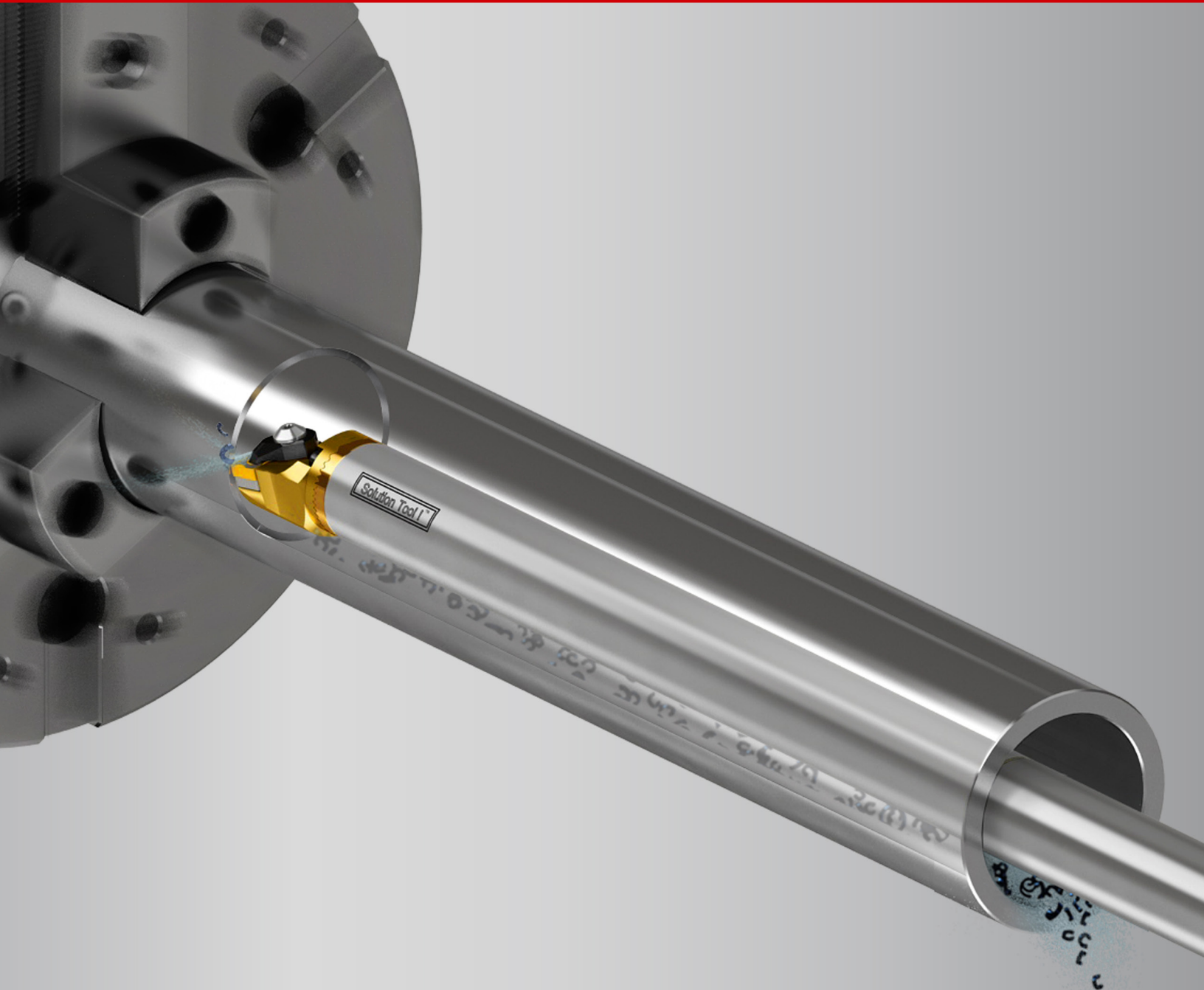




The First Choice[™]
TECHNOLOGY

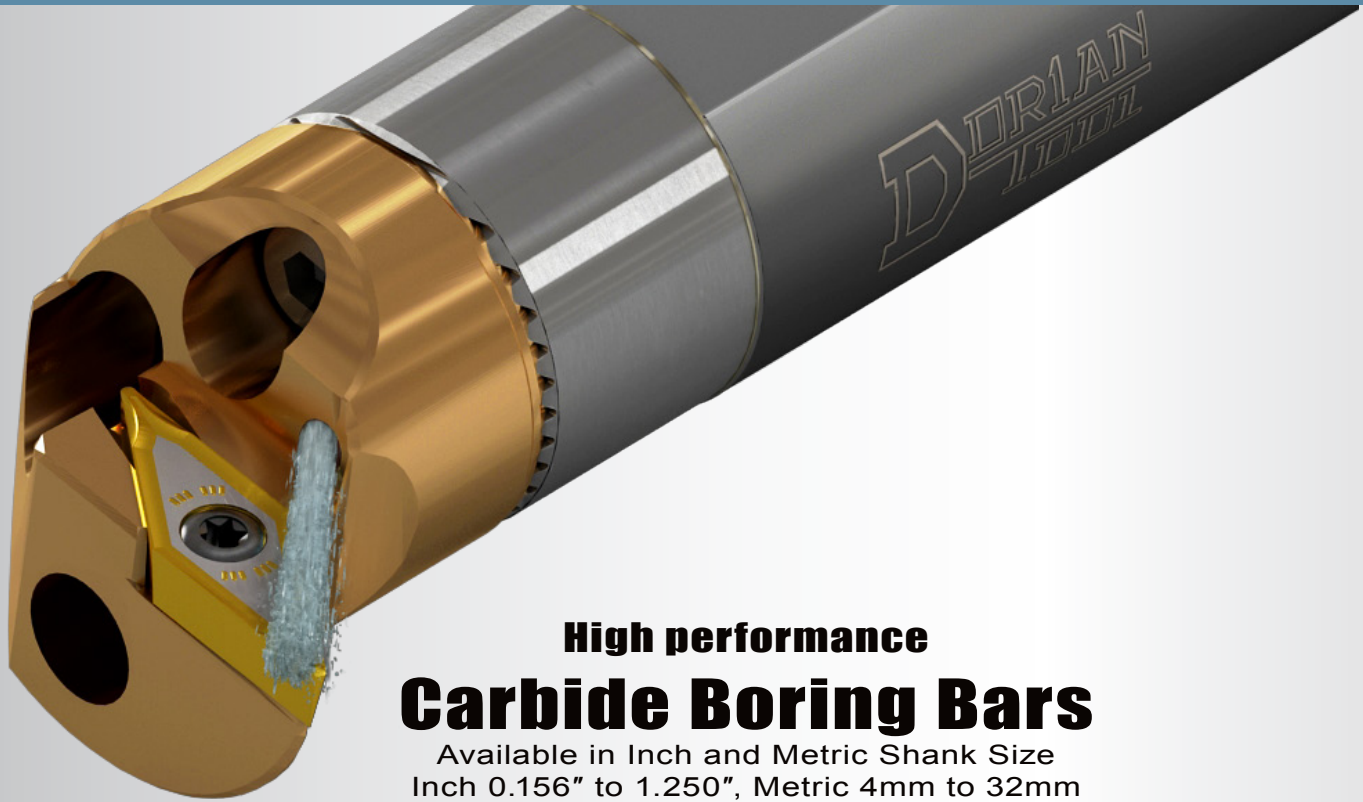
Solution Tool![™]

The No! Vibration Re-Tunable Boring Bars
& High Performance Carbide Boring Bars



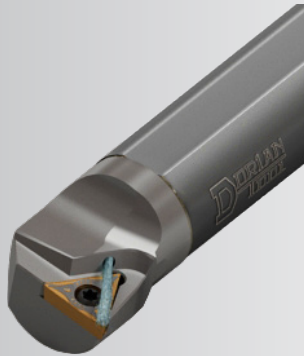
Section: D of 2016 Indexable Cutting Tools





High performance Carbide Boring Bars

Available in Inch and Metric Shank Size
Inch 0.156" to 1.250", Metric 4mm to 32mm



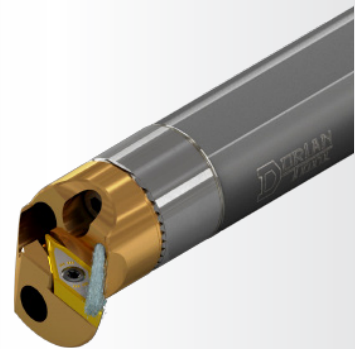
**Thru Coolant Integral
Carbide Boring System**
Shank Size 0.156" to 1.250"
& (4mm to 32mm)

Page D-19 - D-32



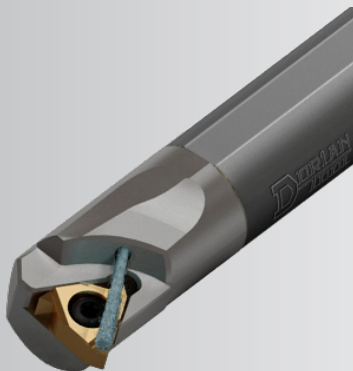
**Thru Coolant Integral Jet-Stream™
Carbide Boring System**
Shank Size 1.000" to 1.250"
& (25mm to 32mm)

Page D-35 - D-38



**Quick Change
Carbide Boring System**
Shank Size 0.750" to 1.250"
& (20mm to 32mm)

Page D-41 - D-47



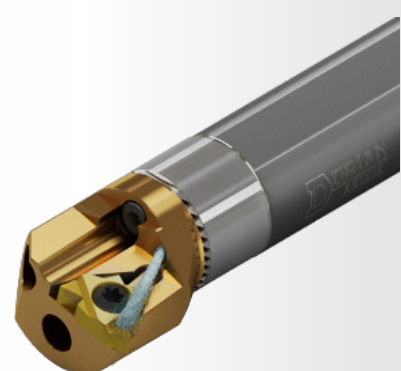
**Thru Coolant Integral
Carbide Threading System**
Shank Size 0.218" to 0.750"
& (6mm to 20mm)

Page D-33 - D-34



**Thru Coolant Integral Jet-Stream™
Carbide Threading System**
Shank Size 0.750" to 1.250"
& (20mm to 32mm)

Page D-39 - D-40



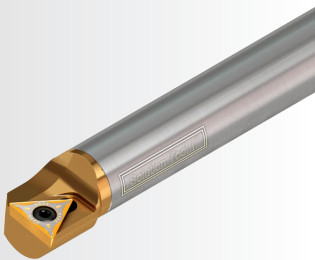
**Quick Change
Carbide Threading System**
Shank Size 0.750" to 1.250"
& (20mm to 32mm)

Page D-48



Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

Available in Inch and Metric Shank Size
Inch 0.25" to 4.00", Metric 6mm to 100mm



Solution Tool!™ Integral
The NO! Vibration Re-Tunable Boring System
Shank Size 0.25 to 0.625"
& (6mm to 16mm)

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Solution Tool!™ Quick Change
The NO! Vibration Re-Tunable Boring System
Shank Size 0.750" to 1.250"
& (20mm to 32mm)

Page D-75 - D-86



Solution Tool!™ Modular Jet-Stream™
The NO! Vibration Re-Tunable Boring System
Shank Size 1.500" to 4.00"
& (40mm to 100mm)

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Solution Tool!™ Quick Change
The NO! Vibration Re-Tunable Threading System
Shank Size 0.750" to 1.250"
& (20mm to 32mm)

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Solution Tool!™ Modular Jet-Stream™
The NO! Vibration Re-Tunable Threading System
Shank Size 1.500" to 4.00"
& (32mm to 100mm)

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For Multi Boring, Grooving & Threading Operations



Technical Support

Deep Hole Boring Application Form
Deep Hole Boring Operation
Deep Hole Boring Solutions

Carbide Boring & Threading Bar Technology

Integral Thru Coolant Carbide Boring Bar System	6 x Dia. Boring Ratio
Integral Thru Coolant Carbide Threading Bar System	6 x Dia. Threading Ratio
Integral Jet-Stream™ Thru Coolant Carbide Boring Bar System	6 x Dia. Boring Ratio
Integral Jet-Stream™ Thru Coolant Carbide Threading Bar System	6 x Dia. Threading Ratio
Quick Change Carbide Boring & Threading Bar System	6 x Dia. Boring Ratio

Solution Tool!™ The NO! Vibration Re-Tunable Boring & Threading Bars

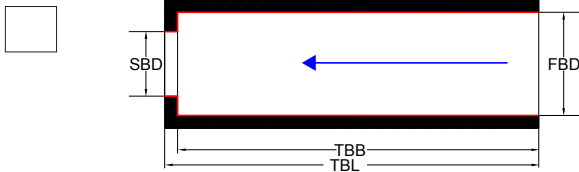
Solution Tool!™ Integral The NO! Vibration Re-Tunable Boring System	8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia. Boring Ratio
Solution Tool!™ Quick Change The NO! Vibration Re-Tunable Boring & Threading Bar System	8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia. Boring Ratio
Solution Tool!™ Modular Jet-Stream™ The NO! Vibration Re-Tunable Boring & Threading Bar System	8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia. Boring Ratio

High Pressure Coolant System Spare Parts

High Pressure Coolant System Spare Parts

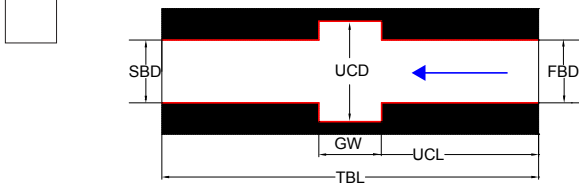
Technical Support for Deep Hole Boring

1. Straight Boring



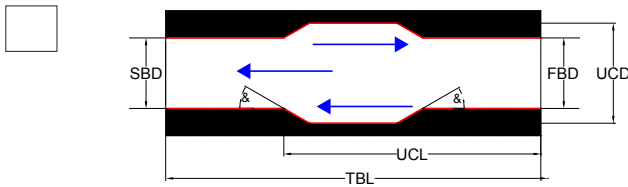
Boring Description	Material	Inch	Metric
SBD	Starting Bore Diameter		
FBD	Finished Bore Diameter		
TBB	Total Blind Bore		
TBL	Total Bore Length		

2. Straight Boring and Under-Cut



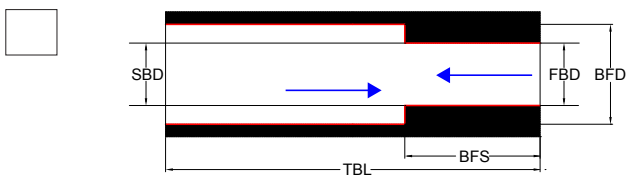
Boring Description	Material	Inch	Metric
SBD	Starting Bore Diameter		
FBD	Finished Bore Diameter		
TBL	Total Bore Length		
UCD	Under-Cut Diameter		
UCL	Under-Cut Distance		
GW	Groove Width		

3. Straight Boring and Profiling



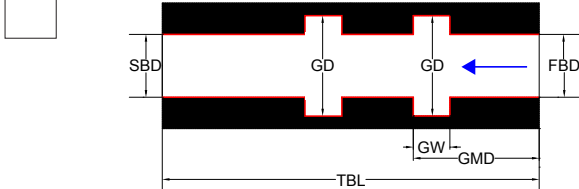
Boring Description	Material	Inch	Metric
SBD	Starting Bore Diameter		
FBD	Finished Bore Diameter		
TBL	Total Bore Length		
UCD	Under-Cut Diameter		
UCL	Under-Cut Distance		
&°	Angle Profile		

4. Straight Boring and Back Face



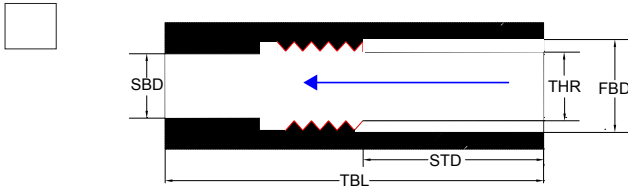
Boring Description	Material	Inch	Metric
SBD	Starting Bore Diameter		
FBD	Finished Bore Diameter		
TBL	Total Bore Length		
BFD	Back Face Diameter		
BFS	Back Face Shoulder		

5. Straight Boring and Grooving



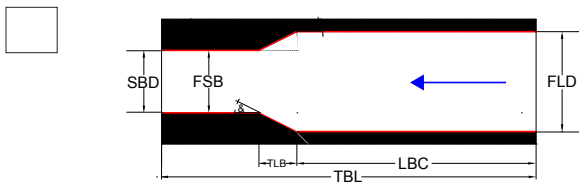
Boring Description	Material	Inch	Metric
SBD	Starting Bore Diameter		
FBD	Finished Bore Diameter		
TBL	Total Bore Length		
GD	Groove Diameter		
GW	Groove Width		
GMD	Groove Max. distance		

6. Straight Boring Grooving and Threading



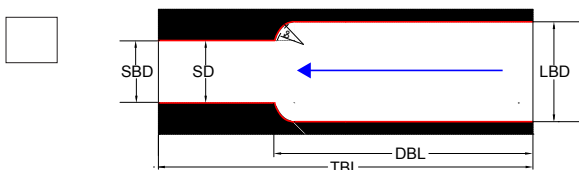
Boring Description	Material	Inch	Metric
SBD	Starting Bore Diameter		
FBD	Finished Bore Diameter		
TBL	Total Bore Length		
THR	Thread Specification		
STD	Starting Thread Deep		

7. Straight and Taper Bore



Boring Description	Material	Inch	Metric
SBD	Starting Bore Diameter		
FSB	Finished Small Diameter		
FLD	Finished Large Diameter		
TLB	Taping Bore Length		
LBC	Large Bore Length		
TBL	Total Bore Length		

8. Straight Boring with Ratio Shoulder small bore



Boring Description	Material	Inch	Metric
SBD	Starting Bore Diameter		
SD	Small Diameter		
TBL	Total Bore Length		
LBD	Large Bore Length		
DBL	Depth of Bore Length		

Deep Hole Boring Operation

Workpiece Rigidity

1 Workholding

Use the proper chuck and jaws to hold the work-piece, to assure that the part is held with maximum rigidity and stability under cutting force.

2 Steady Rest

When boring a long part, it is necessary to have extra support from the steady rest to eliminate any deflection of the part under the cutting force that causes vibration and poor surface finish.

Boring Bar Rigidity Overhang

3 Boring Bar Holding

For best results, hold the bar 4 x Dia. & choose a split collar boring bar holder. The 360° locking system offers the largest surface contact between the boring bar and the holder, maximizing bar rigidity and minimizing vibration.

4 Boring Bar Size

Choose a boring bar with the largest diameter to clear the bore, maximizing rigidity. Make sure to provide enough clearance between the bore and the bar for chip evacuation so damaging does not occur on the bore wall. Also choose the shortest overhang to reduce vibration.

5 Insert

To avoid and reduce vibration of the bar, that causes chattering. Use the insert with the as small of an angle geometry possible, small nose radius, high positive rake angle and sharp cutting edge.

Insert Parameter

6 Cutting Parameter

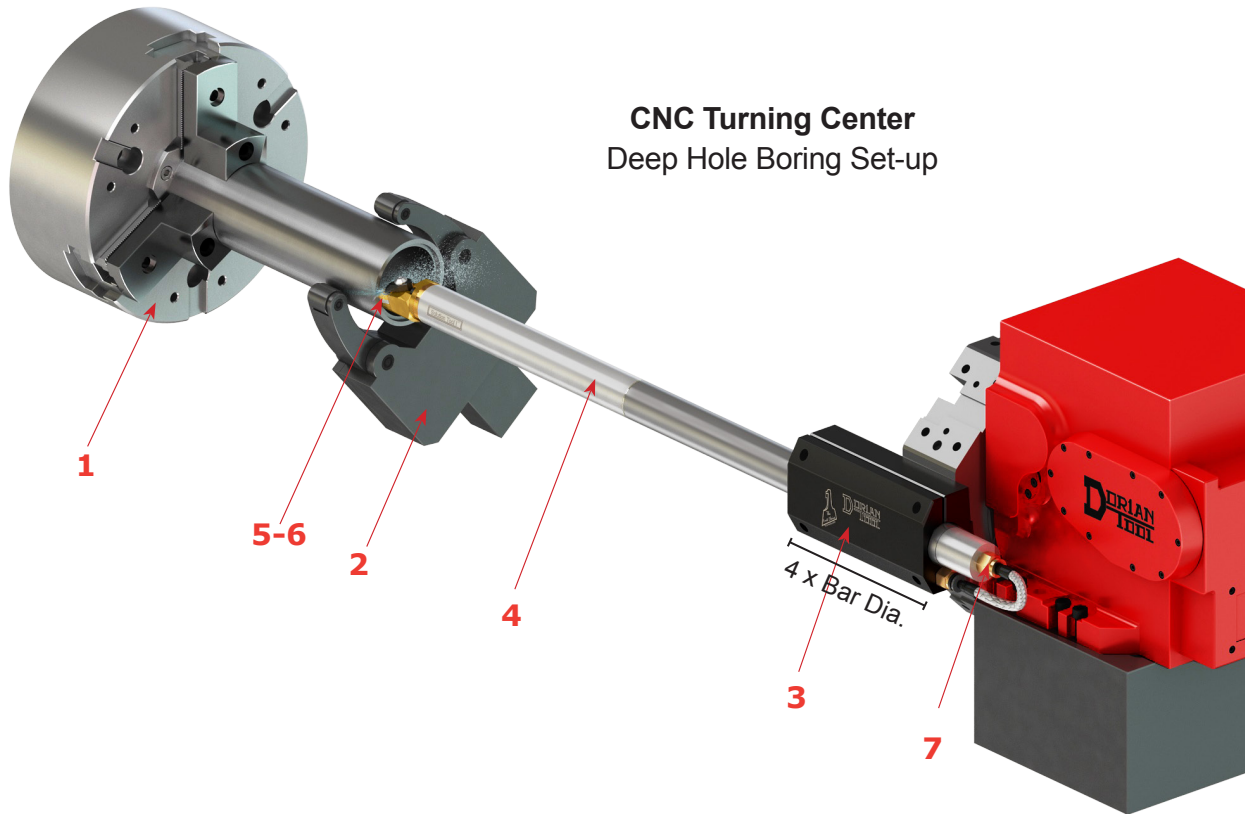
Use the recommended cutting data and parameter specified from the insert manufacturer, and use the cutting formula to maximize performance, quality, and tool life.

For a **Roughing** operation with a large depth of cut and a high feed rate, low RPM is recommended. For a **Finishing** operation with a small depth of cut and a low feed rate, high RPM is recommended. Minimum depth of cut is 1/2 of the insert radius. Maximum feed rate is 1/2 of the insert radius.

Chip Clogging

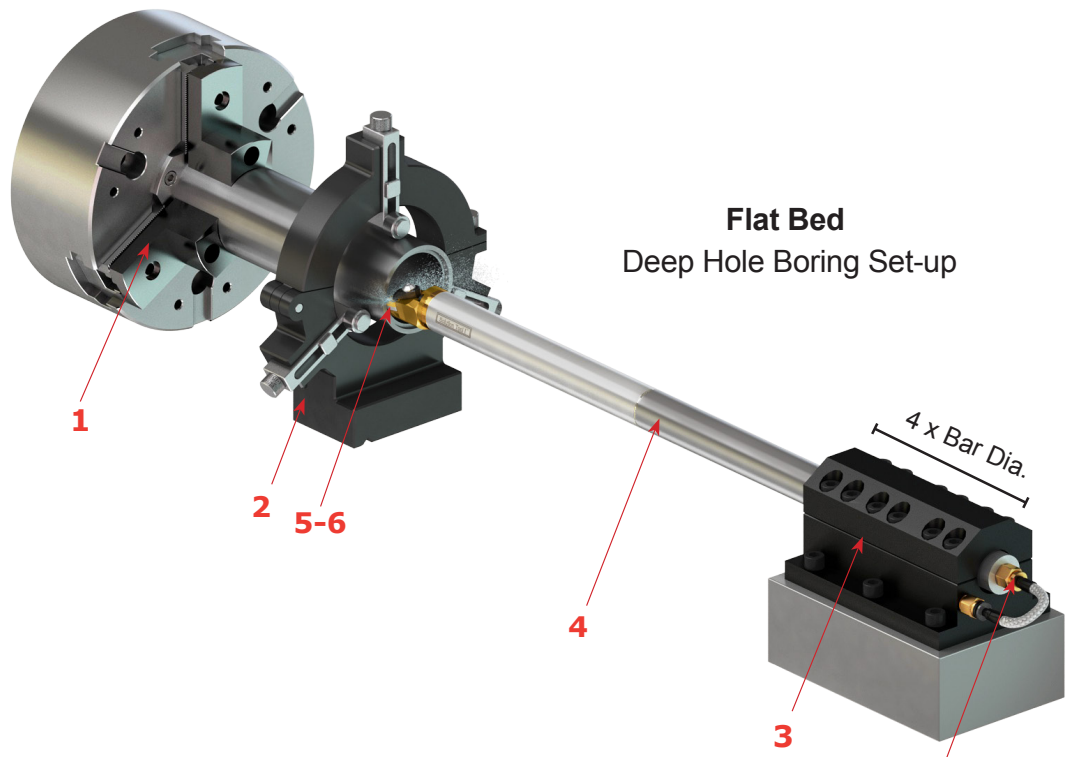
7 Coolant System

It is very important that the bore is kept clean and free of chips while cutting to avoid surface damage and insert to breakage. Use high pressure coolant with the boring bar to flush the chips out while cutting and keep the damped system cool.



CNC Turning Center
Deep Hole Boring Set-up

**To Achieve Optimum Results for Deep Hole Boring
It is extremely important to follow steps 1-6.**



Flat Bed
Deep Hole Boring Set-up

Deep Hole Boring Operation

IN A DEEP HOLE BORING OPERATION:

- ✓ The diameter size of the boring bar is limited from the size of the hole diameter to be bored.
- ✓ The boring bar should have the largest diameter possible for maximum cutting rigidity, but small enough to clear the hole for chip evacuation.
- ✓ The Boring Bar has to be held with the maximum rigidity and the shortest overhang possible to maximize cutting stability and minimize vibration.
- ✓ The selection and use of the right insert grade, geometry, nose radius and rake angle will be critical for a good surface finish and close working tolerance.
- ✓ The cutting parameter is to be correct for the material machined in accordance of the insert manufacturing cutting data.
- ✓ The hole, while machined has to be kept clear from chips to avoid tool breakage, boring bar vibration and the walls of the work piece undamaged.



MOST COMMON DEEP HOLE BORING PROBLEMS:

Poor Surface Finish, Poor Machining Tolerance & Poor Insert Life

MOST COMMON CAUSES:

1) Boring Bar Cutting Ratio:

If the incorrect boring bar cutting ratio is used, the boring bar **will vibrate**.

2) Boring Bar Diameter:

Too small boring bar diameter will deflect under pressure **and vibrate**, too large boring bar diameter, **will obstruct the evacuation of the chips**.

3) Boring Bar Holding System:

When boring bar is not held properly and rigidly in the boring bar holder, **vibration will develop when cutting**. A split Boring Bar Holder must to be used.

4) Boring Overhang:

When the boring bar is over extended it **will vibrate** (Steel bar 4 x Dia., Carbide bar 6 x Dia., Solution Tool!™ (The NO! Vibration Re-Tunable Boring Bar) 8 - 14 x Dia.

5) Incorrect Insert:

Incorrect insert geometry, nose radius, rake angle, chip breaker, and clearance angle **will cause vibrations**.

6) Cutting Parameter:

When wrong cutting parameters are used for the specific material to be bored, and for the operation to be executed, the boring bar **will not perform properly**.

7) Chip Clogging:

When chips are clogged into the work piece bore, jamming the insert, wrapping around the boring bar, and thrown against the wall, **the insert will be damaged**.

Always use High Pressure Coolant to remove chips

1) Bar Cutting Ratio **Deep Hole Boring Solution:**

Problem

Boring Bar Cutting Ratio: If the incorrect boring bar cutting ratio is used, the boring bar will not perform

Solution: Choose the correct boring bar cutting Ratio for optimum performance

Boring Depth: The depth of the machining bore determines on the style and the type material of the boring bar.

The general rule for boring bar depth is steel bar boring have a short depth, carbide bars have a medium depth, and anti vibration tunable boring bars have a long depth.

The Max. Boring Bar Overhangs: The maximum extended length of the boring bar before loss of rigidity and the start of vibration with poor cutting performance.

Boring Bar Overhangs: Is the distance measured from the face of the Boring Bar Holder to the Insert Cutting Edge.

Boring Bar Cutting Ratio: Maximum cutting length of the boring bar in relation to its own body diameter

Ex.: 1" (25mm) Boring Bar with 10 x Dia. Ratio, Maximum cutting length is 10" (250mm).

Threading Bar Cutting Ratio: When threading the radial force is higher then boring, the threading Ratio is reduced considerably over boring.

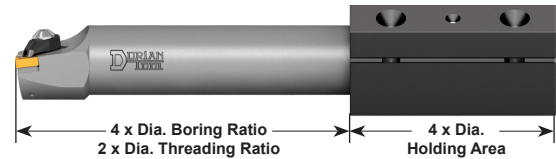
If the incorrect boring bar cutting ratio is used, the boring bar will not perform.

Maximum Boring Bar Performance

Steel Bar

4 x Dia. Boring Ratio
2 x Dia. Threading Ratio
2 x Dia. Grooving Ratio

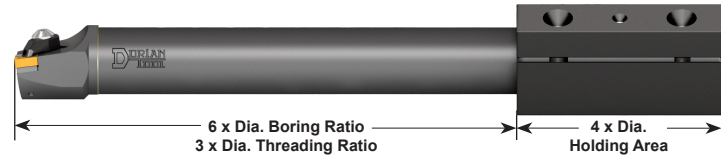
- General boring bar applications
- Roughing to finishing
- Stable for high material removal
- For small bores



Carbide Bar

6 x Dia. Boring Ratio
3 x Dia. Threading Ratio
3 x Dia. Grooving Ratio

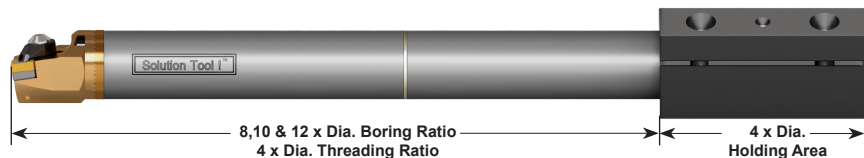
- Best for boring small holes
- Rigid for close tolerance and furnace finish
- Rigid for heavy material removal at high ap and fn



Steel Body (Solution Tool!™)

8 x Dia., 10 x Dia., 12 x Dia. Boring Ratio
4 x Dia. Threading Ratio
4 x Dia. Grooving Ratio

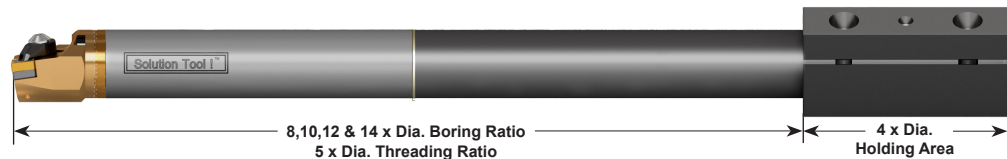
- For deep hole boring applications



Carbide Body (Solution Tool!™)

8 x 10 x 12 x & 14 x Dia. Boring Ratio
5 x Dia. Threading Ratio
5 x Dia. Grooving Ratio

- For high performance deep hole boring applications



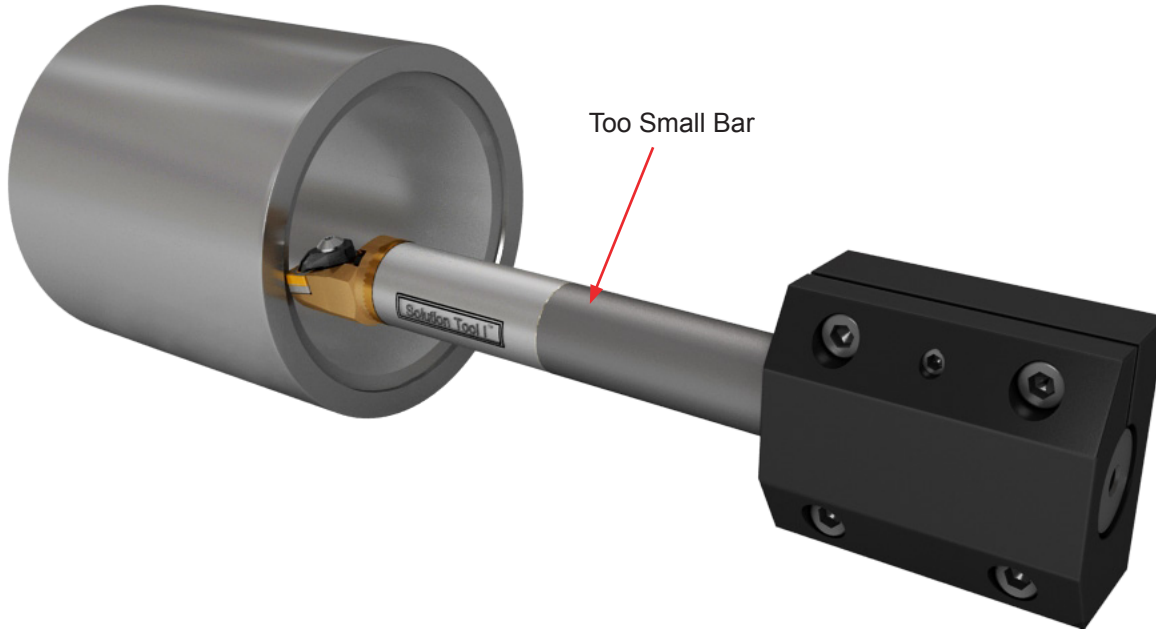
2) Bar Diameter **Deep Hole Boring Solution:**

Problem

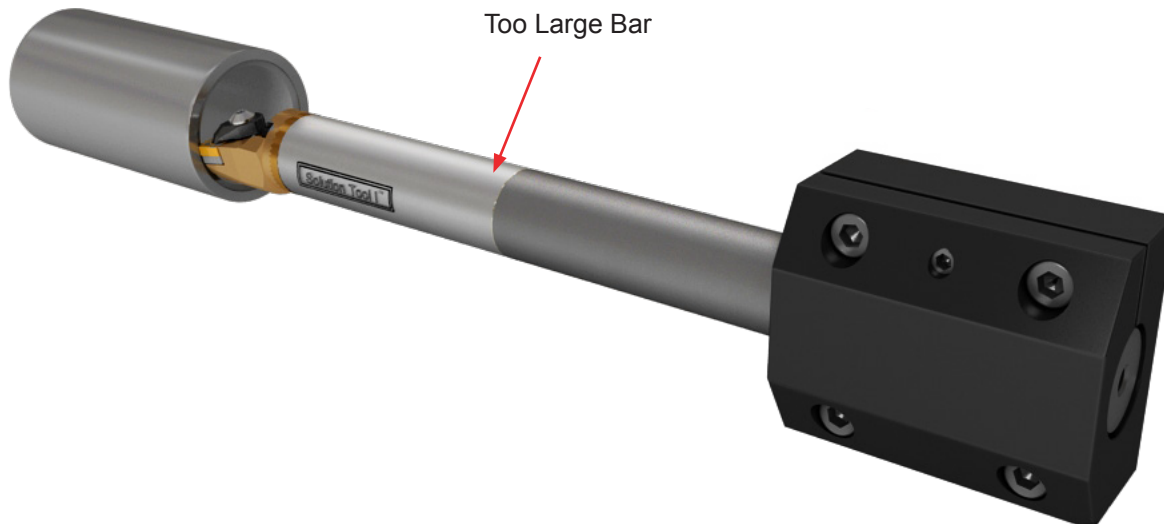
Boring Bar Diameter: Too small boring bar diameter will deflect under pressure and vibrate. Too large boring bar diameter, will obstruct the evacuation of the chips.

Solution: Use the largest boring bar for rigidity and performance, but small enough for the chips to evacuate

Small Boring Bar Diameter: If the diameter of the boring is too small, it has no rigidity to withstand the tangential and radial forces that generate under the cutting pressure. The bar will be easily pushed down below the center line, and deflect away from the cutting wall. When this occurs, the boring bar is not any more in control of the boring operation to a point that the boring bar will vibrate with poor surface finish, poor machining tolerance, and short insert life.
Use the largest boring bar possible that clears the bore diameter and allows chips evacuation



Large Boring Bar Diameter: If the diameter of the boring is too large, there will be no clearance between the bore diameter and the boring bar body, making it impossible for the chips to evacuate. The chips will be jammed against the wall of the hole and the boring bar, damaging the work piece wall and destroying the insert.
Use a smaller boring bar Without losing rigidity and to allow the chips to evacuate.



3) Bar Holding System **Deep Hole Boring Solution:**

Problem

Boring Bar Holding System: When boring bar is not held properly and rigidly on to the boring bar holder, vibration will develop when cutting. A split boring bar holder must be used.

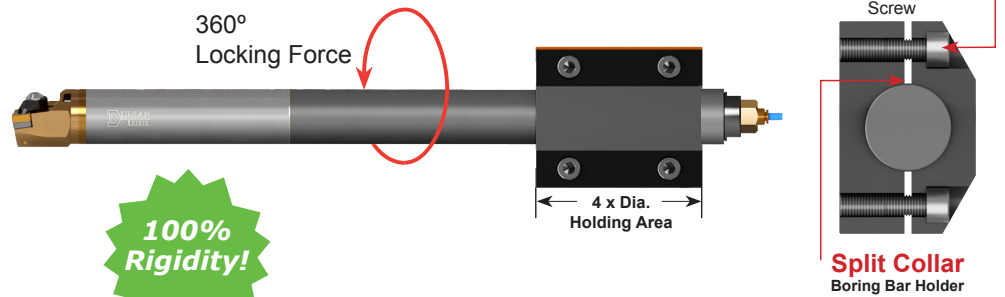
Solution: When holding the boring bar, the boring bar holder must:

1. Have a Precise and smooth bore
2. Use the most rigid holding system of the boring bar
3. Have a holding length of the boring bar at 4 x boring bar diameter

BEST

Split Collar Holding System Boring Bar Holding System

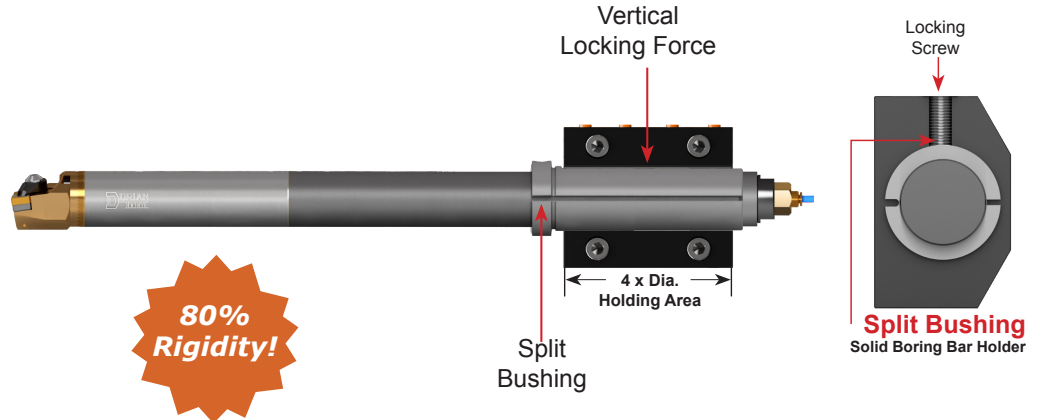
Locks the boring bar at 360° on the diameter, assuring the most rigidity and precise boring bar positioning *Without scarring or damaging the bar surface.*



GOOD

Split Bushing Holding System With a solid boring bar holder

The split bushing embraces the boring bar at 360° on the diameter. The screw will squeeze the bushing around the boring bar *Without scarring or damaging the bar surface with precise positioning.*

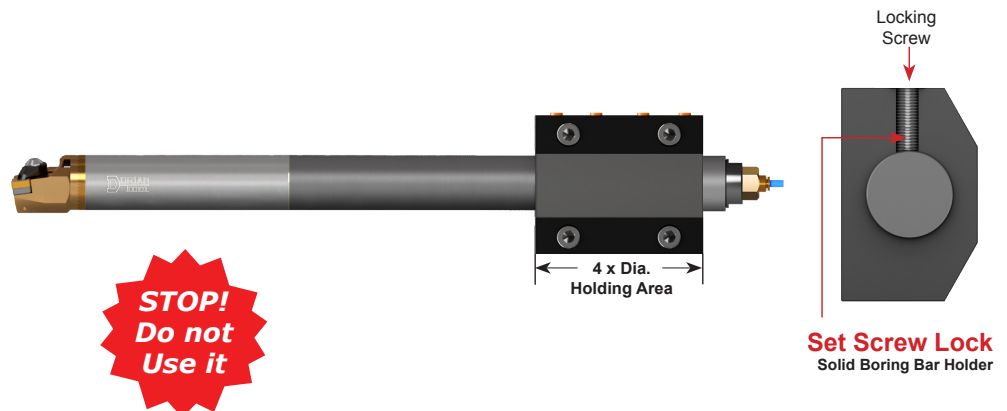


DO NOT USE IT

Set Screw Lock Holding System Solid boring bar holder Without bushing

Never lock the screw over the boring bar. Locking a screw over the boring bar will create only one point of contact causing very poor rigidity.

Additionally, the *screw will damage the boring bar surface and make positioning difficult.*



4) Bar Overhang and Deflection **Deep Hole Boring Solution:**

Problem

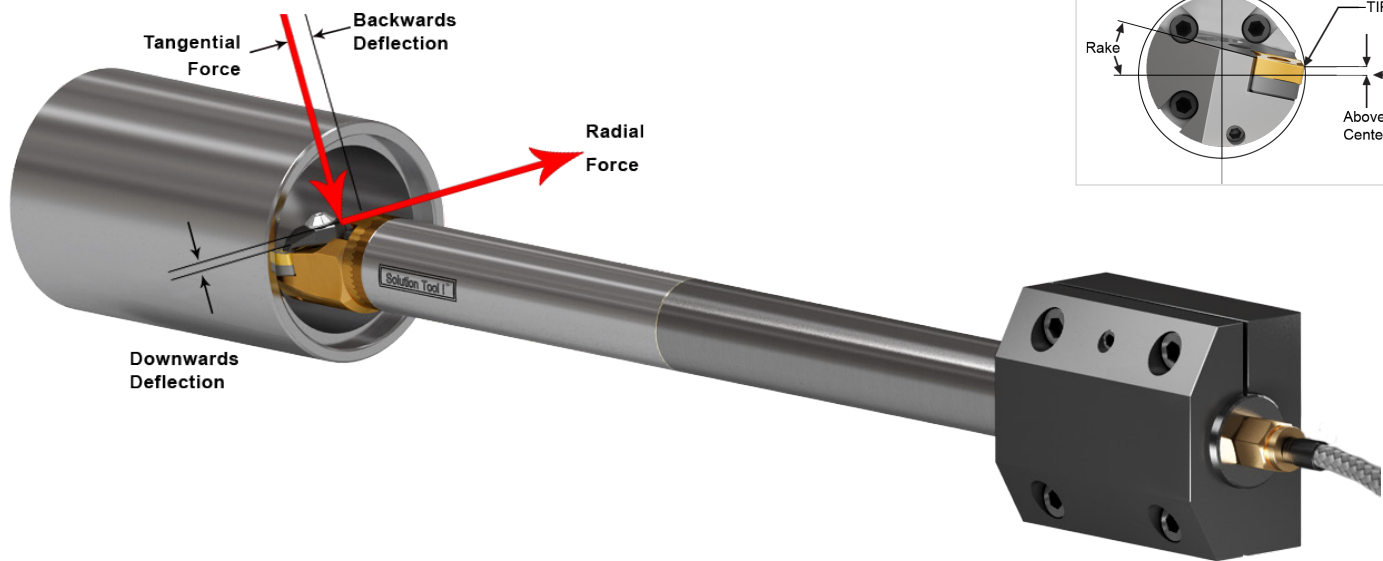
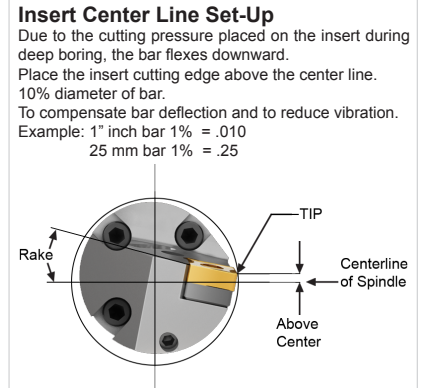
Boring Overhang: The boring bar is overextended, exceeding the overhang limit built for.

Boring Bar Deflection: The bar under the Cutting Pressure will deflect.

Overhang Solution: Use and set the boring bar to the correct overhang that is built for; Steel Boring bar 4 x Dia., Carbide 6 x Dia., Solution Tool!™ NO! Vibration Re-Tunable Boring Bar Steel Body 8 x Dia., 10 x Dia., Carbide 12 x Dia., and 14 x Dia..

Deflection Solution: Place the insert cutting edge above the center line. 10% diameter of bar.

Example: 1" inch bar 1% = .010
25 mm bar 1% = .25



In the Boring Operation, the Boring Bar is to Withstand all the stress derived from the cutting force. In a long depth of cut, the stress is multiplied with a long overhang of the boring bar.

The boring bar becomes unstable and very flexible under the cutting force.

When the Boring Bar is cutting, the Tangential and the Radial cutting force applied over the cutting edge of the insert will push the Boring Bar below the center line and away from the cutting wall. The Tangential Force generate under the cutting operation will increase with the depth of cut and feed rate in pushing the insert below the center line.

The insert clearance angle will be reduce, and the body of the insert will make contact with the cutting wall creating interference and friction with poor cutting results.

The Radial Force will push the insert away from the cutting surface creating a harmonic or weaving reaction.

The insert cutting edge, will be moving in and out from the cutting wall surface. The deflection of the boring bar is directly related to the overhang of the boring bar and the depth of cut and feed rate.

Use the shortest overhang boring bar possible to minimize deflection and maximize cutting performance.

Solution Tool!™ Center line Set-up Values Chart (Inch)

Bar Size Dia. (in.)	Nominal Center (in.)	Insert Set-Up Above Center Line*			Depth of Cut	
		Finish	Rough	Rough/Finish	Finishing	Roughing
0.500	0.250	.005	.010	.0075	.001"	.020"
0.625	0.3125	.006	.012	.009	.001"	.030"
0.750	0.3750	.007	.014	.021	.001"	.050"
1.000	0.500	.010	.020	.015	.001"	.070"
1.250	0.625	.012	.024	.018	.001"	.075"
1.500	0.750	.015	.030	.0225	.002"	.080"
1.750	0.8750	.0175	.035	.026	.002"	.085"
2.000	1.000	.020	.040	.030	.002"	.090"
2.500	1.250	.025	.050	.0375	.002"	.095"
3.000	1.500	.030	.060	.045	.003"	.100"
4.000	2.000	.040	.080	.060	.003"	.120"

The above values can change depending on different aspects of machining. For example a sharper insert will deflect less. Use table as reference only, as actual values may need to be adjusted as necessary.

Solution Tool!™ Center line Set-up Values Chart (Metric)

Bar Size Dia. (mm)	Nominal Center (mm)	Insert Set-Up Above Center Line*			Depth of Cut	
		Finish	Rough	Rough/Finish	Finishing	Roughing
12	6	.2	.4	.3	.025	.50
16	8	.25	.5	.375	.025	.75
20	10	.3	.6	.45	.025	1.2
25	12.5	.35	.7	.5	.025	1.7
32	16	.4	.8	.6	.025	1.8
40	20	.45	.9	.7	.050	2.0
N/A	N/A	N/A	N/A	N/A	N/A	N/A
50	25	.5	1.0	.75	.050	2.1
60	30	.6	1.2	.9	.050	2.3
80	40	.8	1.6	1.2	.075	2.5
100	50	1.0	2.0	1.5	.075	3.0

5) Incorrect Insert **Deep Hole Boring Solution:**

Problem

Use of Incorrect Insert: Incorrect insert grade and geometry for material or operation excited and/or any other insert characteristics of the insert, such as nose radius, rake angle, chip break clearance angle, and cutting leading angle, can contribute to the cutting problems.

Solution: Use the correct insert grade, geometry and characteristics for the material to be machined and the operation to be executed.

For a **Finishing** operation and small depth of cut, use a wear resistant grade insert with a positive rake angle, small nose radius, sharp cutting edge, large chip break, and clearance angle. If the insert is too hard, it will chip and break under the cutting pressure, and vibration will develop. Switch to a softer grade.

For a **Roughing** operation and large depth of cut, use an impact resistant insert with a positive rake angle, medium to large nose radius, honed cutting edge, large chip break, and clearance angle. If the insert is too soft it will wear prematurely, and friction will develop losing tolerance and good surface finish, switch to a harder grade.

Minimum depth of cut is 1/2 of the insert radius. Maximum feed rate is 1/2 of the insert radius.

For a **Deep Boring** operation, always use a Solution Tool!™ boring bar with a high positive and sharp cutting edge insert.

Use the smallest insert angle geometry for the operation, like;

"V" for profiling and finishing

"D" for general application

"T" For light roughing and finishing

"C" For heavy roughing

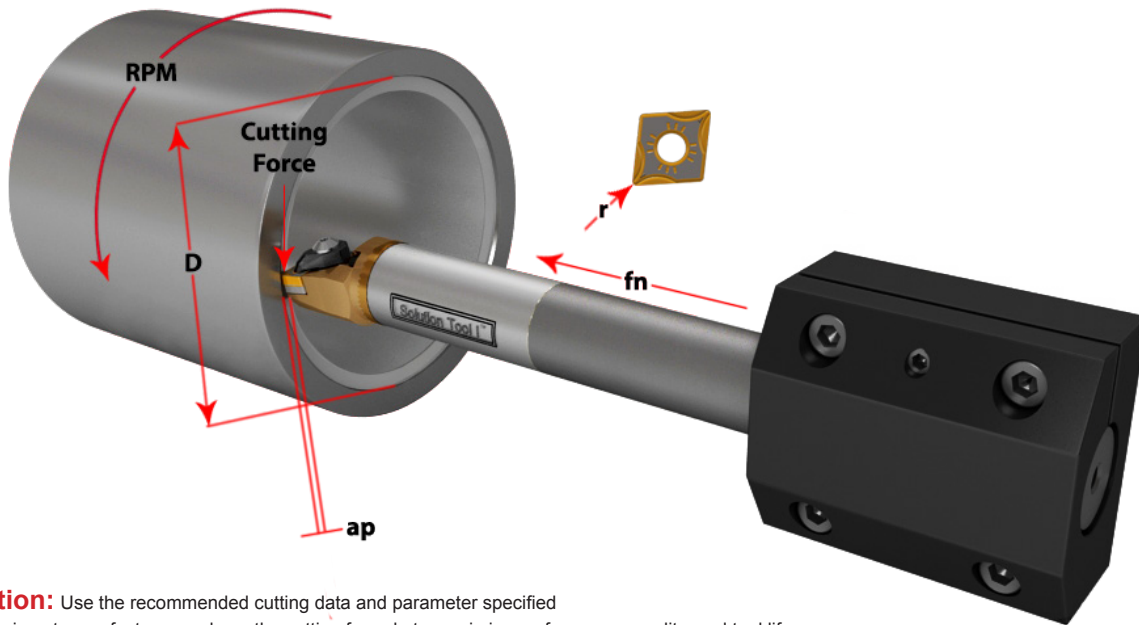
Use the correct insert grade for the material and operation. Use a small angle geometry, like the "V", "D" and "T" style insert, small nose radius, sharp cutting edge, high positive rake angle, large chip breaker and high clearance angle.

	FINISHING High RPM Small a_p Low f_n		ROUGHING Low RPM Large a_p High f_n
INSERT GEOMETRY			
INSERT RADIUS Use a smaller radius to limit vibration	.004 r. 	.008 r. 	1/64 r.
INSERT CUTTING RAKE Use a positive cutting rake to limit vibration.	High Positive 	Positive 	Neutral
INSERT RELIEF ANGLE			
INSERT EDGE PREP	Sharp 	Honed 	Chamfered
INSERT CUTTING EDGE ANGLE Use a cutting edge angle as close to 90° as possible.			

6) Cutting Parameter **Deep Hole Boring Solution:**

Problem

Cutting Parameter: If the cutting parameters are not correct for the specific material chattering and insert breakage will occur.



Solution: Use the recommended cutting data and parameter specified from the insert manufacturer, and use the cutting formula to maximize performance, quality, and tool life.

For a **Roughing** operation with a large depth of cut and a high feed rate, low RPM is recommended.

For a **Finishing** operation with a small depth of cut and a low feed rate, high RPM is recommended.

Minimum depth of cut is 1/2 of the insert radius. Maximum feed rate is 1/2 of the insert radius.

Inch Formulas for Turning and Boring			
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	μ Inch
P_c = Power requirements (POW)	Hp	r_f = Insert nose radius	Inch
Cutting Speed Surface Feet Per Minute: EX: Determine the cutting speed (v_c) required for turning a 2-1/2" diameter part with a spindle speed of 600 RPM.			
$v_c = \frac{\pi \times D_m \times n}{12}$		$v_c = \frac{\pi \times 2.5 \times 600}{12}$	= 392.70 Feet/Min
Spindle Speed Revolution Per Minute: EX: Determine the spindle speed (n) required for turning a 2-1/2" diameter part with a cutting speed of 400 SFM.			
$n = \frac{v_c \times 12}{\pi \times D_m}$		$n = \frac{400 \times 12}{\pi \times 2.5}$	= 611.15 Rev/Min
Metal Removal Rate Inch ³ /Min: EX: 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.			
$Q = v_c \times a_p \times f_n \times 12$		$Q = 400 \times .062 \times .015 \times 12$	= 4.464 inch ³ /min
Power Requirement Horsepower: EX: 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.			
$P_c = \frac{v_c \times a_p \times f_n \times k_c}{33,000}$		$P_c = \frac{400 \times .062 \times .015 \times 181,750}{33,000}$	= 2.05 HP
Cutting Time Minute: EX: 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.			
$T_c = \frac{l_m}{f_n \times n}$		$T_c = \frac{6}{.015 \times 600}$	= .67 Min (40 Sec)
Profile Depth (μ Inch) EX: 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.			
$R_{max} = \frac{f_n^2 \times 10^6}{8r_f}$		$R_{max} = \frac{.015^2 \times 10^6}{8 \times .032}$	= 879 μ inch

Metric Formulas for Turning and Boring			
a_p = Depth of cut (DOC)	mm	k_c = Specific cutting force	Nm
D_m = Diameter of part (DIA)	mm	n = Spindle speed (RPM)	Rev/Min
f_n = Feed per revolution (FEED)	mm/Rev	v_c = Cutting speed (SFM)	m/Min
l_m = Machined length (LEN)	mm	T_c = Cutting time (TIM)	Min
Q = Metal removal rate (MMR)	mm ³ /Min	R_{max} = Profile depth	μ m
P_c = Power requirements (POW)	kW	r_f = Insert nose radius	mm
Cutting Speed Surface Meters Per Minute EX: Determine the cutting speed (v_c) required for turning a 50mm diameter part with a spindle speed of 600 RPM.			
$v_c = \frac{\pi \times D_m \times n}{1000}$		$v_c = \frac{\pi \times 50 \times 600}{1000}$	= 94,25 m/Min
Spindle Speed Revolution Per Minute EX: Determine the spindle speed (n) required for turning a 32mm diameter part with a cutting speed of 100 m/Min.			
$n = \frac{v_c \times 1000}{\pi \times D_m}$		$n = \frac{100 \times 1000}{\pi \times 32}$	= 994,72 Rev/Min
Metal Removal Rate mm ³ /Min EX: 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.			
$Q = v_c \times a_p \times f_n \times 1000$		$Q = 200 \times 1.5 \times 0.4 \times 1000$	= 120.000 mm ³ /min
Power Requirement Kilowatts EX: 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.			
$P_c = \frac{v_c \times a_p \times f_n \times k_c}{1,460,000}$		$P_c = \frac{200 \times 1.5 \times 0.4 \times 20,500}{1,460,000}$	= 1,68 kW
Cutting Time Minute EX: 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.			
$T_c = \frac{l_m}{f_n \times n}$		$T_c = \frac{200}{0.4 \times 600}$	= .83 Min (50 Sec)
Profile Depth (μ m) EX: 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.			
$R_{max} = \frac{f_n^2 \times 10^6}{8r_f}$		$R_{max} = \frac{0.4^2 \times 10^6}{8 \times 0.8}$	= 25 μ m

7) Chip Clogging Deep Hole Boring Solution:

Problem

- * **Chip Clogging:** Chips are clogged into the work piece bore jamming the insert, wrapping around the boring bar, and thrown against the wall.
- **Insert Cutting Edge Chipping:** Excessive load of chips will damage the cutting edge of the insert.
- **Thermal Cracking:** Temperature changes, intermittent machining and inconsistencies to coolant supply will crack the insert.

Solution: Change the cutting length of the chips and use high pressure coolant or air to flush the chips out the bore.

Chip evacuation

Chip clogging during the boring operation creates a major machining problem effecting quality, performance and tooling life. Chips are to be removed from the bore as quickly as they are made to avoid and minimize the tooling insert damage, and poor surface finish. Evacuating chips from a bore is not always easy, and is more difficult when machining small diameters and deep bores. If the chips are very short and thick, a lot pressure is placed over the insert cutting edge making the boring bar vibrate. More tangential force is developed, requiring more horsepower (Kilowatts) for the boring operation.

In high speed rotation, the centrifugal force will push the chips against the wall surface making it difficult to remove out from the bore. It is more difficult when boring a small, blind, and deep hole. The chips will pack on the end of the bore. If chips are long and stringy they are easy to machine.

Little tangential force is developed requiring less horsepower (Kilowatts) for the boring operation, but the chips will wrap around the boring bar and jam the inside of bore, or to the end of the blind hole making it impossible to evacuate from the bore. When this occurs the operation must be stopped, and the chips have to be manually removed from the bore.

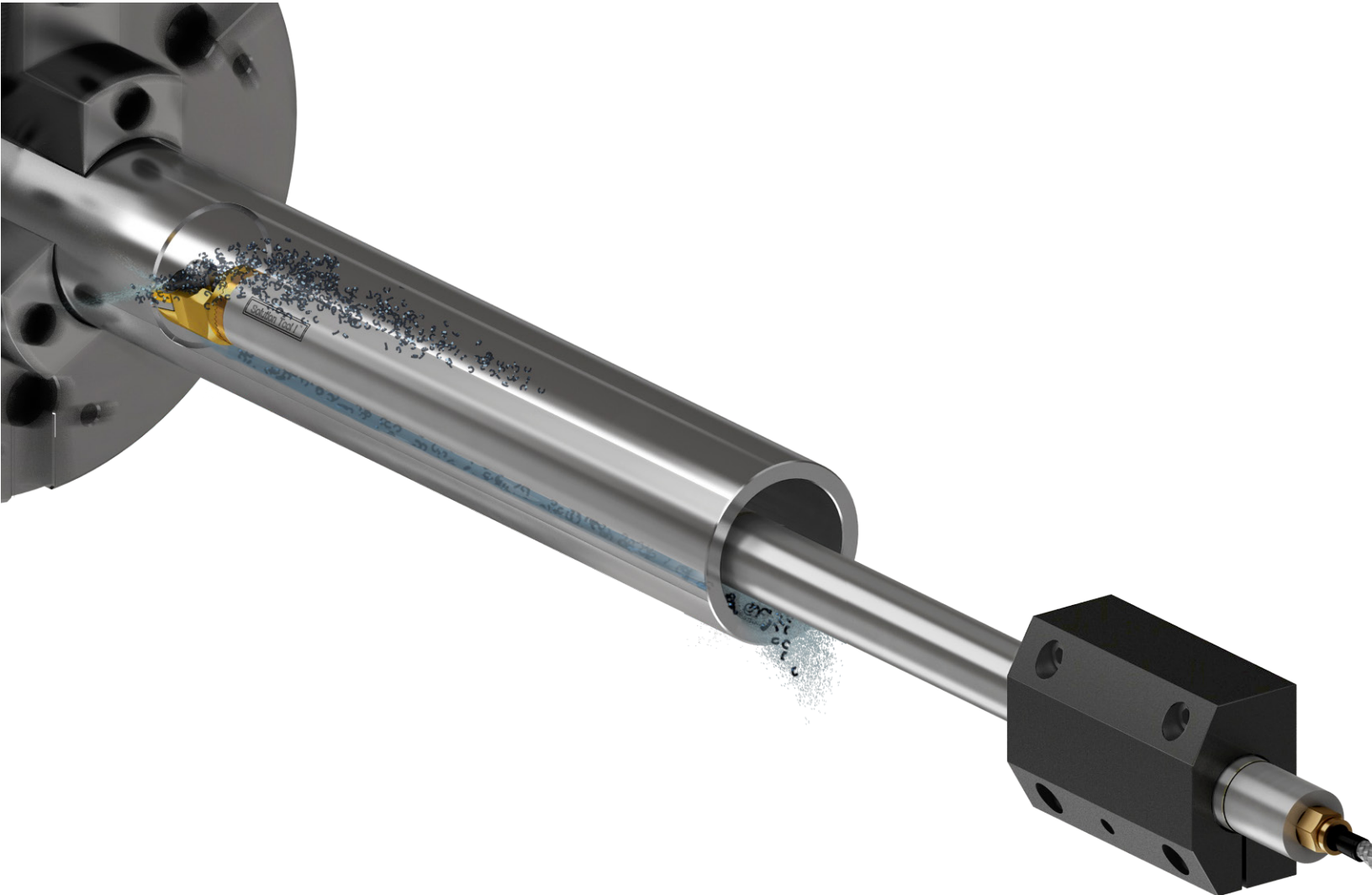
To control the chips from clogging and to evacuate them easily from the bore, the chips are to be cut the right length. Not too short to minimize insert damage and cutting force, not too long to prevent them from wrapping around the boring bar.

The insert rake angle and chip break, depth of cut, feed rate, and RPM will control the length of the chips.

High Pressure Coolant and or Air will remove chips from the bore.

Use a Thru Coolant Boring Bar.

It is best if a Dorian Jet Stream Thru Coolant Boring Bar combined with high pressure coolant system is used. The coolant is aimed directly over the cutting edge of the insert at a high velocity blowing the chips away from the insert and flushing them out the bore.



High Performance Carbide Bars

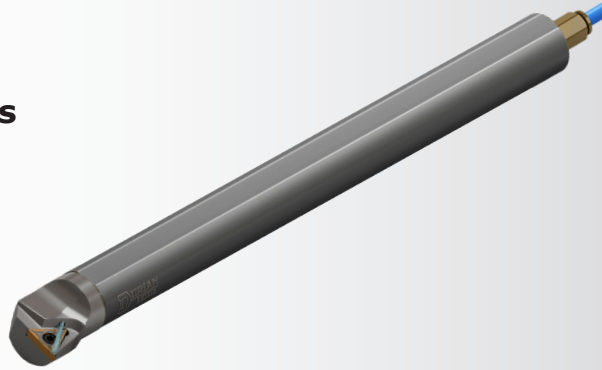
Thru Coolant Carbide Boring Bar

Best Application for:

- Boring and Threading
- Heavy Roughing and Finishing Operation
- Close working tolerances
- Boring Ratio 6 x Bar Dia.
- Threading Ratio 3 x Bar Dia.

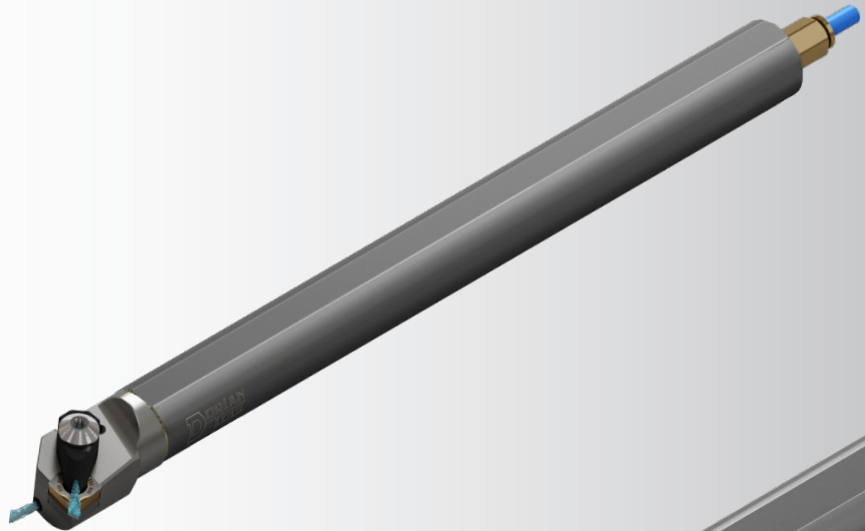
High Performance Carbide Integral Thru Coolant Bars

- For small bores
- Carbide Body
- Boring System Shank Size
Inch 0.156" to 1.250"
Metric 4mm to 32mm
- Threading System Shank Size
Inch 0.218" to 0.750"
Metric 6mm to 20mm



High Performance Carbide™ Integral Jet-Stream Thru Coolant Bars

- For medium bores
- Carbide Body
- Boring System Shank Size
Inch 1.000" to 1.250"
Metric 25mm to 32mm
- Threading System Shank Size
Inch 0.750" to 1.250"
Metric 20mm to 32mm



High Performance Carbide Quick Change Thru Coolant Bars

- For large bores
- Carbide Body
- Boring System Shank Size
Inch 0.750" to 1.250"
Metric 20mm to 32mm
- Threading System Shank Size
Inch 0.750" to 1.250"
Metric 20mm to 20mm



High Performance Carbide Integral Boring Bars

Thru Coolant Carbide Boring Bar System

Best Application for:

- Boring and Threading small bore
- Close working tolerances
- Roughing and Finishing Operation
- Deep Boring 6 x Bar Dia.

- Better Machining Performance**
- Higher Workmanship Quality**
- Longer Cutting Inserts Life**

The technology behind the "Carbide Boring Bar System"

The rigidity of the carbide boring bar, will make boring and threading simple and precise, from heavy roughing to precision finishing, with close tolerance and high surface finish.

- Boring Ratio 6 x Bar Dia.
- Threading Ratio 3 x Bar Dia.

Boring Bar Sizes

Inch: 0.156" Dia., to 1.250" Dia.

Metric: 4mm Dia., to 32mm Dia.,

Boring Bar Heads

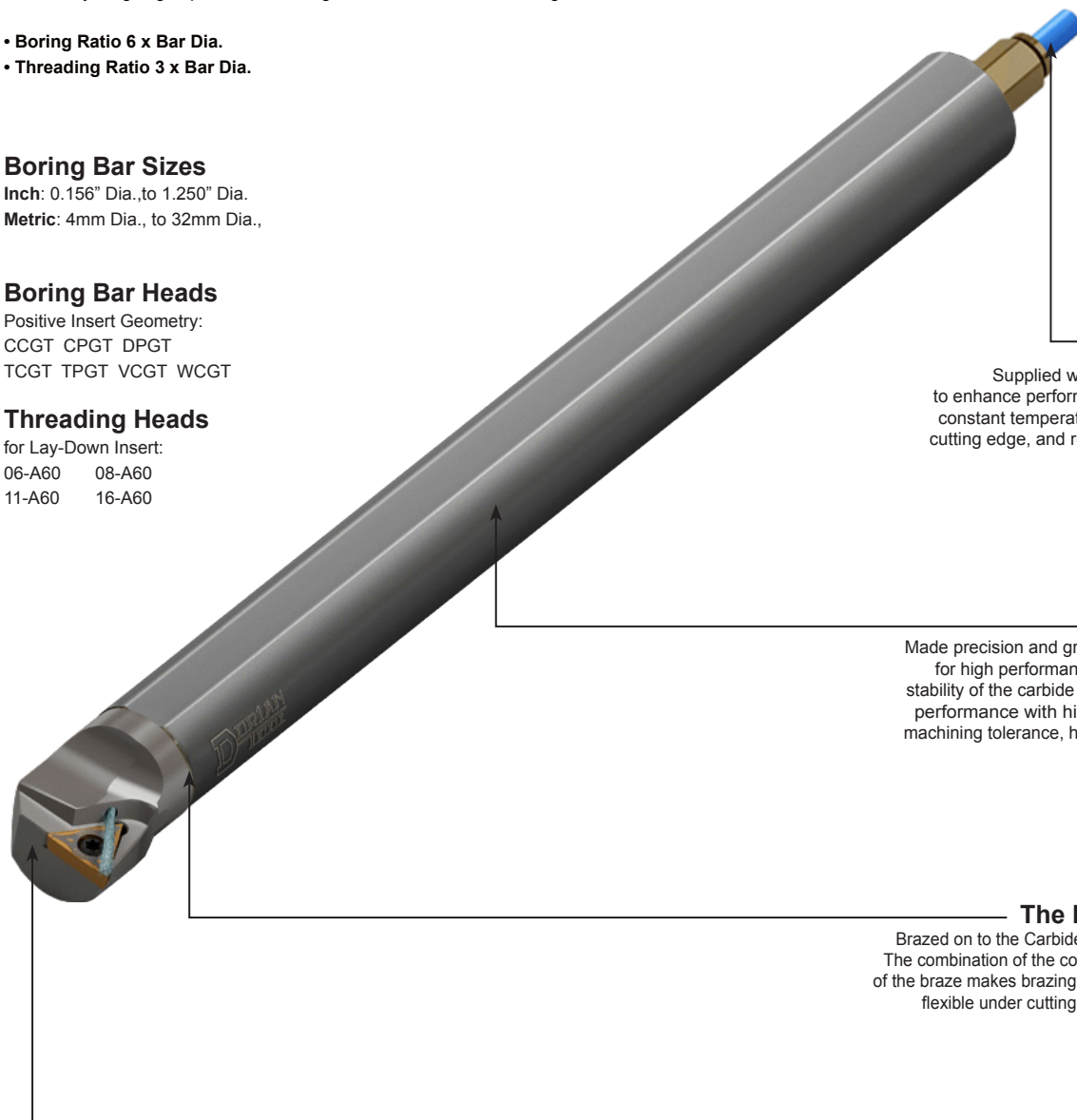
Positive Insert Geometry:
CCGT CPGT DPGT
TCGT TPGT VCGT WCGT

Threading Heads

for Lay-Down Insert:

06-A60 08-A60

11-A60 16-A60



Thru Coolant

Supplied with the thru coolant system to enhance performance, keep the insert at a constant temperature clean and undamaged cutting edge, and remove chips from the bore while machining.

Carbide Body

Made precision and ground solid Alloyed Carbide for high performance version. The rigidity and stability of the carbide body will maximize boring performance with high material removal, close machining tolerance, high surface finish and deep boring (6 x Dia.)

The Insert Head Braze

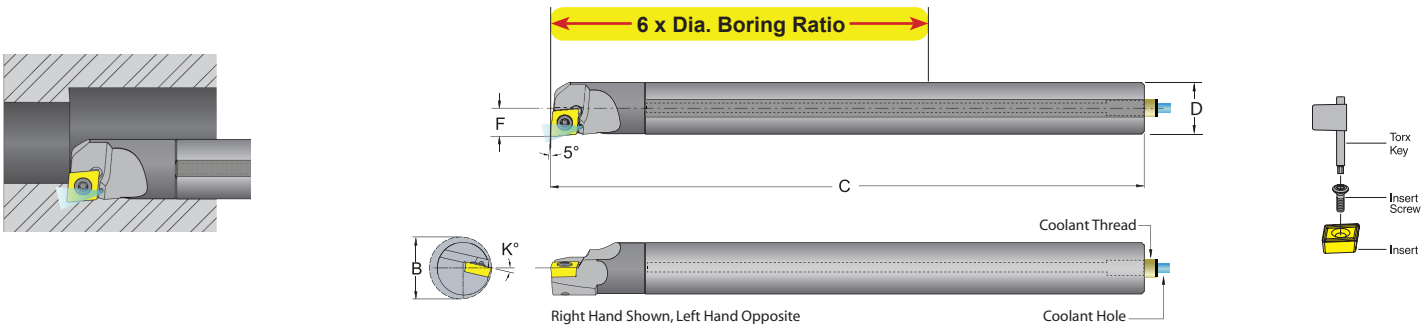
Brazed on to the Carbide Bar with triple silver alloys. The combination of the correct alloy and the thickness of the braze makes brazing strong and unbreakable but flexible under cutting pressure and interrupt cuts.

The Insert Heads

Made of heat treated alloy steel, and precisely machined on the body after brazing. Thru coolant system to improve performance, precision and insert life.

High Performance Carbide Boring Bars

E_SCLDR/L Thru Coolant Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 15° positive 80° diamond CD__inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore		C	F	K°	L	Coolant Hole	Coolant Thread	CD__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	B			B										
E02.5H-SCLDR/L-1.2	59575	59576	6 x Dia.	0.156	0.175	4.00	0.093	4.00	0.093	12°		.040	None	1.20.60.2	TS-18.35-1M1	T-6
E03.0H-SCLDR/L-1.2	59579	59580		0.187	0.205	4.00	0.103	4.00	0.103	9°		.040	None	1.20.60.2	TS-18.35-3M1	T-6
E03.5H-SCLDR/L-1.2	59583	59584		0.218	0.245	4.00	0.123	4.00	0.123	7°		.040	None	1.20.60.2	TS-18.35-3M1	T-6
E04H-SCLDR/L-1.5	59587	59588		0.250	0.270	4.00	0.135	4.00	0.135	7°		.040	None	1.510.5	TS-18.35-3M1	T-6
E05K-SCLDR/L-1.5	59591	59592		0.312	0.335	5.00	0.167	5.00	0.167	7°		.040	None	1.510.5	TS-18.35-3M1	T-6

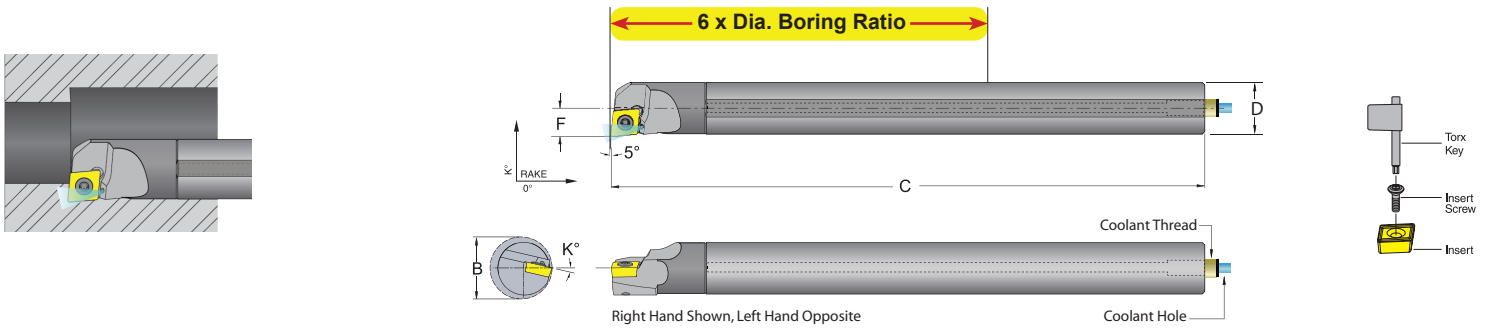
Inserts used: all CD__ series (CDGX, CDMT, CDGW, CDGB).

Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore		C	F	K°	L	Coolant Hole	Coolant Thread	CD__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	B			B										
E04M-H-SCLDR/L-03	59577	59578	6 x Dia.	4	4.45	100	2.36	100	2.36	12°		1.0	None	S4T001	TS-18.35-1M1	T-6
E05M-H-SCLDR/L-03	59581	59582		5	5.21	100	2.62	100	2.62	9°		1.0	None	S4T001	TS-18.35-3M1	T-6
E06M-H-SCLDR/L-03	59585	59586		6	6.22	100	3.12	100	3.12	7°		1.0	None	S4T001	TS-18.35-3M1	T-6
E07M-H-SCLDR/L-04	59589	59590		7	8.00	100	4.00	100	4.00	7°		1.0	None	040102	TS-18.35-3M1	T-6
E08M-K-SCLDR/L-04	59593	59594		8	8.51	125	4.24	125	4.24	7°		1.0	None	040102	TS-18.35-3M1	T-6

*8 x Dia. Boring Ratio can be achieved under favorable conditions.

Inserts used: all CD__ series (CDGX, CDMT, CDGW, CDGB).

E_SCLC R/L Thru Coolant Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC__ inserts



Inch Bar Description	UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	CC__ Gage Insert	Insert Torx Screw	Torx Key
	R.H.	L.H.											
E06M-SCLCR/L-2	59595	59596	6 x Dia.	0.375	0.396	6.00	0.198	15°	.060	None	21.51	TS-25.45-6M2	T-8
E08K-SCLCR/L-2	59599	59600		0.500	0.550	5.00	0.275	13°	.080	6 X 1mm			
E08R-SCLCR/L-2	59603	59604		0.500	0.550	8.00	0.275	13°	.080	6 X 1mm			
E10M-SCLCR/L-2	59607	59608		0.625	0.740	6.00	0.395	10°	.125	1/8"- 27			
E10S-SCLCR/L-2	59611	59612		0.625	0.740	10.00	0.395	10°	.125	1/8"-27			
E08K-SCLCR/L-3	59615	59616		0.500	0.550	5.00	0.275	13°	.080	6 X 1mm			
E08R-SCLCR/L-3	59619	59620		0.500	0.550	8.00	0.275	13°	.080	6 X 1mm			
E10M-SCLCR/L-3	59623	59624		0.625	0.740	6.00	0.395	10°	.125	1/8"- 27			
E10S-SCLCR/L-3	59627	59628		0.625	0.740	10.00	0.395	10°	.125	1/8"- 27			
E12Q-SCLCR/L-3	59967	59968		0.750	0.930	7.000	0.500	8°	0.157	1/8"- 27			
E12S-SCLCR/L-3	59969	59970		0.750	0.930	10.00	0.500	8°	0.157	1/8"- 27			
E16R-SCLCR/L-3	59971	59972		1.000	1.200	8.000	0.625	7°	0.197	1/8"- 27			
E16T-SCLCR/L-3	59973	59974		1.000	1.200	12.00	0.625	7°	0.197	1/8"- 27			
E20U-SCLCR/L-4	59975	59976		1.250	1.470	14.00	0.765	5°	0.197	1/8"- 27	432	TS-5.8-10M1	T-20

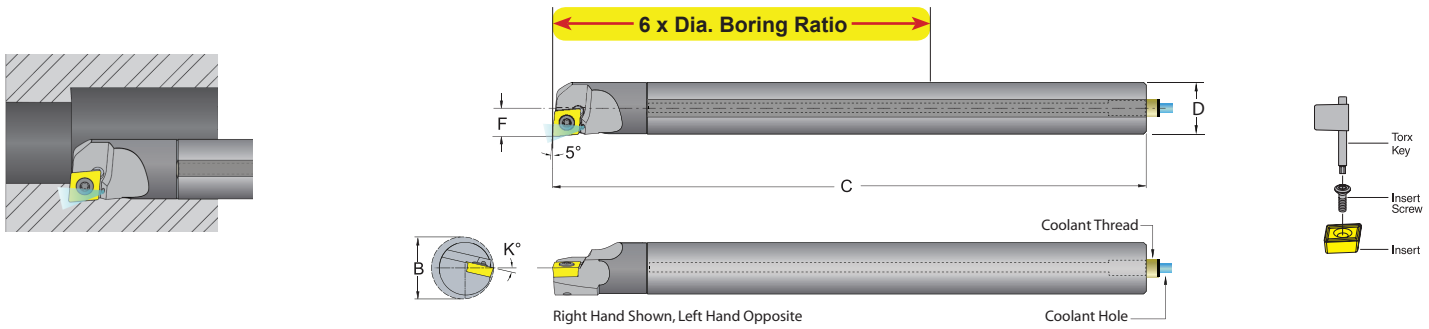
Inserts used: all CC__ series (CCGX, CCGT, CCMT, CCGW).

Metric Bar Description	UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	CC__ Gage Insert	Insert Torx Screw	Torx Key
	R.H.	L.H.											
E10M-M-SCLCR/L-06	59597	59598	6 x Dia.	10	10.06	150	5.03	15°	1.5	None	060204	TS-25.45-6M2	T-8
E12M-K-SCLCR/L-06	59601	59602		12	13.97	125	6.99	13°	2	6 X 1mm			
E12M-R-SCLCR/L-06	59605	59606		12	13.97	200	6.99	13°	2	6 X 1mm			
E16M-M-SCLCR/L-06	59609	59610		16	18.80	150	10.03	10°	3	1/8"- 27			
E16M-S-SCLCR/L-06	59613	59614		16	18.80	250	10.03	10°	3	1/8"- 27			
E12M-K-SCLCR/L-09	59617	59618		12	13.97	125	6.99	13°	2	6 X 1mm			
E12M-R-SCLCR/L-09	59621	59622		12	13.97	200	6.99	13°	2	6 X 1mm			
E16M-M-SCLCR/L-09	59625	59626		16	18.80	150	10.03	10°	3	1/8"- 27			
E16M-S-SCLCR/L-09	59629	59630		16	18.80	250	10.03	10°	3	1/8"- 27			
E20M-Q-SCLCR/L-09	59977	59978		20	23.6	180	12.70	8°	4	1/8"- 27			
E20M-S-SCLCR/L-09	59979	59980		20	23.6	250	12.70	8°	4	1/8"- 27			
E25M-R-SCLCR/L-09	59981	59982		25	30.5	200	15.88	7°	5	1/8"- 27			
E25M-T-SCLCR/L-09	59983	59984		25	30.5	300	15.88	7°	5	1/8"- 27			
E32M-U-SCLCR/L-12	59985	59986		32	37.3	350	19.43	5°	5	1/8"- 27	120408	TS-5.8-10M1	T-20

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
 Inserts used: all CC__ series (CCGX, CCGT, CCMT, CCGW).

High Performance Carbide Boring Bars

E_SCLP R/L Thru Coolant Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 11° positive 80° diamond CP__ inserts



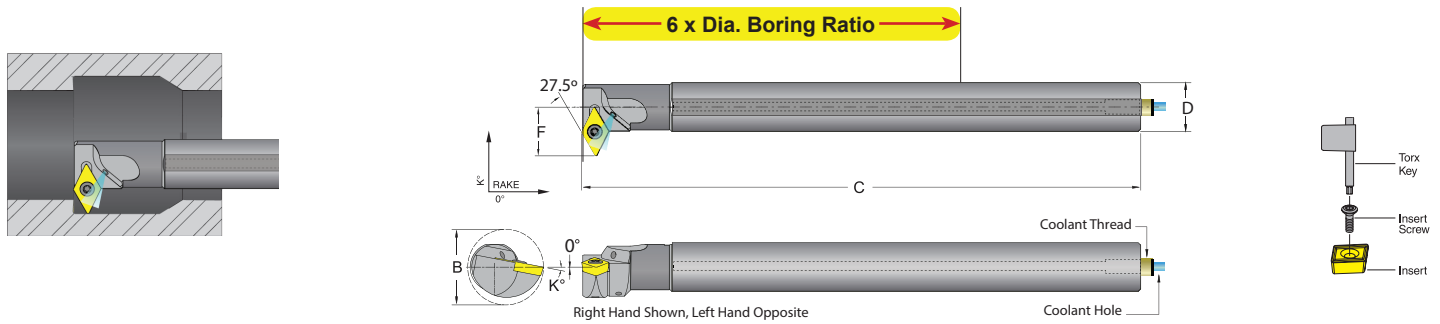
Inch			Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	CP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	UPC No. 733101-R.H.	L.H.											
E05K-SCLPR/L-1.8	59631	59632	6 x Dia.	0.312	0.335	5.00	0.167	7°	.040	None	1.81.20.5	TS-06	T-6
E06M-SCLPR/L-2	59635	59636		0.375	0.396	6.00	0.198	6°	.060	None	21.51	TS-25.45-6M2	T-8
E08K-SCLPR/L-2	59639	59640		0.500	0.550	5.00	0.275	3°	.080	6 X 1mm			
E08R-SCLPR/L-2	59643	59644		0.500	0.550	8.00	0.275	3°	.080	6 X 1mm			
E10M-SCLPR/L-2	59647	59648		0.625	0.740	6.00	0.395	2°	.125	1/8"- 27			
E10S-SCLPR/L-2	59651	59652		0.625	0.740	10.00	0.395	2°	.125	1/8"- 27	32.52	TS-4.7-10M1	T-15
E08K-SCLPR/L-3	59655	59656		0.500	0.550	5.00	0.280	9°	.080	6 X 1mm			
E08R-SCLPR/L-3	59659	59660		0.500	0.550	8.00	0.280	9°	.080	6 X 1mm			
E10M-SCLPR/L-3	59663	59664		0.625	0.740	6.00	0.395	5°	.125	1/8"- 27			
E10S-SCLPR/L-3	59667	59668		0.625	0.740	10.00	0.395	5°	.125	1/8"- 27			

Inserts used: all CP__ series (CPGX, CPGT, CPGW, CPMT).

Metric			Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	CP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	UPC No. 733101-R.H.	L.H.											
E10M-M-SCLPR/L-06	59637	59638	6 x Dia.	10	10.06	150	5.03	6°	1.5	None	060204	TS-25.45-6M2	T-8
E12M-K-SCLPR/L-06	59641	59642		12	13.97	125	6.99	3°	2	6 X 1mm			
E12M-R-SCLPR/L-06	59645	59646		12	13.97	200	6.99	3°	2	6 X 1mm			
E16M-M-SCLPR/L-06	59649	59650		16	18.80	150	10.03	2°	3	1/8"- 27			
E16M-S-SCLPR/L-06	59653	59654		16	18.80	250	10.03	2°	3	1/8"- 27	09T308	TS-4.7-10M1	T-15
E12M-K-SCLPR/L-09	59657	59658		12	13.97	125	7.11	9°	2	6 X 1mm			
E12M-R-SCLPR/L-09	59661	59662		12	13.97	200	7.11	9°	2	6 X 1mm			
E16M-M-SCLPR/L-09	59665	59666		16	18.80	150	10.03	5°	3	1/8"- 27			
E16M-S-SCLPR/L-09	59669	59670		16	18.80	250	10.03	5°	3	1/8"- 27			

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all CP__ series (CPGX, CPGT, CPGW, CPMT).

E_SDNC R/L Thru Coolant Integral Carbide Boring Bar Style N - Negative 27.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description		R.H.	L.H.											
E06M-SDNCR/L-2	59671	59672	6 x Dia.	0.375	0.581	6.00	0.375	11°	.060	none	21.51	TS-25.45-6M2	T-8	
E08K-SDNCR/L-2	59675	59676		0.500	0.775	5.00	0.500	11°	.080	6 X 1mm				
E08R-SDNCR/L-2	59679	59680		0.500	0.775	8.00	0.500	11°	.080	6 X 1mm				
E10M-SDNCR/L-2	59683	59684		0.625	0.969	6.00	0.625	7°	.125	1/8"- 27				
E10S-SDNCR/L-2	59687	59688		0.625	0.969	10.00	0.625	7°	.125	1/8"- 27				

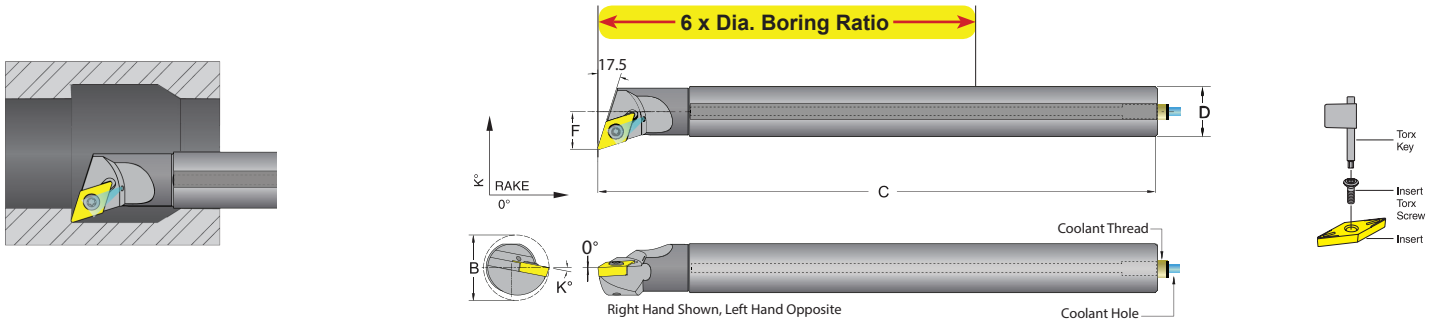
Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description		R.H.	L.H.											
E10M-M-SDNCR/L-07	59673	59674	6 x Dia.	10	14.76	150	9.53	11°	1.5	None	070204	TS-25.45-6M2	T-8	
E12M-K-SDNCR/L-07	59677	59678		12	19.69	125	12.70	11°	2	6 X 1mm				
E12M-R-SDNCR/L-07	59681	59682		12	19.69	200	12.70	11°	2	6 X 1mm				
E16M-M-SDNCR/L-07	59685	59686		16	24.61	150	15.88	7°	3	1/8"- 27				
E16M-S-SDNCR/L-07	59689	59690		16	24.61	250	15.88	7°	3	1/8"- 27				

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
 Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

High Performance Carbide Boring Bars

E_SDQC R/L Thru Coolant Integral Carbide Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



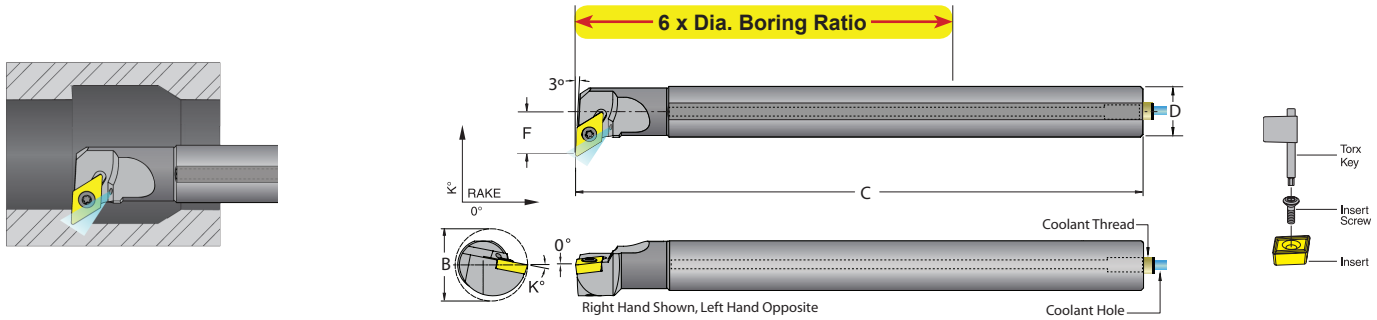
Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E06M-SDQCR/L-2	59691	59692	6 x Dia.	0.375	0.487	6.00	0.281	11°	.060	None	21.51	TS-25.45-6M2	T-8	
E08K-SDQCR/L-2	59695	59696		0.500	0.650	5.00	0.375	11°	.080	6 X 1mm				
E08R-SDQCR/L-2	59699	59700		0.500	0.650	8.00	0.375	11°	.080	6 X 1mm				
E10M-SDQCR/L-2	59703	59704		0.625	0.781	6.00	0.437	7°	.125	1/8"- 27				
E10S-SDQCR/L-2	59707	59708		0.625	0.781	10.00	0.437	7°	.125	1/8"- 27				

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E10M-M-SDQCR/L-07	59693	59694	6 x Dia.	10	12.38	150	7.14	11°	1.5	None	070204	TS-25.45-6M2	T-8	
E12M-K-SDQCR/L-07	59697	59698		12	16.51	125	9.53	11°	2	6 X 1mm				
E12M-R-SDQCR/L-07	59701	59702		12	16.51	200	9.53	11°	2	6 X 1mm				
E16M-M-SDQCR/L-07	59705	59706		16	19.83	150	11.10	7°	3	1/8"- 27				
E16M-S-SDQCR/L-07	59709	59710		16	19.83	250	11.10	7°	3	1/8"- 27				

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

E_SDUC R/L Thru Coolant Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.												
E06M-SDUCR/L-2	59711	59712	6 x Dia.	0.375	0.581	6.00	0.375	11°	.060	None	21.51	TS-25.45-6M2	T-8	
E08K-SDUCR/L-2	59715	59716		0.500	0.712	5.00	0.437	11°	.080	6 X 1mm				
E08R-SDUCR/L-2	59719	59720		0.500	0.712	8.00	0.437	11°	.080	6 X 1mm				
E10M-SDUCR/L-2	59723	59724		0.625	0.844	6.00	0.500	7°	.125	1/8"- 27				
E10S-SDUCR/L-2	59727	59728		0.625	0.844	10.00	0.500	7°	.125	1/8"- 27				
E12Q-SDUCR/L-3	59987	59988		0.750	1.050	7.000	0.562	6°	0.157	1/8"-27	32.52	TS-4.7-10M1	T-15	
E12S-SDUCR/L-3	59989	59990		0.750	1.050	10.00	0.562	6°	0.157	1/8"- 27				
E16R-SDUCR/L-3	59991	59992		1.000	1.300	8.000	0.750	4°	0.197	1/8"- 27				
E16T-SDUCR/L-3	59993	59994		1.000	1.300	12.00	0.750	4°	0.197	1/8"- 27				
E20U-SDUCR/L-3	59995	59996		1.250	1.750	14.00	0.875	4°	0.197	1/8"- 27				

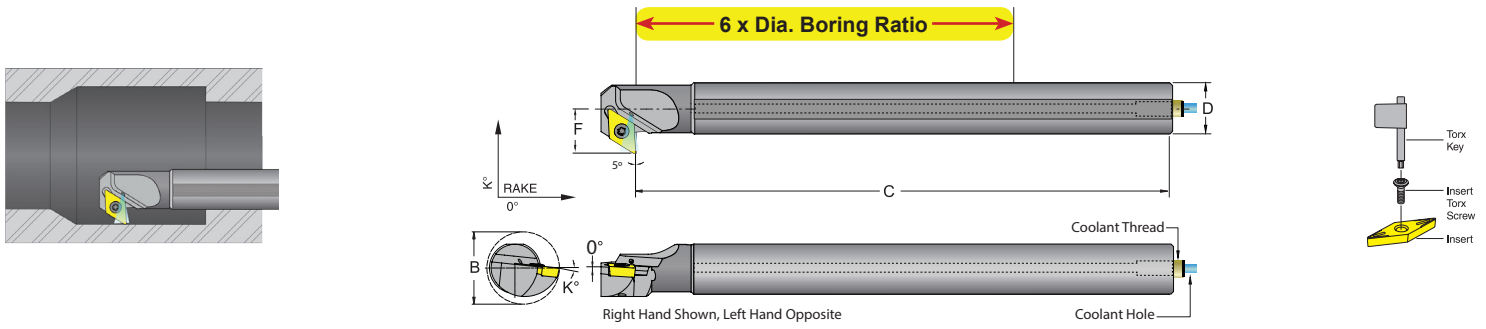
Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.												
E10M-M-SDUCR/L-07	59713	59714	6 x Dia.	10	14.76	150	9.53	11°	1.5	None	070204	TS-25.45-6M2	T-8	
E12M-K-SDUCR/L-07	59717	59718		12	18.08	125	11.10	11°	2	6 X 1mm				
E12M-R-SDUCR/L-07	59721	59722		12	18.08	200	11.10	11°	2	6 X 1mm				
E16M-M-SDUCR/L-07	59725	59726		16	21.43	150	12.70	7°	3	1/8"- 27				
E16M-S-SDUCR/L-07	59729	59730		16	21.43	250	12.70	7°	3	1/8"- 27				
E20M-Q-SDUCR/L-11	59997	59998		20	26.7	180	14.27	6°	4	1/8"- 27	11T308	TS-4.7-10M1	T-15	
E20M-S-SDUCR/L-11	59999	60000		20	26.7	250	14.27	6°	4	1/8"- 27				
E25M-R-SDUCR/L-11	60001	60002		25	33.0	200	19.05	4°	5	1/8"- 27				
E25M-T-SDUCR/L-11	60003	60004		25	33.0	300	19.05	4°	5	1/8"- 27				
E32M-U-SDUCR/L-11	60005	60006		32	44.5	350	22.23	4°	5	1/8"- 27				

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

High Performance Carbide Boring Bars

E_SDXC R/L Thru Coolant Integral Carbide Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC__inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.												
E06M-SDXCR/L-2	59731	59732	6 x Dia.	0.375	0.581	5.66	0.375	8°	.060	None	21.51	TS-25.45-6M2	T-8	
E08K-SDXCR/L-2	59735	59736		0.500	0.712	4.66	0.437	6°	.080	6 X 1mm				
E08R-SDXCR/L-2	59739	59740		0.500	0.712	7.66	0.437	6°	.080	6 X 1mm				
E10M-SDXCR/L-2	59743	59744		0.625	0.844	5.66	0.500	5°	.125	1/8"- 27				
E10S-SDXCR/L-2	59747	59748		0.625	0.844	9.66	0.500	5°	.125	1/8"- 27				
E12Q-SDXCR/L-3	60007	60008		0.750	0.980	6.115	0.562	5°	0.157	1/8"- 27				
E12S-SDXCR/L-3	60009	60010		0.750	0.980	9.115	0.562	5°	0.157	1/8"- 27				
E16R-SDXCR/L-3	60011	60012		1.000	1.300	7.186	0.750	3°	0.197	1/8"- 27	32.52	TS-4.7-10M1	T-15	
E16T-SDXCR/L-3	60013	60014		1.000	1.300	11.186	0.750	3°	0.197	1/8"- 27				
E20U-SDXCR/L-3	60015	60016		1.250	1.600	14.00	1.000	3°	0.197	1/8"- 27				

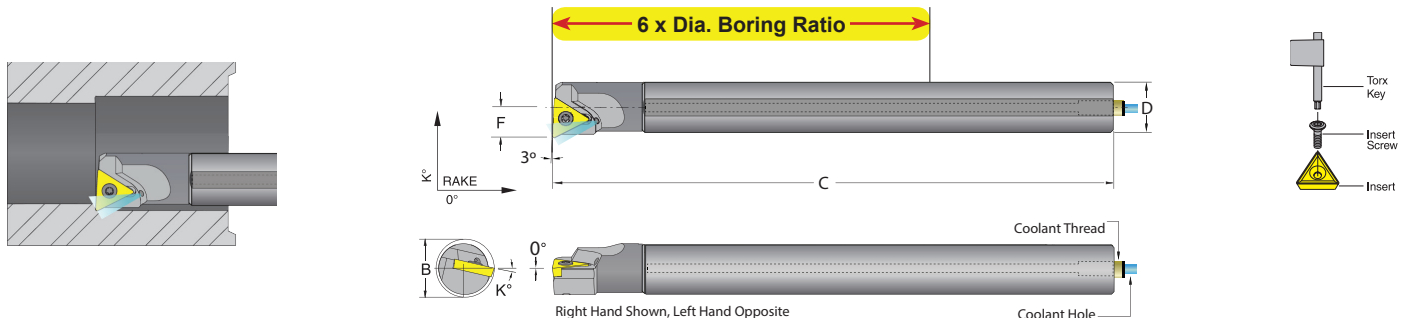
Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.												
E10M-M-SDXCR/L-07	59733	59734	6 x Dia.	10	14.76	141.36	9.53	8°	1.5	None	070204	TS-25.45-6M2	T-8	
E12M-K-SDXCR/L-07	59737	59738		12	18.08	116.36	11.10	6°	2	6 X 1mm				
E12M-R-SDXCR/L-07	59741	59742		12	18.08	191.36	11.10	6°	2	6 X 1mm				
E16M-M-SDXCR/L-07	59745	59746		16	21.43	141.36	12.70	5°	3	1/8"- 27				
E16M-S-SDXCR/L-07	59749	59750		16	21.43	241.36	12.70	5°	3	1/8"- 27				
E20M-Q-SDXCR/L-11	60017	60018		20	24.9	180	14.27	5°	4	1/8"- 27				
E20M-S-SDXCR/L-11	60019	60020		20	24.9	250	14.27	5°	4	1/8"- 27				
E25M-R-SDXCR/L-11	60021	60022		25	33.0	200	19.05	3°	5	1/8"- 27	11T308	TS-4.7-10M1	T-15	
E25M-T-SDXCR/L-11	60023	60024		25	33.0	300	19.05	3°	5	1/8"- 27				
E32M-U-SDXCR/L-11	60025	60026		32	40.6	350	25.40	3°	5	1/8"- 27				

*8 x Dia. Boring Ratio can be achieved under favorable conditions.

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

E_STUC R/L Thru Coolant Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



Inch Bar Description	UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	TC__ Gage Insert	Insert Torx Screw	Torx Key
	R.H.	L.H.											
E04H-STUCR/L-1.2	59751	59752	6 x Dia.	0.250	0.281	4.00	0.143	11°	.060	None	1.21.20.2	TS-06	T-6
E05K-STUCR/L-1.2	59755	59756		0.312	0.339	5.00	0.167	8°	.060	None			
E06M-STUCR/L-1.2	59759	59760		0.375	0.409	6.00	0.203	7°	.060	None			
E06M-STUCR/L-2	59763	59764		0.375	0.456	6.00	0.250	15°	.060	None	21.51	TS-25.45-6M2	T-8
E08K-STUCR/L-2	59767	59768		0.500	0.587	5.00	0.312	13°	.080	6 X 1mm			
E08R-STUCR/L-2	59771	59772		0.500	0.587	8.00	0.312	13°	.080	6 X 1mm	32.52	TS-4.7-10M1	T-15
E10M-STUCR/L-2	59775	59776		0.625	0.750	6.00	0.406	10°	.125	1/8"- 27			
E10S-STUCR/L-2	59779	59780		0.625	0.750	10.00	0.406	10°	.125	1/8"- 27	06T101	TS-06	T-6
E12Q-STUCR/L-3	60027	60028		0.750	0.930	7.000	0.500	8°	0.157	1/8"-27			
E12S-STUCR/L-3	60029	60030		0.750	0.930	10.00	0.500	8°	0.157	1/8"-27	110204	TS-25.45-6M2	T-8
E16R-STUCR/L-3	60031	60032		1.000	1.200	8.000	0.625	7°	0.197	1/8"-27			
E16T-STUCR/L-3	60033	60034		1.000	1.200	12.00	0.625	7°	0.197	1/8"-27	06T308	TS-35.6-9M1	T-15
E20U-STUCR/L-3	60035	60036		1.250	1.470	14.00	0.875	7°	0.197	1/8"-27			

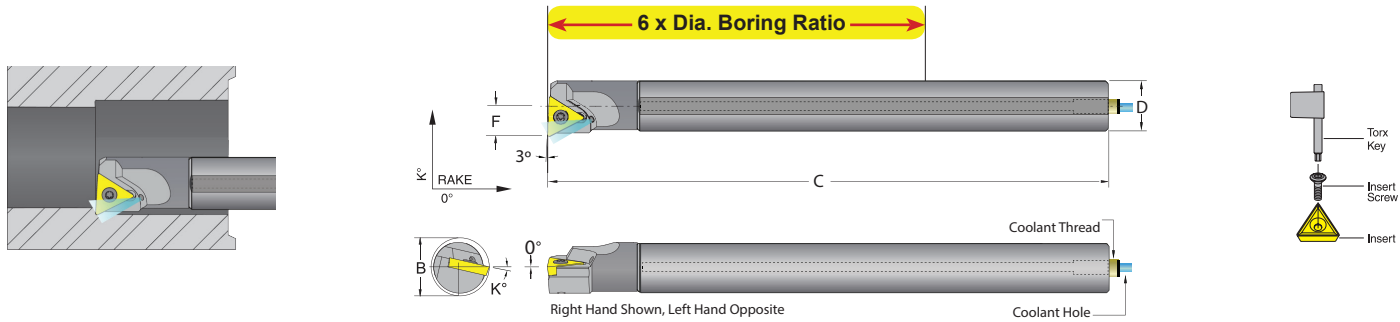
Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

Metric Bar Description	UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	TC__ Gage Insert	Insert Torx Screw	Torx Key
	R.H.	L.H.											
E07M-H-STUCR/L-06	59753	59754	6 x Dia.	7	7.14	100	3.63	11°	1.5	None	06T101	TS-06	T-6
E08M-K-STUCR/L-06	59757	59758		8	8.60	125	4.24	8°	1.5	None			
E10M-M-STUCR/L-06	59761	59762		10	10.39	150	5.16	7°	1.5	None			
E10M-M-STUCR/L-11	59765	59766		10	11.59	150	6.35	15°	1.5	None	110204	TS-25.45-6M2	T-8
E12M-K-STUCR/L-11	59769	59770		12	14.91	125	7.92	13°	2	6 X 1mm			
E12M-R-STUCR/L-11	59773	59774		12	14.91	200	7.92	13°	2	6 X 1mm	06T308	TS-35.6-9M1	T-15
E16M-M-STUCR/L-11	59777	59778		16	19.04	150	10.31	10°	3	1/8"- 27			
E16M-S-STUCR/L-11	59781	59782		16	19.04	250	10.31	10°	3	1/8"- 27	06T308	TS-35.6-9M1	T-15
E20M-Q-STUCR/L-16	60037	60038		20	23.6	180	12.70	8°	4	1/8"-27			
E20M-S-STUCR/L-16	60039	60040		20	23.6	250	12.70	8°	4	1/8"-27	06T308	TS-35.6-9M1	T-15
E25M-R-STUCR/L-16	60041	60042		25	30.5	200	15.88	7°	5	1/8"-27			
E25M-T-STUCR/L-16	60043	60044		25	30.5	300	15.88	7°	5	1/8"-27	06T308	TS-35.6-9M1	T-15
E32M-U-STUCR/L-16	60045	60046		32	37.3	350	22.23	7°	5	1/8"-27			

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

High Performance Carbide Boring Bars

E_STUP R/L Thru Coolant Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 11° positive triangle TP__ inserts

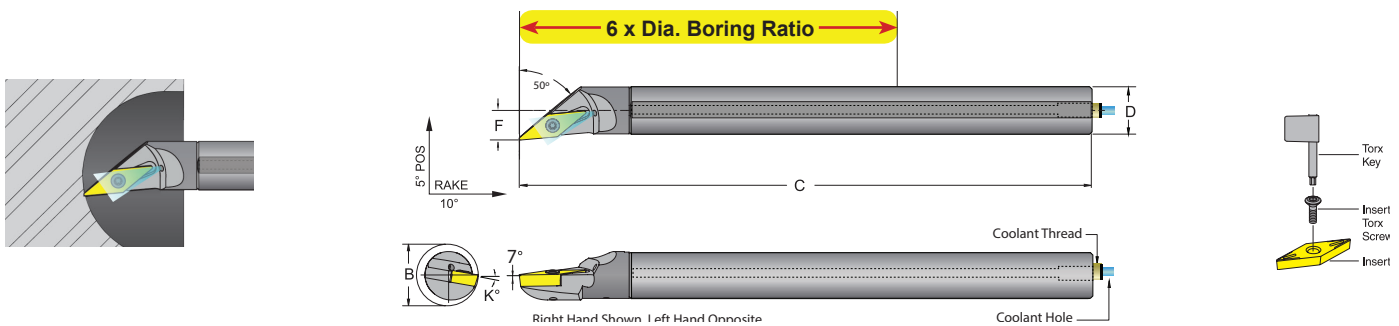


Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	TP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E06M-STUPR/L-2	59783	59784	6 x Dia.	0.375	0.456	6.00	0.250	4°	.060	None	21.51	TS-25.45-6M2	T-8	
E08K-STUPR/L-2	59787	59788		0.500	0.587	5.00	0.312	2°	.080	6 X 1mm				
E08R-STUPR/L-2	59791	59792		0.500	0.587	8.00	0.312	2°	.080	6 X 1mm				
E10M-STUPR/L-2	59795	59796		0.625	0.750	6.00	0.406	0°	.125	1/8"- 27				
E10S-STUPR/L-2	59799	59800		0.625	0.750	10.00	0.406	0°	.125	1/8"- 27				

Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	TP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E10M-M-STUPR/L-11	59785	59786	6 x Dia.	10	11.59	150	6.35	4°	1.5	None	110204	TS-25.45-6M2	T-8	
E12M-K-STUPR/L-11	59789	59790		12	14.91	125	7.92	2°	2	6 X 1mm				
E12M-R-STUPR/L-11	59793	59794		12	14.91	200	7.92	2°	2	6 X 1mm				
E16M-M-STUPR/L-11	59797	59798		16	19.04	150	10.31	0°	3	1/8"- 27				
E16M-S-STUPR/L-11	59801	59802		16	19.04	250	10.31	0°	3	1/8"- 27				

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
 Inserts used: all TP__ series (TPMT, TPGT, TPMR, TPGW, TPGH, TPGB, TPHT).

E_SVMC R/L Thru Coolant Integral Carbide Boring Bar Style M - Negative 50° Side Cutting Edge Angle for 7° positive 35° diamond VC__ inserts

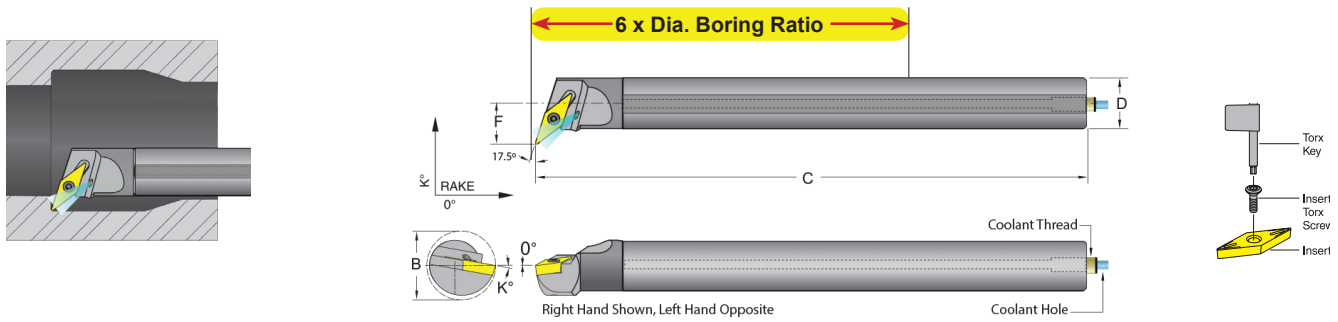


Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E08K-SVMCRL-2	59803	59804	6 x Dia.	0.500	0.587	5.23	0.312	8°	.080	6 X 1mm	221	TS-25.45-8M2	T-8	
E08R-SVMCRL-2	59807	59808		0.500	0.587	8.23	0.312	8°	.080	6 X 1mm				
E10M-SVMCRL-2	59811	59812		0.625	0.750	6.16	0.406	8°	.125	1/8"- 27				
E10S-SVMCRL-2	59815	59816		0.625	0.750	10.16	0.406	8°	.125	1/8"- 27				

Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E12M-K-SVMCRL-11	59805	59806	6 x Dia.	12	14.910	130.84	7.925	8°	2	6 X 1mm	110304	TS-25.45-8M2	T-8	
E12M-R-SVMCRL-11	59809	59810		12	14.910	205.84	7.925	8°	2	6 X 1mm				
E16M-M-SVMCRL-11	59813	59814		16	19.044	154.06	10.312	8°	3	1/8"- 27				
E16M-S-SVMCRL-11	59817	59818		16	19.044	254.06	10.312	8°	3	1/8"- 27				

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
 Inserts used: all VC__ series (VCMT, VCGT, VCGW, VCGX).

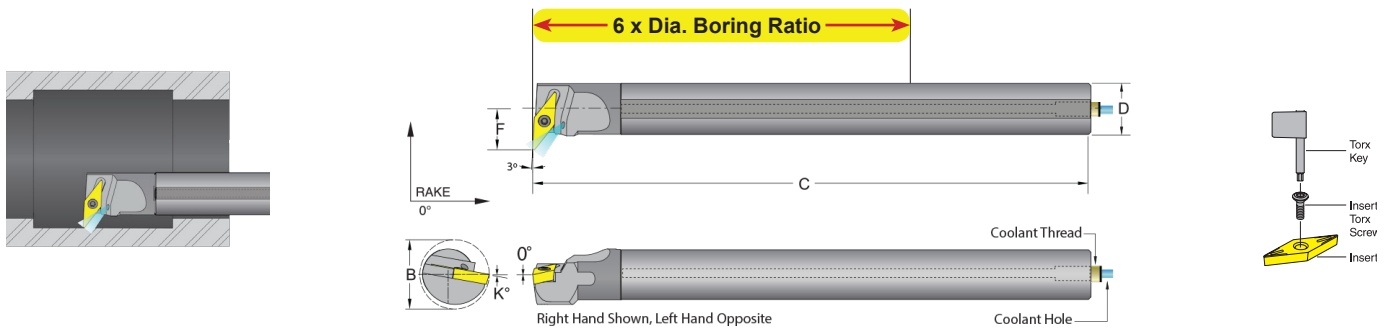
E_SVQC R/L Thru Coolant Integral Carbide Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for 7° positive 35° diamond VC__ inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E10M-SVQCR/L-2	59819	59820	6 x Dia.		0.625	0.844	6.00	0.500	10°	.125	1/8"- 27	221	TS-25.45-8M2	T-8
E10S-SVQCR/L-2	59823	59824	6 x Dia.		0.625	0.844	10.00	0.500	10°	.125	1/8"- 27	221	TS-25.45-8M2	T-8
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E16M-M-SVQCR/L-11	59821	59822	6 x Dia.		16	21.43	150	12.70	10°	3	1/8"- 27	110304	TS-25.45-8M2	T-8
E16M-S-SVQCR/L-11	59825	59826	6 x Dia.		16	21.43	250	12.70	10°	3	1/8"- 27	110304	TS-25.45-8M2	T-8

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
 Inserts used: all VC__ series (VCMT, VCGT, VCGW, VCGX)

E_SVUC R/L Thru Coolant Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 35° diamond VC__ inserts

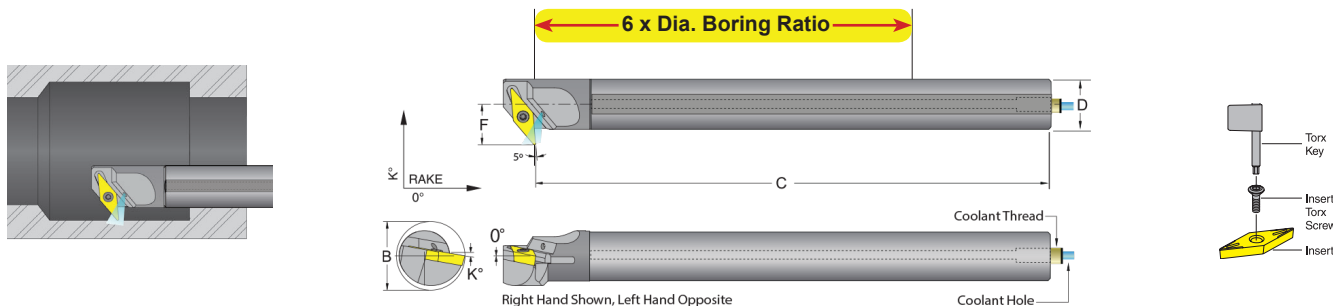


Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E10M-SVUCR/L-2	59827	59828	6 x Dia.		0.625	0.844	6.00	0.500	10°	.125	1/8"- 27	221	TS-25.45-8M2	T-8
E10S-SVUCR/L-2	59831	59832	6 x Dia.		0.625	0.844	10.00	0.500	10°	.125	1/8"- 27	221	TS-25.45-8M2	T-8
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E16M-M-SVUCR/L-11	59829	59830	6 x Dia.		16	21.43	150	12.70	10°	3	1/8"- 27	110304	TS-25.45-8M2	T-8
E16M-S-SVUCR/L-11	59833	59834	6 x Dia.		16	21.43	250	12.70	10°	3	1/8"- 27	110304	TS-25.45-8M2	T-8

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
 Inserts used: all VC__ series (VCMT, VCGT, VCGW, VCGX)

High Performance Carbide Boring Bars

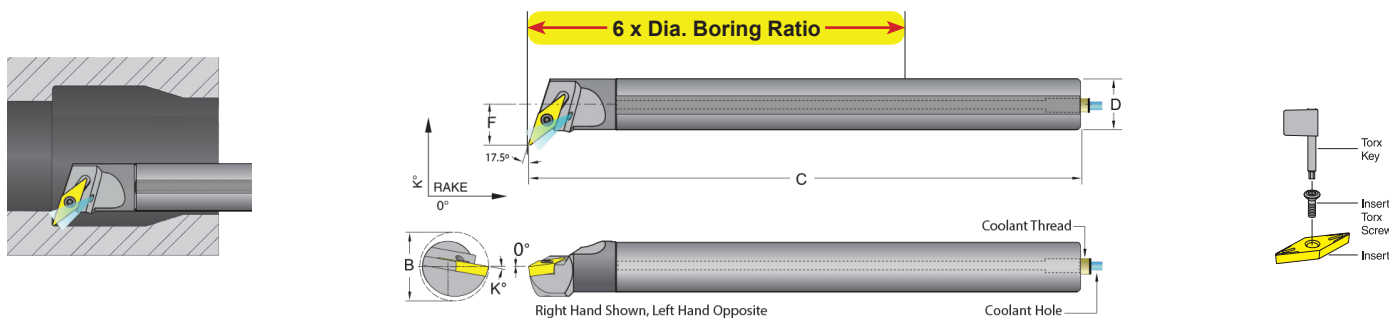
E_SVXC R/L Thru Coolant Integral Carbide Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 35° diamond VC__ inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E10M-SVXCR/L-2	59835	59836		6 x Dia.	0.625	1.0	5.76	.625	10°	.125	1/8"- 27	221	TS-25.45-8M2	T-8
E10S-SVXCR/L-2	59839	59840			0.625	1.0	9.76	.625	10°	.125	1/8"- 27			
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VC__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E16M-M-SVXCR/L-11	59837	59838		6 x Dia.	16	25.40	143.90	15.88	10°	3	1/8"- 27	110304	TS-25.45-8M2	T-8
E16M-S-SVXCR/L-11	59841	59842			16	25.40	243.90	15.88	10°	3	1/8"- 27			

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
 Inserts used: all VC__ series (VCMT, VCGT, VCGW, VCGX).

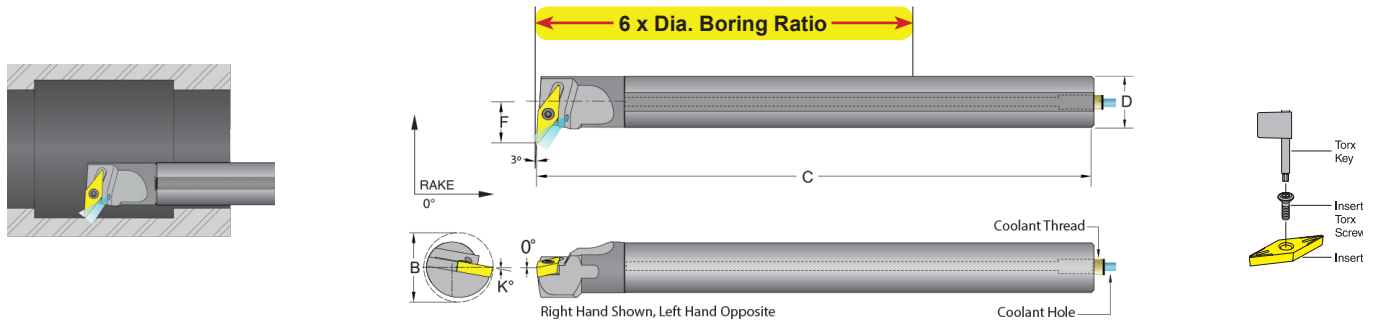
E_SVQP R/L Thru Coolant Integral Carbide Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for 11° positive 35° diamond VP__ inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E10M-SVQPR/L-2	59843	59844		6 x Dia.	0.625	0.844	6.00	0.500	6°	.125	1/8"- 27	221	TS-25.45-8M2	T-8
E10S-SVQPR/L-2	59847	59848			0.625	0.844	10.00	0.500	6°	.125	1/8"- 27			
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E16M-M-SVQPR/L-11	59845	59846		6 x Dia.	16	21.43	150	12.70	6°	3	1/8"- 27	110304	TS-25.45-8M2	T-8
E16M-S-SVQPR/L-11	59849	59850			16	21.43	250	12.70	6°	3	1/8"- 27			

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
 Inserts used: all VP__ series (VPMT, VPGT).

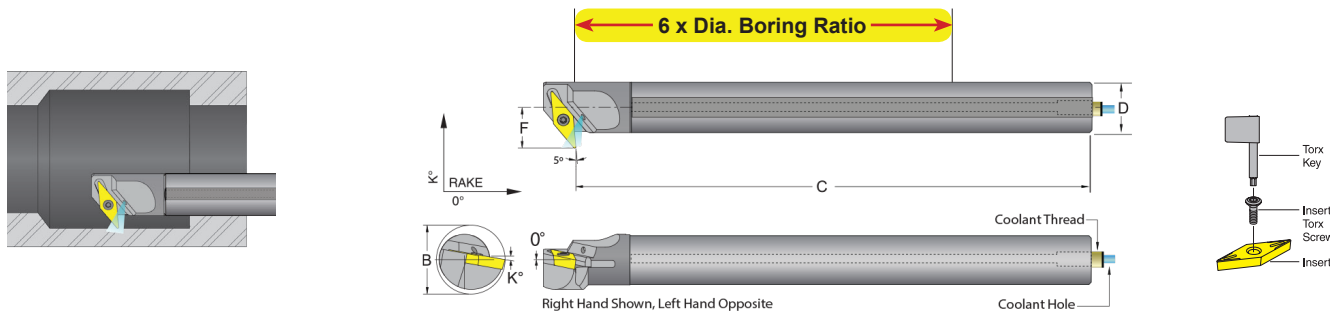
E_SVUP R/L Thru Coolant Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 11° positive 35° diamond VP__ inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E10M-SVUPR/L-2	59851	59852	6 x Dia.	0.625	0.844	6.00	0.500	6°	.125	1/8"- 27	221	TS-25.45-8M2	T-8	
E10S-SVUPR/L-2	59855	59856		0.625	0.844	10.00	0.500	6°	.125	1/8"- 27				
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E16M-M-SVUPR/L-11	59853	59854	6 x Dia.	16	21.43	150	12.70	6°	3	1/8"- 27	110304	TS-25.45-8M2	T-8	
E16M-S-SVUPR/L-11	59857	59858		16	21.43	250	12.70	6°	3	1/8"- 27				

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all VP__ series (VPMT, VPGT).

E_SVXP R/L Thru Coolant Integral Carbide Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 11° positive 35° diamond VP__ inserts

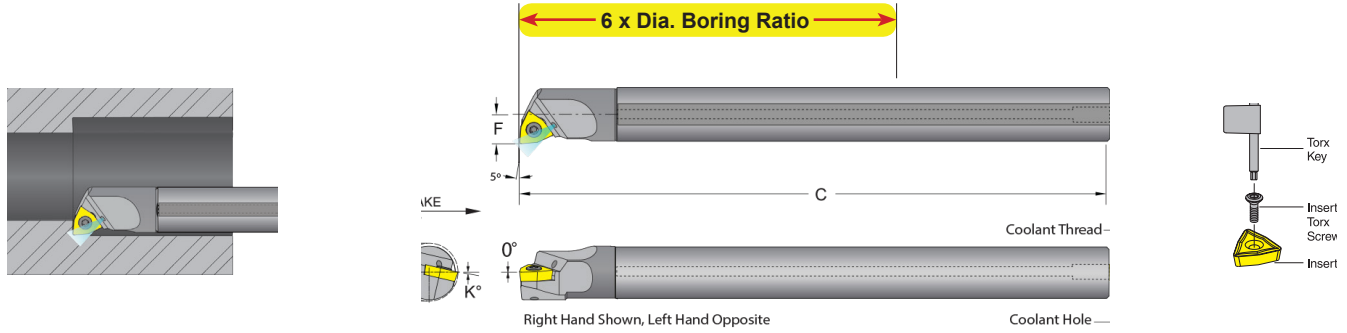


Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E10M-SVXPR/L-2	59859	59860	6 x Dia.	0.625	1.00	5.76	.625	6°	.125	1/8"- 27	221	TS-25.45-8M2	T-8	
E10S-SVXPR/L-2	59863	59864		0.625	1.00	9.76	.625	6°	.125	1/8"- 27				
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VP__ Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.											
E16M-M-SVXPR/L-11	59861	59862	6 x Dia.	16	25.4	143.90	15.88	6°	3	1/8"- 27	110304	TS-25.45-8M2	T-8	
E16M-S-SVXPR/L-11	59865	59866		16	25.4	243.90	15.88	6°	3	1/8"- 27				

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all VP__ series (VPMT, VPGT).

High Performance Carbide Boring Bars

E_SWLC R/L Thru Coolant Integral Carbide Boring Bar Style L - Negative 5° End Cutting Edge Angle for 7° positive 80° trigon WC__ inserts



Inch Bar Description	UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	WC__ Gage Insert	Insert Torx Screw	Torx Key
	R.H.	L.H.											
E03.0H-SWLCR/L-1.2	59867	59868	6 x Dia.	0.187	0.205	4.00	0.103	13°	.040	None	1.210.2	TS-18.35-1M1	T-6
E03.5H-SWLCR/L-1.2	59871	59872		0.218	0.245	4.00	0.125	11°	.040	None			
E04H-SWLCR/L-1.2	59875	59876		0.250	0.270	4.00	0.135	9°	.040	None			
E05K-SWLCR/L-1.2	59879	59880		0.312	0.335	5.00	0.167	7°	.040	None			
E06M-SWLCR/L-2	59883	59884		0.375	0.396	6.00	0.198	15°	.060	None	21.51	TS-25.45-6M2	T-8
E08K-SWLCR/L-2	59887	59888		0.500	0.550	5.00	0.275	13°	.080	6 X 1mm			
E08R-SWLCR/L-2	59891	59892		0.500	0.550	8.00	0.275	13°	.080	6 X 1mm			
E10M-SWLCR/L-2	59895	59896		0.625	0.740	6.00	0.395	10°	.125	1/8"- 27			
E10S-SWLCR/L-2	59899	59900		0.625	0.740	10.00	0.395	10°	.125	1/8"- 27	32.52	TS-4.7-10M1	T-15
E08K-SWLCR/L-3	59903	59904		0.500	0.550	5.00	0.275	13°	.080	6 X 1mm			
E08R-SWLCR/L-3	59907	59908		0.500	0.550	8.00	0.275	13°	.080	6 X 1mm			
E10M-SWLCR/L-3	59911	59912		0.625	0.740	6.00	0.395	10°	.125	1/8"- 27			
E10S-SWLCR/L-3	59915	59916		0.625	0.740	10.00	0.395	10°	.125	1/8"- 27	432	TS-5.8-10M1	T-20
E12Q-SWLCR/L-3	60047	60048		0.750	0.930	7.000	0.500	10°	0.157	1/8"-27			
E12S-SWLCR/L-3	60049	60050		0.750	0.930	10.00	0.500	10°	0.157	1/8"-27			
E16R-SWLCR/L-3	60051	60052		1.000	1.200	8.000	0.625	5°	0.197	1/8"-27			
E16T-SWLCR/L-3	60053	60054		1.000	1.200	12.00	0.625	5°	0.197	1/8"-27			
E20U-SWLCR/L-4	60055	60056		1.250	1.530	14.00	0.765	5°	0.197	1/8"-27			

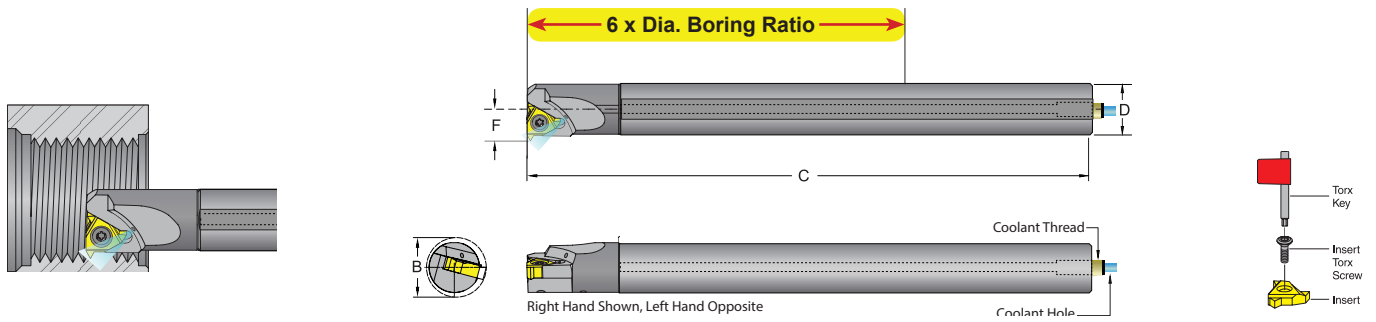
Inserts used: all WC__ series (WCMT, WCGT).

Metric Bar Description	UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	WC__ Gage Insert	Insert Torx Screw	Torx Key
	R.H.	L.H.											
E05M-H-SWLCR/L-02	59869	59870	6 x Dia.	5	5.21	100	2.62	13°	1	None	S20101	TS-18.35-1M1	T-6
E06M-H-SWLCR/L-02	59873	59874		6	6.22	100	3.18	11°	1	None			
E07M-H-SWLCR/L-02	59877	59878		7	8.00	100	4.00	9°	1	None			
E08M-K-SWLCR/L-02	59881	59882		8	8.51	125	4.24	7°	1	None			
E10M-M-SWLCR/L-04	59885	59886		10	10.06	150	5.03	15°	1.5	None	040204	TS-25.45-6M2	T-8
E12M-K-SWLCR/L-04	59889	59890		12	13.97	125	6.99	13°	2	6 X 1mm			
E12M-R-SWLCR/L-04	59893	59894		12	13.97	200	6.99	13°	2	6 X 1mm			
E16M-M-SWLCR/L-04	59897	59898		16	18.80	150	10.03	10°	3	1/8"- 27			
E16M-S-SWLCR/L-04	59901	59902		16	18.80	250	10.03	10°	3	1/8"- 27	06T308	TS-4.7-10M1	T-15
E12M-K-SWLCR/L-06	59905	59906		12	13.97	125	6.99	13°	2	6 X 1mm			
E12M-R-SWLCR/L-06	59909	59910		12	13.97	200	6.99	13°	2	6 X 1mm			
E16M-M-SWLCR/L-06	59913	59914		16	18.80	150	10.03	10°	3	1/8"- 27			
E16M-S-SWLCR/L-06	59917	59918		16	18.80	250	10.03	10°	3	1/8"- 27	080408	TS-5.8-10M1	T-20
E20M-Q-SWLCR/L-06	60057	60058		20	23.6	180	12.70	10°	4	1/8"-27			
E20M-S-SWLCR/L-06	60059	60060		20	23.6	250	12.70	10°	4	1/8"-27			
E25M-R-SWLCR/L-06	60061	60062		25	30.5	200	15.88	5°	5	1/8"-27			
E25M-T-SWLCR/L-06	60063	60064		25	30.5	300	15.88	5°	5	1/8"-27			
E32M-U-SWLCR/L-08	60065	60066		32	38.9	350	19.43	5°	5	1/8"-27			

*8 x Dia. Boring Ratio can be achieved under favorable conditions.

Inserts used: all WC__ series (WCMT, WCGT).

E_SN R/L Thru Coolant Integral Carbide Threading Bar Internal Laydown Bar for Laydown Inserts



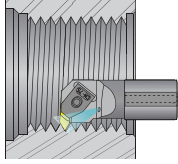
Inch Bar Description	UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	Coolant Hole	Coolant Thread	Laydown Gage Insert	Insert Torx Screw	Torx Key
	R.H.	L.H.										
E03.5H-SNR/L-06	59919	59920	6 x Dia.	0.218	0.249	4.00	0.129	.040	None	06-A60	TS-06	T-6
E04H-SNR/L-06	59923	59924		0.250	0.307	4.00	0.165	.040	None			
E05K-SNR/L-08	59927	59928		0.312	0.378	5.00	0.215	.040	None	08-A60	TS-08	T-8
E06M-SNR/L-H11	59931	59932		0.375	0.500	6.00	0.250	.060	None	11-A60	TS-25.45-6M2	T-8
E08K-SNR/L-H11	59935	59936		0.500	0.590	5.00	0.315	.080	6 X 1mm			
E08R-SNR/L-H11	59939	59940		0.500	0.590	8.00	0.315	.080	6 X 1mm			
E10M-SNR/L-H16	59943	59944		0.625	0.750	6.00	0.406	.125	1/8"- 27	16-A60	TS-35.6-9M1	T-15
E10S-SNR/L-H16	59947	59948		0.625	0.750	10.00	0.406	.125	1/8"- 27			
Metric Bar Description	UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	Coolant Hole	Coolant Thread	Laydown Gage Insert	Insert Torx Screw	Torx Key
R.H.	L.H.											
E06M-H-SNR/L-06	59921	59922	6 x Dia.	6	6.32	100	3.28	1	None	06-A60	TS-06	T-6
E07M-H-SNR/L-06	59925	59926		7	7.80	100	4.19	1	None			
E08M-K-SNR/L-08	59929	59930		8	9.60	125	5.46	1	None	08-A60	TS-08	T-8
E10M-M-SNR/L-H11	59933	59934		10	12.70	150	6.35	1.5	None	11-A60	TS-25.45-6M2	T-8
E12M-K-SNR/L-H11	59937	59938		12	14.99	125	8.00	2	6 X 1mm			
E12M-R-SNR/L-H11	59941	59942		12	14.99	200	8.00	2	6 X 1mm			
E16M-M-SNR/L-H16	59945	59946		16	19.04	150	10.31	3	1/8"- 27	16-A60	TS-35.6-9M1	T-15
E16M-S-SNR/L-H16	59949	59950		16	19.04	250	10.31	3	1/8"- 27			

*8 x Dia. Boring Ratio can be achieved under favorable conditions.

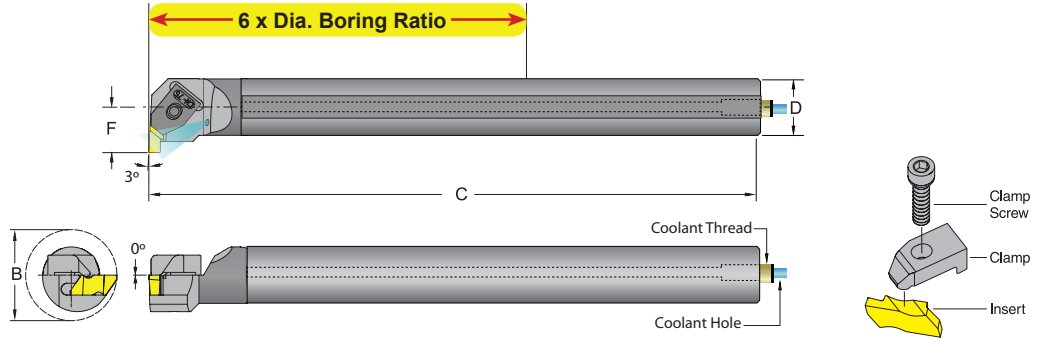
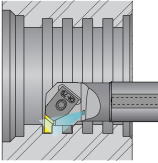
High Performance Carbide Boring Bars

E_NE R/L Thru Coolant Integral Carbide Threading & Grooving Bar Style E- Internal DorNotch Bar for threading and grooving DorNotch inserts

Threading



Grooving



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	Coolant Hole	Coolant Thread	DorNotch Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.										
E08K-NER/L-2	59951	59952	6 x Dia.	0.500	0.830	5.12	0.470	.080	6 X 1mm	*NG-2L **NG-2R	*CM-75 **CM-74	S-310M	
E08R-NER/L-2	59955	59956		0.500	0.830	8.12	0.470	.080	6 X 1mm				
E10M-NER/L-2	59959	59960		0.625	1.000	6.00	0.500	.125	1/8"- 27	*NG-2L **NG-2R	*CM-75 **CM-74	S-310M	
E10S-NER/L-2	59963	59964		0.625	1.000	10.00	0.500	.125	1/8"- 27				
E12Q-NER/L-2	60169	60170		0.750	1.125	7.000	0.562	0.157	1/8"-27	*NG-2L **NG-2R	*CM-75 **CM-74	S-310M	
E12S-NER/L-2	60171	60172		0.750	1.125	10.00	0.562	0.157	1/8"-27				
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	Coolant Hole	Coolant Thread	DorNotch Gage Insert	Insert Torx Screw	Torx Key
Bar Description	R.H.	L.H.	R.H.										
E12M-K-NER/L-2	59953	59954	6 x Dia.	12	21.08	128.05	11.94	2	6 X 1mm	*NG-2L **NG-2R	*CM-75 **CM-74	S-310M	
E12M-R-NER/L-2	59957	59958		12	21.08	203.05	11.94	2	6 X 1mm				
E16M-M-NER/L-2	59961	59962		16	25.40	150	12.70	3	1/8"- 27	*NG-2L **NG-2R	*CM-75 **CM-74	S-310M	
E16M-S-NER/L-2	59965	59966		16	25.40	250	12.70	3	1/8"- 27				
E20M-Q-NER/L-2	60179	60180		20	28.6	180	14.27	4	1/8"-27	*NG-2L **NG-2R	*CM-75 **CM-74	S-310M	
E20M-S-NER/L-2	60181	60182		20	28.6	250	14.27	4	1/8"-27				

*8 x Dia. Boring Ratio can be achieved under favorable conditions.

*For right hand tool. ** For left hand tool

High Performance Jet-Stream™ Carbide Bars

Thru Coolant Carbide Boring & Threading Bars

200% More Insert Life with High Pressure Jet-Stream™!

Better Machining Performance
Higher Workmanship Quality
Longer Cutting Inserts Life

The technology behind the "Carbide Boring Bar System" the rigidity of the carbide boring bar, will make boring and threading simple and precise, from heavy roughing to precision finishing, with close tolerance and high surface finish.

- Boring Ratio 6 x Bar Dia.
- Threading Ratio 3 x Bar Dia.

Boring Bar Sizes

Inch: .750" Dia., 1" Dia., 1.250" Dia.

Metric: 20mm Dia., 25mm Dia., 32mm Dia.

Boring Bar Heads

Negative Insert Geometry:

CNMG DNMG TNMG
 VNMG WNMG

Threading Heads

for Lay-Down Insert:

16-A60 22-N60

for DorNotch Insert:

NG-3



The Insert Head Braze

Brazed on to the Carbide Bar with triple silver alloys. The combination of the correct alloy and the thickness of the braze makes brazing strong and unbreakable but flexible under cutting pressure and interrupt cuts.

Jet-Stream™ Thru Coolant System

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**. The controlled Jet-Stream™ coolant will lubricate the cutting edge of the insert reducing the coefficient of friction, stopping the chip from adhering to the insert. The physical combination of high velocity and high pressure forces the hot chip to hydroplane away from the cutting edge of the insert.

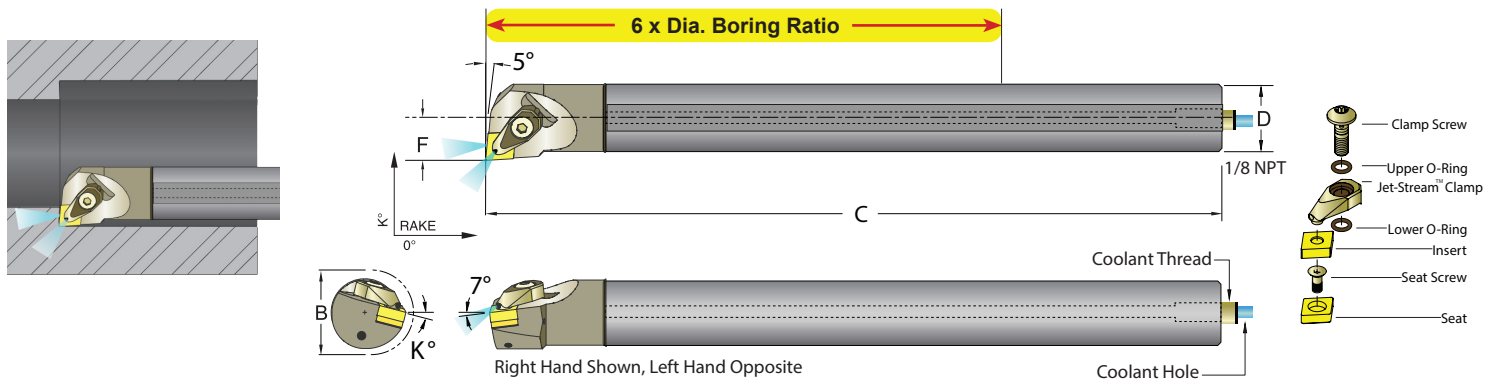
As a result, the insert will operate at a constant low temperature, With a clean and undamaged cutting edge, changing the way metal is cut!

The Insert Heads

Made of heat treated alloy steel, and precisely machined on the body after brazing. Thru Coolant System to improve performance, precision and insert life

High Performance Carbide Boring Bars

E_ADCLN R/L Thru Coolant Jet-Stream™ Carbide Boring Bar Style L - Negative 5° side & end cutting lead angle for negative 80° diamond CN__inserts

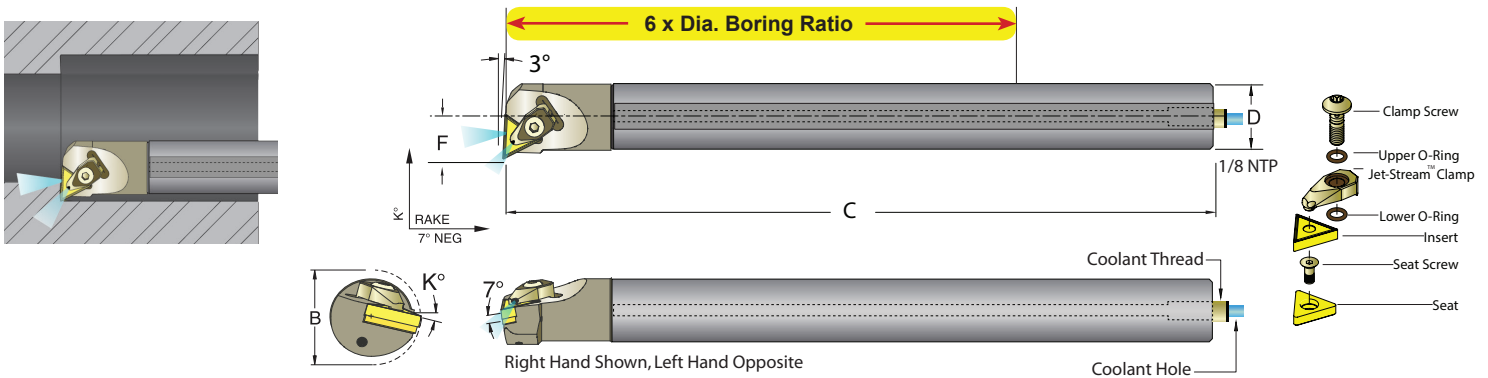


Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	CN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.	R.H.												
E16R-ADCLNR/L-4	60067	60068	6 x Dia.	1.000	1.280	8.000	0.640	14°	0.197	1/8"-27	432	JC-432	SM-S4	JSLC-HPCTW-4N	
E16T-ADCLNR/L-4	60069	60070		1.000	1.280	12.00	0.640	14°	0.197	1/8"-27					
E20U-ADCLNR/L-4	60071	60072		1.250	1.530	14.00	0.765	14°	0.197	1/8"-27					

Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	CN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.	R.H.												
E25M-R-ADCLNR/L-12	60073	60074	6 x Dia.	25	32.5	200	16.26	14°	5	1/8"-27	120408	JC-432	SM-S4	JSLC-HPCTW-4N	
E25M-T-ADCLNR/L-12	60075	60076		25	32.5	300	16.26	14°	5	1/8"-27					
E32M-U-ADCLNR/L-12	60077	60078		32	38.9	350	19.43	14°	5	1/8"-27					

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all CN__series (CNMG, CNGG, CNMX, CNMM, CNMA).

E_ADTUN R/L Thru Coolant Jet-Stream™ Carbide Boring Bar Style U - Negative 3° end cutting lead angle for negative triangle TN__ inserts



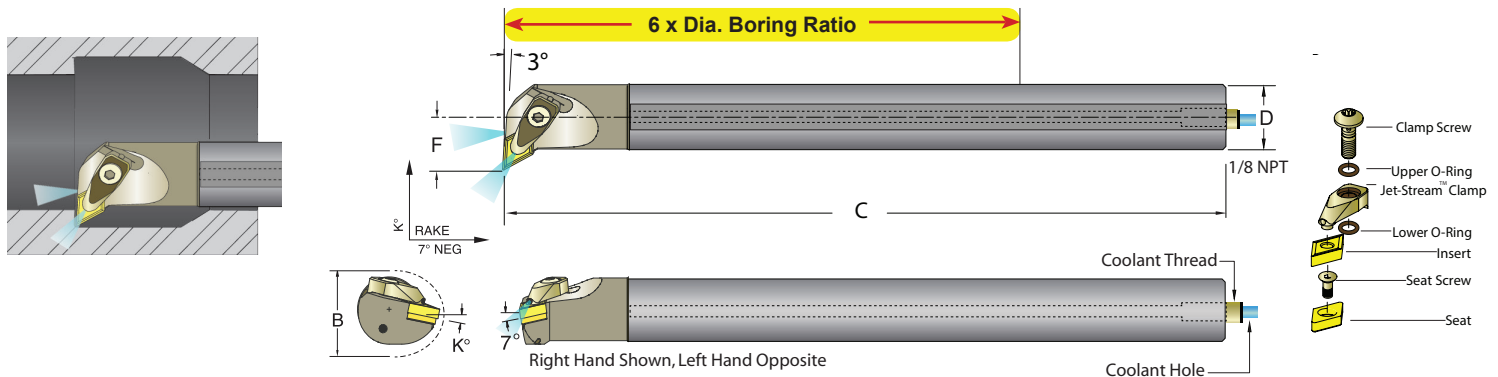
Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	TN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.	R.H.												
E16R-ADTUNR/L-3	60079	60080	6 x Dia.	1.000	1.280	8.000	0.640	14°	0.197	1/8"-27	332	JT-322	SM-M3-T	JSLC-HPDT3-BR/L	
E16T-ADTUNR/L-3	60081	60082		1.000	1.280	12.00	0.640	14°	0.197	1/8"-27					
E20U-ADTUNR/L-3	60083	60084		1.250	1.530	14.00	0.765	14°	0.197	1/8"-27					

Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	TN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.	R.H.												
E25M-R-ADTUNR/L-16	60085	60086	6 x Dia.	25	32.5	200	16.26	14°	5	1/8"-27	160408	JT-322	SM-M3-T	JSLC-HPDT3-BR/L	
E25M-T-ADTUNR/L-16	60087	60088		25	32.5	300	16.26	14°	5	1/8"-27					
E32M-U-ADTUNR/L-16	60089	60090		32	38.9	350	19.43	14°	5	1/8"-27					

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all TN__series (TNMG, TNMC, TNMX, TNMA).

*Right clamp for right hand toolholder. Left clamp for left hand toolholder

E_ADDUN R/L Thru Coolant Jet-Stream™ Carbide Boring Bar Style U Negative 3° end cutting lead angle for negative 55° diamond DN__inserts

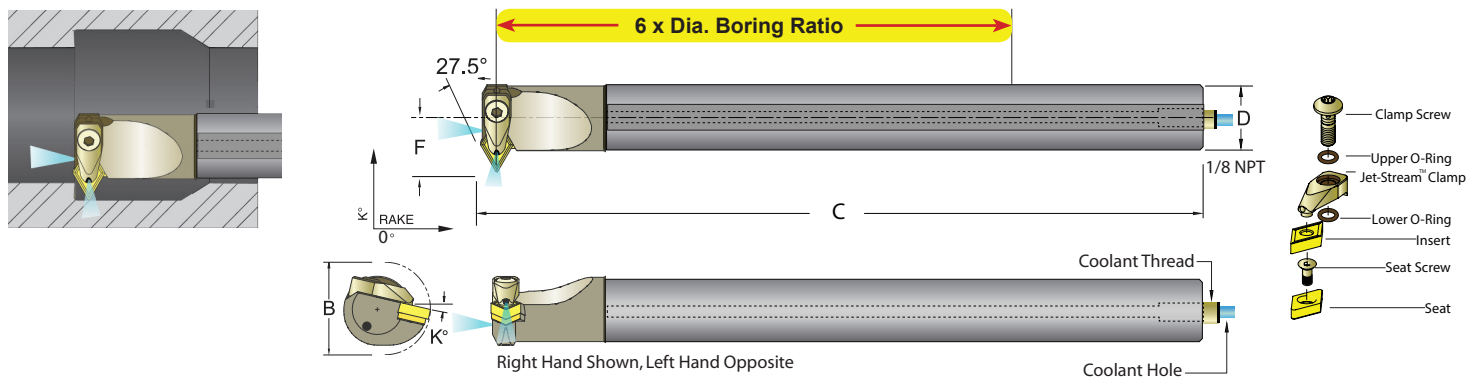


Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.	R.H.												
E16R-ADDUNR/L-3	60093	60094	6 x Dia.	1.000	1.300	8.000	0.750	11°	0.197	1/8"-27	332	IDSN-322	SM-M3	JSLC-HPDT3-BR/L	
E16T-ADDUNR/L-3	60095	60096		1.000	1.300	12.00	0.750	11°	0.197	1/8"-27					
E20U-ADDUNR/L-4	60097	60098		1.250	2.000	14.00	1.000	11°	0.197	1/8"-27	432	JD-432	SM-M4	JSLC-HPD4	
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.	R.H.												
E25M-R-ADDUNR/L-11	60099	60100	6 x Dia.	25	33.0	200	19.05	11°	5	1/8"-27	110408	IDSN-322	SM-M3	JSLC-HPDT3-BR/L	
E25M-T-ADDUNR/L-11	60101	60102		25	33.0	300	19.05	11°	5	1/8"-27					
E32M-U-ADDUNR/L-15	60107	60108		32	50.8	350	25.40	11°	5	1/8"-27	150602	IDSN-423	SM-M4	JSLC-HPD4	

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all DN__ series (DNMG, DNMG, DNMX, DNMA, DNGG).

*Right clamp for right hand toolholder. Left clamp for left hand toolholder

E_ADDPN R/L Thru Coolant Jet-Stream™ Carbide Boring Bar Style P- Negative 27.5° end cutting lead angle for negative 55° diamond DN__inserts



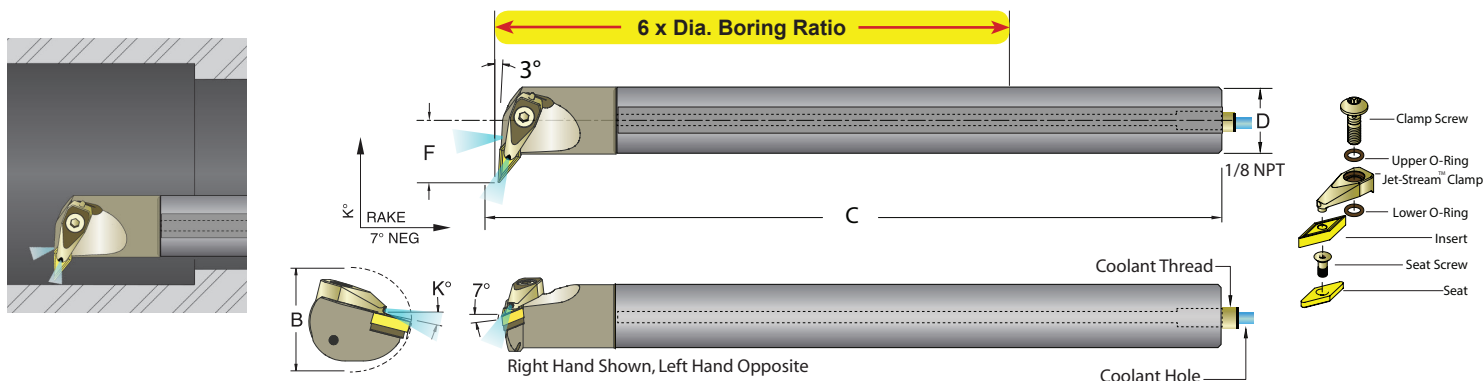
Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.	R.H.												
E16R-ADDPNR/L-3	60109	60110	6 x Dia.	1.000	1.500	8.000	0.750	13°	0.197	1/8"-27	332	IDSN-322	SM-M3	JSLC-HPDT3-BR/L	
E16T-ADDPNR/L-3	60111	60112		1.000	1.500	12.00	0.750	13°	0.197	1/8"-27					
E20U-ADDPNR/L-4	60113	60114		1.250	1.750	14.00	1.000	13°	0.197	1/8"-27	432	JD-432	SM-M4	JSLC-HPD4	
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	DN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.	R.H.												
E25M-R-ADDPNR/L-11	60115	60116	6 x Dia.	25	38.1	200	19.05	13°	5	1/8"-27	110408	IDSN-322	SM-M3	JSLC-HPDT3-BR/L	
E25M-T-ADDPNR/L-11	60117	60118		25	38.1	300	19.05	13°	5	1/8"-27					
E32M-U-ADDPNR/L-15	60119	60120		32	44.5	350	25.40	13°	5	1/8"-27	150602	IDSN-423	SM-M4	JSLC-HPD4	

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all DN__ series (DNMG, DNMG, DNMX, DNMA, DNGG).

*Right clamp for right hand toolholder. Left clamp for left hand toolholder

High Performance Carbide Boring Bars

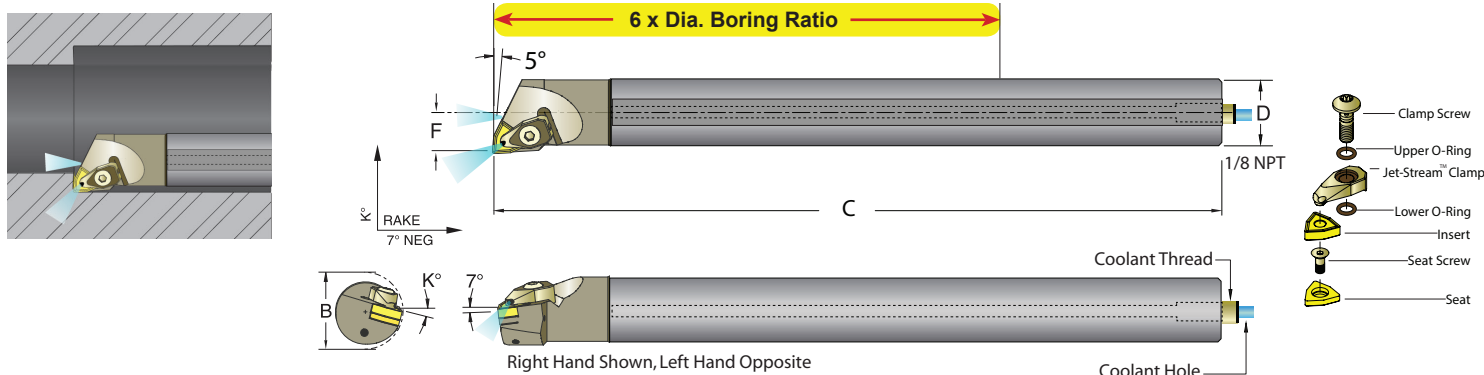
E_ADVUN R/L Thru Coolant Jet-Stream™ Carbide Boring Bar Style U - Negative 3° side cutting lead angle for negative 35° diamond VN__ inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.													
E20U-ADVUNR/L-3	60121	60122	6 x Dia.	1.250	2.250	14.00	1.125	14°	0.197	1/8"-27	332	JV-322	SM-M3	JSLC-HPV3	
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	VN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.													
E32M-U-ADVUNR/L-16	60123	60124	6 x Dia.	32	45.0	350	28.58	14°	5	1/8"-27	160408	JV-322	SM-M3	JSLC-HPV3	

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all VN__series (VNMG).

E_ADWLN R/L Thru Coolant Jet-Stream™ Carbide Boring Bar Style L - Negative 5° end & side cutting lead angle for negative 80° trigon WN__ inserts



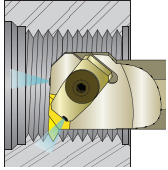
Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	WN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.													
E16R-ADWLNRL-4	60125	60126	6 x Dia.	1.000	1.450	8.000	0.640	14°	0.197	1/8"-27	432	IWSN-433	SM-S4	*JSLC-HPTW-4R **JSLC-HPTW-4L	
E16T-ADWLNRL-4	60127	60128		1.000	1.450	12.00	0.640	14°	0.197	1/8"-27					
E20U-ADWLNRL-4	60129	60130		1.250	1.530	14.00	0.765	14°	0.197	1/8"-27					
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	K°	Coolant Hole	Coolant Thread	WN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp
Bar Description	R.H.	L.H.													
E25M-R-ADWLNRL-08	60131	60132	6 x Dia.	25	32.5	200	16.26	14°	5	1/8"-27	080408	IWSN-433	SM-S4	*JSLC-HPTW-4R **JSLC-HPTW-4L	
E25M-T-ADWLNRL-08	60133	60134		25	32.5	300	16.26	14°	5	1/8"-27					
E32M-U-ADWLNRL-08	60135	60136		32	38.9	350	19.43	14°	5	1/8"-27					

*8 x Dia. Boring Ratio can be achieved under favorable conditions.
Inserts used: all WN__series (WNMG, WNMA).

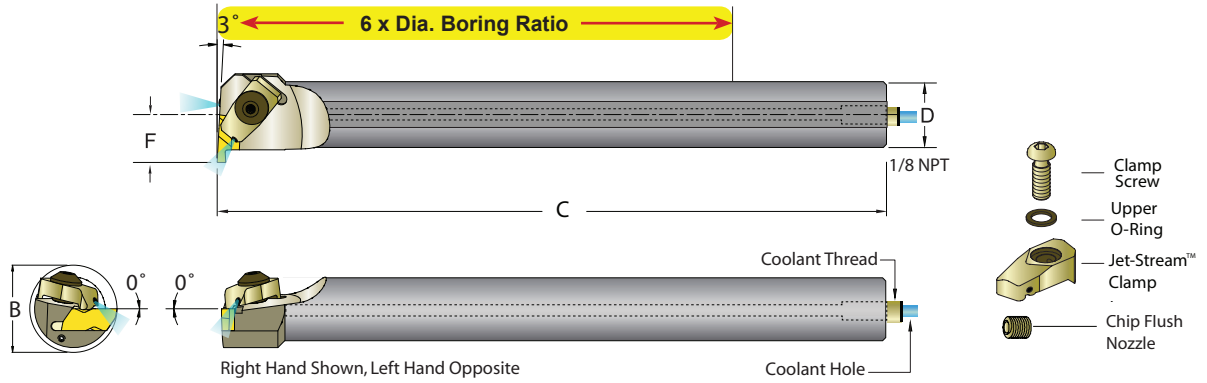
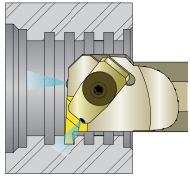
*Right clamp for right hand toolholder. **Left clamp for left hand toolholder

E-ADNE R/L Thru Coolant Jet-Stream™ Carbide Threading Bar Style E- For DorNotch Threading Inserts

Threading



Grooving



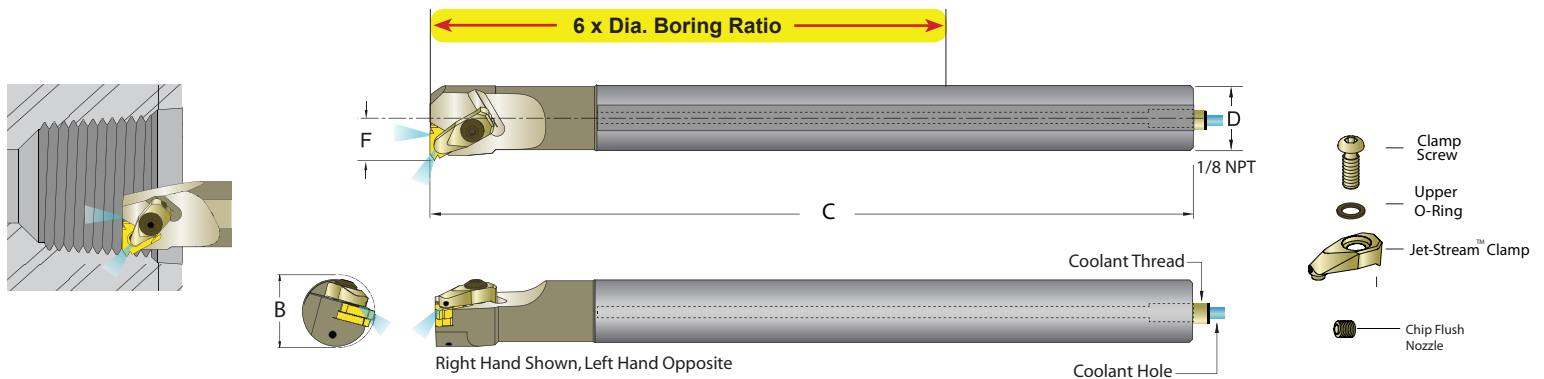
Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore		Coolant Hole	Coolant Thread	DorNotch Gage Insert	Seat	Jet-Stream™ Clamp	Clamp Screw	Chip Flush Nozzle
Bar Description	R.H.	L.H.	B			C	F							
E16R-ADNER/L-3	60173	60174	6 x Dia.	1.000	1.380	8.000	0.690	0.197	1/8"-27	NG-3L* NG-3R**	none	JSLC-HP73* JSLC-HP72**	JSCS-04	JSPN-M3
E16T-ADNER/L-3	60175	60176		1.000	1.380	12.000	0.690	0.197	1/8"-27					
E20U-ADNER/L-3	60177	60178		1.250	1.750	14.000	0.880	0.197	1/8"-27					
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore		Coolant Hole	Coolant Thread	DorNotch Gage Insert	Seat	Jet-Stream™ Clamp	Clamp Screw	Chip Flush Nozzle
Bar Description	R.H.	L.H.	B			C	F							
E25M-R-ADNER/L-3	60183	60184	6 x Dia.	25	35.1	200	17.53	5	1/8"-27	NG-3L* NG-3R**	none	JSLC-HP73* JSLC-HP72**	JSCS-04	JSPN-M3
E25M-T-ADNER/L-3	60185	60186		25	35.1	300	17.53	5	1/8"-27					
E32M-U-ADNER/L-3	60187	60188		32	44.5	350	22.35	5	1/8"-27					

*8 x Dia. Boring Ratio can be achieved under favorable conditions.

* For right hand holder ** For left hand holder

High Performance Carbide Boring Bars

E-ADLN R/L Thru Coolant Jet-Stream™ Carbide Threading Bar Style N-for LayDown Threading Inserts



Inch		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	Coolant Hole	Coolant Thread	LayDown Gage Insert	Seat	Insert or Seat Screw	Jet-Stream™ Clamp	Clamp Screw	Chip Flush Nozzle
Bar Description	R.H.	L.H.														
E12Q-ADLNR/L-16	60145	60146	6 x Dia.	0.750	1.120	7.000	0.520	0.157	1/8"-27							
E12S-ADLNR/L-16	60147	60148		0.750	1.120	10.00	0.520	0.157	1/8"-27							
E16R-ADLNR/L-16	60149	60150		1.000	1.375	8.000	0.650	0.197	1/8"-27	16-G60	GXE/I-16	TS-3.5-7M1	JSLC-HP16L* JSLC-HP16R**	JSCS-03	JSPN-M6	
E16T-ADLNR/L-16	60151	60152		1.000	1.375	12.00	0.650	0.197	1/8"-27							
E20U-ADLNR/L-16	60153	60154		1.250	1.620	14.00	0.780	0.197	1/8"-27							
E20U-ADLNR/L-22	60155	60156		1.250	1.750	14.00	0.840	0.197	1/8"-27	22-N60	NXE/I-22	TS-45.75-15M1	JSLC-HPD4	JSCS-04	JSPN-M6	
Metric		UPC No. 733101-		Boring Ratio*	D	Min. Bore B	C	F	Coolant Hole	Coolant Thread	LayDown Gage Insert	Seat	Insert or Seat Screw	Jet-Stream™ Clamp	Clamp Screw	Chip Flush Nozzle
Bar Description	R.H.	L.H.														
E20M-Q-ADLNR/L-16	60157	60158	6 x Dia.	20	28.4	180	13.2	4	1/8"-27							
E20M-S-ADLNR/L-16	60159	60160		20	28.4	250	13.2	4	1/8"-27							
E25M-R-ADLNR/L-16	60161	60162		25	34.9	200	16.5	5	1/8"-27	16-G60	GXE/I-16	TS-3.5-7M1	JSLC-HP16L* JSLC-HP16R**	JSCS-03	JSPN-M6	
E25M-T-ADLNR/L-16	60163	60164		25	34.9	300	16.5	5	1/8"-27							
E32M-U-ADLNR/L-16	60165	60166		32	41.1	350	19.8	5	1/8"-27							
E32M-U-ADLNR/L-22	60167	60168		32	44.5	350	21.3	5	1/8"-27	22-N60	NXE/I-22	TS-45.75-15M1	JSLC-HPD4	JSCS-04	JSPN-M6	

*8 x Dia. Boring Ratio can be achieved under favorable conditions.

* For right hand holder ** For left hand holder

High Performance Quick Change Carbide Boring Bars Body

for Multi Boring and Threading Operation

QUICK - PRECISE - RIGID

Better Machining Performance

Higher Workmanship Quality

Longer Cutting Insert Life

The technology behind the "Quick Change Carbide Boring Bar System"

the rigidity of the carbide boring bar, the interchangeability of the Modular Heads with thru coolant allows a multi boring and threading operation, quick, simple and precise, from heavy roughing to precision finishing, with close tolerance and high surface finish.

- Boring Ratio 6 x Bar Dia.
- Threading Ratio 3 x Bar Dia.

Boring Bar Sizes

Inch: .750" Dia., 1" Dia., 1.250" Dia.

Metric: 20mm Dia., 25mm Dia., 32mm Dia.

Boring Bar Heads

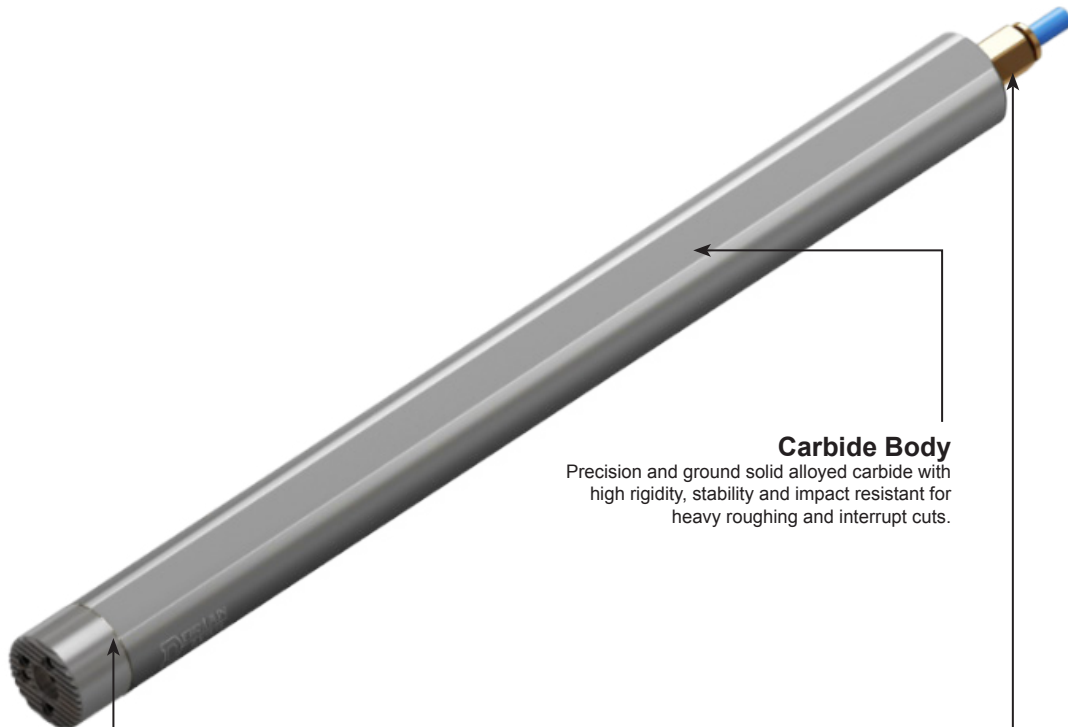
Positive Insert Geometry:

CCGT	CPGT	DPGT	
TCGT	TPGT	VCGT	WCGT

Threading Heads

for Lay-Down Insert:

16-A60 22-N60

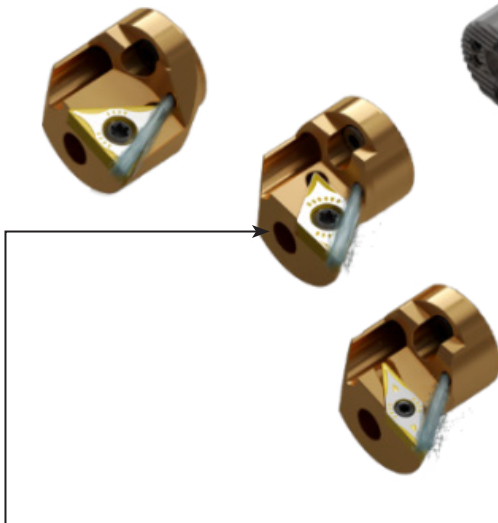


Carbide Body

Precision and ground solid alloyed carbide with high rigidity, stability and impact resistant for heavy roughing and interrupt cuts.

Quick Change Head Collar

Brazed on to the Carbide Bar with triple silver alloys. The combination of the correct alloy and the thickness of the braze makes brazing strong and unbreakable but flexible under cutting pressure and interrupt cuts.



Quick Change Interchangeable Head

Made of heat treated alloy steel TiN coated, locks into Quick Change Head Collar with a 60° serrate grooves to expand surface contact, and locked with 3 cup set screws to for maximum locking rigidity and precise interchangeability.

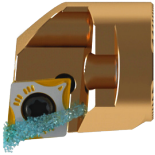
Thru Coolant

Will enhances performance, precision and increase insert life. Chips are removed from the bore, the insert is kept clean and at a constant temperature to minimize cutting edge damage.

High Performance Quick Change Carbide Boring Bars Body & Heads

for Multi Boring and Threading Operation

1 SCLC
R/L Quick Change
Boring Bar Head
With Thru Coolant



2 SDNC
R/L Quick Change
Boring Bar Head
With Thru Coolant



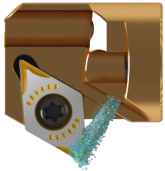
3 SDQC
R/L Quick Change
Boring Bar Head
With Thru Coolant



4 SDUC
R/L Quick Change
Boring Bar Head
With Thru Coolant



5 SDXC
R/L Quick Change
Boring Bar Head
With Thru Coolant



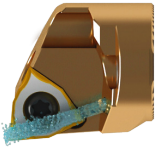
6 STUC
R/L Quick Change
Boring Bar Head
With Thru Coolant



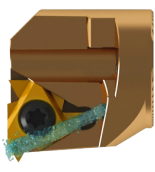
7 SVUC
R/L Quick Change
Boring Bar Head
With Thru Coolant



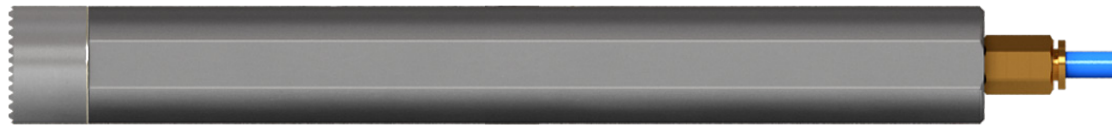
8 SWLC
R/L Quick Change
Boring Bar Head
With Thru Coolant



9 SN
R/L Quick Change
Threading Bar Head
With Thru Coolant

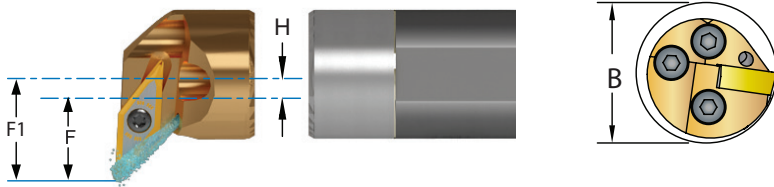
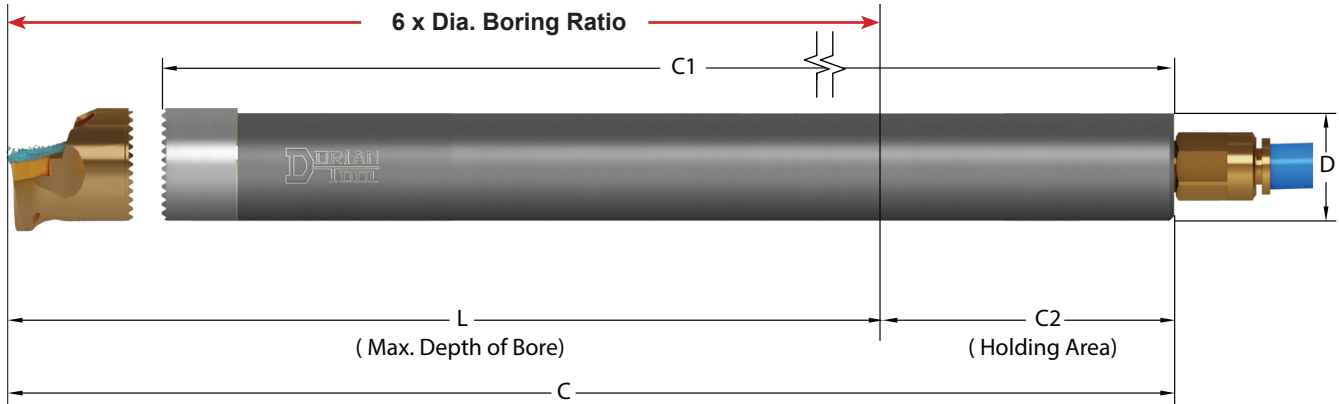


Nine Interchangeable Heads



One Quick Change Carbide Body

Thru Coolant Quick Change Carbide Boring Bar Body



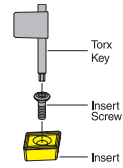
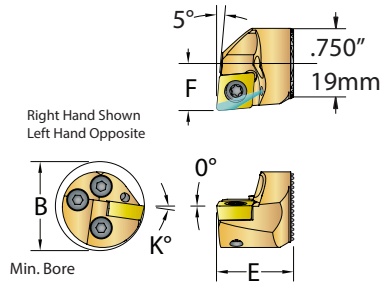
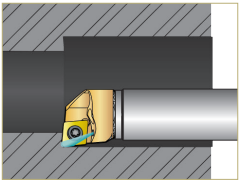
$F1^* = F + H$
 $\text{Min Bore} = B + (H \times 2)^*$

Inch		UPC No.	Boring Ratio	D	Min. Bore B*	C	C1	L	C2	H	F1*	Modular Head CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral	733101-												
AE12I-Q-QCCBB	60195	4x Dia.	0.750	See head specifications	7.000	6.200	4.00	3.00	0	F1=F+H	DBOMH-12/20M	0.157	1/8"-27 NPT	
AE16I-R-QCCBB	60197	1.000	8.000		7.200	4.00	4.00	0.125	0.197					
AE12I-S-QCCBB	60196	6x Dia.	0.750	See head specifications	10.000	9.200	7.00	3.00	0	F1=F+H	DBOMH-12/20M	0.157	1/8"-27 NPT	
AE16I-T-QCCBB	60198		1.000		12.00	11.200	8.00	4.00	0.125			0.197		
AE20I-U-QCCBB	60199		1.250		12.80	13.000	8.00	5.00	0.250			0.197		
Metric		UPC No.	Boring Ratio	D	Min. Bore B*	C	C1	L	C2	H	F1*	Modular Head CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral	733101-												
AE20M-Q-QCCBB	60581	4x Dia.	20	See head specifications	176	156	96	80	0	F1=F+H	DBOMH-12/20M	4	1/8"-27 NPT	
AE25M-R-QCCBB	60583		25		197	177	97	100	2.5			5		
AE20M-S-QCCBB	60582	6x Dia.	20	See head specifications	246	226	166	80	0	F1=F+H	DBOMH-12/20M	4	1/8"-27 NPT	
AE25M-T-QCCBB	60584		25		297	277	197	100	2.5			5		
AE32M-U-QCCBB	60585		32		345	325	217	128	6			5		

8 x Dia. Boring Ratio can be achieved under favorable conditions.

High Performance Carbide Boring Bars

SCLC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style L- Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC__ inserts

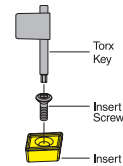
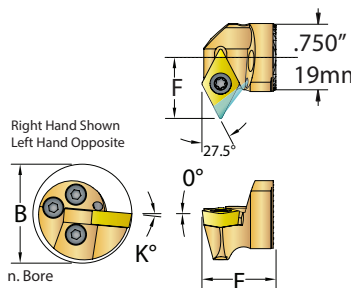
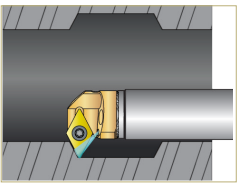


Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	CC__ Gage Insert		Insert Torx Screw	Torx Key
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric		
	DBOMH-12/20M-SCLCR/L-3	60225	60226	0.750	20	1.000	26	0.820	20.83	0.500		12.70	8°		
			1.000	25	1.250	31	0.820	20.83	0.500	12.70	8°				
			1.250	32	1.500	38	0.820	20.83	0.500	12.70	8°				

Heads will fit both inch and metric boring bar shanks
 Inserts used: all CC__ series (CCGX, CCGT, CCMT, CCGW).

SDNC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style N - Negative 27.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

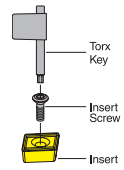
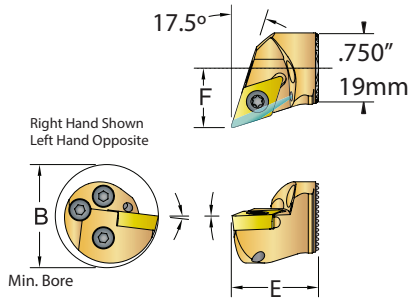
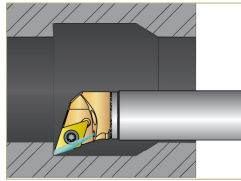


Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Torx Screw	Torx Key
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric		
	DBOMH-12/20M-SDNCR/L-3	60229	60230	0.750	20	1.160	30	0.820	20.83	0.660		16.76	5°		
			1.000	25	1.410	35	0.820	20.83	0.660	16.76	5°				
			1.250	32	1.660	42	0.820	20.83	0.660	16.76	5°				

Heads will fit both inch and metric boring bar shanks
 Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDQC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style Q - Negative 17.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

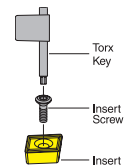
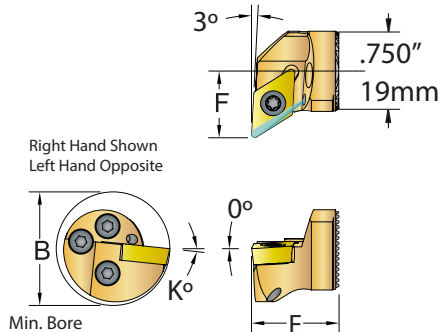
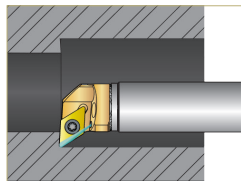


Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Torx Screw	Torx Key
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric		
DBOMH-12/20M-SDQCR/L2	60251	60252	0.750	20	1.125	29	0.820	20.83	0.500	12.70	7°	21.51	070204	TS-25.45-6M2	T-8
			1.000	25	1.375	34	0.820	20.83	0.500	12.70	7°				
			1.250	32	1.625	41	0.820	20.83	0.500	12.70	7°				
DBOMH-12/20M-SDQCR/L-3	60231	60232	0.750	20	1.125	29	0.820	20.83	0.625	15.88	7°	32.52	11T308	TS-4.7-10M1	T-15
			1.000	25	1.375	34	0.820	20.83	0.625	15.88	7°				
			1.250	32	1.625	41	0.820	20.83	0.625	15.88	7°				

Heads will fit both inch and metric boring bar shanks
 Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDUC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style U - Negative 3° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



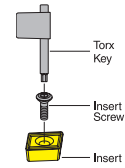
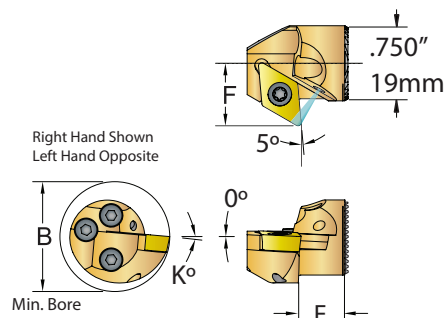
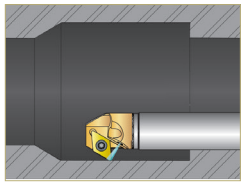
Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Torx Screw	Torx Key
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric		
DBOMH-12/20M-SDUCR/L-2	60247	60248	0.750	20	1.025	26	0.820	20.83	0.525	13.34	6°	21.51	070204	TS-25.45-6M2	T-8
			1.000	25	1.275	27	0.820	20.83	0.525	13.34	6°				
			1.250	32	1.525	38	0.820	20.83	0.525	13.34	6°				
DBOMH-12/20M-SDUCR/L-3	60227	60228	0.750	20	1.038	26.37	0.820	20.83	0.625	15.88	6°	32.52	11T308	TS-4.7-10M1	T-15
			1.000	25	1.278	32.46	0.820	20.83	0.745	18.92	6°				
			1.250	32	1.538	39.07	0.820	20.83	0.880	22.35	6°				

Heads will fit both inch and metric boring bar shanks
 Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

High Performance Carbide Boring Bars

SDXC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



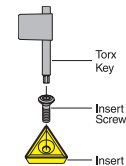
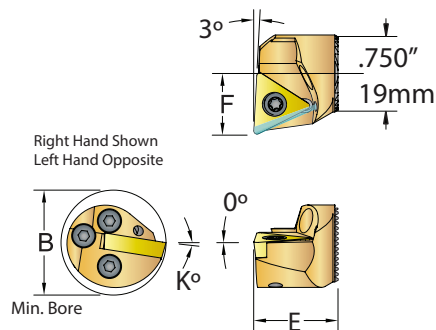
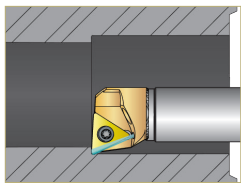
Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Torx Screw	Torx Key
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric		
	DBOMH-12/20M-SDXCR/L-3	60233	60234	0.750	20	1.125	28.58	0.468	11.89	0.625		15.87	5°		
			1.000	25	1.375	34.92	0.468	11.89	0.625	15.87	5°				
			1.250	32	1.625	41.27	0.468	11.89	0.625	15.87	5°				

Heads will fit both inch and metric boring bar shanks

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

STUC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



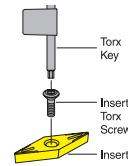
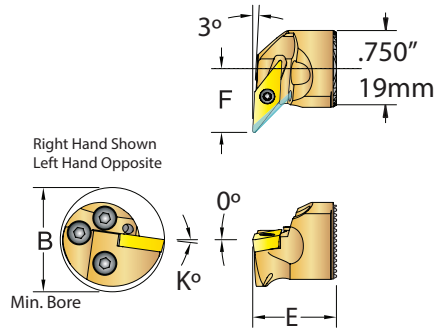
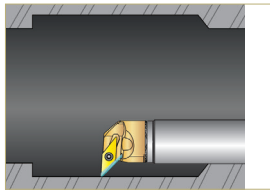
Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	TC__ Gage Insert		Insert Torx Screw	Torx Key
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric		
	DBOMH-12/20M-STUCR/L-2	60255	60256	0.750	20	1.000	26	0.820	20.83	0.500		12.70	6°		
			1.000	25	1.250	31	0.820	20.83	0.500	12.70	6°				
			1.250	32	1.500	38	0.820	20.83	0.500	12.70	6°				
DBOMH-12/20M-STUCR/L-3	60235	60236	0.750	20	1.090	28	0.820	20.83	0.590	14.99	9°	32.52	16T308	TS-4.7-10M1	T-15
			1.000	25	1.340	33	0.820	20.83	0.590	14.99	9°				
			1.250	32	1.590	40	0.820	20.83	0.590	14.99	9°				

Heads will fit both inch and metric boring bar shanks

Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

SVUC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style U - Negative 3° End Cutting Edge Angle for 7° positive 35° diamond VC__ inserts

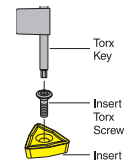
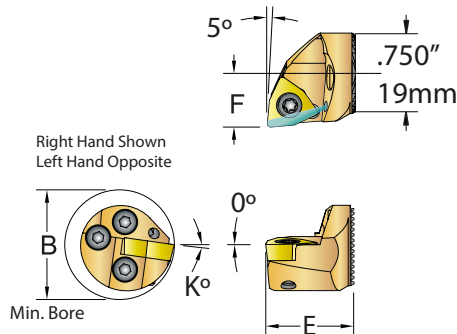
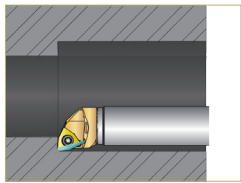


Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	VC__ Gage Insert		Insert Torx Screw	Torx Key
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric		
	DBOMH-12/20M-SVUCR/L-2	60237	60238	0.750	20	1.125	29	0.820	20.83	0.625		15.88	8°		
			1.000	25	1.375	34	0.820	20.83	0.625	15.88	8°				
			1.250	32	1.625	41	0.820	20.83	0.625	15.88	8°				

Heads will fit both inch and metric boring bar shanks
 Inserts used: all VC__ series (VCMT, VCGT, VCGW, VCGX).

SWLC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style L - Negative 5° End Cutting Edge Angle for 7° positive 80° trigon WC__ inserts



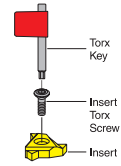
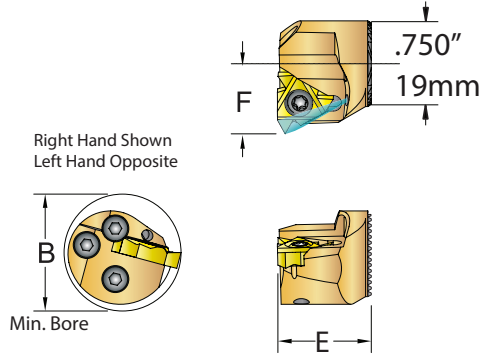
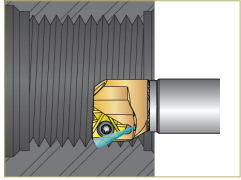
Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	WC__ Gage Insert		Insert Torx Screw	Torx Key
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric		
	DBOMH-12/20M-SWLCR/L-3	60241	60242	0.750	20	1.000	26	0.820	20.83	0.500		12.70	8°		
			1.000	25	1.250	31	0.820	20.83	0.500	12.70	8°				
			1.250	32	1.500	38	0.820	20.83	0.500	12.70	8°				

Heads will fit both inch and metric boring bar shanks
 Inserts used: all WC__ series (WCMT, WCGT).

High Performance Carbide Boring Bars

SN R/L Solution Tool!™ Thru Coolant Quick Change Threading Head for Laydown Inserts



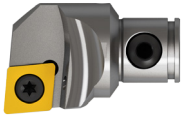
Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		Laydown Gage Insert		Insert Torx Screw	Torx Key
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		
DBOMH-12/20M-SNR/L-16	60243	60244	0.750	20	1.125	29	0.820	20.83	0.613	15.57	16-A60	16-A60	TS-35.6-9M1	T-15
			1.000	25	1.375	34	0.820	20.83	0.613	15.57				
			1.250	32	1.625	41	0.820	20.83	0.613	15.57				

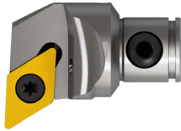
Heads will fit both inch and metric boring bar shanks

Quick Change Turning, Threading, Grooving & Facing Boring Bar & 12 Interchangeable Heads

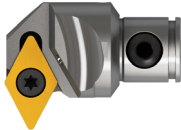
1 SCLC R/L
Quick Change
Boring Bar Head
with Thru Coolant



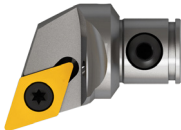
2 SDUC R/L
Quick Change
Boring Bar Head
with Thru Coolant



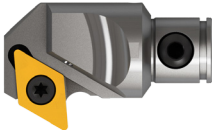
3 SDNC R/L
Quick Change
Boring Bar Head
with Thru Coolant



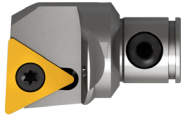
4 SDQC R/L
Quick Change
Boring Bar Head
with Thru Coolant



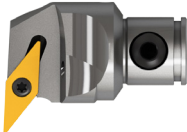
5 SDXC R/L
Quick Change
Boring Bar Head
with Thru Coolant



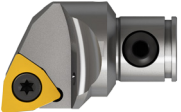
6 STUC R/L
Quick Change
Boring Bar Head
with Thru Coolant



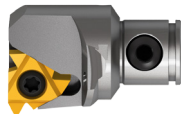
7 SVUC R/L
Quick Change
Boring Bar Head
with Thru Coolant



8 SWLC R/L
Quick Change
Boring Bar Head
with Thru Coolant



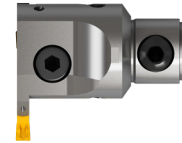
9 SN R/L
Quick Change
Threading Bar Head
with Thru Coolant



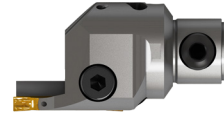
10 NE R/L
Quick Change
Threading &
Grooving Bar Head
with Thru Coolant



11 IT R/L20-4
Quick Change
Boring & Grooving Bar
Head with Thru Coolant



12 IF R/L
Quick Change
Facing & Grooving Bar
Head with Thru Coolant



13 IU R/L
Quick Change
Boring & Grooving Bar
Head with Thru Coolant



• One Quick Change Boring Bar Body & 12 Interchangeable Heads

QUICK - SIMPLE - PRECISE - RIGID

1 Mounting

The cylindrical body and the tapered shoulder of the Quick Change Head fits precisely in to the boring bar body housing.

2 Locking

The **3 point Locking System Technology** locks the Quick Change Head to the Boring Bar Housing by turning the two piece double head tapered locking screw. The screw expands, forcing the head against the tapered holes. The tension from this expansion pushes the cylindrical body of the Quick Change Head into the Boring Bar Housing causing the tapered shoulder of the Quick Change Head to pull against the inner taper of the Boring Bar Housing. Powering the locking screw will cause both heads of the screw to lock 180° simultaneously. The locking angle forces the Quick Change Head to align symmetrically at 90° with the Boring Bar Housing.

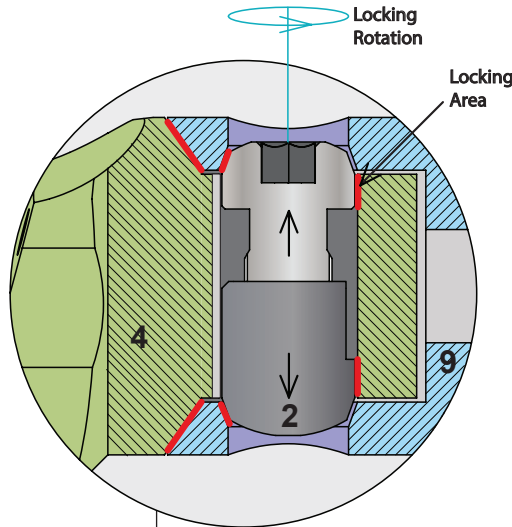
The expanding, pushing and pulling mechanical forces result in the **3 Point Locking System Technology**.

3 Jet-Stream™

Thru coolant system brings the coolant to the cutting edge of the insert, making chips hydroplane over the insert. This keeps a sharp cutting edge, extending the insert life. The high pressure coolant will make chip evacuation easy. All the Quick Change Chatter Free Tunable Boring Bars are supplied with a thru coolant hole.

4 Interchangeable Quick Change Heads

All the positive and threading QUICK CHANGE heads are fully interchangeable with Carbide and CHATTER FREE Boring Bar Bodies.



5 Chatter Free

The Chatter Free Tunable Quick Change Boring Bars are Engineered for deep hole boring applications. The internal tunable dampening mechanism provides optimal dynamic stability for deep hole boring operations with a high surface finish and close tolerance.

6 Coolant Connection

The boring bar body is supplied with a thru coolant hole and a 1/8-27 NTP thread for coolant fitting connection.

7 Brazing

The Quick Change Housing and the Bar Body are silver brazed. The combination of right alloy and thickness of the silver braze makes the brazing strong and unbreakable, but flexible under interrupt cuts.

8 Center Line

For center gage reference.

9 Housing

The Quick Change Housing is made of heat treated alloy steel and is precisely machined and brazed on to the Boring Bar Body.

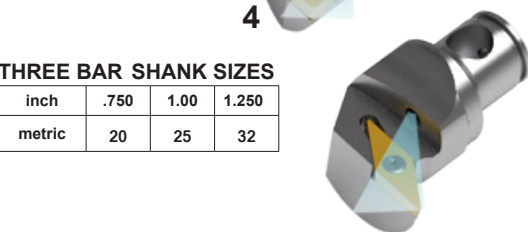
10 Holding

Round holding works best with a boring bar holder. Boring bar holders diminish the performance.

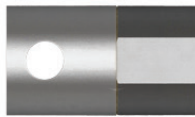
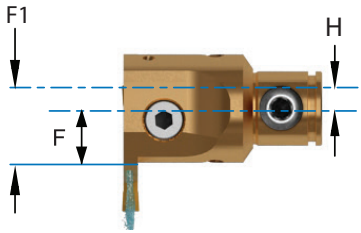
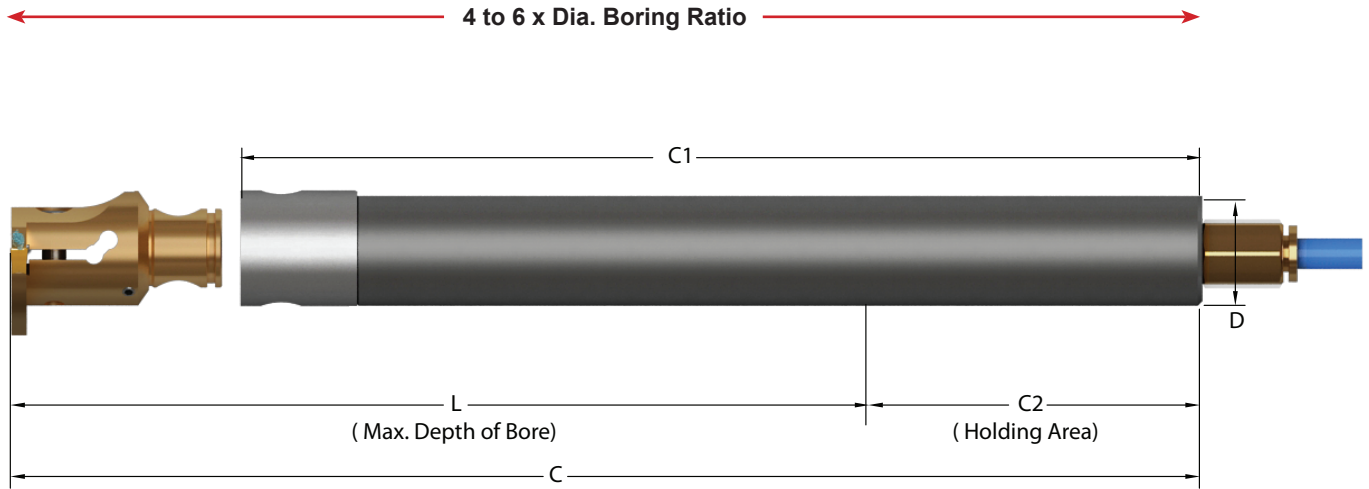
The Dorian QUICK CHANGE CHATTER FREE Carbide Bars are engineered to simplify deep hole boring with expandable capabilities of multi boring applications.

THREE BAR SHANK SIZES

inch	.750	1.00	1.250
metric	20	25	32



KOOL Cut™ Quick Change Turning, Threading, Grooving & Facing Steel & Carbide Shank



$$F1^* = F + H$$

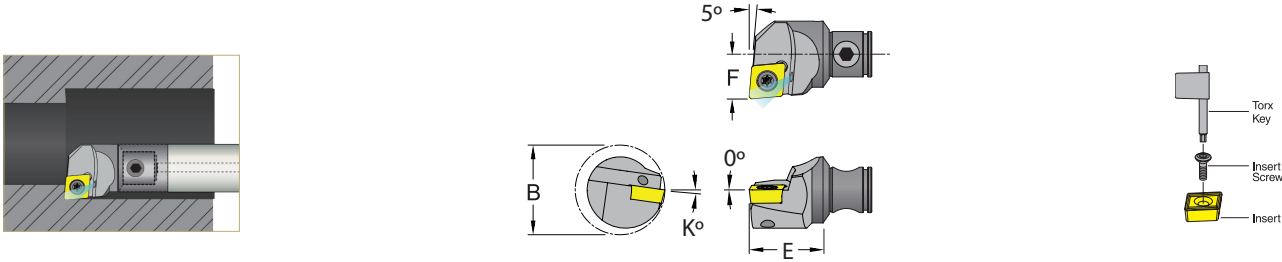
$$\text{Min Bore} = B + (H \times 2)^*$$

Note: F is the Tool Head Centerline
F1 is the Boring Bar Body Centerline

Inch		UPC No. 733101-	Boring Ratio	Steel Body						Min. Bore B**	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Steel Bar Description	Neutral	D		C	C1	L	C2	H	F1*				
A12I-R-4-MBQC	60215	4 x Dia.	0.750	8.00	7.160	3.00	3.00	0	F1=F+H	MB+B+(HxH2)	DQMH-12-_	0.157	1/8"-27NTP
A16I-R-4-MBQC	60216		1.000	8.00	7.160	4.00	4.00	0.125				0.157	
A20I-S-4-MBQC	60217		1.250	10.00	9.160	5.00	5.00	0.250				0.197	
Metric		UPC No. 733101-	Boring Ratio	Steel Body						Min. Bore B**	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Steel Bar Description	Neutral	D		C	C1	L	C2	H	F1*				
A20M-R-4-MBQC	60218	4 x Dia.	20	203	182	80	80	0	F1=F+H	MB+B+(HxH2)	DQMH-12-_	4	1/8"-27NTP
A25M-R-4-MBQC	60219		25	203	182	100	100	5				4	
A32M-S-4-MBQC	60220		32	254	233	128	128	10				5	
Inch		UPC No. 733101-	Boring Ratio	Carbide Body						Min. Bore B**	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral	D		C	C1	L	C2	H	F1*				
AE12I-Q-6-MBQC	60200	6 x Dia.	0.750	7.146	6.306	4.50	3.00	0	F1=F+H	MB+B+(HxH2)	DQMH-12-_	0.157	1/8"-27NTP
AE12I-S-6-MBQC	60201		0.750	10.146	9.306	4.50	3.00	0				0.157	
AE16I-R-6-MBQC	60202		1.000	8.101	7.261	6.00	4.00	0.125				0.197	
AE16I-T-6-MBQC	60203		1.000	12.10	11.261	6.00	4.00	0.125				0.197	
AE20I-U-6-MBQC	60204		1.250	14.00	13.160	7.50	5.00	0.250				0.197	
Metric		UPC No. 733101-	Boring Ratio	Carbide Body						Min. Bore B**	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral	D		C	C1	L	C2	H	F1*				
AE20M-Q-6-MBQC	60205	6 x Dia.	20	180	158.70	120	80	0	F1=F+H	MB+B+(HxH2)	DQMH-12-_	4	1/8"-27NTP
AE20M-S-6-MBQC	60206		20	250	228.65	120	80	0				4	
AE25M-R-6-MBQC	60207		25	200	178.70	150	100	5				5	
AE25M-T-6-MBQC	60208		25	300	278.70	150	100	5				5	
AE32M-U-6-MBQC	60209		32	350	328.66	192	128	10				5	

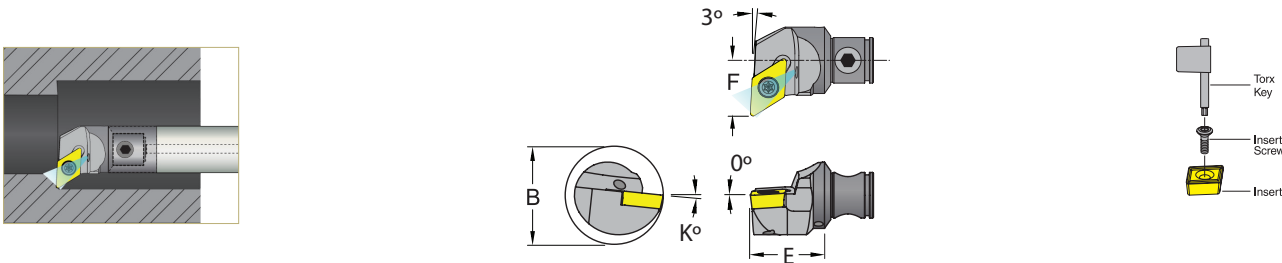
High Performance Carbide Boring Bars

SCLC R/L Thru Coolant Quick Change Boring Bar Head Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC__ inserts



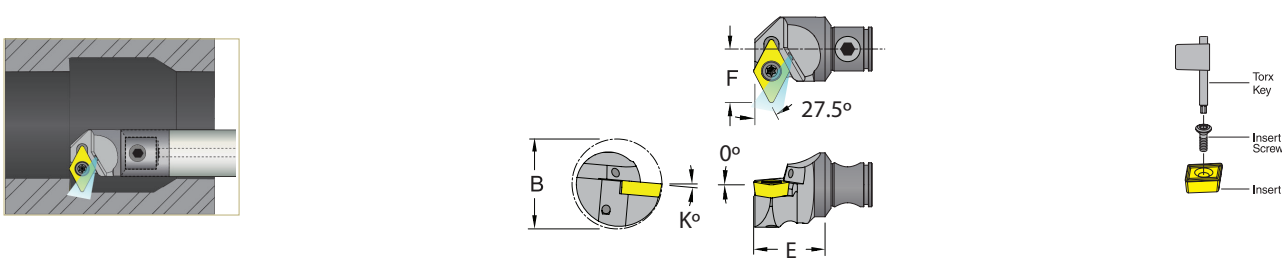
Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		K°	CCMT Gage Insert		Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm		inch	mm		
DQCMH-12-SCLCR/L-3	59480	59481	0.750	20	0.913	23.19	0.840	21.34	0.500	12.70	8°			TS-35.6-9M1	T-15
			1.000	25	1.153	29.29	0.840	21.34	0.620	15.75	8°	32.52	09T308		
			1.250	32	1.413	35.89	0.840	21.34	0.755	19.18	8°				

SDUC R/L Thru Coolant Quick Change Boring Bar Head Style U - Negative 3° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



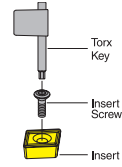
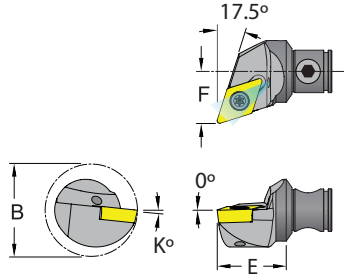
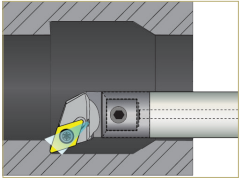
Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		K°	DCMT Gage Insert		Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm		inch	mm		
DQCMH-12-SDUCR/L-3	59482	59483	0.750	20	1.038	26.37	0.840	21.34	0.625	15.88	6°			TS-35.6-9M1	T-15T
			1.000	25	1.278	32.46	0.840	21.34	0.745	18.92	6°	32.52	11T308		
			1.250	32	1.538	39.06	0.840	21.34	0.850	21.59	6°				

SDNC R/L Thru Coolant Quick Change Boring Bar Head Style N - Negative 27.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



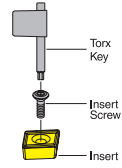
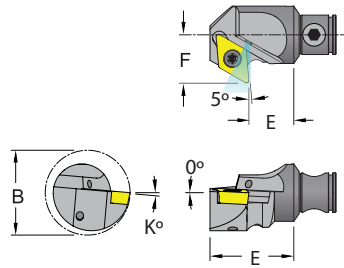
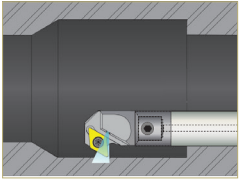
Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		K°	DCMT Gage Insert		Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm		inch	mm		
DQCMH-12-SDNCR/L-3	59484	59485	0.750	20	1.038	26.37	0.840	21.34	0.625	15.88	5°			TS-35.6-9M1	T-15
			1.000	25	1.278	32.46	0.840	21.34	0.745	18.92	5°	32.52	11T308		
			1.250	32	1.538	39.06	0.840	21.34	0.850	21.59	5°				

SDQC R/L Thru Coolant Quick Change Boring Bar Head Style Q - Negative 17.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



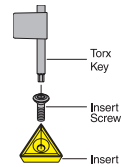
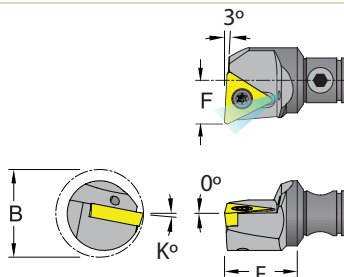
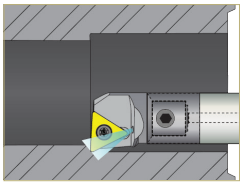
Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		K°	DCMT Gage Insert		Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm		inch	mm		
DQCMH-12-SDQCR/L-3	59486	59487	0.750	20	1.038	26.37	0.840	21.34	0.625	15.88	7°			TS-35.6-9M1	T-15
			1.000	25	1.278	32.46	0.840	21.34	0.745	18.92	7°	32.52	1T308		
			1.250	32	1.538	39.06	0.840	21.34	0.850	21.59	7°				

SDXC R/L Thru Coolant Quick Change Boring Bar Head Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		K°	DCMT Gage Insert		Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm		inch	mm		
DQCMH-12-SDXCR/L-3	-	59489	0.750	20	1.038	26.37	0.590	14.99	0.625	15.88	5°			TS-35.6-9M1	T-15
			1.000	25	1.278	32.46	0.590	14.99	0.745	18.92	5°	32.52	11T308		
			1.250	32	1.538	39.06	0.590	14.99	0.850	21.59	5°				

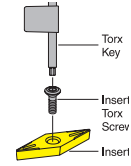
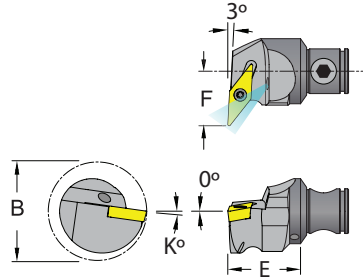
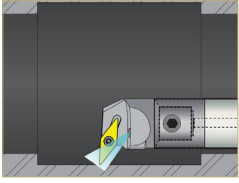
STUC R/L Thru Coolant Quick Change Boring Bar Head Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		K°	TCMT Gage Insert		Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm					
DQCMH-12-STUCR/L-3	59492	59493	0.750	20	0.913	23.19	0.840	21.34	0.500	12.70	11°			TS-35.6-9M1	T-15
			1.000	25	1.153	29.29	0.840	21.34	0.620	15.75	11°	32.52	16T308		
			1.250	32	1.413	35.89	0.840	21.34	0.755	19.18	11°				

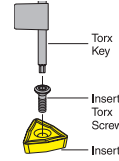
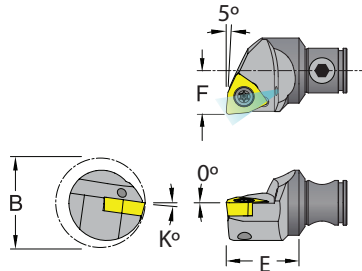
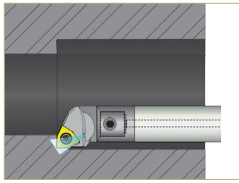
High Performance Carbide Boring Bars

SVUC R/L Thru Coolant Quick Change Boring Bar Head Style U - Negative 3° End Cutting Edge Angle for 7° positive 35° diamond VC__ inserts



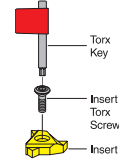
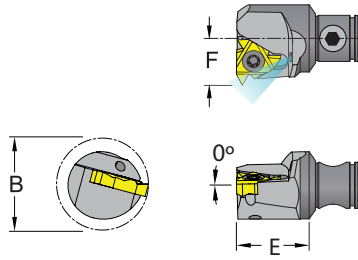
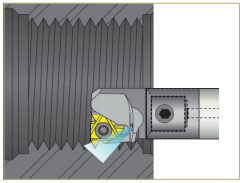
Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		K°	VCMT Gage Insert		Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm		inch	mm		
DQCMH-12-SVUCR/L-2	59494	59495	0.750	20	1.038	26.37	0.840	21.34	0.625	15.88	8°	221	110304	TS-35.6-9M1	T-8
			1.000	25	1.278	32.46	0.840	21.34	0.745	18.92	8°				
			1.250	32	1.538	39.06	0.840	21.34	0.850	21.59	8°				

SWLC R/L Thru Coolant Quick Change Boring Bar Head Style L - Negative 5° End Cutting Edge Angle for 7° positive 80° trigon WC__ inserts



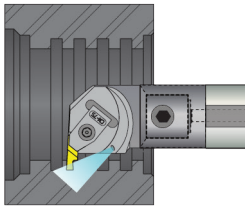
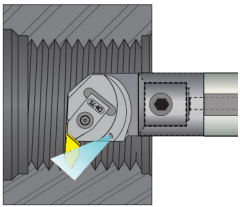
Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		K°	WCMT Gage Insert	Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm				
DQCMH-12-SWLRCR/L-3	59498	59499	0.750	20	0.913	23.19	0.840	21.34	0.500	12.70	8°	32.52 06T308	TS-35.6-9M1	T-15
			1.000	25	1.153	29.29	0.840	21.34	0.620	15.75	8°			
			1.250	32	1.413	35.89	0.840	21.34	0.755	19.18	8°			

SN R/L Thru Coolant Quick Change Threading Bar Head Internal Laydown Bar for Laydown Inserts



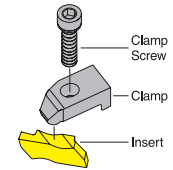
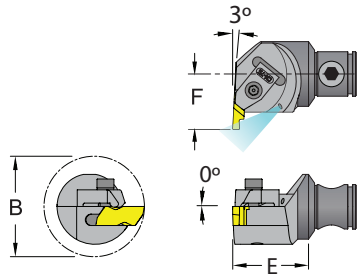
Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		-	Laydown Gage Insert	Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm				
DQCMH-12-SNR/L-16	59501	59502	0.750	20	0.995	25.27	0.840	21.34	0.520	13.21	-	16-A60	TS-35.6-9M1	T-15
			1.000	25	1.235	31.37	0.840	21.34	0.640	16.26	-			
			1.250	32	1.495	37.97	0.840	21.34	1.02	25.90	-			

NE R/L Thru Coolant Quick Change Threading & Grooving Bar Head Style E- Internal DorNotch Bar for threading and grooving DorNotch inserts



Threading

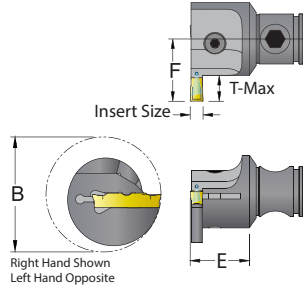
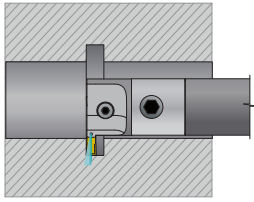
Grooving



Head Description	R.H.	L.H.	Reference Bars Dia.		B		E		F		-	DorNotch Gage Insert	Insert Torx Screw	Torx Key
			inch	mm	inch	mm	inch	mm	inch	mm				
DQCMH-12-NER/L-2	59503	59504	0.750	20	1.125	28.58	0.840	21.34	0.562	14.27	-	*NG-2L **NG-2R	*CM-75 **CM-74	S-310M
			1.000	25	1.365	34.67	0.840	21.34	0.682	17.32	-			
			1.250	32	1.625	41.27	0.840	21.34	1.062	26.97	-			

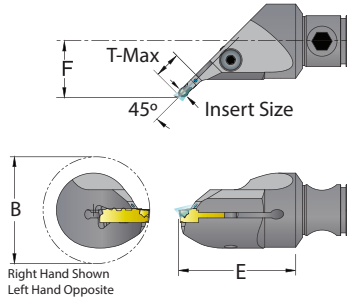
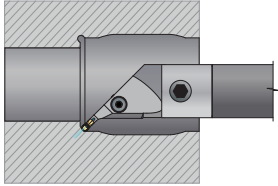
High Performance Carbide Boring Bars

KOOL Cut™ Quick Change Boring and Grooving Head - 3mm (.118") Insert Size



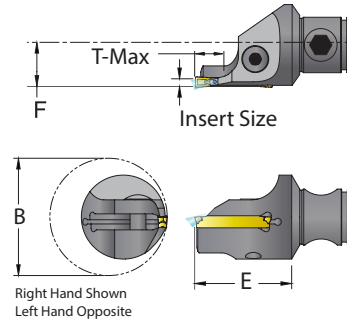
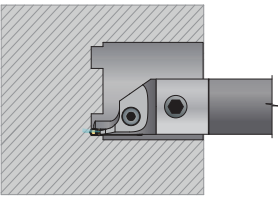
Head Description	UPC No. 733101-		System	B				Modular Head	Bar Diameter	Size	Style	Insert Lock	Screw	Key	Coolant Seal
	R.H.	L.H.		Min. Dia.	W	F	T-Max								
DQCMH-ITR/L30-06	61928	61941	mm	33	21.34	18	6	20	20	3	DNTF 223015	CS-M0516	HAHK-50	CS08-04	
DQCMH-ITR/L30-12	61929	61942	inch	1.262	0.840	0.690	0.236	0.750	0.750	.118					
DQCMH-ITR/L30-15	61930	61943	mm	39	21.34	24	12	20	25	3					
			inch	1.498	0.840	0.926	0.472	0.750	1.00	.118					
			mm	42	21.34	27	15	20	32	3					
			inch	1.616	0.840	1.044	0.590	0.750	1.25	.118					

KOOL Cut™ Quick Change Boring and Grooving 45° Head - 2mm (.079"), 3mm (.118"), 4mm (.157") Insert Size



Head Description	UPC No. 733101-		System	B				Modular Head	Bar Diameter	Size	Style	Insert Lock	Screw	Key	Coolant Seal
	R.H.	L.H.		Min. Dia.	W	F	T-Max								
DQCMH-IUR/L20-04	61951	61954	mm	31	21.34	16	4	20	20	2	DNTF 222010	CS-M0516	HAHK-50	CS08-04	
DQCMH-IUR/L30-06	61952	61955	inch	1.183	0.840	0.611	0.157	0.750	0.750	.079					
DQCMH-IUR/L40-08	61953	61956	mm	33	21.34	18	6	20	20	3	DNTF 223015				
			inch	1.262	0.840	0.690	0.236	0.750	0.750	.118	DNTF 245020				
			mm	35	21.34	20	8	20	20	4					
			inch	1.341	0.840	0.769	0.315	0.750	0.750	.157					

KOOL Cut™ Quick Change Internal Face Grooving Head - 3mm (.118") Insert Size



Head Description	UPC No. 733101-		System	B Dia.		W	F	T-Max	Modular Head	Bar Diameter	Size	Style	Insert Lock	Screw	Key	Coolant Seal
	R.H.	L.H.		Min.	Max.											
DQCNH-IFR/L30-025038-10	61957	61961	mm	25	39	21.34	12	10	20	20	3	DNTF 223015	CS-M0516	HAHK-50	CS08-04	
DQCNH-IFR/L30-038060-10	61958	61962	inch	0.984	1.535	0.840	0.848	0.394	0.750	0.750	.118					
DQCNH-IFR/L30-060100-10	61959	61963	mm	37	60	21.34	12	10	20	20	3					
DQCNH-IFR/L30-100200-10	61960	61964	inch	1.457	2.362	0.840	0.848	0.394	0.750	0.750	.118					
			mm	59	101	21.34	12	10	20	20	3					
			inch	2.323	3.976	0.840	0.848	0.394	0.750	0.750	.118					
			mm	99	200	21.34	12	10	20	25	3					
			inch	3.898	7.874	0.840	0.848	0.394	0.750	1.00	.118					

Solution Tool!™

The NO! Vibration Re-Tunable Boring Bar

Makes Deep Hole Boring Simple!



Solution Tool!™ The NO! Vibration Re-Tunable Boring Bar, **will suppress the natural vibration** of the boring bar body, developed when the insert comes in contact with the working piece in the cutting operation. The internally tuned mechanical dampener system provides the optimum dynamic stability in deep hole boring operation, for a Better Machining Performance, Smooth Surface Finish, Precise Tolerance and Long Insert Life.

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bar **will perform where no other types of boring bars, steel or carbide will not perform!**

To maximize performance in deep boring operation, Solution Tool!™ is offered in 2 versions;

Steel Body,

The steel body for boring depth up to 12 x Boring Bar Diameter

Carbide Body,

The carbide body rigidity and stability, allows to bore at higher cutting rate and material removal, and longer depth of cut.



The Solution Tool!™ How The NO! Vibration Re-Tunable Boring Bar Works

The Solution Tool!™ The NO! Vibration Re-Tunable Boring Bar contains a **mechanical floating dampener system** dynamically tuned to **suppress the natural boring bar vibration** that generates machining chatters. The tuning process reduces the frequency rate per second of the boring bar.

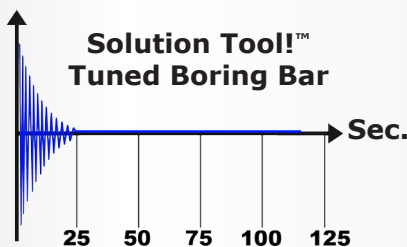
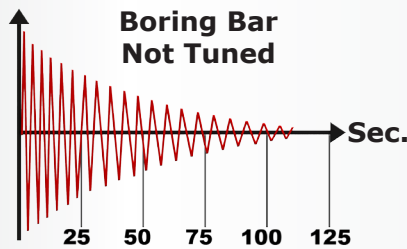
The **mechanical dampener** located inside the boring bar **housing** is moved forward or backward until all of the boring bar frequencies are nullified with **zero vibration**. At this point, the **mechanical dampener** is locked in position, restricting the longitudinal movement, but free to move in radial directions.

In essence, the energy in the Solution Tool!™ is absorbed by the mechanical dampener, and not released to the boring bar in form of vibrations that causes the chatters in the boring operation.

The Solution Tool!™ is dynamically tuned, tested and certified to meet Dorian Tool Quality control standards and performance and ready to be used.

Re-Turning The Solution Tool!™ can be-retuned on the machine to optimize the boring bar performance when;

- Extreme and exotic materials change from very soft to very hard.
- Changing the boring depth. Ex: a boring bar with a 12 x Dia. boring Ratio will be used for a shorter boring Ratio like 6 x Dia..
- Improving performance for specific machining operations such as finishing, roughing boring, threading, and grooving.





Solution Tool!™

The NO! Vibration Re-Tunable Boring Bar

Makes Deep Hole Boring Simple!

Solution Tool!™ Integral Bars

The NO! Vibration Re-Tunable Boring Bar

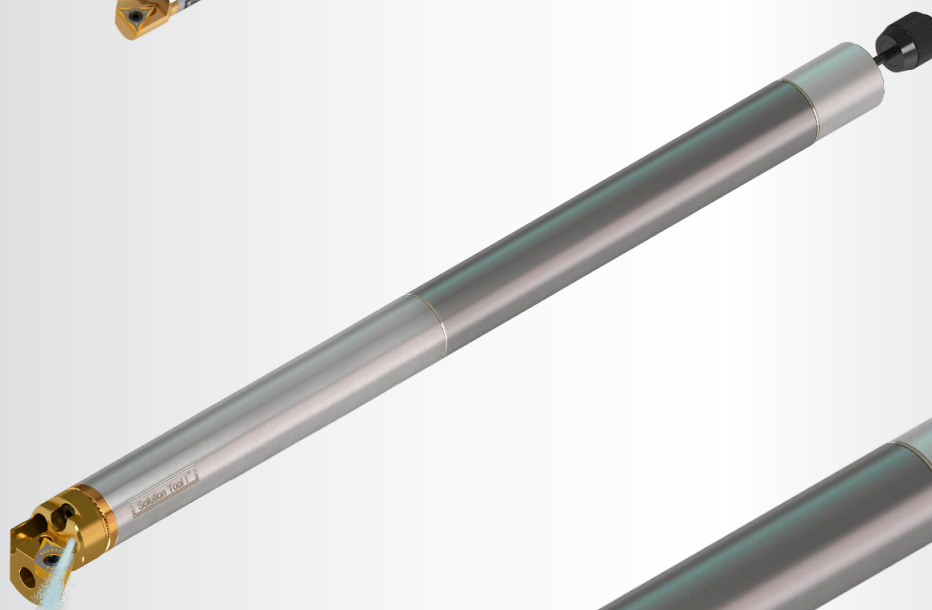
- Carbide Body
- For Small Boring Operation
- Multi Insert Geometry
- Inch and Metric Sizes
Inch, 1/4" Dia., 5/16" Dia., 3/8", 1/2" Dia., 5/8" Dia.
Metric, 6mm, 8mm, 10mm, 12mm, 16mm
- Multi Boring Ratio
8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia.



Solution Tool!™ Quick Change Bars

The NO! Vibration Re-Tunable Boring Bar

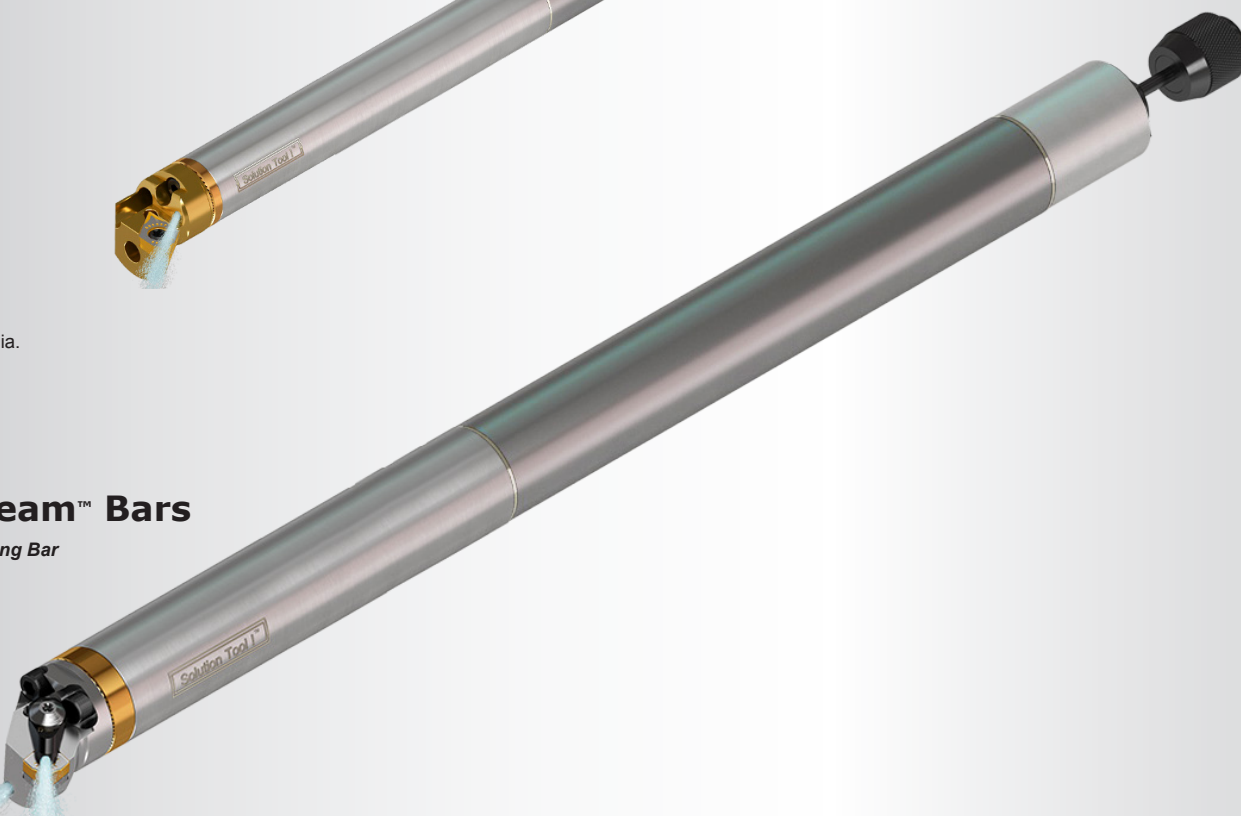
- Steel Body
- Carbide Body
- For Medium Boring Operation
- Quick Change Heads
with Multi Insert Geometry
- Thru Coolant System
- Inch and Metric Sizes
Inch, 3/4" Dia., 1" Dia., 1 1/4" Dia.
Metric, 20mm, 25mm, 32mm
- Multi Boring Ratio
8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia.



Solution Tool!™ Modular Jet-Stream™ Bars

The NO! Vibration Re-Tunable Boring Bar

- Steel Body
- Carbide Body
- For Large Boring Operation
- Interchangeable Modular Heads
with Multi Insert Geometry
- Jet-Stream Thru Coolant System
- Inch and Metric Sizes
Inch, 1 1/2" Dia., 1 3/4" Dia., 2" Dia., 2 1/2" Dia., 3" Dia., 4 Dia.
Metric, 40mm, 50mm, 60mm, 80mm, 100mm.
- Multi Boring Ratio
8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia..



Integral Bars

For Small Boring Operation.
Engineered to bore small diameter holes, and cutting depth to 14 x Boring Bar Diameter.



- Better Machining Performance
- Higher Workmanship Quality
- Longer Cutting Insert Life

The Technology behind Solution Tool!™ the "Integral" NO! Vibration Re-Tunable Boring Bars, is to perform simple and reliable when deep boring small size holes, with close machining tolerance and high surface finish.

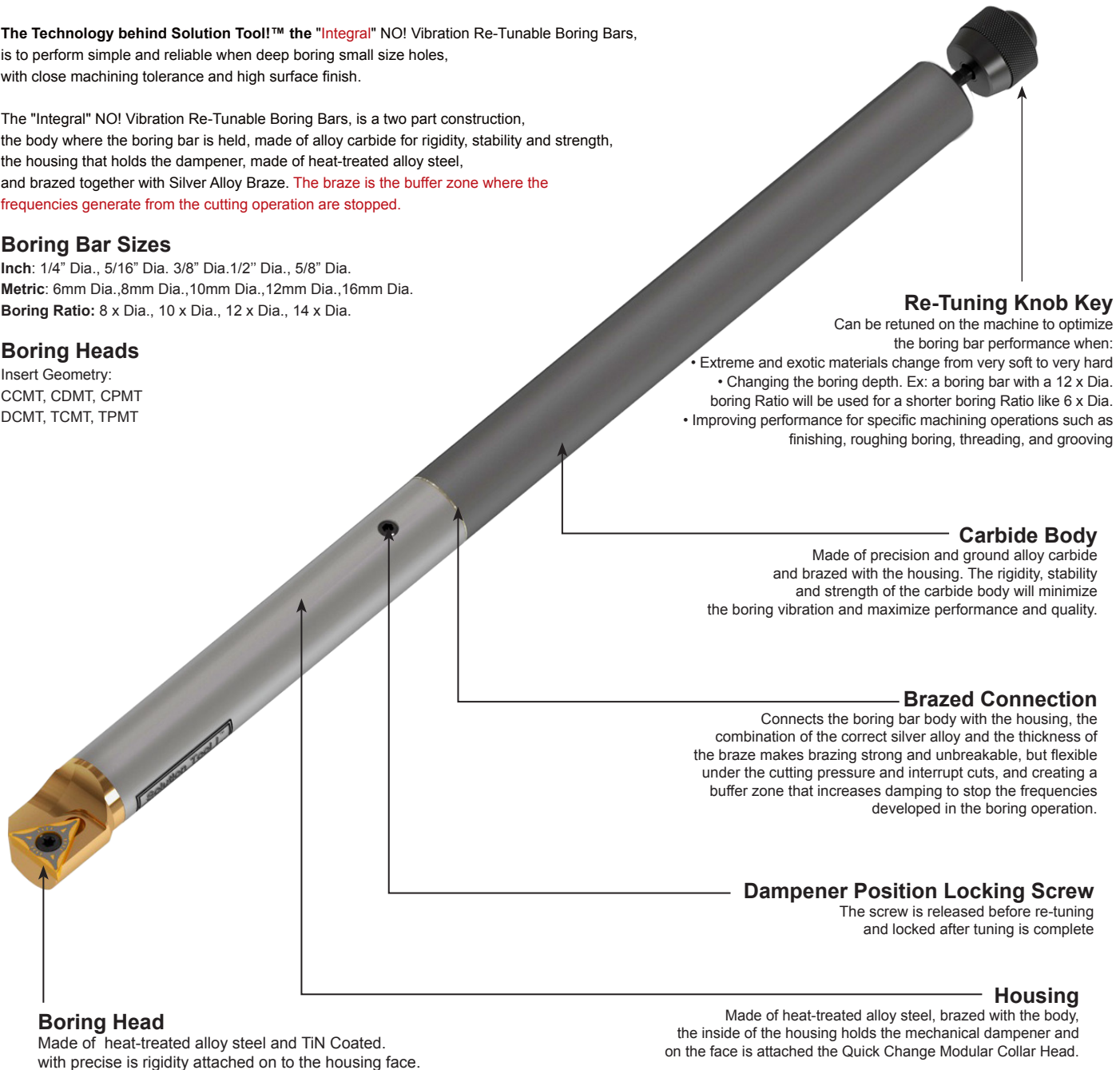
The "Integral" NO! Vibration Re-Tunable Boring Bars, is a two part construction, the body where the boring bar is held, made of alloy carbide for rigidity, stability and strength, the housing that holds the dampener, made of heat-treated alloy steel, and brazed together with Silver Alloy Braze. **The braze is the buffer zone where the frequencies generate from the cutting operation are stopped.**

Boring Bar Sizes

Inch: 1/4" Dia., 5/16" Dia. 3/8" Dia. 1/2" Dia., 5/8" Dia.
Metric: 6mm Dia., 8mm Dia., 10mm Dia., 12mm Dia., 16mm Dia.
Boring Ratio: 8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia.

Boring Heads

Insert Geometry:
CCMT, CDMT, CPMT
DCMT, TCMT, TPMT



Re-Tuning Knob Key

Can be returned on the machine to optimize the boring bar performance when:

- Extreme and exotic materials change from very soft to very hard
- Changing the boring depth. Ex: a boring bar with a 12 x Dia. boring Ratio will be used for a shorter boring Ratio like 6 x Dia.
- Improving performance for specific machining operations such as finishing, roughing boring, threading, and grooving

Carbide Body

Made of precision and ground alloy carbide and brazed with the housing. The rigidity, stability and strength of the carbide body will minimize the boring vibration and maximize performance and quality.

Brazed Connection

Connects the boring bar body with the housing, the combination of the correct silver alloy and the thickness of the braze makes brazing strong and unbreakable, but flexible under the cutting pressure and interrupt cuts, and creating a buffer zone that increases damping to stop the frequencies developed in the boring operation.

Dampener Position Locking Screw

The screw is released before re-tuning and locked after tuning is complete

Housing

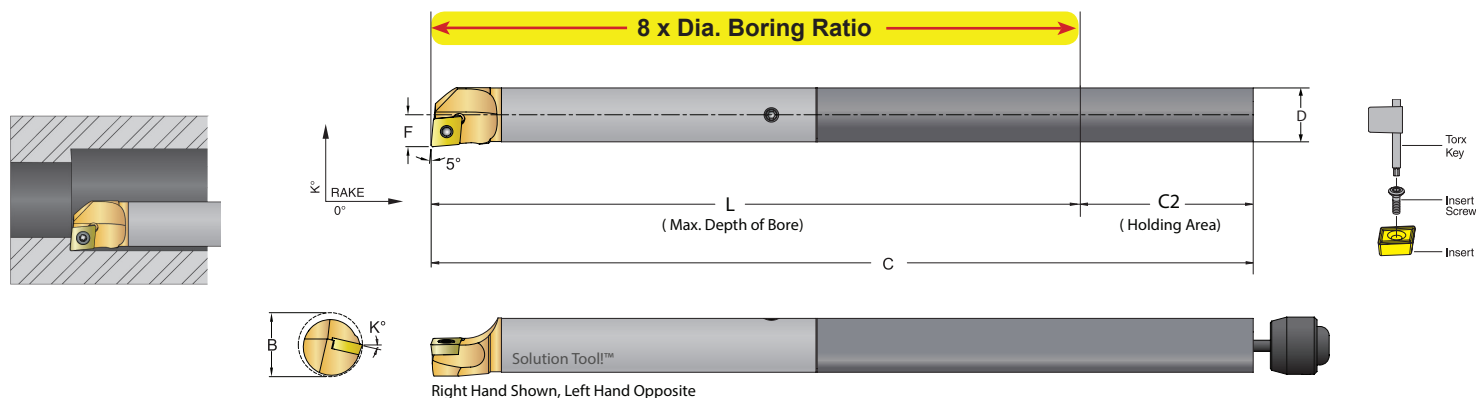
Made of heat-treated alloy steel, brazed with the body, the inside of the housing holds the mechanical dampener and on the face is attached the Quick Change Modular Collar Head.

Boring Head

Made of heat-treated alloy steel and TiN Coated. with precise is rigidity attached on to the housing face.

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

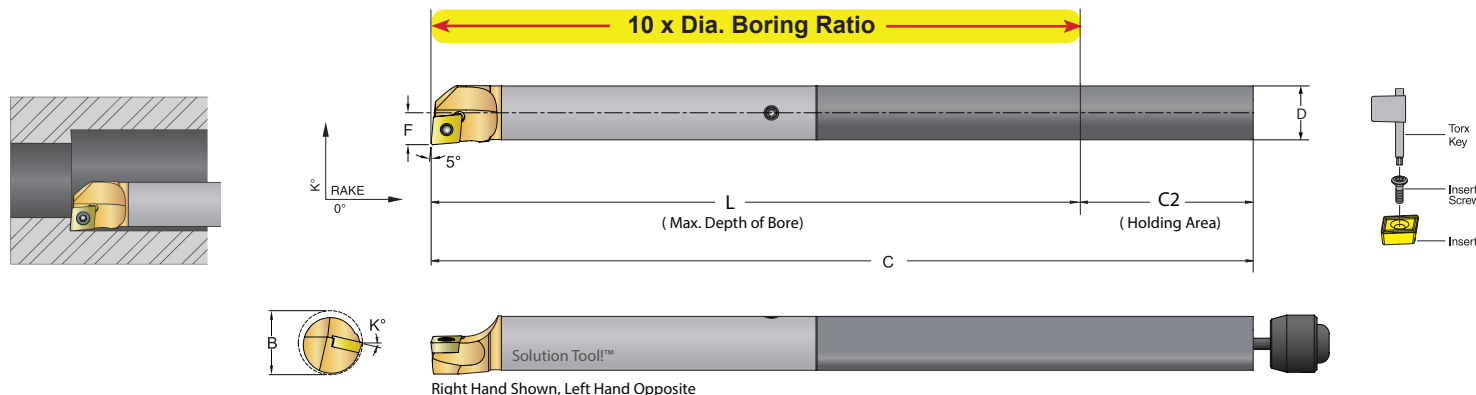
SCLC R/L Solution Tool!™ Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC__ inserts



Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI08X-08-SCLCR/L-2-CB	59400	59401	8 x Dia.	0.500	.625	7.00	4.00	3.00	.275	13°	21.51	TS-25.45-6M2	T-8	
DVI10X-08-SCLCR/L-2-CB	59402	59403		0.625	.781	8.13	5.00	3.13	.395	10°	21.51	TS-25.45-6M2	T-8	
DVI10X-08-SCLCR/L-3-CB	59404	59405		0.625	.781	8.13	5.00	3.13	.395	10°	32.51	TS-4.7-8M1	T-15	
Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM12X-08-SCLCR/L-06-CB	59414	59415	8 x Dia.	12	14.50	168	96	72	6.99	13°	60204	TS-25.45-6M2	T-8	
DVM16X-08-SCLCR/L-06-CB	59416	59417		16	19.50	208	128	80	10.03	10°	60204	TS-25.45-6M2	T-8	
DVM16X-08-SCLCR/L-09-CB	59418	59419		16	19.50	208	128	80	10.03	10°	09T304	TS-4.7-8M1	T-15	

Inserts used: all CC__ series (CCGX, CCGT, CCMT, CCGW).

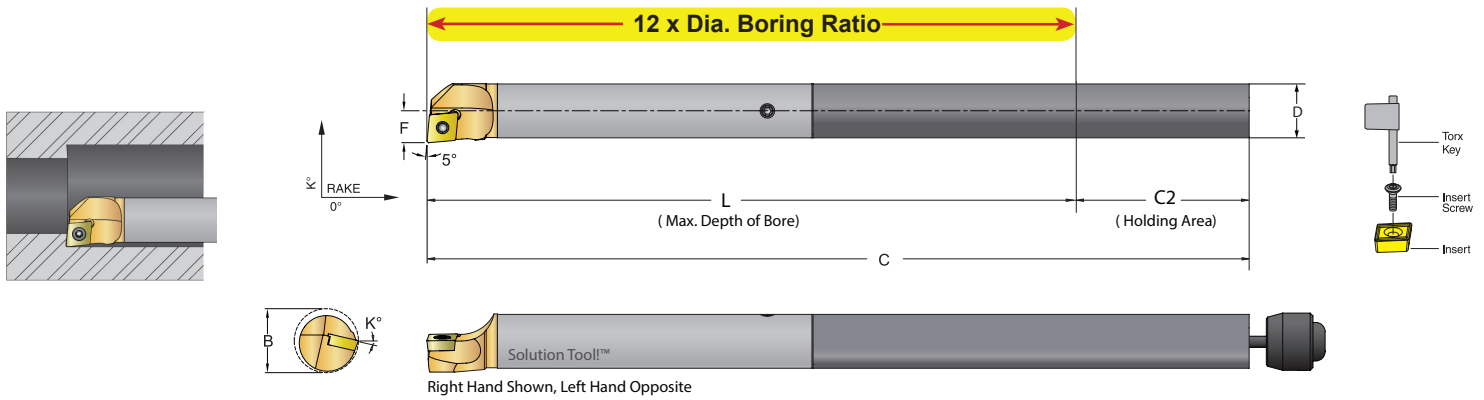
SCLC R/L Solution Tool!™ Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC__ inserts



Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI08X-10-SCLCR/L-2-CB	59034	59035	10 x Dia.	0.500	.625	8.00	5.000	3.00	.275	13°	21.51	TS-25.45-6M2	T-8	
DVI10X-10-SCLCR/L-2-CB	59040	59041		0.625	.781	9.38	6.25	3.13	.395	10°	21.51	TS-25.45-6M2	T-8	
DVI10X-10-SCLCR/L-3-CB	59046	59047		0.625	.781	9.38	6.25	3.13	.395	10°	32.51	TS-4.7-8M1	T-15	
Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM12X-10-SCLCR/L-06-CB	59076	59077	10 x Dia.	12	14.50	192	120	72	6.99	13°	60204	TS-25.45-6M2	T-8	
DVM16X-10-SCLCR/L-06-CB	59082	59083		16	19.50	240	160	80	10.03	10°	60204	TS-25.45-6M2	T-8	
DVM16X-10-SCLCR/L-09-CB	59088	59089		16	19.50	240	160	80	10.03	10°	09T304	TS-4.7-8M1	T-15	

Inserts used: all CC__ series (CCGX, CCGT, CCMT, CCGW).

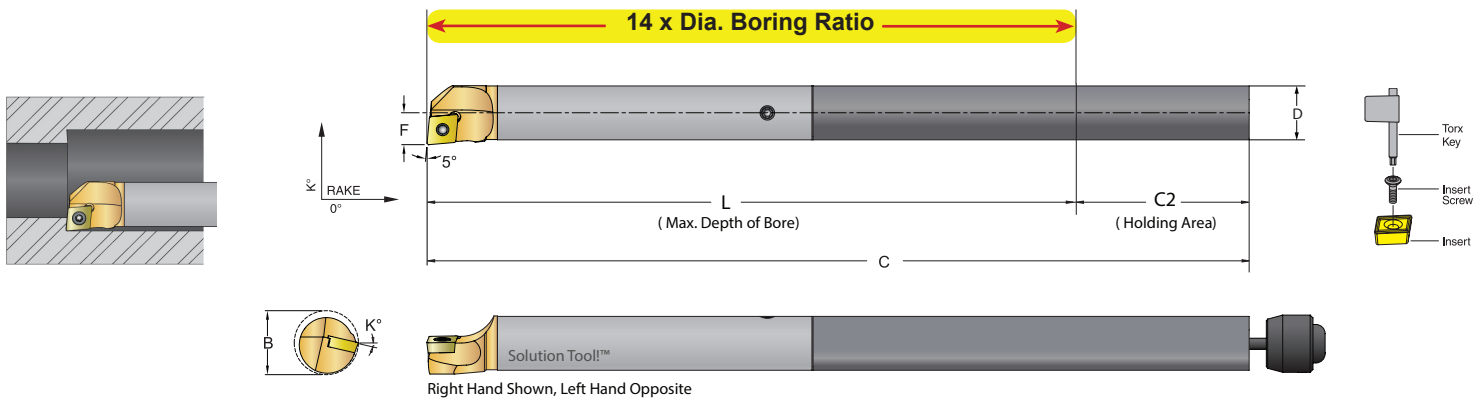
SCLC R/L Solution Tool!™ Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC__ inserts



Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI08X-12-SCLCR/L-2-CB	59036	59037	12 x Dia.		0.500	.625	9.00	6.00	3.00	.275	13°	21.51	TS-25.45-6M2	T-8
DVI10X-12-SCLCR/L-2-CB	59042	59043			0.625	.781	10.63	7.50	3.13	.395	10°	21.51	TS-25.45-6M2	T-8
DVI10X-12-SCLCR/L-3-CB	59048	59049			0.625	.781	10.63	7.50	3.13	.395	10°	32.51	TS-4.7-8M1	T-15
Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM12X-12-SCLCR/L-06-CB	59078	59079	12 x Dia.		12	14.50	216	144	72	6.99	13°	60204	TS-25.45-6M2	T-8
DVM16X-12-SCLCR/L-06-CB	59084	59085			16	19.50	272	192	80	10.03	10°	60204	TS-25.45-6M2	T-8
DVM16X-12-SCLCR/L-09-CB	59090	59091			16	19.50	272	192	80	10.03	10°	09T304	TS-4.7-8M1	T-15

Inserts used: all CC__ series (CCGX, CCGT, CCMT, CCGW).

SCLC R/L Solution Tool!™ Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC__ inserts

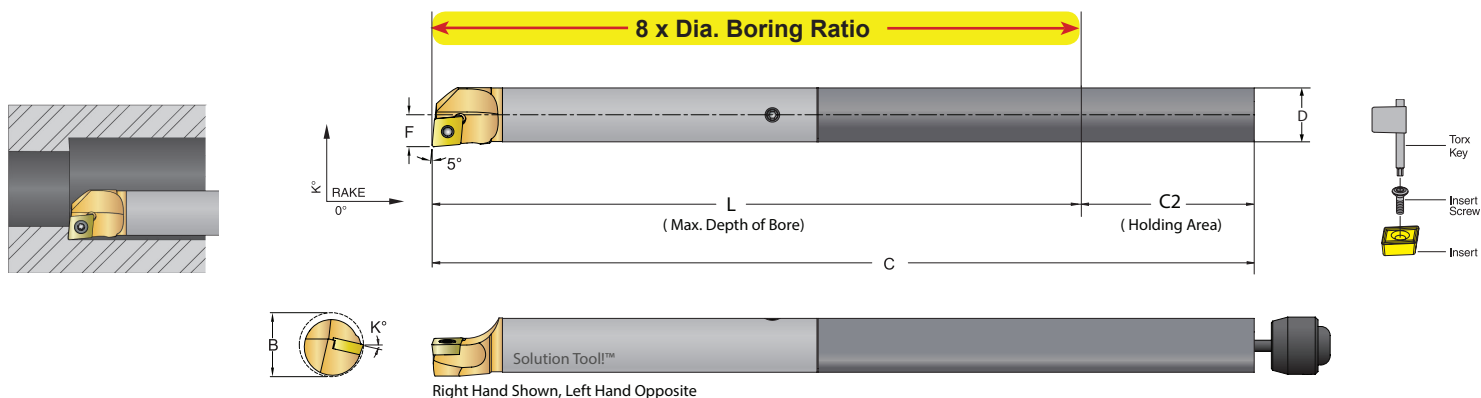


Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI08X-14-SCLCR/L-2-CB	59038	59039	14 x Dia.		0.500	.625	10.00	7.000	3.00	.275	13°	21.51	TS-25.45-6M2	T-8
DVI10X-14-SCLCR/L-2-CB	59044	59045			0.625	.781	11.88	8.75	3.13	.395	10°	21.51	TS-25.45-6M2	T-8
DVI10X-14-SCLCR/L-3-CB	59050	59051			0.625	.781	11.88	8.75	3.13	.395	10°	32.51	TS-4.7-8M1	T-15
Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM12X-14-SCLCR/L-06-CB	59080	59081	14 x Dia.		12	14.50	240	168	72	6.99	13°	60204	TS-25.45-6M2	T-8
DVM16X-14-SCLCR/L-06-CB	59086	59087			16	19.50	304	224	80	10.03	10°	60204	TS-25.45-6M2	T-8
DVM16X-14-SCLCR/L-09-CB	59092	59093			16	19.50	304	224	80	10.03	10°	09T304	TS-4.7-8M1	T-15

Inserts used: all CC__ series (CCGX, CCGT, CCMT, CCGW).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

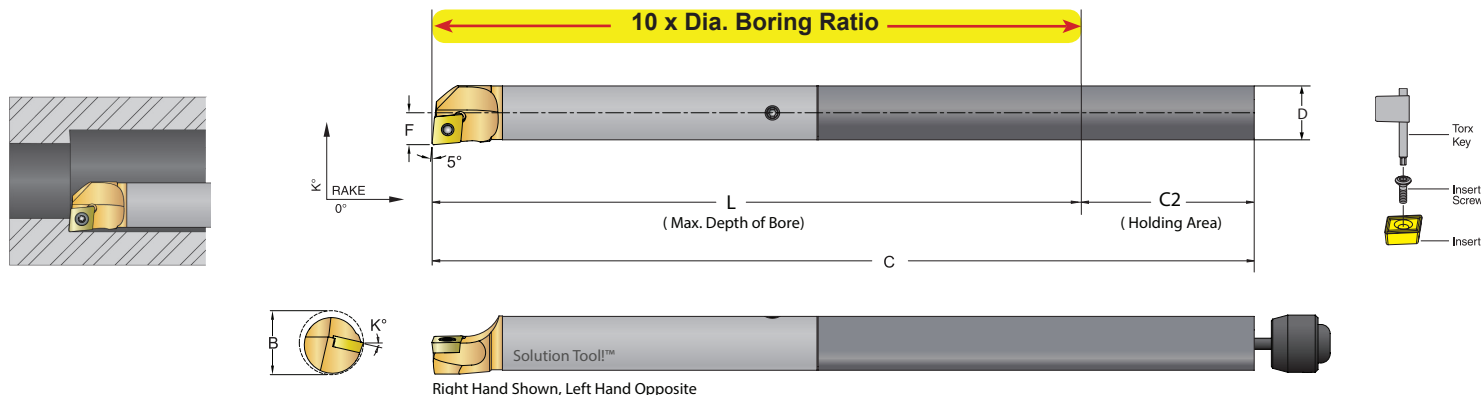
SCLD R Solution Tool!™ Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 15° positive 80° diamond CD__ inserts



Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key
Bar Description	D			B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key	
DVI04X-08-SCLDR-1.5-CB	59010	8 x Dia.	0.250	.312	4.000	2.000	2.000	.143	7°	1.510.5	TS-06	T-6	
DVI05X-08-SCLDR-1.5-CB	59018		0.312	.382	5.000	2.500	2.500	.176	7°				
DVI06X-08-SCLDR-1.5-CB	59026		0.375	.470	5.630	3.000	2.630	.220	5°				
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key
Bar Description	D			B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key	
DVM06X-08-SCLDR-04-CB	59052	8 x Dia.	6	8	96.0	48.0	48.0	3.63	7°	40102	TS-06	T-6	
DVM08X-08-SCLDR-04-CB	59060		8	10	128	64	64	4.47	7°				
DVM10X-08-SCLDR-04-CB	59068		10	12	150	80	70	5.59	5°				

Inserts used: all CD__ series (CDGX, CDMT, CDGW, CDGB).

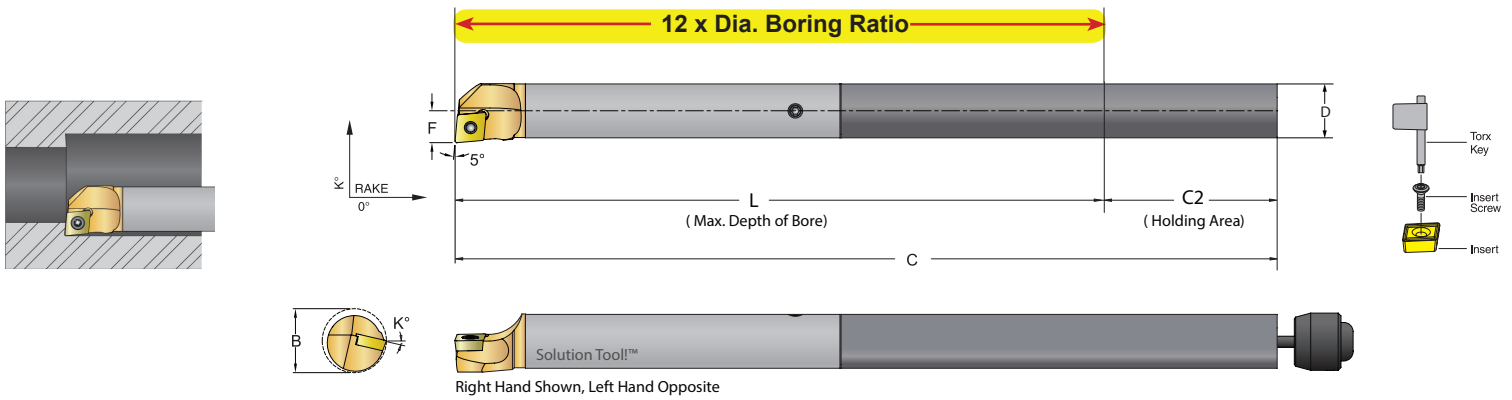
SCLD R Solution Tool!™ Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 15° positive 80° diamond CD__ inserts



Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key
Bar Description	D			B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key	
DVI04X-10-SCLDR-1.5-CB	59012	10 x Dia.	0.250	.312	4.500	2.500	2.000	.143	7°	1.510.5	TS-06	T-6	
DVI05X-10-SCLDR-1.5-CB	59020		0.312	.399	5.620	3.120	2.500	.176	7°				
DVI06X-10-SCLDR-1.5-CB	59028		0.375	.470	6.380	3.750	2.630	.220	5°				
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key
Bar Description	D			B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key	
DVM06X-10-SCLDR-04-CB	59054	10 x Dia.	6	8	108	60	48	3.63	7°	40102	TS-06	T-6	
DVM08X-10-SCLDR-04-CB	59062		8	10	144	80	64	4.47	7°				
DVM10X-10-SCLDR-04-CB	59070		10	12	170	100	70	5.59	5°				

Inserts used: all CD__ series (CDGX, CDMT, CDGW, CDGB).

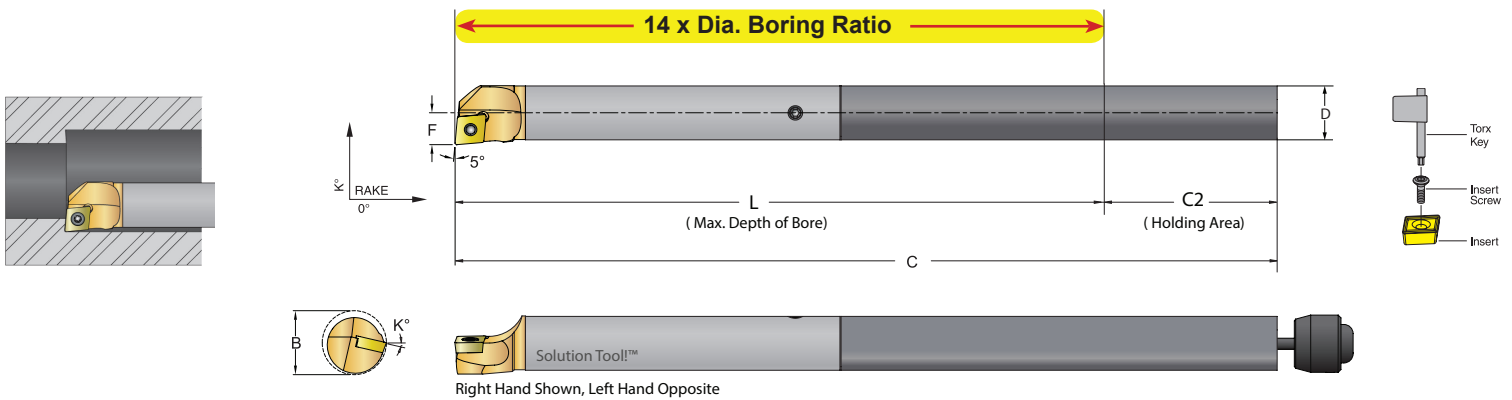
SCLD R Solution Tool!™ Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 15° positive 80° diamond CD__ inserts



Inch Bar Description	UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key
DVI04X-12-SCLDR-1.5-CB	59014	12 x Dia.	0.250	.312	5.000	3.000	2.000	.143	7°	1.510.5	TS-06	T-6
DVI05X-12-SCLDR-1.5-CB	59022		0.312	.399	6.24	3.74	2.50	.176	7°			
DVI06X-12-SCLDR-1.5-CB	59030		0.375	.470	7.13	4.50	2.63	.220	5°			
Metric Bar Description	UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key
DVM06X-12-SCLDR-04-CB	59056	12 x Dia.	6	8	120	72	48	3.63	7°	40102	TS-06	T-6
DVM08X-12-SCLDR-04-CB	59064		8	10	160	96	64	4.47	7°			
DVM10X-12-SCLDR-04-CB	59072		10	12	190	120	70	5.59	5°			

Inserts used: all CD__ series (CDGX, CDMT, CDGW, CDGB).

SCLD R Solution Tool!™ Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CD__ inserts

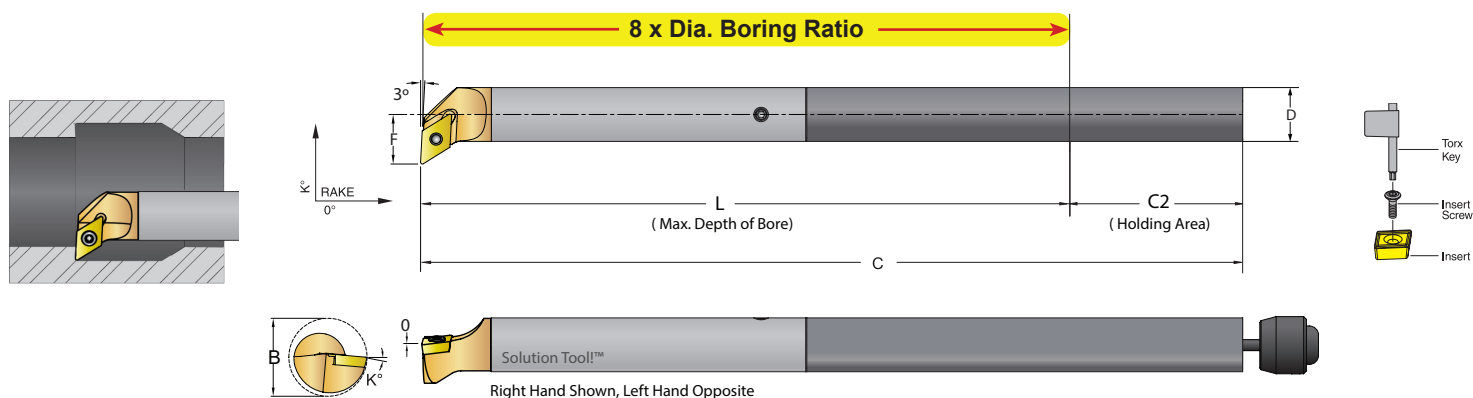


Inch Bar Description	UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key
DVI04X-14-SCLDR-1.5-CB	59016	14 x Dia.	0.250	.312	5.50	3.50	2.00	.143	7°	1.510.5	TS-06	T-6
DVI05X-14-SCLDR-1.5-CB	59024		0.312	.399	6.87	4.37	2.50	.176	7°			
DVI06X-14-SCLDR-1.5-CB	59032		0.375	.470	7.88	5.25	2.63	.220	5°			
Metric Bar Description	UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	CD__ Gage Insert	Insert Screw	Torx key
DVM06X-14-SCLDR-04-CB	59058	14 x Dia.	6	8	132	84	48	3.63	7°	40102	TS-06	T-6
DVM08X-14-SCLDR-04-CB	59066		8	10	176	112	64	4.47	7°			
DVM10X-14-SCLDR-04-CB	59074		10	12	210	140	70	5.59	5°			

Inserts used: all CD__ series (CDGX, CDMT, CDGW, CDGB).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

SDUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

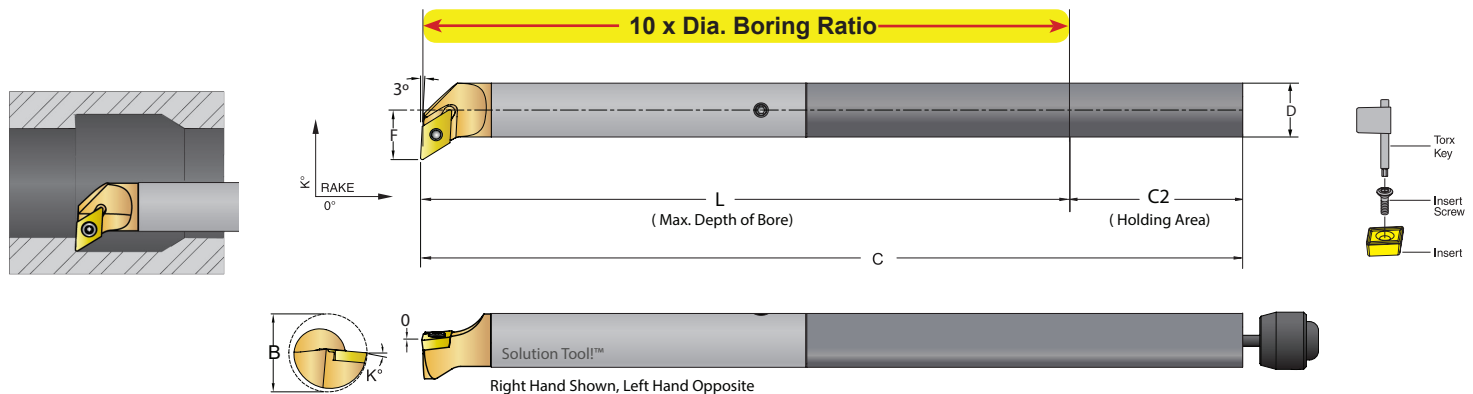


Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI06X-08-SDUCR/L-2-CB	59142	59143		8 x Dia.	0.375	.625	5.63	3.00	2.63	0.375	11°	21.51	TS-25.45-6M2	T-8
DVI08X-08-SDUCR/L-2-CB	59406	59407		8 x Dia.	0.500	.750	7.00	4.00	3.00	0.437	11°	21.51	TS-25.45-6M2	T-8
DVI10X-08-SDUCR/L-2-CB	59408	59409		8 x Dia.	0.625	.875	8.13	5.00	3.13	0.500	7°	21.51	TS-25.45-6M2	T-8

Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM10X-08-SDUCR/L-07-CB	59162	59163		8 x Dia.	10	16	150	80	70	9.53	11°	070204	TS-25.45-6M2	T-8
DVM12X-08-SDUCR/L-07-CB	59420	59421		8 x Dia.	12	19	168	96	72	11.10	11°	070204	TS-25.45-6M2	T-8
DVM16X-08-SDUCR/L-07-CB	59422	59423		8 x Dia.	16	22	208	128	80	12.70	7°	070204	TS-25.45-6M2	T-8

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

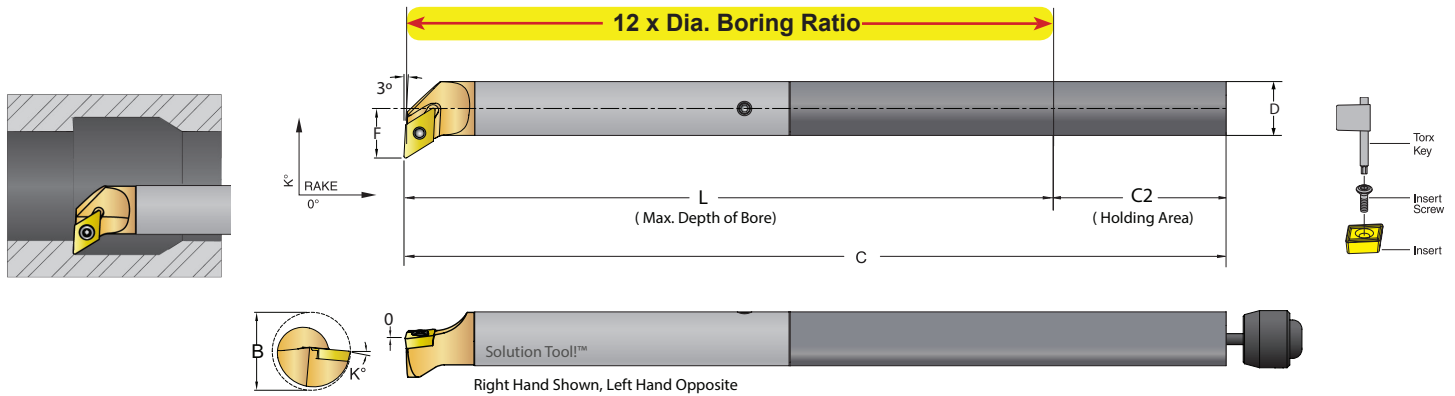


Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI06X-10-SDUCR/L-2-CB	59144	59145		10 x Dia.	0.375	.625	6.38	3.75	2.63	0.375	11°	21.51	TS-25.45-6M2	T-8
DVI08X-10-SDUCR/L-2-CB	59150	59151		10 x Dia.	0.500	.750	8.00	5.00	3.00	0.437	11°	21.51	TS-25.45-6M2	T-8
DVI10X-10-SDUCR/L-2-CB	60297	60298		10 x Dia.	0.625	.875	9.38	6.25	3.13	0.500	7°	21.51	TS-25.45-6M2	T-8

Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM10X-10-SDUCR/L-07-CB	59170	59171		10 x Dia.	10	16	170	100	70	9.53	11°	070204	TS-25.45-6M2	T-8
DVM12X-10-SDUCR/L-07-CB	59164	59165		10 x Dia.	12	19	192	120	72	11.10	11°	070204	TS-25.45-6M2	T-8
DVM16X-10-SDUCR/L-07-CB	59176	59177		10 x Dia.	16	22	240	160	80	12.70	7°	070204	TS-25.45-6M2	T-8

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

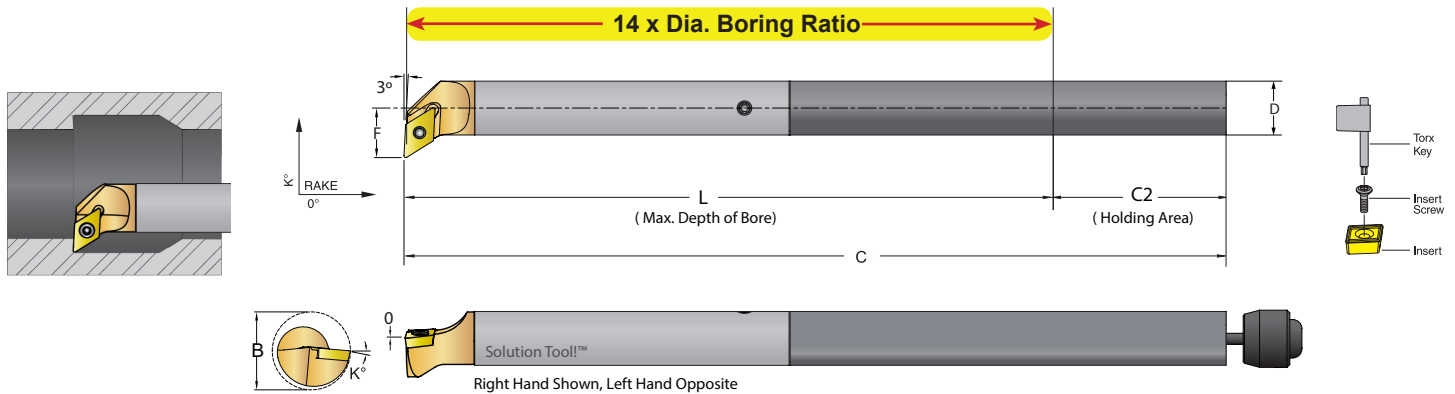


Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI06X-12-SDUCR/L-2-CB	59146	59147			0.375	.625	7.13	4.50	2.63	0.375	11°	21.51	TS-25.45-6M2	T-8
DVI08X-12-SDUCR/L-2-CB	59152	59153	12 x Dia.		0.500	.750	9.00	6.00	3.00	0.437	11°			
DVI10X-12-SDUCR/L-2-CB	59158	59159			0.625	.875	10.63	7.50	3.13	0.500	7°			

Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM10X-12-SDUCR/L-07-CB	59172	59173	12 x Dia.		10	16	190	120	70	9.53	11°	070204	TS-25.45-6M2	T-8
DVM12X-12-SDUCR/L-07-CB	59166	59167			12	19	216	144	72	11.10	11°			
DVM16X-12-SDUCR/L-07-CB	59178	59179			16	22	272	192	80	12.70	7°			

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



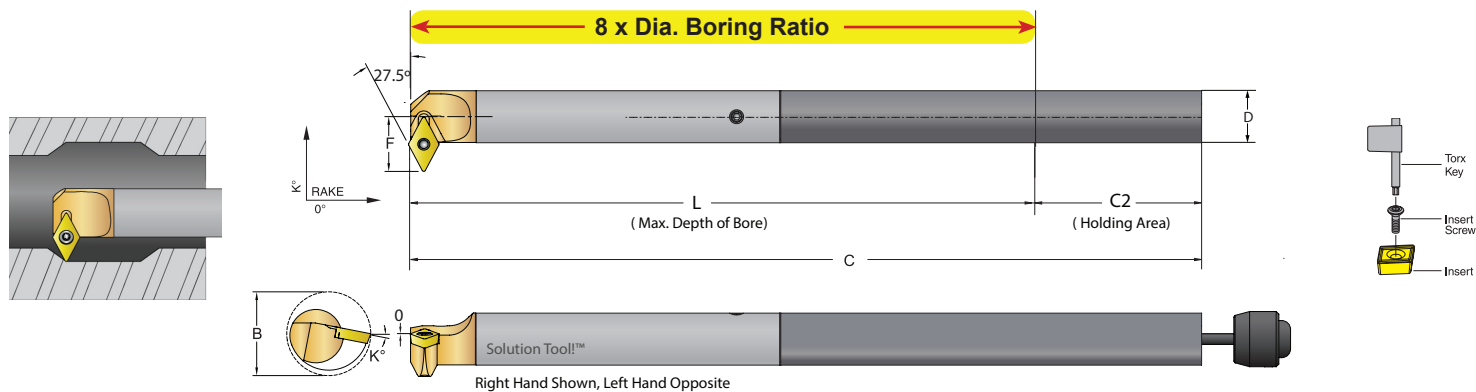
Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI06X-14-SDUCR/L-2-CB	59148	59149	14 x Dia.		0.375	.625	7.88	5.25	2.63	0.375	11°	21.51	TS-25.45-6M2	T-8
DVI08X-14-SDUCR/L-2-CB	59154	59155			0.500	.750	10.00	7.00	3.00	0.437	11°			
DVI10X-14-SDUCR/L-2-CB	59160	59161			0.625	.875	11.88	8.75	3.13	0.500	7°			

Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM10X-14-SDUCR/L-07-CB	59174	59175	14 x Dia.		10	16	210	140	70	9.53	11°	070204	TS-25.45-6M2	T-8
DVM12X-14-SDUCR/L-07-CB	59168	59169			12	19	240	168	72	11.10	11°			
DVM16X-14-SDUCR/L-07-CB	59180	59181			16	22	304	224	80	12.70	7°			

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

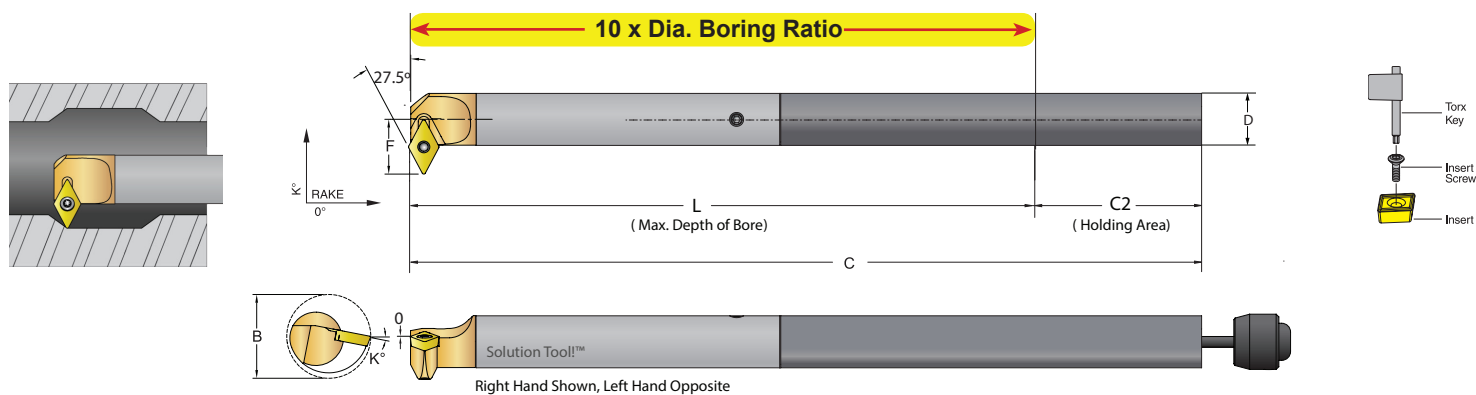
SDNC R Solution Tool!™ Integral Carbide Boring Bar Style N - Negative 27.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__inserts



Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVI06X-08-SDNCR-2-CB	59094	8 x Dia.	.375	0.581	5.63	3.00	2.63	0.375	11°	21.51	TS-25.45-6M2	T-8	
DVI08X-08-SDNCR-2-CB	59102		.500	0.813	7.00	4.00	3.00	0.500	11°				
DVI10X-08-SDNCR-2-CB	59110		.625	0.938	8.13	5.00	3.13	0.562	7°				
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVM10X-08-SDNCR-07-CB	59118	8 x Dia.	10	16	150	80	70	9.5	11°	070204	TS-25.45-6M2	T-8	
DVM12X-08-SDNCR-07-CB	59126		12	20	150	80	70	12.7	11°				
DVM16X-08-SDNCR-07-CB	59134		16	24	208	128	80	14.3	7°				

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDNC R Solution Tool!™ Integral Carbide Boring Bar Style N - Negative 27.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

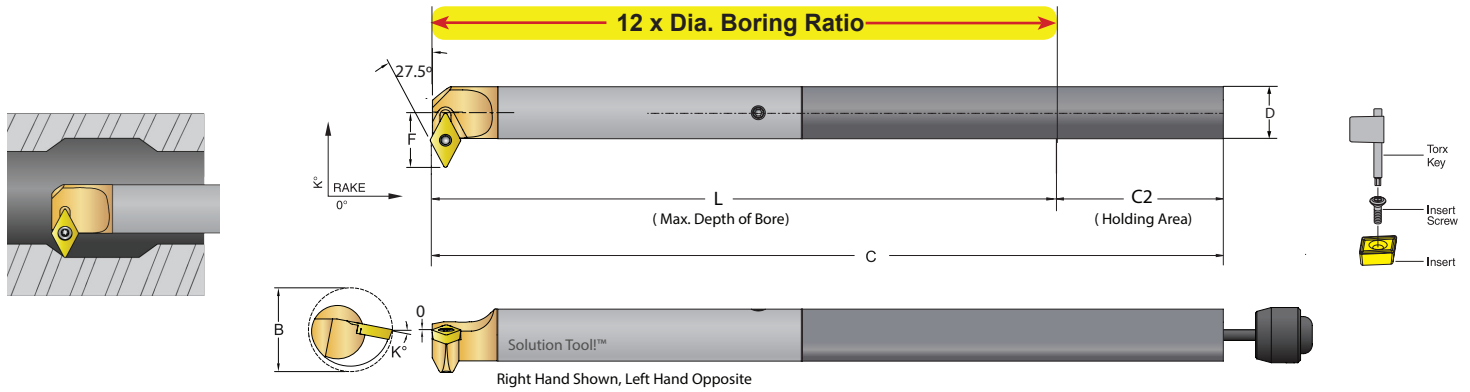


Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVI06X-10-SDNCR-2-CB	59096	10 x Dia.	0.375	0.581	6.38	3.75	2.63	0.375	11°	21.51	TS-25.45-6M2	T-8	
DVI08X-10-SDNCR-2-CB	59104		0.500	0.813	8.00	5.00	3.00	0.500	11°				
DVI10X-10-SDNCR-2-CB	59112		0.625	0.938	9.38	6.25	3.13	0.562	7°				
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVM10X-10-SDNCR-07-CB	59120	10 x Dia.	10	16	170	100	70	9.5	11°	070204	TS-25.45-6M2	T-8	
DVM12X-10-SDNCR-07-CB	59128		12	20	192	120	72	12.7	11°				
DVM16X-10-SDNCR-07-CB	59136		16	24	240	160	80	14.3	7°				

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

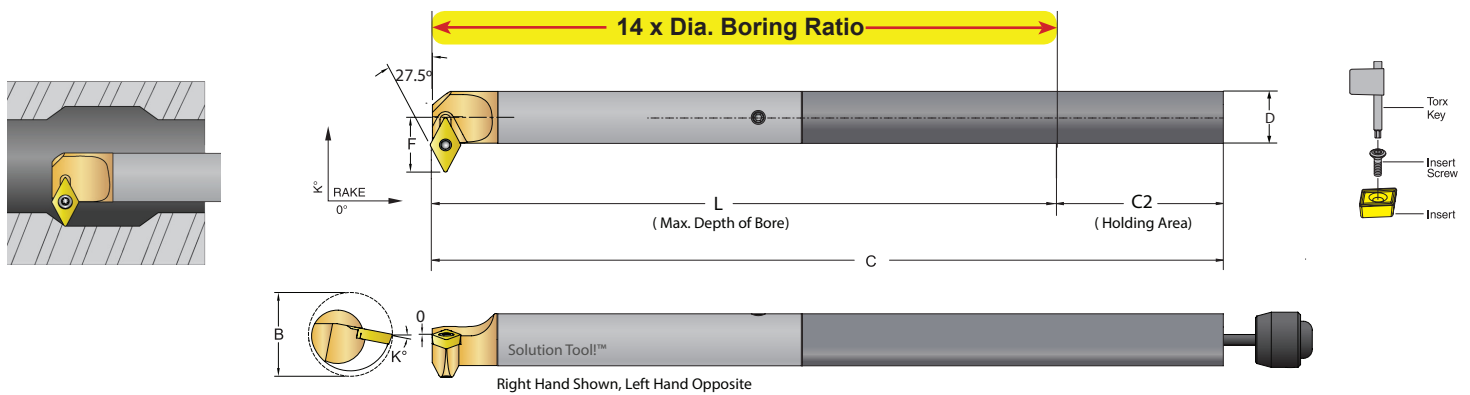
SDNC R Solution Tool!™ Integral Carbide Boring Bar Style N - Negative 27.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVI06X-12-SDNCR-2-CB	59098	12 x Dia.		0.375	0.581	7.13	4.50	2.63	0.375	11°	21.51	TS-25.45-6M2	T-8
DVI08X-12-SDNCR-2-CB	59106			0.500	0.813	9.00	6.00	3.00	0.500	11°			
DVI10X-12-SDNCR-2-CB	59114			0.625	0.938	10.63	7.50	3.13	0.562	7°			
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVM10X-12-SDNCR-07-CB	59122	12 x Dia.		10	16	190	120	70	9.5	11°	070204	TS-25.45-6M2	T-8
DVM12X-12-SDNCR-07-CB	59130			12	20	190	120	70	12.7	11°			
DVM16X-12-SDNCR-07-CB	59138			16	24	272	192	80	14.3	7°			

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDNC R Solution Tool!™ Integral Carbide Boring Bar Style N - Negative 27.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

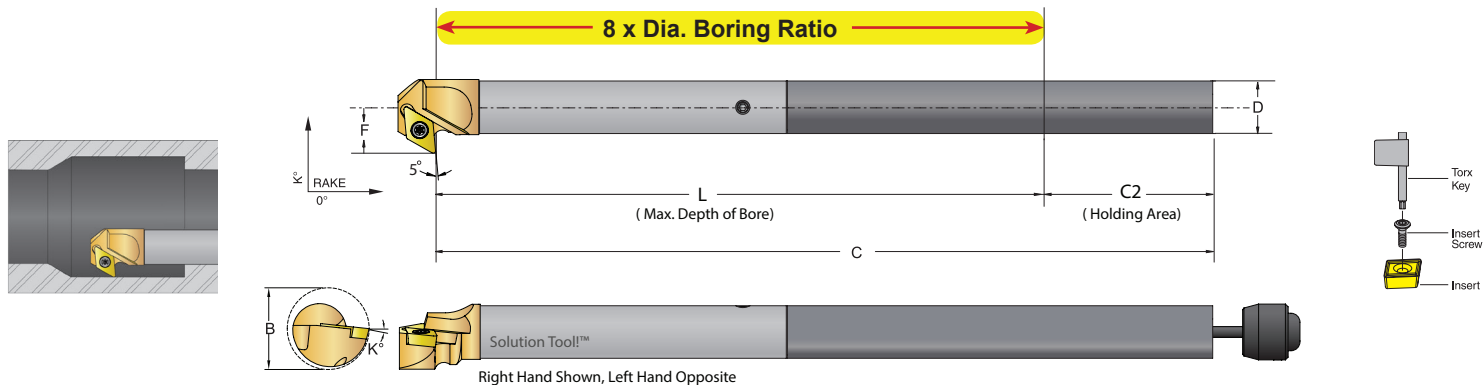


Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVI06X-14-SDNCR/L-2-CB	59100	14 x Dia.		0.375	0.581	7.88	5.25	2.63	0.375	11°	21.51	TS-25.45-6M2	T-8
DVI08X-14-SDNCR/L-2-CB	59108			0.500	0.813	10.00	7.00	3.00	0.500	11°			
DVI10X-14-SDNCR/L-2-CB	59116			0.625	0.938	11.88	8.75	3.13	0.562	7°			
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVM10X-14-SDNCR/L-07-CB	59124	14 x Dia.		10	16	210	140	70	9.5	11°	070204	TS-25.45-6M2	T-8
DVM12X-14-SDNCR/L-07-CB	59132			12	20	240	168	72	12.7	11°			
DVM16X-14-SDNCR/L-07-CB	59140			16	24	304	224	80	14.3	7°			

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

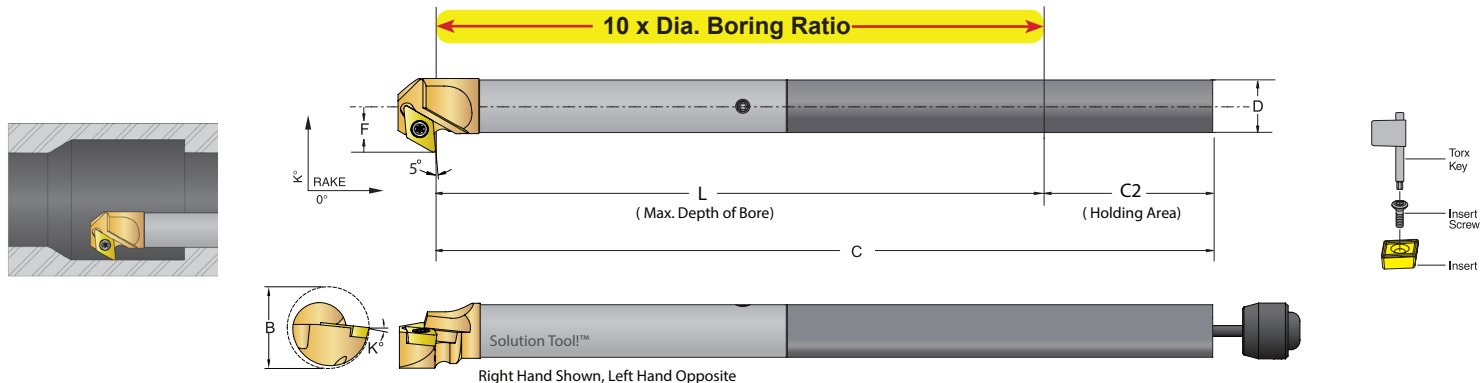
SDXC R Solution Tool!™ Integral Carbide Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



Inch		UPC No. 733101- R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVI06X-08-SDXCR-2-CB	59182	8 x Dia.		0.375	0.625	5.63	3.00	2.63	0.375	8°	21.51	TS-25.45-6M2	T-8
DVI08X-08-SDXCR-2-CB	59190			0.500	0.750	7.00	4.00	3.00	0.437	6°			
DVI10X-08-SDXCR-2-CB	59198			0.625	0.875	8.13	5.00	3.13	0.500	5°			
Metric		UPC No. 733101- R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVM10X-08-SDXCR-07-CB	59206	8 x Dia.		10	17	150	80	70	9.53	8°	070204	TS-25.45-6M2	T-8
DVM12X-08-SDXCR-07-CB	59214			12	21	168	96	72	11.10	6°			
DVM16X-08-SDXCR-07-CB	59222			16	22	208	128	80	12.70	5°			

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDXC R Solution Tool!™ Integral Carbide Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

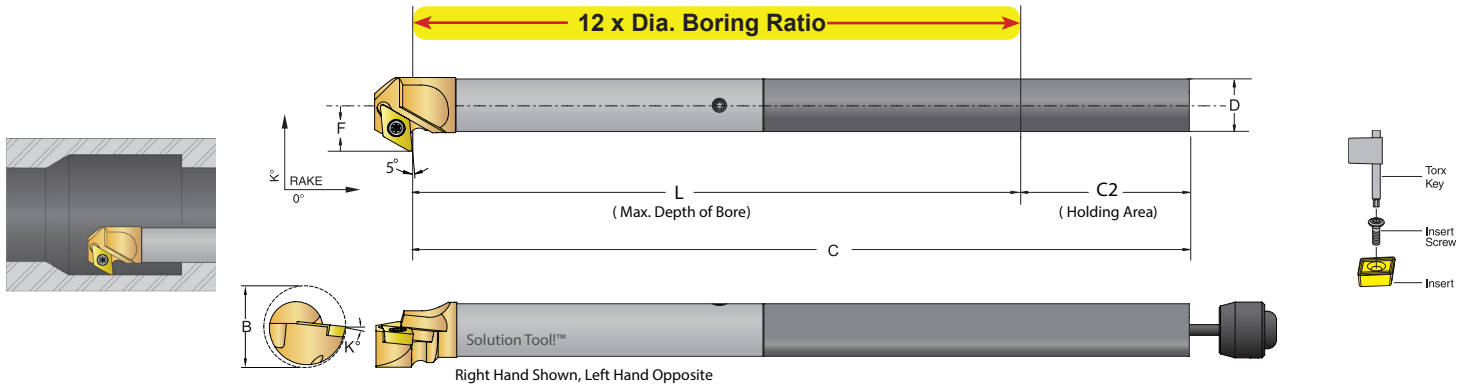


Inch		UPC No. 733101- R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Bar Description													
DVI06X-10-SDXCR-2-CB	59184	10 x Dia.		0.375	0.625	6.38	3.75	2.63	0.375	8°	21.51	TS-25.45-6M2	T-8
DVI08X-10-SDXCR-2-CB	59192			0.500	0.750	8.00	5.00	3.00	0.437	6°			
DVI10X-10-SDXCR-2-CB	59200			0.625	0.875	9.38	6.25	3.13	0.500	5°			
Metric		UPC No. 733101- R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Bar Description													
DVM10X-10-SDXCR-07-CB	59208	10 x Dia.		10	17	170	100	70	9.53	8°	070204	TS-25.45-6M2	T-8
DVM12X-10-SDXCR-07-CB	59216			12	21	192	120	72	11.10	6°			
DVM16X-10-SDXCR-07-CB	59224			16	22	240	160	80	12.70	5°			

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

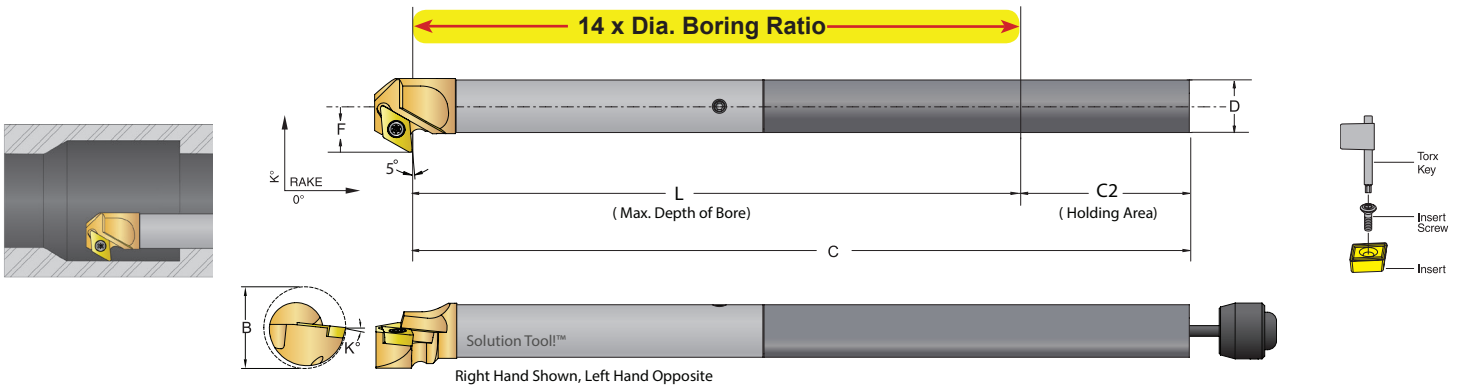
SDXC R Solution Tool!™ Integral Carbide Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVI06X-12-SDXCR-2-CB	59186	12 x Dia.	0.375	0.625	7.13	4.50	2.63	0.375	8°	21.51	TS-25.45-6M2	T-8	
DVI08X-12-SDXCR-2-CB	59194		0.500	0.750	9.00	6.00	3.00	0.437	6°				
DVI10X-12-SDXCR-2-CB	59202		0.625	0.875	10.63	7.50	3.13	0.500	5°				
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVM10X-12-SDXCR-07-CB	59210	12 x Dia.	10	17	190	120	70	9.53	8°	070204	TS-25.45-6M2	T-8	
DVM12X-12-SDXCR-07-CB	59218		12	21	216	144	72	11.10	6°				
DVM16X-12-SDXCR-07-CB	59226		16	22	272	192	80	12.70	5°				

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDXC R Solution Tool!™ Integral Carbide Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

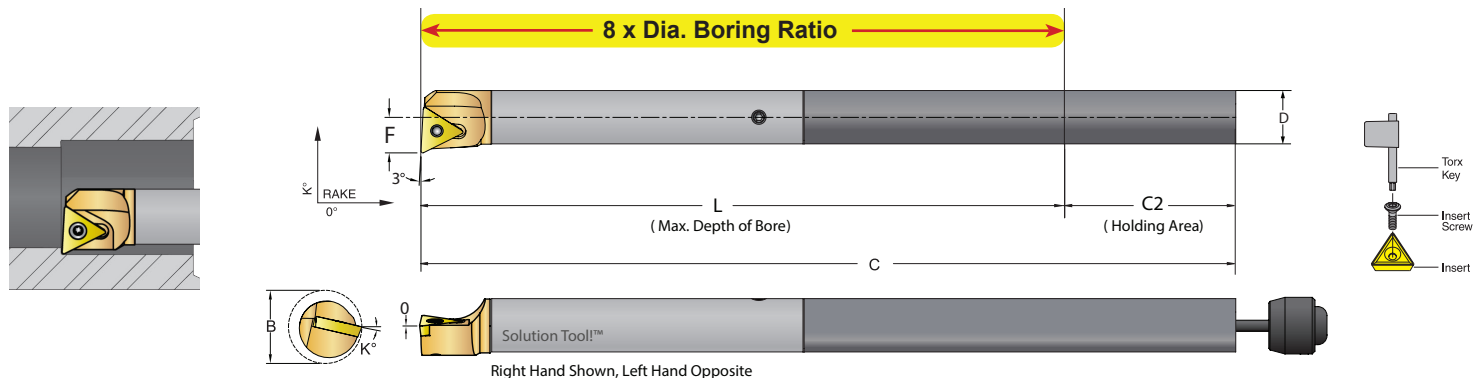


Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVI06X-14-SDXCR-2-CB	59188	14 x Dia.	0.375	0.625	7.88	5.25	2.63	0.375	7°	21.51	TS-25.45-6M2	T-8	
DVI08X-14-SDXCR-2-CB	59196		0.500	0.750	10.00	7.00	3.00	0.437	15°				
DVI10X-14-SDXCR-2-CB	59204		0.625	0.875	11.88	8.75	3.13	0.500	10°				
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	DC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description													
DVM10X-14-SDXCR-07-CB	59212	14 x Dia.	10	17	210	140	70	9.53	8°	070204	TS-25.45-6M2	T-8	
DVM12X-14-SDXCR-07-CB	59220		12	21	240	168	72	11.10	6°				
DVM16X-14-SDXCR-07-CB	59228		16	22	304	224	80	12.70	5°				

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

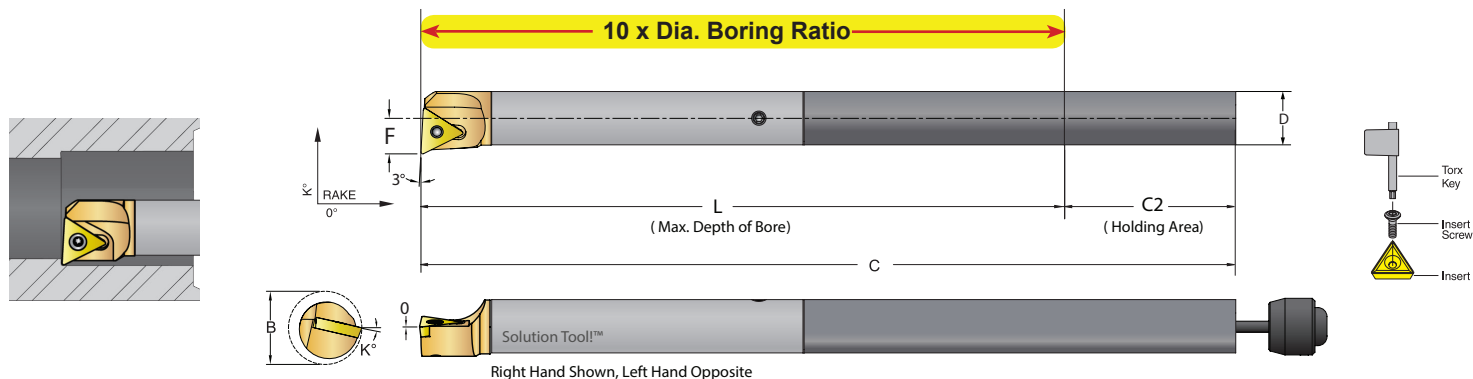
STUC R Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__		
Carbide Bar Description	Gage Insert										Insert Screw	Torx key	
DVI04X-08-STUCR-1.2-CB	59230	8 x Dia.	0.250	0.312	4.00	2.00	2.00	.143	11°	1.21.20.2	TS-06	T-6	
DVI05X-08-STUCR-1.2-CB	59238		0.312	0.383	5.00	2.50	2.50	.177	8°				
DVI06X-08-STUCR-1.2-CB	59246		0.375	0.447	5.63	3.00	2.63	.220	4°				
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__		
Carbide Bar Description	Gage Insert										Insert Screw	Torx key	
DVM06X-08-STUCR-06-CB	59274	8 x Dia.	6	8	96	48	48	3.63	11°	06T101	TS-06	T-6	
DVM08X-08-STUCR-06-CB	59282		8	10	128	64	64	4350	8°				
DVM10X-08-STUCR-06-CB	59290		10	12	150	80	70	5.59	4°				

Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

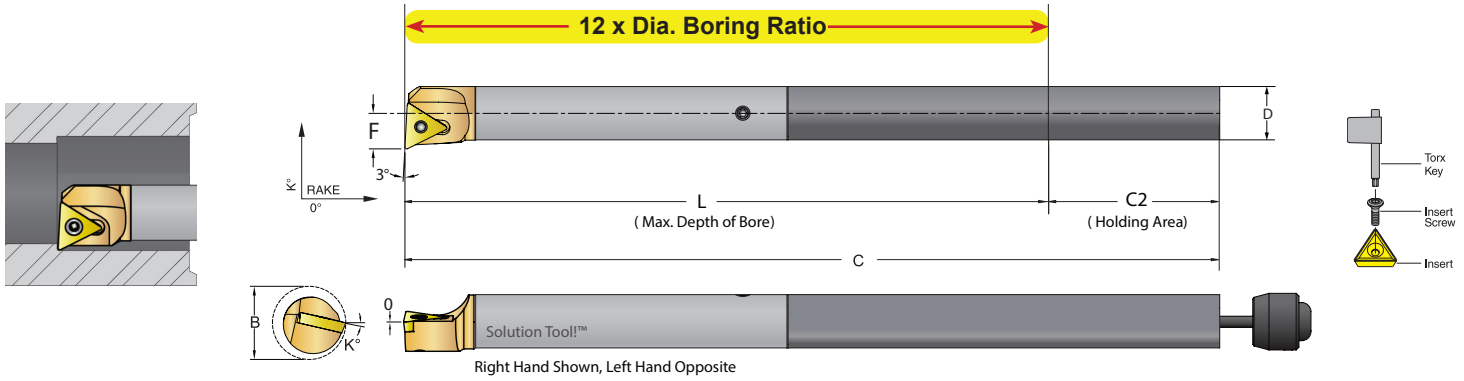
STUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__		
Carbide Bar Description	Gage Insert										Insert Screw	Torx key	
DVI04X-10-STUCR-1.2-CB	59232	10 x Dia.	0.250	0.312	4.50	2.50	2.00	.143	11°	1.21.20.2	TS-06	T-6	
DVI05X-10-STUCR-1.2-CB	59240		0.312	0.383	5.62	3.12	2.50	.177	8°				
DVI06X-10-STUCR-1.2-CB	59248		0.375	0.447	6.38	3.75	2.63	.220	4°				
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__		
Carbide Bar Description	Gage Insert										Insert Screw	Torx key	
DVM06X-10-STUCR-06-CB	59276	10 x Dia.	6	8	108	60	48	3.63	11°	06T101	TS-06	T-6	
DVM08X-10-STUCR-06-CB	59284		8	10	144	80	64	4.50	8°				
DVM10X-10-STUCR-06-CB	59292		10	12	170	100	70	5.59	4°				

Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

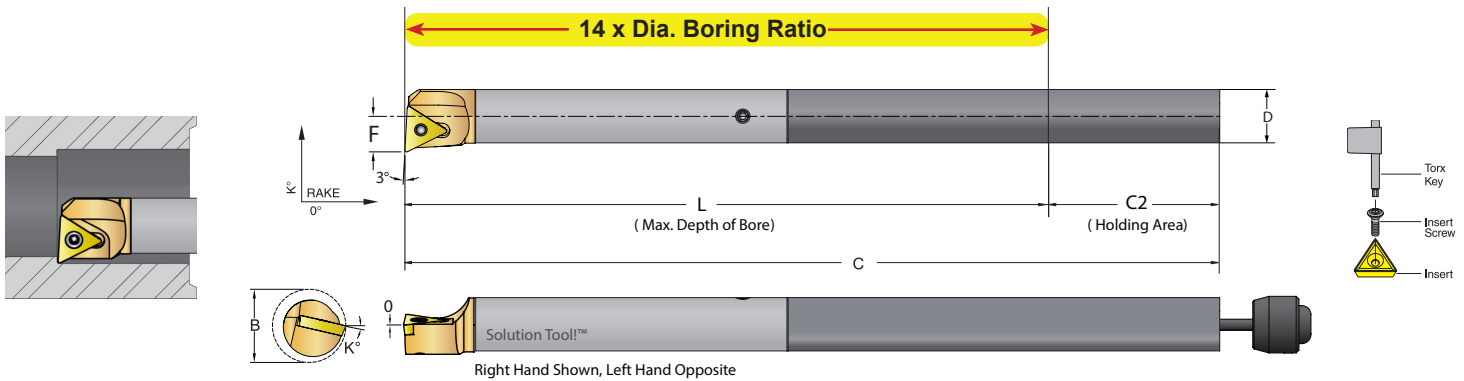
STUC R Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__		
Carbide Bar Description											Gage Insert	Insert Screw	Torx key
DVI04X-12-STUCR-1.2-CB		59234	12 x Dia.	0.250	0.312	5.00	3.00	2.00	.143	11°	1.21.20.2	TS-06	T-6
DVI05X-12-STUCR-1.2-CB		59242		0.312	0.383	6.24	3.74	2.50	.177	8°			
DVI06X-12-STUCR-1.2-CB		59250		0.375	0.447	7.13	4.50	2.63	.220	4°			
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__		
Carbide Bar Description											Gage Insert	Insert Screw	Torx key
DVM06X-12-STUCR-06-CB		59278	12 x Dia.	6	8	120	75	48	3.63	11°	06T101	TS-06	T-6
DVM08X-12-STUCR-06-CB		59286		8	10	160	96	64	4.50	8°			
DVM10X-12-STUCR-06-CB		59294		10	12	190	120	70	5.59	4°			

Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

STUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts

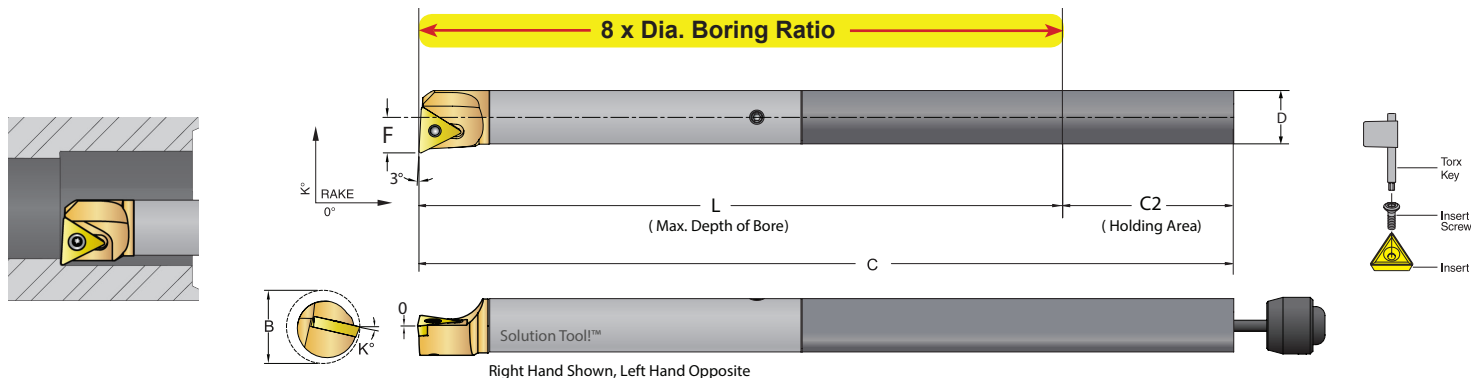


Inch		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__		
Carbide Bar Description											Gage Insert	Insert Screw	Torx key
DVI04X-14-STUCR-1.2-CB		59236	14 x Dia.	0.250	0.312	5.50	3.50	2.00	.143	11°	1.21.20.2	TS-06	T-6
DVI05X-14-STUCR-1.2-CB		59244		0.312	0.383	6.86	4.37	2.50	.177	8°			
DVI06X-14-STUCR-1.2-CB		59252		0.375	0.447	7.88	5.25	2.63	.220	4°			
Metric		UPC No. 733101-R.H.	Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__		
Carbide Bar Description											Gage Insert	Insert Screw	Torx key
DVM06X-14-STUCR-06-CB		59280	14 x Dia.	6	8	132	84	48	3.63	11°	06T101	TS-06	T-6
DVM08X-14-STUCR-06-CB		59288		8	10	176	112	64	4.50	8°			
DVM10X-14-STUCR-06-CB		59296		10	12	210	140	70	5.59	4°			

Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

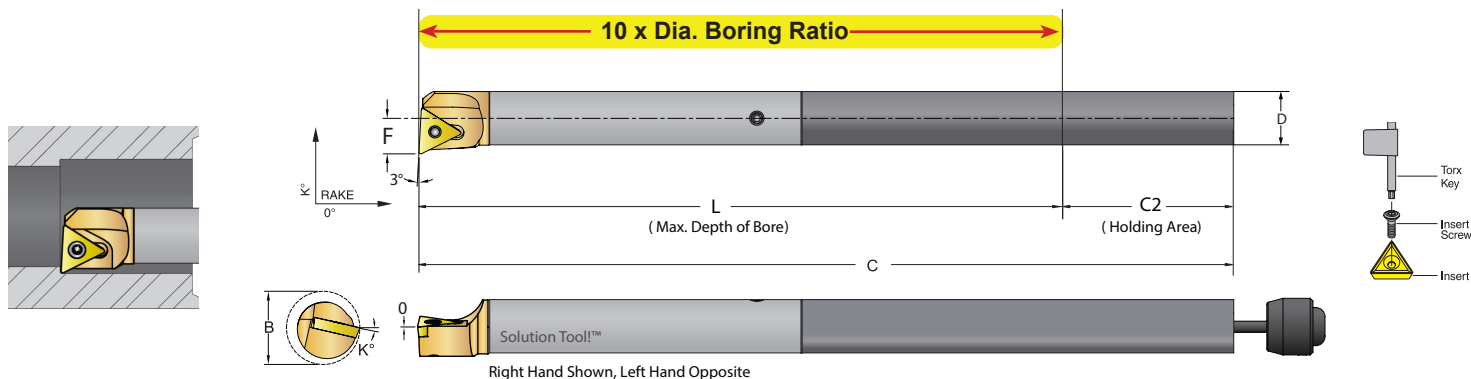
STUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI08X-08-STUCR/L-2-CB	59410	59411	8 x Dia.	0.500	0.625	7.00	4.00	3.00	.312	13°	21.51	TS-25.45-6M2	T-8	
DVI10X-08-STUCR/L-2-CB	59412	59413		0.625	0.781	8.13	5.00	3.13	.406	10°				
Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM12X-08-STUCR/L-11-CB	59424	59425	8 x Dia.	12	16	168	96	72	7.92	13°	110204	TS-25.45-6M2	T-8	
DVM16X-08-STUCR/L-11-CB	59426	59427		16	20	208	128	80	10.31	10°				

Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

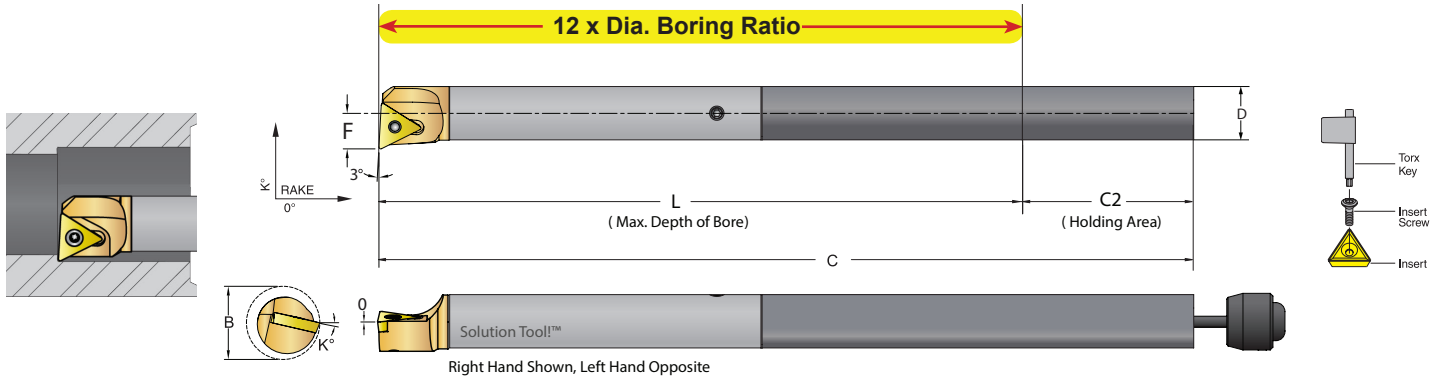
STUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVI08X-10-STUCR/L-2-CB	59262	59263	10 x Dia.	0.500	0.625	8.00	5.00	3.00	.312	13°	21.51	TS-25.45-6M2	T-8	
DVI10X-10-STUCR/L-2-CB	59268	59269		0.625	0.781	9.38	6.25	3.13	.406	10°				
Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description	R.H.	L.H.	R.H.											
DVM12X-10-STUCR/L-11-CB	59306	59307	10 x Dia.	12	16	192	120	72	7.92	13°	110204	TS-25.45-6M2	T-8	
DVM16X-10-STUCR/L-11-CB	59312	59313		16	20	240	160	80	10.31	10°				

Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

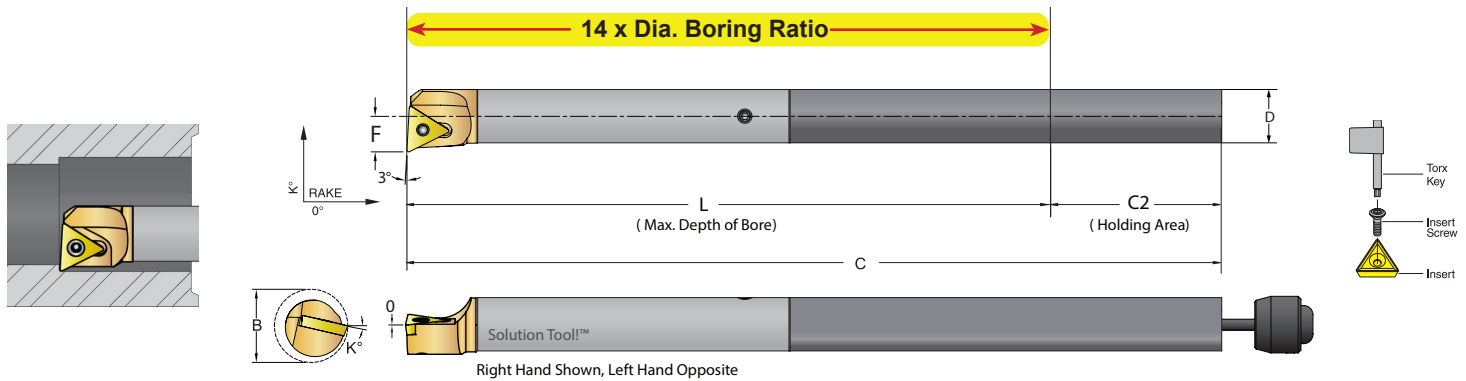
STUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description		R.H.	L.H.											
DVI08X-12-STUCR/L-2-CB		59264	59265	12 x Dia.	0.500	0.625	9.00	6.00	3.00	.312	13°	21.51	TS-25.45-6M2	T-8
DVI10X-12-STUCR/L-2-CB		59270	59271		0.625	0.781	10.63	7.50	3.13	.406	10°			
Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description		R.H.	L.H.											
DVM12X-12-STUCR/L-11-CB		59308	59309	12 x Dia.	12	16	216	144	72	7.92	13°	110204	TS-25.45-6M2	T-8
DVM16X-12-STUCR/L-11-CB		59314	59315		16	20	272	192	80	10.31	10°			

Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

STUC R/L Solution Tool!™ Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts



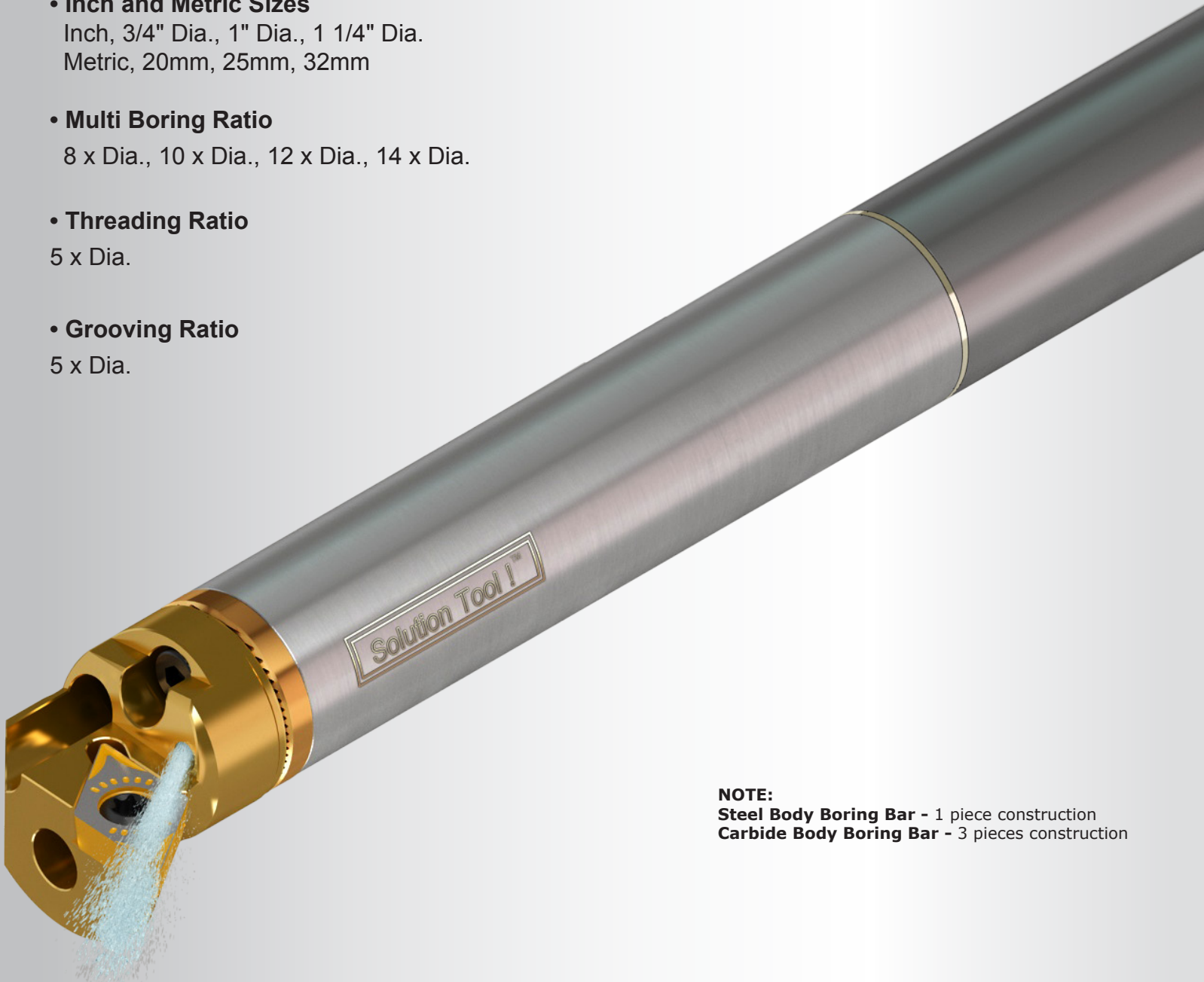
Inch		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description		R.H.	L.H.											
DVI08X-14-STUCR/L-2-CB		59266	59267	14 x Dia.	0.500	0.625	10.00	7.00	3.00	.312	13°	21.51	TS-25.45-6M2	T-8
DVI10X-14-STUCR/L-2-CB		59272	59273		0.625	0.781	11.78	8.75	3.13	.406	10°			
Metric		UPC No. 733101-		Boring Ratio	D	Min. Bore B	C	L	C2	F	K°	TC__ Gage Insert	Insert Screw	Torx key
Carbide Bar Description		R.H.	L.H.											
DVM12X-14-STUCR/L-11-CB		59310	59311	14 x Dia.	12	16	240	168	72	7.92	13°	110204	TS-25.45-6M2	T-8
DVM16X-14-STUCR/L-11-CB		59316	59317		16	20	304	224	80	10.31	10°			

Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

Quick Change Bars



- **Steel Body** - 1 piece construction
- **Carbide Body** - 3 pieces construction
- **For Medium Boring Operation**
- **Quick Change Heads with Multi Insert Geometry**
- **Thru Coolant System**
- **Inch and Metric Sizes**
Inch, 3/4" Dia., 1" Dia., 1 1/4" Dia.
Metric, 20mm, 25mm, 32mm
- **Multi Boring Ratio**
8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia.
- **Threading Ratio**
5 x Dia.
- **Grooving Ratio**
5 x Dia.



NOTE:

Steel Body Boring Bar - 1 piece construction
Carbide Body Boring Bar - 3 pieces construction



Solution Tool!™

The NO! Vibration Re-Tunable Boring Bar
Makes Deep Hole Boring Simple!

SIMPLE - PRECISE - QUICK - RIGID

Quick Change Interchangeable Head

The NO! Vibration Tunable Boring Bar for Medium Boring Operation Engineered for multi boring and threading applications on medium diameter holes, and cutting depth to 14 x Boring Bar Diameter.

Multi Boring and Threading Applications

Better Machining Performance

Higher Workmanship Quality

Longer Cutting Insert Life

The **technology** behind the Solution Tool!™ the "Quick Change" NO! Vibration Re-Tunable Boring Bars, is to perform simple, precise and reliable when deep boring medium sizes holes, with close machining tolerance and high surface finish, in multi boring and threading applications.

The "Quick Change" NO! Vibration Re-Tunable Boring Bars, is a two part construction. The body where the boring bar is held, and the housing that holds the dampener, and brazed together with Silver Alloy. **The braze is the buffer zone where the frequencies generate from the cutting operation are stopped.**

To maximize performance in deep boring operation, the "Quick Change Body" is offered in two versions;

Steel Body - 1 piece construction

The steel body for boring depth up to 12 x Boring Bar Diameter

Carbide Body - 3 pieces construction

The carbide body rigidity, stability, and strength, allows to bore at higher cutting rate, heavier material removal, longer depth of cut, close working tolerances and higher surface finish.

Boring Bar Sizes

Inch: 3/4" Dia., 1" Dia., 1 1/4" Dia.

Metric: 20mm Dia., 25mm Dia., 32mm Dia.,

Boring Ratio: 8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia.

Positive Inserts Geometry:

for Quick Change Head:

CCMT CPMT DCMT

TCMT TPMT VCMT WCMT

Lay-Down Threading Insert:

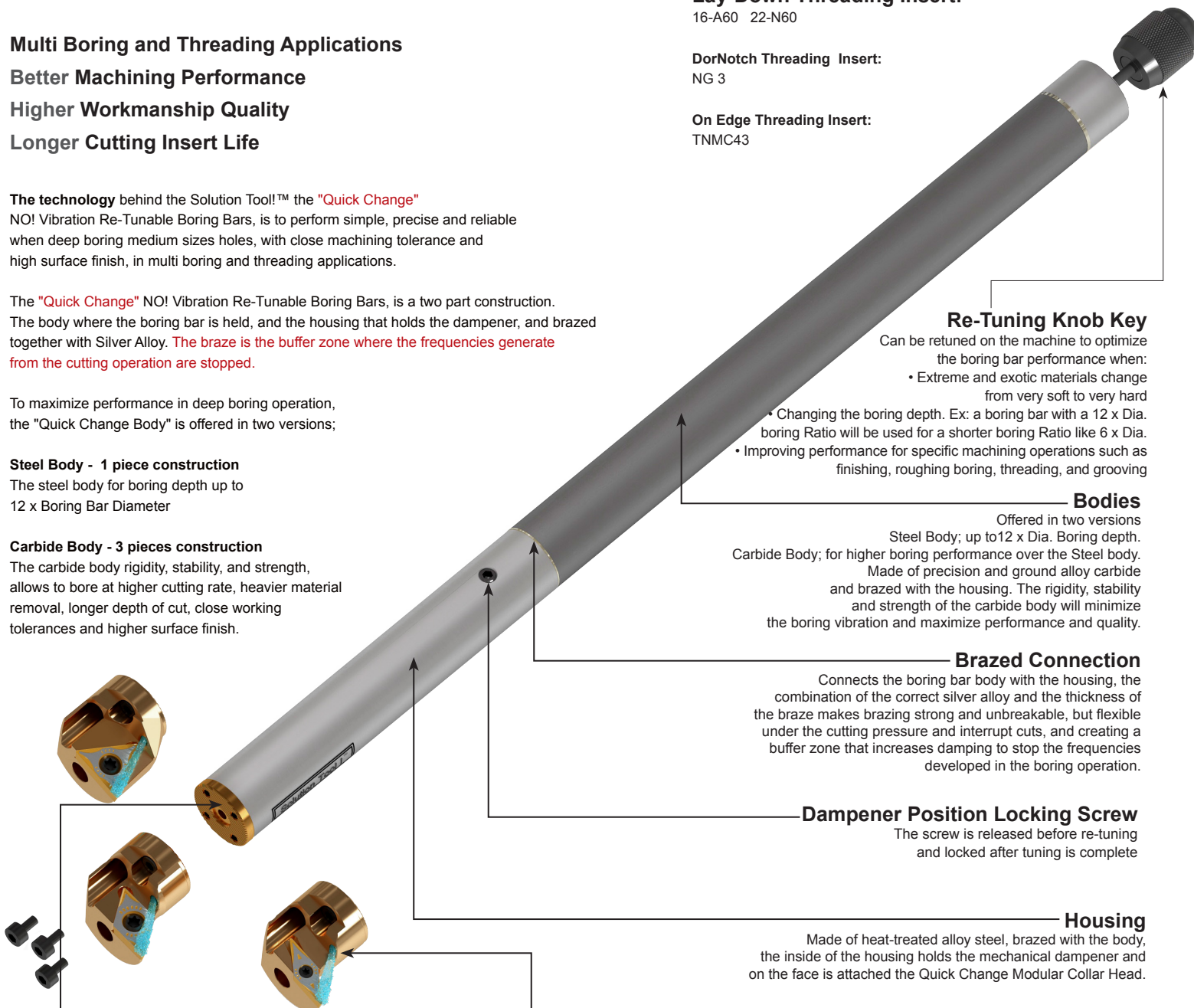
16-A60 22-N60

DorNotch Threading Insert:

NG 3

On Edge Threading Insert:

TNMC43



Re-Tuning Knob Key

Can be retuned on the machine to optimize the boring bar performance when:

- Extreme and exotic materials change from very soft to very hard

- Changing the boring depth. Ex: a boring bar with a 12 x Dia. boring Ratio will be used for a shorter boring Ratio like 6 x Dia.
- Improving performance for specific machining operations such as finishing, roughing boring, threading, and grooving

Bodies

Offered in two versions
Steel Body; up to 12 x Dia. Boring depth.
Carbide Body; for higher boring performance over the Steel body.
Made of precision and ground alloy carbide and brazed with the housing. The rigidity, stability and strength of the carbide body will minimize the boring vibration and maximize performance and quality.

Brazed Connection

Connects the boring bar body with the housing, the combination of the correct silver alloy and the thickness of the braze makes brazing strong and unbreakable, but flexible under the cutting pressure and interrupt cuts, and creating a buffer zone that increases damping to stop the frequencies developed in the boring operation.

Dampener Position Locking Screw

The screw is released before re-tuning and locked after tuning is complete

Housing

Made of heat-treated alloy steel, brazed with the body, the inside of the housing holds the mechanical dampener and on the face is attached the Quick Change Modular Collar Head.

Quick Change Head Collar

Made of heat-treated alloy steel and TiN coated. Precisely and rigidly attaches on to the housing face. The face of the collar has a 60° serrated groove to expand the surface contact with the Quick Change Heads, for maximum locking rigidity and precise interchangeability.

Quick Change Head

Made of heat-treated alloy steel and TiN Coated. Locks onto 60° serrated face of the collar face with three cup screws precisely and rigidly, making interchangeability easy and quick. The Thru Coolant System enhances boring performance, quality and longer insert life. The insert is kept at constant temperature clean and undamaged cutting edge, and removes chips from the bore while machining.



Quick Change Boring Bar Body & 9 Heads

For Multi boring and Threading Applications on Medium Diameter Holes

1 SCLC
R/L Quick Change
Boring Bar Head
With Thru Coolant



2 SDNC
R/L Quick Change
Boring Bar Head
With Thru Coolant



3 SDQC
R/L Quick Change
Boring Bar Head
With Thru Coolant



4 SDUC
R/L Quick Change
Boring Bar Head
With Thru Coolant



5 SDXC
R/L Quick Change
Boring Bar Head
With Thru Coolant



Quick Change Solution Tool!™ Integral Steel & Carbide Body

6 STUC
R/L Quick Change
Boring Bar Head
With Thru Coolant



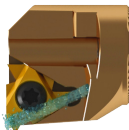
7 SVUC
R/L Quick Change
Boring Bar Head
With Thru Coolant



8 SWLC
R/L Quick Change
Boring Bar Head
With Thru Coolant

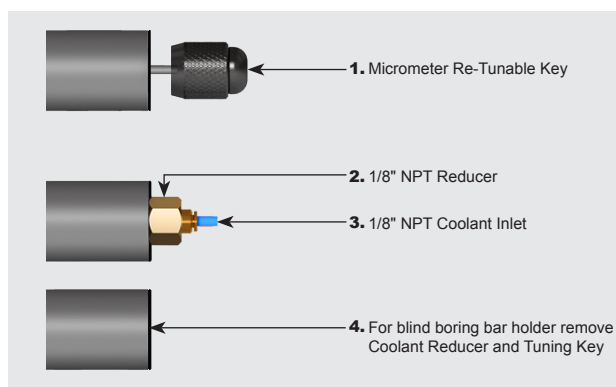
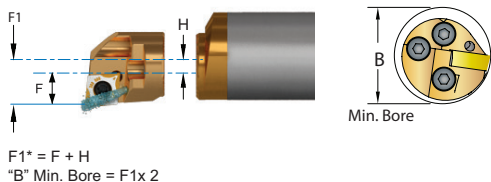
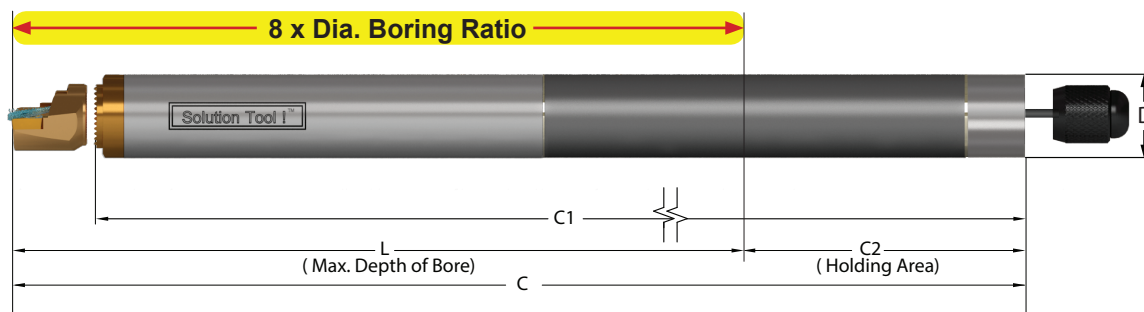


9 SN
R/L Quick Change
Threading Bar Head
With Thru Coolant



Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

DV_08_MQBBN_ Solution Tool!™ Thru Coolant Quick Change Boring Bar Body

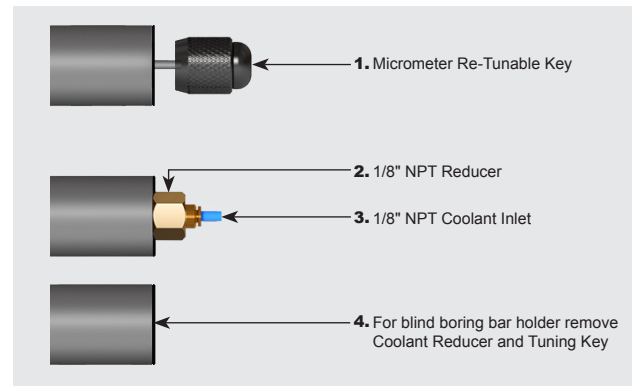
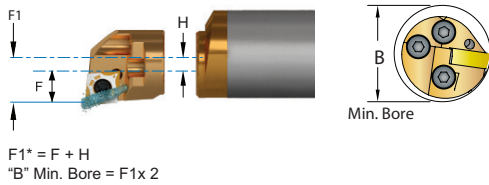
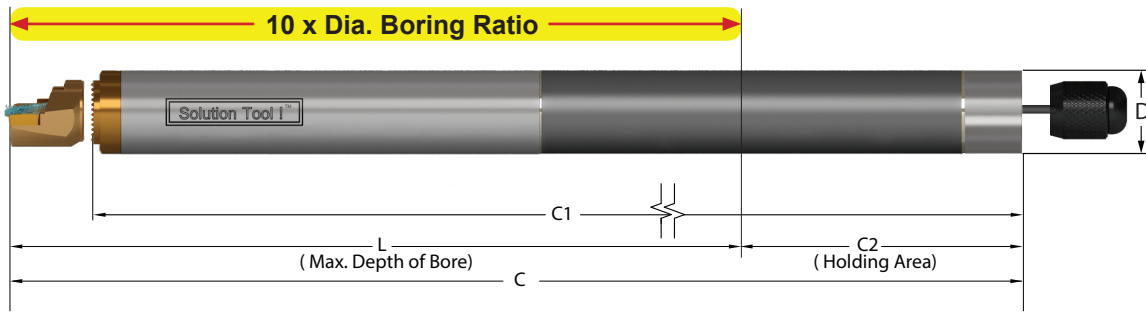


Note: Steel Body Boring Bar: 1 piece construction
Carbide Body Boring Bar: 3 pieces construction

Inch		UPC No.	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Steel Bar Description	Neutral	733101-												
DV112X-08-MQBBN-9-SB	59428	8 x Dia.	0.750	B = F1x2	F1 = F+H	9.00	8.20	6.00	3.00	0	DBOMH-12/20M	0.157	1/8"-27 NPT	
DV116X-08-MQBBN-12-SB	59340	1.000				12.00	11.20	8.00	4.00	0.125		0.157		
DV120X-08-MQBBN-15-SB	59341	1.250				15.00	14.20	10.00	5.00	0.250		0.195		
Metric		UPC No.	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Steel Bar Description	Neutral	733101-												
DVM20X-08-MQBBN-0240-SB	59430	8 x Dia.	20	B = F1x2	F1 = F+H	240	219.68	160	80	0	DBOMH-12/20M	4	1/8"-27 NPT	
DVM25X-08-MQBBN-0300-SB	59345	25				300	279.68	200	100	2.5		4		
DVM32X-08-MQBBN-0384-SB	59346	32				384	363.68	256	128	6		5		
Inch		UPC No.	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral	733101-												
DV112X-08-MQBBN-9-CB	60360	8 x Dia.	0.750	B = F1x2	F1 = F+H	9.00	8.20	6.00	3.00	0	DBOMH-12/20M	0.157	1/8"-27 NPT	
DV116X-08-MQBBN-12-CB	60362	1.000				12.00	11.20	8.00	4.00	0.125		0.157		
DV120X-08-MQBBN-15-CB	60364	1.250				15.00	14.20	10.00	5.00	0.250		0.195		
Metric		UPC No.	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral	733101-												
DVM20X-08-MQBBN-0240-CB	60366	8 x Dia.	20	B = F1x2	F1 = F+H	240	219.68	160	80	0	DBOMH-12/20M	4	1/8"-27 NPT	
DVM25X-08-MQBBN-0300-CB	60368	25				300	279.68	200	100	2.5		4		
DVM32X-08-MQBBN-0384-CB	60370	32				384	363.68	256	128	6		5		

*Modular heads sold separately, see pages D-70- D-77 for specifications.

DV_10_MQBBN_ Solution Tool!™ Thru Coolant Quick Change Boring Bar Body



Note: Steel Body Boring Bar: 1 piece construction
Carbide Body Boring Bar: 3 pieces construction

Inch Steel Bar Description	UPC No. 733101- Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
DVI12X-10-MQBBN-11-SB	59342	10 x Dia.	0.750	B = F1x2	F1 = F+H	10.50	9.70	7.50	3.00	0	DBOMH-12/20M	0.157	1/8"-27 NPT
DVI16X-10-MQBBN-14-SB	59429		1.000			14.00	13.20	10.00	4.00	0.125		0.157	
DVI20X-10-MQBBN-18-SB	59471		1.250			17.50	16.70	12.50	5.00	0.250		0.195	

Metric Steel Bar Description	UPC No. 733101- Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
DVM20X-10-MQBBN-0280-SB	59347	10 x Dia.	20	B = F1x2	F1 = F+H	280	259.68	200	80	0	DBOMH-12/20M	4	1/8"-27 NPT
DVM25X-10-MQBBN-0350-SB	59431		25			350	329.68	250	100	2.5		4	
DVM32X-10-MQBBN-0448-SB	59472		32			448	427.68	320	128	6		5	

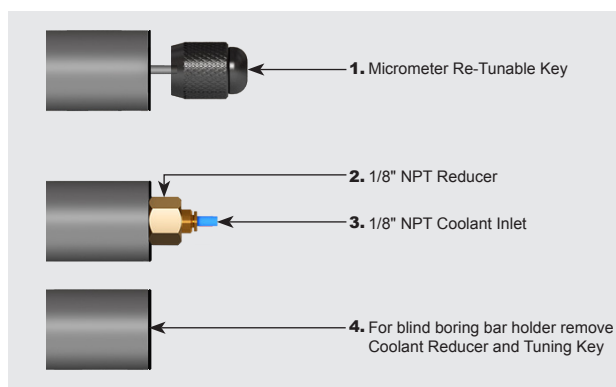
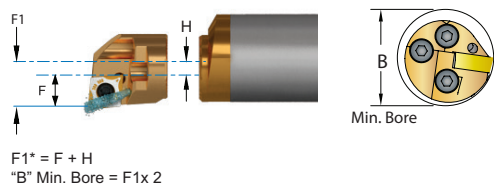
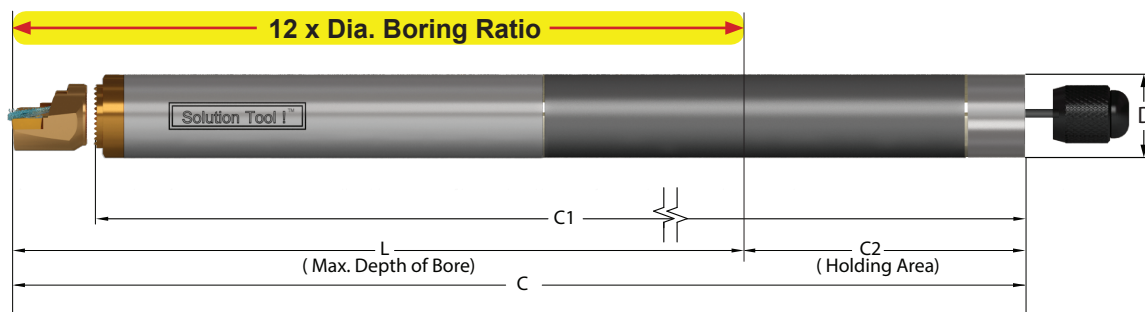
Inch Carbide Bar Description	UPC No. 733101- Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
DVI12X-10-MQBBN-11-CB	60361	10 x Dia.	0.750	B = F1x2	F1 = F+H	10.50	9.70	7.50	3.00	0	DBOMH-12/20M	0.157	1/8"-27 NPT
DVI16X-10-MQBBN-14-CB	60363		1.000			14.00	13.20	10.00	4.00	0.125		0.157	
DVI20X-10-MQBBN-18-CB	60365		1.250			17.50	16.70	12.50	5.00	0.250		0.195	

Metric Carbide Bar Description	UPC No. 733101- Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
DVM20X-10-MQBBN-0280-CB	60367	10 x Dia.	20	B = F1x2	F1 = F+H	280	259.68	200	80	0	DBOMH-12/20M	4	1/8"-27 NPT
DVM25X-10-MQBBN-0350-CB	60369		25			350	329.68	250	100	2.5		4	
DVM32X-10-MQBBN-0448-CB	60371		32			448	427.68	320	128	6		5	

*Modular heads sold separately, see pages D-70- D-77 for specifications.

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

DV_12_MQBBN_Solution Tool!™ Thru Coolant Quick Change Boring Bar Body

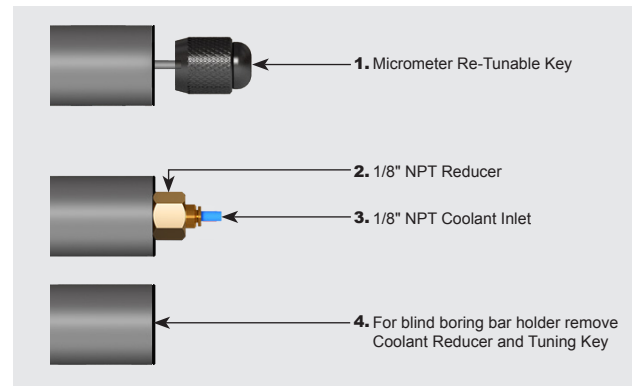
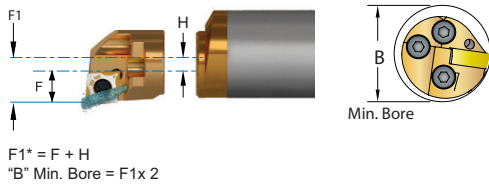
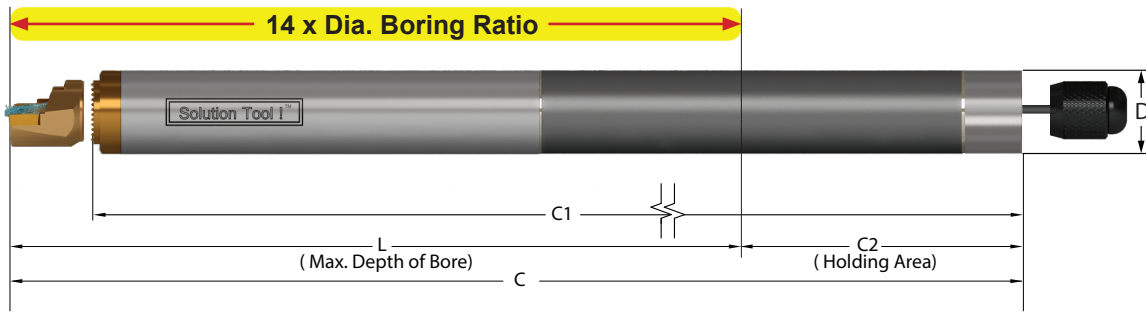


Note: Steel Body Boring Bar: 1 piece construction
Carbide Body Boring Bar: 3 pieces construction

Inch		UPC No.	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Steel Bar Description	Neutral	733101-												
DVI12X-12-MQBBN-12-SB	59360	12 x Dia.	0.750	B = F1x2	F1 = F+H	12.00	11.20	9.00	3.00	0	0	DBOMH-12/20M	0.157	1/8"-27 NPT
DVI16X-12-MQBBN-16-SB	59361	1.000				16.00	15.20	12.00	4.00	0.125		0.157		
DVI20X-12-MQBBN-20-SB	59362	1.250				20.00	19.20	15.00	5.00	0.250		0.195		
Metric		UPC No.	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Steel Bar Description	Neutral	733101-												
DVM20X-12-MQBBN-0320-SB	59363	12 x Dia.	20	B = F1x2	F1 = F+H	320	299.68	240	80	0	0	DBOMH-12/20M	4	1/8"-27 NPT
DVM25X-12-MQBBN-0400-SB	59364	25				400	379.68	300	100	2.5		4		
DVM32X-12-MQBBN-0512-SB	59365	32				512	491.68	384	128	6		5		
Inch		UPC No.	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral	733101-												
DVI12X-12-MQBBN-12-CB	59343	12 x Dia.	0.750	B = F1x2	F1 = F+H	12.00	11.20	9.00	3.00	0	0	DBOMH-12/20M	0.157	1/8"-27 NPT
DVI16X-12-MQBBN-16-CB	59391	1.000				16.00	15.20	12.00	4.00	0.125		0.157		
DVI20X-12-MQBBN-20-CB	59393	1.250				20.00	19.20	15.00	5.00	0.250		0.195		
Metric		UPC No.	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral	733101-												
DVM20X-12-MQBBN-0320-CB	59348	12 x Dia.	20	B = F1x2	F1 = F+H	320	299.68	240	80	0	0	DBOMH-12/20M	4	1/8"-27 NPT
DVM25X-12-MQBBN-0400-CB	59395	25				400	379.68	300	100	2.5		4		
DVM32X-12-MQBBN-0512-CB	59397	32				512	491.68	384	128	6		5		

*Modular heads sold separately, see pages D-82 D-86 for specifications.

DV_14_MQBBN_Solution Tool!™ Thru Coolant Quick Change Boring Bar Body



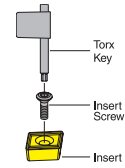
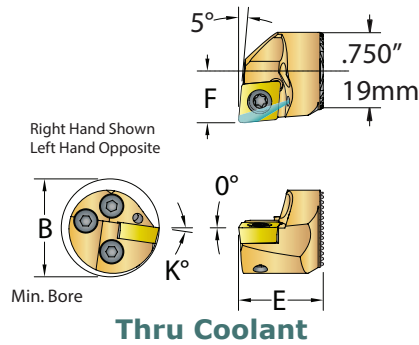
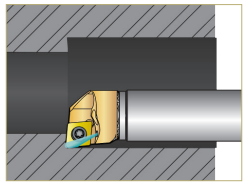
Note: Steel Body Boring Bar: 1 piece construction
 Carbide Body Boring Bar: 3 pieces construction

Inch		UPC No. 733101-	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral													
DVI12X-14-MQBBN-14-CB	59344	14 x Dia.	14 x Dia.	0.750	B = F1x2	F1 = F+H	13.50	12.70	10.50	3.00	0	DBOMH-12/20M	0.157	1/8"-27 NPT
DVI16X-14-MQBBN-18-CB	59392			1.000										
DVI20X-14-MQBBN-23-CB	59394			1.250										
Metric		UPC No. 733101-	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
Carbide Bar Description	Neutral													
DVM20X-14-MQBBN-0360-CB	59349	14 x Dia.	14 x Dia.	20	B = F1x2	F1 = F+H	360	339.68	280	80	0	DBOMH-12/20M	4	1/8"-27 NPT
DVM25X-14-MQBBN-0450-CB	59396			25										
DVM32X-14-MQBBN-0576-CB	59398			32										

*Modular heads sold separately, see pages D-82 D-86 for specifications. One high pressure coolant connection kit supplied, see Page D-104 for details.

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

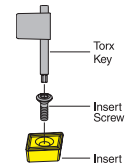
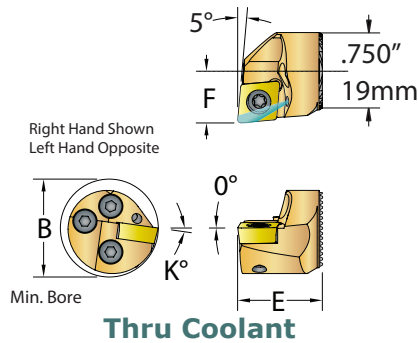
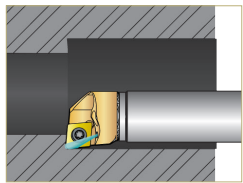
SCLC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style L- Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC__ inserts



Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	CC__ Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-SCLCR/L-3	60225	60226	0.750	20	1.000	26	0.820	20.83	0.500		12.70	8°			32.52	09T308
			1.000	25	1.250	31	0.820	20.83	0.500	12.70	8°						
			1.250	32	1.500	38	0.820	20.83	0.500	12.70	8°						

Heads will fit both inch and metric boring bar shanks
Inserts used: all CC__ series (CCGX, CCGT, CCMT, CCGW).

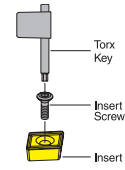
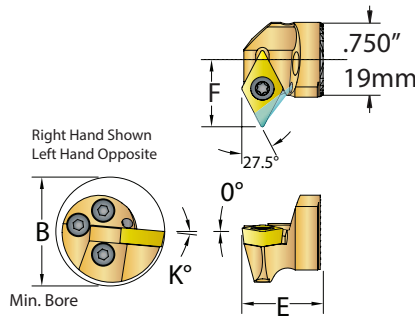
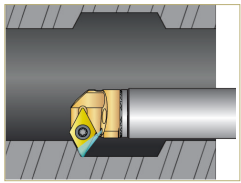
SCLPR-3 Solution Tool!™ Thru Coolant Quick Change Boring Head Style L- Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond DC__ inserts



Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-SCLPR-3	60259		0.750	20	1.000	26	0.820	20.83	0.600		15.24	8°			32.52	09T308
			1.000	25	1.250	31	0.820	20.83	0.600	15.24	8°						
			1.250	32	1.500	38	0.820	20.83	0.600	15.24	8°						

Heads will fit both inch and metric boring bar shanks
Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDNC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style N - Negative 27.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

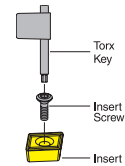
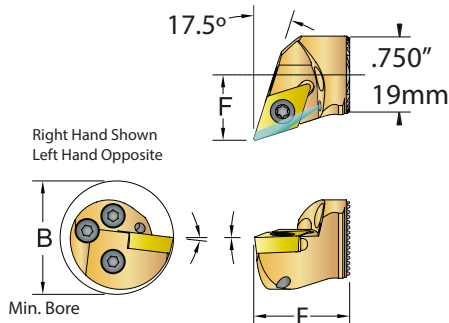
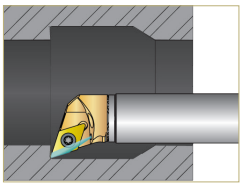


Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-SDNCR/L-3	60229	60230	0.750	20	1.160	30	0.820	20.83	0.660		16.76	5°			32.52	11T308
1.000				25	1.410	35	0.820	20.83	0.660	16.76	5°						
1.250				32	1.660	42	0.820	20.83	0.660	16.76	5°						

Heads will fit both inch and metric boring bar shanks
 Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDQC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style Q - Negative 17.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts



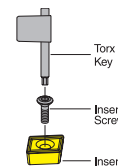
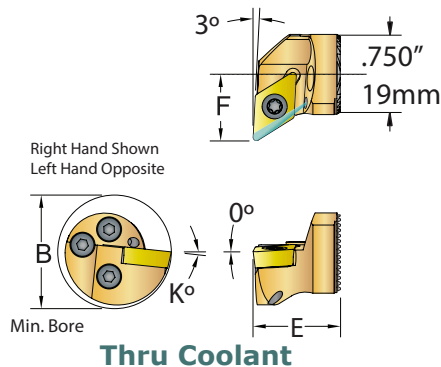
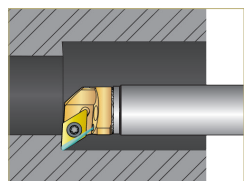
Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-SDQCR/L-2	60251	60252	0.750	20	1.125	29	0.820	20.83	.500		12.70	7°			21.51	070204
1.000				25	1.375	34	0.820	20.83	.500	12.70	7°						
1.250				32	1.625	41	0.820	20.83	.500	12.70	7°						
DBOMH-12/20M-SDQCR/L-3	60231	60232	0.750	20	1.125	29	0.820	20.83	0.625	15.88	7°	32.52	11T308	TS-4.7-10M1	T-15	QCHLS-3MCS	91002
			1.000	25	1.375	34	0.820	20.83	0.625	15.88	7°						
			1.250	32	1.625	41	0.820	20.83	0.625	15.88	7°						

Heads will fit both inch and metric boring bar shanks
 Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

SDUC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style U - Negative 3° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

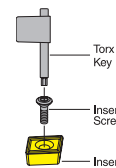
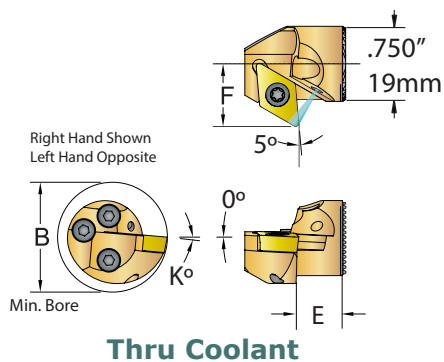
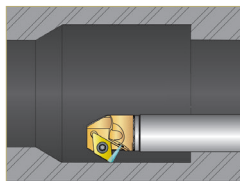


Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-SDUCR/L-2	60247	60248	0.750	20	1.025	26	0.820	20.83	0.525		13.34	6°			21.51	070204
			1.000	25	1.275	27	0.820	20.83	0.525	13.34	6°						
			1.250	32	1.525	38	0.820	20.83	0.525	13.34	6°						
DBOMH-12/20M-SDUCR/L-3	60227	60228	0.750	20	1.038	26.37	0.820	20.83	0.625	15.88	6°	32.52	11T308	TS-4.7-10M1	T-15	QCHLS-3MCS	91002
			1.000	25	1.278	32.46	0.820	20.83	0.745	18.92	6°						
			1.250	32	1.538	39.07	0.820	20.83	0.880	22.35	6°						

Heads will fit both inch and metric boring bar shanks
 Inserts used: all DC__series (DCMT, DCGW, DCMT, DCGX, DCGT).

SDXC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

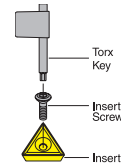
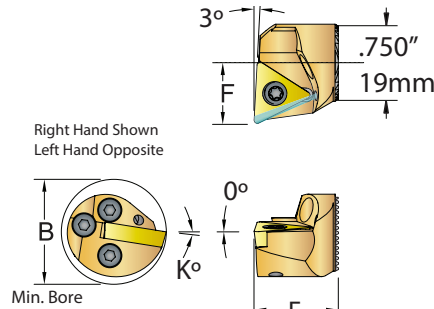
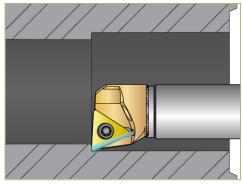


Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-SDXCR/L-3	60233	60234	0.750	20	1.125	28.58	0.468	11.89	0.625		15.87	5°			32.52	11T308
			1.000	25	1.375	34.92	0.468	11.89	0.625	15.87	5°						
			1.250	32	1.625	41.27	0.468	11.89	0.625	15.87	5°						

Heads will fit both inch and metric boring bar shanks
 Inserts used: all DC__series (DCMT, DCGW, DCMT, DCGX, DCGT).

STUC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts

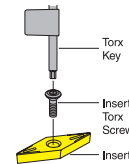
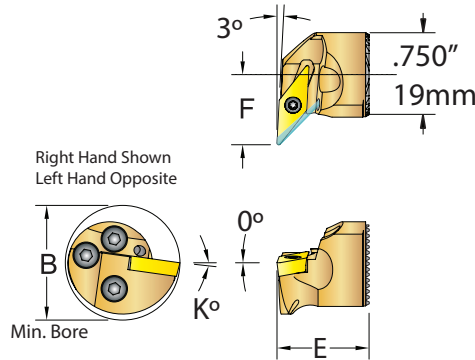
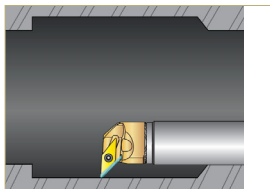


Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	TC__ Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-STUCR/L-2	60255	60256	0.750	20	1.000	26	0.820	20.83	0.500		12.70	6°			21.51	110204
1.000				25	1.250	31	0.820	20.83	0.500	12.70	6°						
1.250				32	1.500	38	0.820	20.83	0.500	12.70	6°						
DBOMH-12/20M-STUCR/L-3	60235	60236	0.750	20	1.090	28	0.820	20.83	0.590	14.99	9°	32.52	16T308	TS-4.7-10M1	T-15	QCHLS-3MCS	91002
			1.000	25	1.340	33	0.820	20.83	0.590	14.99	9°						
			1.250	32	1.590	40	0.820	20.83	0.590	14.99	9°						

Heads will fit both inch and metric boring bar shanks
 Inserts used: all TC__ series (TCMT, TCGW, TCGT, TCGX).

SVUC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style U - Negative 3° End Cutting Edge Angle for 7° positive 35° diamond VC__ inserts



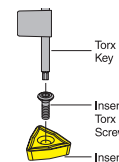
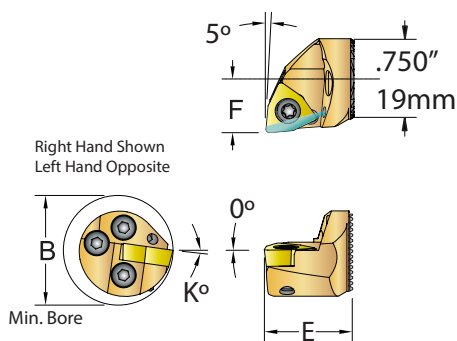
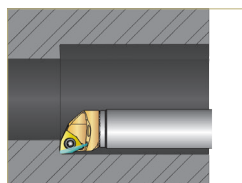
Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	VC__ Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-SVUCR/L-2	60237	60238	0.750	20	1.125	29	0.820	20.83	0.625		15.88	8°			221	110304
1.000				25	1.375	34	0.820	20.83	0.625	15.88	8°						
1.250				32	1.625	41	0.820	20.83	0.625	15.88	8°						

Heads will fit both inch and metric boring bar shanks
 Inserts used: all VC__ series (VCMT, VCGT, VCGW, VCGX)

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

SWLC R/L Solution Tool!™ Thru Coolant Quick Change Boring Head Style L - Negative 5° End Cutting Edge Angle for 7° positive 80° trigon WC__ inserts

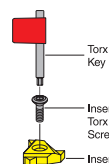
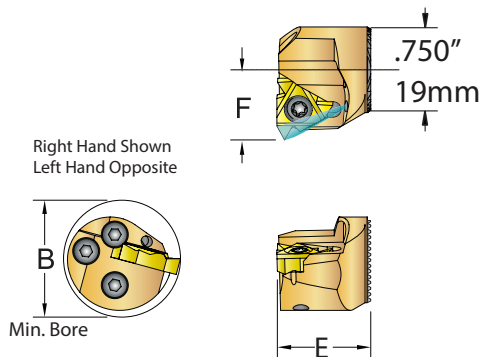
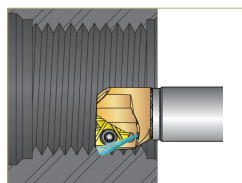


Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		K°	WC__ Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-SWLCR/L-3	60241	60242	0.750	20	1.000	26	0.820	20.83	0.500		12.70	8°			32.52	06T308
			1.000	25	1.250	31	0.820	20.83	0.500	12.70	8°						
			1.250	32	1.500	38	0.820	20.83	0.500	12.70	8°						

Heads will fit both inch and metric boring bar shanks
Inserts used: all WC__ series (WCMT, WCGT).

SN R/L Solution Tool!™ Thru Coolant Quick Change Threading Head for Laydown Inserts



Thru Coolant

Head Description	UPC No. 733101-		Reference Bars Dia.		B		E		F		Laydown Gage Insert		Insert Torx Screw	Torx Key	Locking Head Screw (3 Piece Set)	
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric			Description	UPC 733101
	DBOMH-12/20M-SNR/L-16	60243	60244	0.750	20	1.125	29	0.820	20.83	.613	15.57	16-A60			16-A60	TS-35.6-9M1
			1.000	25	1.375	34	0.820	20.83	.613	15.57						
			1.250	32	1.625	41	0.820	20.83	.613	15.57						

Heads will fit both inch and metric boring bar shanks

Modular Boring Bar with Thru Coolant Jet-Stream™ Boring Head

For Multi Boring and Threading Applications on Large Diameter Holes



- **Steel Body** - 1 piece construction
- **Carbide Body** - 3 pieces construction
- **For Medium to large Boring Operation**
- **Modular Head with Multi Insert Geometry**
- **Jet-Stream Thru Coolant System**
- **Inch and Metric Sizes**
Inch, 1 1/2" Dia., 2" Dia., 2 1/2" Dia. 3" Dia., 4" Dia.
Metric, 40mm, 50mm, 60mm, 80mm, 100mm.
- **Multi Boring Ratio**
8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia.
- **Threading Ratio**
5 x Dia.
- **Grooving Ratio**
5 x Dia.

- Chips are Flushed Out of the Bore
- Extreme Lubrication At The Cutting Edge
- Extreme Heat Dissipation At The Cutting Edge
- Constant Low Cutting Edge Temperature
- Greater Chip Control and Evacuation
- Chip Breakage at High Pressures
- Smooth Cutting Action and Surface Finish
- Increased Speeds and Feeds
- Close Working Tolerance

The Modular Jet-Stream™ Bar is Supplied with the Jet-Stream™ Thru Coolant System To Improve Performance!

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.

The controlled Jet-Stream™ coolant will lubricate the cutting edge of the insert reducing the coefficient of friction, stopping the chip from adhering to the insert.

The physical combination of high velocity and high pressure forces the hot chip to hydroplane away from the cutting edge of the insert. 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!

Solution Tool!™

The NO! Vibration Re-Tunable Boring Bar

Makes Deep Hole Boring Simple!

SIMPLE - PRECISE - RIGID - POWERFUL

Thru Coolant Jet-Stream™ Modular Boring Bars

The NO! Vibration Re-Tunable Boring Bar for Large Boring Operation.

Engineered for multi boring and threading applications on large diameter holes, and cutting depth to 14 x Boring Bar Diameter

Multi Boring and Threading Applications

Better Machining Performance

Higher Workmanship Quality

Longer Cutting Insert Life

The technology behind the Solution Tool!™ the "Modular"

NO! Vibration Re-Tunable Boring Bars, is to perform simple, precise and reliable when deep boring large sizes holes, with close machining tolerance and high surface finish, in multi boring and threading applications.

The "Modular" NO! Vibration Re-Tunable Boring Bars, is a two part construction.

The body where the boring bar is held, and the housing that holds the dampener, and brazed together with Silver Alloy. The braze is the buffer zone where the frequencies generate from the cutting operation are stopped.

To maximize performance in deep boring operation, the "Modular Body" is Offered in two versions;

Steel Body - 1 piece construction

The steel body for boring depth up to 12 x Boring Bar Diameter

Carbide Body - 3 pieces construction

The carbide body rigidity, stability, and strength, allows to bore at higher cutting rate, heavier material removal, longer depth of cut, close working tolerances and higher surface finish.



Modular Head Collar

Made of heat treated alloy steel and TiN Coated. Precisely and rigid attaches on to the housing face. The face of the Collar, has a 60° serrated groove to expend the surface contact with the Quick Change Heads, for maximum locking rigidity and precise interchangeability.

Boring Bar Sizes

Inch: 1 1/2" Dia., 1 1/3" Dia., 2" Dia.,

2 1/2" Dia., 3" Dia., 4" Dia.,

Metric: 40mm Dia., 50mm Dia., 60mm Dia.,

80mm Dia., 100mm Dia.,

Boring Ratio: 8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia.

Positive Insert Geometry:

for Modular Head:

CCMT DCMT TCMT VCCT

Threading Lay-Down Insert:

16-A60 22-N60



Re-Tuning Knob Key

Can be retuned on the machine to optimize the boring bar performance when:

- Extreme and exotic materials change from very soft to very hard
- Changing the boring depth. Ex: a boring bar with a 12 x Dia. boring Ratio will be used for a shorter boring Ratio like 6 x Dia.
- Improving performance for specific machining operations such as finishing, roughing boring, threading, and grooving

Bodies

Offered in two versions
Steel Body; up to 12 x Dia. Boring depth.
Carbide Body; for higher boring performance over the Steel body.
Made of precision and ground alloy carbide and brazed with the housing. The rigidity, stability and strength of the carbide body will minimize the boring vibration and maximize performance and quality.

Brazed Connection

Connects the boring bar body with the housing, the combination of the correct silver alloy and the thickness of the braze makes brazing strong and unbreakable, but flexible under the cutting pressure and interrupt cuts, and creating a buffer zone that increases damping to stop the frequencies developed in the boring operation.

Dampener Position Locking Screw

The screw is released before re-tuning and locked after tuning is complete.

Housing

Made of heat treated alloy steel, brazed with the body, the inside of the housing holds the mechanical dampener and on the face is attached the Quick Change Modular Collar Head.

Modular Head

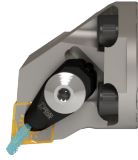
Made of heat treated alloy steel and TiN Coated. Locks onto 60° serrated face of the collar face with three cup screws precisely and rigid, making interchangeability easy and quick. The Thru Coolant System enhances boring performance, quality and longer insert life. The insert is kept at constant temperature clean and undamaged cutting edge, and removes chips from the bore while machining.



Thru Coolant Jet-Stream™ Modular Boring Body & 17 Heads

For Multi Boring and Threading Applications on Large Diameter Holes

1 ADCLN
R/L Modular
Boring Bar Head
With Thru Coolant



2 ADDQN
R/L Modular
Boring Bar Head
With Thru Coolant



3 ADDUN
R/L Modular
Boring Bar Head
With Thru Coolant



4 ADTUN
R/L Modular
Boring Bar Head
With Thru Coolant



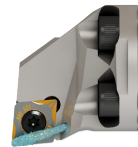
5 ADVUN
R/L Modular
Boring Bar Head
With Thru Coolant



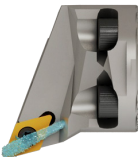
6 ADWLN
R/L Modular
Boring Bar Head
With Thru Coolant



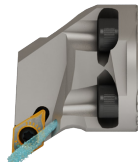
7 ASCLC
R/L Modular
Boring Bar Head
With Thru Coolant



8 ASDQC
R/L Modular
Boring Bar Head
With Thru Coolant



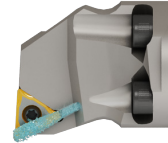
9 ASDUC
R/L Modular
Boring Bar Head
With Thru Coolant



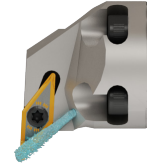
9 ASDXC
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Boring Bar Head
With Thru Coolant



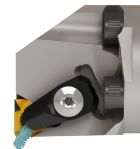
10 ASTUC
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Boring Bar Head
With Thru Coolant



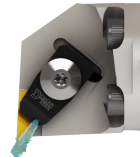
11 ASVUC
R/L Modular
Boring Bar Head
With Thru Coolant



12 ADLN
R/L Modular
Threading Bar Head
With Thru Coolant

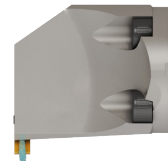


13 ADNE
R/L Modular
Threading Bar Head
With Thru Coolant



Modular Solution Tool!™ Integral Steel & Carbide Body

14 ADTHO
R/L Modular
Threading Bar Head
With Thru Coolant



15 ADDNRR
R/L Modular
Boring Bar Head
With Thru Coolant

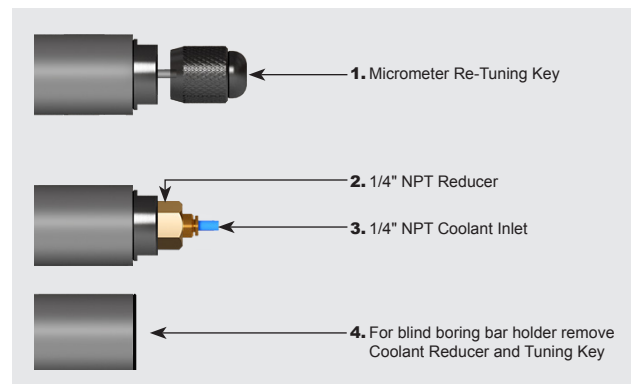
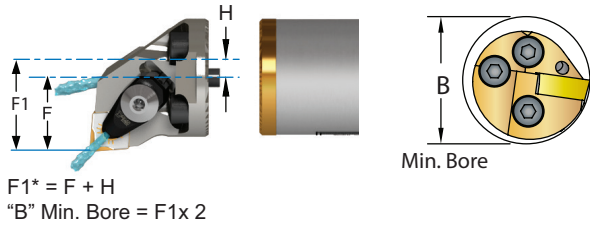
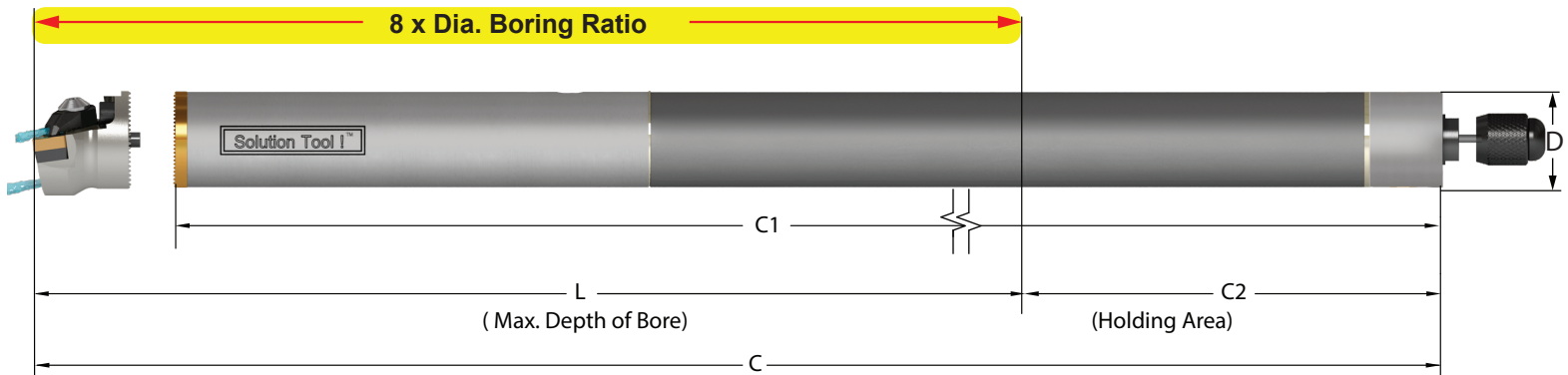


16 ADDXNR
R/L Modular
Boring Bar Head
With Thru Coolant



Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

Thru Coolant Jet-Stream™ Modular Boring Bar Body

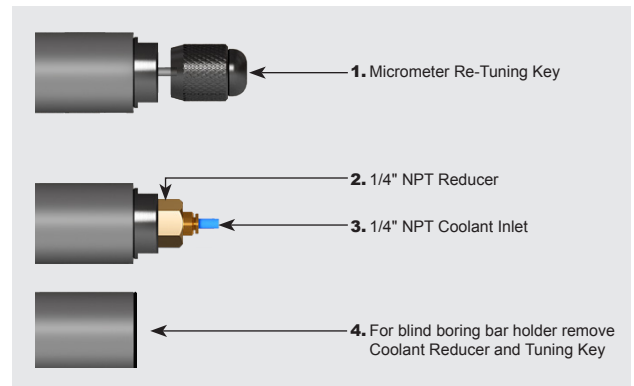
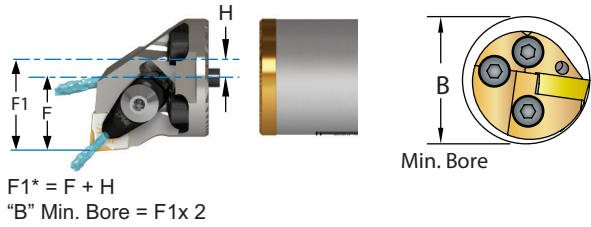
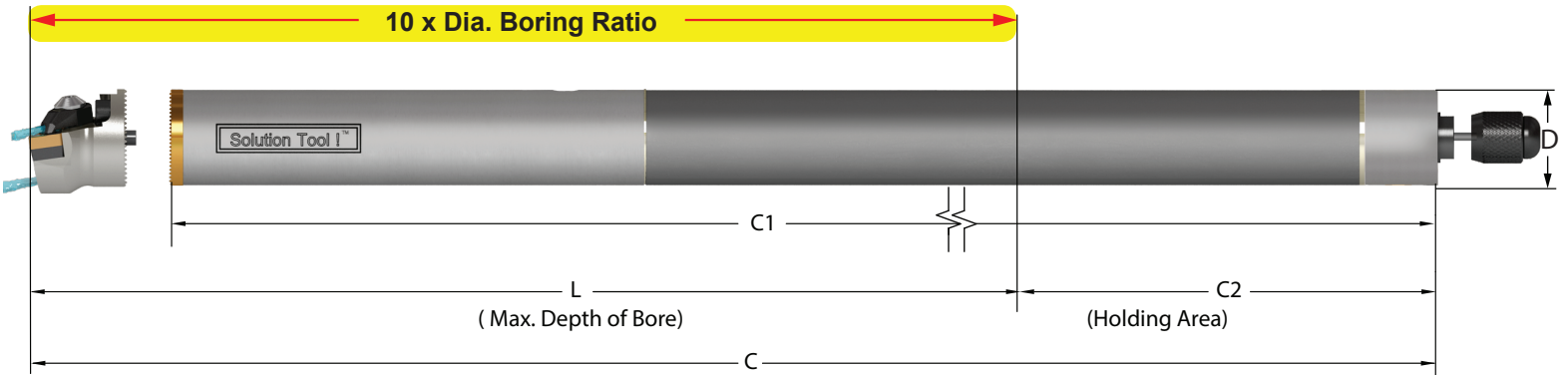


Note: Steel Body Boring Bar: 1 piece construction
Carbide Body Boring Bar: 3 pieces construction

Inch Steel Bar Description	UPC No. 733101- Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
ASI24X-8-DVI-MBBB-18-SB	59321	8 x Dia.	1.500	B = F1x2	F1 = F+H	18.000	16.500	12.000	6.000	0	DBOMH24/40_A_R/L	0.250	1/4"-18 NPT
ASI28X-8-DVI-MBBB-21-SB	59322		1.750			21.000	19.500	14.000	7.000	0.125		0.250	
ASI32X-8-DVI-MBBB-24-SB	59323		2.000			24.000	22.500	16.000	8.000	0.250		0.312	
ASI40X-8-DVI-MBBB-30-SB	59324		2.500			30.000	28.500	20.000	10.000	0.500		0.375	1/4"-18 NPT
ASI48X-8-DVI-MBBB-36-SB	59325		3.000			36.000	34.500	24.000	12.000	0.750		0.375	
ASI64X-8-DVI-MBBB-48-SB	59326		4.000			48.000	46.500	32.000	16.000	1.250		0.375	
Metric Steel Bar Description	UPC No. 733101- Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
ASM40X-8-DVI-MBBB-0480-SB	59328	8 x Dia.	40	B = F1x2	F1 = F+H	480	442	320	160	0	DBOMH24/40_A_R/L	6	1/4"-18 NPT
ASM50X-8-DVI-MBBB-0600-SB	59329		50			600	562	400	200	5		6	
ASM60X-8-DVI-MBBB-0720-SB	59330		60			720	682	480	240	10		8	
ASM80X-8-DVI-MBBB-0960-SB	59331		80			960	922	640	320	20		10	1/4"-18 NPT
ASM100X-8-DVI-MBBB-1200-SB	59332		100			1200	1162	800	400	30		10	

One high pressure coolant connection kit supplied, see Page D-104 for details.

Thru Coolant Jet-Stream™ Modular Boring Bar Body



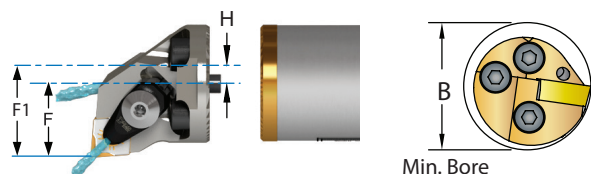
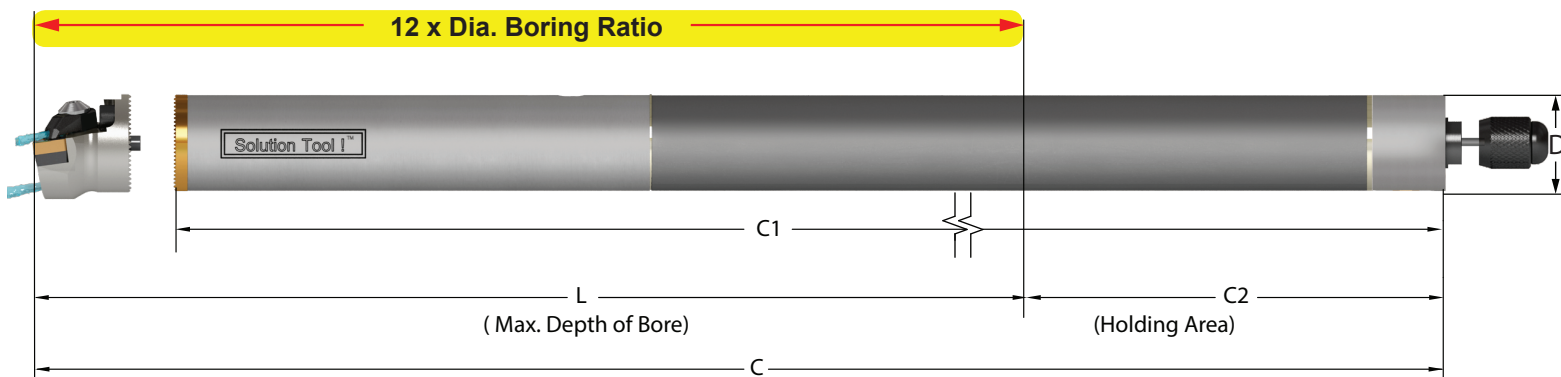
Note: Steel Body Boring Bar: 1 piece construction
Carbide Body Boring Bar: 3 pieces construction

Inch Steel Bar Description	UPC No. 733101- Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
ASI24X-10-DVI-MBBB-21-SB	59433		1.500			21.000	19.500	15.000	6.000	0		0.250	
ASI28X-10-DVI-MBBB-25-SB	59434		1.750			24.500	23.000	17.500	7.000	0.125		0.250	1/4"-18 NPT
ASI32X-10-DVI-MBBB-28-SB	59435		2.000			28.000	26.500	20.000	8.000	0.250		0.312	
ASI40X-10-DVI-MBBB-35-SB	59436		2.500			35.000	33.500	25.000	10.000	0.500		0.375	
ASI48X-10-DVI-MBBB-42-SB	59437		3.000			42.000	40.500	30.000	12.000	0.750		0.375	1/4"-18 NPT
ASI64X-10-DVI-MBBB-56-SB	59438		4.000			56.000	54.500	40.000	16.000	1.250		0.375	
Metric Steel Bar Description	UPC No. 733101- Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
ASM40X-10-DVI-MBBB-0560-SB	59440		40			560	522	400	160	0		6	
ASM50X-10-DVI-MBBB-0700-SB	59441		50			700	662	500	200	5		6	1/4"-18 NPT
ASM60X-10-DVI-MBBB-0840-SB	59442		60	MB+B+(Hx2)	F1=F+H	840	802	600	240	10		8	
ASM80X-10-DVI-MBBB-1120-SB	59443		80			1120	1082	800	320	20		10	
ASM100X-10-DVI-MBBB-1400-SB	59444		100			1400	1362	1000	400	30		10	1/4"-18 NPT

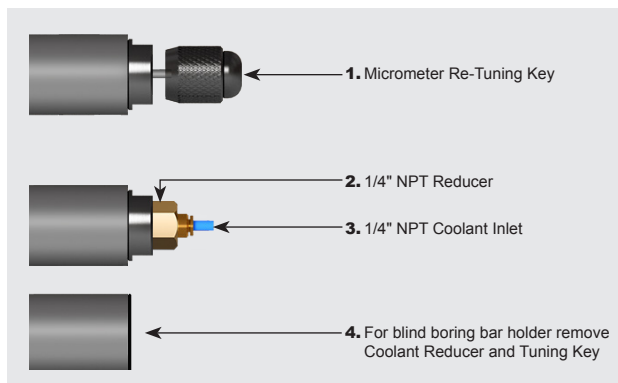
One high pressure coolant connection kit supplied, see Page D-104 for details.

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

Thru Coolant Jet-Stream™ Modular Boring Bar Body



$F1^* = F + H$
 "B" Min. Bore = $F1 \times 2$



Note: Steel Body Boring Bar: 1 piece construction
Carbide Body Boring Bar: 3 pieces construction

Inch Steel Bar Description	UPC No. 733101-Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
ASI24X-12-DVI-MBBB-24-SB	59446	12 x Dia.	1.500	B = F1x2	F1=F+H	24.000	22.500	18.000	6.000	0	DBOMH24/40_A_R/L	0.250	1/4"-18 NPT
ASI28X-12-DVI-MBBB-28-SB	59447		1.750			28.000	26.500	21.000	7.000	0.125		0.250	
ASI32X-12-DVI-MBBB-32-SB	59448		2.000			32.000	30.500	24.000	8.000	0.250		0.312	
ASI40X-12-DVI-MBBB-40-SB	59449		2.500			40.000	38.500	30.000	10.000	0.500		0.375	1/4"-18 NPT
ASI48X-12-DVI-MBBB-48-SB	59450		3.000			48.000	46.500	36.000	12.000	0.750		0.375	
ASI64X-12-DVI-MBBB-64-SB	59451		4.000			64.000	62.500	48.000	16.000	1.250		0.375	

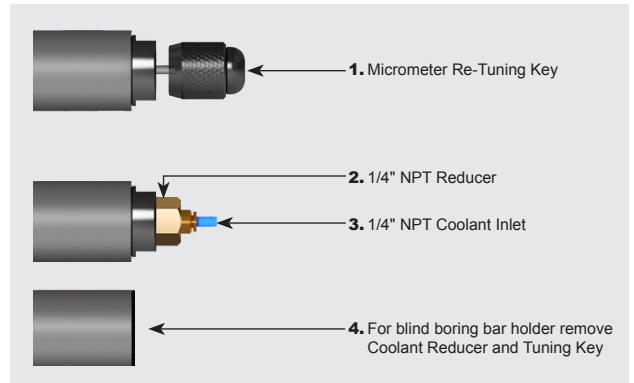
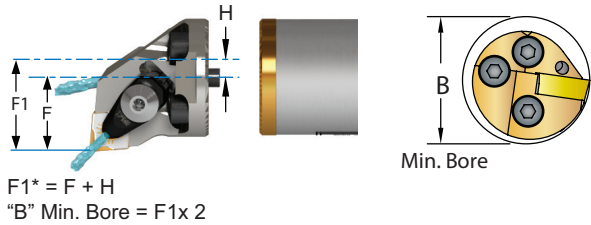
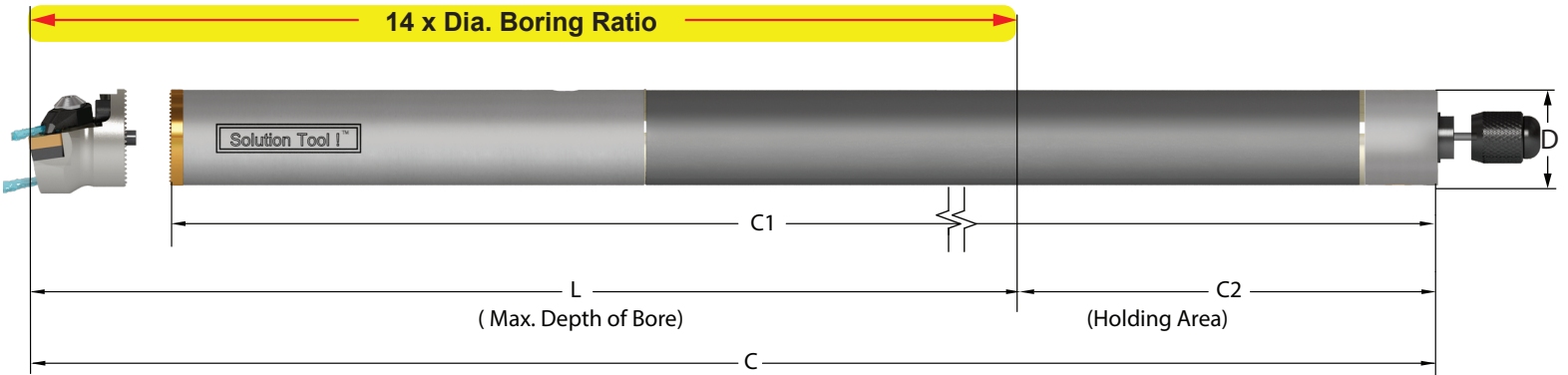
Metric Steel Bar Description	UPC No. 733101-Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
ASM40X-12-DVI-MBBB-0640-SB	59453	12 x Dia.	40	B = F1x2	F1=F+H	640	602	480	160	0	DBOMH24/40_A_R/L	6	1/4"-18 NPT
ASM50X-12-DVI-MBBB-0800-SB	59454		50			800	762	600	200	5		6	
ASM60X-12-DVI-MBBB-0960-SB	59455		60			960	922	720	240	10		8	
ASM80X-12-DVI-MBBB-1280-SB	59456		80			1280	1242	960	320	20		10	1/4"-18 NPT
ASM100X-12-DVI-MBBB-1600-SB	59457		100			1600	1562	1200	400	30		10	

Inch Carbide Bar Description	UPC No. 733101-Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
ASI24X-12-DVI-MBBB-24-CB	60349	12 x Dia.	1.500	B = F1x2	F1=F+H	24.000	22.500	18.000	6.000	0	DBOMH24/40_A_R/L	0.250	1/4"-18 NPT
ASI28X-12-DVI-MBBB-28-CB	60350		1.750			28.000	26.500	21.000	7.000	0.125		0.250	
ASI32X-12-DVI-MBBB-32-CB	60351		2.000			32.000	30.500	24.000	8.000	0.250		0.312	
ASI40X-12-DVI-MBBB-40-CB	60352		2.500			40.000	38.500	30.000	10.000	0.500		0.375	1/4"-18 NPT
ASI48X-12-DVI-MBBB-48-CB	60353		3.000			48.000	46.500	36.000	12.000	0.750		0.375	
ASI64X-12-DVI-MBBB-64-CB	60354		4.000			64.000	62.500	48.000	16.000	1.250		0.375	

Metric Carbide Bar Description	UPC No. 733101-Neutral	Boring Ratio	D	Min. Bore B**	F1*	C	C1	L	C2	H	Modular Head* CBBB	Coolant Bore Dia.	Coolant Attachment Thread
ASM40X-12-DVI-MBBB-0640-CB	60355	12 x Dia.	40	B = F1x2	F1=F+H	640	602	480	160	0	DBOMH24/40_A_R/L	6	1/4"-18 NPT
ASM50X-12-DVI-MBBB-0800-CB	60356		50			800	762	600	200	5		6	
ASM60X-12-DVI-MBBB-0960-CB	60357		60			960	922	720	240	10		8	
ASM80X-12-DVI-MBBB-1280-CB	60358		80			1280	1242	960	320	20		10	1/4"-18 NPT
ASM100X-12-DVI-MBBB-1600-CB	60359		100			1600	1562	1200	400	30		10	

One high pressure coolant connection kit supplied, see Page D-104 for details.

Thru Coolant Jet-Stream™ Modular Boring Bar Body



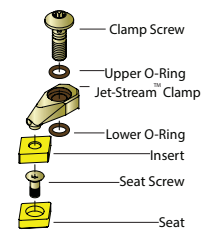
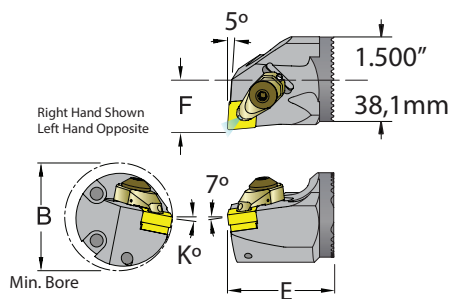
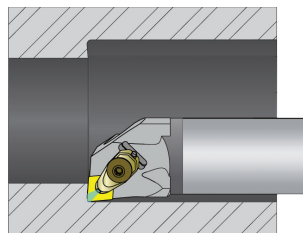
Note: Steel Body Boring Bar: 1 piece construction
Carbide Body Boring Bar: 3 pieces construction

Inch		UPC No.	Boring Ratio	D	Min. Bore B*	C	C1	L	C2	H	Modular Head CBBB	Coolant Bore Dia.	Coolant Attachment Thread	
Carbide Bar Description	733101-Neutral													
ASI24X-14-DVI-MBBB-27-CB	59459	14 x Dia.	B = F1x2	F1=F+H	27.000	25.500	21.000	6.000	0	0	DBOMH24/40_A_R/L	0.250	1/4"-18 NPT	
ASI28X-14-DVI-MBBB-32-CB	59460													1.500
ASI32X-14-DVI-MBBB-36-CB	59461													1.750
ASI40X-14-DVI-MBBB-45-CB	59462													2.000
ASI48X-14-DVI-MBBB-54-CB	59463													2.500
ASI64X-14-DVI-MBBB-72-CB	59464													3.000
					36.000	34.500	28.000	8.000	0.250	0.312				
					45.000	43.500	35.000	10.000	0.500	0.375				
					54.000	52.500	42.000	12.000	0.750	0.375				
					72.000	70.500	56.000	16.000	1.250	0.375				
Metric		UPC No.	Boring Ratio	D	Min. Bore B*	C	C1	L	C2	H	Modular Head CBBB	Coolant Bore Dia.	Coolant Attachment Thread	
Carbide Bar Description	733101-Neutral													
ASM40X-14-DVI-MBBB-0720-CB	59466	14 x Dia.	B = F1x2	F1=F+H	720	682	560	160	0	0	DBOMH24/40_A_R/L	6	1/4"-18 NPT	
ASM50X-14-DVI-MBBB-0900-CB	59467													40
ASM60X-14-DVI-MBBB-1080-CB	59468													50
ASM80X-14-DVI-MBBB-1440-CB	59469													60
ASM100X-14-DVI-MBBB-1800-CB	59470													80
														100
					1080	1042	840	240	10	6				
					1440	1402	1120	320	20	8				
					1800	1762	1400	400	30	10				

One high pressure coolant connection kit supplied, see Page D-104 for details.

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

ADCLN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style L - Negative 5° End & Side Cutting Edge Angle for negative 80° diamond CN__ inserts



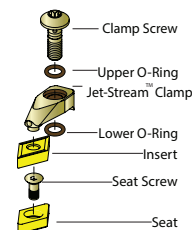
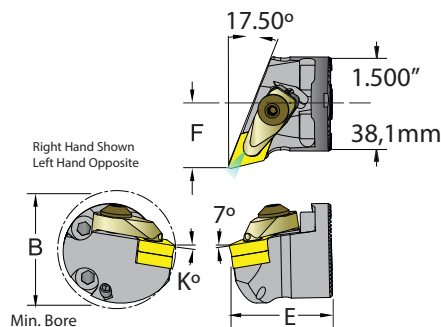
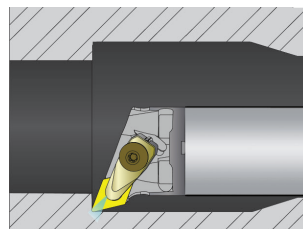
Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		K°	CN__ Gage Insert	Seat	Seat Screw	JetStream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric							1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ADCLNR/L-4	59507	59508	1.5"/4.0"	40/100	1.780	45.21	1.575	40	.940	23.87	11°	432 120408	DC-432	TS-5.8-10M1	JSLC- HPCTW-4N	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004
DBOMH-24/40M-ADCLNR/L-5	59509	59510	1.5"/4.0"	40/100	1.780	45.21	1.575	40	1.125	28.58	11°	543 160612	DC-533	TS-5.8-10M1	JSLC-HPC5	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004

"B" Minimum Bore Dia. shown in the chart is a nominal dimension for the boring bar clearance and chip evacuation. The actual dimension is F1+Half of the bar size.

Inserts used: all CN__series (CNMG, CNGG, CNMX, CNMM, CNMA).

ADDQN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style Q-Negative 17.5° End Cutting Edge Angle for 7° positive 55° diamond DN__ inserts



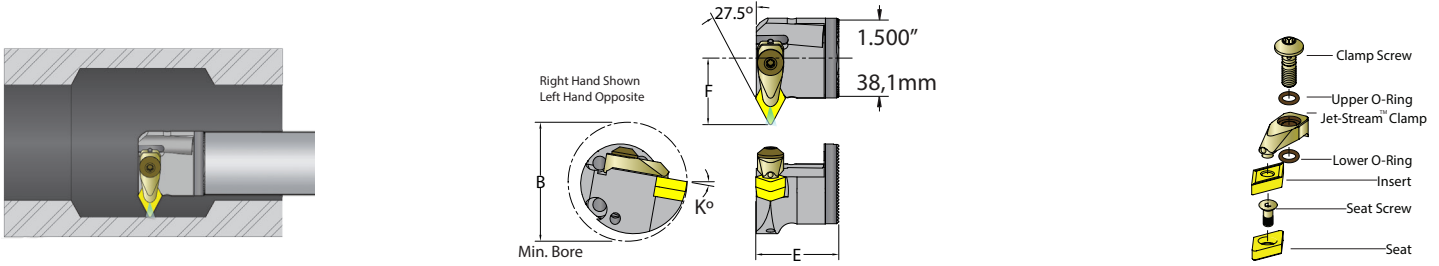
Thru Coolant

ANSI Head Description	UPC No. 733101-		Bars Dia.		B		E		F		K°	DN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Inch	Inch	Inch	Inch	Inch	1.5" & 40mm Boring Bar	UPC 733101-							2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-		
DBOMH-24/40M-ADDQNR/L-4	59476	59477	1.5"/4.0"	1.88	1.625	1.125	11°	432	DD-432	TS-5.8-10M1	JSLC-HPD4	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004				

ISO Head Description	UPC No. 733101-		Bars Dia.		B		E		F		K°	DN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Metric	Metric	Metric	Metric	Metric	Metric	1.5" & 40mm Boring Bar	UPC 733101-							2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-		
DBOMH-24/40M-ADDQNR/L-15	59478	59479	40/100	47.7	41.2	28.6	11°	150608	DD-422	TS-5.8-10M2	JSLC-HPD4	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004				

Inserts used: all DN__series (DNMG, DNMG, DNMX, DNMA, DNGG).

ADDNN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style



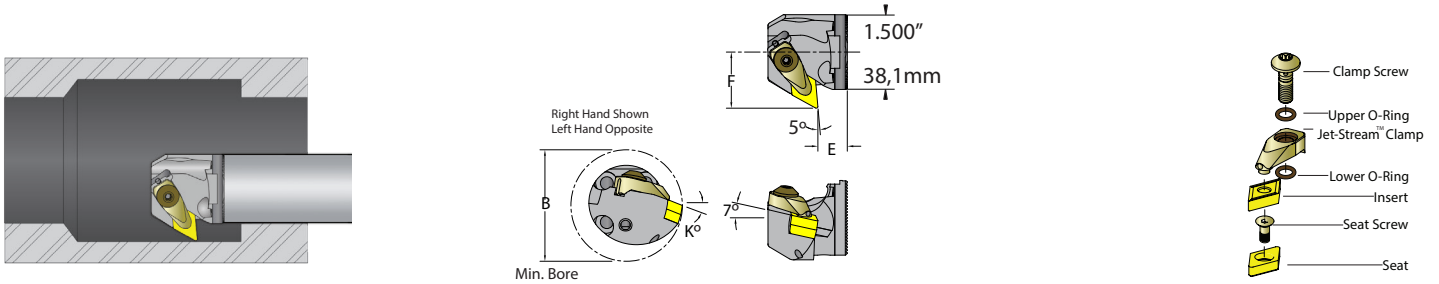
Thru Coolant

Head Description	UPC No. 733101-	Bars Dia.	B	E	F	K°	DN__ Gage Insert	Seat	Seat Screw	JetStream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)			
												1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
ANSI	R.H.	Inch	Inch	Inch	Inch		Inch								
DBOMH-24/40M-ADDNNR-4-1250	59565	1.5"/4.0"	2.250	1.750	1.250	10°	432	DD-432	TS-5.8-10M1	JSLC-HPD4	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004
DBOMH-24/40M-ADDNNR-4-1750	59566	1.5"/4.0"	2.750	1.750	1.750										
DBOMH-24/40M-ADDNNR-4-2250	59567	1.5"/4.0"	3.250	1.750	2.250										

Head Description	UPC No. 733101-	Bars Dia.	B	E	F	K°	DN__ Gage Insert	Seat	Seat Screw	JetStream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)			
												1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
ISO	R.H.	Metric	Metric	Metric	Metric		Metric								
DBOMH-24/40M-ADDNNR-15-1250	59568	40/100	60	44.5	31.8	10°	150608	DD-422	TS-5.8-10M2	JSLC-HPD4	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004
DBOMH-24/40M-ADDNNR-15-1750	59569	40/100	72	44.5	44.5										
DBOMH-24/40M-ADDNNR-15-2250	59570	40/100	85	44.5	57.2										

Inserts used: all DN__ series (DNMG, DNMG, DNMX, DNMA, DNMG).

ADDXN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style



Thru Coolant

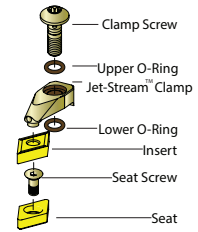
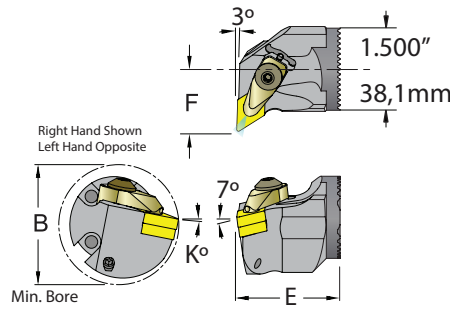
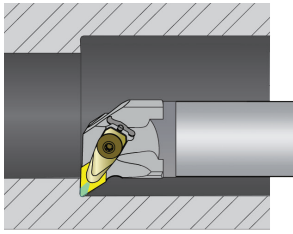
Head Description	UPC No. 733101-	Bars Dia.	B	E	F	K°	DN__ Gage Insert	Seat	Seat Screw	JetStream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)			
												1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
ANSI	R.H.	Inch	Inch	Inch	Inch		Inch								
DBOMH-24/40M-ADDXNR-4-1250	59571	1.5"/4.0"	2.250	.690	1.250	10°	432	DD-432	TS-5.8-10M1	JSLC-HPD4	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004
DBOMH-24/40M-ADDXNR-4-1750	59572	1.5"/4.0"	2.750	.690	1.750										
DBOMH-24/40M-ADDXNR-4-2250	59573	1.5"/4.0"	3.250	.690	2.250										

Head Description	UPC No. 733101-	Bars Dia.	B	E	F	K°	DN__ Gage Insert	Seat	Seat Screw	JetStream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)			
												1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
ISO	R.H.	Metric	Metric	Metric	Metric		Metric								
DBOMH-24/40M-ADDXNR-15-1250	59555	40/100	60	17.5	31.8	10°	150608	DD-422	TS-5.8-10M2	JSLC-HPD4	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004
DBOMH-24/40M-ADDXNR-15-1750	59559	40/100	72	17.5	44.5										
DBOMH-24/40M-ADDXNR-15-2250	59560	40/100	85	17.5	57.2										

Inserts used: all DN__ series (DNMG, DNMG, DNMX, DNMA, DNMG).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

ADDUN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style U - Negative 3° End Cutting Edge Angle for negative 55° diamond DN__ inserts



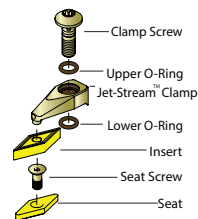
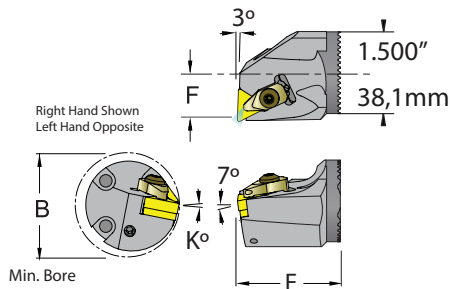
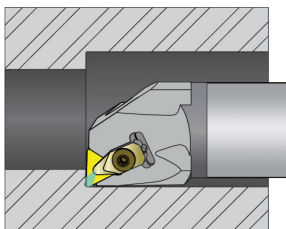
Thru Coolant

ANSI Head Description	UPC No. 733101-		Bars Dia.		B	E	F	K°	DN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Inch	Inch	Inch	Inch							1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ADDUNR/L-4	59387	59388	1.5	2.25	1.575	1.125	11	432	DD-432	TS-5.8-10M1	JSLC-HPD4	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004	

ISO Head Description	UPC No. 733101-		Bars Dia.		B	E	F	K°	DN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Metric	Metric	Metric	Metric	Metric							1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ADDUNR/L-15	59511	59512	40	57.15	40.005	28.58	11	150608	DD-422	TS-5.8-10M2	JSLC-HPD4	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004	

Inserts used: all DN__ series (DNMG, DNMG, DNMX, DNMA, DNMG).

ADTUN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style U - Negative 3° End & Side Cutting Edge Angle for negative 60° triangle TN__ inserts



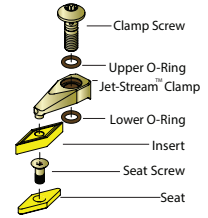
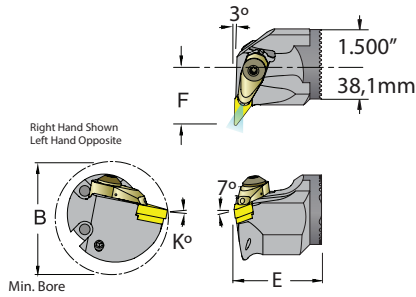
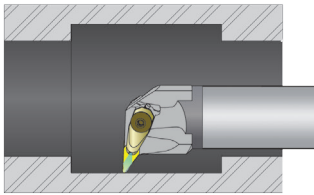
Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B	E	F	K°	TN__ Gage Insert		Seat	Seat Screw	Jet-Stream™ Clamp	Clamp Screw	Locking Head Screw (3 Pcs Set)						
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch		Metric	Inch					Metric	1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-		
DBOMH-24/40M-ADTUNR/L-3	59515	59516	1.5"/4.0"	40/100	2.060	52.32	1.575	40	.890	22.60	11°	332	160408	DT-322	TS-4.7-10M1	JSLC-HPDT3-BR/L	JSCS-03	MHLS-5MCS	91003	MHLS-6MCS	91004
DBOMH-24/40M-ADTUNR/L-4	59517	59518	1.5"/4.0"	40/100	2.060	52.32	1.575	40	1.125	25.580	11°	432	220408	DT-432	TS-5.8-10M1	JSLC-HPTW-4R/L	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004

Inserts used: all TN__ series (TNMG, TNMC, TNMX, TNMA).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

ADVUN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style U - Negative 3° End Cutting Edge Angle for negative 35° diamond VN__ inserts

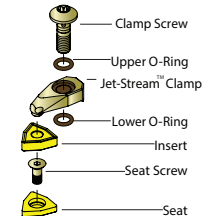
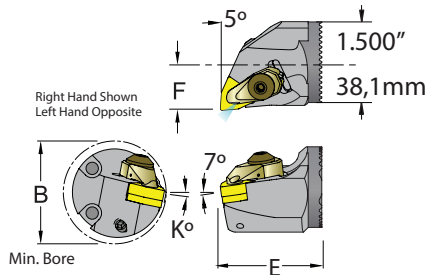
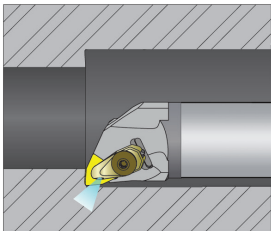


Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		VN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)				
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric						Inch	Metric	1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar
DBOMH-24/40M-ADVUNR/L-3	59521	59522	1.5"/4.0"	40/100	2.500	63.50	1.575	40	1.312	33.32	11°	332 160408	DV-322	TS-4.7-10M1	JSLC-HPV3	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004

Inserts used: all VN__ series (VNMG).

ADWLN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style L - Negative 5° End & Side Cutting Edge Angle for negative 80° trigon WN__ inserts



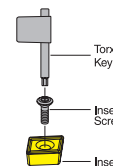
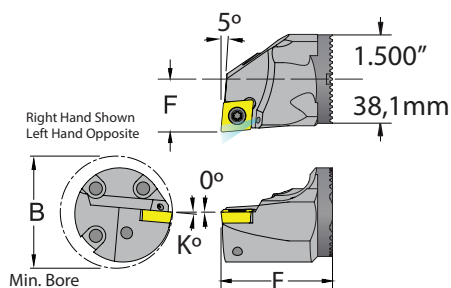
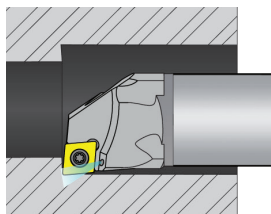
Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		WN__ Gage Insert	Seat	Seat Screw	Jet-Stream™ Clamp	Clamp Screw	Locking Head Screw (3 Piece Set)				
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric						Inch	Metric	1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar
DBOMH-24/40M-ADWLN/L-4	59525	59526	1.5"/4.0"	40/100	1.900	48.26	1.575	40	.940	23.87	11°	432 080408	DW-432	TS-5.8-10M1	JSLC-HPTW-4R/L	JSCS-04	MHLS-5MCS	91003	MHLS-6MCS	91004

Inserts used: all WN__ series (WNMG, WNMA).

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

ASCLC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC__ inserts

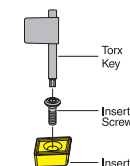
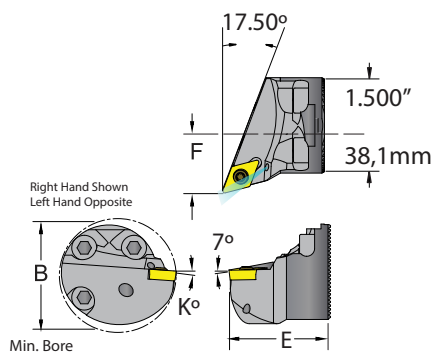
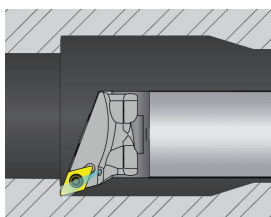


Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		K°	CC__ Gage Insert		Insert Screw	Torx Key	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ASCLCR/L-4	59529	59530	1.5"/4.0"	40/100	1.780	45.21	1.575	40	.920	23.4	5°	432	120408	TS-5.8-10M1	T-20	MHLS-5MCS	91003	MHLS-6MCS	91004

Inserts used: all CC__ series (CCGX, CCGT, CCMT, CCGW).

ASDQC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style Q - Negative 17.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

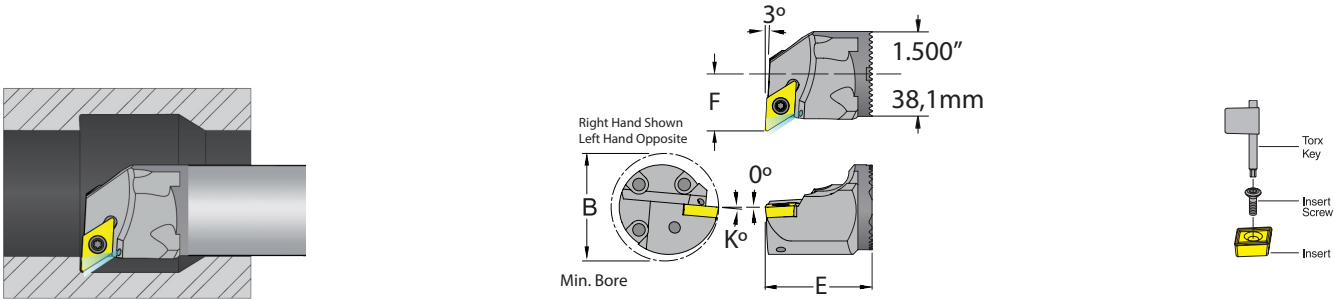


Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Screw	Torx Key	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ASDQCR/L-3	59474	59475	1.5"/4.0"	40/100	2.125	53.975	1.595	40.513	1.06	26.924	4°	32.52	11T308	TS-4.7-10M1	T-15	MHLS-5MCS	91003	MHLS-6MCS	91004
DBOMH-24/40M-ADSQCR/L-4	59389	59390	1.5"/4.0"	40/100	2.125	53.975	1.595	40.513	1.06	26.924	4°	432	150408	TS-5.8-10M1	T-20				

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

ASDUC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC__ inserts

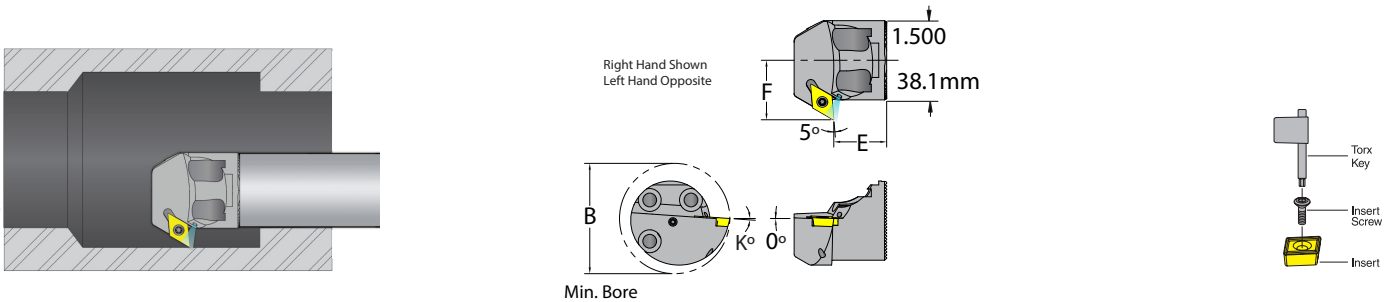


Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Screw	Torx Key	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
	DBOMH-24/40M-ASDUCR/L-3	59533	59534	1.5"/4.0"	40/100	2.250	57.15	1.575	40	1.125		25.580	4°			32.52	11T308	TS-4.7-8M1	T-15
DBOMH-24/40M-ASDUCR/L-4	59535	59536	1.5"/4.0"	40/100	2.250	57.15	1.575	40	1.125	25.580	4°	432	150408	TS-5.8-10M1	T-20				

Inserts used: all DC__ series (DCMT, DCGW, DCMT, DCGX, DCGT).

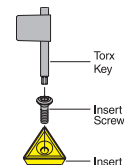
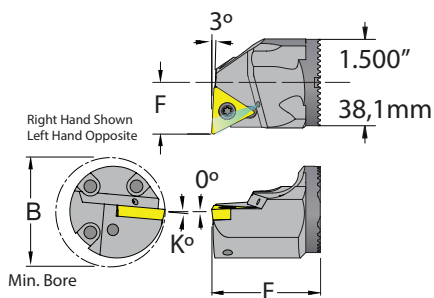
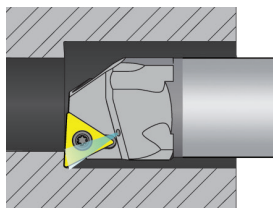
ASDXC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style



Head Description	UPC No. 733101-		Bars Dia.		B		E		F		K°	DC__ Gage Insert		Insert Screw	Torx Key	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
	DBOMH-24/40M-ASDXCR/L-3	59538	59537	1.5"/4.0"	40/100	2.250	57.15	1.000	25.4	1.125		25.580	4°			32.52	11T308	TS-4.7-10M1	T-15

Solution Tool!™ The NO! Vibration Re-Tunable Boring Bars

ASTUC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC__ inserts

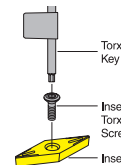
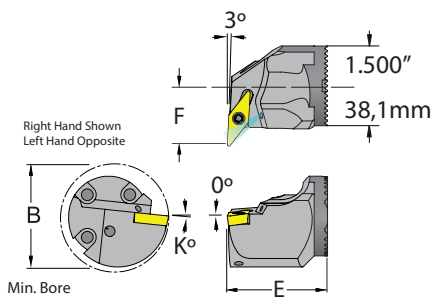
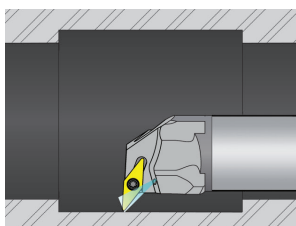


Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		K°	TC__ Gage Insert		Insert Screw	Torx Key	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ASTUCR/L-3	59539	59540	1.5"/4.0"	40/100	1.780	57.15	1.575	40	.890	22.6	5°	32.52	16T308	TS-4.7-8M1	T-15	MHLS-5MCS	91003	MHLS-6MCS	91004
DBOMH-24/40M-ASTUCR/L-4	59541	59542	1.5"/4.0"	40/100	1.780	57.15	1.575	40	.890	22.6	5°	432	220408	TS-5.8-10M1	T-20				

Inserts used: all TC__series (TCMT, TCGW, TCGT, TCGX).

ASVUC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Boring Head Style U - Negative 3° End Cutting Edge Angle for 7° positive 35° diamond VC__ inserts

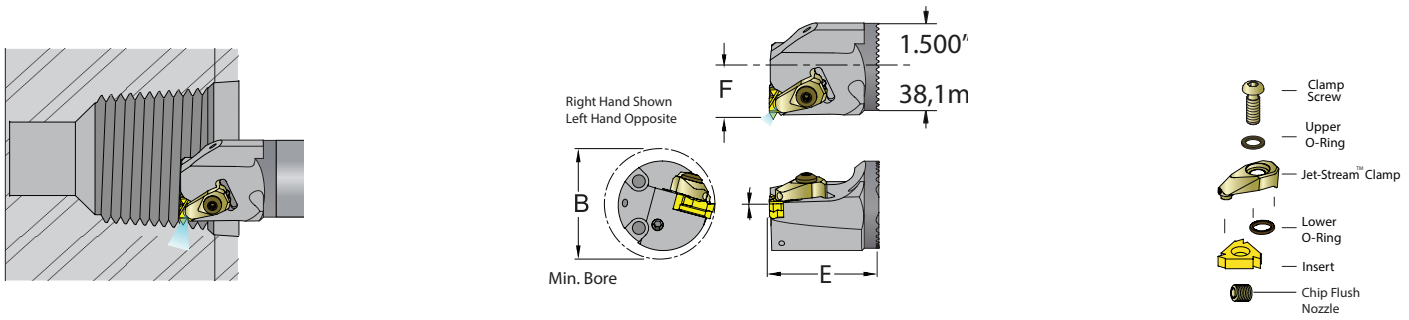


Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		K°	VC__ Gage Insert		Insert Screw	Torx Key	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric		Inch	Metric			1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ASVUCR/L-3	59545	59546	1.5"/4.0"	40/100	2.500	63.50	1.575	40	1.200	30.48	6°	332	160408	TS-4.7-8M1	T-15	MHLS-5MCS	91003	MHLS-6MCS	91004

Inserts used: all VC__series (VCMT, VCGT, VCGW, VCGX).

ADLN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Threading Modular Head Style N for laydown 16-G60 & 22-N60 inserts

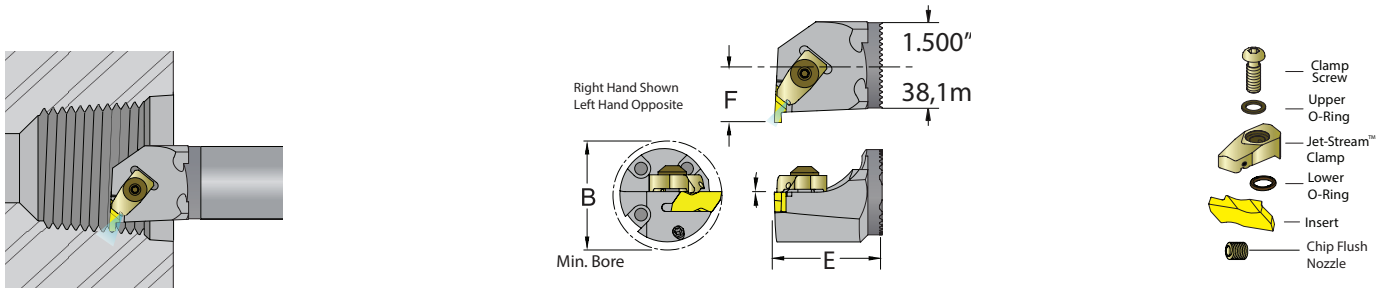


Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		Laydown Gage Insert	Seat	Seat Screw	Chip Flush Nozzle	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric					1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ADLNR/L-16	59549	59550	1.5"/4.0"	40/100	1.870	48	1.575	38	.900	25	16-A60	GXE/I-16	TS-35.6-14M1	JSPN-M6				
DBOMH-24/40M-ADLNR/L-22	59553	59554	1.5"/4.0"	32/100	2.000	51	1.575	38	.922	29	22-N60	NXE/I-22	TS-45.75-15M1	JSPN-M6	MHLS-5MCS	91003	MHLS-6MCS	91004
DBOMH-24/40M-ADLNR/L-27	59551	59552			2.519	64	1.575	38	1.575	32	27-Q60	VEX/I-27	TS-5.8-22M1	JSPN-M6				

*For right hand tool. **For left hand tool.

ADNE R/L Solution Tool!™ Thru Coolant Jet-Stream™ Threading Modular Head Style E - for DorNotch NG_3 inserts

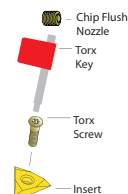
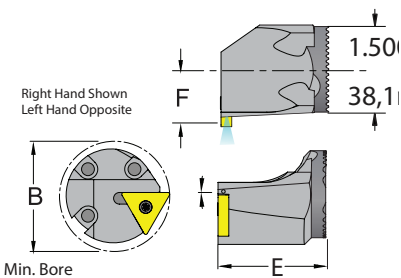
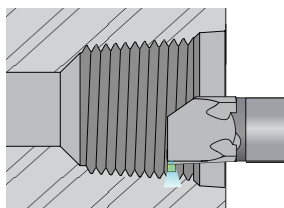


Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		DorNotch Gage Insert	Jet-Stream™ Clamp	Clamp Screw	Chip Flush Nozzle	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric					1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ADNER/L-3	59557	59558	1.5"/4.0"	40/100	2.000	50.80	1.575	40	1.000	25.40	NG-3L* NG-3R**	JSLC-HP73* JSLC-HP72**	JSCS-04	JSPN-M6	MHLS-5MCS	91003	MHLS-6MCS	91004

*For right hand tool. **For left hand tool.

ADTHO R/L Solution Tool!™ Thru Coolant Jet-Stream™ Threading Modular Head Style Head for triangle TNMC 432__inserts



Thru Coolant

Head Description	UPC No. 733101-		Bars Dia.		B		E		F		TN__ Gage Insert		Insert Seat Screw	Torx Key	Chip Flush Nozzle	Locking Head Screw (3 Piece Set)			
	R.H.	L.H.	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric				1.5" & 40mm Boring Bar	UPC 733101-	2.0" to 4.0" 50mm to 100mm Boring Bar	UPC 733101-
DBOMH-24/40M-ADTHOR/L-4	59561	59562	1.5"/4.0"	40/100	2.250	57.15	1.575	40	1.125	28.58	432	220408	GTS-2	T-20	JSPN-M6	MHLS-5MCS	91003	MHLS-6MCS	91004

Inserts used: all TN__ series (TNMG, TNMX, TNMA).

Note: For machines that have turrets with 1/8 NPT tapped coolant holes, you do not need a ball type coolant nozzle. Ball type coolant nozzles are sold separately.



Problem	Cause	Solution
Vibrations Surface Finish Chattering	Boring Bar over extended, Incorrect Cutting Ratio, Boring Bar not rigid for the cutting pressure	Do not over extend the Boring Bar above the described cutting ratio; Steel Boring Bar: 4 x Dia. cutting ratio Carbide Boring Bar: 6 x Dia. cutting ratio Solution Tool!™ NO! Vibration Re-Tunable Boring Bar; 8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia.. cutting ratio
	Insert Angle Geometry to large	Reduce the Insert Angle Geometry; 80° Geometry, for roughing application 60° Geometry, for general application 55° Geometry, for finishing application 35° Geometry, for profiling application
	Insert Cutting Radius to Large; to large contact area of the insert with the cutting surface	Reduce the cutting radius until vibration disappears and or increase cutting feed
	Insert Cutting Rake Angle to small; to much cutting pressure	Change to a large cutting rake angle
	Insert Relief Angle to small; cutting pressure pushes the insert down and the bottom will touch the cutting wall, pushing the insert up and down from the center line.	Change to a large relief angle, and place the insert cutting edge above the center line
	Insert Edge Prep. the insert cutting edge has too large of honing surface, this will affect more in small depth of cut and low cutting feed	Change to a sharp cutting edge and or increase cutting feed
	To Low RPM., at low RPM, the cutting edge of the insert moves very slow over the cutting surface, no friction, no heat and little cutting force is developed, resulting in a poor and dull surface finish	Increase the RPM
To High RPM. at to high RPM, the cutting edge of the insert moves very fast over the cutting surface, generating friction, heat and premature wear of the insert cutting edge, resulting in a shine and uneven surface finish	Decrease the RPM	
Not Holding Dimension and Tolerances	Boring Bar Deflection; under the cutting force the boring bar will deflect radially and axially, dimensions and tolerances are difficult to be held	Use a larger diameter boring bar to maximize rigidity & minimize deflection
	Large depth of Cut; with a large depth of cut a lot of cutting force is placed over the boring bar, deflecting radially and axially, and dimensions and tolerances are difficult to be held	1) Reduce the depth of cut to control and maintain dimensions & tolerances 2) For roughing operation, by trial and error calculate the bar deflection to establish the relation of the finish dimension, boring bar deflection and the depth of cut. 3) For finishing operation, reduce the depth of cut, use an insert with a small angle geometry, and or a small cutting radius and sharp cutting edge.
	Insert Wear; if the insert cutting edge is wearing prematurely, dimensions and tolerances are lost. The RPM is too high and or the insert grade is to soft.	Decrease the RPM and or change to a harder insert grade.
	Insert Cutting Radius to Large; in a small depth of cut a large insert cutting radius will not have enough engagement depth into cutting surface. The insert will be tearing rather than cutting with a poor surface finish, dimensions and tolerances.	Increase the depth of cut; minimum depth of cut should be not less then 1/2 the size of the insert radius, i.e. .016" (.4mm) depth of cut .008" (.2mm). Increase the depth of cut and or change to a small insert cutting radius.
Whistling Cutting Sound	Insert Cutting Edge Dull Insert Cutting Radius to Large To Small depth of Cut To High RPM	Replace the insert with a harder grade Replace the insert with a smaller cutting radius Increase the depth of cut Change to low RPM
Insert Breaks	RPM to Low Feed Rate to Fast Depth of Cut to Large Insert to Hard	Increase RPM Slow feed rate Change to a small depth of cut Change to a tougher and impact resistant insert
Chattering	Wrong Insert Wrong Boring Bar Wrong Cutting Parameter	The smallest insert angle geometry, high positive with a small cutting radius The largest boring bar possible with shorts overhang The optimum cutting parameter for the specific operation

How to Remove Chattering;

Slow the RPM, cut under the chattered surface, find the correct feed rate for the operation. Resume in normal cutting condition once chatter is removed.

Boring Bars and Toolholders-Low Pressure Coolant Connection 3 Pcs. Kit

Working Pressure



up to 400 psi (30 bar)

Item	Part Number	UPC No 733101-	Description	Bar	PSI
	JSPLPCK-062-250-24	55386	1/6" NPT Low Pressure Quick Release Coolant 3 pcs Kit	30	400
1	JS-T250-2400	55378	1/4" OD, 24" Low High Pressure Long Tubing		
2	JS-MC062-250	53346	1/16" NPT-1/4" Bore, Straight Low Pressure Quick Release Connector		
3	JS-MC125-250	53347	1/8" NPT-1/4" Bore, Straight Low Pressure Quick Release Connector		
	JSPLPCK-125-250-24	55387	1/8" NPT Low Pressure Quick Release Coolant 3 pcs Kit	30	400
1	JS-T250-2400	55378	1/4" OD, 24" Low High Pressure Long Tubing		
2	JS-MC125-250	53347	1/8" NPT-1/4" Bore, Straight Low Pressure Quick Release Connector		
3	JS-MC125-250	53347	1/8" NPT-1/4" Bore, Straight Low Pressure Quick Release Connector		
	JSPLPCK-250-250-24	55390	1/4" NPT Low Pressure Quick Release Coolant 3 pcs Kit	30	400
1	JS-T250-2400	55378	1/4" OD, 24" Low High Pressure Long Tubing		
2	JS-MC125-250	53347	1/8" NPT-1/4" Bore, Straight Low Pressure Quick Release Connector		
3	JS-MC250-250	53348	1/4" NPT-1/4" Bore, Straight Low Pressure Quick Release Connector		

Boring Bars and Toolholders-High Pressure Coolant Connection 5 Pcs. Kit

Working Pressure



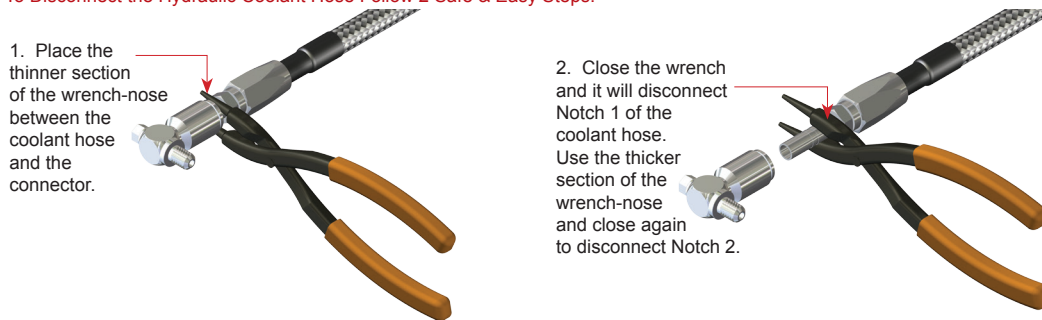
over 400 psi (30 bar)

Item	Part Number	UPC No 733101-	Description	Bar	PSI
	DT-1/8 HP-QRCK	60473	1/8" NPT High Pressure Quick Release Coolant 5 pcs Kit	200	2800
1	DT-HPTU-8X4	60477	8mm High Pressure 8mm Coolant Tubing Only		
2	DT-HP90C-1/8x6	60479	High Pressure Quick Release Straight Intec		
3	DT-HP90C-1/8x6	60479	High Pressure Quick Release Straight Intec		
4	DT-HP90C-1/8x6	60490	1/8" NPT Straight High Pressure Quick Release Connector		
5	DT-HP90C-1/8x6	60489	1/8" NPT 90° Elbow High Pressure Quick Release Connector		
	DT-1/4 HP-QRCK	60474	1/4" NPT High Pressure Quick Release Coolant 5 pcs Kit	200	2800
1	DT-HPTU-8X4	60477	8mm High Pressure 8mm Coolant Tubing Only		
2	DT-HP90C-1/8x6	60479	High Pressure Quick Release Straight Intec		
3	DT-HP90C-1/8x6	60479	High Pressure Quick Release Straight Intec		
4	DT-HPOSC-1/4x6	60478	1/4" NPT Straight High Pressure Quick Release Connector		
5	DT-HP90C-1/8x6	60489	1/8" NPT 90° Elbow High Pressure Quick Release Connector		

Disconnecting Player

Item	Part Number	UPC No 733101-	Description
	DT-HP-PLIERS	60476	High Pressure Disconnecting Player

To Disconnect the Hydraulic Coolant Hose Follow 2 Safe & Easy Steps:



Ball-Type Coolant Nozzles Sold Separately

Acetal Material	Brass Material	Ball-Type Coolant Nozzles Size	Acetal Material		Brass Material	
			Description	UPC NO. 733101-	Description	UPC NO. 733101-
		12mm OD, 1/8NPT ID	JSCNA-12	53354	JSCNB-12	53365
		14mm OD, 1/8NPT ID	JSCNA-14	53355	JSCNB-14	53366
		15mm OD, 1/8NPT ID	JSCNA-15	53356	JSCNB-15	53367
		22mm OD, 1/8NPT ID	JSCNA-22	53357	JSCNB-22	53368
		1/2" OD, 1/8NPT ID	JSCNA-50	53358	JSCNB-50	53369
		5/8" OD, 1/8NPT ID	JSCNA-62	53359	JSCNB-62	53370

NPT Coolant Reducer

	Part Number
	ST-CA-18NPT
	ST-CA-14NPT
	UPC No 733101- 55374
	55375
NPT	
1/4	
1/8	

Note: For machines that have turrets with 1/8 NPT tapped coolant holes, you do not need a ball type coolant nozzle .
Ball type coolant nozzles are sold separately.


Spare Parts

Image	Description	UPC No. 733101-
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Insert Torx Screw

	CM-74	90692
	CM-75	90693
	GTS-2	90966
	TS-06	91306
	TS-08	91308
	TS-4.7-8M1	90976
	TS-4.7-10M1	90982
	TS-5.8-10M1	90986
	TS-18.35-1M1	91304
	TS-18.35-3M1	91305
	TS-22.45-4M1	90984
	TS-25.45-6M2	90972
	TS-25.45-8M2	90974
	TS-35.6-9M1	90973


Torx Key

	T-6	92001
	T-7	92002
	T-8	92003
	T-15	92006
	T-20	92007
	S-310M	90702


Locking Head Screw (3 Piece Set)

	QCHLS-3MCS	91002
	MHLS-5MCS	91003
	MHLS-6MCS	91004

Quick Change Boring Head Seal

	QCHS-7.5x4	91001
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Clamp Screw


	JSCS-03	53323
	JSCS-04	53324


Chip Flush Nozzle

	JSPN-M6	53334
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Image	Description	UPC No. 733101-
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Seat


	DC-432	90200
	DC-533	90209
	JC-432	90111

	DT-322	90202
	DT-432	90210
	JT-322	90117

	DW-432	90204
	IWSN-433	90072

	GXE/I-16	92070
	NXE/I-22	92071

	DV-322	90203
	JT-322	90117
	JV-322	90119


	DD-422	90206
	DD-432	90201
	IDSN-322	90016
	IDSN-423	90018
	JD-432	90113

Seat Screw

	SM-M3	53318
	SM-M3-T	53302
	SM-M4	53319
	SM-S4	53316
	TS-3.5-7M1	90971
	TS-4.7-10M1	90982
	TS-5.8-10M1	90986
	TS-5.8-10M2	91000
	TS-35.6-9M1	90973
	TS-35.6-14M1	91303
	TS-45.75-15M1	91319


Image	Description	UPC No. 733101-
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Dor-Lock Clamp


	JSLC-HPCTW-4N	53289
	JSLC-HPC5	53252

	JSLC-HPD4	53254
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	JSLC-HPDT3-BL	53269
	JSLC-HPDT3-BR	53268
	JSLC-HPTW-4RL	53263

	JSLC-HPV3	53267
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	JSLC-HPTW4L	53266
	JSLC-HPTW4R	53265

	JSLC-HP16L-N	53243
	JSLC-HP16R-N	53242
	JSLC-HP22N	53232

	JSLC-HP72	53350
	JSLC-HP73	53351