 - 495	250 - 150
Gray Cast Iron Low Tensile Strength	180	10	722 - 375	219 - 114	1203 - 625	365 - 190	802 - 481	243 - 146	891 - 624	270 - 189
Aluminum	60		6353 - 1906	1925 - 578						
Non Ferrous Material Free Cutting Copper Alloy	90		1240 - 620	376 - 188	2067 - 1034	626 - 313	1723 - 861	522 - 261	1914 - 957	580 - 290
Heat Resistant Super Alloy Iron Base	200	15	174 - 104	53 - 32	290 - 174	88 - 53	223 - 134	68 - 41	248 - 149	75 - 45
Heat Resistant Super Alloy Iron Base	250	25	104 - 63	32 - 19	174 - 104	53 - 32	134 - 80	41 - 24	149 - 89	45 - 27
Heat Resistant Super Alloy Iron Base	200	15	104 - 63	32 - 19	174 - 104	53 - 32	134 - 80	41 - 24	149 - 89	45 - 27
Titanium Alloy Pure 99.5%	180	8	301 - 181	91 - 55	502 - 301	152 - 91	386 - 232	117 - 70	429 - 257	130 - 78
Carbon-Graphite-Phenolics			171 - 86	52 - 26	285 - 143	86 - 43	238 - 119	72 - 36	264 - 211	80 - 64
Hardened Material		45	69 - 42	21 - 13	116 - 69	35 - 21	89 - 53	27 - 16	99 - 69	30 - 21

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-	UPC 733101-
CNGG-SEF 80° Diamond Finishing 	CNGG-431-SEF	CNGG-120404-SEF	70799	70845		69932
	CNGG-432-SEF	CNGG-120408-SEF	70800	70846		69933
	CNGG-433-SEF	CNGG-120412-SEF	70801	70847		69934
CNGG-SEM **CNMG-SEM** 80° Diamond Medium 	CNGG-431-SEM	CNGG-120404-SEM	70802	70848	70884	69935
	CNGG-432-SEM	CNGG-120408-SEM	70803	70849	70885	69936
	CNGG-433-SEM	CNGG-120412-SEM	70804	70850	70886	69937
	CNMG-431-SEM	CNMG-120404-SEM	70805	70851	70887	69938
	CNMG- 432-SEM	CNMG-120408-SEM	70806	70852	70890	69939
CNGG-SFM **CNMG-SFM** 80° Diamond Medium 	CNGG-431-SFM	CNGG-120404-SFM	70807			
	CNGG-432-SFM	CNGG-120408-SFM	70808			
	CNGG-433-SFM	CNGG -120412-SFM	70809			
	CNMG-431-SFM	CNMG-120404-SFM	70810			
	CNMG-432-SFM	CNMG-120408-SFM	70811			

Continued From Page 84

Description	ANSI	ISO	Insert Grade DNU10GT UPC 733101-	DUP15VT UPC 733101-	DUP25UT UPC 733101-	DUP35RT UPC 733101-
CNGG-SER 80° Diamond Roughing 	CNGG-432-SER	CNGG-120408-SER				69940
	CNGG-433-SER	CNGG-120412-SER				69941
DNGG-SEF 55° Diamond Finishing 	DNGG-431-SEF	DNGG-150404-SEF	70812	70853		69942
	DNGG-432-SEF	DNGG-150408-SEF	70813	70854		69943
	DNGG-433-SEF	DNGG-150412-SEF	70814	70855		69944
	DNGG-441-SEF	DNGG-150604-SEF	70815	70856		69945
	DNGG-442-SEF	DNGG-150608-SEF	70816	70857		69946
	DNGG-443-SEF	DNGG-150612-SEF	70817	70858		69947
DNMG-SEM 55° Diamond Medium 	DNMG-431-SEM	DNMG-150404-SEM	70818	70868	70891	69948
	DNMG-432-SEM	DNMG-150408-SEM	70819	70869	70892	69949
	DNMG-433-SEM	DNMG-150412-SEM	70820	70870	70893	69950
	DNMG-441-SEM	DNMG-150604-SEM	70821	70871	70894	69951
	DNMG-442-SEM	DNMG-150608-SEM	70822	70872	70895	69952
	DNMG-443-SEM	DNMG-150612-SEM	70823	70873	70896	69953
DNMG-SFM 55° Diamond Medium 	DNMG-431-SFM	DNMG-150404-SFM	70824			
	DNMG-432-SFM	DNMG-150408-SFM	70825			
	DNMG-433-SFM	DNMG-150412-SFM	70826			
	DNMG-441-SFM	DNMG-150604-SFM	70827			
	DNMG-442-SFM	DNMG-150608-SFM	70828			
	DNMG-443-SFM	DNMG-150612-SFM	70829			
VNMG-SEF 35° Diamond Finishing 	VNMG-331-SEF	VNMG-160404-SEF	70830	70874		69954
	VNMG-332-SEF	VNMG-160408-SEF	70831	70875		69955
WNGG-SEF 80° Trigon Finishing 	WNGG-431-SEF	WNGG-080404-SEF	70832	70876		69956
	WNGG-432-SEF	WNGG-080408-SEF	70833	70877		69957
	WNGG-433-SEF	WNGG-080412-SEF	70834	70878		69958
WNGG-SEM **WNMG-SEM** 80° Trigon Medium 	WNGG-431-SEM	WNGG-080404-SEM	70835	70879	70897	69959
	WNGG-432-SEM	WNGG-080408-SEM	70836	70880	70898	69960
	WNMG-431-SEM	WNMG-080404-SEM	70837	70881	70899	69961
	WNMG-432-SEM	WNMG-080408-SEM	70838	70882	70900	69962
	WNMG-433-SEM	WNMG-080412-SEM	70839	70883	70901	69963
WNGG-SFM **WNMG-SFM** 80° Trigon Medium 	WNGG-431-SFM	WNGG-080404-SFM	70840			
	WNGG-432-SFM	WNGG-080408-SFM	70841			
	WNMG-431-SFM	WNMG-080404-SFM	70842			
	WNMG-432-SFM	WNMG-080408-SFM	70843			
	WNMG-433-SFM	WNMG-080412-SFM	70844			

Material

Steel Alloy Steel	Good
Stainless Steel	Good
Cast Iron	Good

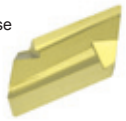
For Insert Grade Cutting Data
See page 28

For Insert Cutting Speed Recommendation Form
see pages 43

Application

	General Purpose	General Purpose	General Purpose
Insert Grade	DPC25UT	DKU25GT	DUC25UT
Chip Breaker	EN	EN	EN
ISO Insert Grade	P15 M15 K15	K25 P25 M25 N25 S25	P35 M35
ANSI Insert Grade	C5-C6	C2-C3	C2-C3 / C5-C6
Insert Coating	CVD Al_2O_3/TiCN/Al_2O_3/TiCN	Uncoated	CVD TiN/TiCN/Al_2O_3/TiN
Insert Aptitude	Hard, Tough, & Wear Resistant Turning at Medium SFM	Hard & Wear Resistant Turning at Low SFM	Hard, Tough, & Wear Resistant Turning at Medium SFM
Condition	Wet	Wet	Wet
Cutting Data			
	Inch / Metric	Inch / Metric	Inch / Metric
Depth of Cut ap	.02 - .24 / 0.5 - 6.0	.02 - .24 / 0.5 - 6.0	.02 - .24 / 0.5 - 6.0
Feed per Rev. fn	.004 - .031 / 0.1 - 0.8	.004 - .031 / 0.1 - 0.8	.004 - .031 / 0.1 - 0.8

Material Hardness	HB	HRC	SFM (Vc)	SFM (Vc)	SFM (Vc)
Alloy Steel	180	8	1023 - 413 / 310 - 125		1122 - 528 / 340 - 160
Stainless Steel	180	8	941 - 462 / 285 - 140	627 - 396 / 190 - 120	1056 - 462 / 320 - 140
Gray Cast Iron	180	8		726 - 429 / 220 - 130	990 - 693 / 300 - 210

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
KNUX-EL/ER Parallelogram General Purpose 	KNUX-160405-EL-11	KNUX-160405-EL	69001		
	KNUX-160405-ER-11	KNUX-160405-ER	69004		
	KNUX-160410-EL11	KNUX-160410-EL	69013		
	KNUX-160410-ER-11	KNUX-160410-ER	69016		
SNG - EN Square General Purpose 	SNG-322-EN	SNG-090308-EN		69040	69042
SNU-EN Square General Purpose 	SNU-322-EN	SNU-090308-EN		69106	69108
	SNU-432-EN	SNU-120408-EN		69112	69114
	SNU-433-EN	SNU-120412-EN		69118	69120
	SNU-532-EN	SNU-150408-EN		69124	69126
	SNU-633-EN	SNU-190412-EN		69143	69145
TNG- EN 60° Triangle General Purpose 	TNG-321-EN	TNG-160308-EN		69155	69157
	TNG-433-EN	TNG-220412-EN		69179	69181
TNU- EN 60° Triangle General Purpose 	TNU-433-EN	TNU-220412-EN		69207	69209

Material

Steel Alloy Steel	Good
Stainless Steel	Good
Cast Iron	Good

For Insert Grade Cutting Data
See page 28

For Insert Cutting Speed Recommendation Form
see pages 43

Application

	General Purpose		General Purpose		General Purpose	
Insert Grade	DUC25UT		DUC25UT		DUC25UT	
Chip Breaker	EG		EG		EG	
ISO Insert Grade	P15 M15 K15		P25 M25		P35 M35	
ANSI Insert Grade	C6-C7		C2-C7		C2-C3 / C5-C6	
Insert Coating	CVD TiN/TiC/TiCN/TiN		CVD TiN/TiC/TiCN/TiN		CVD TiN/TiC/TiCN/TiN	
Insert Aptitude	Hard, Tough, & Wear Resistant Turning at Medium SFM		Hard, Tough, & Wear Resistant Turning at Medium SFM		Hard, Tough, & Wear Resistant Turning at Medium SFM	
Condition	Wet		Wet		Wet	
Cutting Data						
	Inch	Metric	Inch	Metric	Inch	Metric
Depth of Cut ap	.020 - .240	0.5 - 6.0	.020 - .240	0.5 - 6.0	.020 - .240	0.5 - 6.0
Feed per Rev. fn	.004 - .031	0.1 - 0.8	.004 - .031	0.1 - 0.8	.004 - .031	0.1 - 0.8
SFM (Vc)						
Alloy Steel	1023 - 578	310 - 175				
Stainless Steel			808 - 594	245 - 180		
Gray Cast Iron					990 - 693	300 - 210

Material Hardness	HB	HRC
Alloy Steel	180	8
Stainless Steel	180	8
Gray Cast Iron	180	8

Description	ANSI	ISO	UPC 733101-	UPC 733101-	UPC 733101-
CNMG-EG 80° Diamond General Purpose	CNMG-432-EG	CNMG-120408-EG	70006	70006	70006
	CNMG-433-EG	CNMG-120412-EG	70010	70010	70010
	CNMG-542-EG	CNMG-160608-EG	70014	70014	70014
	CNMG-543-EG	CNMG-160612-EG	70018	70018	70018
	CNMG-643-EG	CNMG-190612-EG	70026	70026	70026
DNMG-EG 55° Diamond General Purpose	DNMG-432-EG	DNMG-150408-EG	70034	70034	70034
	DNMG-543-EG	DNMG-190612-EG	70042	70042	70042
RNMG-EG Round General Purpose	RNMG-32-EG	RNMG-090300-EG	70046	70046	70046
	RNMG-43-EG	RNMG-120400-EG	70050	70050	70050
	RNMG-54-EG	RNMG-150600-EG	70054	70054	70054
	RNMG-64-EG	RNMG-190600-EG	70058	70058	70058
	RNMG-84-EG	RNMG-250600-EG	70158	70158	70158
SNMG-EG Square General Purpose	SNMG-322-EG	SNMG-090308-EG	70062	70062	70062
	SNMG-432-EG	SNMG-120408-EG	70066	70066	70066
	SNMG-543-EG	SNMG-150612-EG	70070	70070	70070
	SNMG-643-EG	SNMG-190612-EG	70078	70078	70078
TNMG-EG 60° Triangle General Purpose	TNMG-221-EG	TNMG-110304-EG	70086	70086	70086
	TNMG-222-EG	TNMG-110308-EG	70090	70090	70090
	TNMG-321-EG	TNMG-160304-EG	70094	70094	70094
	TNMG-322-EG	TNMG-160308-EG	70098	70098	70098
	TNMG-331-EG	TNMG-160404-EG	70102	70102	70102
	TNMG-332-EG	TNMG-160408-EG	70106	70106	70106
	TNMG-431-EG	TNMG-220404-EG	70110	70110	70110
	TNMG-432-EG	TNMG-220408-EG	70114	70114	70114
	TNMG-433-EG	TNMG-220412-EG	70118	70118	70118
	TNMG-434-EG	TNMG-220416-EG	70122	70122	70122
VNMG-EG 35° Diamond General Purpose	VNMG-331-EG	VNMG-160404-EG	70138	70138	70138
	VNMG-332-EG	VNMG-160408-EG	70142	70142	70142
	VNMG-432-EG	VNMG-220408-EG	70146	70146	70146
	VNMG-433-EG	VNMG-220412-EG	70150	70150	70150

"M" - Multi-Lock Toolholder System

- Maximum rigidity
- Utilizes lock pin and clamp
- Holds insert and seat secure for less vibration

PG. 92-104

"T" Cam Lock Toolholder

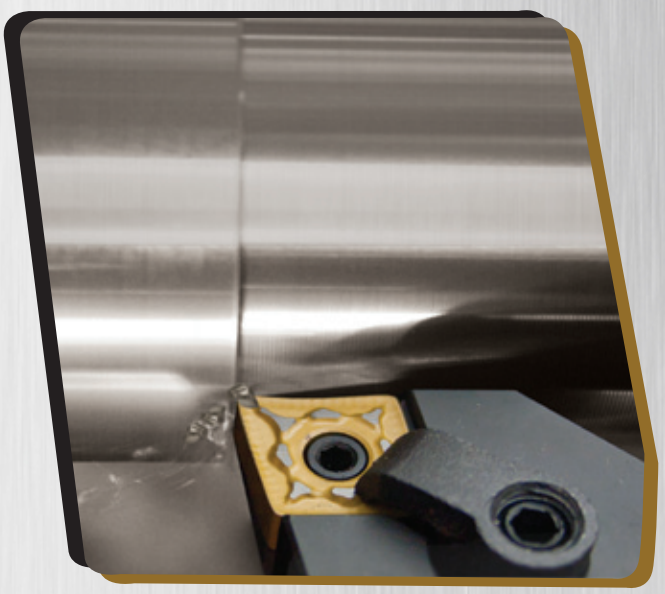
- One locking action to secure the insert
- Two second change over
- Triangular negative turning insert

PG. 103

"W" - Wedge Lock Toolholder System

- Excellent locking ability
- Easier to index or change insert without the lock pin
- Allows for an optional chip breaker to be placed on the insert

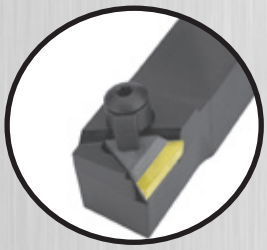
PG. 105



"P" - Profile Toolholder System

- Easy to index insert
- Uses special clamp for a secure positive lock with more force

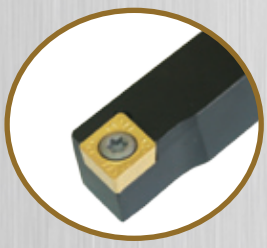
PG. 105



"C" - Clamp Lock Toolholder System

- Excellent locking ability
- Easier to index or change insert without the lock pin
- Allows for an optional chip breaker to be placed on the insert

PG. 106-108



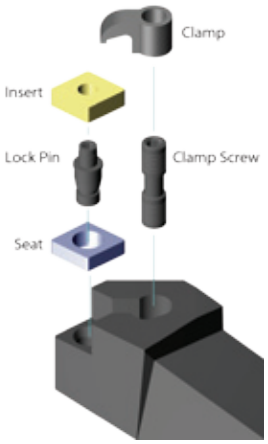
"S" - Screw Lock Toolholder System

- Easy to index insert
- Uses Torx screw for a secure lock with more force

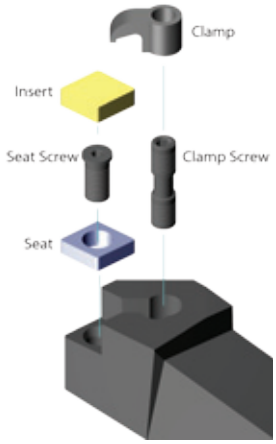
PG. 109-125

"M" - Multi-Lock Toolholder System Spare Parts

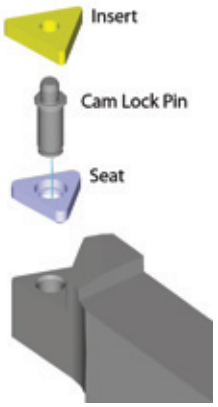
Supplied Standard



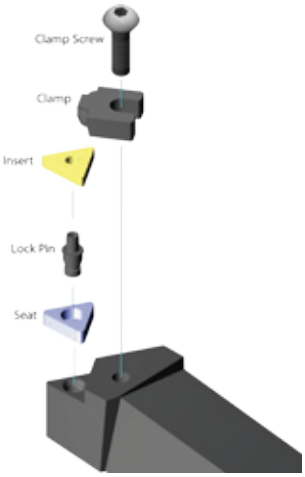
Optional



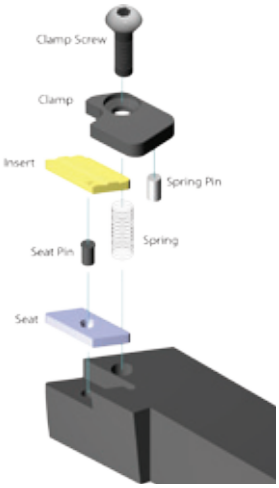
"T" Cam Lock Toolholder System Spare Parts



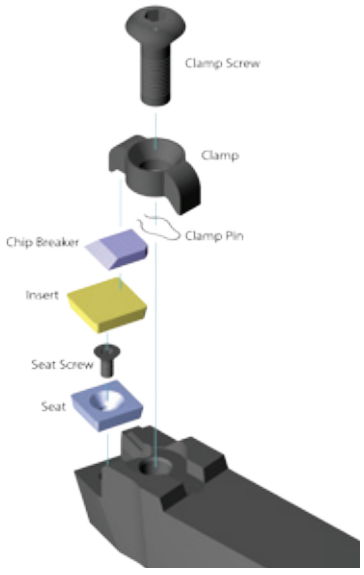
"W" - Wedge Lock Toolholder System Spare Parts



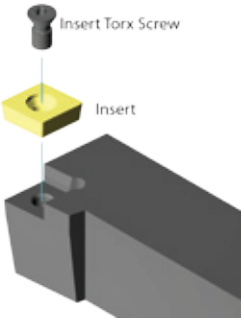
"P" - Profile Toolholder System Spare Parts

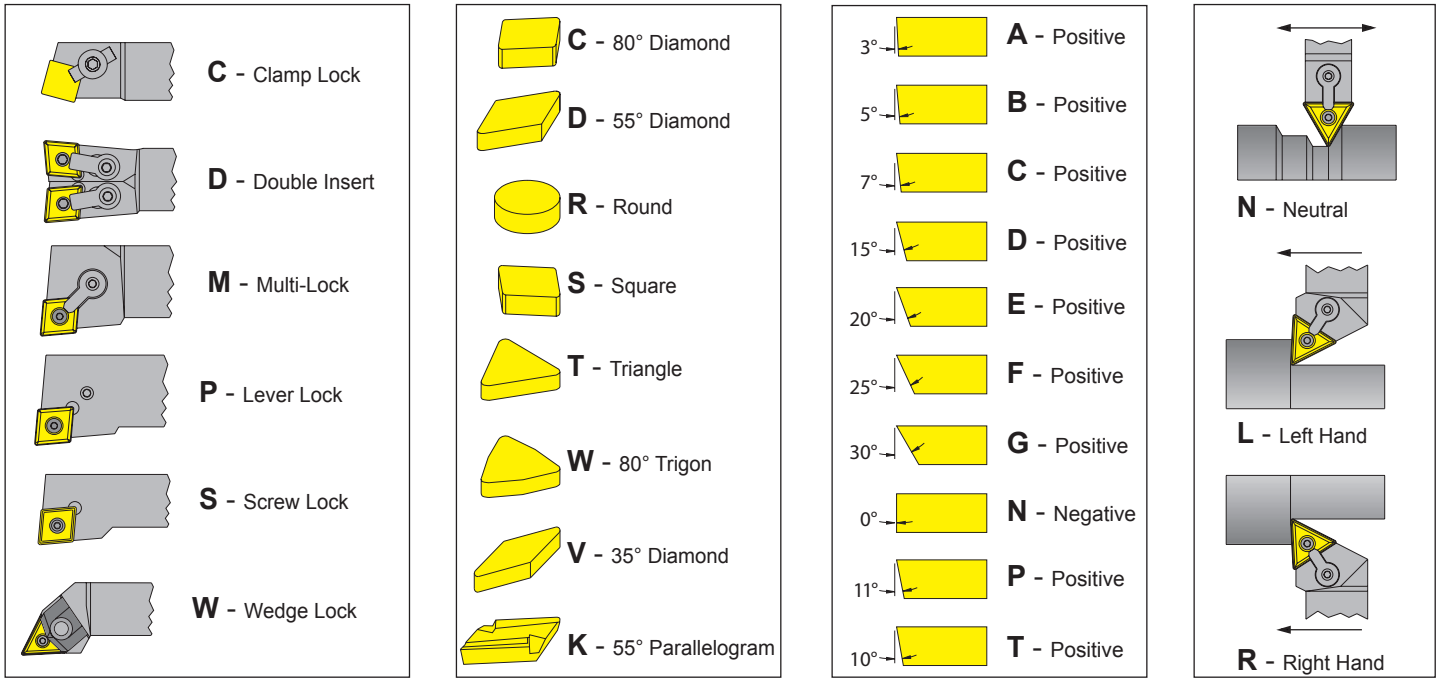


"C" - Clamp Lock Toolholder System Spare Parts

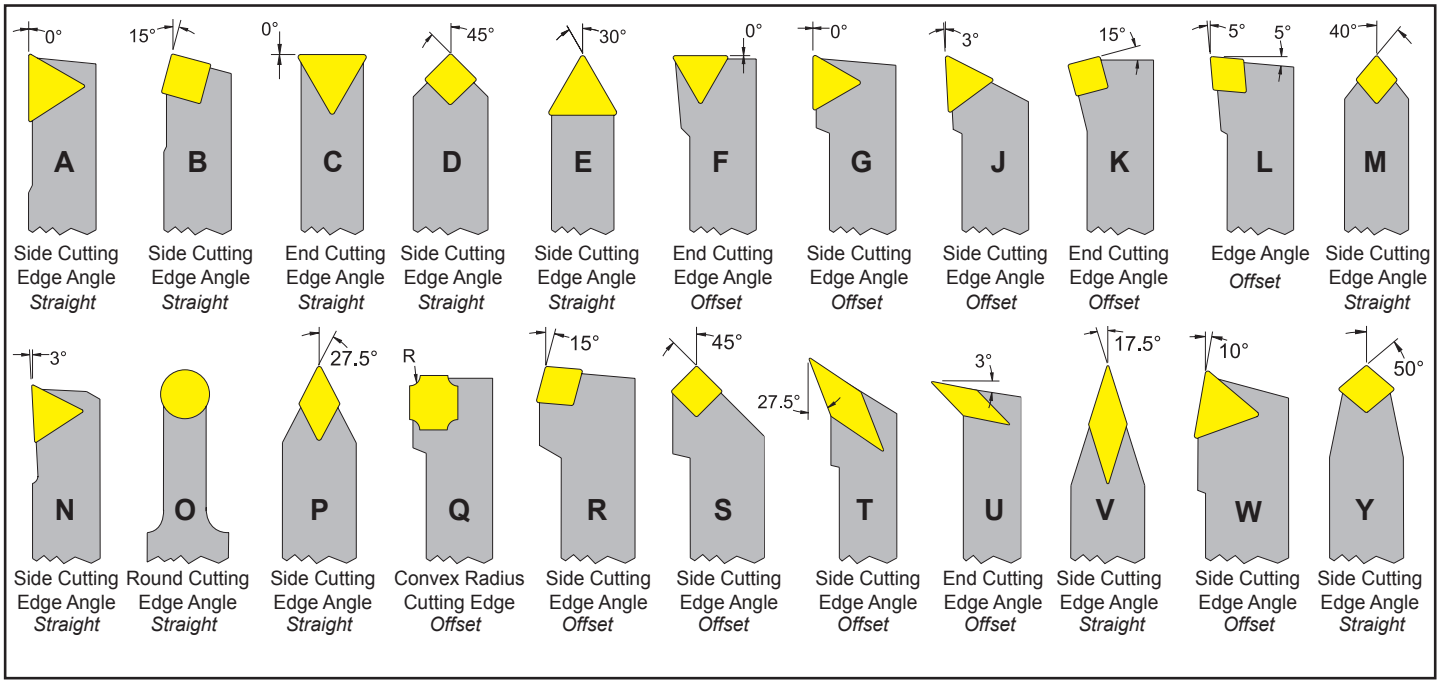


"S" - ISO Screw Lock Toolholder System Spare Parts




C - Clamp Lock
D - Double Insert
M - Multi-Lock
P - Lever Lock
S - Screw Lock
W - Wedge Lock
1. Holding Method
C - 80° Diamond
D - 55° Diamond
R - Round
S - Square
T - Triangle
W - 80° Trigon
V - 35° Diamond
K - 55° Parallelogram
2. Insert Geometry
3° A - Positive
5° B - Positive
7° C - Positive
15° D - Positive
20° E - Positive
25° F - Positive
30° G - Positive
0° N - Negative
11° P - Positive
10° T - Positive
4. Insert Clearance Angle
N - Neutral
L - Left Hand
R - Right Hand
5. Hand of Tool
1
2
4
M C L N R
5
3

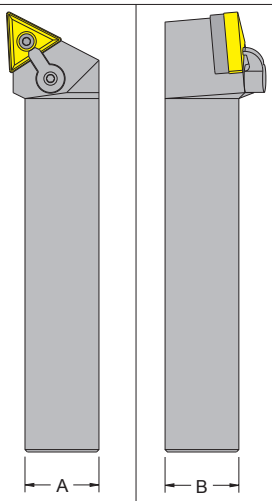
3. Tool Style


A Side Cutting Edge Angle Straight
B Side Cutting Edge Angle Straight
C End Cutting Edge Angle Straight
D Side Cutting Edge Angle Straight
E Side Cutting Edge Angle Straight
F End Cutting Edge Angle Offset
G Side Cutting Edge Angle Offset
J Side Cutting Edge Angle Offset
K End Cutting Edge Angle Offset
L Edge Angle Offset
M Side Cutting Edge Angle Straight
N Side Cutting Edge Angle Straight
O Round Cutting Edge Angle Straight
P Side Cutting Edge Angle Straight
Q Convex Radius Cutting Edge Offset
R Side Cutting Edge Angle Offset
S Side Cutting Edge Angle Offset
T Side Cutting Edge Angle Offset
U End Cutting Edge Angle Offset
V Side Cutting Edge Angle Straight
W Side Cutting Edge Angle Offset
Y Side Cutting Edge Angle Straight

Expressed in 1/16" Increments

EX: 16 units (16 x 1/16") = 1" square

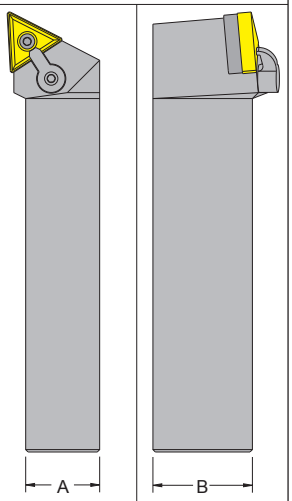
1/2" square and below will start with a 0. ***EX:*** 1/2" = 08



6. Square Size

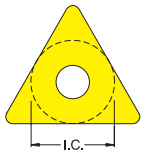
"A" **expressed in 1/8" Increments**
"B" **expressed in 1/4" Increments**

EX: *64 (6 x 1/8")* & (4 x 1/4") = *3/4" x 1"*



7. Rectangle Size

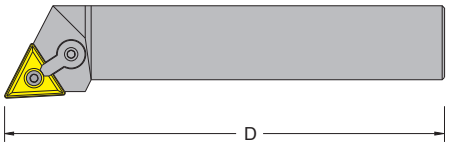
Insert I.C.
(Inscribed Circle):
Measures surface in 1/8" or 1/32" increments, **1 unit = 1/8"**
EX: 4 units (4 x 1/8") = 1/2"



Note: Old A.N.S.I. standards may apply for I.C.s under 1/4" *(if > 1/4" I.C., 1 unit = 1/32")*

8. Insert Size I.C.

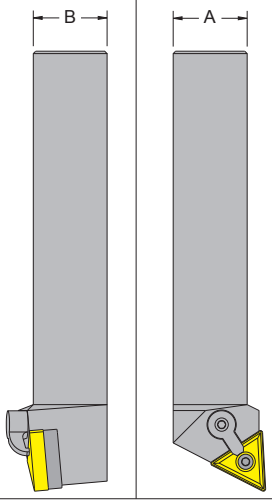
J - 3 - 1/2"
A - 4.0"
B - 4 - 1/2"
C - 5.0"
D - 6.0"
E - 7.0"
F - 8.0"



9. Length

6	7	7		8	9	
	1	6	-	4	D	Inch
	25	25		M	16	Metric

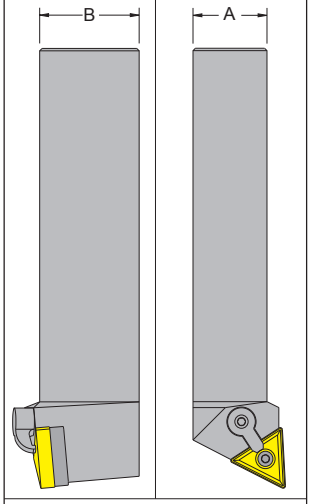
6. Square Size



Expressed in 1mm Increments

EX: 2525 =
25mm square

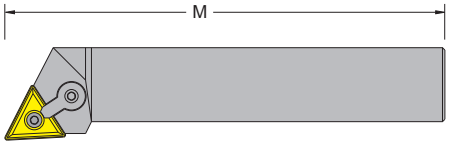
7. Rectangle Size



Expressed in 1mm Increments

EX: *3225* =
32mm height x 25mm width

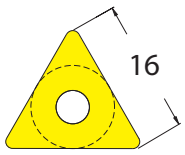
9. Length



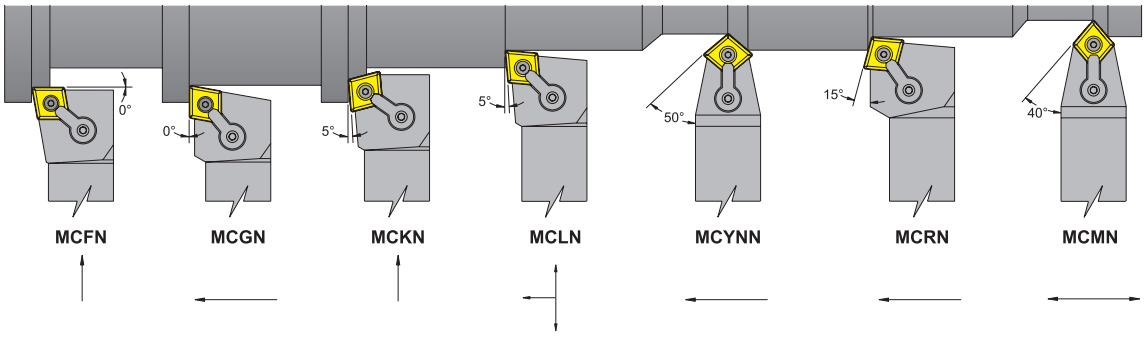
D - 60mm
E - 70mm
F - 80mm
H - 100mm
K - 125mm
M - 150mm
P - 170mm

9. Insert Size

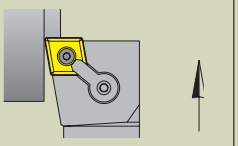
Cutting Edge Length
shown in 1mm increments



MC - Style Toolholders Turning Application

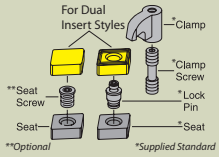


(———) Arrows Specify Cutting Direction

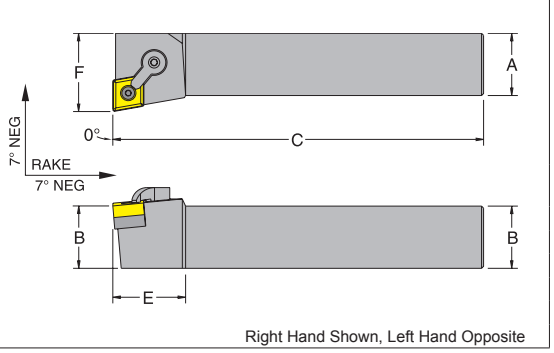


MCFN R/L Toolholder

Style F - 0° End
Cutting Edge Angle
for negative 80°
diamond CNM_ inserts

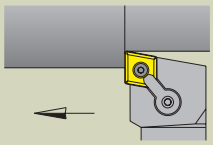


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MCFNR/L12-4B	50010*	50011	0.75	0.75	4.50	1.250	1.000						
MCFNR/L16-4C	50014	50015	1.00	1.00	5.00	1.250	1.250	432	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCFNR/L16-4D	50018	50019	1.00	1.00	6.00	1.250	1.250						
MCFNR/L16-5D	50022	50023	1.00	1.00	6.00	1.375	1.250	543	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCFNR/L16-6D	50026	50027	1.00	1.00	6.00	1.500	1.250	643	ICSN-633	NL68	CL-9	XNS-510	S-68



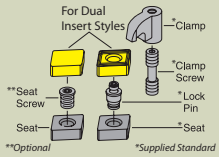
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

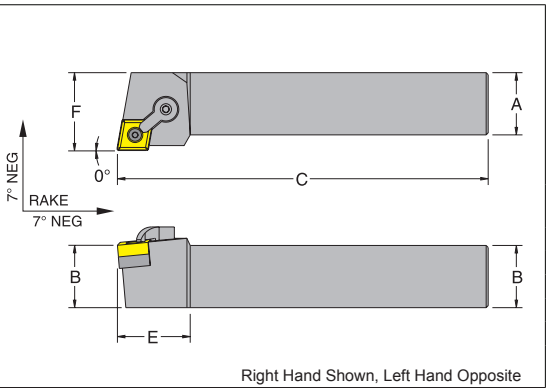


MCGN R/L Toolholder

Style G- 0° Side
Cutting Edge Angle
for negative 80°
diamond CNM_ inserts

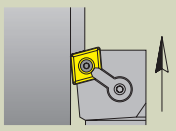


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MCGNR/L12-4B	50036	50037	0.75	0.75	4.50	1.250	1.000						
MCGNR/L16-4C	50040	50041	1.00	1.00	5.00	1.250	1.250	432	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCGNR/L16-4D	50044	50045	1.00	1.00	6.00	1.250	1.250						
MCGNR/L16-5D	50048	50049	1.00	1.00	6.00	1.375	1.250	543	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCGNR/L16-6D	50052	50053	1.00	1.00	6.00	1.625	1.250	643	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCGNR/L85-6D	50056	50057	1.00	1.25	6.00	1.625	1.250						



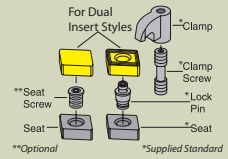
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

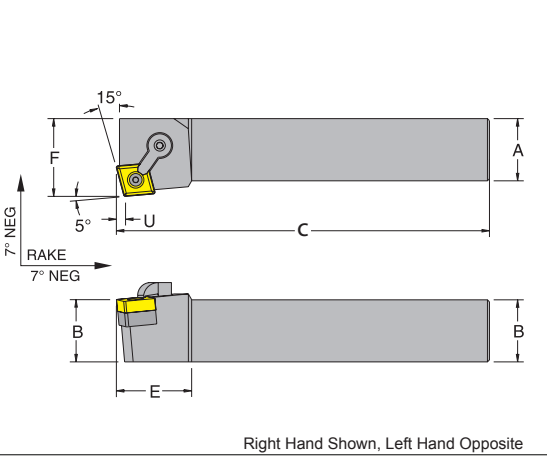


MCKN R/L Toolholder

Style K- 15° End
Cutting Edge Angle
for negative 80°
diamond CNM_ inserts

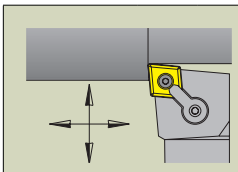


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	U	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MCKNR/L12-4B	50066	50067	0.75	0.75	4.50	1.250	1.000	.123						
MCKNR/L16-4C	50070	50071	1.00	1.00	5.00	1.250	1.250	.123	432	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCKNR/L16-4D	50074	50075	1.00	1.00	6.00	1.250	1.250	.123						
MCKNR/L20-4D	50078	50079	1.25	1.25	6.00	1.250	1.500	.123						
MCKNR/L16-5D	50082	50083	1.00	1.00	6.00	1.375	1.250	.151						
MCKNR/L20-5D	50086	50087	1.25	1.25	6.00	1.375	1.500	.151	543	ICSN-533	NL-58	CL-9	XNS-59	S-58
MCKNR/L85-5D	50090	50091	1.00	1.25	6.00	1.375	1.250	.151						
MCKNR/L16-6D	50094*	50095	1.00	1.00	6.00	1.500	1.250	.184						
MCKNR/L20-6D	50098	50099	1.25	1.25	6.00	1.500	1.500	.184	643	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCKNR/L24-6E	50102	50103	1.50	1.50	7.00	1.500	2.000	.184						
MCKNR/L86-6E	50106	50107	1.00	1.50	7.00	1.500	1.250	.184						



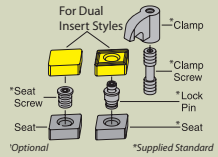
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

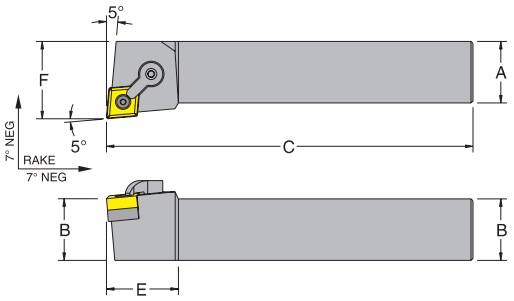


MCLN
R/L Toolholder

Style L - Negative 5°
End or Side Cutting
Edge Angle for negative
80° diamond CNM_ inserts

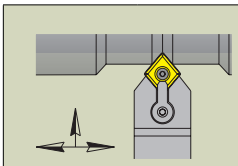


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MCLNR/L08-3A	50108	50109	0.500	0.500	4.00	1.000	0.750	322	-	NL-33	CL-6	XNS-37	-
MCLNR/L10-3A	50118	50119	0.625	0.625	4.00	1.000	0.875						
MCLNR/L12-3B	50110	50111	0.750	0.750	4.50	1.000	1.000	322	ICSN-332	NL-34L	CL-6	XNS-37	S-34
MCLNR/L16-3C	50112	50113	1.000	1.000	5.00	1.000	1.250						
MCLNR/L10-4B	50116	50117	0.625	0.625	4.50	1.250	1.000	432	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNR/L12-4B	50120	50121	0.750	0.750	4.50	1.250	1.000						
MCLNR/L16-4C	50124	50125	1.000	1.000	5.00	1.250	1.250						
MCLNR/L16-4D	50128	50129	1.000	1.000	6.00	1.250	1.250						
MCLNR/L20-4D	50132	50133	1.250	1.250	6.00	1.250	1.500						
MCLNR/L24-4D	50136	50137	1.500	1.500	6.00	1.250	2.000						
MCLNR/L24-4E	50140	50141	1.500	1.500	7.00	1.250	2.000						
MCLNR/L85-4D	50144	50145	1.000	1.250	6.00	1.250	1.250						
MCLNR/L16-5C	50148	50149	1.000	1.000	5.00	1.375	1.250	543	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCLNR/L16-5D	50152	50153	1.000	1.000	6.00	1.375	1.250						
MCLNR/L20-5D	50156	50157	1.250	1.250	6.00	1.375	1.500						
MCLNR/L86-5E	50160	50161*	1.000	1.500	7.00	1.375	1.250						
MCLNR/L16-6C	50164	50165	1.000	1.000	5.00	1.500	1.250	643	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNR/L16-6D	50168	50169	1.000	1.000	6.00	1.500	1.250						
MCLNR/L20-6D	50172	50173	1.250	1.250	6.00	1.500	1.500						
MCLNR/L20-6E	50174	50175	1.250	1.250	7.00	1.500	1.500						
MCLNR/L24-6D	50176	50177	1.500	1.500	6.00	1.500	2.000						
MCLNR/L24-6E	50180	50181	1.500	1.500	7.00	1.500	2.000						
MCLNR/L85-6D	50184	50185	1.000	1.250	6.00	1.500	1.250						
MCLNR/L86-6E	50188	50189	1.000	1.500	7.00	1.500	1.250						



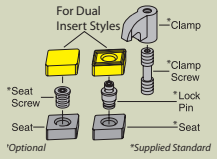
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*For Non-Stock Items

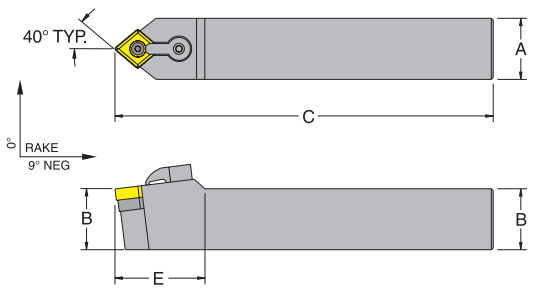


MCMN
N Toolholder

Style M - 40° Side
Cutting Edge Angle
for negative 80°
diamond CNM_ inserts

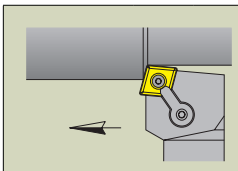


Inch Description	Part No. 733101-	A	B	C	E	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MCMNN12-4B	50198	0.75	0.75	4.50	1.500	432	ICSN-433	NL-46	CL-12	XNS-59	S-46
MCMNN16-4D	50200	1.00	1.00	6.00	1.500	432	ICSN-433	NL-46	CL-12	XNS-510	S-46
MCMNN16-5D	50202	1.00	1.00	6.00	1.750	543	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCMNN20-5D	50204	1.25	1.25	6.00	1.750						
MCMNN16-6D	50206	1.00	1.00	6.00	2.000	643	ICSN-633	NL-68	CL-30	XNS-59	S-68
MCMNN20-6D	50208	1.25	1.25	6.00	2.000	643	ICSN-633	NL-68	CL-30	XNS-510	S-68
MCMNN24-6E	50210	1.50	1.50	7.00	2.000						



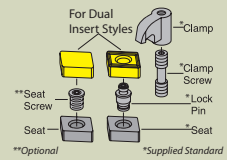
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

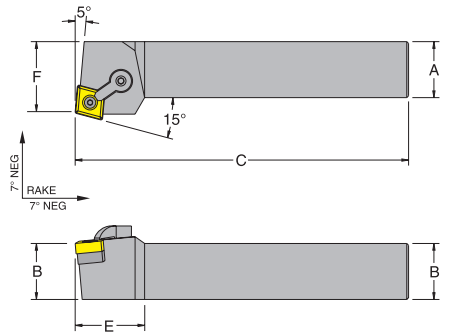


MCRN
R/L Toolholder

Style R- 15° Side
Cutting Edge Angle
for negative 80°
diamond CNM_ inserts

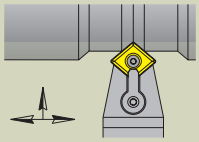


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MCRNR/L12-3B	50218	50219	0.75	0.75	4.5	0.875	0.800	322	ICSN-332	NL-34L	CL-6	XNS-37	S-34
MCRNR/L12-4B	50220	50221	0.75	0.75	4.5	1.250	0.750	432	ICSN-433	NL-46	CL-9	XNS-58	S-46
MCRNR/L16-4C	50224	50225	1.00	1.00	5.0	1.250	1.250						
MCRNR/L16-4D	50228	50229	1.00	1.00	6.0	1.250	1.250						
MCRNR/L20-4D	50232	50233	1.25	1.25	6.0	1.250	1.500						
MCRNR/L24-4E	50236	50237	1.50	1.50	7.0	1.250	2.000						
MCRNR/L16-5D	50240	50241	1.00	1.00	6.0	1.375	1.250	543	ICSN-533	NL-58	CL-9	XNS-510	S-58
MCRNR/L20-5D	50244	50245	1.25	1.25	6.0	1.375	1.500						
MCRNR/L85-5D	50248	50249	1.00	1.25	6.0	1.375	1.250						
MCRNR/L16-6D	50252	50253	1.00	1.00	6.0	1.500	1.250	643	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCRNR/L20-6D	50256	50257	1.25	1.25	6.0	1.500	1.500						
MCRNR/L24-6E	50260	50261	1.50	1.50	7.0	1.500	2.000						
MCRNR/L86-6E	50264	50265*	1.00	1.50	7.0	1.500	1.250						



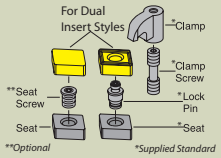
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

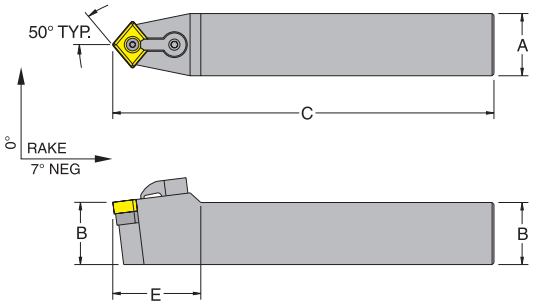


MCYN
N Toolholder

Style Y - 50° Side Cutting
Edge Angle for negative
80° diamond CNM_ Inserts



Inch Description	Part No. 733101-	A	B	C	E	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MCYNN12-4B	50274	0.75	0.75	4.5	1.375						
MCYNN16-4D	50276	1.00	1.00	6.0	1.375	432	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCYNN85-4D	50278	1.00	1.25	6.0	1.375						
MCYNN16-5D	50280	1.00	1.00	6.0	1.625	543	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCYNN20-5D	50282*	1.25	1.25	6.0	1.625						
MCYNN16-6D	50284*	1.00	1.00	6.0	1.750						
MCYNN20-6D	50286	1.25	1.25	6.0	1.750	643	ICSN-633	NL68	CL-12	XNS-510	S-68
MCYNN24-6E	50288	1.50	1.50	7.0	1.750						



Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

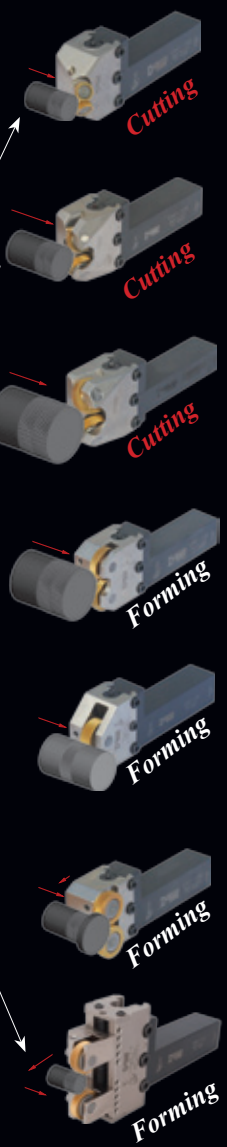
* Non-Stock Item

Create any Knurling Tool Combination with
Dorian's CNC Modular Knurling Tools

- **Three standard shank sizes**
- **Seven standard knurling heads**
- **Shanks and Heads are all Interchangeable**

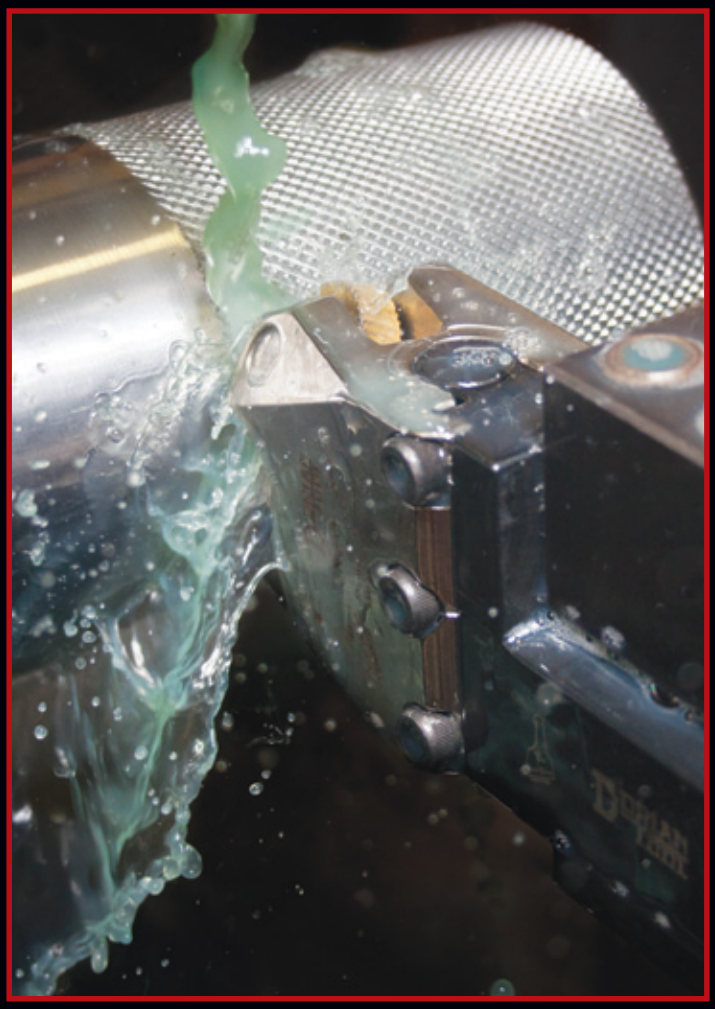
These tools offer better performance and flexibility. Every combination of knurl heads and knurl shanks, are listed on this page. Notice how many applications that can be accomplished with one CNC Modular Knurling Tool. Not only is this tool modular for a wide variety of applications it is also supplied with heavy duty parts.

CNC Modular
Knurling Tool Shank



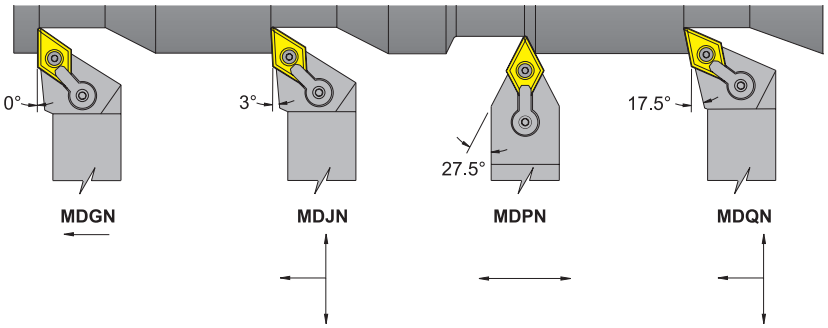
- **Center height adjustment.**
- **Carbide knurl pin.**
- **Easy set-up.**
- **High productivity.**
- **Best knurl quality.**
- **Long knurl wheel life.**
- **Low production cost.**

- **Specifically designed for the CNC Lathe.**
- **Precision square shank with preset center height.**
- **Right or Left hand applications.**
- **Shanks and heads are all interchangeable.**
- **High Speed knurl wheels (TiN coated).**

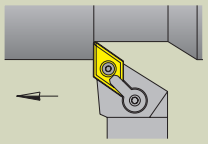


For more information see our knurling Tool Catalog.

MD - Style Toolholders

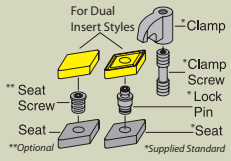


(←——) Arrows Specify Cutting Direction

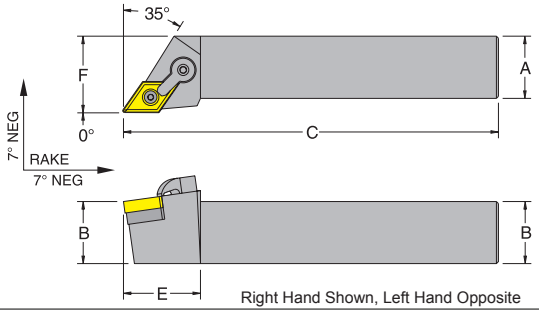


MDGN R/L Toolholder

Style G- 0° Side Cutting
Edge Angle for negative
55° diamond DNM_ inserts

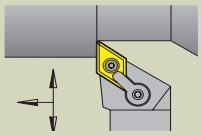


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	DNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MDGNR/L12-4B	50298	50299	0.75	0.75	4.50	1.25	1.00	432	IDSN-433	NL-46	CL-7	XNS-36	S-46
MDGNR/L16-4D	50302	50303	1.00	1.00	6.00	1.25	1.25	432	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDGNR/L16-5D	50306	50307	1.00	1.00	6.00	1.75	1.25	543	IDSN-533	NL58	CL-12	XNS-510	S-58



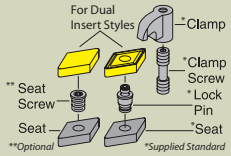
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

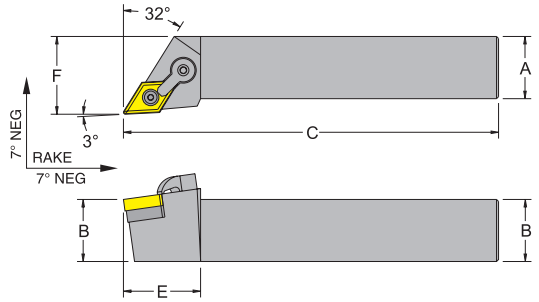


MDJN R/L Toolholder

Style J- 3° Side Cutting
Edge Angle for negative
55° diamond DNM_ inserts

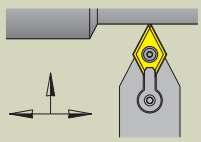


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	DNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MDJNR/L08-3A	50316	50317	0.500	0.500	4.00	1.250	0.750	332	-	NL-33	CL-7	XNS-36	-
MDJNR/L10-3B	50320	50321	0.625	0.625	4.50	1.250	0.875	332	IDSN-322	NL-34L	CL-7	XNS-36	S-34
MDJNR/L12-3B	50312	50313	0.750	0.750	4.50	1.250	1.000						
MDJNR/L16-3C	50314	50315	1.000	1.000	5.00	1.250	1.250						
MDJNR/L12-4B	50324	50325	0.750	0.750	4.50	1.250	1.000	432	IDSN-433	NL-46	CL-7	XNS-36	S-46
MDJNR/L16-4C	50328	50329	1.000	1.000	5.00	1.250	1.250	432	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNR/L16-4D	50332	50333	1.000	1.000	6.00	1.250	1.250						
MDJNR/L20-4D	50336	50337	1.250	1.250	6.00	1.250	1.500						
MDJNR/L24-4D	50340	50341	1.500	1.500	6.00	1.250	2.000						
MDJNR/L24-4E	50344	50345	1.500	1.500	7.00	1.250	2.000						
MDJNR/L85-4D	50348	50349	1.000	1.250	6.00	1.250	1.250						
MDJNR/L16-5C	50350	50351	1.000	1.000	5.00	1.750	1.250	543	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNR/L16-5D	50352	50353	1.000	1.000	6.00	1.750	1.250						
MDJNR/L20-5D	50356	50357	1.250	1.250	6.00	1.750	1.500						
MDJNR/L24-5D	50360	50361	1.500	1.500	6.00	1.750	2.000						
MDJNR/L24-5E	50364	50365	1.500	1.500	7.00	1.750	2.000						
MDJNR/L86-5E	50368	50369	1.000	1.500	7.00	1.750	1.250						



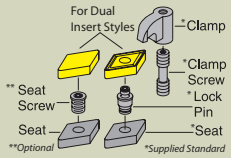
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

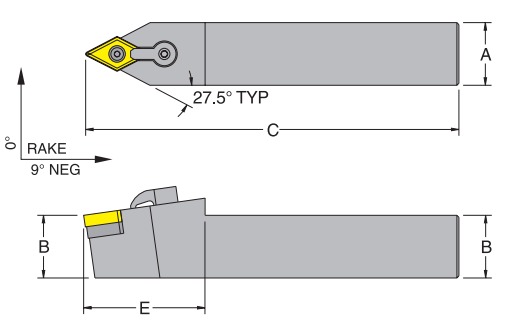


MDPN N Toolholder

Style P- 27.5° Side Cutting
Edge Angle for negative
55° diamond DNM_ inserts

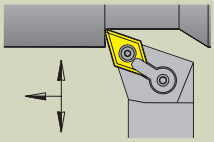


Inch Description	Part No. 733101-	A	B	C	E	DNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MDPNN12-4B	50370	0.75	0.75	4.50	1.75	432	IDSN-433	NL-46	CL-12	XNS-510	S-46
MDPNN16-4D	50372	1.00	1.00	6.00	1.75						
MDPNN20-4D	50374	1.25	1.25	6.00	1.75						
MDPNN16-5D	50376	1.00	1.00	6.00	2.00	543	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDPNN20-5D	50378	1.25	1.25	6.00	2.00						
MDPNN24-5D	50380	1.50	1.50	6.00	2.00						
MDPNN24-5E	50382*	1.50	1.50	7.00	2.00						
MDPNN85-5D	50384	1.00	1.25	6.00	2.00						
MDPNN86-5D	50386*	1.00	1.50	6.00	2.00						



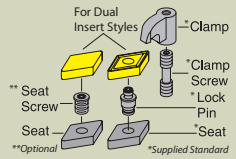
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

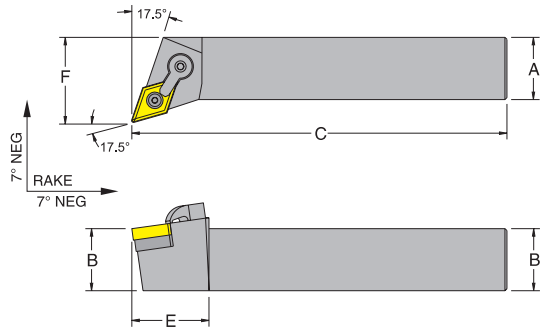


MDQN
R/L Toolholder

Style Q- 17.5° Side Cutting
Edge Angle for negative 55°
diamond DNM_ inserts



Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	DNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MDQNR/L12-4B	50371	50373	0.75	0.75	4.5	1.37	1.00	432	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDQNR/L16-4C	50375	50377	1.00	1.00	5.0	1.37	1.25						
MDQNR/L16-4D	50379	50381	1.00	1.00	6.0	1.37	1.25						
MDQNR/L20-4D	50383	50385	1.25	1.25	6.0	1.37	1.50						
MDQNR/L24-4D	50387*	50389	1.50	1.50	6.0	1.37	2.00						
MDQNR/L24-4E	50391*	50393*	1.50	1.50	7.0	1.37	2.00						
MDQNR/L20-5D	50395	50397	1.25	1.25	6.0	1.47	1.50	543	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDQNR/L24-5D	50399	50401*	1.50	1.50	6.0	1.47	2.00						
MDQNR/L24-5E	50403	50405*	1.50	1.50	7.0	1.47	2.00						



Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

SAVE MONEY ON SETS!!

See Page 144 for more SETS

ST5CR
Utility Turning Sets

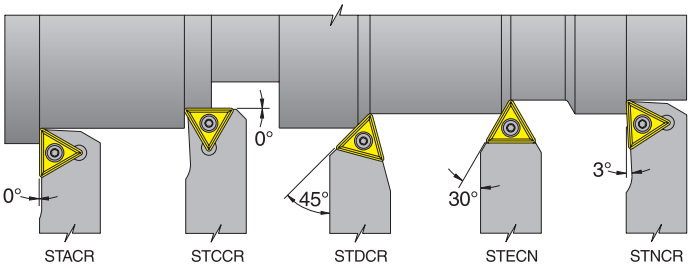
- **High Performance** - Positive rake for fast material removal, as well as finishing with low cutting force.
- **Rigidity** - Holder made of heat treated, precision ground alloy steel.

X 10 pcs.

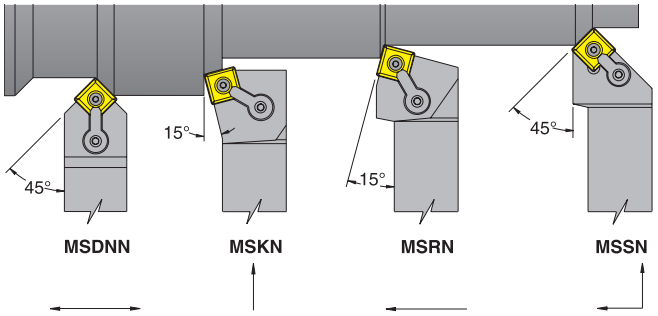
ST5CR Utility Turning Sets						
Set Part No. 733101-	Shank Size	Tool Length	17 Piece Set Includes (5) Toolholder	(10) Inserts	(1) Torx key	(1) Storage Box
85092 85096 85100	0.375 0.500 0.625	2.5 3.5 4.0	Holders shown above	TCMT-21.51-PEM-DPC25UT	T-8	Storage Box
85104 85108	0.750 1.000	4.5 6.0		TCMT-32.52-PEM-DPC25UT	T-15	Storage Box

For inserts see pages 56-87. For spare parts see pages 158-159. For ST5CR Toolholders see page 125.

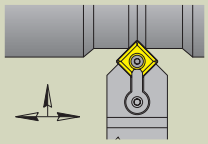
We Are Making Turning Simple For You!



MS - Style Toolholders

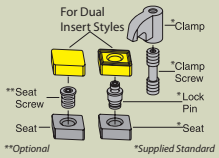


( ) Arrows Specify Cutting Direction

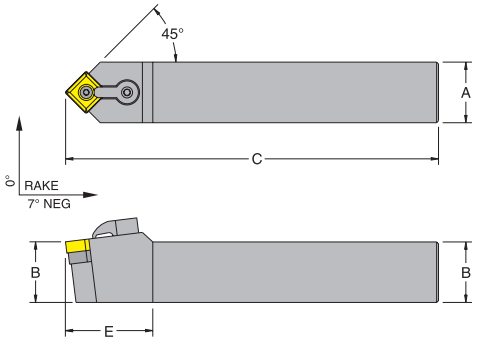


MSDN N Toolholder

Style D - 45° Side Cutting Edge Angle for negative square SNM_ inserts

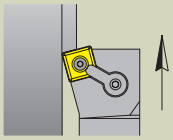


Inch Description	Part No. 733101-	A	B	C	E	SNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MSDNN08-3A	50392	0.500	0.500	4.00	1.000	322	ISSN-322	NL-34	CL-6	XNS-36	S-34
MSDNN08-3B	50394	0.500	0.500	4.50	1.000						
MSDNN10-3B	50396	0.625	0.625	4.50	1.000						
MSDNN12-3B	50398	0.750	0.750	4.50	1.000						
MSDNN12-4B	50400	0.750	0.750	4.50	1.375	432	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSDNN16-4D	50402	1.000	1.000	6.00	1.375						
MSDNN85-4D	50404	1.000	1.250	6.00	1.375						
MSDNN16-5D	50406	1.000	1.000	6.00	1.625	543	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSDNN20-5D	50408	1.250	1.250	6.00	1.625						
MSDNN85-5D	50410	1.000	1.250	6.00	1.625						
MSDNN86-5E	50412	1.000	1.500	7.00	1.625						
MSDNN16-6D	50414	1.000	1.000	6.00	1.750	643	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSDNN20-6D	50416	1.250	1.250	6.00	1.750						
MSDNN20-6E	50417	1.250	1.250	7.00	1.750						
MSDNN24-6E	50418	1.500	1.500	7.00	1.750						
MSDNN85-6D	50420	1.000	1.250	6.00	1.750						
MSDNN86-6E	50422	1.000	1.500	7.00	1.750						



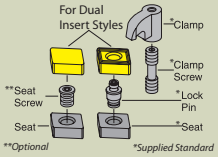
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

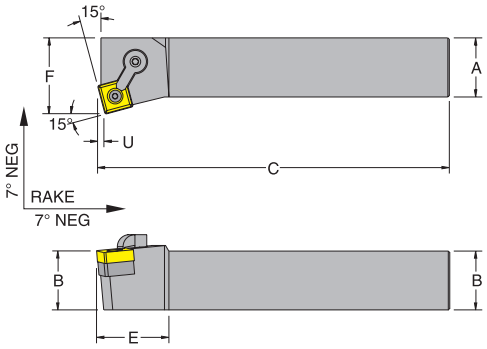


MSKN R/L Toolholder

Style K- 15° End Cutting Edge Angle for negative square SNM_ inserts

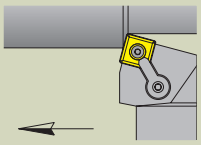


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	U	SNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MSKNR/L08-3A	50432	50433	0.500	0.500	4.00	1.000	0.625	0.900	322	ISSN-322	NL-34	CL-6	XNS-36	S-34
MSKNR/L08-3B	50436	50437	0.500	0.500	4.50	1.000	0.625	0.900						
MSKNR/L10-3B	50440	50441	0.625	0.625	4.50	1.000	0.750	0.900						
MSKNR/L12-3B	50444	50445	0.750	0.750	4.50	1.000	0.875	0.900						
MSKNR/L12-4B	50448	50449	0.750	0.750	4.50	1.250	1.000	0.122	432	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSKNR/L16-4C	50452	50453	1.000	1.000	5.00	1.250	1.250	0.122						
MSKNR/L16-4D	50456	50457	1.000	1.000	6.00	1.000	1.250	0.122						
MSKNR/L16-5D	50460	50461	1.000	1.000	6.00	1.375	1.250	0.151	543	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSKNR/L20-5D	50464	50465	1.250	1.250	6.00	1.375	1.500	0.151						
MSKNR/L85-5D	50468	50469	1.000	1.250	6.00	1.375	1.250	0.151						
MSKNR/L20-6D	50472	50473	1.250	1.250	6.00	1.500	1.500	0.183	643	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSKNR/L24-6D	50476	50477	1.500	1.500	6.00	1.500	2.000	0.183						
MSKNR/L24-6E	50480	50481	1.500	1.500	7.00	1.500	2.000	0.183						



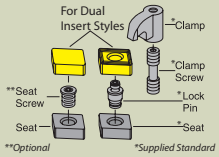
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

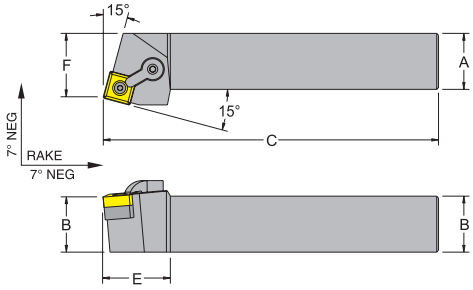


MSRN
R/L Toolholder

Style R- 15° Side Cutting
Edge Angle for negative
square SNM_ inserts

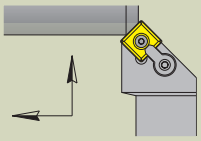


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	SNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MSRNR/L08-3A	50490	50491	0.500	0.500	4.00	1.000	0.660	322	ISSN-322	NL-34	CL-6	XNS-36	S-34
MSRNR/L08-3B	50494	50495	0.500	0.500	4.50	1.000	0.660						
MSRNR/L10-3B	50498	50499	0.625	0.625	4.50	1.000	0.785						
MSRNR/L12-3B	50502	50503	0.750	0.750	4.50	1.000	0.910						
MSRNR/L12-4B	50506	50507	0.750	0.750	4.50	1.250	0.880	432	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSRNR/L16-4C	50510	50511	1.000	1.000	5.00	1.250	1.130						
MSRNR/L16-4D	50514	50515	1.000	1.000	6.00	1.250	1.130						
MSRNR/L20-4D	50518	50519	1.250	1.250	6.00	1.250	1.380						
MSRNR/L85-4D	50522	50523	1.000	1.250	6.00	1.250	1.130						
MSRNR/L16-5C	50526	50527	1.000	1.000	5.00	1.375	1.103	543	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSRNR/L16-5D	50530	50531	1.000	1.000	6.00	1.375	1.103						
MSRNR/L20-5D	50534	50535	1.250	1.250	6.00	1.375	1.353						
MSRNR/L85-5D	50538	50539	1.000	1.250	6.00	1.375	1.103						
MSRNR/L16-6D	50542	50543	1.000	1.000	6.00	1.500	1.071	643	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSRNR/L20-6D	50546	50547	1.250	1.250	6.00	1.500	1.315						
MSRNR/L24-6E	50550	50551	1.500	1.500	7.00	1.500	1.821						
MSRNR/L85-6D	50554	50555	1.000	1.250	6.00	1.500	1.071						



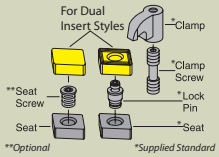
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

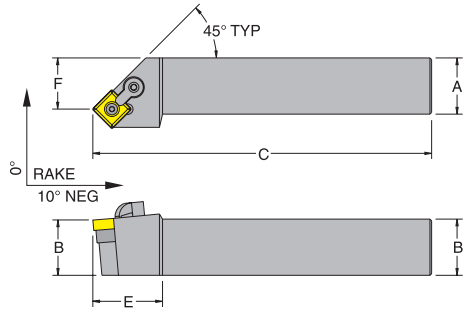


MSSN
R/L Toolholder

Style S- 45° Side Cutting
Edge Angle for negative
square SNM_ inserts



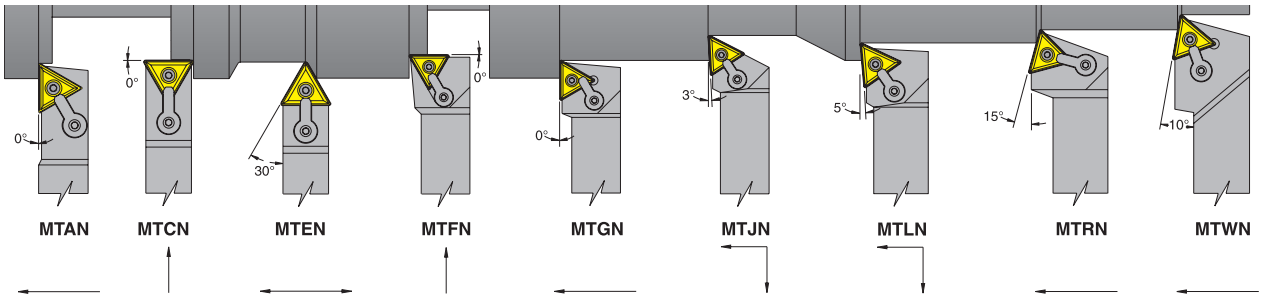
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	SNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MSSNR/L08-3A	50564	50565	0.500	0.500	4.00	1.000	0.404	322	ISSN-322	NL-34	CL-6	XNS-36	S-34
MSSNR/L08-3B	50568	50569	0.500	0.500	4.50	1.000	0.404						
MSSNR/L12-4B	50572	50573	0.750	0.750	4.50	1.250	0.675	432	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSSNR/L16-4C	50576	50577	1.000	1.000	5.00	1.250	0.925						
MSSNR/L16-4D	50580	50581	1.000	1.000	6.00	1.250	0.925						
MSSNR/L85-4D	50582	50583	1.000	1.250	6.00	1.250	0.925						
MSSNR/L16-5D	50584	50585*	1.000	1.000	6.00	1.375	0.874	543	ISSN-533	NL-58	CL-9	XNS-510	S-58
MSSNR/L20-5D	50588	50589	1.250	1.250	6.00	1.375	1.097						
MSSNR/L20-5E	50590	50591*	1.250	1.250	7.00	1.375	1.097						
MSSNR/L20-6D	50592	50593	1.250	1.250	6.00	1.500	1.011	643	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSSNR/L24-6E	50596	50597	1.500	1.500	7.00	1.500	1.492						



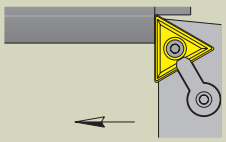
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

MT - Style Toolholders

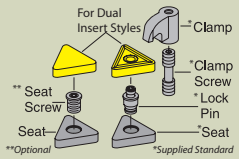


(←) Arrows Specify Cutting Direction

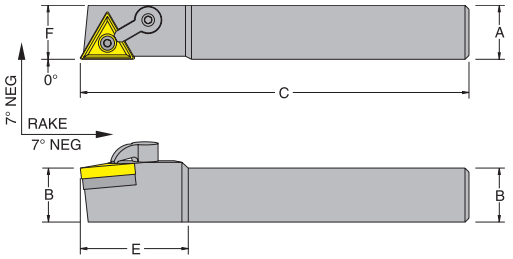


MTAN
R/L Toolholder

Style A- 0° Side Cutting
Edge Angle for negative
triangle TNM_ inserts

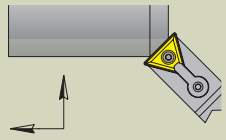


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MTANR/L08-2A	50606	50607	0.500	0.500	4.00	0.875	0.500	221	-	NL-23	CL-19	XNS-36	-
MTANR/L10-2B	50610	50611	0.625	0.625	4.50	0.875	0.625						
MTANR/L10-3B	50614	50615	0.625	0.625	4.50	1.000	0.625	322	ITSN-333	NL-34L	CL-6	XNS-36	S-34
MTANR/L12-3B	50618	50619	0.750	0.750	4.50	1.000	0.750						
MTANR/L16-3D	50622	50623	1.000	1.000	6.00	1.000	1.000	332	ITSN-322	NL-34L	CL-6	XNS-36	S-34
MTANR/L64-3D	50626	50627	0.750	1.000	6.00	1.000	0.750						
MTANR/L16-4D	50630	50631	1.000	1.000	6.00	1.375	1.000	432	ITSN-433	NL-46	CL-9	XNS-59	S-46
MTANR/L20-4D	50634	50635	1.250	1.250	6.00	1.375	1.250						
MTANR/L85-4D	50638	50639	1.000	1.250	6.00	1.375	1.000						
MTANR/L86-4E	50642	50643	1.000	1.500	7.00	1.375	1.000						
MTANR/L16-5D	50646	50647	1.000	1.000	6.00	1.500	1.000	543	ITSN-533	NL-58	CL-9	XNS-510	S-58
MTANR/L20-5D	50650	50651	1.250	1.250	6.00	1.500	1.250						
MTANR/L20-5E	50652	50653	1.250	1.250	7.00	1.500	1.250						
MTANR/L24-6E	50654	50655	1.500	1.500	7.00	1.750	1.500	663	ITSN-636	NL-68L	CL-12	XNS-510	S-68



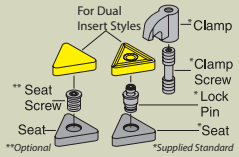
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

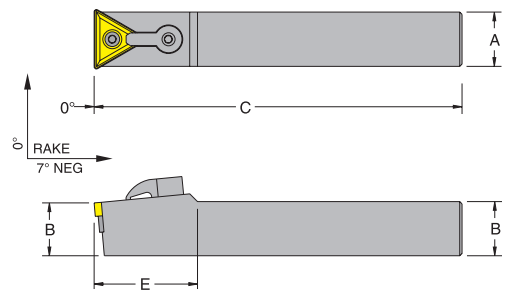


MTCN
N Toolholder

Style C- 0° End Cutting
Edge Angle for negative
triangle TNM_ inserts

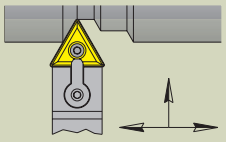


Inch Description	Part No. 733101-	A	B	C	E	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MTCNN08-3A	50664	0.500	0.500	4.00	1.000	322	ITSN-333	NL-34L	CL-7	XNS-36	S-34
MTCNN08-3B	50666	0.500	0.500	4.50	1.000						
MTCNN44-3D	50668	0.500	1.000	6.00	1.000	332	ITSN-322	NL-34L	CL-7	XNS-36	S-34
MTCNN44-3F	50670	0.500	1.000	8.00	1.000						
MTCNN12-4B	50672	0.750	0.750	4.50	1.375						
MTCNN64-4D	50674	0.750	1.000	6.00	1.375						
MTCNN64-4F	50676	0.750	1.000	8.00	1.375	432	ITSN-433	NL-46	CL-12	XNS-59	S-46
MTCNN66-4E	50678	0.750	1.500	7.00	1.375						
MTCNN66-4F	50680	0.750	1.500	8.00	1.375						



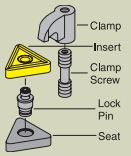
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

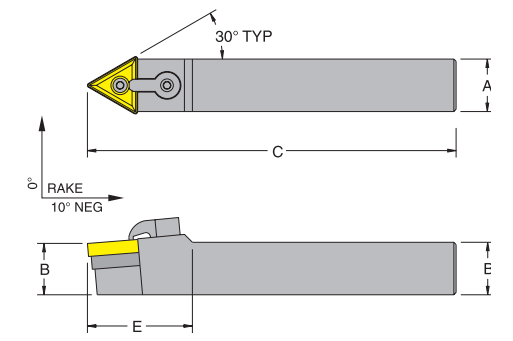


MTEN
N Toolholder

Style E- 30° Side Cutting
Edge Angle for negative
triangle TNM_ inserts

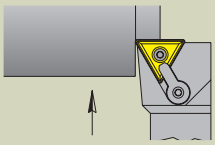


Inch Description	Part No. 733101-	A	B	C	E	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw
MTENN08-2A	50690	0.500	0.500	4.00	1.000	221	-	NL-23	CL-6	XNS-36
MTENN10-3B	50692	0.625	0.625	4.50	1.125	322	ITSN-333	NL-34L	CL-6	XNS-36
MTENN12-3B	50694	0.750	0.750	4.50	1.125	332	ITSN-322	NL-34L	CL-6	XNS-36
MTENN64-3D	50696	0.750	1.000	6.00	1.125					
MTENN12-4B	50698	0.750	0.750	4.50	1.500					
MTENN16-4D	50700	1.000	1.000	6.00	1.500	432	ITSN-433	NL-46	CL-9	XNS-59
MTENN85-4D	50702	1.000	1.250	6.00	1.500					
MTENN86-4E	50704	1.000	1.500	7.00	1.500					
MTENN20-5D	50706	1.250	1.250	6.00	1.625					
MTENN20-5E	50708	1.250	1.250	7.00	1.625	543	ITSN-533	NL-58	CL-9	XNS-510
MTENN24-5E	50710	1.500	1.500	7.00	1.625					
MTENN86-5E	50712*	1.000	1.500	7.00	1.625					



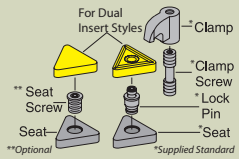
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

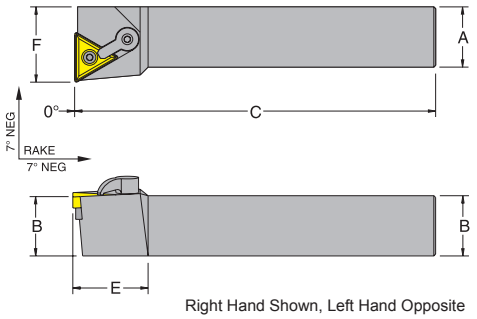


MTFN R/L Toolholder

Style F- 0° End Cutting
Edge Angle for negative
triangle TNM_ inserts



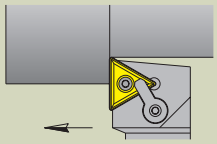
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MTFNR/L08-2A	50722	50723	0.500	0.500	4.00	0.875	0.750						
MTFNR/L10-2B	50726	50727	0.625	0.625	4.50	0.875	0.875	221	-	NL-23	CL-19	XNS-36	-
MTFNR/L12-2B	50730	50731	0.750	0.750	4.50	0.875	1.000						
MTFNR/L10-3B	50734	50735	0.625	0.625	4.50	1.000	0.875	322	ITSN-333	NL-34L	CL-6	XNS-36	S-34
MTFNR/L12-3B	50738	50739	0.750	0.750	4.50	1.000	1.000						
MTFNR/L16-3C	50742	50743	1.000	1.000	5.00	1.000	1.250	332	ITSN-322	NL-34L	CL-6	XNS-36	S-34
MTFNR/L16-3D	50746	50747	1.000	1.000	6.00	1.000	1.250						
MTFNR/L16-4C	50750	50751	1.000	1.000	5.00	1.250	1.250						
MTFNR/L16-4D	50754	50755	1.000	1.000	6.00	1.250	1.250						
MTFNR/L20-4D	50758	50759	1.250	1.250	6.00	1.250	1.500	432	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNR/L24-4E	50762	50763	1.500	1.500	7.00	1.250	2.000						
MTFNR/L85-4D	50766	50767	1.000	1.250	6.00	1.250	1.250						
MTFNR/L86-4E	50768*	50769*	1.000	1.500	7.00	1.250	1.250						
MTFNR/L16-5C	50770*	50771*	1.000	1.000	5.00	1.375	1.250						
MTFNR/L16-5D	50774	50775	1.000	1.000	6.00	1.375	1.250						
MTFNR/L20-5D	50778	50779	1.250	1.250	6.00	1.375	1.500	543	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNR/L24-5E	50782	50783*	1.500	1.500	7.00	1.375	2.000						
MTFNR/L85-5D	50786	50787	1.000	1.250	6.00	1.375	1.250						
MTFNR/L86-5E	50790	50791	1.000	1.500	7.00	1.375	1.250						
MTFNR/L24-6E	50792	50793	1.500	1.500	7.00	1.500	2.000	663	ITSN-636	NL-68L	CL-12	XNS-510	S-68



Right Hand Shown, Left Hand Opposite

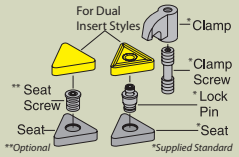
For inserts see pages 56-87. For spare parts see pages 158-159.

*Non-Stock Items

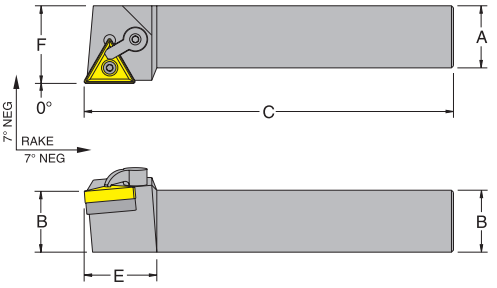


MTGN R/L Toolholder

Style G- 0° Side Cutting
Edge Angle for negative
triangle TNM_ inserts



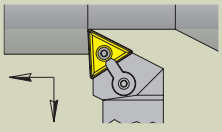
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MTGNR/L08-2A	50802	50803	0.500	0.500	4.00	0.875	0.625						
MTGNR/L10-2B	50806	50807	0.625	0.625	4.50	0.875	0.750	221	-	NL-23	CL-19	XNS-36	-
MTGNR/L12-2B	50808*	50809*	0.750	0.750	4.50	0.875	0.875						
MTGNR/L10-3B	50810	50811	0.625	0.625	4.50	1.000	0.875	322	ITSN-333	NL-34L	CL-6	XNS-36	S-34
MTGNR/L12-3B	50814	50815	0.750	0.750	4.50	1.000	1.000						
MTGNR/L16-3C	50818	50819	1.000	1.000	5.00	1.000	1.250	332	ITSN-322	NL-34L	CL-6	XNS-36	S-34
MTGNR/L16-3D	50822	50823	1.000	1.000	6.00	1.000	1.250						
MTGNR/L16-4C	50826	50827	1.000	1.000	5.00	1.375	1.250						
MTGNR/L16-4D	50830	50831	1.000	1.000	6.00	1.375	1.250						
MTGNR/L20-4D	50834	50835	1.250	1.250	6.00	1.375	1.500						
MTGNR/L24-4D	50836	50837	1.500	1.500	6.00	1.375	2.000	432	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTGNR/L24-4E	50838	50839	1.500	1.500	7.00	1.375	2.000						
MTGNR/L85-4D	50842	50843	1.000	1.250	6.00	1.375	1.250						
MTGNR/L86-4E	50846	50847	1.000	1.500	7.00	1.375	1.250						
MTGNR/L16-5C	50850	50851	1.000	1.000	5.00	1.500	1.250						
MTGNR/L16-5D	50854	50855	1.000	1.000	6.00	1.500	1.250						
MTGNR/L20-5D	50858	50859	1.250	1.250	6.00	1.500	1.500	543	ITSN-533	NL-58	CL-9	XNS-510	S-58
MTGNR/L24-5E	50862	50863	1.500	1.500	7.00	1.500	2.000						
MTGNR/L85-5D	50866	50867	1.000	1.250	6.00	1.500	1.250						
MTGNR/L86-5E	50870	50871*	1.000	1.500	7.00	1.500	1.250						
MTGNR/L24-6E	50872	50873	1.500	1.500	7.00	1.750	2.000	663	ITSN-636	NL-68L	CL-12	XNS-510	S-68



Right Hand Shown, Left Hand Opposite

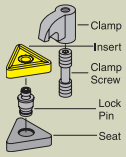
For inserts see pages 56-87. For spare parts see pages 158-159.

*Non-Stock Items.

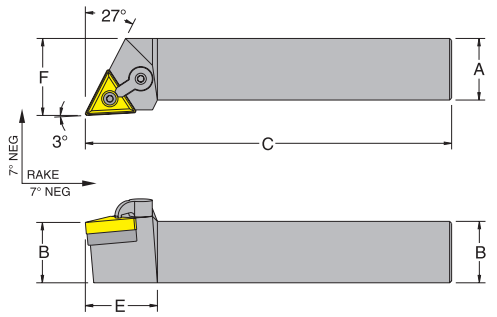


MTJN R/L Toolholder

Style J- 3° Side Cutting
Edge Angle for negative
triangle TNM_ inserts

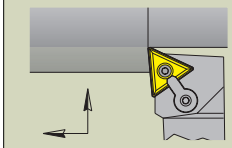


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw
MTJNR/L08-2A	50882	50883	0.500	0.500	4.00	1.000	0.625					
MTJNR/L10-2B	50886	50887	0.625	0.625	4.50	1.000	0.750	221	-	NL-23	CL-19	XNS-36
MTJNR/L10-3B	50890	50891	0.625	0.625	4.50	1.000	0.875					
MTJNR/L12-3B	50894	50895	0.750	0.750	4.50	1.000	1.000	322	ITSN-333	NL-34L	CL-6	XNS-36
MTJNR/L16-3D	50898	50899	1.000	1.000	6.00	1.000	1.250	332	ITSN-322	NL-34L	CL-6	XNS-36
MTJNR/L16-4D	50902	50903	1.000	1.000	6.00	1.250	1.250					
MTJNR/L20-4D	50906	50907	1.250	1.250	6.00	1.250	1.500					
MTJNR/L20-4E	50908	50909	1.250	1.250	7.00	1.250	1.500	432	ITSN-433	NL-46	CL-9	XNS-510
MTJNR/L85-4D	50910	50911	1.000	1.250	6.00	1.250	1.250					
MTJNR/L16-5D	50914	50915	1.000	1.000	6.00	1.500	1.250					
MTJNR/L20-5D	50918	50919	1.250	1.250	6.00	1.500	1.500					
MTJNR/L24-5E	50922	50923	1.500	1.500	7.00	1.500	2.000	543	ITSN-533	NL-58	CL-9	XNS-510
MTJNR/L85-5D	50926	50927	1.000	1.250	6.00	1.500	1.250					
MTJNR/L86-5E	50930	50931	1.000	1.500	7.00	1.500	1.250					
MTJNR/L24-6E	50934	50935	1.500	1.500	7.00	1.625	2.000	663	ITSN-636	NL-68L	CL-12	XNS-510



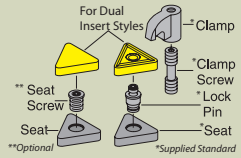
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

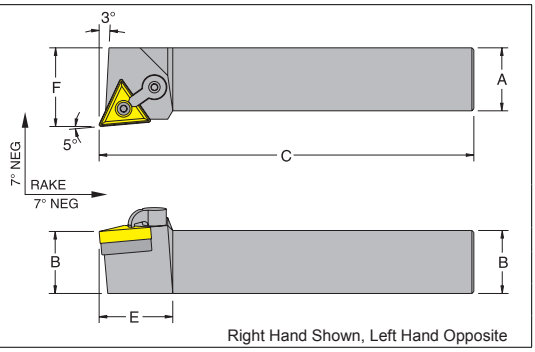


MTLN
R/L Toolholder

Style L- Negative 5° Side Cutting Edge Angle for negative triangle TNM_ inserts

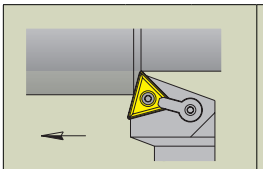


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MTLNR/L16-4D	50942	50943	1.000	1.000	6.00	1.375	1.250	432	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTLNR/L20-4D	50946	50947	1.250	1.250	6.00	1.375	1.500						
MTLNR/L20-5D	50950	50951*	1.250	1.250	6.00	1.500	1.500	543	ITSN-533	NL58	CL-9	XNS-510	S-58



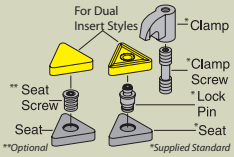
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

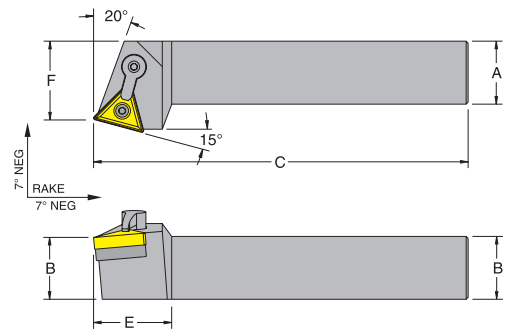


MTRN
R/L Toolholder

Style R - 15° Side Cutting Edge Angle for negative triangle TNM_ inserts

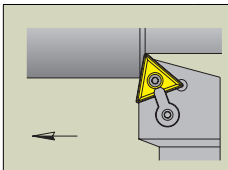


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MTRNR/L08-2A	50960	50961	0.500	0.500	4.00	0.875	0.651	221	-	NL-23	CL-19	XNS-36	-
MTRNR/L10-2B	50964	50965	0.625	0.625	4.50	0.875	0.776						
MTRNR/L10-3B	50968	50969	0.625	0.625	4.50	1.250	0.730	322	ITSN-333	NL-34L	CL-20	XNS-47	S-34
MTRNR/L12-3B	50972	50973	0.750	0.750	4.50	1.250	0.855	332	ITSN-322	NL-34L	CL-20	XNS-47	
MTRNR/L16-3D	50976	50977	1.000	1.000	6.00	1.250	1.105						
MTRNR/L16-4D	50980	50981	1.000	1.000	6.00	1.375	1.048	432	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTRNR/L20-4D	50984	50985	1.250	1.250	6.00	1.375	1.298						
MTRNR/L85-4D	50988	50989	1.000	1.250	6.00	1.375	1.048						
MTRNR/L16-5D	50992	50993	1.000	1.000	6.00	1.500	1.002	543	ITSN-533	NL-58	CL-9	XNS-510	S-58
MTRNR/L20-5D	50996	50997	1.250	1.250	6.00	1.500	1.252						
MTRNR/L24-5E	51000	51001*	1.500	1.500	7.00	1.500	1.502						
MTRNR/L85-5D	51004*	51005*	1.000	1.250	6.00	1.500	1.002						
MTRNR/L86-5E	51008*	51009*	1.000	1.500	7.00	1.500	1.002						
MTRNR/L24-6E	51012	51013	1.500	1.500	7.00	1.750	1.697	663	ITSN-636	NL-68L	CL-12	XNS-510	S-68



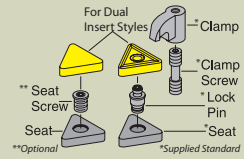
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

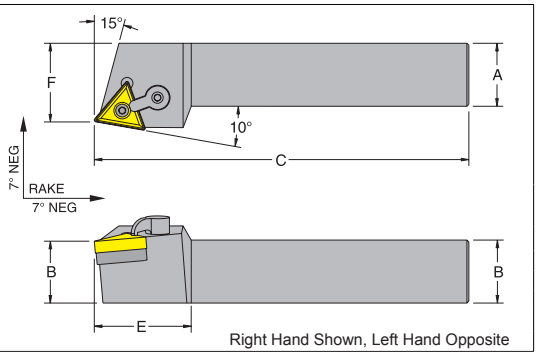


MTWN
R/L Toolholder

Style W - 10° Side Cutting Edge Angle for negative triangle TNM_ inserts



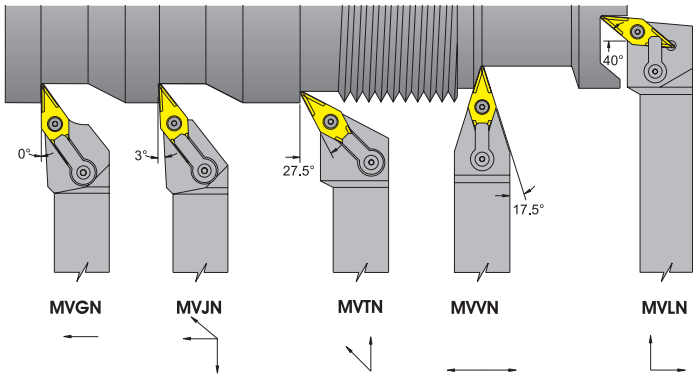
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MTWNR/L12-3B	51022	51023	0.750	0.750	4.50	1.375	0.880	322	ITSN-333	NL-34L	CL-6	XNS-36	S-34
								332	ITSN-322				
MTWNR/L16-4D	51026	51027	1.000	1.000	6.00	1.500	1.098	432	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTWNR/L20-4D	51030	51031	1.250	1.250	6.00	1.500	1.317						
MTWNR/L20-5D	51034*	51035*	1.250	1.250	6.00	1.875	1.317	543	ITSN-533	NL-58	CL-9	XNS-510	S-58



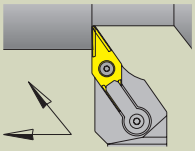
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

MV - Style Toolholders

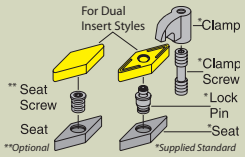


(←——) Arrows Specify Cutting Direction

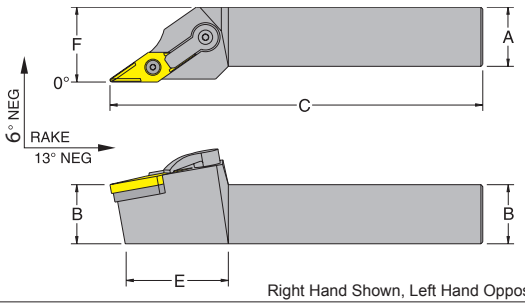


MVGN R/L Toolholder

Style G- 0° Side Cutting Edge Angle for negative 35° diamond VNM_ inserts

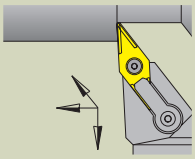


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MVGNR/L12-3B	51044	51045	0.75	0.75	4.50	1.750	1.00	332	IVSN-322	NL-34L	CL-30	XNS-510	S-34
MVGNR/L16-3D	51048	51049	1.00	1.00	6.00	1.750	1.25						
MVGNR/L16-4D	51052	51053	1.00	1.00	6.00	2.125	1.25	432	IVSN-433	NL-46	CL-30	XNS-510	S-46



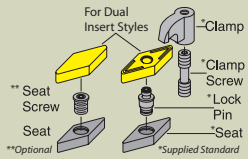
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

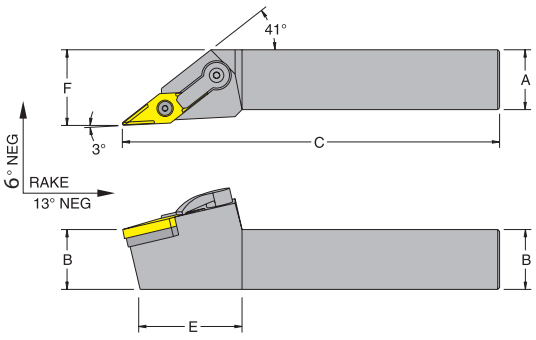


MVJN R/L Toolholder

Style J- Negative 3° Side Cutting Edge Angle for negative 35° diamond VNM_ inserts

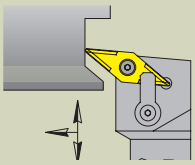


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MVJNR/L12-3B	51062	51063	0.75	0.75	4.50	1.750	1.00						
MVJNR/L16-3C	51066	51067	1.00	1.00	5.00	1.750	1.25						
MVJNR/L16-3D	51070	51071	1.00	1.00	6.00	1.750	1.25	332	IVSN-322	NL-34L	CL-30	XNS-510	S-34
MVJNR/L20-3D	51074	51075	1.25	1.25	6.00	1.750	1.50						
MVJNR/L24-3E	51078	51079	1.50	1.50	7.00	2.000	2.00						
MVJNR/L12-4B	51082	51083	0.75	0.75	4.50	2.125	1.00						
MVJNR/L16-4C	51086	51087	1.00	1.00	5.00	2.125	1.25						
MVJNR/L16-4D	51090	51091	1.00	1.00	6.00	2.125	1.25	432	IVSN-433	NL-46	CL-30	XNS-510	S-46
MVJNR/L20-4D	51094	51095	1.25	1.25	6.00	2.125	1.50						
MVJNR/L24-4E	51098	51099	1.50	1.50	7.00	2.125	2.00						



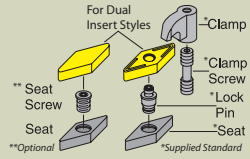
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

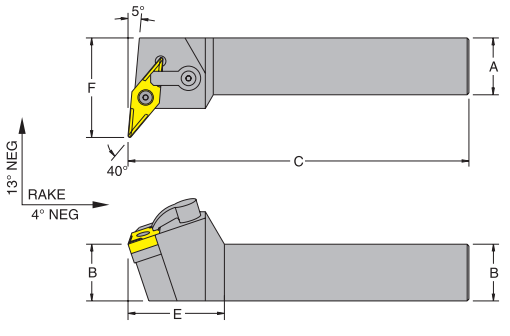


MVLN R/L Toolholder

Style L- Negative 5° End Cutting Edge Angle for negative 35° diamond VNM_ inserts

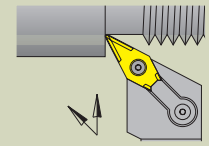


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MVLNR/L16-4C	51108	51109	1.00	1.00	5.00	1.50	1.75						
MVLNR/L16-4D	51112	51113	1.00	1.00	6.00	1.50	1.75						
MVLNR/L20-4D	51116	51117	1.25	1.25	6.00	1.50	2.00	432	IVSN-433	NL-46	CL-30	XNS-510	S-46
MVLNR/L24-4D	51120*	51121*	1.50	1.50	6.00	1.50	2.25						
MVLNR/L24-4E	51124	51125	1.50	1.50	7.00	1.50	2.25						



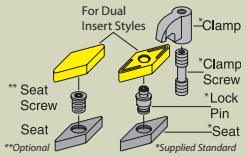
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

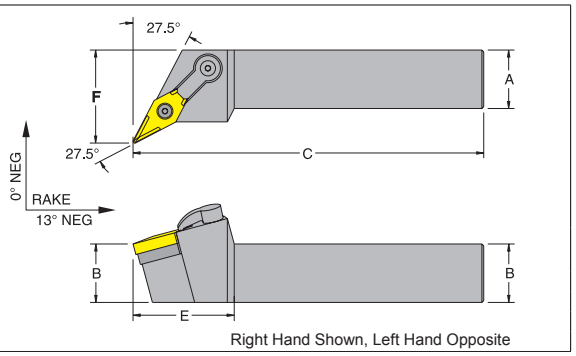


MVTN
R/L Toolholder

Style N- Negative 27.5° End Cutting Edge Angle for negative 35° diamond VNM_ inserts

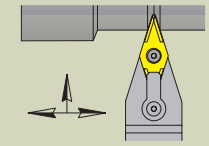


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MVTNR/L12-3B	51134	51135	0.75	0.75	4.50	1.625	1.00						
MVTNR/L16-3C	51138	51139	1.00	1.00	5.00	1.625	1.25						
MVTNR/L16-3D	51142	51143	1.00	1.00	6.00	1.625	1.25	332	IVSN-322	NL-34L	CL-30	XNS-510	S-34
MVTNR/L20-3D	51146	51147	1.25	1.25	6.00	1.625	1.50						
MVTNR/L24-3E	51150	51151*	1.50	1.50	7.00	1.625	1.75						



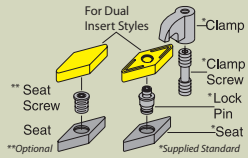
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

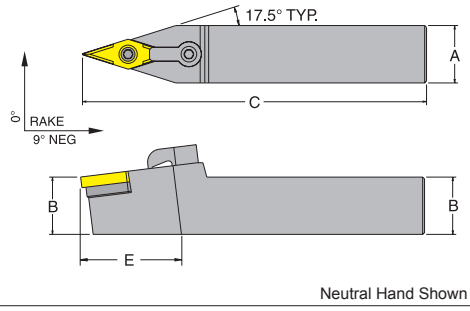


MVVN
N Toolholder

Style V- 17.5° Side Cutting Edge Angle for negative 35° diamond VNM_ inserts

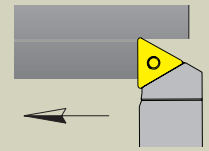


Inch Description	Part No. 733101-	A	B	C	E	VNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MVVNN12-3B	51160	0.75	0.75	4.50	1.75						
MVVNN16-3C	51162	1.00	1.00	5.00	1.75	332	IVSN-322	NL-34L	CL-30	XNS-58	S-34
MVVNN16-3D	51164	1.00	1.00	6.00	1.75						
MVVNN16-4C	51166	1.00	1.00	5.00	2.25	432	IVSN-433	NL-46	CL-30	XNS-510	S-46
MVVNN16-4D	51168	1.00	1.00	6.00	2.25						



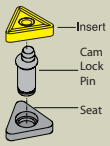
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

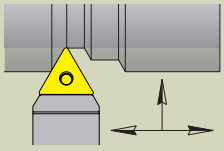


TA
R/L Toolholder

Style A- 0° Side Cutting Edge Angle for negative triangle TNM_ inserts

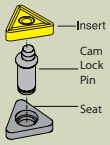


Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Cam Lock Pin	Seat
TAR/L08-2B	54401	54402	0.500	0.500	4.500	-	0.516	221	CLP-14	-
TAR/L10-3B	54407	54408	0.625	0.625	4.500	0.750	0.641	322	CLP-25	TSN-324
TAR/L12-3B	54411	54412	0.750	0.750	4.500	0.750	0.766			
TAR/L16-4D	54417	54418	1.000	1.000	6.000	1.000	1.016	432	CLP-38	TSN-435

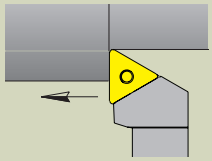


TE
N Toolholder

Style E- 30° Side Cutting Edge Angle for negative triangle TNM_ inserts

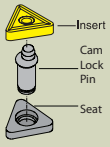


Description	Part No. 733101- Neutral	A	B	C	E	F	TNM_ Gage Insert	Cam Lock Pin	Seat
TE08-2B	54423	0.500	0.500	4.500	-	-	-221	CLP-14	-
TE10-3B	54428	0.625	0.625	4.500	0.750	-	TNM_-322	CLP-25	TSN-324
TE12-3B	54431	0.750	0.750	4.500	0.750	-			
TE16-4D	54436	1.000	1.000	6.000	1.000	-	TNM_-432	CLP-38	TSN-435



TG
R/L Toolholder

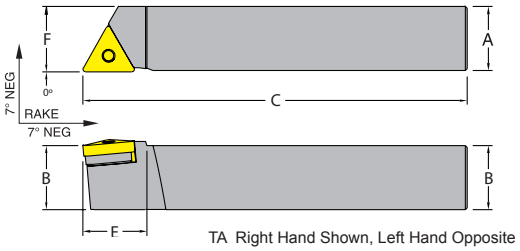
Style G- 0° Side Cutting Edge Angle for negative triangle TNM_ inserts



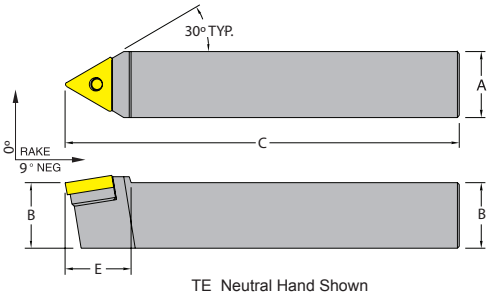
Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Cam Lock Pin	Seat
TGR/L08-2B	54441	54442	0.500	0.500	4.50	0.688	0.750	221	CLP-14	-
TGR/L10-3B	54447	54448	0.625	0.625	4.50	0.875	0.875	322	CLP-25	TSN-324
TGR/L12-3B	54451	54452	0.750	0.750	4.50	0.875	1.000			
TGR/L16-4D	54457	54458	1.000	1.000	6.00	1.125	1.250	432	CLP-38	TSN-435

For inserts see pages 56-87. For spare parts see pages 158-159.

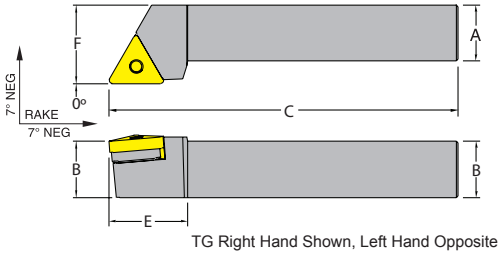
Cam Lock Toolholders



TA Right Hand Shown, Left Hand Opposite

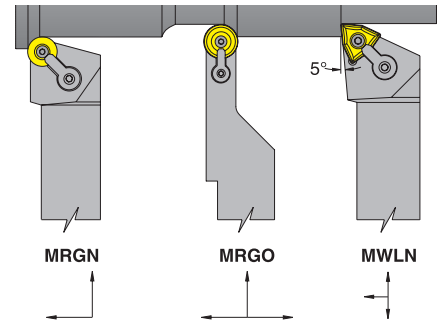


TE Neutral Hand Shown

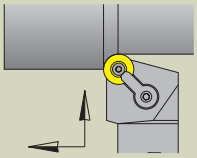


TG Right Hand Shown, Left Hand Opposite

MR & MW - Style Toolholders

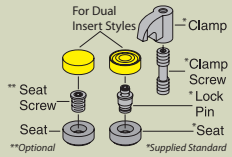


(←) Arrows Specify Cutting Direction

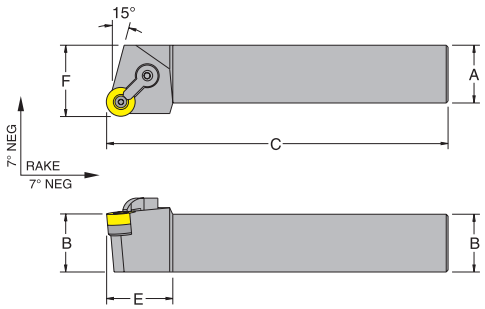


MRGN R/L Toolholder

Style G- 0° Side Cutting Edge Angle for negative round RNM_ inserts

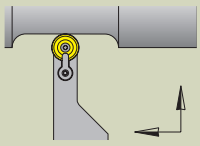


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	RNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MRGNR/L08-3A	51178	51179	0.500	0.500	4.00	0.875	0.750	32	IRSN-32	NL-34	CL-6	XNS-36	S-34
MRGNR/L10-3B	51182	51183	0.625	0.625	4.50	0.875	0.875						
MRGNR/L12-3B	51186	51187	0.750	0.750	4.50	0.875	1.000						
MRGNR/L16-3D	51190	51191	1.000	1.000	6.00	0.875	1.250						
MRGNR/L10-4B	51194	51195	0.625	0.625	4.50	1.250	0.875	43	-	NL-44	CL-9	XNS-58	-
MRGNR/L12-4B	51198	51199	0.750	0.750	4.50	1.250	1.000	43	IRSN-43	NL-46	CL-9	XNS-59	S-46
MRGNR/L16-4C	51202	51203	1.000	1.000	5.00	1.250	1.250						
MRGNR/L16-4D	51206	51207	1.000	1.000	6.00	1.250	1.250						
MRGNR/L20-4D	51210	51211	1.250	1.250	6.00	1.250	1.500						
MRGNR/L24-4E	51214	51215	1.500	1.500	7.00	1.250	2.000						
MRGNR/L85-4D	51218	51219	1.000	1.250	6.00	1.250	1.250						
MRGNR/L86-4E	51222	51223	1.000	1.500	7.00	1.250	1.250						
MRGNR/L16-5D	51226	51227	1.000	1.000	6.00	1.250	1.250	54	IRSN-53	NL-58	CL-9	XNS-58	S-58
MRGNR/L20-6D	51230	51231	1.250	1.250	6.00	1.375	1.500	64	IRSN-63	NL-68	CL-12	XNS-58	S-68
MRGNR/L24-6E	51234	51235	1.500	1.500	7.00	1.375	2.000						



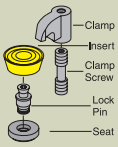
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

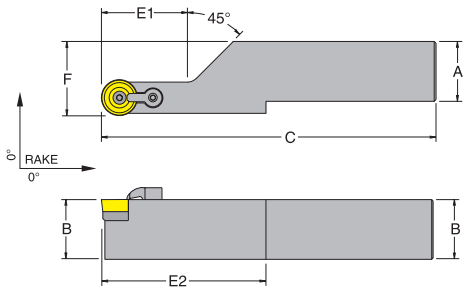


MRGO R/L Toolholder

Style G- Profiling, Plunging, and Turning for positive round RCM_ inserts

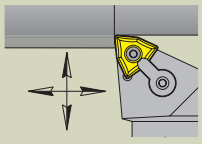


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E1	E2	F	RCM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw
MRGOR/L85-4D	51244	51245	1.000	1.250	6.00	1.040	2.360	1.250	43	RS-43P	PL-46	CL-6	XNS-37
MRGOR/L20-6E	51248	51249	1.250	1.250	7.00	1.800	3.500	1.500	64	RS-63P	PL-68	CL-9	XNS-58
MRGOR/L24-8E	51252	51253	1.500	1.500	7.00	2.050	3.880	2.000	84	RS-83P	PL-68	CL-12	XNS-58



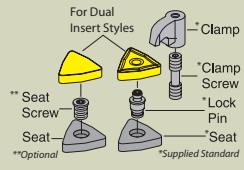
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

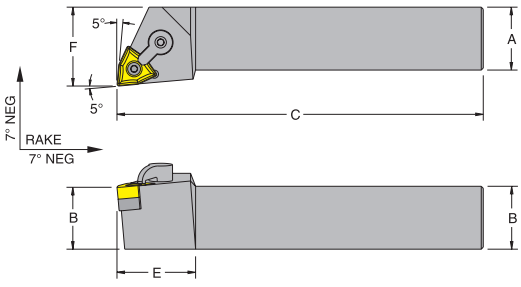


MWLN R/L Toolholder

Style L- Negative 5° End or Side Cutting Edge Angle for negative 80° trigon WNM_ inserts



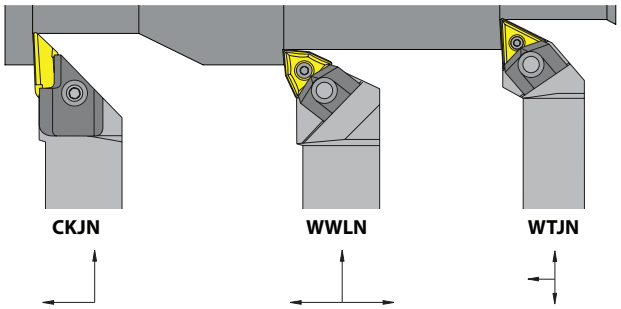
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	WNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
MWLNR/L12-3B	51262	51263	0.75	0.75	4.50	1.00	1.00	332	IWSN-322	NL-34L	CL-6	XNS-36	S-34
MWLNR/L16-3C	51264	51265	1.00	1.00	5.00	1.00	1.25						
MWLNR/L12-4B	51266	51267	0.75	0.75	4.50	1.25	1.00	432	IWSN-433	NL-46	CL-9	XNS-59	S-46
MWLNR/L12-4D	51268	51269*	0.75	0.75	6.00	1.25	1.00						
MWLNR/L16-4D	51270	51271	1.00	1.00	6.00	1.25	1.25						
MWLNR/L20-4D	51274	51275	1.25	1.25	6.00	1.25	1.50						
MWLNR/L20-4E	54276	51277	1.25	1.25	7.00	1.25	1.50						
MWLNR/L16-4C	51280	51281	1.25	1.25	7.00	1.25	1.50						
MWLNR/L85-4E	51296	51297	1.00	1.25	7.00	1.25	1.25						



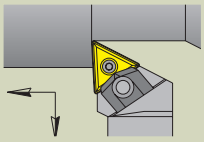
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

WT, WW & CK - Style Toolholders

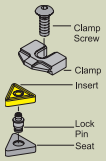


(←) Arrows Specify Cutting Direction

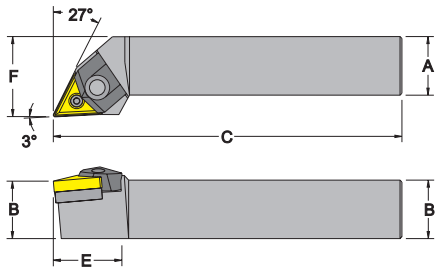


WTJN R/L Toolholder

Style J- 3° Side Cutting Edge Angle for negative triangle TNM_ inserts

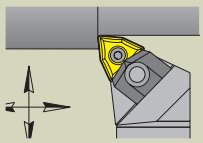


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
WTJNR/L12-3C	51623	51625*	0.75	0.75	5.0	1.00	1.000						
WTJNR/L16-3D	51627	51629	1.00	1.00	6.0	1.00	1.250	332	S6016P	P0502	C6016N	V6016	V83006
WTJNR/L20-3E	51631*	51633*	1.25	1.25	7.0	1.00	1.500						



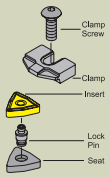
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

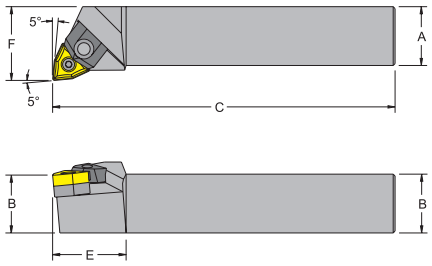


WWLN R/L Toolholder

Style L- 5° End or Side Cutting Edge Angle for negative 80° trigon WNM_ inserts

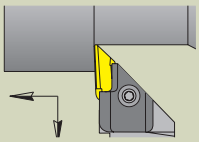


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	WNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw
WWLNR/L12-08C	51635*	51636*	0.75	0.75	5.0	1.00	1.000					
WWLNR/L16-08D	51637	51638	1.00	1.00	6.0	1.00	1.250	432	S8008P	P060Z	C8008N	V8008
WWLNR/L20-08E	51639*	51640*	1.25	1.25	7.0	1.00	1.500					



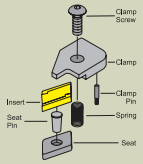
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items



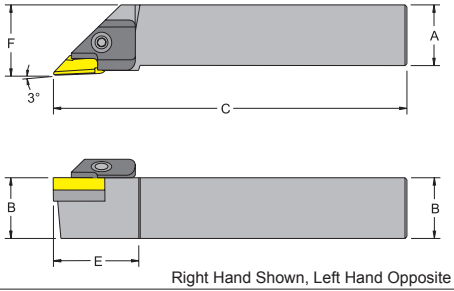
CKJN R/L Toolholder

Style J- 3° Side Cutting Edge Angle for negative KNUX inserts



Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	KNUX Gage Insert	Seat	Seat Pin	Clamp	Clamp Screw	Clamp Pin	Spring	Wrench
CKJNR/L12-5C	51592	51593	0.75	0.75	5.0	1.34	1.000								
CKJNR/L16-5D	51594	51595	1.00	1.00	6.0	1.34	1.250	160405	CKN16R* CKN16L**	5311	SKN16R* SKN16L**	V0616	SC510	M428	CBR40
CKJNR/L20-5E	51596	51597	1.25	1.25	7.0	1.34	1.500								

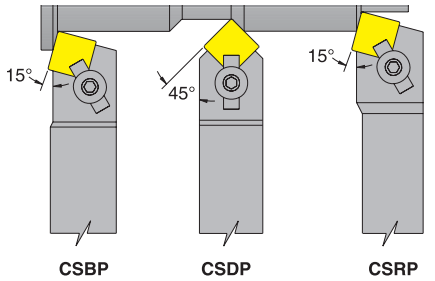
Profiling Toolholder



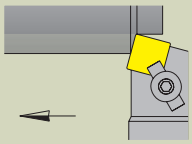
Right Hand Shown, Left Hand Opposite

*For right hand tools. ** For left hand tools
For inserts see pages 56-87. For spare parts see pages 158-159.

CS - Style Toolholders

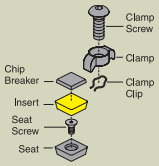


(←——) Arrows Specify Cutting Direction

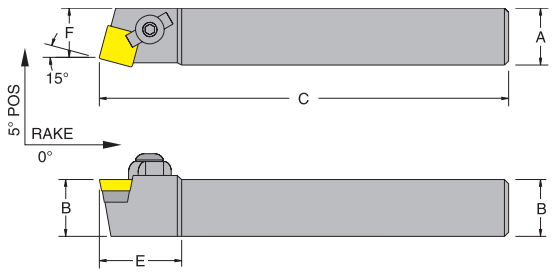


CSBP
R/L Toolholder

Style B- 15° Side Cutting
Edge Angle for 11° positive
square SPG inserts

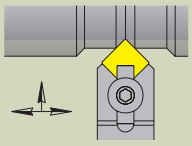


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	SPG Gage Insert	Seat	Seat Screw	Clamp	Clamp Clip	Clamp Screw	Optional Chip Breaker
CSBPR/L10-3B	51300	51301	0.625	0.625	4.50	1.00	0.531	322	-	-	HC-9	CLP-9	CS-96	S3BC
CSBPR/L12-3B	51304	51305*	0.750	0.750	4.50	1.00	0.658							
CSBPR/L12-4B	51308	51309	0.750	0.750	4.50	1.25	0.627							
CSBPR/L16-4D	51312	51313	1.000	1.000	6.00	1.25	0.877	422	SM-40	TS-4	HC-12	CLP-12	CS-126	S4BE
CSBPR/L85-4D	51316*	51317*	1.000	1.250	6.00	1.25	0.877							
CSBPR/L20-6D	51320	51321	1.250	1.250	6.00	1.50	1.065	633	SM-36	TS-6	HC-12	CLP-12	CS-126	S6BG



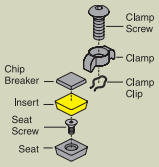
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

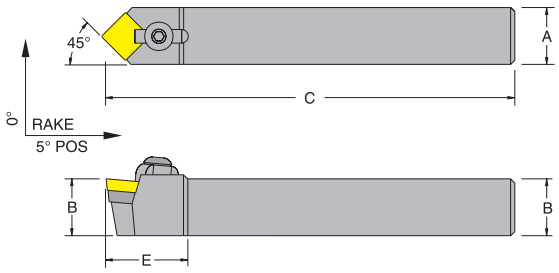


CSDP
N Toolholder

Style D- 45° Side
Cutting Edge Angle
for 11° positive
square SPG inserts

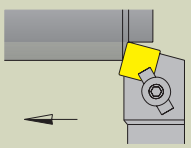


Inch Description	Part No. 733101-	A	B	C	E	SPG Gage Insert	Seat	Seat Screw	Clamp	Clamp Clip	Clamp Screw	Optional Chip Breaker
CSDPN08-3J	51330	0.500	0.500	3.50	1.000							
CSDPN10-3B	51332	0.625	0.625	4.50	1.000	322	-	-	HC-9	CLP-9	CS-96	S3BC
CSDPN12-3B	51334	0.750	0.750	4.50	1.000							
CSDPN12-4B	51336	0.750	0.750	4.50	1.375							
CSDPN16-4D	51338	1.000	1.000	6.00	1.375							
CSDPN64-4D	51340	0.750	1.000	6.00	1.375	422	SM-40	TS-4	HC-12	CLP-12	CS-126	S4BE
CSDPN65-4D	51342	0.750	1.250	6.00	1.375							
CSDPN85-4D	51344*	1.000	1.250	6.00	1.375							
CSDPN16-6D	51346	1.000	1.000	6.00	1.625							
CSDPN85-6D	51348	1.000	1.250	6.00	1.625	633	SM-36	TS-6	HC-12	CLP-12	CS-126	S6BG
CSDPN86-6E	51350	1.000	1.500	7.00	1.625							



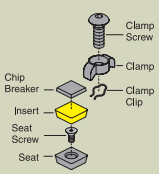
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

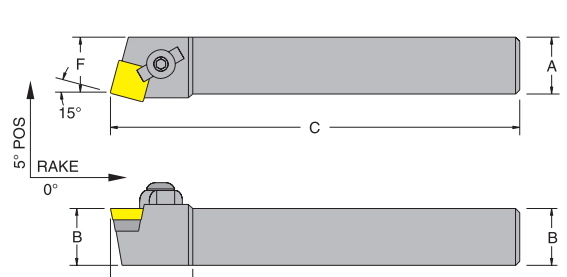


CSRP
R/L Toolholder

Style R- 15° Side Cutting
Edge Angle for 11° positive
square SPG inserts



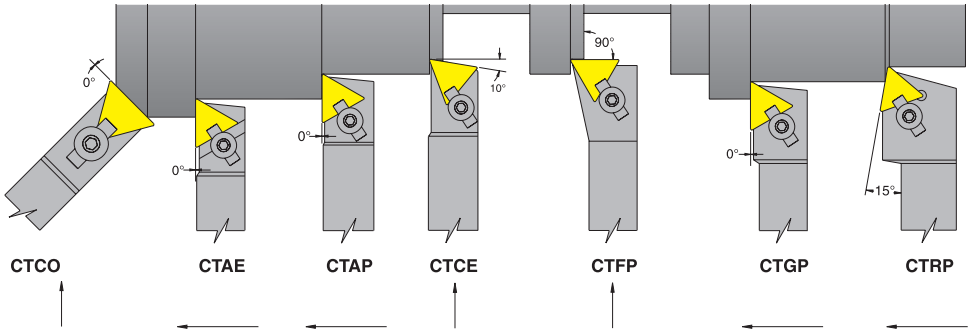
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	SPG Gage Insert	Seat	Seat Screw	Clamp	Clamp Clip	Clamp Screw	Optional Chip Breaker
CSRPR/L06-3J	51360*	51361*	0.375	0.375	3.50	1.00	0.533	322	-	-	HC-9	CLP-9	CS-94	S3BC
CSRPR/L08-3J	51364	51365	0.500	0.500	3.50	1.00	0.533							
CSRPR/L16-6D	51368	51369	1.000	1.000	6.00	1.50	1.003							
CSRPR/L85-6D	51372	51373	1.000	1.250	6.00	1.50	1.003	633	SM-36	TS-6	HC-12	CLP-12	CS-126	S6BG
CSRPR/L86-6E	51376*	51377	1.000	1.500	7.00	1.50	1.003							



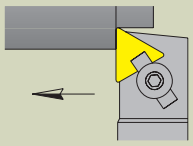
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

CT - Style Toolholders

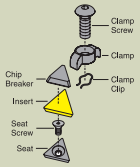


(←) Arrows Specify Cutting Direction

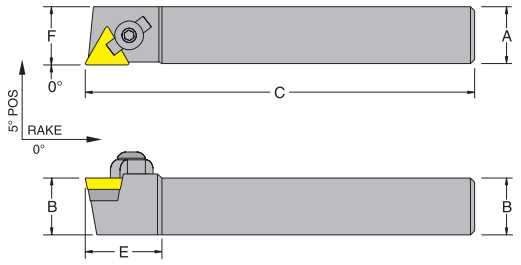


CTAP R/L Toolholder

Style A- 0° Side Cutting Edge Angle for 11° positive triangle TPG inserts

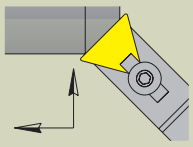


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TPG Gage Insert	Seat	Seat Screw	Clamp	Clamp Clip	Clamp Screw	Optional Chip Breaker
CTAPR/L06-2J	51382	51383	0.375	0.375	3.50	0.875	0.515	221	-	-	HC-9	CLP-9	CS-94	T2AC
CTAPR/L08-2J	51386	51387	0.500	0.500	3.50	0.875	0.515							
CTAPR/L10-2B	51390	51391	0.625	0.625	4.50	0.875	0.640	221	-	-	HC-9	CLP-9	CS-96	
CTAPR/L55-2D	51394*	51395*	0.625	1.250	6.00	0.875	0.640							
CTAPR/L12-3B	51398	51399	0.750	0.750	4.50	1.250	0.765							
CTAPR/L16-3D	51402	51403	1.000	1.000	6.00	1.250	1.015	322	SM-41	TS-4	HC-12	CLP-12	CS-126	T3AE
CTAPR/L65-3D	51406	51407	0.750	1.250	6.00	1.250	0.765							
CTAPR/L16-4D	51410	51411	1.000	1.000	6.00	1.250	1.015	432	SM-37	TS-6	HC-12	CLP-12	CS-126	T4AE
CTAPR/L85-4D	51414	51415	1.000	1.250	6.00	1.250	1.015							



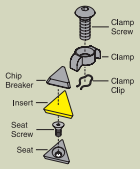
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

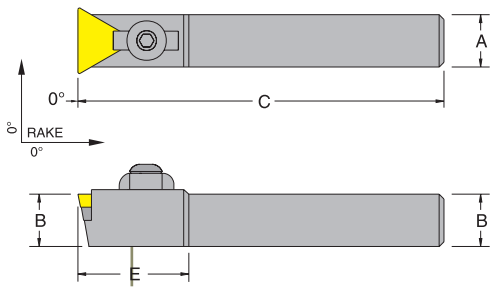


CTCO N Toolholder

Style C- 0° End Cutting Edge Angle for 11° positive triangle TPG inserts

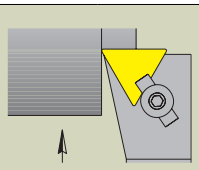


Inch Description	Part No. 733101-	A	B	C	E	TPG Gage Insert	Seat	Seat Screw	Clamp	Clamp Clip	Clamp Screw	Optional Chip Breaker
CTCON08-3J	51424	0.50	0.50	3.50	1.125	322	-	-	HC-9	CLP-9	CS-96	T3AE
CTCON44-3F	51426	0.50	1.00	8.00	1.125	322	SM-41	TS-4	HC-9	CLP-9	CS-96	
CTCON12-4B	51428	0.75	0.75	4.50	1.375							
CTCON64-4F	51430	0.75	1.00	8.00	1.375	432	SM-37	TS-6	HC-12	CLP-12	CS-126	T4AE
CTCON66-4F	51432	0.75	1.50	8.00	1.375							



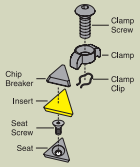
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

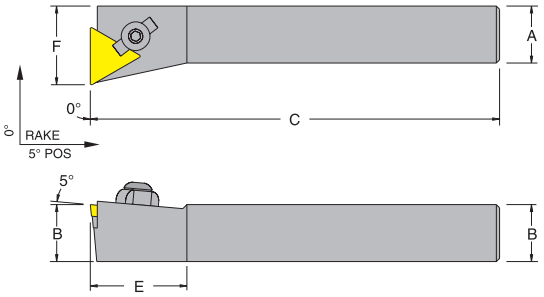


CTFP R/L Toolholder

Style F- 0° End Cutting Edge Angle for 11° positive triangle TPG inserts

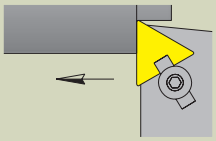


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TPG Gage Insert	Seat	Seat Screw	Clamp	Clamp Clip	Clamp Screw	Optional Chip Breaker
CTFPR/L10-3B	51442	51443	0.625	0.625	4.50	1.125	0.875							
CTFPR/L12-3B	51446	51447	0.750	0.750	4.50	1.125	1.000	322	SM-41	TS-4	HC-12	CLP-12	CS-126	T3AE
CTFPR/L16-3D	51450	51451	1.000	1.000	6.00	1.125	1.250							
CTFPR/L12-4B	51454	51455*	0.750	0.750	4.50	1.125	1.000							
CTFPR/L16-4C	51458	51459	1.000	1.000	5.00	1.000	1.250							
CTFPR/L16-4D	51462	51463	1.000	1.000	6.00	1.000	1.250	432	SM-37	TS-6	HC-12	CLP-12	CS-126	T4AE
CTFPR/L20-4D	51466	51467	1.250	1.250	6.00	1.000	1.500							
CTFPR/L85-4D	51470	51471*	1.000	1.250	6.00	1.000	1.250							
CTFPR/L16-5D	51474*	51475*	1.000	1.000	6.00	1.125	1.250							
CTFPR/L20-5D	51478*	51479*	1.250	1.250	6.00	1.125	1.500	543	SM-99	TS-10	HC-12	CLP-12	CS-126	T5AG
CTFPR/L24-5E	51482	51483	1.500	1.500	7.00	1.125	2.000							



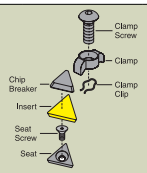
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

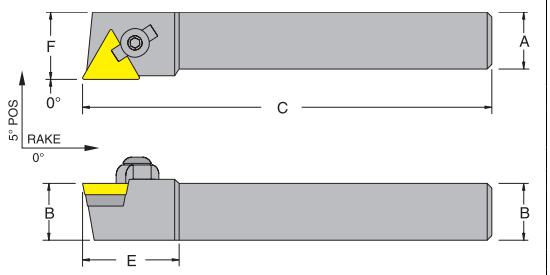


CTGP
R/L Toolholder

Style G- 0° Side
Cutting Edge Angle
for 11° positive
triangle TPG inserts

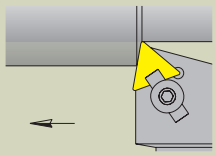


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TPG Gage Insert	Seat	Seat Screw	Clamp	Clamp Clip	Clamp Screw	Optional Chip Breaker
CTGPR/L10-3B	51492	51493	0.625	0.625	4.50	1.000	0.875	322	SM-41	TS-4	HC-12	CLP-12	CS-126	T3AE
CTGPR/L12-3B	51496	51497	0.750	0.750	4.50	1.000	1.000							
CTGPR/L16-4C	51500	51501	1.000	1.000	5.00	1.250	1.250	432	SM-37	TS-6	HC-12	CLP-12	CS-126	T4AE
CTGPR/L16-4D	51504	51505	1.000	1.000	6.00	1.250	1.250							
CTGPR/L20-4D	51508	51509	1.250	1.250	6.00	1.250	1.500							
CTGPR/L85-4D	51512	51513	1.000	1.250	6.00	1.250	1.250							
CTGPR/L16-5D	51516	51517	1.000	1.000	6.00	1.375	1.250	543	SM-99	TS-10	HC-12	CLP-12	CS-126	T5AE
CTGPR/L20-5D	51520	51521	1.250	1.250	6.00	1.375	1.500							
CTGPR/L24-5E	51524	51525	1.500	1.500	7.00	1.375	2.000							



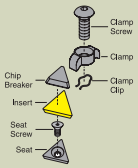
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

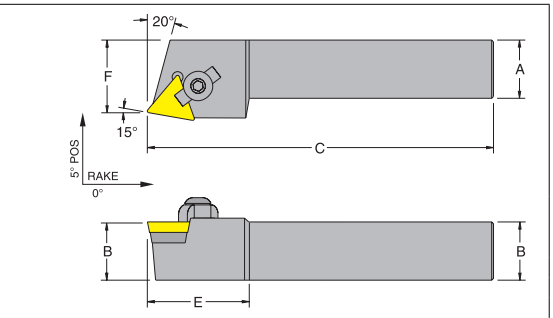


CTRP
R/L Toolholder

Style R- 15° Side
Cutting Edge Angle
for 11° positive
triangle TPG inserts

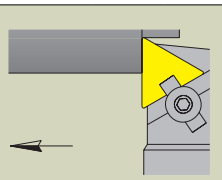


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TPG Gage Insert	Seat	Seat Screw	Clamp	Clamp Clip	Clamp Screw	Optional Chip Breaker
CTRPR/L10-2B	51534	51535	0.625	0.625	4.50	1.000	0.776	221	-	-	HC-9	CLP-9	CS-96	T2AC
CTRPR/L12-3B	51538	51539	0.750	0.750	4.50	1.250	0.855	322	SM-41	TS-4	HC-12	CLP-12	CS-126	T3AE
CTRPR/L16-3D	51542	51543	1.000	1.000	6.00	1.250	1.105							
CTRPR/L85-4D	51546	51547	1.000	1.250	6.00	1.375	1.048	432	SM-37	TS-6	HC-12	CLP-12	CS-126	T4AE



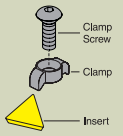
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

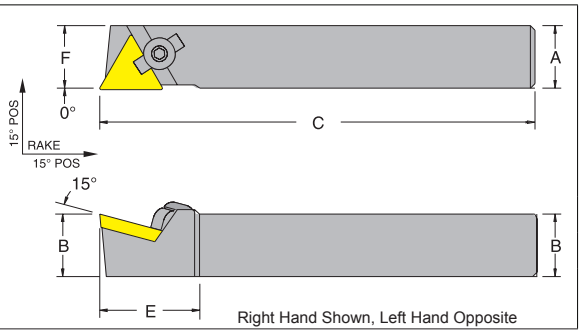


CTAE
R/L Toolholder

Style A 0° Side
Cutting Edge Angle
for 20° positive
triangle TEGE inserts

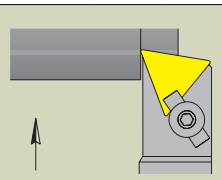


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TEGE Gage Insert	Clamp	Clamp Screw
CTAER/L06-7	51380	51381	0.375	0.375	2.50	0.625	0.375	731	HC-7	SHC-7



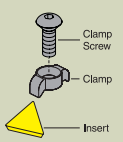
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

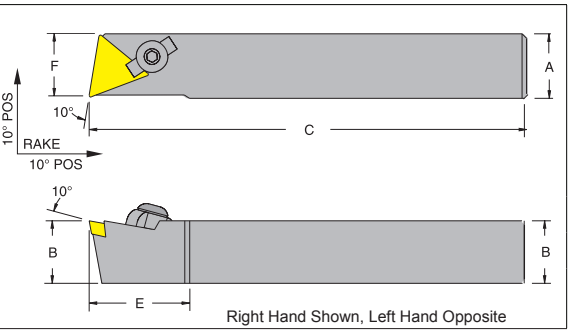


CTCE
R/L Toolholder

Style L -10° End
Cutting Edge Angle
for 20° positive
triangle TEGE inserts



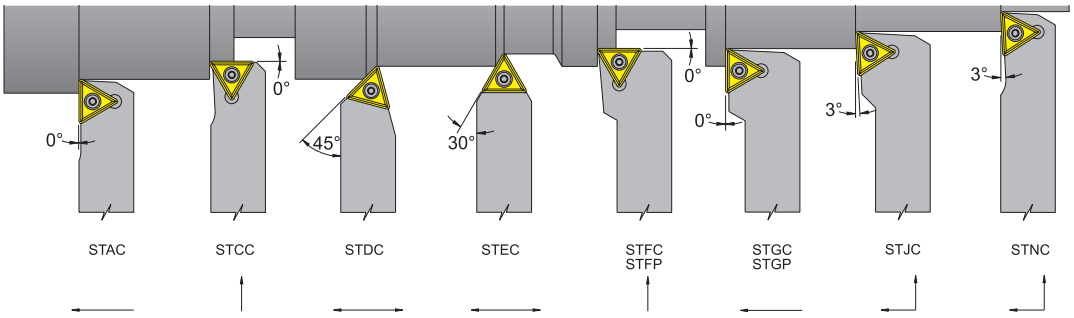
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TEGE Gage Insert	Clamp	Clamp Screw
CTCER/L06-7	51418	51419	0.375	0.375	2.50	0.625	0.391	731	HC-7	SHC-7



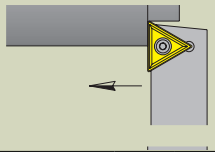
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

ST - Style Toolholders

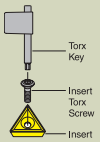


(←) Arrows Specify Cutting Direction

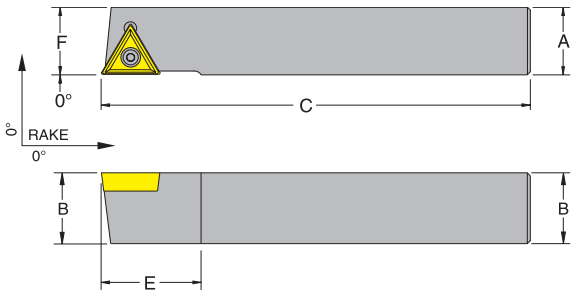


STAC
R/L Toolholder

Style A- 0° Side
Cutting Edge Angle
for 7° positive
triangle TC_T inserts

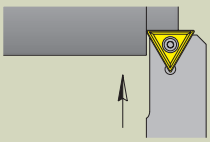


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STACR/L06-2	51556	51557	0.375	0.375	2.50	0.625	0.375	21.51	TS-25.45-6M2	T-8
STACR/L08-2J	51558	51559	0.500	0.500	3.50	0.625	0.500			
STACR/L10-2A	51560	51561	0.625	0.625	4.00	0.625	0.625			
STACR/L10-3B	51563	51565	0.625	0.625	4.50	0.750	0.625	32.52	TS-4.7-10M1	T-15
STACR/L12-3B	51562	51567	0.750	0.750	4.50	1.125	0.750			
STACR/L64-3D	51564	51569	0.750	1.000	6.00	1.125	0.750			
STACR/L85-4D	51566	51571*	1.000	1.250	6.00	1.250	1.000	432	TS-5.8-10M1	T-20
STACR/L106-4D	51568	51572*	1.250	1.500	6.00	1.250	1.250			



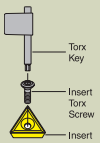
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

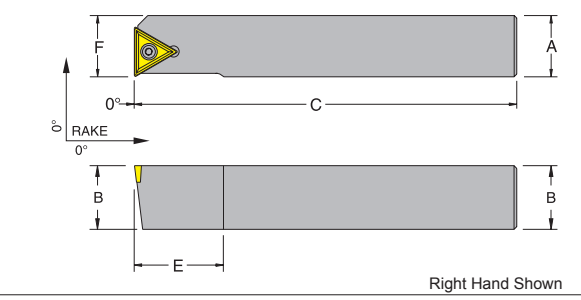


STCC
R Toolholder

Style C - 0° End
Cutting Edge Angle
for 7° positive
triangle TC_T inserts

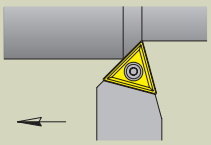


Inch Description	Part No. 733101- R.H.	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STCCR06-2	51578	0.375	0.375	2.50	0.520	0.395	21.51	TS-25.45-6M2	T-8
STCCR08-2J	51580	0.500	0.500	3.50	0.520	0.520			
STCCR10-2A	51582	0.625	0.625	4.00	0.520	0.645			
STCCR12-3B	51584	0.750	0.750	4.50	1.140	0.770	32.52	TS-4.7-10M1	T-15
STCCR64-3D	51586	0.750	1.000	6.00	1.140	0.770			
STCCR85-4D	51588	1.000	1.250	6.00	1.233	1.020	432	TS-5.8-10M1	T-20
STCCR106-4D	51590	1.250	1.500	6.00	1.233	1.270			



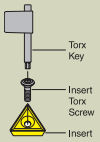
Right Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

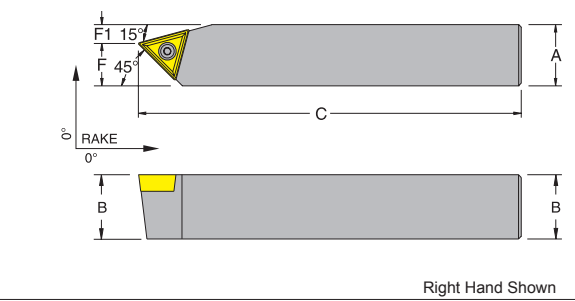


STDC
R Toolholder

Style D - 45° Side
Cutting Edge Angle
for 7° positive
triangle TC_T inserts

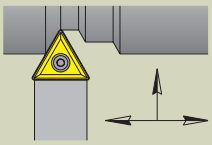


Inch Description	Part No. 733101- R.H.	A	B	C	F	F1	TC_T Gage Insert	Insert Torx Screw	Torx Key
STDCR06-2	51600	0.375	0.375	2.50	.260	.115	21.51	TS-25.45-6M2	T-8
STDCR08-2J	51602	0.500	0.500	3.50	.298	.201			
STDCR10-2A	51604	0.625	0.625	4.00	.361	.264			
STDCR12-3B	51606	0.750	0.750	4.50	.456	.294	32.52	TS-4.7-10M1	T-15
STDCR64-3D	51608	0.750	1.000	6.00	.456	.294			
STDCR85-4D	51610	1.000	1.250	6.00	.613	.387	432	TS-5.8-10M1	T-20
STDCR106-4D	51612	1.250	1.500	6.00	.738	.512			



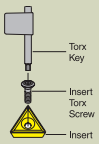
Right Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

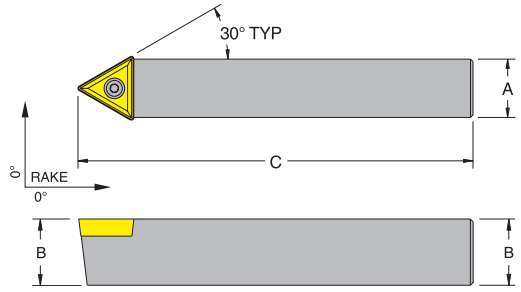


STEC
N Toolholder

Style E- 30° Side
Cutting Edge Angle
for 7° positive
triangle TC_T inserts

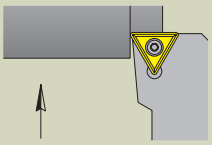


Inch Description	Part No. 733101- NEUTRAL	A	B	C	TC_T Gage Insert	Insert Torx Screw	Torx Key
STECN06-2	51622	0.375	0.375	2.50	21.51	TS-25.45-6M2	T-8
STECN08-2J	51624	0.500	0.500	3.50			
STECN10-2A	51626	0.625	0.625	4.00			
STECN12-3B	51628	0.750	0.750	4.50	32.52	TS-4.7-10M1	T-15
STECN64-3D	51630	0.750	1.000	6.00			
STECN85-4D	51632	1.000	1.250	6.00	432	TS-5.8-10M1	T-20
STECN106-4D	51634	1.250	1.500	6.00			



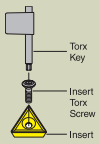
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

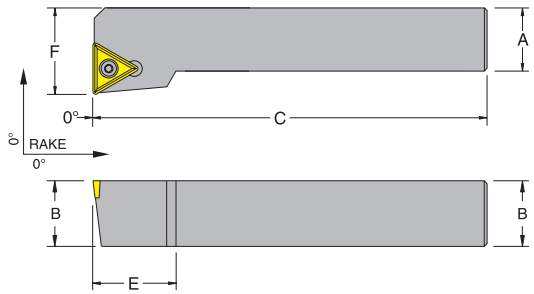


STFC
R/L Toolholder

Style F- 0° End
Cutting Edge Angle
for 7° positive
triangle TC_T inserts

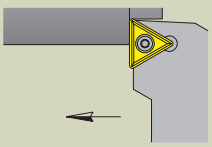


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STFCR/L06-2	51644	51645	0.375	0.375	2.500	0.500	0.500	21.51	TS-25.45-6M2	T-8
STFCR/L08-2J	51648	51649	0.500	0.500	3.500	0.500	0.625			
STFCR/L10-2A	51652	51653	0.625	0.625	4.000	0.500	0.750			
STFCR/L10-3B	51656	51657	0.625	0.625	4.500	0.850	0.750	32.52	TS-4.7-10M1	T-15
STFCR/L12-3B	51660	51661	0.750	0.750	4.500	0.850	1.000			
STFCR/L16-3D	51664	51665	1.000	1.000	6.000	0.850	1.250			
STFCR/L20-4D	51668	51669	1.250	1.250	6.000	1.000	1.500	432	TS-5.8-10M1	T-20



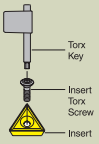
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

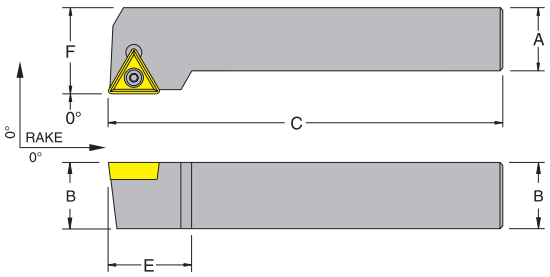


STGC
R/L Toolholder

Style G- 0° Side
Cutting Edge Angle
for 7° positive
triangle TC_T inserts

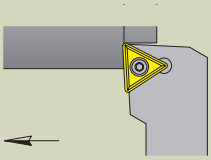


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STGCR/L06-2	51672	51673	0.375	0.375	2.500	0.500	0.500	21.51	TS-25.45-6M2	T-8
STGCR/L08-2J	51676	51677	0.500	0.500	3.500	0.500	0.625			
STGCR/L10-2A	51680	51681	0.625	0.625	4.000	0.500	0.750			
STGCR/L10-3B	51684	51685	0.625	0.625	4.500	0.850	0.750	32.52	TS-4.7-10M1	T-15
STGCR/L12-3B	51688	51689	0.750	0.750	4.500	0.850	1.000			
STGCR/L16-3D	51692	51693	1.000	1.000	6.000	0.850	1.250			
STGCR/L20-4D	51696	51697	1.250	1.250	6.000	1.250	1.500	432	TS-5.8-10M1	T-20



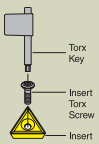
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

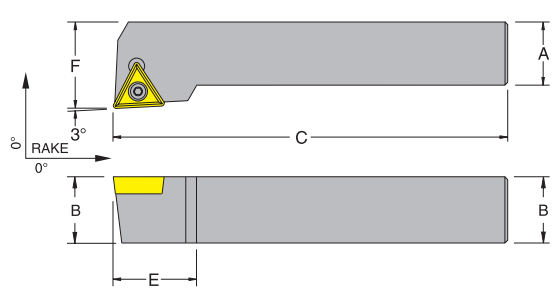


STJC
R/L Toolholder

Style J- 3° Side
Cutting Edge Angle
for 7° positive
triangle TC_T inserts

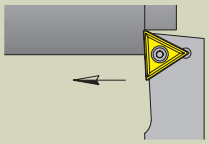


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STJCR/L06-2	51700	51701	0.375	0.375	2.500	0.500	0.500	21.51	TS-25.45-6M2	T-8
STJCR/L08-2J	51704	51705	0.500	0.500	3.500	0.500	0.625			
STJCR/L10-2A	51708	51709	0.625	0.625	4.000	0.500	0.750			
STJCR/L10-3B	51712	51713	0.625	0.625	4.500	0.850	0.750	32.52	TS-4.7-10M1	T-15
STJCR/L12-3B	51716	51717	0.750	0.750	4.500	0.850	1.000			
STJCR/L16-3D	51720	51721	1.000	1.000	6.000	0.850	1.250			
STJCR/L20-4D	51724	51725	1.250	1.250	6.000	1.250	1.500	432	TS-5.8-10M1	T-20



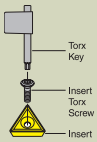
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

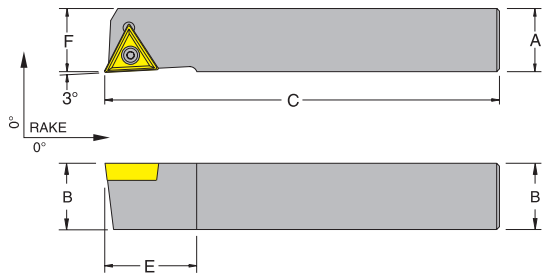


STNC
R/L Toolholder

Style N - 3° Side
Cutting Edge Angle
for 7° positive
triangle TC_T inserts

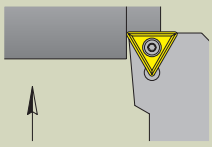


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STNCR/L06-2	51734	51735	0.375	0.375	2.500	0.625	0.375	21.51	TS-25.45-6M2	T-8
STNCR/L08-2J	51736	51741	0.500	0.500	3.500	0.625	0.500			
STNCR/L10-2A	51738	51747	0.625	0.625	4.000	0.625	0.625			
STNCR/L10-2B	51749	51751*	0.625	0.625	4.500	0.625	0.625			
STNCR/L10-3B	51753*	51755*	0.625	0.625	4.500	0.750	0.625	32.52	TS-4.7-10M1	T-15
STNCR/L12-3B	51740	51757*	0.750	0.750	4.500	1.125	0.750			
STNCR/L64-3D	51742	51759	0.750	1.000	6.000	1.125	0.750			
STNCR/L85-4D	51746	51761*	1.000	1.250	6.000	1.250	1.000	432	TS-5.8-10M1	T-20
STNCR/L106-4D	51748	51763	1.250	1.500	6.000	1.250	1.250			



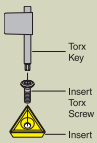
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

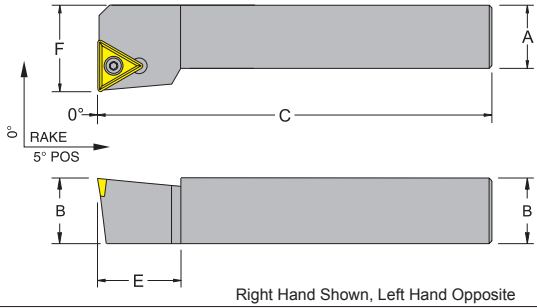


STFP
R/L Toolholder

Style F - 0° End
Cutting Edge Angle
for 11° positive
triangle TP_T inserts

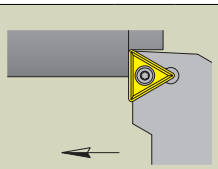


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TP_T Gage Insert	Insert Torx Screw	Torx Key
STFPR/L06-2	51764	51765	0.375	0.375	2.500	0.500	0.500	21.51	TS-25.45-6M2	T-8
STFPR/L08-2J	51766	51767	0.500	0.500	3.500	0.500	0.625			



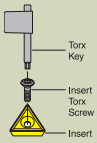
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

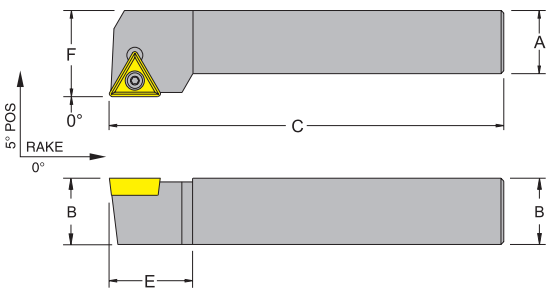


STGP
R/L Toolholder

Style G - 0° Side
Cutting Edge Angle
for 11° positive
triangle TP_T inserts



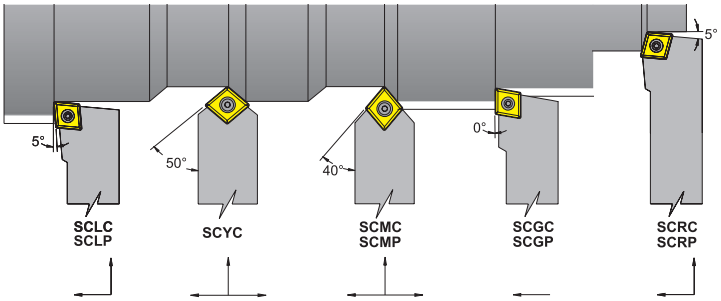
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TP_T Gage Insert	Insert Torx Screw	Torx Key
STGPR/L06-2	51771	51773	0.375	0.375	2.500	0.500	0.500	21.51	TS-25.45-6M2	T-8
STGPR/L08-2J	51774	51775	0.500	0.500	3.500	0.500	0.625			



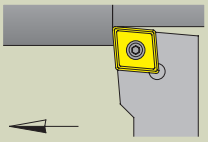
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

SC - Style Toolholders

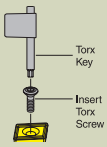


(⟵) Arrows Specify Cutting Direction

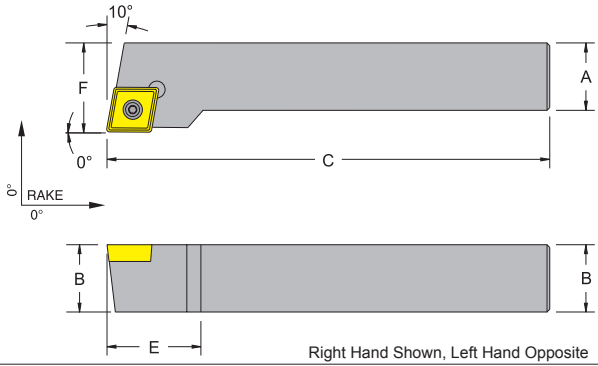


SCGC R/L Toolholder

Style G- 0° Side Cutting Edge Angle for 7° positive 80° diamond CC_T inserts

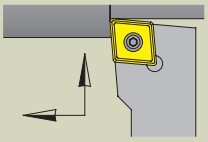


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	CC_T Gage Insert	Insert Torx Screw	Torx Key
SCGCR/L4.5-2	51788*	51789*	0.281	0.281	2.50	.500	0.312	21.51	TS-25.45-6M2	T-8
SCGCR/L05-2	51790	51791	0.312	0.312	2.50	.500	0.375			
SCGCR/L06-2J	51792	51793	0.375	0.375	3.50	.500	0.500			
SCGCR/L08-2A	51794	51795	0.500	0.500	4.00	.500	0.625			
SCGCR/L10-3A	51796*	51797	0.625	0.625	4.00	.688	0.750	32.52	TS-4.7-10M1	T-15
SCGCR/L12-3B	51798	51799	0.750	0.750	4.50	.688	1.000			
SCGCR/L16-3D	51802*	51803*	1.000	1.000	6.00	.688	1.250			



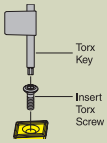
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

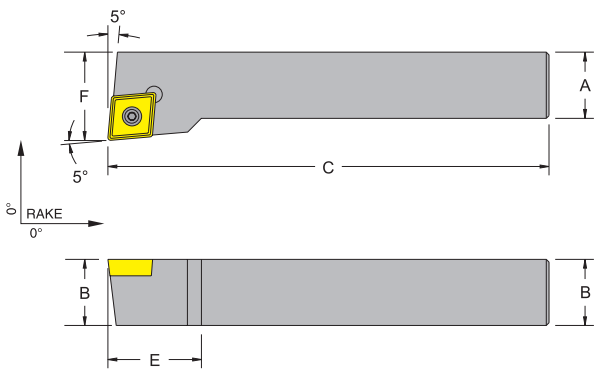


SCLC R/L Toolholder

Style L- Negative 5° End or Side Cutting Edge Angle for 7° positive 80° diamond CC_T inserts

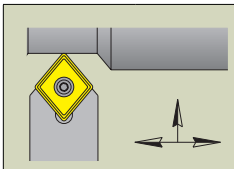


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	CC_T Gage Insert	Insert Torx Screw	Torx Key
SCLCR/L05-2	51806	51807	0.312	0.312	2.500	0.500	0.375	21.51	TS-25.45-6M2	T-8
SCLCR/L06-2	51810	51811	0.375	0.375	2.500	0.500	0.500			
SCLCR/L06-2J	51800	51801	0.375	0.375	3.500	0.500	0.500			
SCLCR/L08-2J	51814*	51815	0.500	0.500	3.500	0.500	0.625			
SCLCR/L10-2A	51818*	51819	0.625	0.625	4.000	0.500	0.750			
SCLCR/L08-3A	51804	51805	0.500	0.500	4.000	0.688	0.625	32.52	TS-4.7-10M1	T-15
SCLCR/L10-3A	51822	51823	0.625	0.625	4.000	0.688	0.750			
SCLCR/L10-3B	51808	51809	0.625	0.625	4.500	0.688	0.750			
SCLCR/L12-3B	51812	51813	0.750	0.750	4.500	0.688	1.000			
SCLCR/L16-3D	51816	51817	1.000	1.000	6.000	0.688	1.250			
SCLCR/L12-4B	51820	51821	0.750	0.750	4.500	0.850	1.000	432	TS-5.8-10M1	T-20
SCLCR/L16-4D	51824	51825*	1.000	1.000	6.000	0.850	1.250			
SCLCR/L20-4D	51826	51827	1.250	1.250	6.000	0.850	1.500			



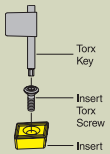
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

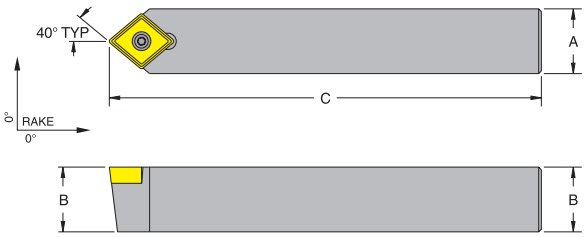


SCMC
N Toolholder

Style M- 40° Side
Cutting Edge Angle
for 7° positive 80°
diamond CC_T inserts

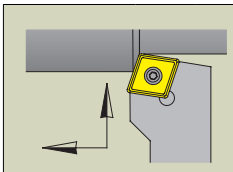


Inch Description	Part No. 733101- NEUTRAL	A	B	C	CC_T Gage Insert	Insert Torx Screw	Torx Key
SCMCN06-2	51828*	0.375	0.375	2.500	21.51	TS-25.45-6M2	T-8
SCMCN06-2J	51834*	0.375	0.375	3.500			
SCMCN08-2J	51833	0.500	0.500	3.500			
SCMCN10-2A	51829	0.625	0.625	4.000			
SCMCN08-3J	51830	0.500	0.500	3.500	32.52	TS-4.7-10M1	T-15
SCMCN08-3A	51836	0.500	0.500	4.000			
SCMCN10-3A	51831	0.625	0.625	4.000			
SCMCN10-3B	51838	0.625	0.625	4.500			
SCMCN12-3B	51840	0.750	0.750	4.500			
SCMCN16-3D	51832	1.000	1.000	6.000			
SCMCN12-4B	51842	0.750	0.750	4.500	432	TS-5.8-10M1	T-20
SCMCN16-4D	51844	1.000	1.000	6.000			



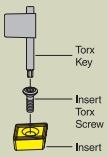
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

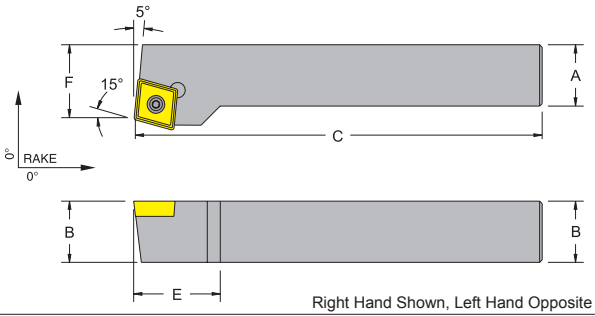


SCRC
R/L Toolholder

Style R -15° Side
Cutting Edge Angle
for 7° positive 80°
diamond CC_T inserts

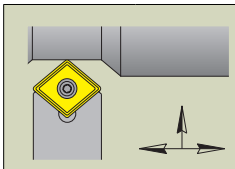


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	CC_T Gage Insert	Insert Torx Screw	Torx Key
SCRCR/L06-2	51859	51861	0.375	0.375	2.500	0.500	0.439	21.51	TS-25.45-6M2	T-8
SCRCR/L08-2J	51863	51865	0.500	0.500	3.500	0.500	0.564			
SCRCR/L08-3J	51866	51867	0.500	0.500	3.500	0.688	0.548	32.52	TS-4.7-10M1	T-15
SCRCR/L10-3A	51868	51869	0.625	0.625	4.000	0.688	0.673			



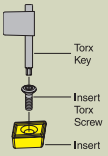
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

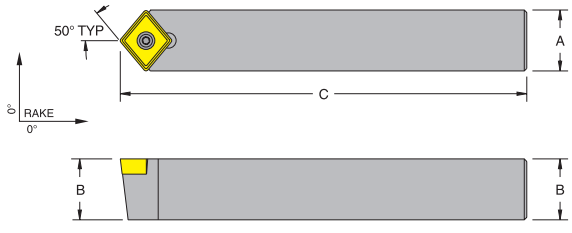


SCYC
N Toolholder

Style Y- 50° Side
Cutting Edge Angle
for 7° positive 80°
diamond CC_T inserts

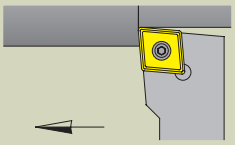


Inch Description	Part No. 733101- NEUTRAL	A	B	C	CC_T Gage Insert	Insert Torx Screw	Torx Key
SCYCN06-2J	51854	0.375	0.375	3.500	21.51	TS-25.45-6M2	T-8
SCYCN08-3A	51856	0.500	0.500	4.000	32.52	TS-4.7-10M1	T-15
SCYCN10-3B	51858	0.625	0.625	4.500			
SCYCN12-3B	51860	0.750	0.750	4.500			
SCYCN12-4B	51862	0.750	0.750	4.500	432	TS-5.8-10M1	T-20
SCYCN16-4D	51864	1.000	1.000	6.000			



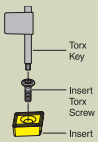
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

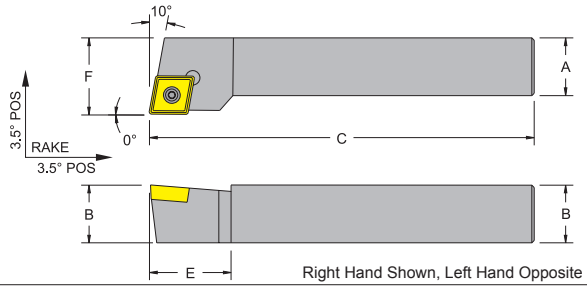


SCGP
R/L Toolholder

Style G- 0° End
Cutting Edge Angle
for 11° positive 80°
diamond CP_T inserts

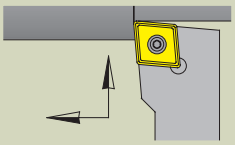


Inch Description	Part No.733101- R.H.	L.H.	A	B	C	E	F	CP_T Gage Insert	Insert Torx Screw	Torx Key
SCGPR/L06-2	51870	51871	0.375	0.375	2.500	0.500	0.500	21.51	TS-25.45-6M2	T-8
SCGPR/L08-3J	51874	51875	0.500	0.500	3.500	0.688	0.625	32.52	TS-4.7-10M1	T-15
SCGPR/L12-3B	51878	51879	0.750	0.750	4.500	0.688	1.000			



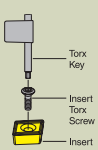
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

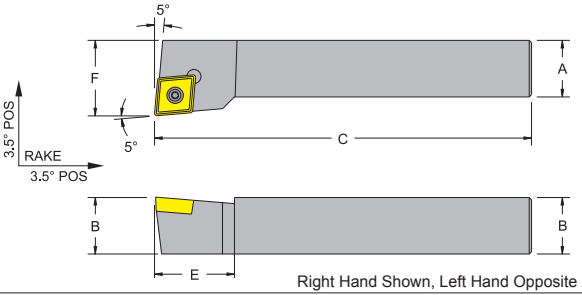


SCLP
R/L Toolholder

Style L -Negative 5°
End or Side Cutting Edge Angle
for 11° positive 80°
diamond CP_T inserts

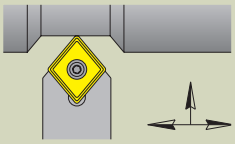


Inch Description	Part No.733101- R.H.	L.H.	A	B	C	E	F	CP_T Gage Insert	Insert Torx Screw	Torx Key
SCLPR/L06-2	51882	51883	0.375	0.375	2.500	0.500	0.500	21.51	TS-25.45-6M2	T-8
SCLPR/L08-3J	51886	51887	0.500	0.500	3.500	0.688	0.625	32.52	TS-4.7-10M1	T-15
SCLPR/L12-3B	51890	51891	0.750	0.750	4.500	0.688	1.000			



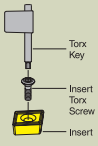
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

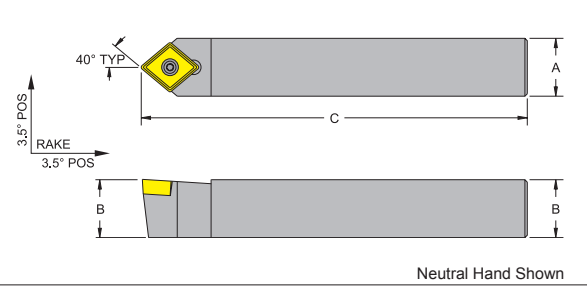


SCMP
N Toolholder

Style M- 40° Side
Cutting Edge Angle
for 11° positive 80°
diamond CP_T inserts

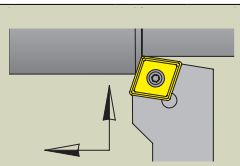


Inch Description	Part No. 733101- NEUTRAL	A	B	C	CP_T Gage Insert	Insert Torx Screw	Torx Key
SCMPN06-2	51894	0.375	0.375	2.500	21.51	TS-25.45-6M2	T-8
SCMPN08-3J	51895	0.500	0.500	3.500	32.52	TS-4.7-10M1	T-15
SCMPN12-3B	51899	0.750	0.750	4.500			



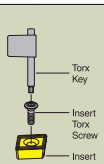
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

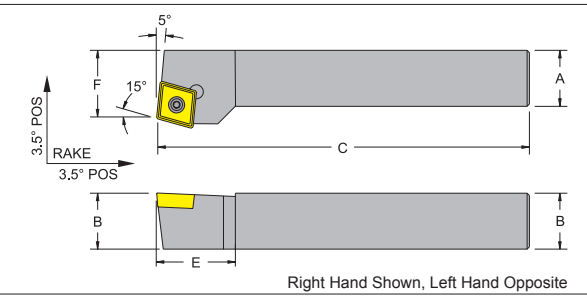


SCRP
R/L Toolholder

Style R- 15° Side
Cutting Edge Angle
for 11° positive 80°
diamond CP_T inserts



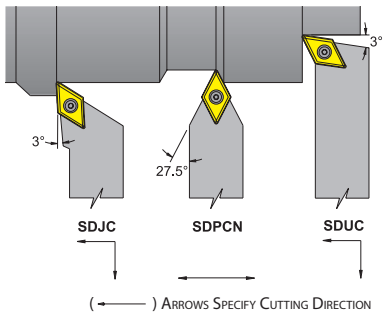
Inch Description	Part No.733101- R.H.	L.H.	A	B	C	E	F	CP_T Gage Insert	Insert Torx Screw	Torx Key
SCRPR/L06-2	51913*	51915*	0.375	0.375	2.500	0.500	0.439	21.51	TS-25.45-6M2	T-8

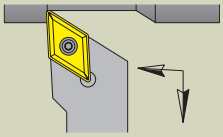


Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

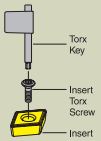
SD - Style Toolholders



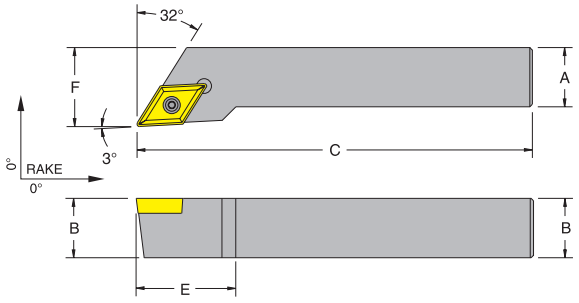


SDJC R/L Toolholder

Style J- Negative
3° Side Cutting Edge Angle
for 7° positive 55°
diamond DC_T inserts

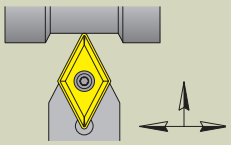


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	DC_T Gage Insert	Insert Torx Screw	Torx Key
SDJCR/L06-2J	51872	51873	0.375	0.375	3.500	0.688	0.500	21.51	TS-25.45-6M2	T-8
SDJCR/L08-2A	51876	51877	0.500	0.500	4.000	0.688	0.625			
SDJCR/L08-3A	51880	51881	0.500	0.500	4.000	1.000	0.625	32.52	TS-4.7-10M1	T-15
SDJCR/L10-3B	51884	51885	0.625	0.625	4.500	1.000	0.750			
SDJCR/L12-3B	51888	51889	0.750	0.750	4.500	1.000	1.000			
SDJCR/L16-3D	51892	51893*	1.000	1.000	6.000	1.000	1.250			
SDJCR/L12-4B	51896	51897	0.750	0.750	4.500	1.250	1.000	432	TS-5.8-10M1	T-20
SDJCR/L16-4D	51900	51901	1.000	1.000	6.000	1.250	1.250			



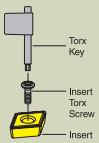
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

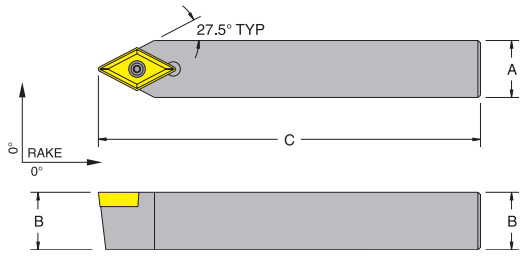


SDPC N Toolholder

Style P- 27.5° Side
Cutting Edge Angle
for 7° positive 55°
diamond DC_T inserts

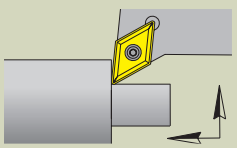


Inch Description	Part No. 733101- NEUTRAL	A	B	C	DC_T Gage Insert	Insert Torx Screw	Torx Key
SDPCN06-2J	51910	0.375	0.375	3.500	21.51	TS-25.45-6M2	T-8
SDPCN06-2D	51942	0.375	0.375	6.000			
SDPCN08-2A	51912	0.500	0.500	4.000			
SDPCN08-2D	51943	0.500	0.500	6.000			
SDPCN08-3D	51944	0.500	0.500	6.000	32.52	TS-4.7-10M1	T-15
SDPCN10-3B	51914	0.625	0.625	4.500			
SDPCN10-3D	51945	0.625	0.625	6.000			
SDPCN12-3B	51916	0.750	0.750	4.500			
SDPCN16-3D	51918	1.000	1.000	6.000			
SDPCN12-4B	51920	0.750	0.750	4.500	432	TS-5.8-10M1	T-20
SDPCN16-4D	51922	1.000	1.000	6.000			



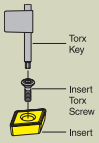
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

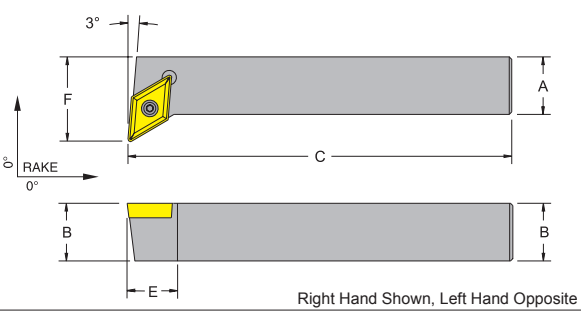


SDUC R/L Toolholder

Style U- 3° End
Cutting Edge Angle
for 7° positive 55°
diamond DC_T inserts



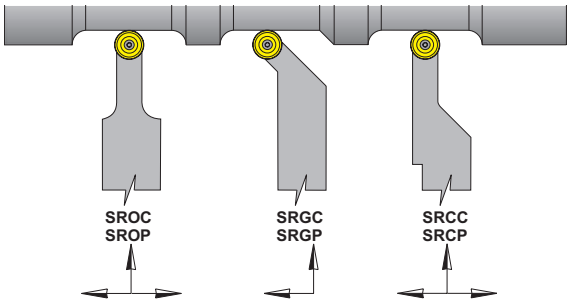
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	DC_T Gage Insert	Insert Torx Screw	Torx Key
SDUCR/L08-2J	51946	51947	0.500	0.500	3.500	0.500	0.670	21.51	TS-25.45-6M2	T-8
SDUCR/L10-2A	51948	51949*	0.625	0.625	4.000	0.500	0.795			
SDUCR/L08-3J	51950*	51951*	0.500	0.500	3.500	0.688	0.746	32.52	TS-4.7-10M1	T-15
SDUCR/L10-3A	51954	51959	0.625	0.625	4.000	0.688	0.871			



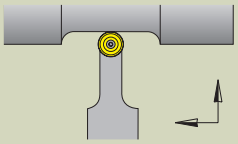
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

SR - Style Toolholders

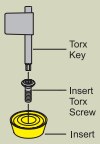


(←) Arrows Specify Cutting Direction

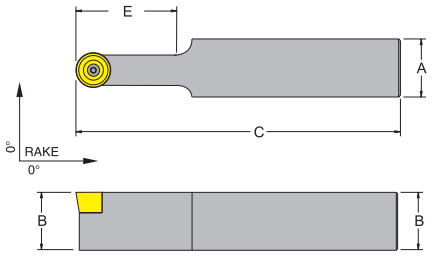


SROC N Toolholder

Style O- Profiling, Plunging, and Turning for 7° positive round RC_T inserts

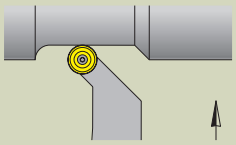


Inch Description	Part No. 733101- NEUTRAL	A	B	C	E	RC_T Gage Insert	Insert Torx Screw	Torx Key
SROCN10-06A	52160	0.625	0.625	4.000	0.625	0602MO	TS-25.45-6M2	T-8
SROCN12-06B	52161*	0.750	0.750	4.500	0.750			
SROCN16-06D	52162	1.000	1.000	6.000	1.000			
SROCN20-06D	52163	1.250	1.250	6.000	1.250			
SROCN12-08B	52164	0.750	0.750	4.500	0.750	0803MO	TS-3.5-7M1	T-8
SROCN16-08D	52165*	1.000	1.000	6.000	1.000			
SROCN20-08D	52166*	1.250	1.250	6.000	1.250			
SROCN12-10B	52167*	0.750	0.750	4.500	0.750	1003MO	TS-35.6-9M1	T-15
SROCN16-10D	52168*	1.000	1.000	6.000	1.000			
SROCN20-10D	52169	1.250	1.250	6.000	1.250			



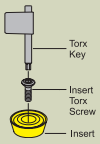
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

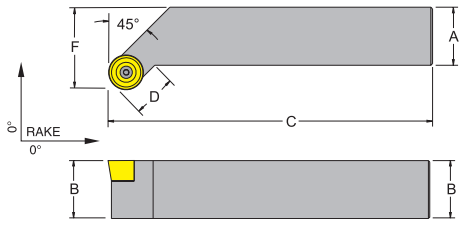


SRGC R/L Tolholder

Style G- Profiling, Plunging, and Turning for 7° positive round RC_T inserts

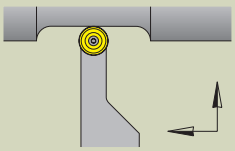


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	D	F	RC_T Gage Insert	Insert Torx Screw	Torx Key
SRGCR/L10-06A	52176*	52177*	0.625	0.625	4.000	0.250	0.750	0602MO	TS-25.45-6M2	T-8
SRGCR/L12-06B	52178*	52179*	0.750	0.750	4.500	0.420	1.000			
SRGCR/L16-06D	52180*	52181	1.000	1.000	6.000	0.420	1.250			
SRGCR/L20-06D	52182*	52183*	1.250	1.250	6.000	0.420	1.500			
SRGCR/L12-08B	52184	52185*	0.750	0.750	4.500	0.450	1.000	0803MO	TS-3.5-7M1	T-8
SRGCR/L16-08D	52186	52187*	1.000	1.000	6.000	0.450	1.250			
SRGCR/L20-08D	52188*	52189*	1.250	1.250	6.000	0.450	1.500			
SRGCR/L12-10B	52190*	52191	0.750	0.750	4.500	0.470	1.000	1003MO	TS-35.6-9M1	T-15
SRGCR/L16-10D	52192*	52193*	1.000	1.000	6.000	0.470	1.250			
SRGCR/L20-10D	52194	52195	1.250	1.250	6.000	0.470	1.500			



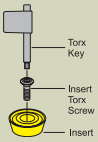
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

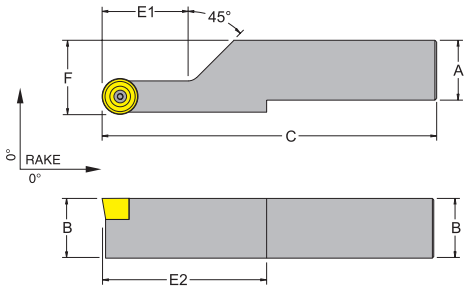


SRCC
R/L Toolholder

Style C- Profiling,
Plunging and Turning
for 7° positive round
RC_T inserts

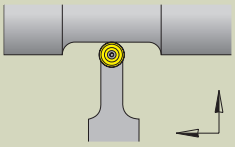


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E1	E2	F	RC_T Gage Insert	Insert Torx Screw	Torx Key
SRCCR/L10-06A	52212*	52213*	0.625	0.625	4.000	0.810	1.435	0.743	0602MO	TS-25.45-6M2	T-8
SRCCR/L12-06B	52214	52215*	0.750	0.750	4.500	0.810	1.560	0.868			
SRCCR/L16-06D	52216*	52217	1.000	1.000	6.000	0.810	1.810	1.118			
SRCCR/L20-06D	52218*	52219*	1.250	1.250	6.000	0.810	2.060	1.368			
SRCCR/L12-08B	52220	52221	0.750	0.750	4.500	1.020	1.770	0.908	0803MO	TS-3.5-7M1	T-8
SRCCR/L16-08D	52222	52223	1.000	1.000	6.000	1.020	2.020	1.158			
SRCCR/L20-08D	52224*	52225*	1.250	1.250	6.000	1.020	2.270	1.408			
SRCCR/L12-10B	52226	52227	0.750	0.750	4.500	1.230	1.980	0.947	1003MO	TS-35.6-9M1	T-15
SRCCR/L16-10D	52228	52229*	1.000	1.000	6.000	1.230	2.230	1.197			
SRCCR/L20-10D	52230*	52231*	1.250	1.250	6.000	1.230	2.480	1.447			



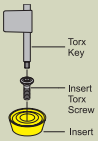
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

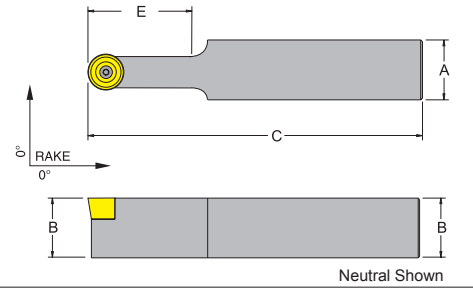


SROP
N Toolholder

Style O- Profiling,
Plunging and Turning
for 11° positive round
RP_T inserts

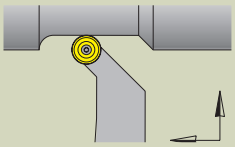


Inch Description	Part No. 733101- NEUTRAL	A	B	C	E	RP_T Gage Insert	Insert Torx Screw	Torx Key
SROPN12-10B	52170*	0.750	0.750	4.500	0.750	1003MO	TS-35.6-9M1	T-15
SROPN16-10D	52171	1.000	1.000	6.000	1.000			
SROPN20-10D	52172	1.250	1.250	6.000	1.250			



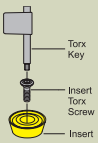
Neutral Shown

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

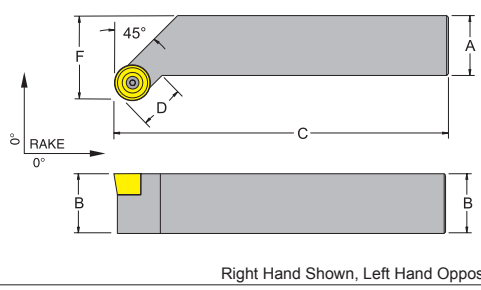


SRGP
R/L Toolholder

Style G- Profiling,
Plunging and Turning
for 11° positive round
RP_T inserts

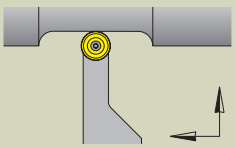


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	D	F	RP_T Gage Insert	Insert Torx Screw	Torx Key
SRGPR/L12-10B	52196*	52197*	0.750	0.750	4.500	0.470	1.000	1003MO	TS-35.6-9M1	T-15
SRGPR/L16-10D	52198	52199*	1.000	1.000	6.000	0.470	1.250			
SRGPR/L20-10D	52200*	52201*	1.250	1.250	6.000	0.470	1.500			



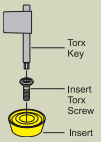
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

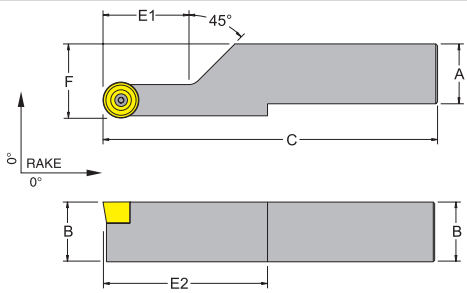


SRCP
R/L Toolholder

Style C- Profiling,
Plunging and Turning
for 11° positive round
RP_T inserts



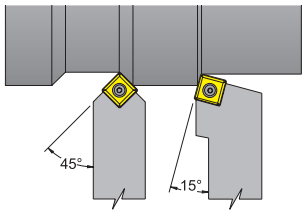
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E1	E2	F	RP_T Gage Insert	Insert Torx Screw	Torx Key
SRCPR/L12-10B	52232	52233	0.750	0.750	4.500	1.230	1.980	0.947	1003MO	TS-35.6-9M1	T-15
SRCPR/L16-10D	52234*	52235*	1.000	1.000	6.000	1.230	2.230	1.197			
SRCPR/L20-10D	52236*	52237*	1.250	1.250	6.000	1.230	2.480	1.447			



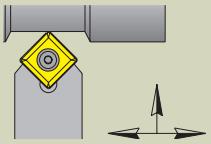
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

SS - Style Toolholders

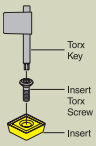


(←——) Arrows Specify Cutting Direction

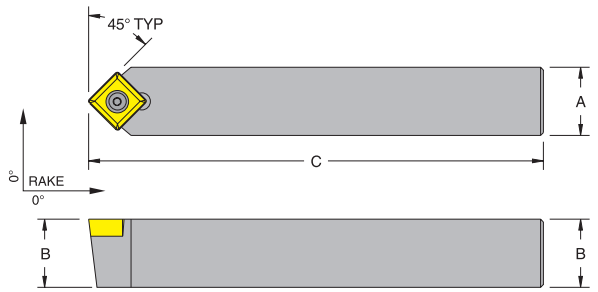


SSDC N Toolholder

Style D - 45° Side Cutting Edge Angle for 7° positive square SC_T inserts

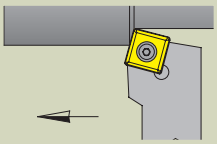


Inch Description	Part No. 733101- NEUTRAL	A	B	C	SC_T Gage Insert	Insert Torx Screw	Torx Key
SSDCN08-3A	51932	0.500	0.500	4.000	32.52	TS-4.7-10M1	T-15
SSDCN10-3B	51934	0.625	0.625	4.500			
SSDCN12-3B	51936	0.750	0.750	4.500			
SSDCN16-4D	51938	1.000	1.000	6.000	432	TS-5.8-10M1	T-20
SSDCN20-4D	51940*	1.250	1.250	6.000			



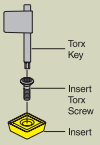
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

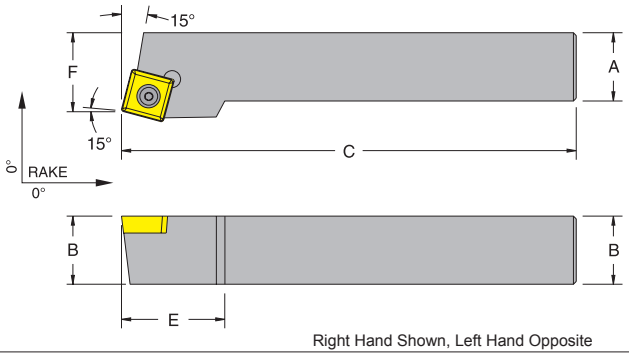


SSRC R/L Toolholder

Style R - 15° Side Cutting Edge Angle for 7° positive square SC_T inserts



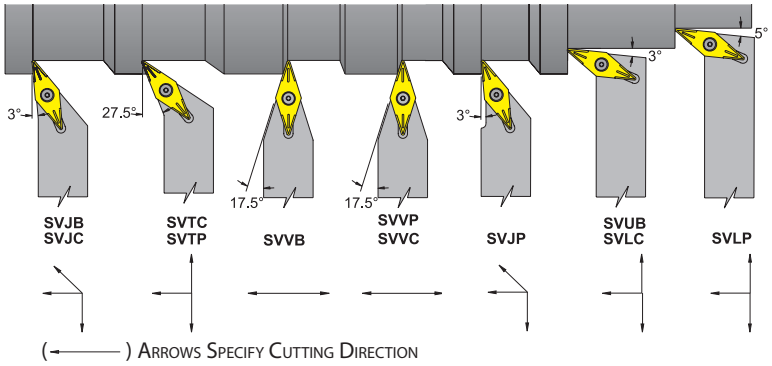
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	SC_T Gage Insert	Insert Torx Screw	Torx Key
SSRCR/L08-3A	51952	51953	0.500	0.500	4.000	0.750	0.625	32.52	TS-4.7-10M1	T-15
SSRCR/L10-3A	51956	51957*	0.625	0.625	4.000	0.750	0.785			
SSRCR/L10-3B	51960	51961	0.625	0.625	4.500	0.750	0.785			
SSRCR/L12-3B	51964	51965	0.750	0.750	4.500	0.750	0.910			
SSRCR/L16-4C	51968	51969*	1.000	1.000	5.000	0.875	1.130	432	TS-5.8-10M1	T-20
SSRCR/L16-4D	51972	51973	1.000	1.000	6.000	0.875	1.130			
SSRCR/L20-4D	51976*	51977*	1.250	1.250	6.000	0.875	1.380			



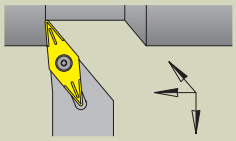
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock

SV - Style Toolholders

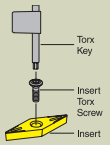


(———) Arrows Specify Cutting Direction

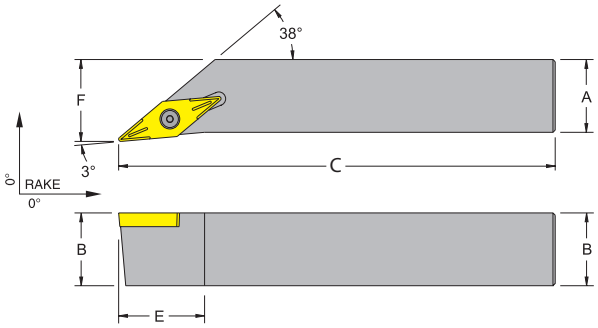


SVJB R/L Toolholder

Style J - Negative 3° Side Cutting Edge Angle for 5° positive 35° diamond VB_T inserts

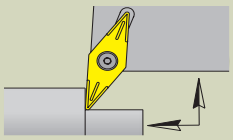


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VB_T Gage Insert	Insert Torx Screw	Torx Key
SVJBR/L06-2	51984	51985	0.375	0.375	2.500	0.875	0.500			
SVJBR/L08-2J	51986	51987	0.500	0.500	3.500	0.875	0.625	221	TS-25.45-6M2	T-8
SVJBR/L10-2A	51988	51989	0.625	0.625	4.000	0.875	0.750			
SVJBR/L12-3B	52006	52007	0.750	0.750	4.500	1.250	1.000			
SVJBR/L16-3C	52010	52011	1.000	1.000	5.000	1.250	1.250	332	TS-4.7-10M1	T-15
SVJBR/L16-3D	52014	52015	1.000	1.000	6.000	1.250	1.250			
SVJBR/L20-3D	52018*	52019	1.250	1.250	6.000	1.250	1.500			



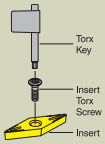
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

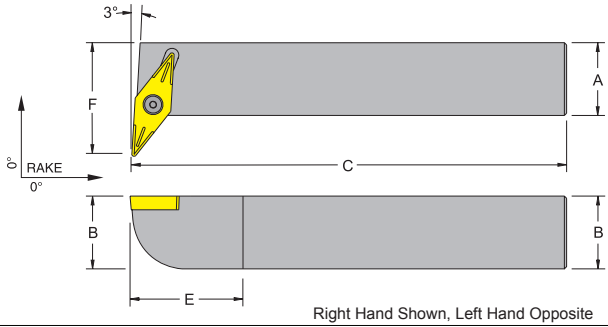


SVUB R/L Toolholder

Style U - 3° End Cutting Edge Angle for 5° positive 35° diamond VB_T inserts

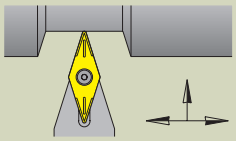


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VB_T Gage Insert	Insert Torx Screw	Torx Key
SVUBR/L08-2J	51996	51997	0.500	0.500	3.500	0.500	0.830	221	TS-25.45-6M2	T-8
SVUBR/L10-2A	51998	51999	0.625	0.625	4.000	0.500	0.955			



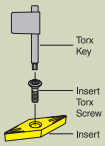
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

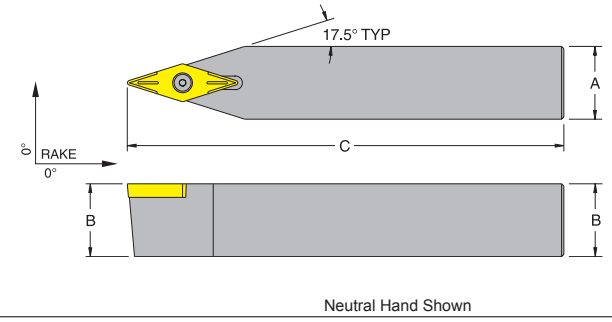


SVVB N Toolholder

Style V - 17.5° Side Cutting Edge Angle for 5° positive 35° diamond VB_T inserts

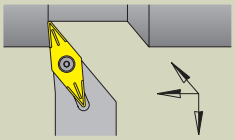


Inch Description	Part No. 733101- NEUTRAL	A	B	C	VB_T Gage Insert	Insert Torx Screw	Torx Key
SVVBN12-3B	52062	0.750	0.750	4.500			
SVVBN16-3D	52064	1.000	1.000	6.000	332	TS-4.7-10M1	T-15
SVVBN20-3D	52066	1.250	1.250	6.000			



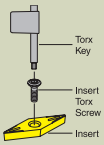
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

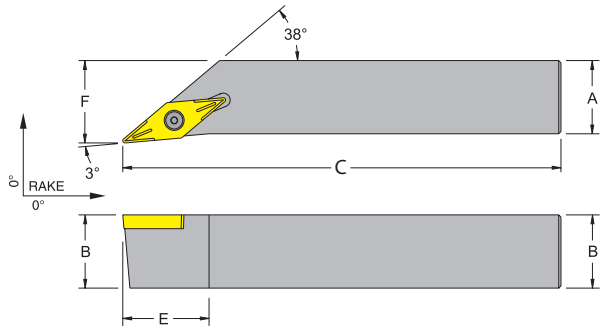


SVJC
R/L Toolholder

Style J - Negative 3°
Side Cutting Edge Angle
for 7° positive 35°
diamond VC_T inserts

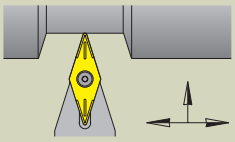


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VC_T Gage Insert	Insert Torx Screw	Torx Key
SVJCR/L06-2J	52028	52029	0.375	0.375	3.500	1.000	0.500	221	TS-25.45-6M2	T-8
SVJCR/L08-2A	52032	52033	0.500	0.500	4.000	1.000	0.625			
SVJCR/L10-2B	52036	52037	0.625	0.625	4.500	1.000	0.750			
SVJCR/L12-3B	52040	52041	0.750	0.750	4.500	1.250	1.000	332	TS-4.7-10M1	T-15
SVJCR/L16-3C	52044*	52045*	1.000	1.000	5.000	1.250	1.250			
SVJCR/L16-3D	52048	52049	1.000	1.000	6.000	1.250	1.250			
SVJCR/L20-3D	52052	52053*	1.250	1.250	6.000	1.250	1.500			
SVJCR/L16-4D	52054	52055	1.000	1.000	6.000	1.250	1.250	448	TS-43.58-10M1	T-20
SVJCR/L20-4D	52056*	52057*	1.250	1.250	6.000	1.250	1.500			



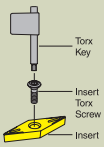
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

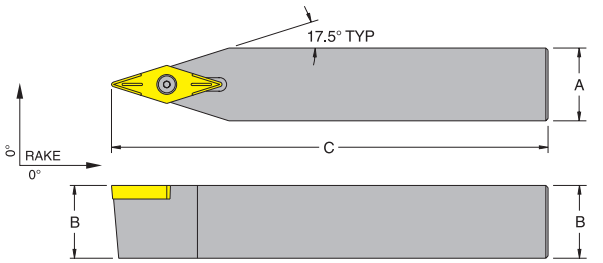


SVVC
N Toolholder

Style V - 17.5° Side
Cutting Edge Angle
for 7° positive 35°
diamond VC_T inserts

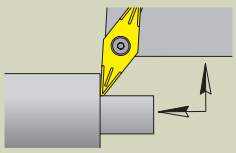


Inch Description	Part No. 733101- NEUTRAL	A	B	C	VC_T Gage Insert	Insert Torx Screw	Torx Key
SVVCN06-2J	52076	0.375	0.375	3.500	221	TS-25.45-6M2	T-8
SVVCN08-2A	52078*	0.500	0.500	4.000			
SVVCN10-2B	52080	0.625	0.625	4.500			
SVVCN12-3B	52082	0.750	0.750	4.500	332	TS-4.7-10M1	T-15
SVVCN16-3D	52084	1.000	1.000	6.000			
SVVCN20-3D	52086	1.250	1.250	6.000			
SVVCN16-4D	52087*	1.000	1.000	6.000	448	TS-5.8-10M1	T-20
SVVCN20-4D	52089*	1.250	1.250	6.000			



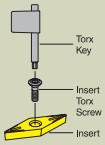
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

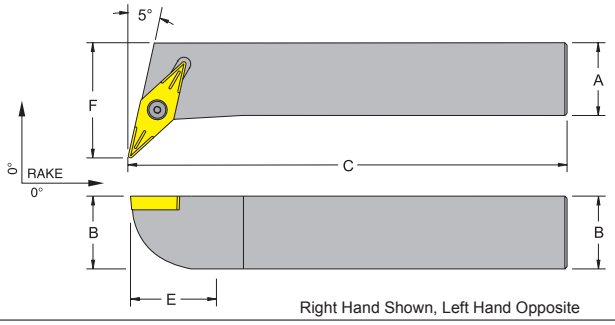


SVLC
R/L Toolholder

Style L - 5° End
Cutting Edge Angle
for 7° positive 35°
diamond VC_T inserts

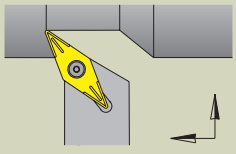


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VC_T Gage Insert	Insert Torx Screw	Torx Key
SVLCR/L16-4D	52091	52092*	1.000	1.000	6.000	1.625	1.500	448	TS-5.8-10M1	T-20
SVLCR/L20-4D	52093*	52094*	1.250	1.250	6.000	1.625	1.750			



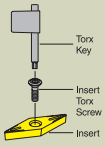
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

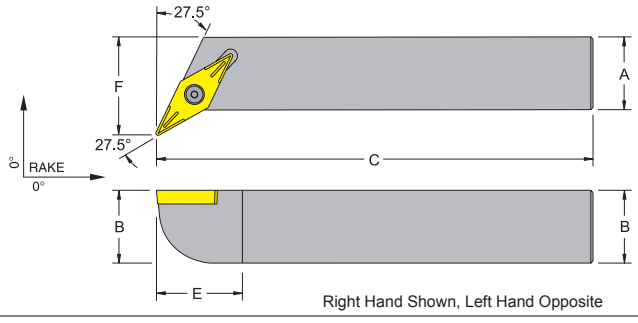


SVTC
R/L Toolholder

Style T - 27.5° End
Cutting Edge Angle
for 7° positive 35°
diamond VC_T inserts

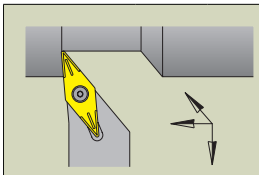


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VC_T Gage Insert	Insert Torx Screw	Torx Key
SVTCR/L16-4D	52102	52103	1.000	1.000	6.000	1.625	1.500	448	TS-5.8-10M1	T-20
SVTCR/L20-4D	52106	52107	1.250	1.250	6.000	1.625	1.750			



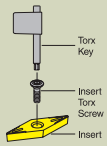
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

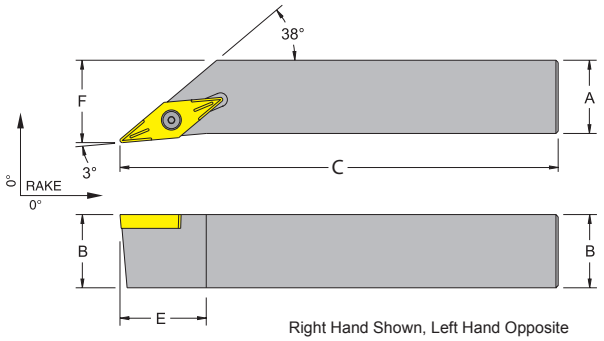


SVJP
R/L Toolholder

Style J - Negative 3°
Side Cutting Edge Angle
for 11° positive 35°
diamond VP_T inserts

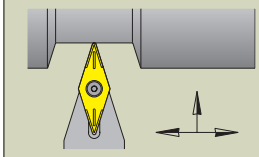


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VP_T Gage Insert	Insert Torx Screw	Torx Key
SVJPR/L16-4D	52248	52249*	1.000	1.000	6.000	1.250	1.250	448	TS-5.8-10M1	T-20
SVJPR/L20-4D	52250	52251	1.250	1.250	6.000	1.250	1.500			



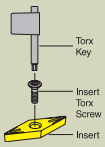
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

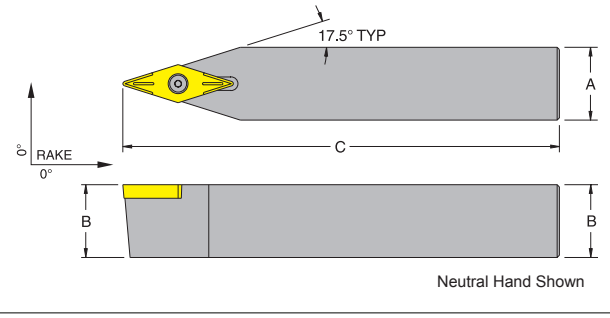


SVVP
N Toolholder

Style V - 17.5° Side
Cutting Edge Angle
for 11° positive 35°
diamond VP_T inserts

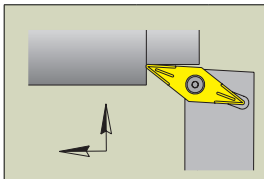


Inch Description	Part No. 733101- NEUTRAL	A	B	C	VP_T Gage Insert	Insert Torx Screw	Torx Key
SVVPN16-4D	52262	1.000	1.000	6.000	448	TS-5.8-10M1	T-20
SVVPN20-4D	52263*	1.250	1.250	6.000			



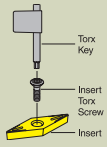
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

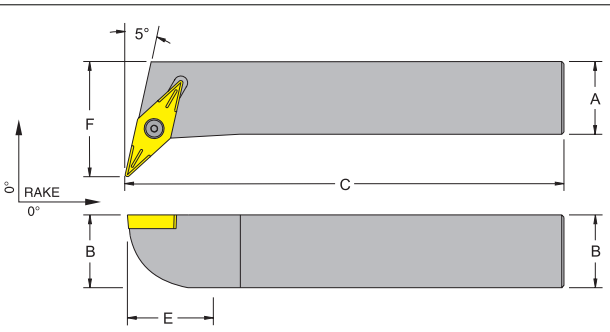


SVLP
R/L Toolholder

Style L - 5° End
Cutting Edge Angle
for 11° positive 35°
diamond VP_T inserts

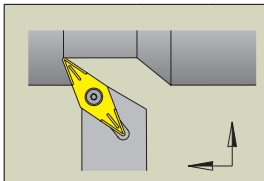


Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VP_T Gage Insert	Insert Torx Screw	Torx Key
SVLPR/L16-4D	52274	52275	1.000	1.000	6.000	1.625	1.500	448	TS-5.8-10M1	T-20
SVLPR/L20-4D	52276	52277	1.250	1.250	6.000	1.625	1.750			



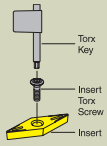
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

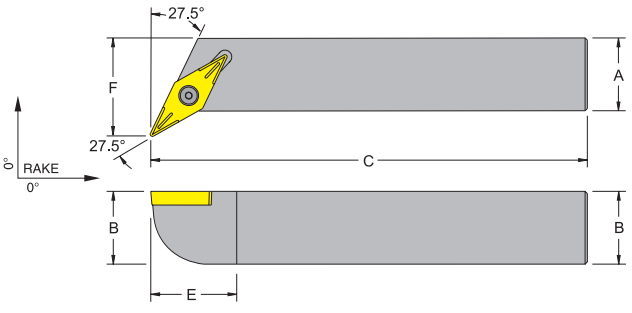


SVTP
R/L Toolholder

Style T - 27.5° End
Cutting Edge Angle
for 11° positive 35°
diamond VP_T inserts



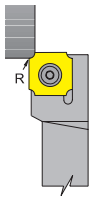
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VP_T Gage Insert	Insert Torx Screw	Torx Key
SVTPR/L16-4D	52288*	52289*	1.000	1.000	6.000	1.625	1.500	448	TS-5.8-10M1	T-20
SVTPR/L20-4D	52290*	52291*	1.250	1.250	6.000	1.625	1.750			



Right Hand Shown, Left Hand Opposite

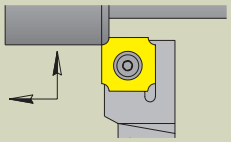
For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

SS - Style Toolholders



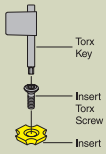
Convex Radius Toolholder

(←) Arrows Specify Cutting Direction

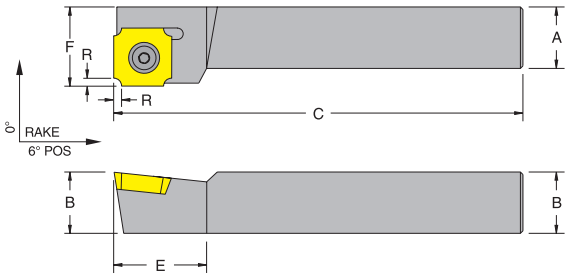


SSQD R Toolholder

Style Q - Convex
Radius Cutting Edge
for 15° positive square convex
SDGX inserts



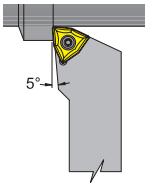
Inch Description	Part No. 733101- R.H.	A	B	C	E	F	R-Range Min.	R-Range Max.	SDGX Gage Insert	Insert Torx Screw	Torx Key
SSQDR12-6B-08	52136	0.750	0.750	4.500	1.250	1.000	.078	.125			
SSQDR16-6D-08	52138	1.000	1.000	6.000	1.250	1.250	.078	.125	19C_	TS-5.8-10M1	T-20
SSQDR20-6D-08	52140	1.250	1.250	6.000	1.250	1.500	.078	.125			
SSQDR12-6B-16	52142	0.750	0.750	4.500	1.250	1.000	.141	.250			
SSQDR16-6D-16	52144	1.000	1.000	6.000	1.250	1.250	.141	.250	19C_	TS-5.8-10M1	T-20
SSQDR20-6D-16	52146	1.250	1.250	6.000	1.250	1.500	.141	.250			



Right Hand Shown

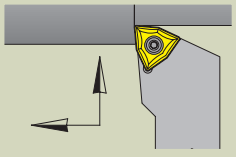
For inserts see pages 56-87. For spare parts see pages 158-159.

SW - Style Toolholders



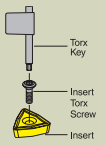
Trigon Toolholder

(←) Arrows Specify Cutting Direction

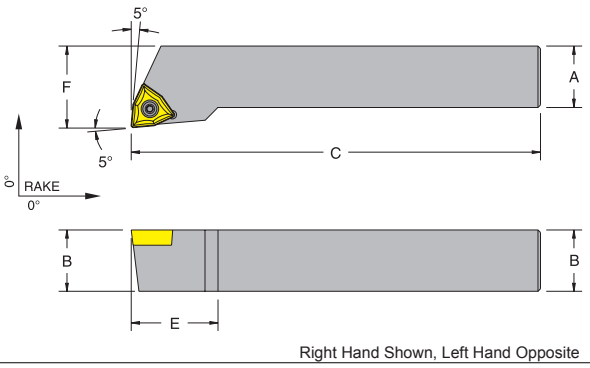


SWLC R/L Toolholder

Style L - Negative 5° End
or Side Cutting Edge Angle
for 7° positive 80°
trigon WC_T inserts



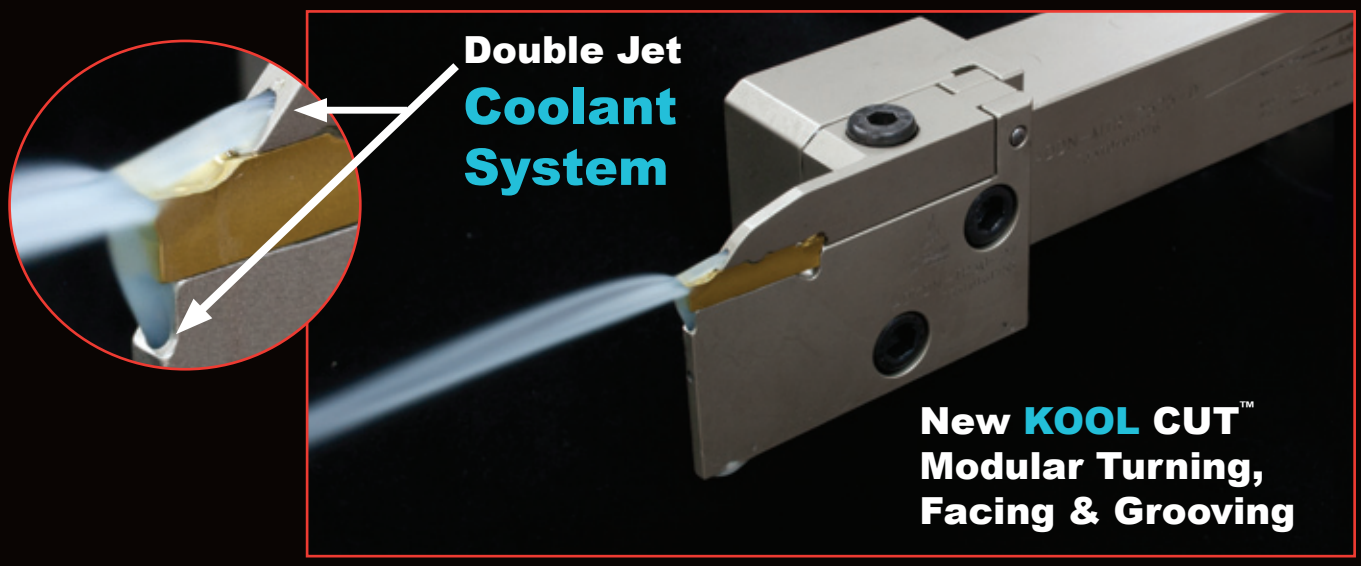
Inch Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	WC_T	Insert	Torx
SWLCR/L06-2J	52096	52097	0.375	0.375	3.500	0.500	0.500	21.51	TS-25.45-6M2	T-8
SWLCR/L08-3A	52100	52101	0.500	0.500	4.000	0.688	0.625			
SWLCR/L10-3B	52104	52105	0.625	0.625	4.500	0.688	0.750	32.52	TS-4.7-10M1	T-15
SWLCR/L12-3B	52108	52109	0.750	0.750	4.500	0.688	1.000			
SWLCR/L16-3D	52112*	52113	1.000	1.000	6.000	0.688	1.250			
SWLCR/L12-4B	52116	52117*	0.750	0.750	4.500	1.000	1.000	432	TS-5.8-10M1	T-20
SWLCR/L16-4D	52120	52121	1.000	1.000	6.000	1.000	1.250			



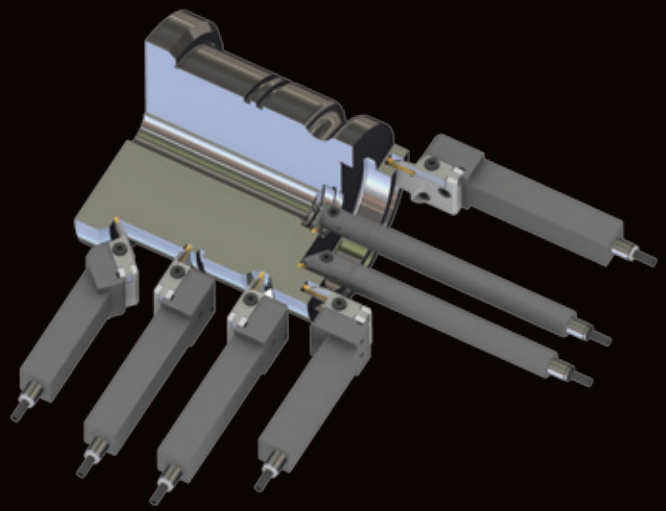
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

KOOL CUT™
Modular Turning, Facing & Grooving



Modular Technology



Multi-Application

Coming Soon!
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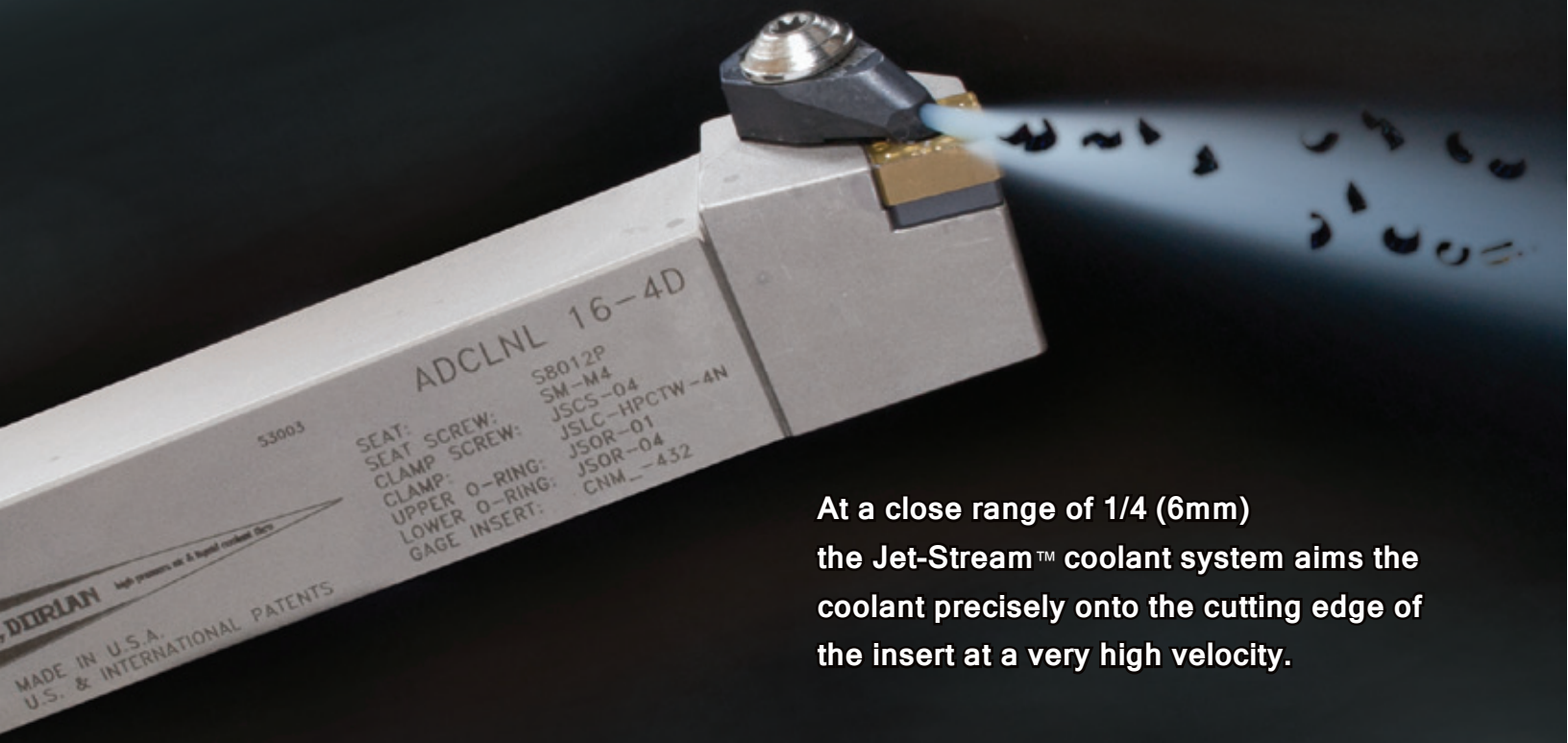
DORIAN INTERNATIONAL TOOL

The POWER of the Dorian Jet-Stream™ Thru Coolant System

Changes the way Metal is Cut!



At a close range of 1/4 (6mm) the Jet-Stream™ coolant system aims the coolant precisely onto the cutting edge of the insert at a very high velocity.

Hot chips are forced away from the insert cutting edge. As a result, the insert will operate at a constant low temperature, with a clean and undamaged cutting edge, changing the way metal is cut!

Dorian's Jet-Stream™ System will Improve:
Quality, Productivity, and
Increase Insert Life Up to 200%

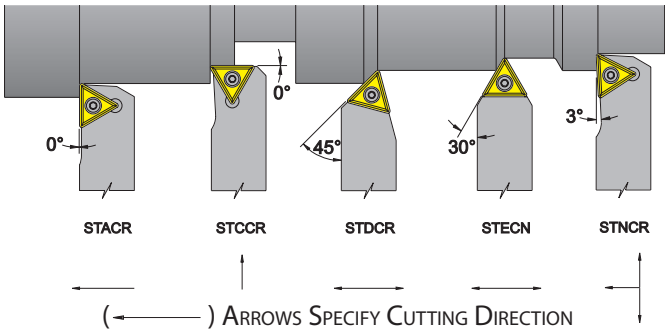
800-627-0266 or 979-282-2861
www.doriantool.com
sales@doriantool.com

DORIAN INTERNATIONAL TOOL

"ST" Style Toolholders for Multiple Application Sets

1 Insert
+ 5 Tools
Turning/Facing/Chamfering

For 7° positive triangle TC_T Inserts

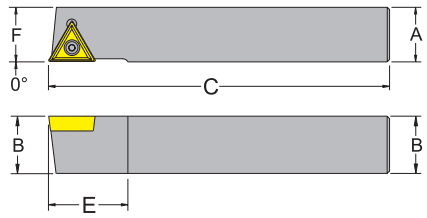


For inserts see pages 56-87. For spare parts see pages 158-159.

For all "ST" Style Toolholders see pages 109-111 . For 17 Piece Toolholders Sets with Inserts see page 96.

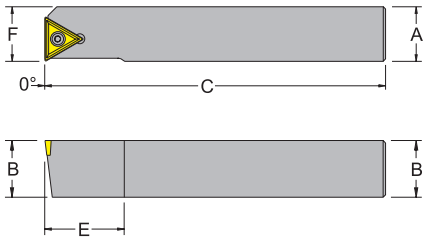
STAC R Toolholder

Inch Description	Part No. 733101- R.H.	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STACR06-2	51556	0.375	0.375	2.500	0.625	0.375	21.51	TS-25.45-6M2	T-8
STACR08-2J	51558	0.500	0.500	3.500	0.625	0.500			
STACR10-2A	51560	0.625	0.625	4.000	0.625	0.625			
STACR12-3B	51562	0.750	0.750	4.500	1.125	0.750	32.52	TS-4.7-10M1	T-15
STACR64-3D	51564	0.750	1.000	6.000	1.125	0.750			
STACR85-4D	51566	1.000	1.250	6.000	1.250	1.000	432	TS-5.8-10M1	T-20
STACR106-4D	51568	1.250	1.500	6.000	1.250	1.250			



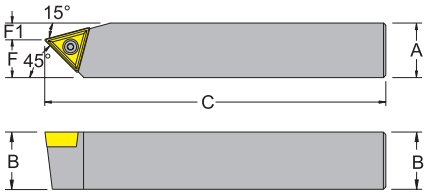
STCC R Toolholder

Inch Description	Part No. 733101- R.H.	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STCCR06-2	51578	0.375	0.375	2.500	0.520	0.395	21.51	TS-25.45-6M2	T-8
STCCR08-2J	51580	0.500	0.500	3.500	0.520	0.520			
STCCR10-2A	51582	0.625	0.625	4.000	0.520	0.645			
STCCR12-3B	51584	0.750	0.750	4.500	1.140	0.750	32.52	TS-4.7-10M1	T-15
STCCR64-3D	51586	0.750	1.000	6.000	1.140	0.750			
STCCR85-4D	51588	1.000	1.250	6.000	1.233	1.020	432	TS-5.8-10M1	T-20
STCCR106-4D	51590	1.250	1.500	6.000	1.233	1.270			



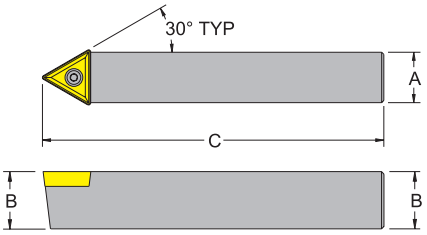
STDC R Toolholder

Inch Description	Part No. 733101- R.H.	A	B	C	F	F1	TC_T Gage Insert	Insert Torx Screw	Torx Key
STDCR06-2	51600	0.375	0.375	2.500	0.260	0.115	21.51	TS-25.45-6M2	T-8
STDCR08-2J	51602	0.500	0.500	3.500	0.298	0.201			
STDCR10-2A	51604	0.625	0.625	4.000	0.361	0.264			
STDCR12-3B	51606	0.750	0.750	4.500	0.456	0.294	32.52	TS-4.7-10M1	T-15
STDCR64-3D	51608	0.750	1.000	6.000	0.456	0.294			
STDCR85-4D	51610	1.000	1.250	6.000	0.613	0.387	432	TS-5.8-10M1	T-20
STDCR106-4D	51612	1.250	1.500	6.000	0.738	0.512			



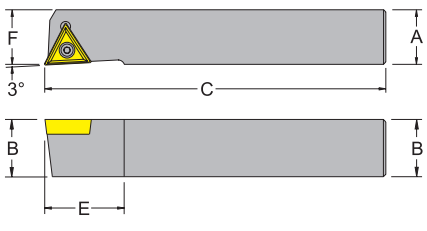
STEC N Toolholder

Inch Description	Part No. 733101- NEUTRAL	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STECN06-2	51622	0.375	0.375	2.500	-	-	21.51	TS-25.45-6M2	T-8
STECN08-2J	51624	0.500	0.500	3.500	-	-			
STECN10-2A	51626	0.625	0.625	4.000	-	-			
STECN12-3B	51628	0.750	0.750	4.500	-	-	32.52	TS-4.7-10M1	T-15
STECN64-3D	51630	0.750	1.000	6.000	-	-			
STECN85-4D	51632	1.000	1.250	6.000	-	-	432	TS-5.8-10M1	T-20
STECN106-4D	51634	1.250	1.500	6.000	-	-			



STNC R Toolholder

Inch Description	Part No. 733101- R.H.	A	B	C	E	F	TC_T Gage Insert	Insert Torx Screw	Torx Key
STNCR06-2	51734	0.375	0.375	2.500	0.779	0.375	21.51	TS-25.45-6M2	T-8
STNCR08-2J	51736	0.500	0.500	3.500	0.779	0.500			
STNCR10-2A	51738	0.625	0.625	4.000	0.779	0.625			
STNCR12-3B	51740	0.750	0.750	4.500	1.125	0.750	32.52	TS-4.7-10M1	T-15
STNCR64-3D	51742	0.750	1.000	6.000	1.125	0.750			
STNCR85-4D	51746	1.000	1.250	6.000	1.250	1.000	432	TS-5.8-10M1	T-20
STNCR106-4D	51748	1.250	1.500	6.000	1.250	1.250			



"M" - Multi-Lock Boring System

PG. 130-132

- Maximum rigidity
- Utilizes lock pin and clamp
- Holds insert and seat secure for less vibration

"C" - Clamp Lock Boring System

PG. 133

- Excellent locking ability
- Easier to index or change insert without the lock pin
- Allows for an optional chipbreaker to be placed on the insert

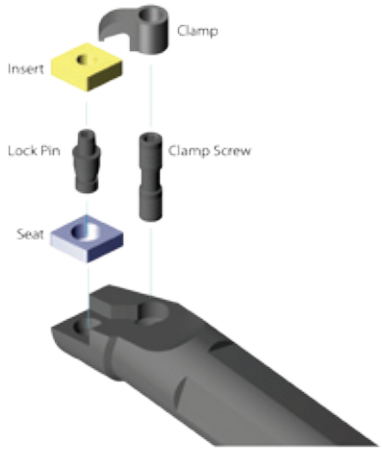
"S" - Screw Lock Boring System

PG. 134-148

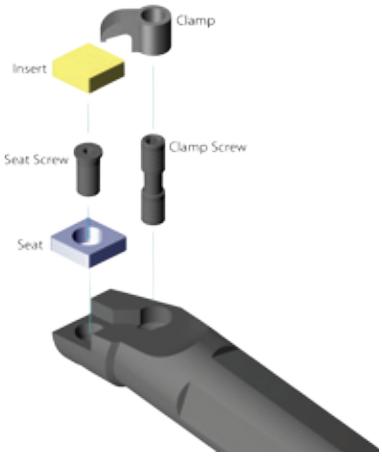
- Easy to index insert
- Uses Torx screw for a secure lock with more force

"M" - Multi-Lock Boring Bar System
Spare Parts

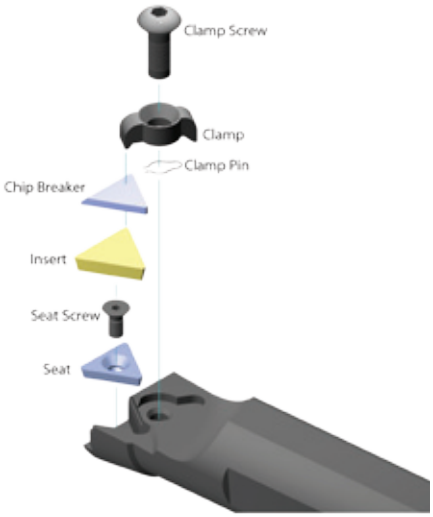
Supplied Standard



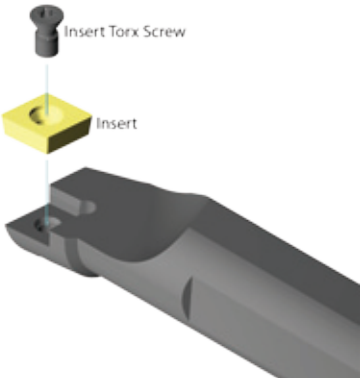
Optional

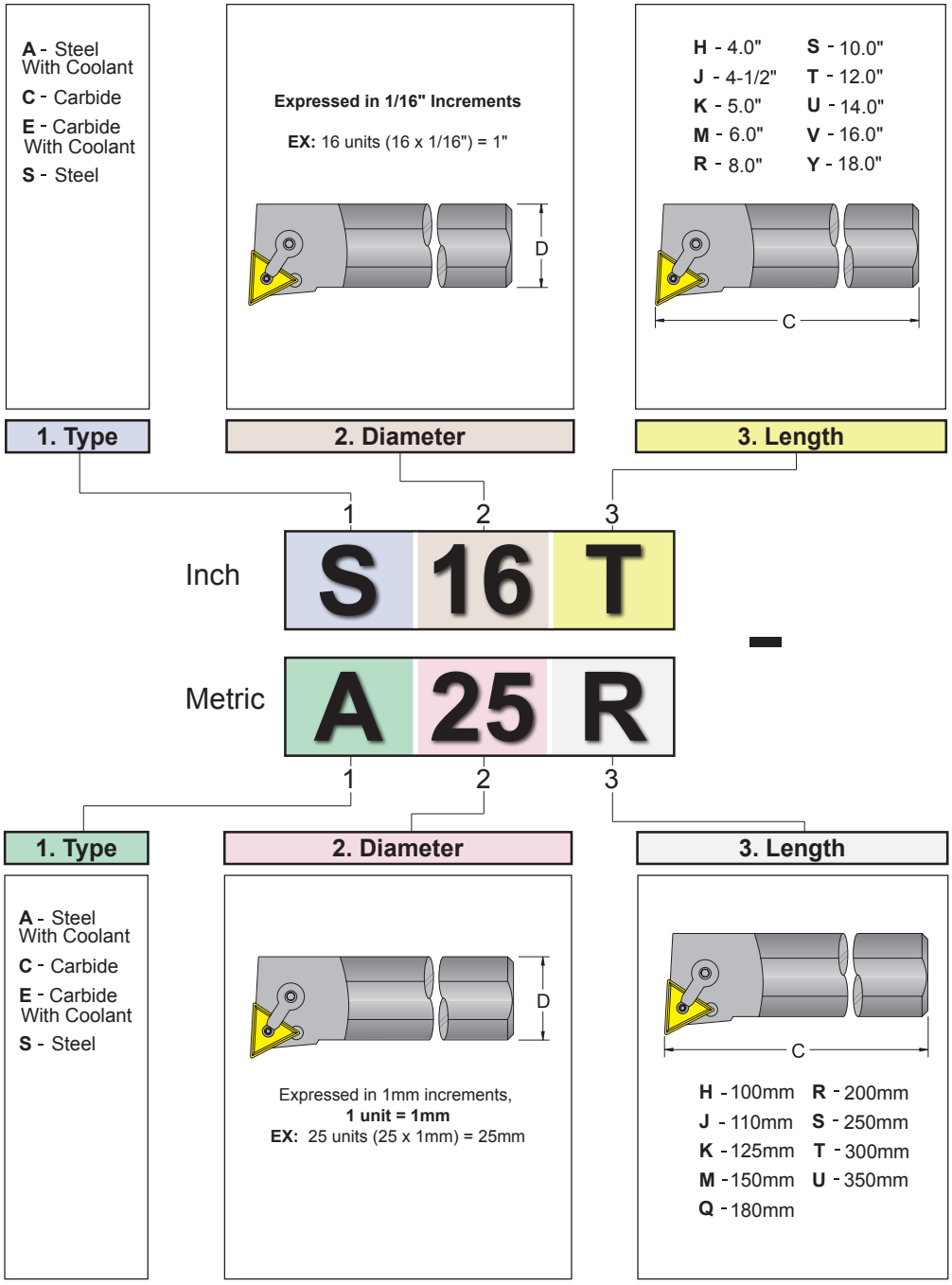


"C" - Clamp Lock Boring Bar System
Spare Parts



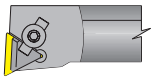
"S" - ISO Screw Lock Boring Bar System
Spare Parts



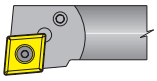

A - Steel With Coolant
C - Carbide
E - Carbide With Coolant
S - Steel
Expressed in 1/16" Increments
EX: 16 units (16 x 1/16") = 1"
D
H - 4.0"
J - 4-1/2"
K - 5.0"
M - 6.0"
R - 8.0"
S - 10.0"
T - 12.0"
U - 14.0"
V - 16.0"
Y - 18.0"
C
1. Type
2. Diameter
3. Length
1
2
3
Inch
S 16 T
Metric
A 25 R
1
2
3
1. Type
2. Diameter
3. Length
A - Steel With Coolant
C - Carbide
E - Carbide With Coolant
S - Steel
D
Expressed in 1mm increments,
1 unit = 1mm
EX: 25 units (25 x 1mm) = 25mm
C
H - 100mm
J - 110mm
K - 125mm
M - 150mm
Q - 180mm
R - 200mm
S - 250mm
T - 300mm
U - 350mm

4. Holding Method

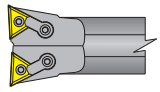
C- Clamp Lock



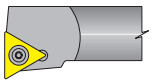
P- Lever Lock



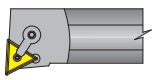
D - Double Insert



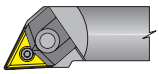
S- Screw Lock



M- Multi Lock



W - Wedge Lock



5. Insert Geometry

C - 80° Diamond

S - Square

D - 55° Diamond

T - Triangle

K - 55° Parallelogram

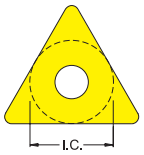
V - 35° Diamond

R - Round

W - 80° Trigon

9. Insert Size I.C.

Insert I.C.
(Inscribed Circle):
Measures surface in 1/8" or 1/32" increments, **1 unit = 1/8"**
EX: 4 units (4 x 1/8") = 1/2"



Note: Old A.N.S.I. standards may apply for I.C.s under 1/4" *(if > 1/4" I.C., 1 unit = 1/32")*

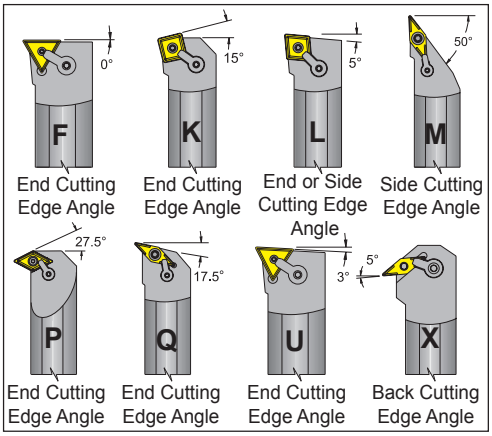
4 5 6 7 8 9 9

M T U N R - 3 16

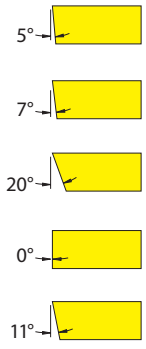
3 Inch

16 Metric

6. Tool Style



7. Insert Clearance Angle



B - Positive

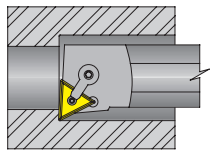
C - Positive

E - Positive

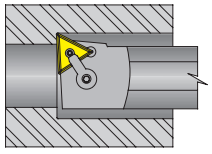
N - Negative

P - Positive

8. Hand of Tool



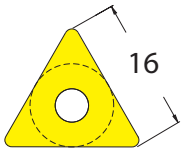
R - Right Hand

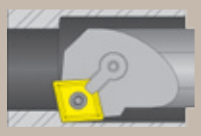


L - Left Hand

9. Insert Size

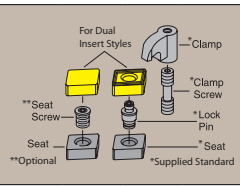
Cutting Edge Length
shown in 1mm increments



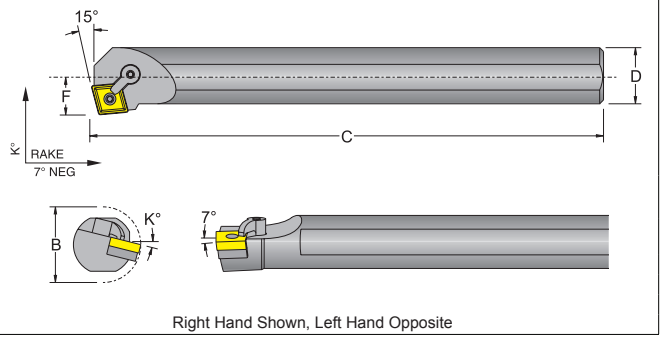


S-MCKN R/L Boring Bar

Style K - Negative 15° End Cutting Edge Angle for negative 80° diamond CNM_ inserts

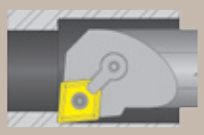


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S20U-MCKNR/L-4	54992	54993	1.470	14.0	1.25	0.765	14°	432	-	NL-44	CL-20	XNS-48	-
S24U-MCKNR/L-4	54994	54995	1.760	14.0	1.50	0.890	12°	432	ICSN-433	NL-46	CL-20	XNS-48	S-46
S32V-MCKNR/L-4	54996	54997	2.400	16.0	2.00	1.281	8°						
S32V-MCKNR/L-5	54998	54999	2.400	16.0	2.00	1.281	10°	543	ICSN-533	NL-58	CL-12	XNS-510	S-58



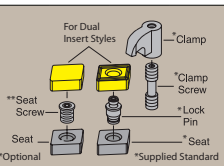
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

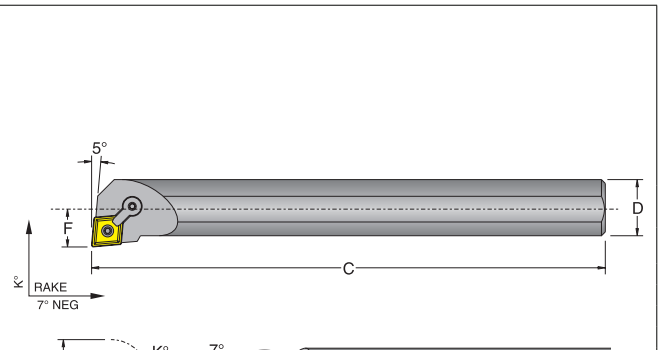


S-MCLN R/L Boring Bar

Style L - Negative 5° Side & End Cutting Edge Angle for negative 80° diamond CNM_ inserts



Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S12S-MCLNR/L-3	55002	55003	1.000	10.0	0.75	0.500	10°	322	-	NL-33	CL-6	XNS-36	-
S16T-MCLNR/L-3	55004	55005	1.280	12.0	1.00	0.640	10°						
S12S-MCLNR/L-4	55006	55007	1.000	10.0	0.75	0.500	14°	432	-	NL-44	CL-7	XNS-36	-
S16T-MCLNR/L-4	55010	55011	1.280	12.0	1.00	0.640	14°	432	-	NL-44	CL-20	XNS-48	
S20U-MCLNR/L-4	55014	55015	1.530	14.0	1.25	0.765	14°	432	ICSN-433	NL-46	CL-20	XNS-48	S-46
S24U-MCLNR/L-4	55018	55019	1.780	14.0	1.50	0.890	11°						
S28U-MCLNR/L-4	55022	55023	2.030	14.0	1.75	1.015	11°						
S32V-MCLNR/L-4	55024	55025	2.562	16.0	2.00	1.281	11°						
S24U-MCLNR/L-5	55026	55027	2.374	14.0	1.50	1.187	11°	543	ICSN-533	NL-58	CL-12	XNS-510	S-58
S32V-MCLNR/L-5	55030	55031	2.562	16.0	2.00	1.281	11°						
S40V-MCLNR/L-5	55034	55035	3.062	16.0	2.50	1.531	11°						
S48Y-MCLNR/L-5	55038	55039	3.562	18.0	3.00	1.781	11°						
S32V-MCLNR/L-6	55042	55043	2.562	16.0	2.00	1.281	11°	643	ICSN-633	NL-68	CL-12	XNS-510	S-68
S36V-MCLNR/L-6	55046	55047*	2.812	16.0	2.25	1.406	11°						
S40V-MCLNR/L-6	55050	55051	3.062	16.0	2.50	1.531	11°						



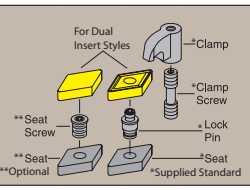
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

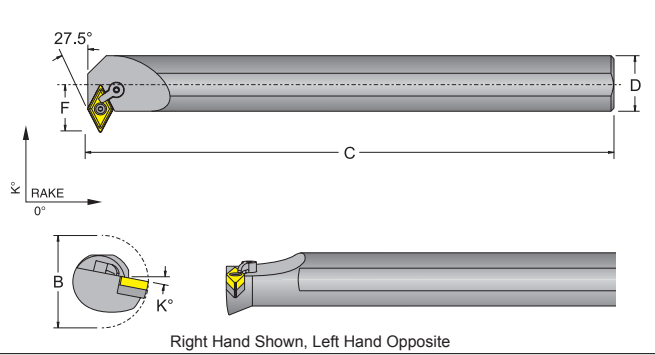
*Non-Stock Items

S-MDPN R/L Boring Bar

Style P - Negative 27.5° End Cutting Edge Angle for negative 55° diamond DNM_ inserts

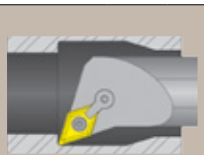


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	DNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S20U-MDPNR/L-4	55053	55054	1.705	14.0	1.25	1.000	13°	432	IDSN-433	NL-46	CL-20	XNS-47	S-46
S24U-MDPNR/L-4	55055	55056	2.000	14.0	1.50	1.125	10°						



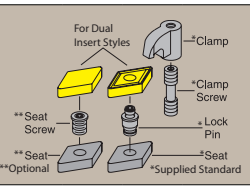
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

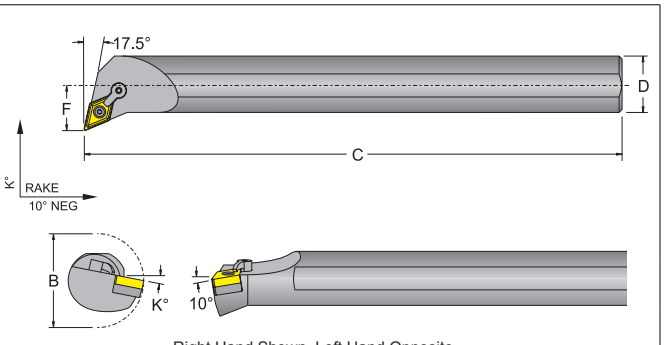


S-MDQN R/L Boring Bar

Style Q - Negative 17.5° End Cutting Edge Angle for negative 55° diamond DNM_ inserts

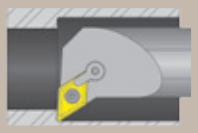


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	DNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S20U-MDQNR/L-4	55057	55058	1.705	14.0	1.25	1.000	12°	432	IDSN-433	NL-46	CL-12	XNS-59	S-46
S24U-MDQNR/L-4	55059	55060	2.000	14.0	1.50	1.125	8.5°						



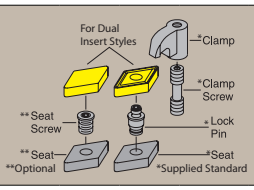
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

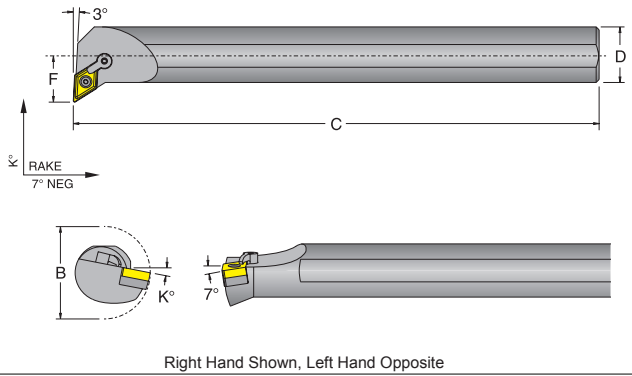


S-MDUN
R/L Boring Bar

Style U - Negative 3°
End Cutting Edge Angle
for negative 55°
diamond DNM_ inserts

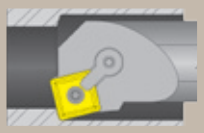


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	DNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S16T-MDUNR/L-3	55066	55067	1.300	12.0	1.00	0.750	11°	332	-	NL-33	CL-7	XNS-36	-
S20U-MDUNR/L-4	55070	55071	2.00	14.0	1.25	1.000	11°	432	IDSN-433	NL-46	CL-12	XNS-59	S-46
S24U-MDUNR/L-4	55074	55075	2.25	14.0	1.50	1.125	11°						
S28U-MDUNR/L-4	55078	55079	2.50	14.0	1.75	1.250	11°						
S32V-MDUNR/L-4	55082	55083	3.00	16.0	2.00	1.375	11°						
S28U-MDUNR/L-5	55086*	55087	2.75	14.0	1.75	1.375	11°	543	IDSN-533	NL-58	CL-30	XNS-510	S-58
S32V-MDUNR/L-5	55090	55091	3.00	16.0	2.00	1.500	11°						
S36V-MDUNR/L-5	55094	55095	3.25	16.0	2.25	1.625	11°						
S40V-MDUNR/L-5	55098	55099	3.50	16.0	2.50	1.750	11°						



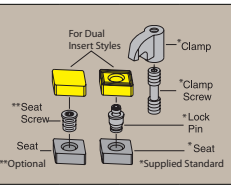
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

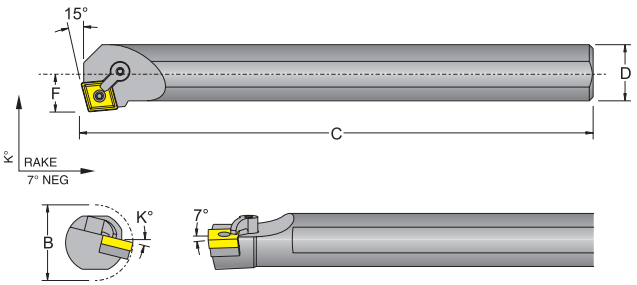


S-MSKN
R/L Boring Bar

Style K - 15° End
Cutting Edge Angle
for negative
square SNM_ inserts

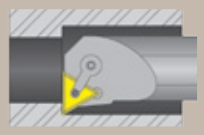


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	SNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S20U-MSKNR/L-4	55100	55101	1.47	14.0	1.25	0.765	14°	432	-	NL-44	CL-20	XNS-47	-
S24U-MSKNR/L-4	55102	55103	1.76	14.0	1.50	0.890	10°	432	ISSN-433	NL-46	CL-20	XNS-47	S-46
S28U-MSKNR/L-4	55104	55105*	2.01	14.0	1.75	1.015	10°						
S32V-MSKNR/L-6	55106	55107	2.40	16.0	2.00	1.281	12°	643	ISSN-633	NL-68	CL-12	XNS-510	S-68
S40V-MSKNR/L-6	55108	55109	3.03	16.0	2.50	1.531	10°						



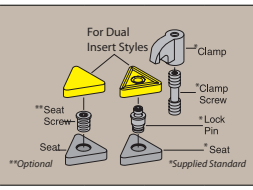
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

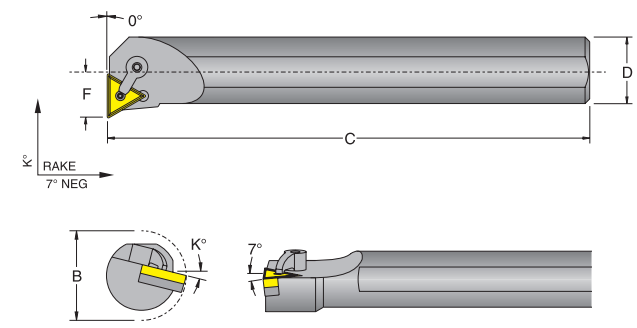


S-MTFN
R/L Boring Bar

Style F - 0° End
Cutting Edge Angle
for negative
triangle TNM_ inserts

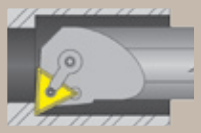


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S12S-MTFNR/L-3	55150	55151	1.000	10.0	0.75	0.500	14°	322	-	NL-33	CL-7	XNS-36	-
S16T-MTFNR/L-3	55154	55155	1.280	12.0	1.00	0.640	14°						
S20U-MTFNR/L-3	55158	55159	1.530	14.0	1.25	0.765	14°	322	ITSN-333	NL-34L	CL-7	XNS-36	S-34
S24U-MTFNR/L-3	55162	55163	1.780	14.0	1.50	0.890	11°	332	ITSN-322	NL-34L	CL-7	XNS-36	S-34
S28U-MTFNR/L-3	55166	55167	2.030	14.0	1.75	1.015	11°						
S20U-MTFNR/L-4	55170	55171	1.530	14.0	1.25	0.765	14°						
S24U-MTFNR/L-4	55174	55175	2.060	14.0	1.50	0.890	11°						
S28U-MTFNR/L-4	55178	55179	2.312	14.0	1.75	1.156	11°						
S32V-MTFNR/L-4	55182	55183	2.562	16.0	2.00	1.281	11°	432	ITSN-433	NL-46	CL-9	XNS-59	S-46
S36V-MTFNR/L-4	55186	55187*	2.812	16.0	2.25	1.406	11°						
S40V-MTFNR/L-4	55190	55191	3.062	16.0	2.50	1.531	11°						
S48Y-MTFNR/L-4	55194	55195	3.562	18.0	3.00	1.781	11°						



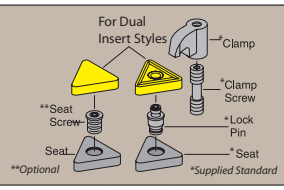
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

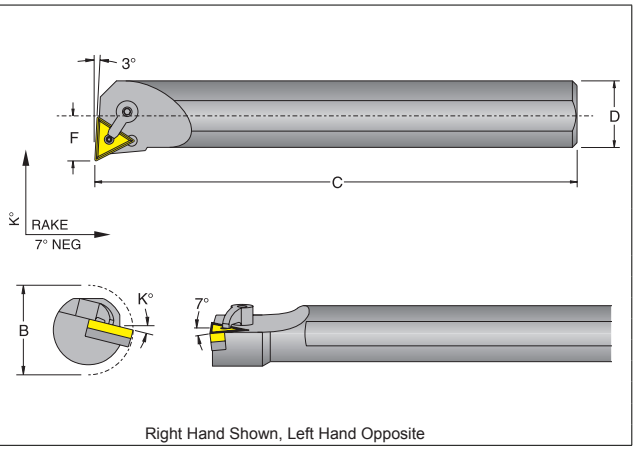


S-MTUN
R/L Boring Bar

Style U - Negative
3° End Cutting Edge
Angle for negative
triangle TNM_ inserts

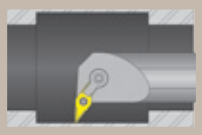


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S12S-MTUNR/L-3	55204	55205	1.000	10.0	0.75	0.500	14°	322	-	NL-33	CL-6	XNS-36	-
S16T-MTUNR/L-3	55208	55209	1.280	12.0	1.00	0.640	14°	322	ITSN-333	NL-34L	CL-7	XNS-36	S-34
S20U-MTUNR/L-3	55212	55213	1.530	14.0	1.25	0.765	14°	332	ITSN-322	NL-34L	CL-7	XNS-36	
S24U-MTUNR/L-3	55216	55217	2.060	14.0	1.50	0.890	11°						
S20U-MTUNR/L-4	55220	55221	1.530	14.0	1.25	0.765	14°						
S24U-MTUNR/L-4	55224	55225	2.060	14.0	1.50	0.890	11°						
S32V-MTUNR/L-4	55228	55229	2.562	16.0	2.00	1.281	11°	432	ICSN-433	NL-46	CL-9	XNS-59	S-46
S40V-MTUNR/L-4	55232	55233*	3.062	16.0	2.50	1.531	11°						
S48Y-MTUNR/L-4	55236*	55237*	3.562	18.0	3.00	1.781	11°						



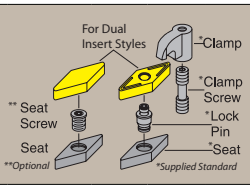
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

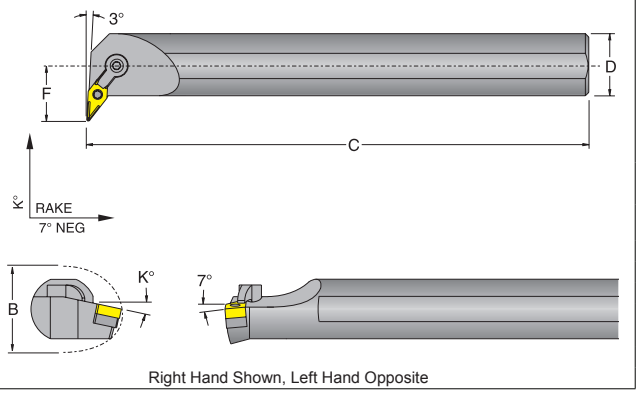


S-MVUN
R/L Boring Bar

Style U - Negative 3°
Side Cutting Edge
Angle for negative 35°
diamond VNM_ inserts

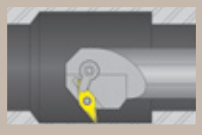


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	VNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S16T-MVUNR/L-3	55266	55267	2.00	12.0	1.00	1.000	14°	332	IVSN-322	NL-34L	CL-30	XNS-59	S-34
S20U-MVUNR/L-3	55270	55271	2.25	14.0	1.25	1.125	14°						
S24U-MVUNR/L-3	55274	55275	2.50	14.0	1.50	1.250	11°	332	XNS-510	NL-34L	CL-30	XNS-59	S-34
S28U-MVUNR/L-4	55278	55279	3.00	14.0	1.75	1.500	11°						
S32V-MVUNR/L-4	55282	55283	3.25	16.0	2.00	1.625	11°	432	IVSN-433	NL-46	CL-30	XNS-510	S-46
S36V-MVUNR/L-4	55286*	55287*	3.50	16.0	2.25	1.750	11°						
S40V-MVUNR/L-4	55290	55291	3.75	16.0	2.50	1.875	11°						



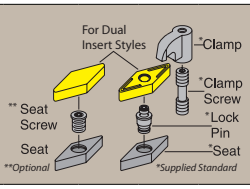
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

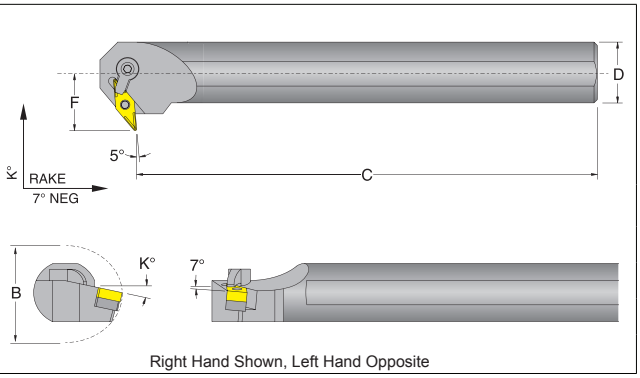


S-MVXN
R/L Boring Bar

Style X - Negative 5°
Back Boring Cutting
Edge Angle for negative
35° diamond VNM_ inserts

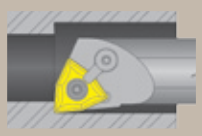


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	VNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S24U-MVXNR/L-3	55300	55301*	2.25	14.0	1.50	1.125	11°	332	IVSN-322	NL-34L	CL-20	XNS-48	S-34
S28U-MVXNR/L-3	55304	55305	2.50	14.0	1.75	1.250	11°						
S32V-MVXNR/L-4	55308	55309*	3.00	16.0	2.00	1.500	11°	432	IVSN-433	NL-46	CL-12	XNS-510	S-46



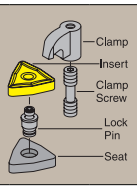
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

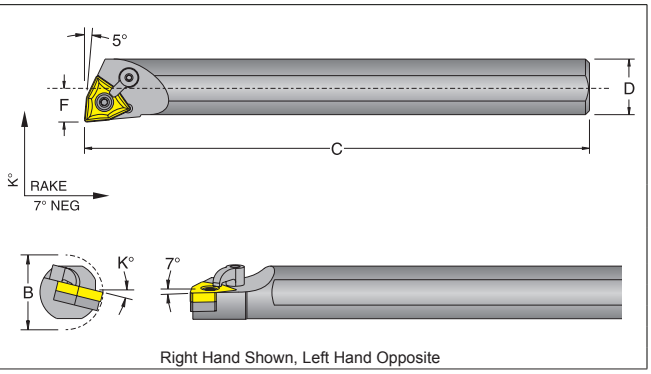


S-MWLN
R/L Boring Bar

Style L - Negative 5°
End & Side Cutting Edge
Angle for negative trigon
WNM_ inserts

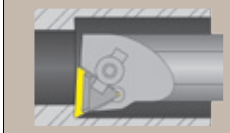


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	K°	WNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw
S12S-MWLNR/L-3	55318	55319	1.00	10.0	0.75	0.500	14°	332	-	NL-33L	HC-7	SHC-7
S16T-MWLNR/L-3	55320	55321	1.28	12.0	1.00	0.640	14°	332	-	NL-33L	CL-7	XNS-36
S16T-MWLNR/L-4	55322	55323	1.28	12.0	1.00	0.640	14°	432	-	NL-44	CL-20	XNS-47
S20U-MWLNR/L-4	55326	55327	1.53	14.0	1.25	0.765	14°	432	IWSN-433	NL-46	CL-20	XNS-47
S24U-MWLNR/L-4	55330	55331	1.78	14.0	1.50	0.890	11°					



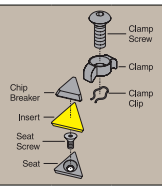
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

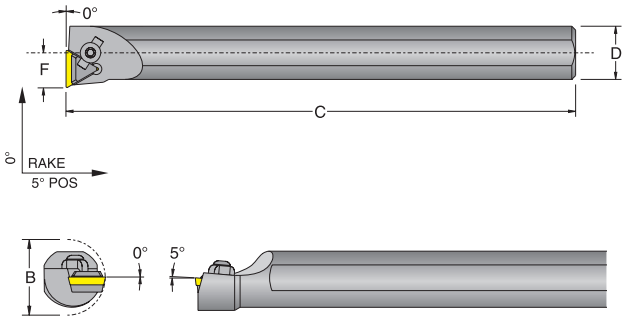


S-CTFP
R/L Boring Bar

Style F - 0° End
Cutting Edge Angle
for 11° positive triangle
TPG inserts



Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	F	TPG Gage Insert	Seat	Seat Screw	Clamp	Clamp Clip	Clamp Screw	Optional Chip Breaker
S08R-CTFPR/L-2	55356	55357	0.600	8.0	0.500	0.312	221	-	-	HC-7	-	SHC-7	-
S10S-CTFPR/L-2	55358	55359	0.770	10.0	0.625	0.406							
S12S-CTFPR/L-3	55360	55361	1.125	10.0	0.750	0.500	322	-	-	HC-12	CLP-12	CS-126	T3AE
S16T-CTFPR/L-3	55364	55365	1.280	12.0	1.000	0.640	322	SM-41	TS-4	HC-12	CLP-12	CS-126	T3AE
S20U-CTFPR/L-3	55368	55369	1.530	14.0	1.250	0.765							
S24U-CTFPR/L-3	55372	55373	1.840	14.0	1.500	0.890							
S28U-CTFPR/L-3	55376	55377	2.100	14.0	1.750	1.015							
S20U-CTFPR/L-4	55380	55381	1.530	14.0	1.250	0.765	432	SM-37	TS-6	HC-12	CLP-12	CS-126	T4AE
S24U-CTFPR/L-4	55384	55385	2.060	14.0	1.500	0.890							
S28U-CTFPR/L-4	55388	55389	2.380	14.0	1.750	1.156							
S32V-CTFPR/L-4	55392	55393	2.562	16.0	2.000	1.281							
S36V-CTFPR/L-4	55396	55397	2.880	16.0	2.250	1.406							
S40V-CTFPR/L-4	55400	55401	3.062	16.0	2.500	1.531							
S48Y-CTFPR/L-4	55404	55405	3.562	18.0	3.000	1.781							

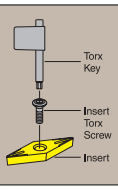


Right Hand Shown, Left Hand Opposite

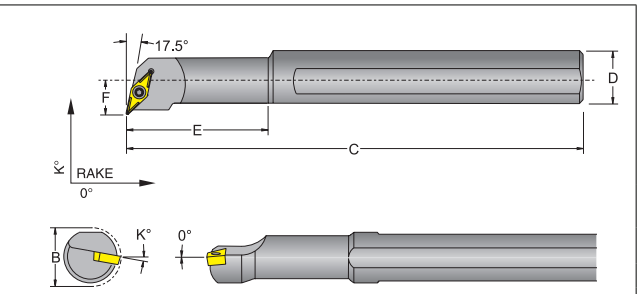
For inserts see pages 56-87. For spare parts see pages 158-159.

S-SVQB
R/L Boring Bar

Style Q - Negative 5°
End Cutting Edge Angle
for 5° positive 35°
diamond VB_T inserts



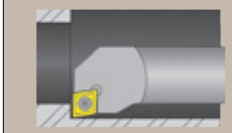
Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	VB_T Gage Insert	Insert Torx Screw	Torx Key
S10S-SVQBR/L-2	55410	55411	0.85	10.0	0.625	1.000	0.500	6°	221	TS-25.45-6M2	T-8
S12S-SVQBR/L-2	55412	55413	0.98	10.0	0.750	1.250	0.562	5°			
S16T-SVQBR/L-3	55414	55415*	1.30	12.0	1.000	1.500	0.750	5°	332	TS-4.7-10M1	T-15



Right Hand Shown, Left Hand Opposite

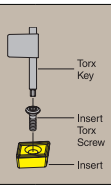
For inserts see pages 56-87. For spare parts see pages 158-159.

*Non-Stock Item

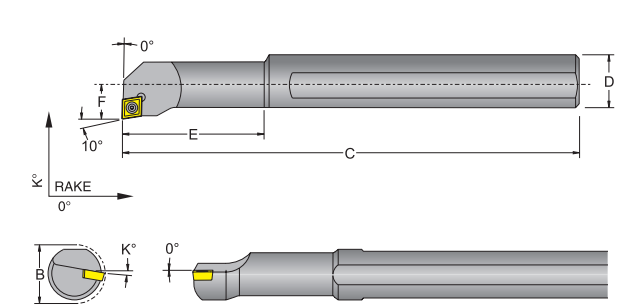


S-SCFC
R/L Boring Bar

Style F - 7° End
Cutting Edge Angle
for 7° positive 80°
diamond CC_T inserts



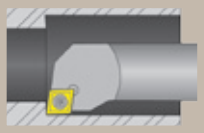
Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	CC_T Gage Insert	Insert Torx Screw	Torx Key
S06M-SCFCR/L-2	55416*	55417	0.48	6.0	0.375	0.625	.250	8°	21.51	TS-25.45-6M2	T-8
S08R-SCFCR/L-2	55418	55419*	0.60	8.0	0.500	0.750	.312	7°			
S10S-SCFCR/L-2	55420	55421*	0.77	10.0	0.625	1.250	.406	5°			
S12S-SCFCR/L-3	55422	55423	0.93	10.0	0.750	1.875	.500	8°	32.52	TS-4.7-8M1	T-15
S16T-SCFCR/L-3	55424	55425*	1.20	12.0	1.000	1.875	.640	4°			



Right Hand Shown, Left Hand Opposite

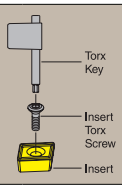
For inserts see pages 56-87. For spare parts see pages 158-159.

*Non-Stock Items

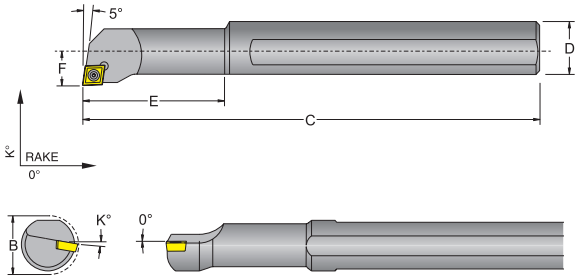


S-SCLC
R/L Boring Bar

Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC_T inserts

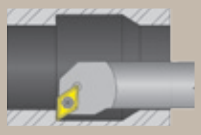


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	CC_T Gage Insert	Insert Torx Screw	Torx Key
S06M-SCLCR/L-2	55470	55471	0.477	6.00	0.375	0.625	.250	15°			
S08M-SCLCR/L-2	55474	55475	0.602	6.00	0.500	0.750	.312	13°	21.51	TS-25.45-6M2	T-8
S10R-SCLCR/L-2	55478	55479	0.812	8.00	0.625	1.250	.406	10°			
S08M-SCLCR/L-3	55482	55483	0.625	6.00	0.500	1.250	.312	13°	32.52	TS-4.7-8M1	T-15
S10R-SCLCR/L-3	55486	55487	0.797	8.00	0.625	1.250	.406	10°			
S12S-SCLCR/L-3	55490	55491	0.954	10.0	0.750	1.875	.500	8°	32.52	TS-4.7-10M1	T-15
S16T-SCLCR/L-3	55494	55495	1.250	12.0	1.000	2.500	.625	7°			
S16T-SCLCR/L-4	55498	55499	1.280	12.0	1.000	2.500	.640	7°			
S20U-SCLCR/L-4	55502	55503	1.530	14.0	1.250	2.500	.765	5°	432	TS-5.8-10M1	T-20
S24U-SCLCR/L-4	55506	55507	1.780	14.0	1.500	2.500	.890	5°			



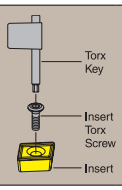
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

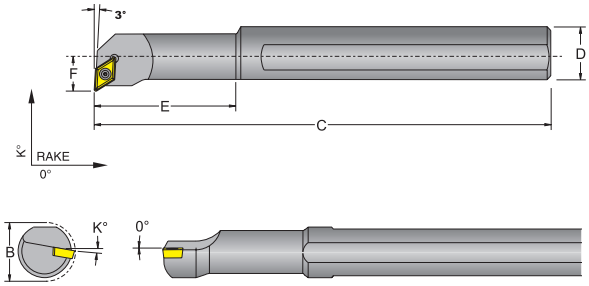


S-SDUC
R/L Boring Bar

Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC_T inserts

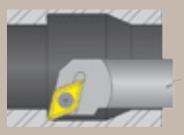


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	DC_T Gage Insert	Insert Torx Screw	Torx Key
S06M-SDUCR/L-2	55560	55561	0.625	6.00	0.375	0.625	.375	11°			
S08M-SDUCR/L-2	55564	55565	0.780	6.00	0.500	0.750	.437	11°	21.51	TS-25.45-6M2	T-8
S10R-SDUCR/L-2	55568	55569	0.840	8.00	0.625	1.250	.500	5°			
S12S-SDUCR/L-3	55572	55573	1.125	10.0	0.750	1.275	.562	6°			
S16T-SDUCR/L-3	55576	55577	1.500	12.0	1.000	2.500	.750	4°	32.52	TS-4.7-10M1	T-15
S20U-SDUCR/L-3	55580	55581	1.750	14.0	1.125	2.500	.875	4°			
S16T-SDUCR/L-4	55582	55583	1.500	12.0	1.000	2.500	.750	5°	432	TS-5.8-10M1	T-20



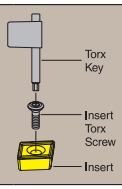
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

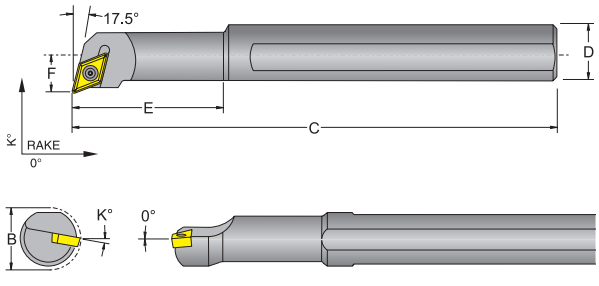


S-SDQC
R/L Boring Bar

Style Q - Negative 17.5° End Cutting Edge Angle for 7° positive 55° diamond DC_T inserts



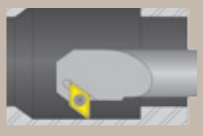
Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	DC_T Gage Insert	Insert Torx Screw	Torx Key
S08M-SDQCR/L-2	55585	55586*	0.73	6.0	0.500	0.875	0.437	10°	21.51	TS-25.45-6M2	T-8
S10R-SDQCR/L-2	55587	55588	0.85	8.0	0.625	1.000	0.500	7°			
S12S-SDQCR/L-3	55589	55590*	0.98	10.0	0.750	1.250	0.562	7°	32.52	TS-4.7-10M1	T-15



Right Hand Shown, Left Hand Opposite

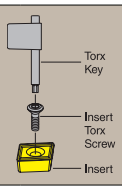
For inserts see pages 56-87. For spare parts see pages 158-159.

*Non-Stock Item

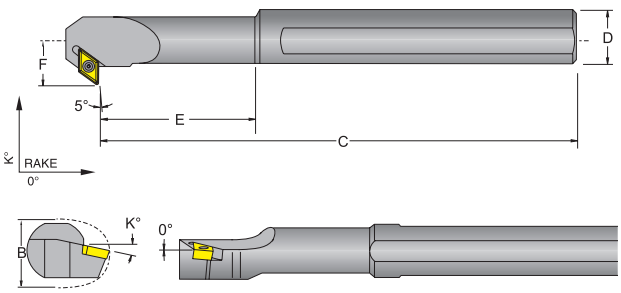


S-SDXC
R/L Boring Bar

Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC_T inserts

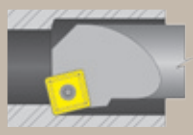


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	DC_T Gage Insert	Insert Torx Screw	Torx Key
S08R-SDXCR/L-2	55426	55427	0.73	8.0	0.500	0.875	0.437	6°	21.51	TS-25.45-6M2	T-8
S10S-SDXCR/L-2	55428	55429	0.85	10.0	0.625	1.000	0.500	5°			
S12S-SDXCR/L-3	55430	55431	0.98	10.0	0.750	1.250	0.562	5°	32.52	TS-4.7-10M1	T-15
S16T-SDXCR/L-3	55432	55433	1.30	12.0	1.000	1.500	0.750	3°			



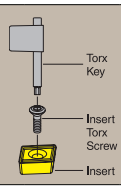
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

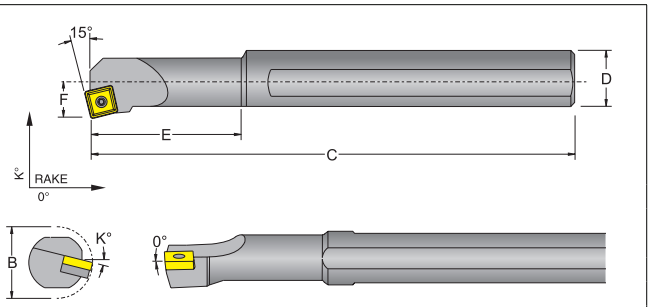


S-SSKC
R/L Boring Bar

Style K -15° End Cutting
Edge Angle for 7° positive
square SC_T inserts

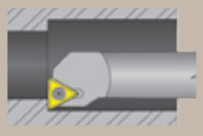


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	SC_T Gage Insert	Insert Torx Screw	Torx Key
S10R-SSKCR/L-3	55593	55594	0.800	8.0	0.625	1.250	.406	10°	32.52	TS-4.7-10M1	T-15
S12S-SSKCR/L-3	55595	55596	0.975	10.0	0.750	1.875	.500	8°			
S16T-SSKCR/L-4	55597*	55598*	1.220	12.0	1.000	2.500	.640	7°	432	TS-5.8-10M1	T-20



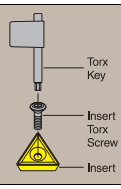
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

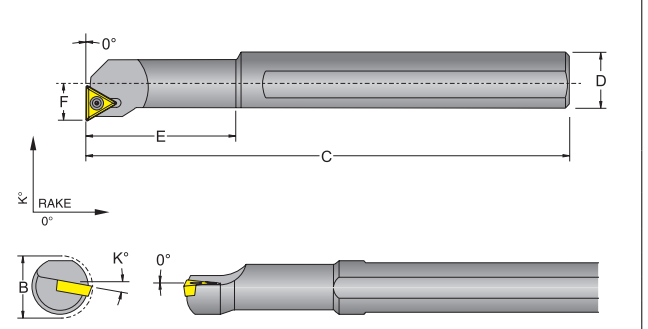


S-STFC
R/L Boring Bar

Style F - 0° End Cutting
Edge Angle for 7° positive
triangle TC_T inserts

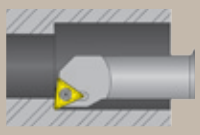


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	TC_T Gage Insert	Insert Torx Screw	Torx Key
S06M-STFCR/L-2	55600	55601	0.500	6.00	0.375	0.625	.250	11°	21.51	TS-25.45-6M2	T-8
S08M-STFCR/L-2	55604	55605	0.625	6.00	0.500	0.750	.312	9°			
S10R-STFCR/L-2	55608	55609	0.812	8.00	0.625	1.250	.406	7°			
S12S-STFCR/L-2	55612	55613	1.000	10.0	0.750	1.875	.500	6°			
S16T-STFCR/L-3	55616	55617	1.280	12.0	1.000	2.500	.640	6°	32.52	TS-4.7-10M1	T-15
S20U-STFCR/L-3	55620	55621	1.530	14.0	1.250	2.500	.765	5°			
S24U-STFCR/L-3	55624*	55625	1.780	14.0	1.500	2.500	.890	4°			



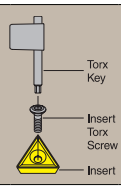
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

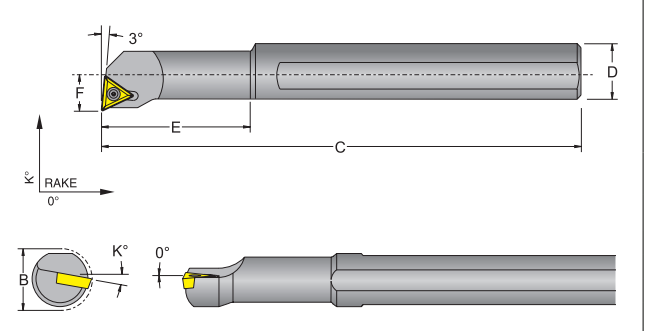


S-STUC
R Boring Bar

Style U - Negative 3° End
Cutting Edge Angle for
7° positive triangle
TC_T inserts

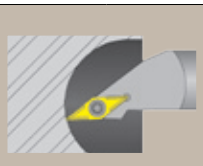


Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	E	F	K°	TC_T Gage Insert	Insert Torx Screw	Torx Key
S06M-STUCR-2	55628	0.477	6.00	0.375	0.625	.250	15°	21.51	TS-25.45-6M2	T-8
S08M-STUCR-2	55629	0.602	6.00	0.500	0.750	.312	13°			
S10R-STUCR-2	55630	0.797	8.00	0.625	1.250	.406	10°			
S12S-STUCR-3	55631	0.954	10.0	0.750	1.875	.500	8°	32.52	TS-4.7-10M1	T-15
S16T-STUCR-3	55632	1.280	12.0	1.000	2.500	.640	7°			
S20T-STUCR-4	55633	1.370	12.0	1.250	2.500	.682	7°	432	TS-5.8-10M1	T-20
S24T-STUCR-4	55634	1.680	12.0	1.500	2.500	.840	5°			



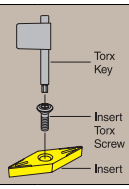
Right Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

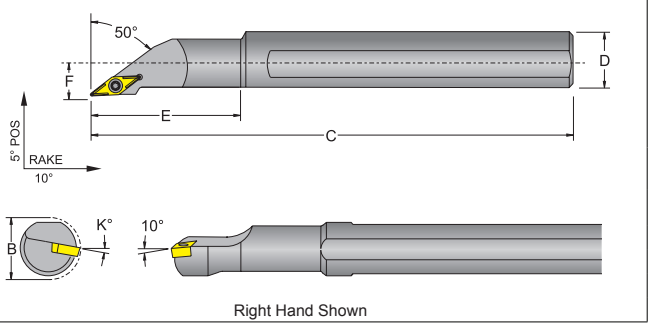


S-SVMC
R Boring Bar

Style M - Negative 5° Side
Cutting Edge Angle for
7° positive 35° diamond
VC_T inserts



Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	E	F	K°	VC_T Gage Insert	Insert Torx Screw	Torx Key
S08R-SVMCR-2	55730	0.580	8.00	0.500	1.250	0.312	5°	221	TS-25.45-6M2	T-8
S10S-SVMCR-2	55731	0.980	10.0	0.625	1.500	0.406	5°			
S12S-SVMCR-3	55732	1.000	10.0	0.750	1.250	0.500	5°	332	TS-4.7-10M1	T-15
S16T-SVMCR-3	55733	1.300	12.0	1.000	2.000	0.640	5°			

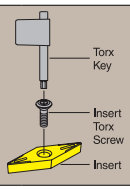


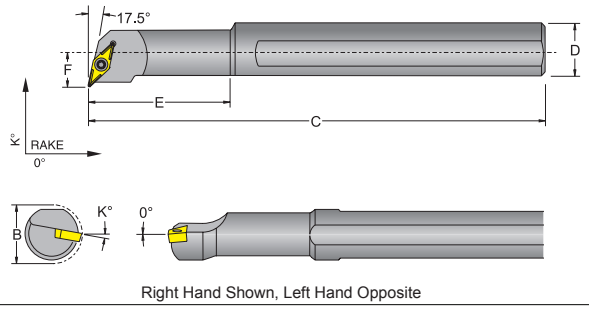
Right Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

S-SVQC
R/L Boring Bar

Style Q - Negative 17.5°
End Cutting Edge Angle
for 7° positive 35° diamond
VC_T inserts

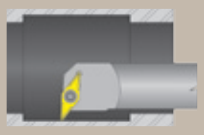




Right Hand Shown, Left Hand Opposite

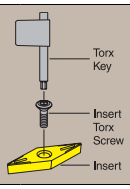
Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	VC_T Gage Insert	Insert Torx Screw	Torx Key
S10R-SVQCR/L-2	55814	55815*	0.85	8.0	0.625	1.000	0.500	8°	221	TS-25.45-6M2	T-8
S12S-SVQCR/L-2	55816	55817*	0.98	10.0	0.750	1.250	0.562	7°			
S16T-SVQCR/L-3	55818	55819	1.30	12.0	1.000	1.500	0.750	6°	332	TS-4.7-10M1	T-15

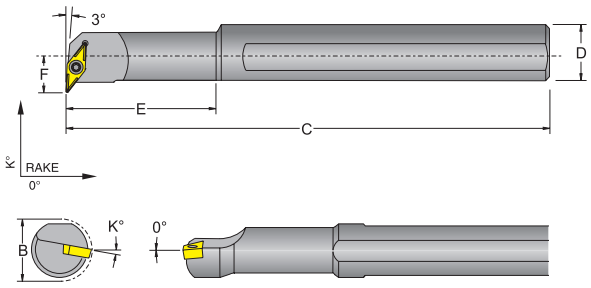
For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items



S-SVUC
R/L Boring Bar

Style U - Negative 3°
End Cutting Edge Angle
for 7° positive 35° diamond
VC_T inserts

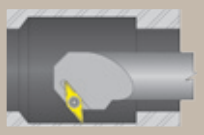




Right Hand Shown, Left Hand Opposite

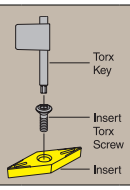
Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	VC_T Gage Insert	Insert Torx Screw	Torx Key
S12S-SVUCR/L-2	55800	55801	1.125	10.0	0.75	1.250	0.625	6°	221	TS-25.45-6M2	T-8
S16T-SVUCR/L-2	55804	55805*	1.300	12.0	1.00	1.500	0.750	6°			
S16T-SVUCR/L-3	55808	55809	1.625	12.0	1.00	1.500	0.750	6°	332	TS-4.7-10M1	T-15
S20U-SVUCR/L-3	55812	55813	1.625	14.0	1.25	2.000	1.000	6°			

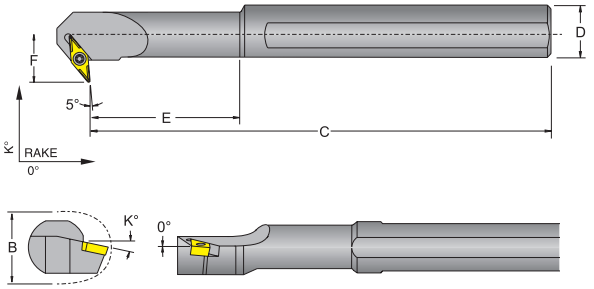
For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item



S-SVXC
R/L Boring Bar

Style X - Negative 5° Back
Boring Cutting Edge Angle
for 7° positive 35° diamond
VC_T inserts

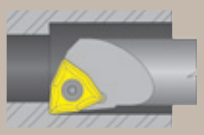




Right Hand Shown, Left Hand Opposite

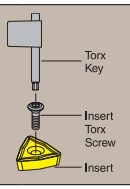
Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	VC_T Gage Insert	Insert Torx Screw	Torx Key
S12S-SVXCR/L-2	55822	55823*	1.125	10.0	0.75	1.250	0.625	6°	221	TS-25.45-6M2	T-8
S16T-SVXCR/L-2	55826	55827*	1.500	12.0	1.00	1.500	0.750	6°			
S16T-SVXCR/L-3	55830	55831	2.000	12.0	1.00	1.500	0.750	6°	332	TS-4.7-10M1	T-15
S20U-SVXCR/L-3	55834	55835	2.250	14.0	1.25	1.500	1.000	6°			

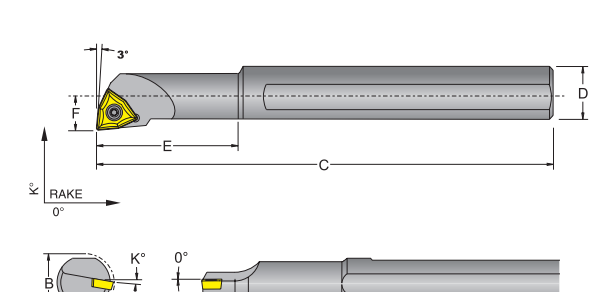
For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items



S-SWUC
R/L Boring Bar

Style U - Negative 3°
End Cutting Edge Angle
for 7° positive 80° trigon
WC_T inserts

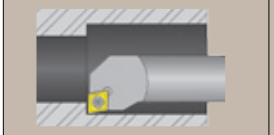




Right Hand Shown, Left Hand Opposite

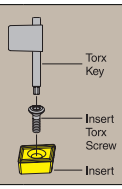
Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	WC_T Gage Insert	Insert Torx Screw	Torx Key
S06M-SWUCR/L-2	55912	55913	0.500	6.00	0.375	0.625	.250	11°	21.51	TS-25.45-6M2	T-8
S08M-SWUCR/L-2	55916	55917	0.625	6.00	0.500	0.750	.312	9°			
S10R-SWUCR/L-2	55920	55921	0.812	8.00	0.625	1.250	.406	7°			
S08M-SWUCR/L-3	55924	55925	0.625	6.00	0.500	1.250	.312	11°	32.52	TS-4.7-8M1	T-15
S10R-SWUCR/L-3	55928	55929	0.812	8.00	0.625	1.250	.406	7°			
S12S-SWUCR/L-3	55932	55933	1.000	10.0	0.750	1.875	.500	10°	32.52	TS-4.7-10M1	T-15
S16T-SWUCR/L-3	55936	55937*	1.250	12.0	1.000	2.500	.625	5°			
S16T-SWUCR/L-4	55940	55941	1.280	12.0	1.000	2.500	.640	5°	432	TS-5.8-10M1	T-20
S20U-SWUCR/L-4	55944	55945*	1.530	14.0	1.250	2.500	.765	5°			
S24U-SWUCR/L-4	55948	55949*	1.780	14.0	1.500	2.500	.890	5°			

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

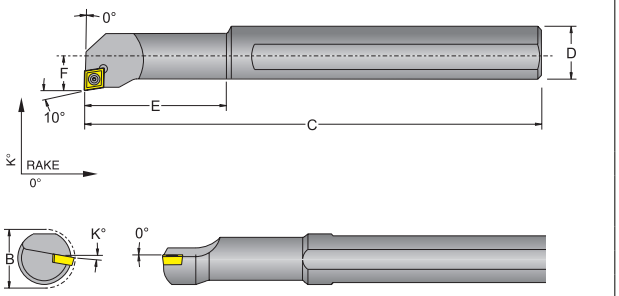


S-SCFP
R/L Boring Bar

Style F - 0° End
Cutting Edge Angle for
11° positive 80° diamond
CP_T inserts

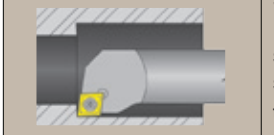


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	CP_T Gage Insert	Insert Torx Screw	Torx Key
S06M-SCFPR/L-2	55751	55752*	0.48	6.0	0.375	0.625	.250	4°	21.51	TS-25.45-6M2	T-8
S08R-SCFPR/L-2	55753	55754*	0.60	8.0	0.500	0.750	.312	2°			
S10S-SCFPR/L-2	55755	55756*	0.77	10.0	0.625	1.250	.406	0°			
S12S-SCFPR/L-3	55757*	55758*	0.93	10.0	0.750	1.875	.500	2°	32.52	TS-4.7-8M1	T-15
S16T-SCFPR/L-3	55759*	55760*	1.20	12.0	1.000	2.500	.640	0°			



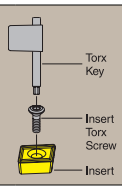
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

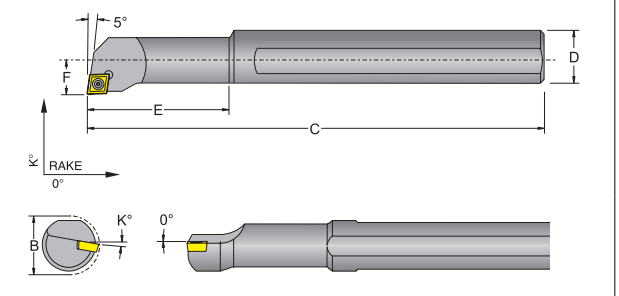


S-SCLP
R/L Boring Bar

Style L - Negative 5° End &
Side Cutting Edge Angle
for 11° positive 80°
diamond CP_T inserts

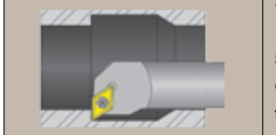


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	CP_T Gage Insert	Insert Torx Screw	Torx Key
S06M-SCLPR/L-2	55761	55762*	0.48	6.0	0.375	0.625	0.250	6°	21.51	TS-25.45-6M2	T-8
S08R-SCLPR/L-2	55763	55764	0.60	8.0	0.500	0.750	0.312	3°			
S10S-SCLPR/L-2	55765	55766	0.77	10.0	0.625	1.250	0.406	2°			
S10S-SCLPR/L-3	55767	55768	0.77	10.0	0.625	1.250	0.406	2°	32.52	TS-4.7-8M1	T-15
S12S-SCLPR/L-3	55769	55770	0.93	10.0	0.750	1.250	0.500	2°			
S16T-SCLPR/L-3	55771	55772	1.20	12.0	1.000	1.875	0.640	0°			



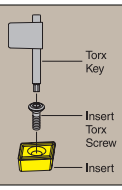
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items

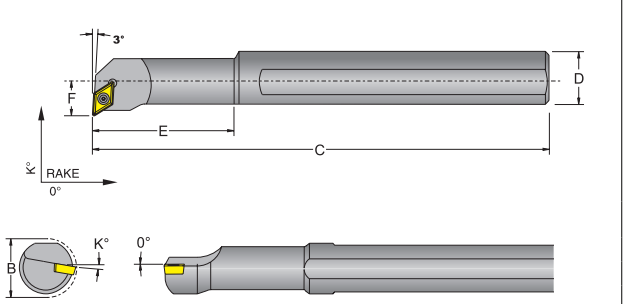


S-SDUP
R/L Boring Bar

Style U - Negative 3° End
Cutting Edge Angle
for 11° positive 55°
diamond DP_T inserts

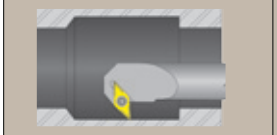


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	DP_T Gage Insert	Insert Torx Screw	Torx Key
S06M-SDUPR/L-2	55774	55775	0.60	6.0	0.375	0.625	0.375	3°	21.51	TS-25.45-6M2	T-8
S08R-SDUPR/L-2	55776	55777	0.73	8.0	0.500	0.500	0.437	2°			
S10S-SDUPR/L-2	55778*	55779	0.85	10.0	0.625	1.250	0.500	0°			
S12S-SDUPR/L-3	55780	55781	0.98	10.0	0.750	1.875	0.562	2°	32.52	TS-4.7-10M1	T-15
S16T-SDUPR/L-3	55782	55783	1.30	12.0	1.000	2.500	0.750	0°			



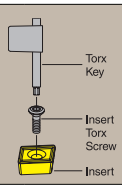
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non Stock Items

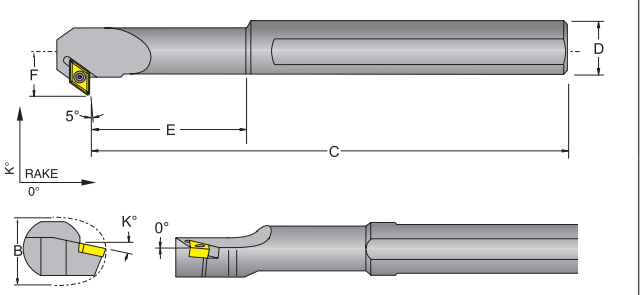


S-SDXP
R/L Boring Bar

Style X - Negative 5° Back
Boring Cutting Edge Angle
for 11° positive 55°
diamond DP_T inserts

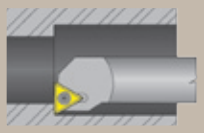


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	DP_T Gage Insert	Insert Torx Screw	Torx Key
S08R-SDXPR/L-2	55784	55785*	0.73	8.0	0.500	0.875	0.437	0°	21.51	TS-25.45-6M2	T-8
S10S-SDXPR/L-2	55786	55787*	0.85	10.0	0.625	1.000	0.500	0°			
S12S-SDXPR/L-3	55788*	55789*	0.98	10.0	0.750	1.250	0.562	2°	32.52	TS-4.7-10M1	T-15
S16T-SDXPR/L-3	55790	55791	1.30	12.0	1.000	1.500	0.750	0°			



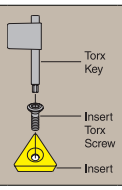
Right Hand Shown, Left Hand Opposite

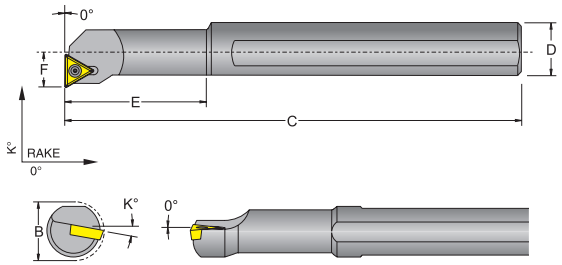
For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Items



S-STFP
R/L Boring Bar

Style F - 0° End
Cutting Edge Angle
for 11° positive triangle
TPGB and TPGH inserts

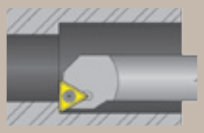




Right Hand Shown, Left Hand Opposite

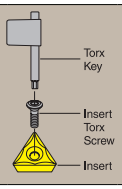
Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	TPG_ Gage Insert	Insert Torx Screw	Torx Key
S06M-STFPR/L-2	55636	55637	0.470	6.00	0.375	0.625	.250	4°			
S08M-STFPR/L-2	55640	55641	0.600	6.00	0.500	0.750	.312	2°	21.51	TS-25.45-6M2	T-8
S10R-STFPR/L-2	55644	55645	0.770	8.00	0.625	1.250	.406	0°			
S12S-STFPR/L-3	55648	55649*	0.930	10.0	0.750	1.875	.500	2°	322	TS-44-3M	T-10

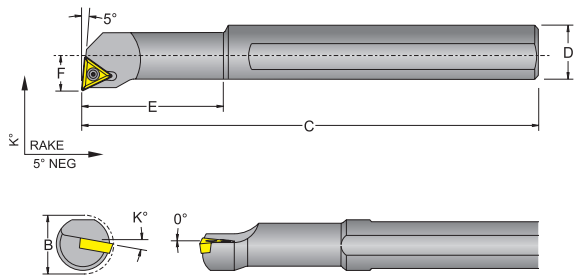
For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item



S-STLP
R Boring Bar

Style L - Negative 5° End
Cutting Edge Angle
for 11° positive triangle
TPGH and TPGB inserts

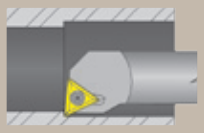




Right Hand Shown

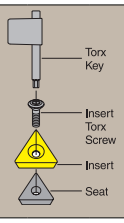
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	E	F	K°	TPG_ Gage Insert	Insert Torx Screw	Torx Key
S06M-STLPR-2	55846	0.430	6.00	0.375	0.625	.232	4°			
S08M-STLPR-2	55848	0.590	6.00	0.500	0.750	.287	2°	21.51	TS-25.45-6M2	T-8
S10R-STLPR-2	55850	0.682	8.00	0.625	1.250	.350	0°			
S12S-STLPR-3	55852	0.845	10.0	0.750	1.875	.422	2°			
S16T-STLPR-3	55854	1.115	12.0	1.000	2.500	.555	0°	322	TS-44-3M	T-10
S20T-STLPR-3	55856	1.370	12.0	1.250	2.500	.682	0°			

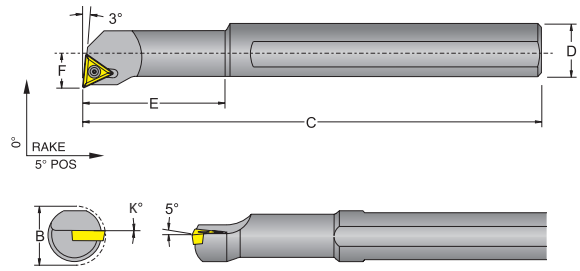
For inserts see pages 56-87. For spare parts see pages 158-159.



S-STUP
R/L Boring Bar

Style U - Negative 3° End
Cutting Edge Angle for 11°
positive triangle
TPGH and TPGB inserts





Right Hand Shown, Left Hand Opposite

Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	K°	TPG_ Gage Insert	Seat	Insert Torx Screw	Torx Key
S16T-STUPR-3	55682	55683	1.22	12.0	1.00	2.500	0.578	0°				
S20U-STUPR-3	55686*	55687*	1.60	14.0	1.25	2.500	0.766	0°	322	SM-41	TS-44-4M	T-10
S24U-STUPR-3	55690	55691	1.84	14.0	1.50	2.500	0.891	0°				
S28U-STUPR-3	55694*	55695*	2.10	14.0	1.75	2.500	1.015	0°				
S24U-STUPR-4	55698	55699*	2.12	14.0	1.50	2.500	1.031	0°				
S28U-STUPR-4	55702	55703	2.38	14.0	1.75	2.500	1.156	0°				
S32V-STUPR-4	55706	55707*	2.62	16.0	2.00	3.000	1.281	0°	432	SM-37	TS-83-4M1	T-20
S36V-STUPR-4	55710*	55711*	2.88	16.0	2.25	3.000	1.406	0°				
S40V-STUPR-4	55714	55715*	3.12	16.0	2.25	3.000	1.531	0°				

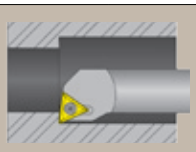
For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

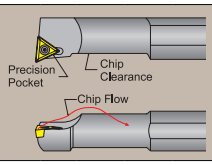
STCMB Boring Bars

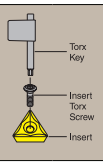
From Roughing to Finishing, Square Shoulders to Through Bores

For 7° positive triangle TCMT Inserts

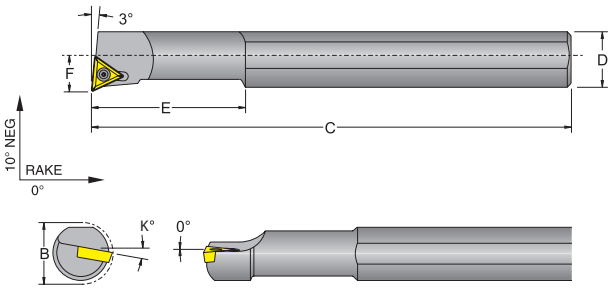
- **Small Hole Capacity -** to a minimum of .500
- **High Tech -** Insert pocket has been scientifically designed to eliminate vibration and maximize the depth of cut
- **Rigidity** - Bar made of heat treated, precision ground alloy steel
- **Insert Locking** - The insert is securely held with the Torx screw to reduce tool slipping
- **Better Finish -** The clearance angle of the insert, in relation to the cutting edge, gives the best micro finish
- **Fast Material Removal -** The positive insert with advanced chip breaker design allows for heavier cuts







Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	E	F	K°	TC_T Gage Insert	Insert Torx Screw	Torx Key
STCMB06-2	55738	0.500	5.00	0.500	1.25	.208	10°			
STCMB08-2	55740	0.590	6.00	0.500	1.50	.287	10°	21.51	TS-25.45-6M2	T-8
STCMB10-2	55742	0.750	8.00	0.625	2.25	.350	10°			
STCMB12-3	55744	0.845	10.0	0.750	2.50	.422	10°	32.52	TS-4.7-10M1	T-15
STCMB16-3	55746	1.115	12.0	1.000	3.00	.555	10°			
STCMB20-4	55748	1.370	12.0	1.250	3.50	.682	10°	432	TS-5.8-10M1	T-20
STCMB24-4	55750	1.680	12.0	1.500	4.00	.840	10°			



Right Hand Shown

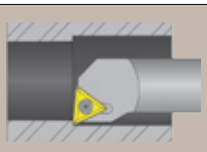
For inserts see pages 56-87. For spare parts see pages 158-159.

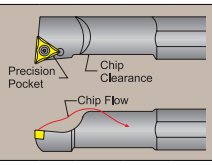
TPBN Boring Bars

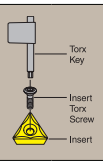
From Roughing to Finishing, Square Shoulders to Through Bores

For 11° positive triangle TPGH or TPGB Inserts

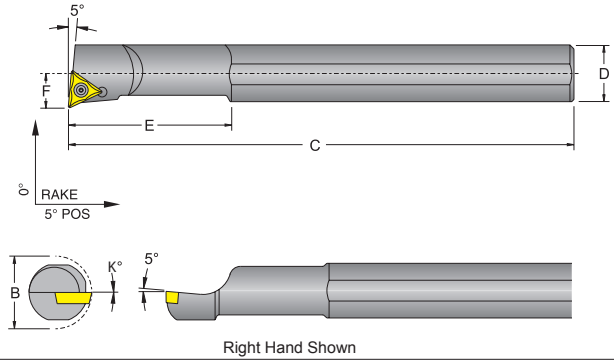
- **Small Hole Capacity -** to a minimum of .430
- **High Performance -** Positive rake for fast material removal, as well as finishing
- **Rigidity** - Bar made of heat treated, precision ground alloy steel
- **Insert Locking** - The insert is securely held with the Torx screw to reduce tool slipping.
- **Chip Control -** Advanced precision chip clearance allows for maximum boring capacity
- **Inserts -** TIN coated with added chip breaker







Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	E	F	K°	TP__ Gage Insert	Insert Torx Screw	Torx Key
TPBN06-2	55658	0.430	5.00	0.500	1.25	.208	0°			
TPBN08-2	55660	0.590	6.00	0.500	1.50	.287	0°	21.51	TS-25.45-6M2	T-8
TPBN10-2	55662	0.682	8.00	0.625	2.25	.350	0°			
TPBN12-3	55664	0.845	10.0	0.750	2.50	.422	0°			
TPBN16-3	55666	1.115	12.0	1.000	3.00	.555	0°	322	TS-44-3M	T-10
TPBN20-3	55668	1.370	12.0	1.250	3.50	.682	0°			
TPBN20-4	55670	1.370	12.0	1.250	3.50	.682	0°	432	TS-83-4M1	T-20
TPBN24-4	55672	1.680	12.0	1.500	4.00	.840	0°			

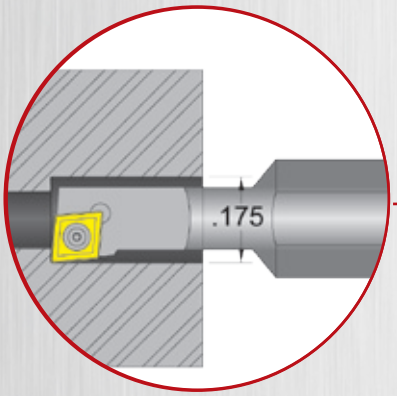


Right Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

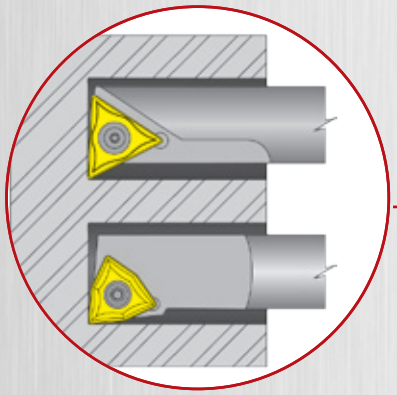
Eliminate Reamers With Miniature Indexable Boring Bars

- **Small Hole Capacity -** to a minimum of .175
- **High Tech -** Insert pocket has been scientifically designed to eliminate vibration and maximize the depth of cut
- **Rigidity** - Bar made of heat treated, precision ground alloy steel as well as solid carbide
- **Insert Locking** - The insert is securely held with the Torx screw to reduce tool slipping
- **Better Finish -** The clearance angle of the insert, in relation to the cutting edge, gives the best micro finish
- **Eliminate Reamers -** The small hole boring capacity can now bore holes that were once reamed

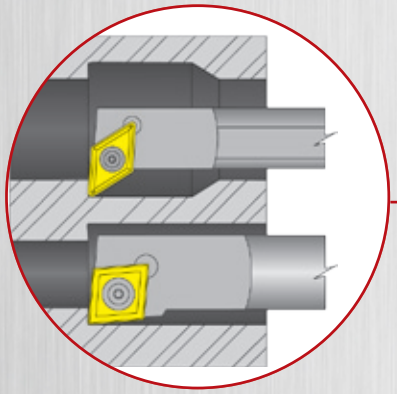


Advantages of Miniature Boring Bars

The miniature boring bars are replacing reamers with many advantages. The small inserts and finishing coated grades available make boring to a minimum diameter of .175 possible.



- Close tolerances
- Better surface finish
- Less machine load
- Never gets stuck
- Bores to a blind hole
- Min. diameter of .175

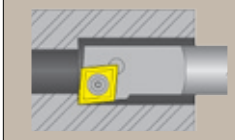


Availabe In a variety of insert styles and shank sizes.

Insert Styles:
"C" - 80° Diamond
"D" - 55° Diamond
"T" - 60° Triangle
"W" - 80° Trigon

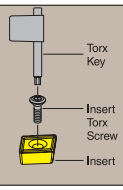
Shank Sizes:
3/8"
1/2"
5/8"

Carbide Shank Sizes:
5/32"
3/16"
7/32"
1/4"

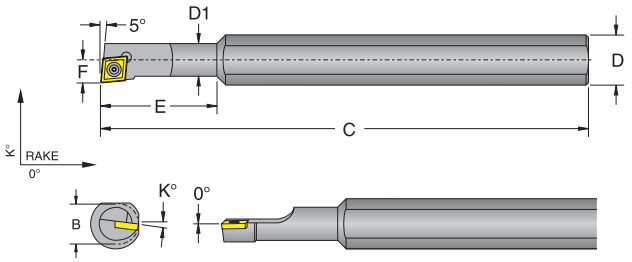


MINI S-SCLC R/L Boring Bar

Style L - Negative 5°
End & Side Cutting Edge Angle
for 7° positive 80° diamond
CC_T inserts

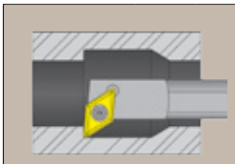


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	D1	E	F	K°	CC_T Gage Insert	Insert Torx Screw	Torx Key
S06H-SCLCR/L-2	55450	55451	.394	4.0	.375	.315	1.25	.236	-11°			
S08K-SCLCR/L-2	55454	55455	.550	5.0	.500	.390	1.50	.275	-9°	21.51	TS-25.45-6M2	T-8
S10M-SCLCR/L-2	55458	55459	.708	6.0	.625	.472	2.00	.354	-7°			



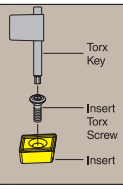
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

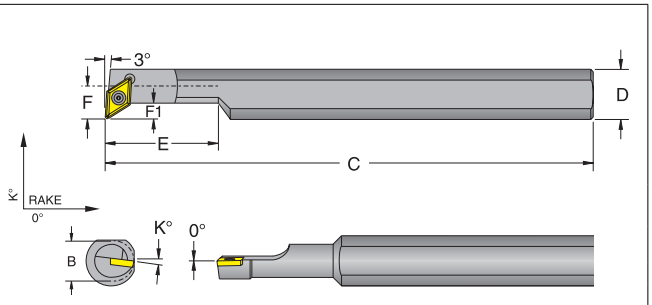


MINI S-SDUC R/L Boring Bar

Style U - Negative 3°
End Cutting Edge Angle
for 7° positive 55° diamond
DC_T inserts

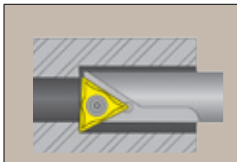


Inch Description	Part No. 733101- R.H.	L.H.	Min. Bore B	C	D	E	F	F1	K°	DC_T Gage Insert	Insert Torx Screw	Torx Key
S06H-SDUCR/L-2	55540	55541	.492	4.00	.375	0.875	.324	.197	-11°			
S08K-SDUCR/L-2	55544	55545	.610	5.00	.500	1.125	.383	.197	-9°	21.51	TS-25.45-6M2	T-8
S10M-SDUCR/L-2	55548	55549*	.768	6.00	.625	1.500	.433	.197	-7°			



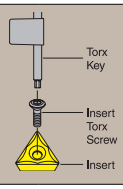
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non Stock Item

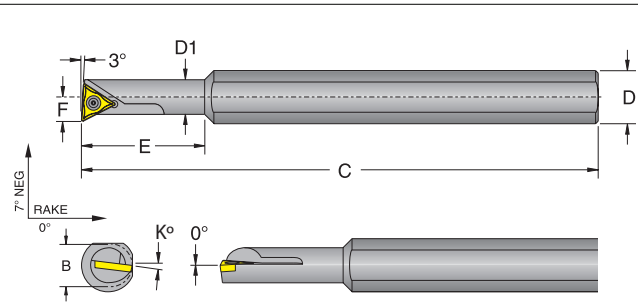


MINI S-STUC R Boring Bar

Style U - Negative 3°
End Cutting Edge Angle
for 7° positive triangle
TC_T inserts

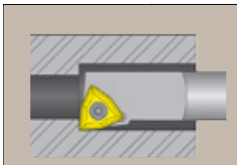


Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	D1	E	F	K°	TC_T Gage Insert	Insert Torx Screw	Torx Key
S08H-STUCR-1.2-2	55724	.286	4.00	.500	.265	1.125	.143	7°			
S08H-STUCR-1.2-3	55726	.313	4.00	.500	.300	1.125	.157	7°	52.50	TS-06	T-6
S08H-STUCR-1.2-4	55728	.374	4.00	.500	.358	1.125	.189	7°			



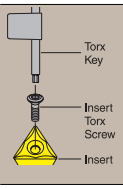
Right Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

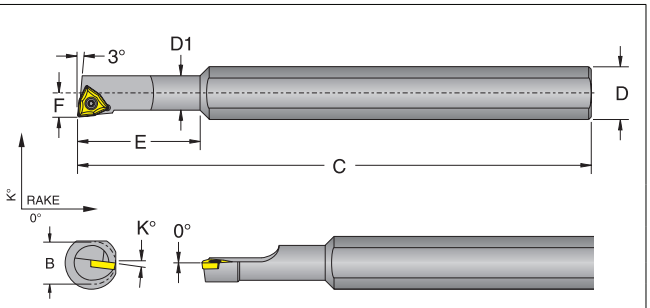


MINI S-SWUC R Boring Bar

Style U - Negative 3°
End Cutting Edge Angle
for 7° positive 80° trigon
WC_T inserts

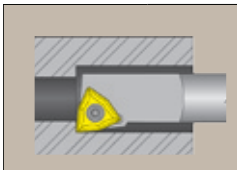


Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	D1	E	F	K°	WC_T Gage Insert	Insert Torx Screw	Torx Key
S08H-SWUCR-1.2-2	55900	0.228	4.0	.50	.197	0.750	.114	-11°			
S08H-SWUCR-1.2-3	55902	0.308	4.0	.50	.236	1.000	.154	-11°	520	TS-06	T-6
S08H-SWUCR-1.2-4	55904	0.374	4.0	.50	.300	1.125	.189	-11°			



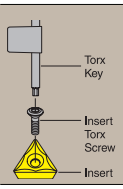
Right Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

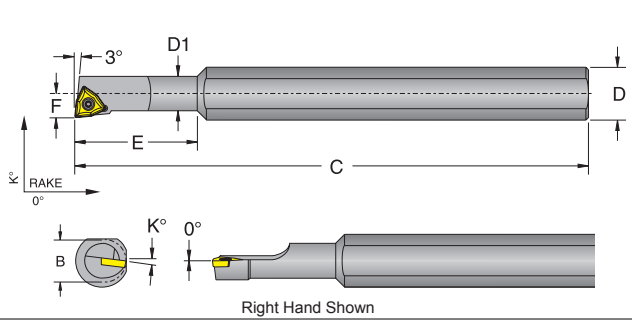


MINI S-SWUC R Boring Bar

Style U - Negative 3°
End Cutting Edge Angle
for 7° positive 80° trigon
WC_T inserts



Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	D1	E	F	K°	WC_T Gage Insert	Insert Torx Screw	Torx Key
S06H-SWUCR-2	55906	.394	4.0	.375	.315	1.25	.236	-11°			
S08K-SWUCR-2	55907	.550	5.0	.500	.390	1.50	.275	-9°	21.51	TS-25.45-6M2	T-8
S10M-SWUCR-2	55908	.708	6.0	.625	.472	2.00	.354	-7°			



Right Hand Shown

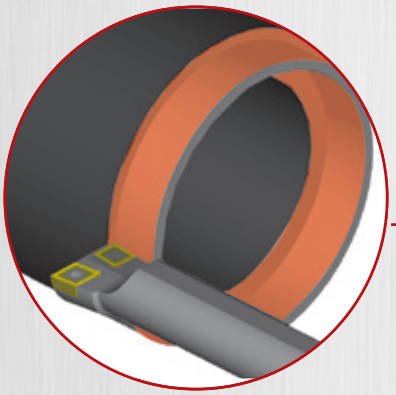
For inserts see pages 56-87. For spare parts see pages 158-159.

1 Tool - Multiple Operations
From
Roughing to Finishing

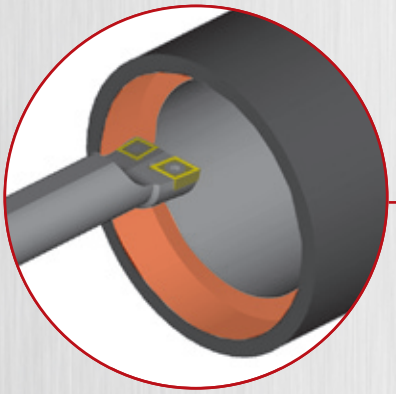
Turning - Facing - Boring - Chamfering - Threading

- One-half the cost in tooling
- One station saved
- One less tool to set-up
- One less tool to index
- Less down time
- Improve productivity
- Reduce production cost
- Standard indexable insert
- Standard hardware
- Heat treated alloy ground steel

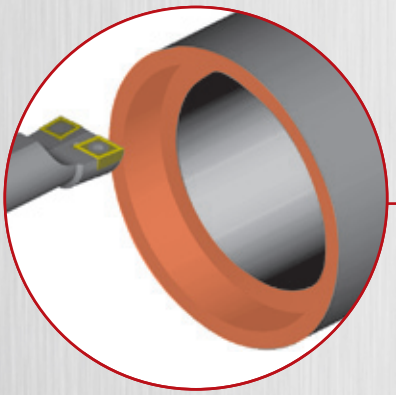
ONE TOOL FOR:
Manual Lathe
Hardinge Chucker
Turning Center



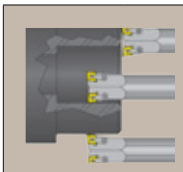
TURNING
Turning is performed with the double insert boring bar, eliminating tool changes. The right insert is offset ahead of the left insert to create clearance in turning and facing.



BORING
Boring is performed with the same double insert boring bar, eliminating tool changes. The left insert is offset behind the right insert to create clearance in boring.

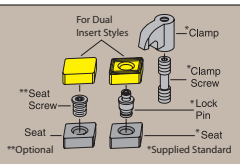


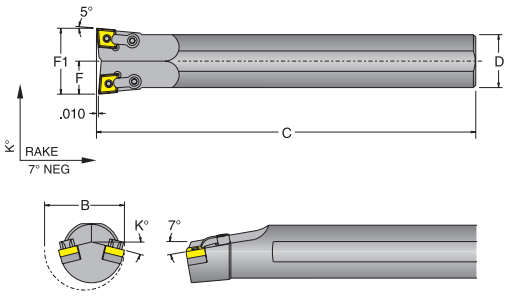
FACING
Facing is performed with the same double insert boring bar, eliminating tool changes. The right insert is offset ahead of the left insert to create clearance in turning and facing.



S-DCLN
R Boring Bar

Style L - Negative 5° End or
Side Cutting Edge Angle
for two 80° diamond CNM_ inserts

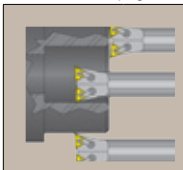




Right Hand Shown

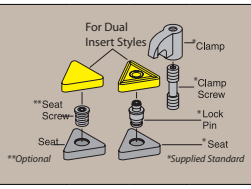
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S12M-DCLN-3	57504	1.250	6.0	0.75	0.500	1.530	14°	332	-	NL-44	CL-7	XNS-36	-
S16T-DCLN-4	57510	1.500	12.0	1.00	0.640	1.280	14°	432	-	NL-44	CL-7	XNS-35	-
S16Q-DCLN-4	57506	1.500	7.0	1.00	0.640	1.530	14°	432	ICSN-433	NL-46	CL-20	XNS-48	S-46
S20R-DCUN-4	57508	1.750	8.0	1.25	0.765	1.530	11°						
S20U-DCLN-4	57514	1.750	14.0	1.25	0.765	1.530	14°						
S24U-DCLN-4	57518	2.000	14.0	1.50	0.890	1.780	11°						
S24U-DCLN-5	57522	2.000	14.0	1.50	0.890	1.780	11°	543	ICSN-533	NL-58	CL-20	XNS-48	S-58
S32V-DCLN-5	57526	2.625	16.0	2.00	1.281	2.562	11°						
S32V-DCLN-6	57530	2.625	16.0	2.00	1.281	2.562	11°	643	ICSN-633	NL-68	CL-12	XNS-510	S-68

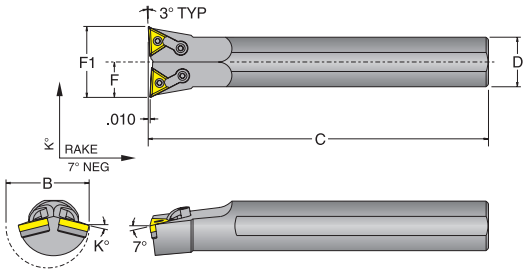
For inserts see pages 56-87. For spare parts see pages 158-159.



S-DTUN
R Boring Bar

Style U - Negative 3° End or
Side Cutting Edge Angle
for two triangle TNM_ inserts

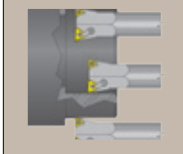




Right Hand Shown

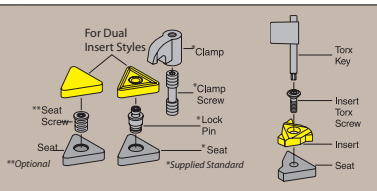
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S16T-DTUN-3	57550	1.500	7.0	1.00	0.640	1.530	14°	322	ITSN-322	NL-34	CL-6	XNS-35	S-34
S16T-DTUN-3	57552	1.750	8.0	1.25	0.765	1.530	14°						
S16T-DTUN-3	57554	1.500	12.0	1.00	0.640	1.280	14°						
S20U-DTUN-3	57558	1.750	14.0	1.25	0.765	1.530	14°	322	ITSN-322	NL-34	CL-6	XNS-36	S-34
S24U-DTUN-3	57562	2.000	14.0	1.50	0.890	1.780	11°						
S24U-DTUN-4	57566*	2.000	14.0	1.50	0.890	1.780	11°	432	ITSN-433	NL-46	CL-9	XNS-58	S-46
S32V-DTUN-4	57570	2.625	16.0	2.00	1.281	2.562	11°	432	ITSN-433	NL-46	CL-9	XNS-59	S-46

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

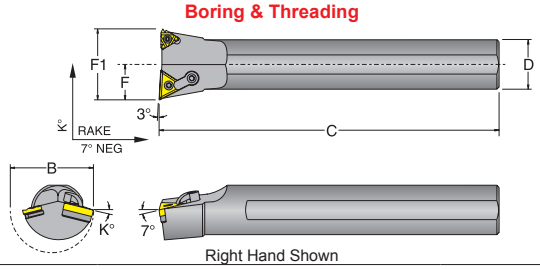


S-DTUN_T
R Boring & Threading Bar

Style U - Negative 3° End or
Side Cutting Edge Angle
for one negative triangle TNM_
& one Laydown insert



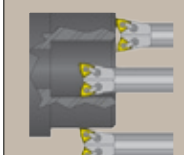
Boring & Threading



Right Hand Shown

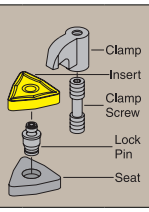
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Laydown Insert	TPI	Seat	Insert Torx Screw	Torx Key
S16Q-DTUN-3-T16	57576	1.50	12.0	1.00	.640	1.28	14°	322	ITSN-322	NL-34	CL-6	XNS-36	16ILAG60	8-48	GX-16-1	TS-16	T-10
S20R-DTUN-3-T16	57578	1.75	8.0	1.25	.765	1.53	14°										
S16T-DTUN-3-T16	57580	1.50	12.0	1.00	.640	1.28	14°										
S20U-DTUN-3-T16	57584	1.75	14.0	1.25	.765	1.53	14°										
S24U-DTUN-4-T16	57588	2.00	14.0	1.50	.890	1.78	11°	432	ITSN-433	NL-46	CL-9	XNS-59	16ILAG60	8-48	GX-16-1	TS-16	T-10
S20U-DTUN-4-T22	57592	1.75	14.0	1.25	.765	1.53	14°	432	ITSN-433	NL-46	CL-9	XNS-59	22ILN60	5-7	NX-22-1	TS-22	T-20
S24U-DTUN-4-T22	57596	2.00	14.0	1.50	.890	1.78	11°	432	ITSN-433	NL-46	CL-9	XNS-59					

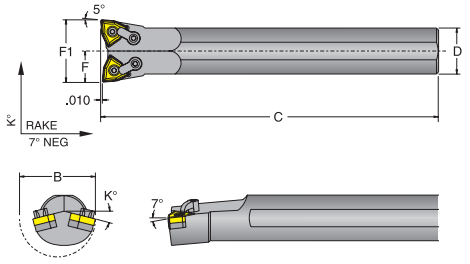
For inserts see pages 56-87. For spare parts see pages 158-159.



S-DWLN
R Boring Bar

Style L - Negative 5° End or
Side Cutting Edge Angle
for negative 80° trigon WNM_ inserts



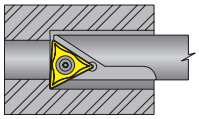


Right Hand Shown

Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	WNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw
S12M-DWLN-3	57610	1.25	6.00	0.75	.500	1.00	14°	332	-	NL-33L	HC-7	SHC-7
S16Q-DWLN-3	57614	1.50	7.00	1.00	.640	1.28	14°					
S16T-DWLN-4	57618	1.50	12.00	1.00	.665	1.33	14°	432	-	NL-44	CL-6	XNS-36
S16Q-DWLN-4	57617	1.50	7.00	1.00	.665	1.53	14°					
S20R-DWLN-4	57620	1.75	8.00	1.25	.890	1.53	14°	432	IWSN-433	NL-46	CL-6	XNS-36
S20U-DWLN-4	57622	1.75	14.00	1.25	.765	1.53	14°					
S24U-DWLN-4	57626	2.00	14.00	1.50	.890	1.78	11°					

For inserts see pages 56-87. For spare parts see pages 158-159.

STUCR Miniature



Min. bore .286”

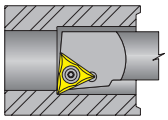
Negative 3° End Cutting Edge Angle
for 7° positive 60° triangle inserts

- Small hole boring without the use of reamers
- Greater productivity through better tool utilization
- Close tolerances
- Eliminates reamers
- Better surface finish
- Alloy steel boring bar

x 10 PCS.

STUCR Miniature Boring Set						
			15 Piece Set Includes			
Set Part No. 733101-	Shank Size	Min. Bore	(3) Boring Bars	(10) Inserts	(1) Torx Key	(1) Storage Box
85076	.500 .500 .500	.286 .313 .374	S08H-STUCR-1.2-2 S08H-STUCR-1.2-3 S08H-STUCR-1.2-4	TCMT-1.21.20.2-PEF-DPC25UT	T-6	Storage Box

TPBN Medium



Negative 5° End Cutting Edge Angle
for 11° positive 60° triangle inserts

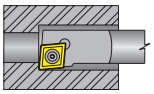
For a Precise Bore
With a Quality Boring Bar

From Roughing To Finishing,
Square Shoulders to Through Bores

x 20 PCS.

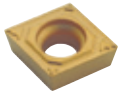
TPBN Medium Boring Set						
			27 Piece Set Includes			
Set Part No. 733101-	Shank Size	Min. Bore	(4) Boring Bars	(20) Inserts	(2) Torx Keys	(1) Storage Box
85086	.500 .500 .625 .750	.430 .590 .682 .845	TPBN06-2 TPBN08-2 TPBN10-2 TPBN12-3	(10) TPGH-21.51-EZ-DPP30GT (10) TPGH-321-EZ-DPP30GT	T-8 T-10	Storage Box

SCLCR Miniature



Negative 5° End Cutting Edge Angle
for 7° positive 80° diamond inserts

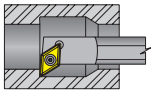
- Precision finishing operation
- For steel & stainless steel
- Sharp cutting edge
- Good chip control



x 10 PCS.

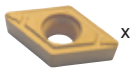
SCLCR Miniature Boring Set						
			15 Piece Set Includes			
Set Part No. 733101-	Shank Size	Min. Bore	(3) Boring Bars	(10) Inserts	(1) Torx Key	(1) Storage Box
85064	.375 .500 .625	.394 .550 .708	S06H-SCLCR-2 S08K-SCLCR-2 S10M-SCLCR-2	CCMT-21.51-PEM-DPC25UT	T-8	Storage Box

SDUCR Miniature



Negative 3° End Cutting Edge Angle
for 7° positive 55° diamond inserts

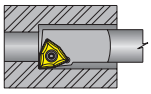
- Precision finishing operation
- For steel & stainless steel
- Sharp cutting edge
- Good chip control



x 10 PCS.

SDUCR Miniature Boring Set						
			15 Piece Set Includes			
Set Part No. 733101-	Shank Size	Min. Bore	(3) Boring Bars	(10) Inserts	(1) Torx Key	(1) Storage Box
85068	.375 .500 .625	.492 .610 .768	S06H-SDUCR-2 S08K-SDUCR-2 S10M-SDUCR-2	DCMT-21.51-PEF-DPC25UT	T-8	Storage Box

SWUCR Medium



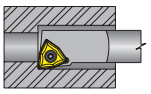
Negative 3° End Cutting Edge Angle
for 7° positive 80° trigon inserts

- Precision finishing operation
- For steel & stainless steel
- Sharp cutting edge
- Good chip control

x 10 PCS.

SWUCR Medium Boring Set						
			15 Piece Set Includes			
Set Part No. 733101-	Shank Size	Min. Bore	(3) Boring Bars	(10) Inserts	(1) Torx Key	(1) Storage Box
85072	.375 .500 .625	.394 .550 .708	S06H-SWUCR-2 S08K-SWUCR-2 S10M-SWUCR-2	WCGT-21.51-UEU-DUP15VT	T-8	Storage Box

SWUCR Miniature

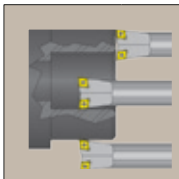


Negative 3° End Cutting Edge Angle
for 7° positive 80° trigon inserts

- Precision finishing operation
- For steel & stainless steel
- Sharp cutting edge
- Good chip control

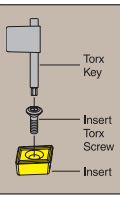
x 10 PCS.

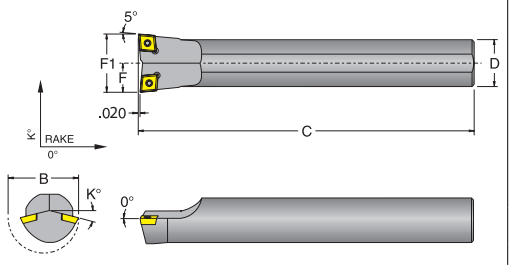
SWUCR Miniature Boring Set						
			15 Piece Set Includes			
Set Part No. 733101-	Shank Size	Min. Bore	(3) Boring Bars	(10) Inserts	(1) Torx Key	(1) Storage Box
85070	.500 .500 .500	.228 .308 .374	S08H-SWUCR-1.2-2 S08H-SWUCR-1.2-3 S08H-SWUCR-1.2-4	WCMT-1.210.2-PEF-DPC25UT	T-6	Storage Box



MINI S-DCLC
R/L Boring Bar

Style L - Negative 5° End or
Side Cutting Edge Angle for
double 7° positive 80° diamond
CC_T inserts

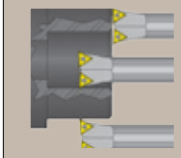




Right Hand Shown

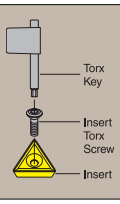
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	CC_T Gage Insert	Insert Torx Screw	Torx Key
S08K-DCLC-2	57700	0.688	5.0	.500	.312	0.624	5°	21.51	TS-25.45-6M2	T-8
S10L-DCLC-2	57704	0.938	5.5	.625	.406	0.812	5°			
S12M-DCLC-3	57708	1.063	6.0	.750	.500	1.000	5°	32.52	TS-4.7-10M1	T-15
S16Q-DCLC-4	57710	1.375	7.0	1.00	.640	1.280	7°	432	TS-5.8-10M1	T-20
S10L-DCLC-2	57712	1.625	8.0	1.25	0.77	1.530	5°			

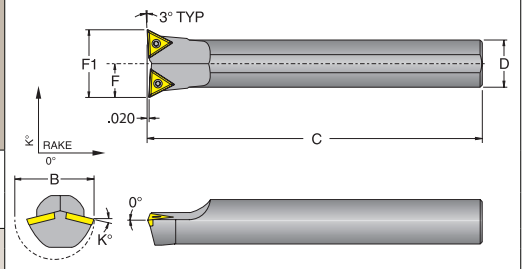
For inserts see pages 56-87. For spare parts see pages 158-159.



MINI S-DTUC
R Boring Bar

Style U - Negative 3° End
or Side Cutting Edge Angle
for double 7° positive triangle
TC_T inserts

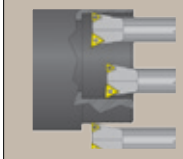




Right Hand Shown

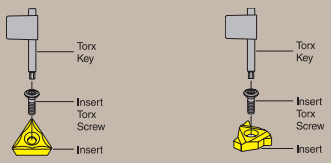
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	TC_T Gage Insert	Insert Torx Screw	Torx Key
S08K-DTUC-2	57736	0.875	5.0	0.500	.421	0.842	5°	21.51	TS-25.45-6M2	T8
S10L-DTUC-2	57740*	1.000	5.5	0.625	.437	0.874	5°			
S12M-DTUC-2	57744	1.062	6.0	0.750	.500	1.000	5°			
S16N-DTUC-3	57747	1.312	7.0	1.000	.640	1.280	5°	32.52	TS-4.7-10M1	T-15
S16Q-DTUC-3	57748	1.312	6.5	1.000	.640	1.280	5°			
S20R-DTUC-3	57750	1.625	8.0	1.250	.770	1.530	5°			

For inserts see pages 56-87. For spare parts see pages 158-159.
*Non-Stock Item

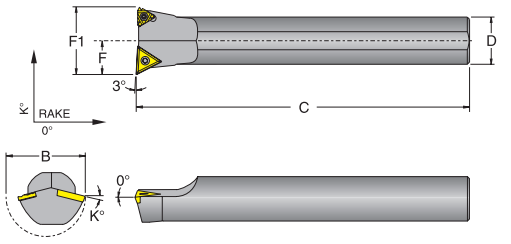


MINI S-DTUC-T
R Boring & Threading Bar

Style U - Negative 3° End
or Side Cutting Edge Angle
for one 7° positive triangle
TC_T & one Laydown inserts



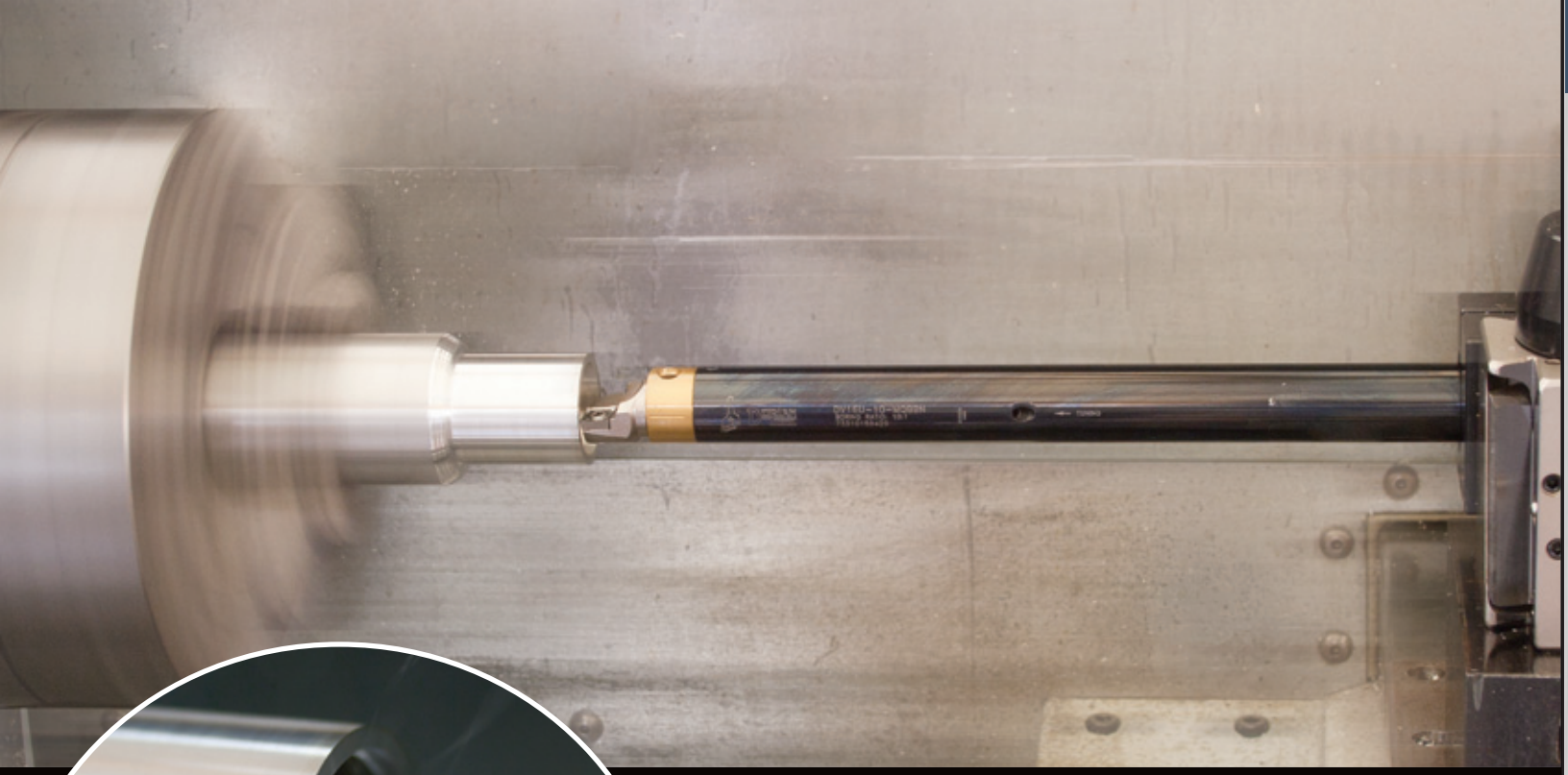
Boring & Threading



Right Hand Shown

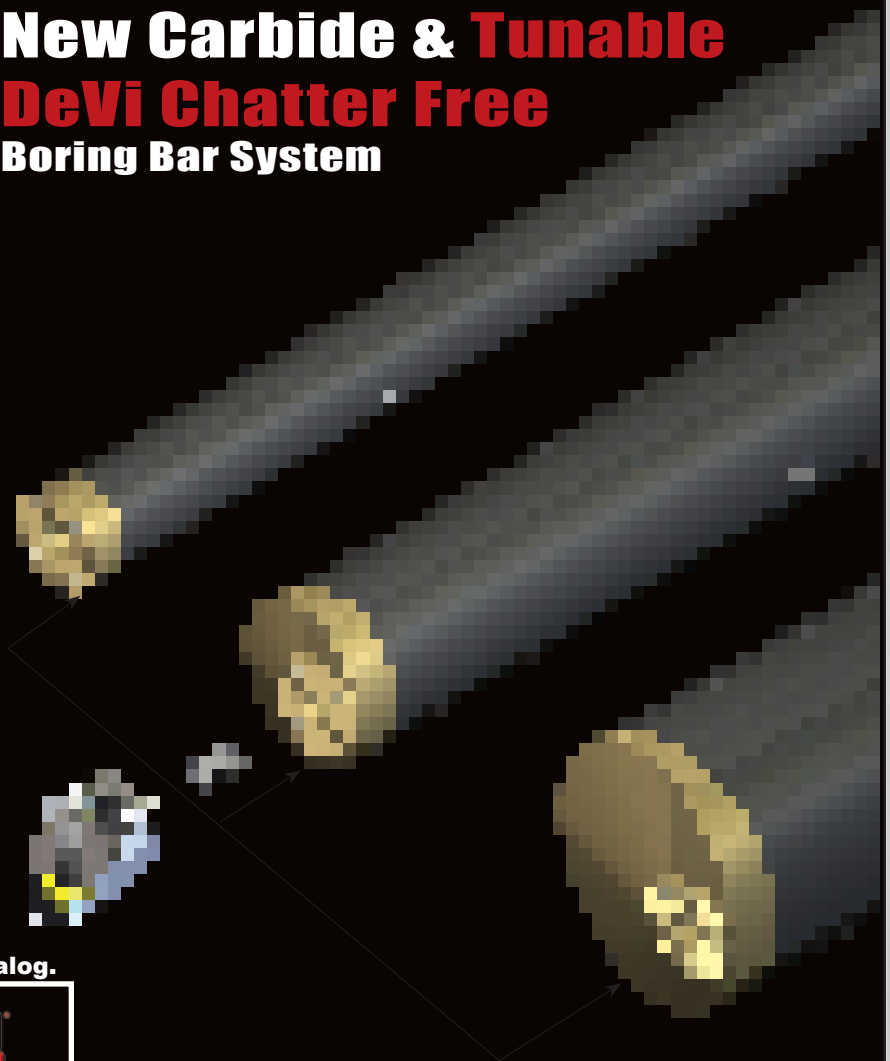
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	TC_T Gage Insert	Insert Torx Screw	Torx Key	Laydown Insert	TPI	Insert Torx Screw	Torx Key
S08K-DTUC-2-T11	57758	0.875	5.0	0.500	.421	0.842	5°							
S10L-DTUC-2-T11	57762	1.000	5.5	0.625	.437	0.874	5°	21.51	TS-25.45-6M2	T-8	11ILA60	16-48	TS-25.45-6M2	T-8
S12M-DTUC-2-T11	57766	1.062	6.0	0.750	.500	1.000	5°							
S16Q-DTUC-3-T16	57770	1.312	7.0	1.000	.640	1.280	5°	32.52	TS-4.7-10M1	T-15	16ILA60	8-48	TS-16	T-10
S20R-DTUC-3-T16	57772	1.625	8.0	1.250	.770	1.530	5°							

For inserts see pages 56-87. For spare parts see pages 158-159.



Deep Hole Boring Made Simple!

New Carbide & Tunable DeVi Chatter Free Boring Bar System



Engineered for High Performance and Efficiency:

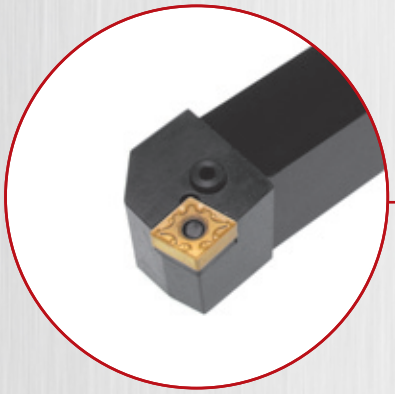
- One Size Head Fits All Boring Bar Bodies
- Jet-Stream™ Thru Coolant System Provides Chip Control

For more information see our Deep Hole Boring Catalog.

800-627-0266 or 979-282-2861
www.doriantool.com
sales@doriantool.com

DORIAN INTERNATIONAL TOOL

Dorian Tool
Metric Turning and Boring System

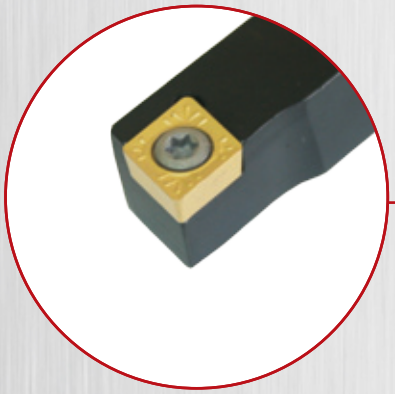


"P" - Lever Lock System

- Maximum rigidity
- Utilizes lock pin and clamp
- Holds insert and seat secure for less vibration

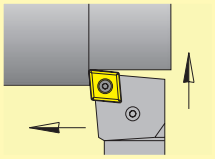
"W" - Wedge Lock System

- Excellent locking ability
- Easier to index or change insert without the lock pin
- Allows for an optional chipbreaker to be placed on the insert



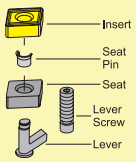
"S" - Screw Lock System

- Easy to index insert
- Uses Torx screw for a secure lock with more force

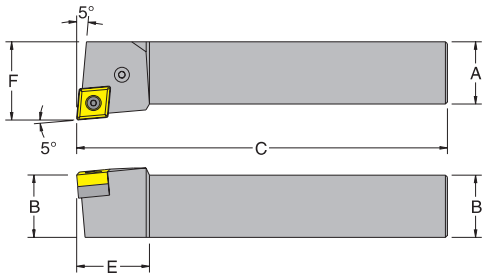


PCLN
R/L Toolholder

Style L - Negative 5° End or side Cutting Edge Angle for negative 80° diamond CNM_ inserts

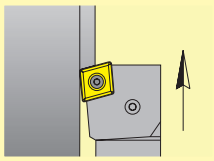


Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	CNM_ Gage Insert	Seat	Seat Pin	Lever	Lever Screw	Wrench
PCLNR/L2020-K12	54010	54011	20	20	125	29	25						
PCLNR/L2525-M12	54012	54013	25	25	150	29	32	120408	S8012N	S635	LV02	V0802	CBR30
PCLNR/L3225-P12	54014	54015	25	32	170	32	32						
PCLNR/L3232-P16	54016	54017	32	32	170	35	40	160608	S8016N	S840	LV06	V1006	CBR30
PCLNR/L3232-P19	54018	54019	32	32	170	35	40	190608	S8019N	S990	LV09	V1209	CBR30



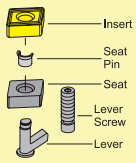
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

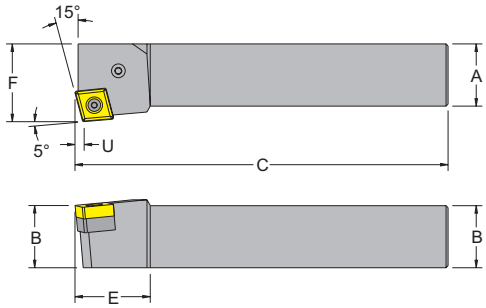


PCKN
R/L Toolholder

Style K - 15° Cutting Edge Angle for negative 80° diamond CNM_ inserts

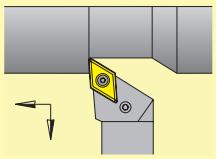


Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	U	CNM_ Gage Insert	Seat	Seat Pin	Lever	Lever Screw	Wrench
PCKNR/L2020-K12	54030	54031	20	20	125	32	25	3,1						
PCKNR/L2525-M12	54032	54033	25	25	150	32	32	3,1	120408	S8012N	S635	LV02	V0802	CBR30
PCKNR/L3225-P12	54034	54035	25	32	170	32	32	3,1						



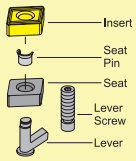
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

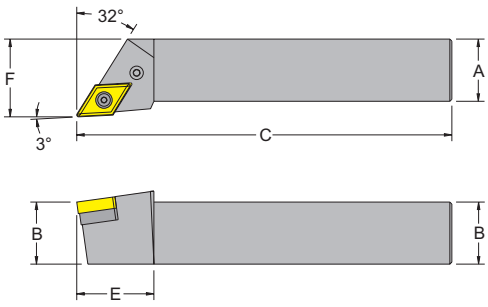


PDJN
R/L Toolholder

Style J - 3° Side Cutting Edge Angle for negative 55° diamond DNM_ inserts

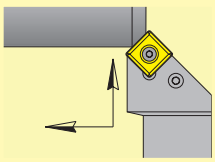


Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	DNM_ Gage Insert	Seat	Seat Pin	Lever	Lever Screw	Wrench
PDJNR/L2020-K15	54056	54057	20	20	125	32	25						
PDJNR/L2525-M15	54058	54059	25	25	150	32	32	150608	S5515N	S635	LV05	V0805	CBR30
PDJNR/L3225-P15	54060	54061	25	32	170	32	32						



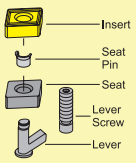
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

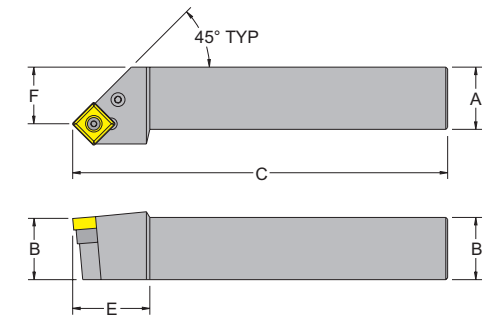


PSSN
R/L Toolholder

Style S - 45° Side Cutting Edge Angle for negative square SNM_ inserts

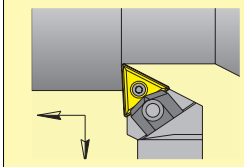


Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	SNM_ Gage Insert	Seat	Seat Pin	Lever	Lever Screw	Wrench
PSSNR/L2020-K12	54072	54073	20	20	125	29	25						
PSSNR/L2525-M12	54074	54075	25	25	150	29	32	120408	S9012N	S635	LV02	V0802	CBR30
PSSNR/L3225-P12	54076	54077	25	32	170	29	32						



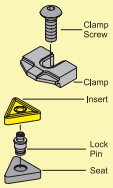
Right Hand Shown, Left Hand Opposite

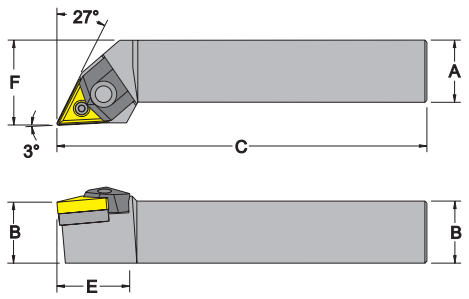
For inserts see pages 56-87. For spare parts see pages 158-159.



WTJN
R/L Toolholder

Style J - 3° Side
Cutting Edge Angle
for negative triangle
TNM_ inserts

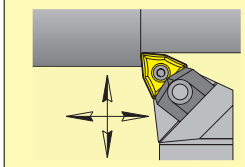




Right Hand Shown, Left Hand Opposite

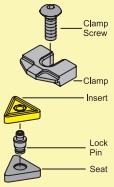
Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
WTJNR/L2020-K16	54088	54089	20	20	125	31	25						
WTJNR/L2525-M16	54090	54091	25	25	150	36	32	160408	S6016P	P0502	C6016N	V6016	V83006
WTJNR/L3225-P16	54092	54093	25	32	170	35	32						

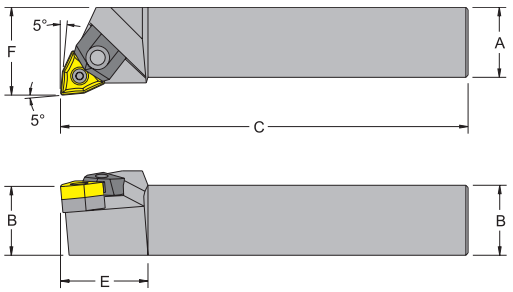
For inserts see pages 56-87. For spare parts see pages 158-159.



WWLN
R/L Toolholder

Style L - 5° End or Side
Cutting Edge Angle
for negative 80° trigon
WNM_ inserts

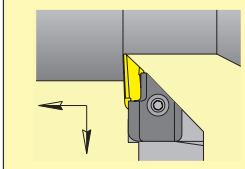




Right Hand Shown, Left Hand Opposite

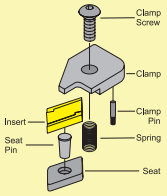
Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	WNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw
WWLNR/L2020-K08	54104	54105	20	20	125	28	25					
WWLNR/L2525-M08	54106	54107	25	25	150	31	32	080408	S8008P	P0602	C8008N	V8008
WWLNR/L3225-P08	54108	54109	25	32	170	31	32					

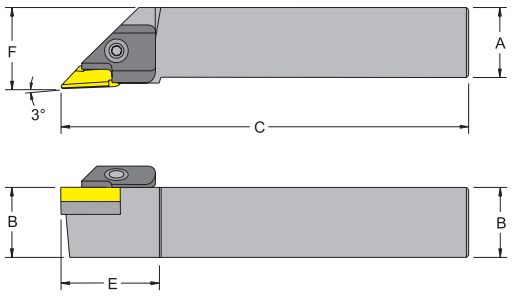
For inserts see pages 56-87. For spare parts see pages 158-159.



CKJN
R/L Toolholder

Style J - 3° Side Cutting
Edge Angle for negative
KNUX inserts

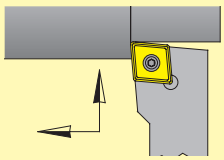




Right Hand Shown, Left Hand Opposite

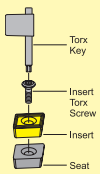
Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	KNXU Gage Insert	Seat	Seat Pin	Clamp	Clamp Screw	Clamp Pin	Spring	Wrench
CKJNR/L2020-K16	54382	54383	20	20	125	28	25								
CKJNR/L2525-M16	54384	54385	25	25	150	31	32	160405	*CKN16R **CKN16L	S311	*SKN16R **SKN16L	V0616	SC510	M428	CBR40
CKJNR/L3225-P16	54386	54387	25	32	170	31	32								

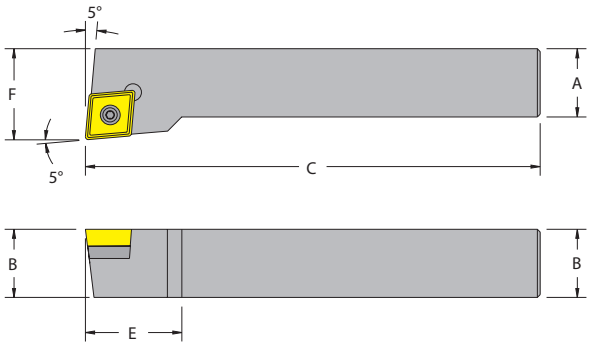
For inserts see pages 56-87. For spare parts see pages 158-159.. *FOR RIGHT HAND TOOL **FOR LEFT HAND TOOL



SCLC
R/L Toolholder

Style L-Negative 5° End
or Side Cutting Edge Angle
for 7° positive 80° diamond
CC_T inserts

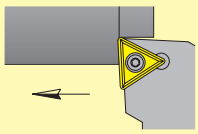




Right Hand Shown, Left Hand Opposite

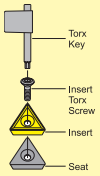
Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	CC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Torx Key
SCLCR/L0808-D06	54120	54121	08	08	60	10	10	060204	-	-	TS-25.45-6M2	T-8
SCLCR/L1010-E06	54122	54123	10	10	70	10	12					
SCLCR/L1212-F09	54124	54125	12	12	80	15	16	09T308	-	-	TS-35.6-9M1	T-15
SCLCR/L1616-H09	54126	54127	16	16	100	15	20					
SCLCR/L2020-K09	54128	54129	20	20	125	17	25					
SCLCR/L2020-K12	54130	54131	20	20	125	20	25	120408	S8012P	B0609	TS-4.7-14M1	T-15
SCLCR/L2525-M12	54132	54133	25	25	150	21	32					

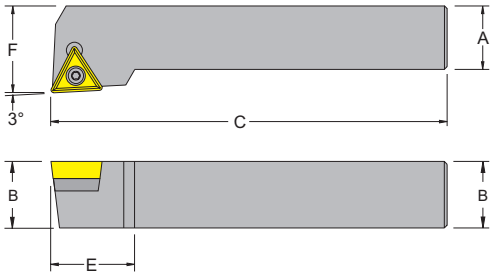
For inserts see pages 56-87. For spare parts see pages 158-159.



STJC
R/L Toolholder

Style J - 3° Side
Cutting Edge Angle
for 7° positive triangle
TC_T inserts

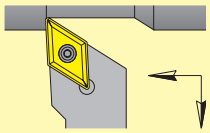




Right Hand Shown, Left Hand Opposite

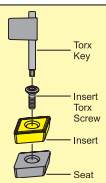
Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	TC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Torx Key
STJCR/L1212-F11	54212	54213	12	12	80	15	16	110304	-	-	TS-25.45-6M2	T-8
STJCR/L1616-H11	54214	54215	16	16	100	15	20					
STJCR/L1616-H16	54216	54217	16	16	100	19	20	16T308	-	-	TS-35.6-9M1	T-15
STJCR/L2020-K16	54218	54219	20	20	125	19	25	16T308	S6016P	B0509	TS-35.6-9M1	T-15
STJCR/L2525-M16	54220	54221	25	25	150	22	32					

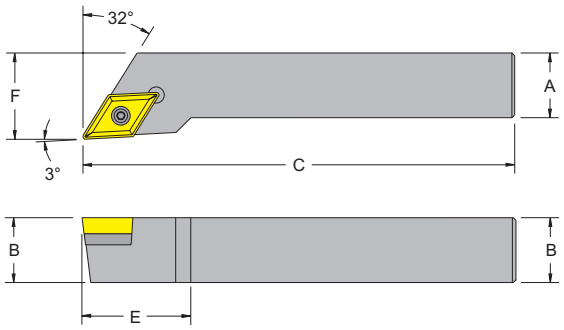
For inserts see pages 56-87. For spare parts see pages 158-159.



SDJC
R/L Toolholder

Style J - Negative 3° Side
Cutting Edge Angle for
7° positive 55° diamond
DC_T inserts

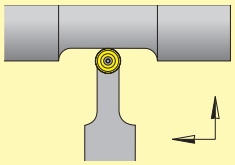




Right Hand Shown, Left Hand Opposite

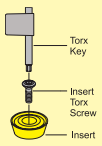
Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	DC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Torx Key
SDJCR/L0808-D07	54144	54145	08	08	60	14	10	070204	-	-	TS-3.5-7M1	T-8
SDJCR/L1010-E07	54146	54147	10	10	70	14	12					
SDJCR/L1212-F07	54148	54149	12	12	80	14	16					
SDJCR/L1212-F11	54150	54151	12	12	80	21	16	11T308	-	-	TS-35.6-9M1	T-15
SDJCR/L1616-H11	54152	54153	16	16	100	21	20					
SDJCR/L2020-K11	54154	54155	20	20	125	22	25	11T308	S5515P	B0509	TS-35.6-11M1	T-15
SDJCR/L2525-M11	54156	54157	25	25	150	24	32					

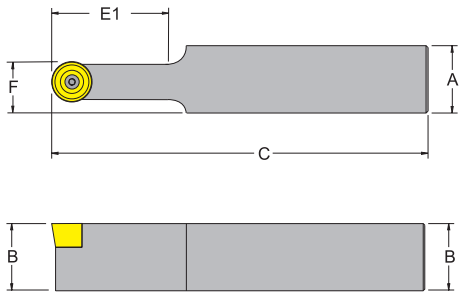
For inserts see pages 56-87. For spare parts see pages 158-159.



SROC
N Toolholder

Style D - Profiling,
Plunging, and Turning
for 7° positive round
RC_T inserts

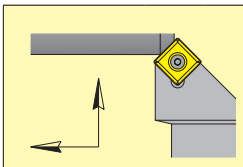




Neutral Hand Shown

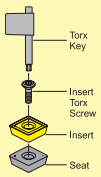
Metric Description	Part No. 733101-	A	B	C	E	F	RC_T Gage Insert	Insert Torx Screw	Torx Key
SROCN1212-F06	54169	12	12	80	12,5	9,0	0603M0	TS-25.45-6M2	T-8
SROCN1616-H06	54170	16	16	100	12,5	11,0			
SROCN2020-K06	54171	20	20	125	12,5	13,0			
SROCN2525-M06	54172	25	25	150	12,5	15,5			
SROCN1616-H08	54173	16	16	100	16,5	12,0	0803M0	TS-3.5-7M1	T-8
SROCN2020-K08	54174	20	20	125	16,5	14,0			
SROCN2525-M08	54175	25	25	150	16,5	16,5			
SROCN1616-H10	54176	16	16	100	20,5	13,0	1003M0	TS-35.6-9M1	T-15
SROCN2020-K10	54177	20	20	125	20,5	15,0			
SROCN2525-M10	54178	25	25	150	20,5	17,5			

For inserts see pages 56-87. For spare parts see pages 158-159.

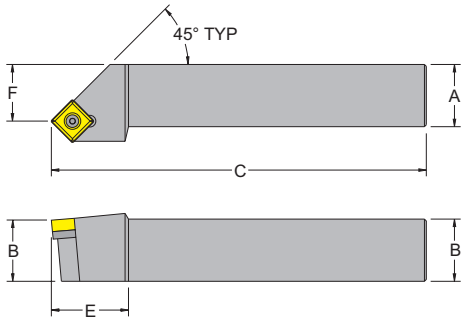


SSSC
R/L Toolholder

Style S - 45° Side
Cutting Edge Angle
for 7° positive square
SC_T inserts

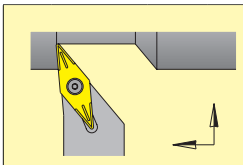


Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	SC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Torx Key
SSSCR/L1212-F09	54190	54191	12	12	80	19	16	09T308	-	-	TS-35.6-9M1	T-8
SSSCR/L1616-H09	54192	54193	16	16	100	19	20					
SSSCR/L2020-H09	54194	54195	20	20	100	20	25					
SSSCR/L1616-H12	54196	54197	16	16	100	22	20	120408	-	-	TS-4.7-10M1	T-15
SSSCR/L2020-K12	54198	54199	20	20	125	23	25	120408	S9012P	B0609	TS-4.7-10M1	T-15
SSSCR/L2525-M12	54200	54201	25	25	150	25	32					



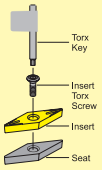
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.



SVJ_
R/L Toolholder

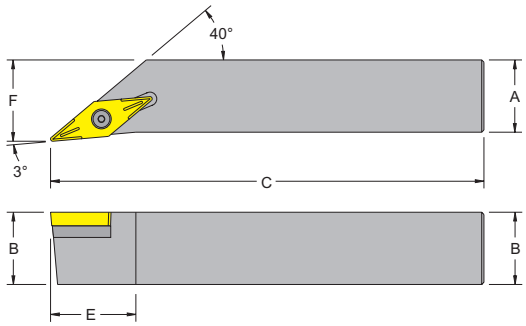
Style J - Negative
3° Side Cutting Edge Angle
for 5° / 7° / 11° positive
35° diamond V__T inserts



5º Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VB_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Torx Key
SVJBR/L1616-H16	54232	54233	16	16	100	30	20	160408	S3516P	B0509	TS-35.6-11M1	T-15
SVJBR/L2020-K16	54234	54235	20	20	125	33	25					
SVJBR/L2525-M16	54236	54237	25	25	150	33	32					

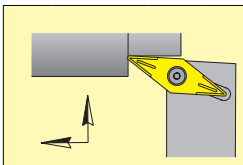
7º Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Torx Key
SVJCR/L1212-F11	54248	54249	12	12	80	24	16	110304	-	-	TS-25.45-6M2	T-8
SVJCR/L1616-H11	54250	54251	16	16	100	24	20					
SVJCR/L2020-K11	54252	54253	20	20	125	24	25					
SVJCR/L2525-M11	54254	54255	25	25	150	27	32					
SVJCR/L2020-K16	54256	54257	20	20	125	30	25	160408	S3516P	B0509	TS-35.6-11M1	T-15
SVJCR/L2525-M16	54258	54259	25	25	150	33	32					
SVJCR/L2525-M22	54260	54261	25	25	150	33	32	220408	-	-	TS-5.8-10M1	T-20
SVJCR/L3232-M22	54262	54263	32	32	150	33	38					

11º Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VP_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Torx Key
SVJPR/L2525-M22	54314	54315	25	25	150	33	32	220408	-	-	TS-5.8-10M1	T-20
SVJPR/L3232-M22	54316	54317	32	32	150	33	38					



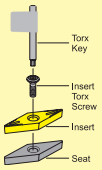
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.



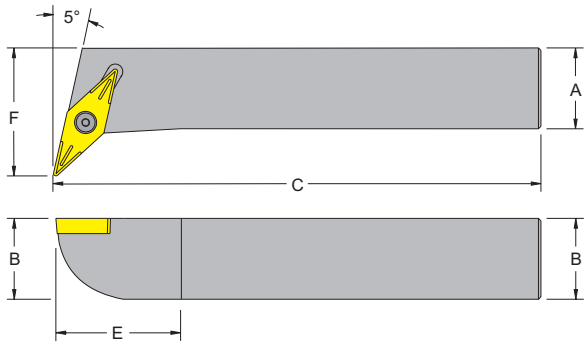
SVL_
R/L Toolholder

Style L - 5° End
Cutting Edge Angle
for 7° / 11° positive
35° diamond V__T inserts



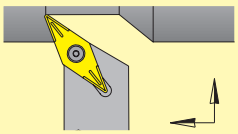
7º Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VC_T Gage Insert	Insert Torx Screw	Torx Key
SVLCR/L2525-M22	54286	54287	25	25	150	41	38	220408	TS-5.8-10M1	T-20
SVLCR/L3232-M22	54288	54289	32	32	150	41	45			

11º Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VP_T Gage Insert	Insert Torx Screw	Torx Key
SVLPR/L2525-M22	54340	54341	25	25	150	33	32	220408	TS-5.8-10M1	T-20
SVLPR/L3232-M22	54342	54343	32	32	150	33	38			



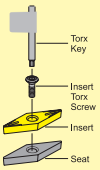
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

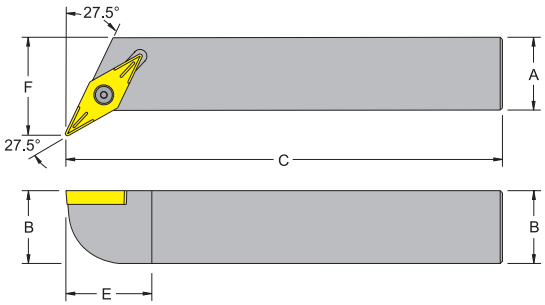


SVT_ R/L Toolholder

Style T - 27.5° End
Cutting Edge Angle
for 7° / 11° positive
35° diamond V__T inserts

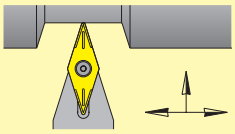


7° Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VC_T Gage Insert	Insert Torx Screw	Torx Key
SVTCR/L2525-M22	54300	54301	25	25	150	41	38	220408	TS-5.8-10M1	T-20
SVTCR/L3232-M22	54302	54303	32	32	150	41	45			
11° Metric Description	**R.H.**	**L.H.**	**A**	**B**	**C**	**E**	**F**	**VP_T Gage Insert**	**Insert Torx Screw**	**Torx Key**
SVTPR/L2525-M22	54354	54355	25	25	150	41	38	220408	TS-5.8-10M1	T-20
SVTPR/L3232-M22	54356	54357	32	32	150	41	45			



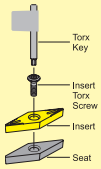
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

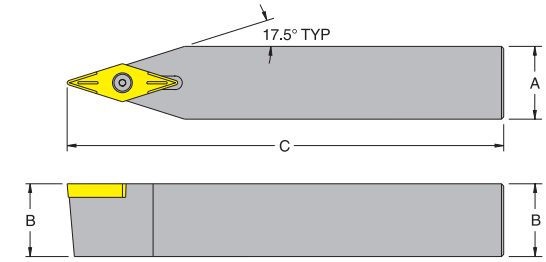


SVV_N R/L Toolholder

Style V - 17.5° Side
Cutting Edge Angle
for 5° / 7° / 11° positive
35° diamond V__T inserts

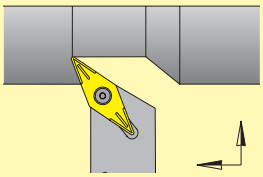


5° Metric Description	Part No. 733101- NEUTRAL	A	B	C	VB_T Gage Insert	Insert Torx Screw	Torx Key
SVVBN2020-K16	54179	20	20	125	160408	TS-35.6-11M1	T-15
SVVBN2585-M16	54180	25	25	150			
7° Metric Description	**NEUTRAL**	**A**	**B**	**C**	**VC_T Gage Insert**	**Insert Torx Screw**	**Torx Key**
SVVCN2020-K16	54181	20	20	125	160408	TS-35.6-11M1	T-15
SVVCN2525-M16	54184	25	25	150			
SVVCN2525-M22	54182	25	25	150	220408	TS-5.8-10M1	T-20
SVVCN3232-M22	54183	32	32	150			
11° Metric Description	**NEUTRAL**	**A**	**B**	**C**	**VP_T Gage Insert**	**Insert Torx Screw**	**Torx Key**
SVVPN2525-M22	54328	25	25	150	220408	TS-5.8-10M1	T-20
SVVPN3232-M22	54329	32	32	150			



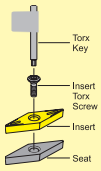
Neutral Hand Shown

For inserts see pages 56-87. For spare parts see pages 158-159.

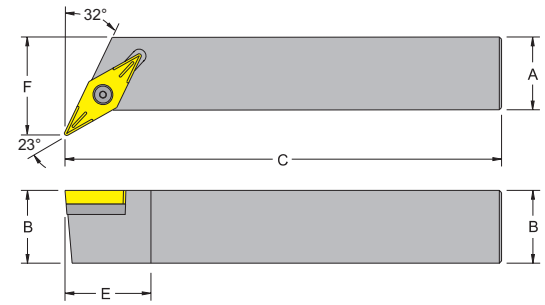


SVXC R/L Toolholder

Style X - 23° Side
Cutting Edge Angle
for 7° positive 35°
diamond VC_T inserts

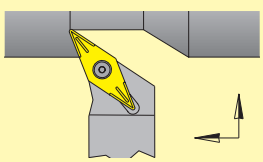


Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	E	F	VC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Torx Key
SVXCR/L2020-K16	54368	54369	20	20	125	18	125	160408	S3516P	BO509	TS-35.6-11M1	T-15
SVXCR/L2525-M16	54370	54371	25	25	150	25	150					



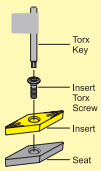
Right Hand Shown, Left Hand Opposite

For inserts see pages 56-87. For spare parts see pages 158-159.

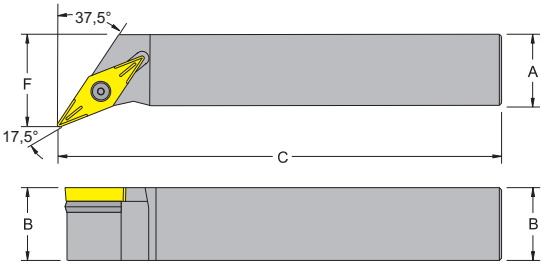


SVH_ R/L Toolholder

Style H - 17.5° Side
Cutting Edge Angle
for 5° / 7° positive 35°
diamond V__T inserts

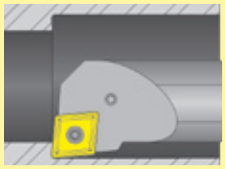


5° Metric Description	Part No. 733101- R.H.	L.H.	A	B	C	F	VB_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Torx Key
SVHBR/L2020-K16	54000	54001	20	20	125	25	160408	S3516P	BO509	TS-35.6-11M1	T-15
SVHBR/L2525-M16	54002	54003	25	25	150	32					
7° Metric Description	**Part No. 733101- R.H.**	**L.H.**	**A**	**B**	**C**	**F**	**VC_T Gage Insert**	**Seat**	**Seat Screw**	**Insert Torx Screw**	**Torx Key**
SVHCR/L2020-K16	54004	54005	20	20	125	25	160408	S3516P	BO509	TS-35.6-11M1	T-15
SVHCR/L2525-M16	54006	54007	25	25	150	32					



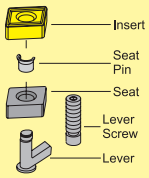
Right Hand Shown, Left Hand Opposite

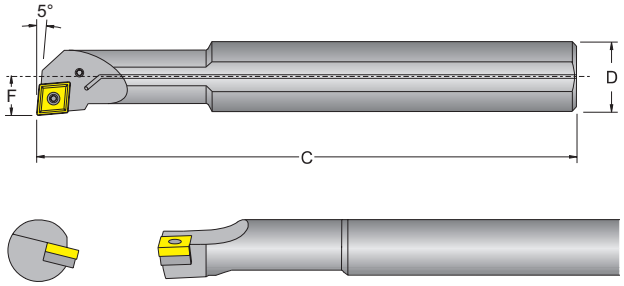
For inserts see pages 56-87. For spare parts see pages 158-159.



A-PCLN
R/L Boring Bar

Style L - Negative 5°
Side & End Cutting Edge
Angle for negative 80°
diamond CNM_ inserts

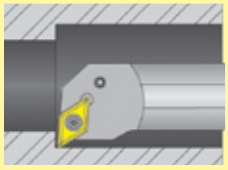




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	CNM_ Gage Insert	Seat	Seat Pin	Lever	Lever Screw	Wrench
A20Q-PCLNR/L-09	54500	54501	25	180	20	13	09T308	S8009N	S535	LV01	V0601	CBR25
A25R-PCLNR/L-09	54502	54503	32	200	25	17						
A25R-PCLNR/L-12	54504	54505	32	200	25	17	120408	S8012N	S635	LV02	V0802	CBR30
A32S-PCLNR/L-12	54506	54507	40	250	32	22						
A40T-PCLNR/L-12	54508	54509	50	300	40	27						
A50U-PCLNR/L-12	54510	54511	63	350	50	35						

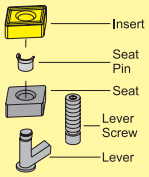
Right Hand Shown, Left Hand Opposite

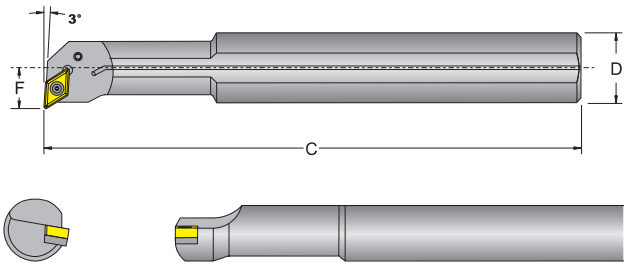
For inserts see pages 56-87. For spare parts see pages 158-159.



A-PDUN
R/L Boring Bar

Style U - Negative 3° End
Cutting Edge Angle for
negative 55° diamond
DNM_ inserts

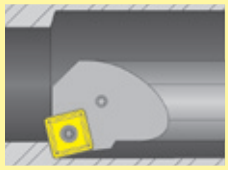




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	DNM_ Gage Insert	Seat	Seat Pin	Lever	Lever Screw	Wrench
A32S-PDUNR/L-15	54522	54523	40	250	32	22	150408	S5515N	S635	LV05	V0805	CBR30
A40T-PDUNR/L-15	54524	54525	50	300	40	27						
A50U-PDUNR/L-15	54526	54527	63	350	50	35						

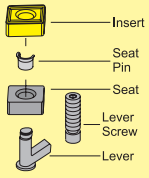
Right Hand Shown, Left Hand Opposite

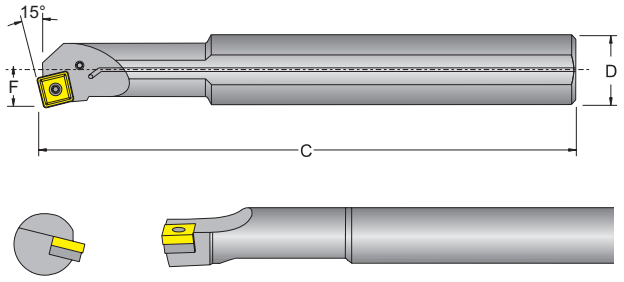
For inserts see pages 56-87. For spare parts see pages 158-159.



A-PSKN
R/L Boring Bar

Style K -15° End Cutting
Edge Angle for negative
square SNM_ inserts

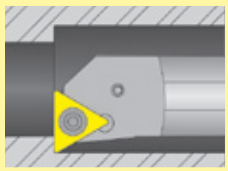




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	SNM_ Gage Insert	Seat	Seat Pin	Lever	Lever Screw	Wrench
A25R-PSKNR/L-12	54538	54539	32	200	25	17	120408	S9012N	S635	LV02	V0802	CBR30
A32S-PSKNR/L-12	54540	54541	40	250	32	22						
A40T-PSKNR/L-12	54542	54543	50	300	40	27						

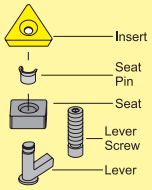
Right Hand Shown, Left Hand Opposite

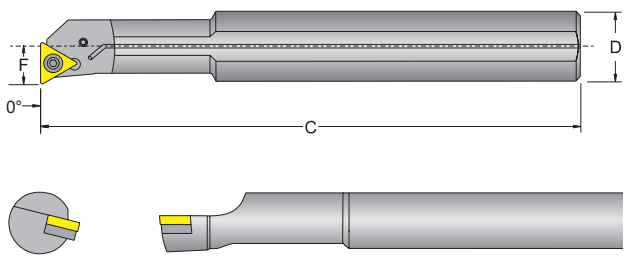
For inserts see pages 56-87. For spare parts see pages 158-159.



A-PTFN
R/L Boring Bar

Style F - 0° End
Cutting Edge Angle
for negative triangle
TNM_ inserts

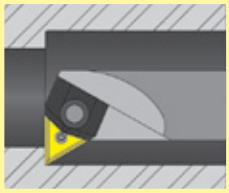




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	TNM_ Gage Insert	Seat	Seat Pin	Lever	Lever Screw	Wrench
A25R-PTFNR/L-16	54554	54555	32	200	25	17	160408	S6016N	S535	LV01	V0601	CBR25
A32S-PTFNR/L-16	54556	54557	40	250	32	22						

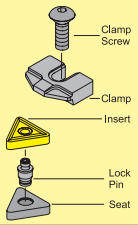
Right Hand Shown, Left Hand Opposite

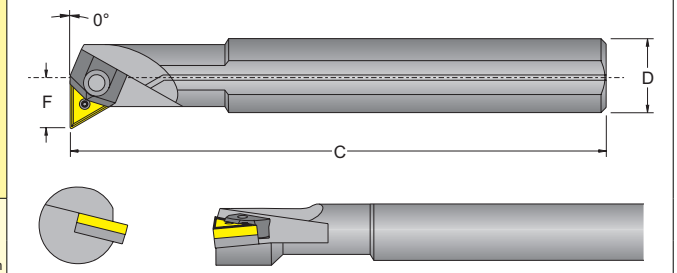
For inserts see pages 56-87. For spare parts see pages 158-159.



A-WTFN
R/L Boring Bar

Style F - 0° End Cutting Edge Angle for negative triangle TNM_ inserts

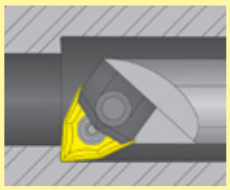




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Wrench
A25R-WTFNR/L-16	54584	54585	32	200	25	17						
A32S-WTFNR/L-16	54586	54587	40	250	32	22	160408	S6016P	P0502	C60616N	V6016	CBR30
A40T-WTFNR/L-16	54588	54589	50	300	40	27						

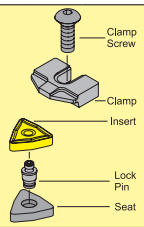
Right Hand Shown, Left Hand Opposite

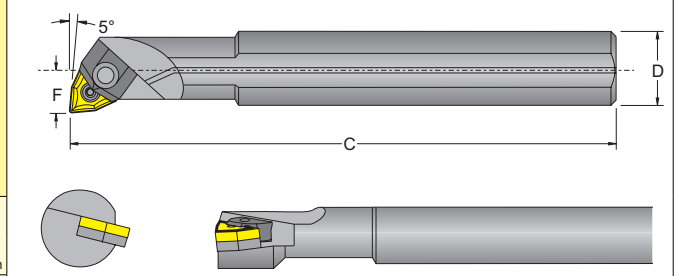
For inserts see pages 56-87. For spare parts see pages 158-159.



A-WWLN
R/L Boring Bar

Style L-Negative 5° End & Side Cutting Edge Angle for negative trigon WNM_ inserts

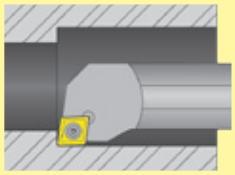




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	WNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Wrench
A25R-WWLNR/L-08	54600	54601	32	200	25	17						
A32S-WWLNR/L-08	54602	54603	40	250	32	22	080408	S8008P	P0602	C8008N	V8008	CBR30
A40T-WWLNR/L-08	54604	54605	50	300	40	27						

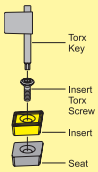
Right Hand Shown, Left Hand Opposite

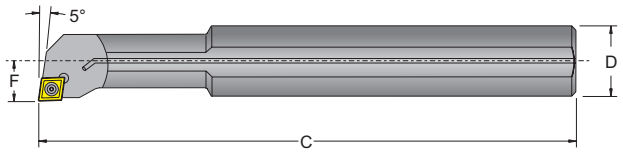
For inserts see pages 56-87. For spare parts see pages 158-159.



A-SCLC
R/L Boring Bar

Style L-Negative 5° End
& Side Cutting Edge
Angle for 7° positive 80°
diamond CC_T inserts

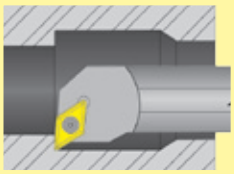




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	CC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Tork Key
A08H-SCLCR/L-06	54616	54617	10	100	08	05	060204	-	-	TS-25.45-6M2	T-8
A10J-SCLCR/L-06	54618	54619	12	110	10	07					
A12K-SCLCR/L-06	54620	54621	16	125	12	09					
A16M-SCLCR/L-09	54622	54623	20	150	16	11	09T308	-	-	TS-35.6-9M1	T-15
A20Q-SCLCR/L-09	54624	54625	25	180	20	13					
A25R-SCLCR/L-09	54626	54627	32	200	25	17					
A25R-SCLCR/L-12	54628	54629	32	200	25	17	120408	-	BO609	TS-4.7-14M1	T-15
A32S-SCLCR/L-12	54630	54631	40	250	32	22	120408	S8012P	BO609	TS-4.7-14M1	T-15

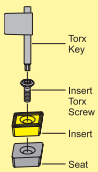
Right Hand Shown, Left Hand Opposite

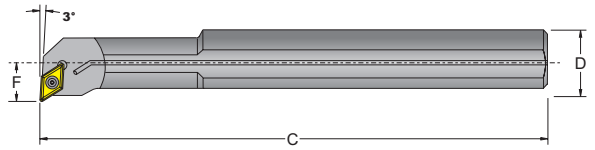
For inserts see pages 56-87. For spare parts see pages 158-159.

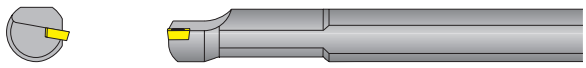


A-SDUC
R/L Boring Bar

Style U - Negative 3° End
Cutting Edge Angle
for 7° positive 55°
diamond DC_T inserts



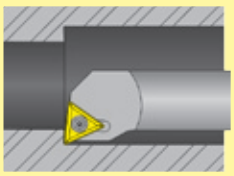




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	DC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Tork Key
A10J-SDUCR/L-07	54642	54643	13	110	10	08	070204	-	-	TS-25.45-6M2	T-8
A12K-SDUCR/L-07	54544	54645	16	125	12	09					
A16M-SDUCR/L-07	54646	54647	20	150	16	11					
A20Q-SDUCR/L-07	54648	54649	25	180	20	13					
A20Q-SDUCR/L-11	54650	54651	25	180	20	13	11T308	-	-	TS-35.6-9M1	T-15
A25R-SDUCR/L-11	54652	54653	32	200	25	17					
A32S-SDUCR/L-11	54654	54655	40	250	32	22	11T308	S5515P	BO509	TS-35.6-11M1	T-15

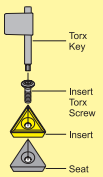
Right Hand Shown, Left Hand Opposite

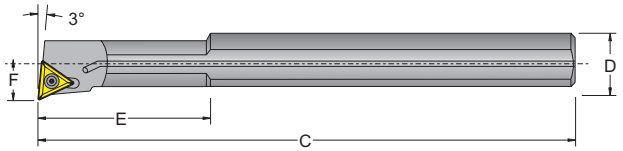
For inserts see pages 56-87. For spare parts see pages 158-159.



A-STUC
R/L Boring Bar

Style U - Negative 3° End
Cutting Edge Angle
for 7° positive triangle
TC_T inserts

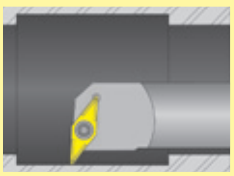




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	TC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Tork Key
A12K-STUCR/L-11	54668	54669	16	125	12	09	110304	-	-	TS-25.45-6M2	T-8
A16M-STUCR/L-16	54670	54671	20	150	16	11	160408	-	-	TS-25.45-9M1	T-15
A20Q-STUCR/L-16	54672	54673	25	180	20	13					
A25R-STUCR/L-16	54674	54675	32	200	25	17					
A32S-STUCR/L-16	54676	54677	40	250	32	22	160408	S6016P	BO509	TS-35.6-11M1	T-15

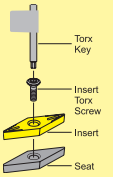
Right Hand Shown, Left Hand Opposite

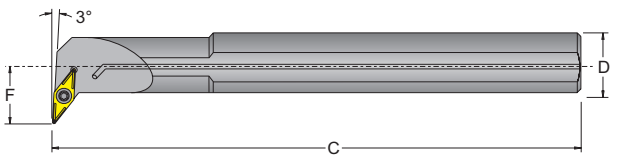
For inserts see pages 56-87. For spare parts see pages 158-159.

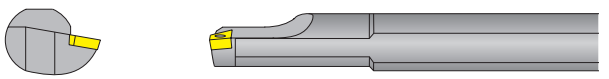


A-SVUC
R/L Boring Bar

Style U - Negative 3° End
Cutting Edge Angle
for 7° positive 35°
diamond VC_T inserts



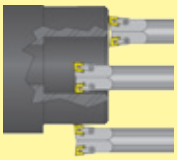




Metric Description	Part No. 733101- R.H.	L.H.	Min. Bore	C	D	F	VC_T Gage Insert	Seat	Seat Screw	Insert Torx Screw	Tork Key
A16M-SVUCR/L-11	54688	54689	21	150	16	12	110304	-	-	TS-25.45-6M2	T-8
A20Q-SVUCR/L-16	54690	54691	25	180	20	13	160408	-	-	TS-35.6-9M1	T-15
A25R-SVUCR/L-16	54692	54693	32	200	25	17					
A32S-SVUCR/L-16	54694	54695	40	250	32	22	160408	S3516P	BO609	TS-35.6-14M1	T-15

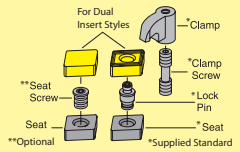
Right Hand Shown, Left Hand Opposite

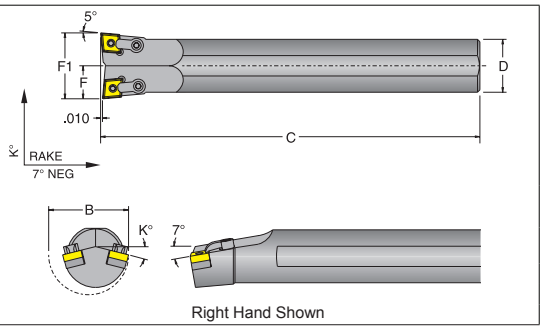
For inserts see pages 56-87. For spare parts see pages 158-159.



S-DCLN
R Boring Bar

Style L - Negative 5° End or
Side Cutting Edge Angle
for 80° diamond CNM_ inserts

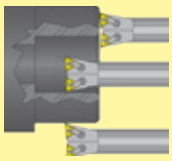




Right Hand Shown

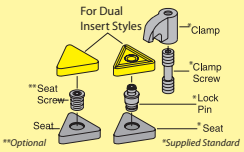
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	CNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S20M-DCLN-09	57505	31	150	20	13	38	14°	120408	-	NL-44	CL-7	XNS-35	-
S25Q-DCLN-12	57507	38	175	25	16	38	14°	120408	ICSN-433	NL-46	CL-20	XNS-48	S-46
S32R-DCUN-12	57509	44	200	32	19	38	14°						

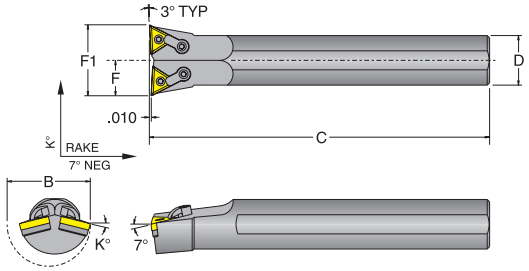
For inserts see pages 56-87. For spare parts see pages 162-163.



S-DTUN
R Boring Bar

Style U - Negative 3° End or
Side Cutting Edge Angle
for triangle TNM_ inserts

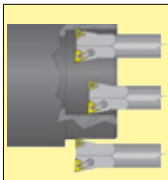




Right Hand Shown

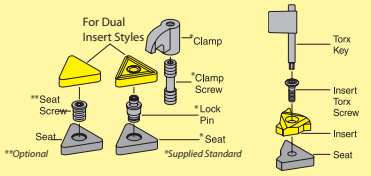
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Optional Seat Screw
S25Q-DTUN-11	57551	38	175	25	16	38	14°	160308	ITSN-322	NL-34	CL-6	XNS-36	S-34
S32R-DTUN-11	57553	44	200	32	19	38	14°						

For inserts see pages 56-87. For spare parts see pages 158-159.

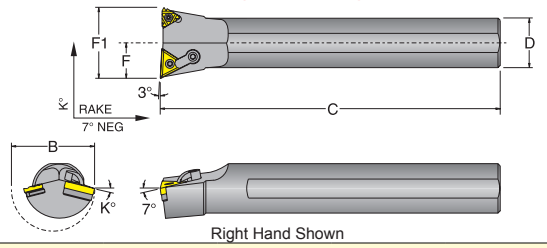


S-DTUN_T
R Boring & Threading Bar

Style U - Negative 3° End or
Side Cutting Edge Angle
for one triangle TNM_
& one Laydown insert



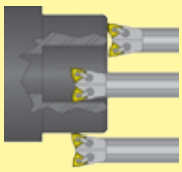
Boring & Threading



Right Hand Shown

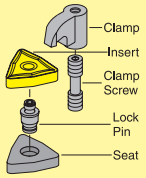
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	TNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw	Laydown Insert	TPI	Seat	Insert Torx Screw	Torx Key
S25Q-DTUN-11-T16	57577	38	175	25	16	38	14°	160308	ITSN-322	NL-34	CL-6	XNS-36	16ILAG60	8-48	GX-16-1	TS-16	T-10
S32R-DTUN-11-T16	57579	44	200	32	19	38	14°										

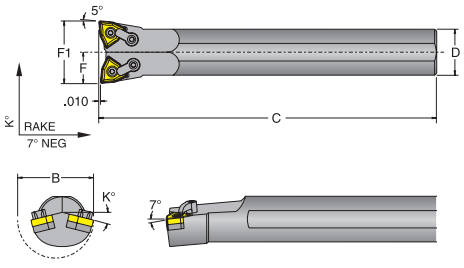
For inserts see pages 56-87. For spare parts see pages 158-159.



S-DWLN
R Boring Bar

Style L - Negative 5° End or
Side Cutting Edge Angle
for 80° trigon WNM_ inserts

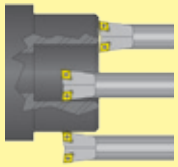




Right Hand Shown

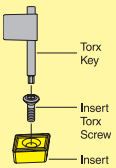
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	WNM_ Gage Insert	Seat	Lock Pin	Clamp	Clamp Screw
S20M-DWLN-06	57612	31	150	20	13	38	14°	060408	-	NL-33L	HC-7	SHC-7
S25Q-DWLN-06	57616	38	175	25	16	38	14°					
S25Q-DWLN-08	57619	38	175	25	17	38	14°	080408	-	NL-44	CL-6	XNS-36
S32R-DWLN-08	57621	44	200	32	22	38	14°	080408	IWSN-433	NL-46	CL-6	XNS-36

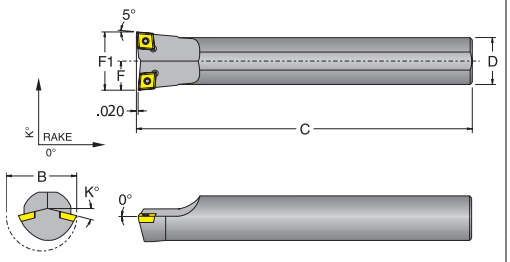
For inserts see pages 56-87. For spare parts see pages 158-159.



MINI S-DCLC
R/L Boring Bar

Style L - Negative 5° End or Side Cutting Edge Angle for two 7° positive 80° diamond CC_T inserts

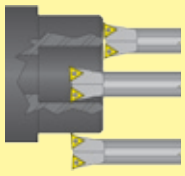




Right Hand Shown

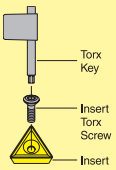
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	CC_T Gage Insert	Insert Torx Screw	Torx Key
S12K-DCLC-06	57702	15	125	12	8	16	5°	060204	TS-25.45-6M1	T-7
S16L-DCLC-06	57706	23	138	16	10	20	5°			
S20M-DCLC-09	57709	27	150	20	13	25	5°	09T308	TS-4.7-10M1	T-15
S25Q-DCLC-12	57711	34	175	25	16	32	7°	120408	TS5.8-10M1	T-20
S32R-DCLC-12	57713	41	200	32	19	38	5°			

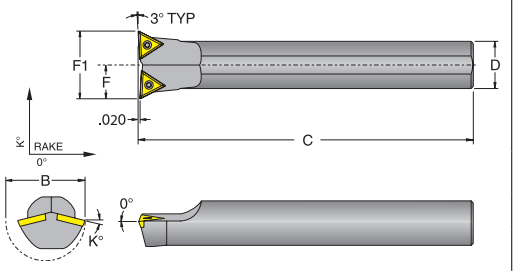
For inserts see pages 56-87. For spare parts see pages 158-159.



MINI S-DTUC
R Boring Bar

Style U - Negative 3° End or Side Cutting Edge Angle for two 7° positive triangle TC_T inserts

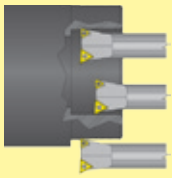




Right Hand Shown

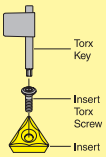
Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	TC_T Gage Insert	Insert Torx Screw	Torx Key
S12K-DTUC-11	57738	22	125	12	11	21	5°	110204	TS-25.45-6M1	T-7
S16L-DTUC-11	57742	25	138	16	11	22	5°			
S20M-DTUC-11	57746	27	150	20	13	25	5°			
S25Q-DTUC-16	57749	34	175	25	16	32	5°	16T308	TS-4.7-10M1	T-15
S32R-DTUC-16	57751	41	200	32	19	38	5°			

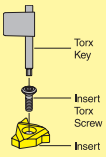
For inserts see pages 56-87. For spare parts see pages 158-159.



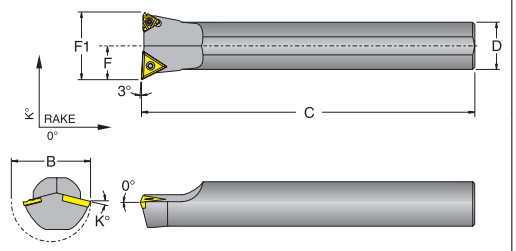
MINI S-DTUC-T
R Boring & Threading Bar

Style U - Negative 3° End or Side Cutting Edge Angle for one 7° positive triangle TC_T & one Laydown insert





Boring & Threading

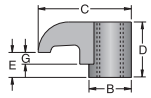


Right Hand Shown

Inch Description	Part No. 733101- R.H.	Min. Bore B	C	D	F	F1	K°	TC_T Gage Insert	Insert Torx Screw	Torx Key	Laydown Insert	TPI	Insert Torx Screw	Torx Key
S12K-DTUC-11-T11	57760	22	125	12	11	21	5°	110204	TS-25.45-6M2	T-8	111IL-A60	16-48	TS-25.45-6M2	T-8
S16L-DTUC-11-T11	57764	25	138	16	11	21.9	5°							
S20M-DTUC-11-T11	57768	27	150	20	13	25	5°							
S25Q-DTUC-16-T16	57771	34	175	25	16	32.0	5°	16T308	TS-4.7-10M1	T-15	161IL-A60	8-48	TS-16	T-10
S32R-DTUC-16-T16	57773	41	200	32	19	38.3	5°							

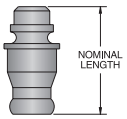
For inserts see pages 56-87. For spare parts see pages 158-159.

Finger Clamp



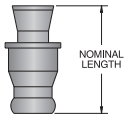
Desc.	Part No. 733101-	B	C	D	E	G	Thread	PKG.
CL-5	90680	.280	.52	.350	.102	-	10-32	
CL-6	90681	.310	.58	.440	.187	.094	10-32	
CL-7	90682	.310	.64	.310	.082	-	10-32	
CL-9	90683	.430	.75	.660	.344	.125	5/16-24	
CL-12	90684	.430	.88	.660	.344	.125	5/16-24	10
CL-19	90685	.310	.55	.310	.062	-	10-32	
CL-20	90686	.375	.73	.380	.125	-	1/4-28	
CL-24	90687	.491	1.0	.785	.453	.136	3/8-24	
CL-30	90688	.430	1.0	.660	.344	.125	5/16-24	

Negative Lock Pins



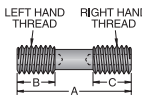
Desc.	Part No. 733101-	Insert I.C.	Nominal Length	Thread	Hex Wrench Size	PKG.
Inch						
NL-23	90472	.250	.328	8-32	1/16	
NL-33	90473	.375	.344	10-32	5/64	
NL-33L	90474	.375	.406	10-32	5/64	
NL-34	90475	.375	.453	10-32	5/64	
NL-34L	90476	.375	.516	10-32	5/64	
NL-43	90477	.500	.420	10-32	5/64	
NL-44	90478	.500	.516	1/4-28	3/32	
NL-46	90479	.500	.672	1/4-28	3/32	
NL-46L	90480	.500	.730	1/4-28	3/32	
NL-56	90481	.625	.703	5/16-24	1/8	10
NL-57	90482	.625	.810	5/16-24	1/8	
NL-58	90483	.625	.859	5/16-24	1/8	
NL-58L	90484	.625	.890	5/16-24	1/8	
NL-66	90485	.750	.703	3/8-24	9/64	
NL-66L	90486	.750	.828	3/8-24	9/64	
NL-68	90487	.750	.859	3/8-24	9/64	
NL-68L	90488	.750	.953	3/8-24	9/64	
NL-808	90489	1.00	.940	7-16-20	5/32	
NL-810	90490	1.00	1.17	7-16-20	5/32	
Metric						
S535	91320	09	5	-	2,5	
S635	91321	12	6	-	3,0	
S840	91322	16	8	-	3,0	
S990	91323	19	10,5	-	3,0	10
P0502	91324	16	16	-	--	
P0602	91325	08	15	-	--	
S311	91326	16	11	-	4,0	

Positive Lock Pins



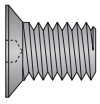
Desc.	Part No. 733101-	Insert I.C.	Nominal Length	Hex Wrench Size	PKG.
PL-46	90495	.500	.672	3/32	
PL-58	90496	.625	.859	1/8	10
PL-68	90497	.750	.859	9/64	

Finger Clamp Screws



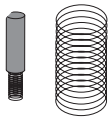
Desc.	Part No. 733101-	A	B	C	Thread Size	Hex Wrench Size	PKG.
XNS-26	90900	0.750	.31	.31	8-32	5/64	
XNS-35	90901	0.625	.22	.22	10-32	3/32	
XNS-36	90902	0.750	.25	.25	10-32	3/32	
XNS-37	90903	0.840	.31	.31	10-32	3/32	
XNS-38	90904	1.000	.37	.37	10-32	3/32	
XNS-46	90905	0.750	.31	.31	1/4-28	1/8	
XNS-47	90906	0.875	.28	.28	1/4-28	1/8	10
XNS-48	90907	1.000	.37	.37	14/-28	1/8	
XNS-58	90910	1.000	.50	.28	5/16-24	5/32	
XNS-59	90911	1.125	.47	.41	5/16-24	5/32	
XNS-510	90908	1.250	.50	.50	5/16-24	5/32	
XNS-610	90912	1.250	.50	.50	3/8-24	3/16	

Seat Screws



Desc.	Part No. 733101-	I.C.	Thread	Hex Wrench Size	PKG.
Inch					
S-34	91295	.375	10-32	5/64	
S-46	91296	.500	1/4-28	3/32	
S-58	91297	.625	5/16-24	1/8	
S-68	91298	.750	3/8-24	9/64	
Metric					
V83006	91327	16	M-3	2,5	
B0509	91328	11-16	M-5	3,5	10
B0609	91329	12	M-6	4,0	

Profiling Clamp Pin and Spring

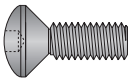


Desc.	Part No. 733101-		PKG.
SC510	91330	Clamp Pin	10
M428	91331	Spring	10

Wedge Lock Clamps / Profiling Clamps

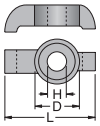
Desc.	Part No. 733101-		PKG.
C6016N	91332	Wedge Lock Clamp	10
C8008N	91333		
SKN16R	91334	Profiling Clamps	10
SKN16L	91335		

Wedge Clamp Screws



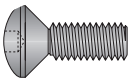
Desc.	Part No. 733101-	Length	Thread	Hex Wrench Size	PKG.
V6016	91336	23	M5	2.5	10
V8008N	91337	23	M6	3.0	10

Bridge Clamps



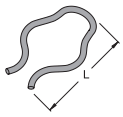
Desc.	Part No. 733101-	L	D	H	PKG.
HC-7	90915	.469	.313	.172	
HC-9	90917	.625	.375	.203	10
HC-12	90919	.812	.500	.266	

Bridge Clamp Screws



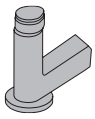
Desc.	Part No. 733101-	Length	Thread	Hex Wrench Size	PKG.
SHC-7	90920	.375	8-32	3-32	
CS-94	90921	.580	10-32	1/8	10
CS-96	90923	.840	10-32	1/8	
CS-126	90925	.860	1/4-28	5/32	

Bridge Clamp Screw Clip



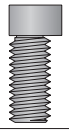
Desc.	Part No. 733101-	Length	PKG.
CLP-9	90928	.312	10
CLP-12	90930	.422	

Lever Locks



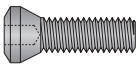
Desc.	Part No. 733101-	PKG.
LV01	91338	
LV02	91339	
LV05	91340	10
LV06	91341	
LV09	91342	

Lever Screws



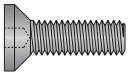
Desc.	Part No. 733101-	Lever	Hex Wrench Size	PKG.
V0601	91344	LV01	3.0	
V0802	91345	LV02	3.0	
V0805	91346	LV05	3.0	10
V1006	91347	LV06	4.0	
V1209	91348	LV09	4.0	

Boring Insert Torx Screw



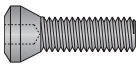
Desc.	Part No. 733101-	I.C.	Torx Key	PKG.
TS-18.35-1M1	91304	.156	T-6	
TS-18.35-1.5M1	91305	.188	T-6	
TS-06	91306	.156	T-6	
TS-25.45-6M2	90972	.250	T-8	
TS-4.7-8M1	90976	.375	T-15	
TS-4.7-10M1	90982	.375	T-15	10
TS-44-3-M	90937	.375	T-10	
TS-44-4-M	90939	.375	T-10	
TS-103-4M1	90956	.500	T-20	
TS-83-4M1	90950	.500	T-20	
TS-5.8-10M1	90986	.750	T-20	

Positive Seat Screw



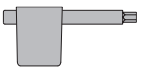
Desc.	Part No. 733101-	I.C.	Hex Wrench Size	PKG.
TS-4	90931	.375 or .500	T-10	
TS-6	90944	.500 or .750	T-20	10
TS-10	90955	.625	T-25	

Turning Insert Torx Screw



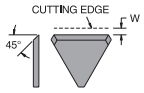
Desc.	Part No. 733101-	I.C.	Torx Key	PKG.
TS-25.45-6M2	90972	.250	T-7	
TS-3.5-7M1	90971	.315	T-8	
TS-35.6-9M1	90973	.394	T-15	
TS-4.7-10M1	90982	.375	T-15	10
TS-1032-4M1	90956	.500	T-20	
TS-5.8-10M1	90986	.750	T-20	

Torx Keys



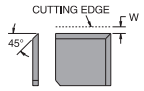
Desc.	Part No. 733101-
T-6	92001
T-7	92002
T-8	92003
T-9	92004
T-10	92005
T-15	92006
T-20	92007
T-25	92008
T-30	92009

Triangle Chipbreakers



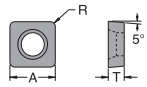
Desc.	Part No.733101-	I.C.	Effective Width W	PKG.
T2AC	90446	.250	.060	10
T3AC	90452	.375	.060	
T3AE	90453	.375	.090	
T3AG	90454	.375	.125	
T4AC	90459	.500	.060	
T4AE	90460	.500	.090	
T4AG	60461	.500	.125	
T5AC	90465	.625	.100	
T5AG	90466	.625	.140	
T5AJ	90467	.625	.180	

Square Chipbreakers



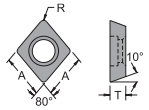
Desc.	Part No.733101-	I.C.	Effective Width W	PKG.
S3BC	90440	.375	.060	10
S4BE	90442	.500	.060	
S6BG	90444	.750	.125	

Positive Square Shim Seats



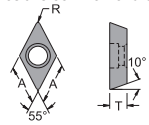
Desc.	Part No.733101-	A	T	R	PKG.
Inch					
SM-40	90373	.500	.1250	.0156	10
SM-36	90374	.750	.1250	.0469	
Metric					
S9012P	90370	11,4	3,18	0,8	10

Positive 80° Diamond Shim Seats



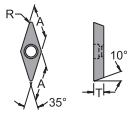
Desc.	Part No.733101-	A	T	R	PKG.
Metric					
S8012P	53291	11,4	3,18	0,8	10

Positive 55° Diamond Shim Seats



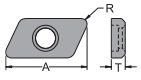
Desc.	Part No.733101-	A	T	R	PKG.
Metric					
S5515P	91351	8,4	3,18	0,8	10

Positive 35° Diamond Shim Seats



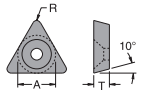
Desc.	Part No.733101-	A	T	R	PKG.
Metric					
S3516P	91349	8,4	3,18	0,8	10
S3516	91350	8,4	3,18	0,8	

Profiling Shim Seats



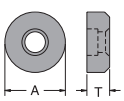
Desc.	Part No.733101-	A	T	R	PKG.
Metric					
CKN16R	91353	14,5	4,76	1,0	10
CKN16L	91354	14,5	4,76	1,0	

Positive Triangle Shim Seats



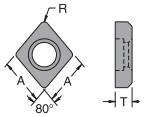
Desc.	Part No.733101-	A	T	R	PKG.
Inch					
SM-41	90367	.332	.1250	.0156	
SM-37	90366	.452	.1250	.0312	
SM-99	90371	.540	.1875	.0469	
Metric					
S6016P	91355	8,8	3,18	0,8	10

Positive Round Shim Seats



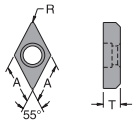
Desc.	Part No.733101-	A	T	PKG.
RS-43P	90375	.500	.1875	10
RS-63P	90377	.750	.1875	
RS-83P	90378	1.00	.1875	

Negative 80° Diamond Shim Seats



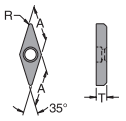
Desc.	Part No.733101-	A	T	R	PKG.
Inch					
ICSN-322	90003	.375	.1250	.0312	10
ICSN-332	90007	.375	.1875	.0312	
ICSN-422	90004	.500	.1250	.0312	
ICSN-423	90005	.500	.1250	.0469	
ICSN-433	90008	.500	.1875	.0469	
ICSN-533	90010	.625	.1875	.0469	
ICSN-633	90012	.750	.1875	.0469	
Metric					
S8009N	91356	8,5	3,18	0,8	10
S8012N	91357	11,4	3,18	1,2	
S8016N	91358	14,6	4,76	1,4	
S8019N	91359	18,0	4,76	1,6	

Negative 55° Diamond Shim Seats



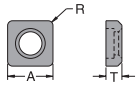
Desc.	Part No.733101-	A	T	R	PKG.
Inch					
IDSN-322	90016	.375	.1250	.0312	10
IDSN-423	90018	.500	.1250	.0469	
IDSN-433	90021	.500	.1875	.0469	
IDSN-533	90024	.625	.1875	.0469	
IDSN-534	90025	.625	.1875	0.625	
Metric					
S5515N	91360	11,8	3,18	1,2	10

Negative 35° Diamond Shim Seats



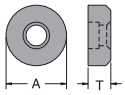
Desc.	Part No.733101-	A	T	R	PKG.
IVSN-322	90065	.375	.1250	.0312	10
IVSN-324	90066	.375	.1250	.0625	
IVSN-433	90068	.500	.1875	.0469	

Negative Square Shim Seats



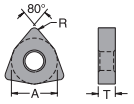
Desc.	Part No.733101-	A	T	R	PKG.
Inch					
ISNN-322	90050	.375	.1250	.0312	10
ISNN-323	90051	.375	.1250	.0469	
ISNN-333	90054	.375	.1875	.0469	
ISNN-423	90056	.500	.1250	.0469	
ISNN-433	90059	.500	.1875	.0469	
ISNN-533	90060	.625	.1875	.0469	
ISNN-633	90062	.750	.1875	.0469	
ISNN-634	90063	.750	.1875	.0625	
ISNN-846	90064	1.00	.2500	.0937	
Metric					
S9012N	91361	11,4	3,8	0,8	10

Negative Round Shim Seats



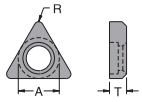
Desc.	Part No.733101-	A	T	PKG.
IRSN-32	90030	.375	.1250	10
IRSN-43	90031	.500	.1875	
IRSN-53	90032	.625	.1875	
IRSN-63	90033	.750	.1875	
IRSN-84	90034	1.00	.2500	

Negative 80° Trigon Shim Seats



Desc.	Part No.733101-	A	T	R	PKG.
Inch					
IWSN-322	90070	.375	.1250	.0312	10
IWSN-432	90071	.500	.1875	.0312	
IWSN-433	90072	.500	.1875	.0469	
IWSN-533	90073	.625	.1875	.0469	
Metric					
S8008P	91362	12,5	3,18	1,0	10

Negative Triangle Shim Seats



Desc.	Part No.733101-	A	T	R	PKG.
Inch					
ITSN-322	90084	.375	.1250	.0312	10
ITSN-323	90085	.375	.1250	.0469	
ITSN-324	90086	.375	.1250	.0625	
ITSN-332	90087	.375	.1875	.0312	
ITSN-333	90088	.375	.1875	.0469	
ITSN-334	90089	.375	.1875	.0625	
ITSN-423	90090	.500	.1250	.0469	
ITSN-432	90092	.500	.1875	.0312	
ITSN-433	90093	.500	.1875	.0469	
ITSN-434	90094	.500	.1875	.0625	
ITSN-533	90098	.625	.1875	.0469	
ITSN-534	90099	.625	.1875	.0625	
ITSN-633	90105	.750	.1875	.0469	
ITSN-636	90106	.750	.1875	.0937	
Metric					
S6016P	91363	8,4	3,18	0,8	10

Index / Product Group

Positive Inserts

UEF

UEU

PEF/PEM/PER

MEM/KEM

KEU

NFU

Positive Inserts

EN

UEX

E

Negative Inserts

UEX

PEX

PEF/PEM/PER

UEM

PSH/PSS/PST

Negative Inserts

MEF/MEM/MER

KEF/KEU/KER

SEF/SEM/SER

EL/ER/EN

EG

Inch Toolholder

Multi Lock

Wedge Lock

Profile

Cam Lock

Clamp Lock

Screw Lock

Inch Toolholder

Screw Lock

Convex Radius

Utility

Inch Boring Bar

Multi Lock

Clamp Lock

Utility

Mini. Screw Lock

Mini. Double Insert

Double Insert

Screw Lock 5º

Screw Lock 7º

Screw Lock 11º

Metric Toolholder

Lever Lock

Wedge Lock

Profile

Screw Lock 5º

Screw Lock 7º

Screw Lock 11º

Metric Boring Bar

Lever Lock

Wedge Lock

Screw Lock 7º

SETS

Turning and Boring SETS

Linear Measurement

1 foot = 12 inches
1 yard = 3 feet
1 yard = 36 inches
1 mile = 1,760 yards
1 mile = 5,280 feet
1 mile = 63,360 inches
1 light year = 5.879 trillion miles

1 inch = 2.540 centimeters
1 foot = .3048 meters
1 yard = .9144 meters
1 mile = 1.609 kilometers
1 centimeter = .3937 inches
1 meter = 3.281 feet
1 meter = 1.094 yards
1 kilometer = .6214 miles

1 kilometer = 1000 meters
1 hectometer = 100 meters
1 dekameter = 10 meters
1 meter = 10 decimeters
1 meter = 100 centimeters
1 meter = 1000 millimeters
1 light year = 9.46 trillion kilometers

Square Measurement

1 sq. foot = 144 sq. inches
1 sq. yard = 9 sq. feet
1 sq. yard = 1,296 sq. inches
1 sq. mile = 3,097,600 sq. yards
1 sq. mile = 27,878,400 sq. feet
1 sq. mile = 4,014,489,600 sq. inches
1 acre = 4,840 sq. yards
1 acre = 43,560 sq. feet
1 acre = 6,272,640 sq. inches

1 sq. inch = 6.452 sq. centimeters
1 sq. foot = .09290 sq. meters
1 sq. yard = .8361 sq. meters
1 sq. mile = 2.590 sq. kilometers
1 sq. centimeter = .155 sq. inches
1 sq. kilometer = 247.1 acres
1 sq. kilometer = .3861 sq. miles
1 sq. meter = 10.76 sq. feet
1 sq. meter = 1.196 sq. yards

1 sq. kilometer = 1,000,000 sq. meters
1 sq hectometer = 10,000 sq. meters
1 sq dekameter = 100 sq. meters
1 sq meter = 100 sq. decimeters
1 sq meter = 10,000 sq. centimeters
1 sq meter = 1,000,000 sq. millimeters

Cubic Measurement

1 cu. foot = 1,728 cu. inches
1 cu. yard = 27 cu. feet
1 cu. yard = 46,656 cu. inches

1 cu. inch = 16.39 cu. centimeters
1 cu. foot = 28,320 cu. centimeters
1 cu. foot = .02832 cu. meters
1 cu. yard = 764,600 cu. centimeters
1 cu. yard = .7646 cu. meters
1 cu. centimeter = .06102 cu. inches
1 cu. meter = 35.31 cu. feet
1 cu. meter = 61,023 cu. inches
1 cu. meter = 1.308 cu. yards

1 cu. kilometer = 1,000,000,000 cu. meters
1 cu. hectometer = 1,000,000 cu. meters
1 cu. dekameter = 1,000 cu. meters
1 cu. meter = 1,000 cu. decimeters
1 cu. meter = 1,000,000 cu. centimeters
1 cu. meter = 1,000,000,000 cu. millimeters

Weight Measurements

1 pound = 16 ounces
1 ton = 2000 pounds
1 ton = 32,000 ounces

1 ounce = 28.349527 grams
1 pound = .4536 kilograms
1 english ton = .90718 metric tons
1 gram = .03527 ounces
1 kilogram = 2.205 pounds
1 metric ton = .98421 english tons

1 kilogram = 1000 grams
1 hectogram = 100 grams
1 dekagram = 10 grams
1 gram = 10 decigrams
1 gram = 100 centigrams
1 gram = 1000 milligrams

Fluid Volume Measurements

1 gallon = 4 quarts
1 gallon = 8 pints
1 gallon = 16 cups
1 gallon = 256 liquid ounces
1 quart = 2 pints
1 quart = 4 cups
1 quart = 64 liquid ounces
1 pint = 2 cups
1 pint = 16 liquid ounces
1 cup = 8 liquid ounces

1 gallon = 3.785 liters
1 quart = .9463 liters
1 pint = .4732 liters
1 liter = .2642 gallons
1 liter = 1.057 quarts
1 liter = 2.113 pints

1 kiloliter = 1000 liters
1 hectoliter = 100 liters
1 dekaliter = 10 liters
1 liter = 10 deciliters
1 liter = 100 centiliters
1 liter = 1000 milliliters

Temperature Conversions

To convert Fahrenheit degrees into Celsius, subtract 32, multiply by .5556.

To convert Celsius into Fahrenheit, multiply by 1.8 and add 32.

Speeds

1 mile/hour = 88 feet/minute
1 mile/hour = 1.467 feet/second
1 mile/hour = 1.609 kilometers/hour
1 miles/hour = 44.70 centimeters/second
1 foot/minute = .0113636 miles/hour
1 foot/second = 30.48 centimeters/second
1 foot/second = .6818 miles/hour
1 centimeter/second = .3281 feet/second
speed of sound = 742 miles/hour in air
speed of sound = 1,193.9 kilometers/hour
speed of light = 186,295 miles/second
speed of light = 299,748 kilometers/second

Time

1 minute = 60 seconds
1 hour = 60 minutes
1 hour = 3,600 seconds
1 day = 24 hours
1 day = 1,440 minutes
1 day = 86,400 seconds
1 week = 7 days
1 week = 168 hours
1 week = 10,080 minutes
1 week = 604,800 seconds
1 year = 12 months
1 year = 52 weeks
1 year = 365 days 6 hours
1 year = 8,766 hours
1 year = 525,960 minutes
1 year = 31,557,600 seconds

From Inch to Metric Formula					
	Inch Value				Metric Value
	1.000	x	25.4	=	25.400
	1.000	÷	0.03937	=	25.400

From Inch to Metric Values					
	Inch				Millimeter
	0.00001	x	25.4	=	0.000254
	0.0001	x	25.4	=	0.00254
	0.001	x	25.4	=	0.0254
	0.01	x	25.4	=	0.254
	0.1	x	25.4	=	2.54
	1.00	x	25.4	=	25.40
	1.125	x	25.4	=	28.58
	1.250	x	25.4	=	31.75
	1.375	x	25.4	=	34.93
	1.500	x	25.4	=	38.10
	1.625	x	25.4	=	41.28
	1.750	x	25.4	=	44.45
	1.875	x	25.4	=	47.63
	2.00	x	25.4	=	50.80
	3.00	x	25.4	=	76.20
	4.00	x	25.4	=	101.60
	5.00	x	25.4	=	127.00
	6.00	x	25.4	=	152.40
	7.00	x	25.4	=	177.80
	8.00	x	25.4	=	203.20
	9.00	x	25.4	=	228.60
	10.00	x	25.4	=	254.00
	11.00	x	25.4	=	279.40
	12.00	x	25.4	=	304.80
	13.00	x	25.4	=	330.20
	14.00	x	25.4	=	355.60
	15.00	x	25.4	=	381.00
	16.00	x	25.4	=	406.40
	17.00	x	25.4	=	431.80
	18.00	x	25.4	=	457.20
	19.00	x	25.4	=	482.60
	20.00	x	25.4	=	508.00
	21.00	x	25.4	=	533.40
	22.00	x	25.4	=	558.80
	23.00	x	25.4	=	584.20
	24.00	x	25.4	=	609.60
	25.00	x	25.4	=	635.00
1-Foot	12.00	x	25.4	=	304.80
1-Yard	36.00	x	25.4	=	914.40

From Metric to Inch Formula					
	Metric Value				Inch Value
	1.000	÷	25.4	=	0.03937
	1.000	x	0.03937	=	0.03937

From Metric to Inch Values					
	Millimeter				Inch
	0.00001	÷	25.4	=	0.00000039
	0.0001	÷	25.4	=	0.0000039
	0.001	÷	25.4	=	0.000039
	0.01	÷	25.4	=	0.00039
	0.1	÷	25.4	=	0.00394
	1	÷	25.4	=	0.0394
	1.1	÷	25.4	=	0.0433
	1.2	÷	25.4	=	0.0472
	1.3	÷	25.4	=	0.0512
	1.4	÷	25.4	=	0.0551
	1.5	÷	25.4	=	0.0591
	1.6	÷	25.4	=	0.0630
	1.7	÷	25.4	=	0.0669
	1.8	÷	25.4	=	0.0709
	1.9	÷	25.4	=	0.0748
	2	÷	25.4	=	0.0787
	3	÷	25.4	=	0.1181
	4	÷	25.4	=	0.1575
	5	÷	25.4	=	0.1969
	6	÷	25.4	=	0.2362
	7	÷	25.4	=	0.2756
	8	÷	25.4	=	0.3150
	9	÷	25.4	=	0.3543
	10	÷	25.4	=	0.3937
	11	÷	25.4	=	0.4331
	12	÷	25.4	=	0.4724
	13	÷	25.4	=	0.5118
	14	÷	25.4	=	0.5512
	15	÷	25.4	=	0.5906
	16	÷	25.4	=	0.6299
	17	÷	25.4	=	0.6693
	18	÷	25.4	=	0.7087
	19	÷	25.4	=	0.7480
	20	÷	25.4	=	0.7874
	21	÷	25.4	=	0.8268
	22	÷	25.4	=	0.8661
	23	÷	25.4	=	0.9055
	24	÷	25.4	=	0.9449
	25	÷	25.4	=	0.9843
1-Meter	1000	÷	25.4	=	39.3701
1-Decimeter	100	÷	25.4	=	3.9370
1-Centimeter	10	÷	25.4	=	0.3937
1-Millimeter	1	÷	25.4	=	0.0394

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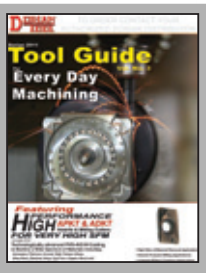
Company Name:	**Phone Number:**
Mailing Address:	

Catalog		Quantity	Catalog		Quantity
NEW 2012 Turning Tools & CARBIDE INSERTS Dorian Tool offers a complete selection of indexable cutting tools. Our wide variety of Turning, Boring, threading tools and inserts provide solutions for all your Turning, Facing, Boring, Chamfering, I.D. & O.D. Profiling, Chuck Work and Between Center Work Machining Operations. **Featuring a NEW EXTENDED line of CARBIDE INSERTS!**		Online Only New Catalog Coming Soon	**NEW 2012 Jet-Stream™ Thru Coolant System** Dorian Tool's Jet-Stream™ Thru Coolant Cutting Tools use a patented thru-coolant locking clamp which is precisely aimed to direct high pressure, high velocity coolant exactly onto the cutting edge of the carbide insert, from a short distance of ¼"(6mm). This catalog offers a vass range Jet-Stream™ Thru Coolant Cutting Tools for Turning, Boring and Threading applications.		
NEW 2012 Swiss Screw Machine Tools and Advanced Technology Featuring Jet-Stream™ Thru Coolant System for Turning, Threading and Cut-off Toolholders. Designed for Swiss Screw Machines.			**2012 Threading, Grooving & API Cutting Tools & Inserts** Dorian Tool offers a complete selection of indexable cutting tools. Our wide variety of Turning, Boring, threading tools and inserts provide solutions for all your Turning, Facing, Boring, Chamfering, I.D. & O.D. Profiling, Chuck Work and Between Center Work Machining Operations.		
NEW 2012 Carbide Boring Bars & DeVi CHATTER FREE Tunable Boring Bar System **For Difficult Deep Boring!** Featuring internal working parts that can be adjusted during the application!		Online Only New Catalog Coming Soon	**NEW 2012 knurling Tools & Wheels** Dorian Tool offers a wide range of knurling tools to cover most knurling applications. Since the introduction of Dorian's modular knurling tool system, knurling has never been easier. The knurl tools range from cutting to forming a knurling pattern. The cutting style knurl tools have revolutionized knurling. It is faster and requires less pressure to create a knurl over forming. A wide range of knurl wheel pitches are also available. **Includes NEW Knurling Tools for Swiss Screw Machines**		
2006 Perfetta Live Centers & Bull Nose These live centers, which have already been recognized throughout the rest of the industrial world as the most precise live centers ever built, are now available to the American machine tool industry. Designed for turning on a CNC lathe or for use on a CNC grinding machine, the Perfetta™ Live Center has over 50 years of proven workmanship. Where speed, precision and dependability are the requirements, these tools guarantee quality and performance.			**2011 Lathe Accessories** With a full line of Victory Automatic Thru Coolant, Super Quick Change and Quadra™ Indexing Quick Change tool posts and holders as well as manual, electro-pneumatic, and electro-mechanical turrets, Dorian Tool has all that is needed to improve efficiency on both manual and CNC lathes. In addition, the Dorian Tru-Jaws system makes for easy remachining of soft jaws. **This catalog replaces all three Dorian Tool post catalogs as well as the 2005 MTA (Machine Tool Accessories) catalog.**		Online Only New Catalog Coming Soon
Tool Guide for Everyday Machining **Our most current Volume will be sent to you. Products offered per volume may vary depending on demand and featured items.** Inside this Tool Guide You will find High Performance cutting tools, inserts and machine tool accessories for every day machining. Additionally this catalog will give you an excellent overview of our complete line of tooling. **2013 Version Coming Soon**		Online Only New Catalog Coming Soon	**2008 CNC Adjustable Angle Heads** Choose from two styles (Universal and 90°) and six models for any milling, drilling, tapping and face milling operations. The Universal CNC Adjustable Angle Heads have two positioning axes and are offered in ER25 and ER32 collet toolholding systems. The use of the Universal CNC Adjustable Angle Heads increases productivity and quality by eliminating secondary operations and the need for more expensive 4th & 5th axis rotary tables. The 90° CNC Adjustable Angle Heads have one positioning axis and are offered in ER16, ER25 and ER32 collet toolholding systems as well as CAT/ISO/BT 40 taper toolholding system.		Online Only New Catalog Coming Soon

Sales Policy

Conditions of Sale: All sales are made in accordance with our standard conditions of sale, current at the time orders are accepted. Specifications and prices are subject to change without notice.

Terms of Payment: Standard payment terms for all products is (1% 10 Net 30 days) upon credit approval. Dorian reserves the right to hold shipments or to ship on a C.O.D. basis, any orders received from any purchaser whose account is delinquent. Invoices not paid timely are subject to 1.5% interest per month, not to exceed 18%. However, purchasers who default on terms agreed upon, Dorian reserves the right to add collection and/or attorney fees to the total amount of the invoice or total amount of all invoices. No order will be processed if any invoices are over 45 days old. All taxes, duties, or other expenses arising out of, or in connection with the sale of product shall be the sole liability of purchaser.

No Minimum Order: There will be a $5.00 handling fee for orders drop shipped with a value under $50.00 net.

Delivery Terms: F.O.B. East Bernard, Texas. All shipments are made by regular UPS, Parcel Post, or truck. Full transportation costs will be charged to the buyer. Specify shipment to be made by other than regular means of transportation.

Defective Product Claim: If within 30 days from shipping date, customer claims that product is defective and requires an immediate replacement, a distributor can issue a purchase order for a new product and return the defective product to Dorian for inspection. Upon inspection, if the product is found to be defective a credit will be issued for the replacement. If the product is not found to be defective, an invoice will be issued for the replacement. Freight to and from Dorian will be at the customer's expense.

Claims: Any claim discrepancies in shipments are to be made within 7 days of receipt of merchandise. Any in transit claim for damaged and lost goods must be made against the transportation company only. The foregoing shall constitute the sole and exclusive remedies of the customer and are in lieu of all other warranties, expressed, implied, or statutory, including but not limited to any implied warranty of merchantablity or fitness.

Satisfaction Guaranteed: If you are not fully satisfied with a Dorian product, simply return it within 30 days of shipping date and you will receive full CREDIT if the merchandise is received in resalable condition and in the original packaging.

Product Limited Warranty: Dorian extends to the purchaser for resale, use in their own business, or original equipment manufacturing, a limited warranty, that products made by DORIAN will be free from any defects in material and workmanship for one year after the date of purchase when used under normal intended applications. No other guarantee is made by this policy, nor does it apply to any product which has been altered, misused, or used in applications other than its normal intended use. Request for a Return Goods Authorization (RGA) number from Dorian and return freight pre-paid to Dorian any part or product which is determined by Dorian to be defective in material or workmanship will be repaired or replaced at Dorian's option.

Special Product Quotations: All special product quotations are valid for thirty days from the date of quotation unless otherwise specified. Orders for special products must be confirmed in writing before manufacturing can begin, along with payment for 50% of the quoted price, with the remaining 50% to be paid upon delivery of the special products. Special products and non-stock standard products cannot be canceled or returned for exchange or credit.

Cancellations: Customer may not cancel or modify any purchase order once a purchase order has been expressly accepted by Dorian, unless (a) customer has given Dorian reasonable notice to stop work, (b) customer pays for all work -in-progress and any raw materials or supplies used or consumed by Dorian in connection with the order, at the time work is stopped (or for which commitments have been made by Dorian at such time) in connection with the order (c) customer pays all costs and expenses otherwise incurred by Dorian in connection with the order, and (d) customer pays a cancellation charge of fifteen percent (15%) of the initial quoted price.

Returns: Return undamaged product within 30 days of the ship date, if the merchandise is received in resalable condition and in the original packaging you will receive full CREDIT on your account,.- Product(s) returned after 30 days but prior to 90 days after the ship date is subject to a 20% re-stocking fee.- Unless otherwise specified, no material will be accepted for returned after 90 days of the ship date.- If the Distributor or End User, within 30 days of the ship date, claims a product is defective and needs immediate replacement, the customer must place a new order, and a RMA number will be issued for the defective product. The Distributor will be advised upon completion of inspection if credit will be issued.- Any product returned for repair, under warranty or warranty expired, will not be accepted without a RMA number.- Customer will be advised of any charges before repairs are made.- All returns must be authorized by Dorian Tool with a official RMA number.- Dorian Tool does not constitute acceptance of the product when a RMA number is issued.- The RMA number must be visible on the outside of the box and a copy of the RMA form must be placed inside the original box along with the returned product.- Any package received without an official RMA number visible on the outside of the box will be refused and returned to the sender at their expense.- The customer is responsible for the freight to and from Dorian Tool.- NO PRODUCT WILL BE ACCEPTED FOR RETURN WHEN RECEIVED IN NON-RESALABLE CONDITION. This includes, but is not limited to: damaged packages, non Dorian labels and marking, missing parts, cosmetic damages, used and/or obsolete product(s).- Quality Control must inspect and accept product before credit will be issued.- RMAs are processed daily by RMA Service Center at X 260.- RMA numbers are valid for 30 days from the date is issued. All product(s) requested for return must be received by Dorian Tool within 30 days of the RMA date.- In the event the RMA is denied, the customer has 30 days from the date of notification to respond with shipping instructions for their product. If shipping instructions are not provided by the customer within 30 days from the RMA denial notification, the product will be disposed at the customers expense.- By writing the RMA number on the outside of the box and shipping product to Dorian against this number constitutes acceptance of Dorian's terms and conditions.

Condition ,terms and specifications are subject to change without notice.
Any typographical error in any printing matter is subject to correction.

Dorian U.S.A. Warehouse Locations:

East Bernard, TX | **Bloomfield, CT** | **Anaheim, CA** | **Birmingham, AL**

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