

# TOOL GUIDE 2017<sup>No. 5</sup>

## FOR EVERY DAY MACHINING

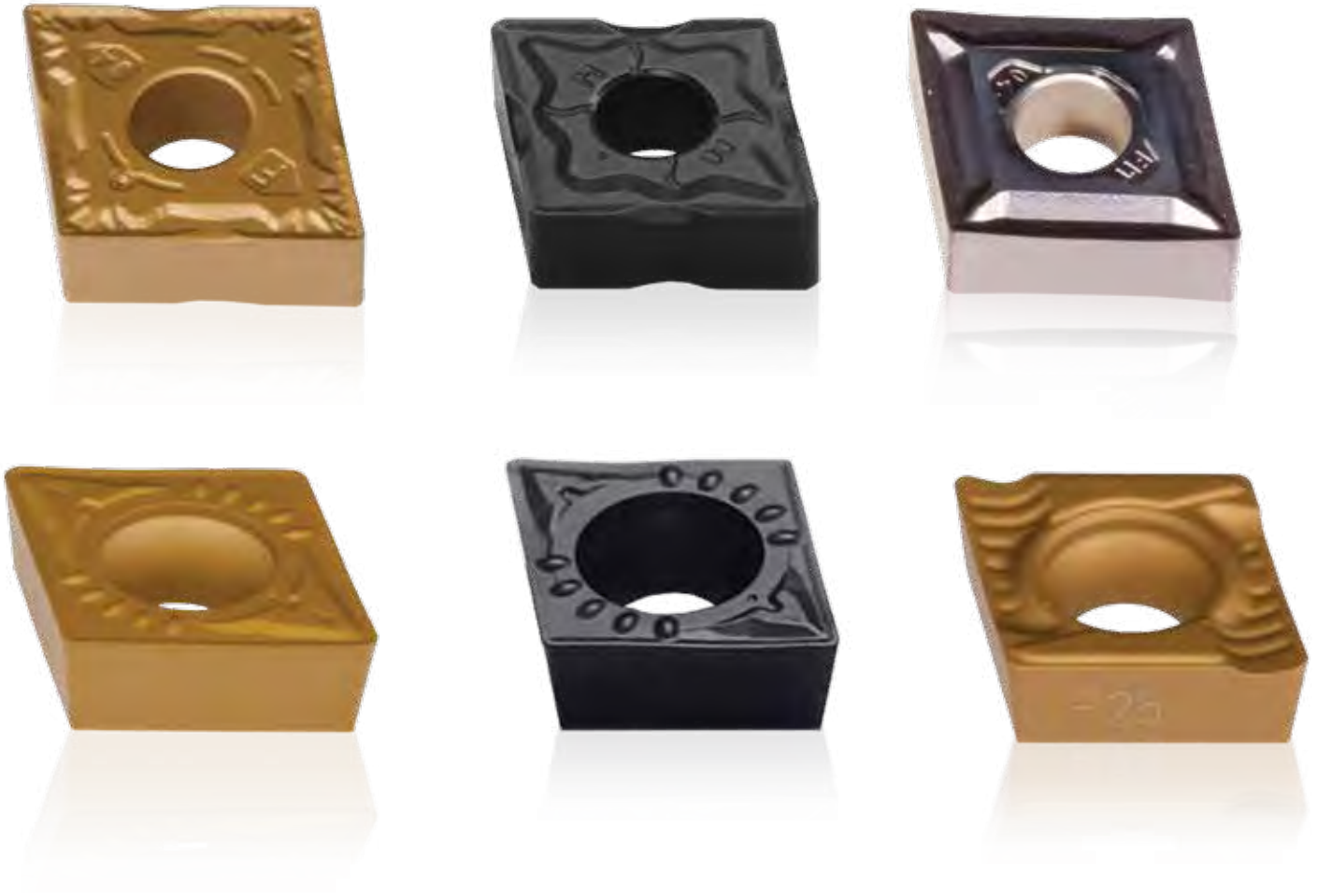


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**DORIAN<sup>®</sup>**  
INTERNATIONAL  
**TOOL**

*The First Choice<sup>™</sup>*  
TECHNOLOGY

# CARBIDE INSERTS & TURNING TOOLS



TECHNOLOGY, QUALITY & PERFORMANCE  
WILL TURN MACHINING INTO **PROFIT!**

## Insert Grades

- 1 If inserts wear, reduce Spindle Speed RPM (n) increase Feed (fn) or change to a harder insert grade.
- 2 If inserts chip, increase Spindle Speed (n), decrease Feed (fn), or change to tougher insert grade.
- 3 For uninterrupted, continuous cuts, use hard and wear resistant insert.
- 4 For forgings, castings and interrupted cuts, use tough and impact resistant insert with larger nose radius.

### DPP30GT

General Purpose for Alloy Steels. Second choice for Stainless Steels  
P30 (P15-P35) Substrate  
Thermal deformation and abrasion resistant substrate with PVD TiN

### DPC15HT

For high speed turning of Alloy Steels, up to 1000+ SFM.  
Most wear resistant steel grade  
Second choice for machining cast irons  
Second choice for finishing operation on Duplex, 316 and 316L (positive geometries only)  
P15 (P10-P25) Fine Grain Substrate (1600 Vickers)  
Not for interrupted cuts  
CVD Al<sub>2</sub>O<sub>3</sub>/TiN/TiCN/Alpha Al<sub>2</sub>O<sub>3</sub>/Nano-TiCN/MT-TiCN/TiN Nanolock Coating Technology (22 microns)

### DPC25UT

Universal Turning Grade for Alloy Steels and easy to machine Stainless Steels (316, 316L)  
Medium Cutting Speeds, ideally at 400-820 SFM.  
For light interrupted and continuous cuts  
P25 (P15-P35) Substrate (1550 Vickers)  
CVD Al<sub>2</sub>O<sub>3</sub>/TiN/TiCN/Alpha-Al<sub>2</sub>O<sub>3</sub>/Nano-TiCN/MT-TiCN/TiN Nanolock Coating Technology (22 microns)

### DPC35RT

For heavily interrupted cuts, forgings, castings and uneven surfaces  
Tough and impact resistant substrate  
Slow cutting speeds, ideally at 160-490 SFM.  
P40 (P25-P40) Substrate (1450 Vickers)  
For Steels and Stainless Steels  
CVD TiN/Al<sub>2</sub>O<sub>3</sub>/TiCN Nanolock Technology Coating

### DMC20HT

High Performance Machining of austenitic stainless steels at higher SFM  
M20 (M10-M25) Substrate  
Not for interrupted cuts  
High cutting speeds, ideally at 525-720 SFM.  
Nanolock black MT-CVD Al<sub>2</sub>O<sub>3</sub>/TiCN/TiN

### DMC30UT

Tougher alternative to DMC20UT grade for stainless steels  
General Purpose for interrupted and continuous cuts  
For medium cutting speeds, ideally at 390-560 SFM.  
M30 (M25-M40) Substrate (1475 Vickers)  
CVD TiN/TiCN/TiN Coating

### DKU10HT

Wear and abrasion resistant, uncoated substrate  
Not for interrupted cuts  
K10 Substrate  
For hardened materials, and abrasive materials  
For very fine cuts

### DKC10UT

Most wear resistant substrate for Nodular, Ductile and Gray Cast Irons and Hardened Steels  
K10 (K05-K15) Substrate (1700 Vickers)  
Up to 1300 SFM on Gray Cast Iron (GG)  
For high cutting speeds, 1000 SFM and above  
TAG-Turbo CVD Al<sub>2</sub>O<sub>3</sub>/TiC/TiCN/TiN Coating with special adhesion interlocking layer  
For uninterrupted cuts

### DKC15RT

Tougher alternative to DKC10UT, for cast irons  
Optimal grade for Nodular Cast Iron (GG) and Gray Cast Iron (GGG)  
K15 (K10-K20) Substrate (1600 Vickers)  
CVD Al<sub>2</sub>O<sub>3</sub>/TiC/TiCN/TiN Coating  
Suitable for interrupted cuts in cast irons

### DNU10GT

Uncoated, high wear resistant grade for aluminum, non-ferrous metals and plastics  
K10 (K05-K15) Substrate

### DNU25GT

Uncoated, high wear resistant grade for aluminum, non-ferrous metals and plastics  
K25 Micrograin Substrate  
For continuous and light interrupted cuts

### DNX10UT

Coated version of DNU10GT  
High wear resistant grade for machining aluminum, non-ferrous metals and plastics  
Micropulse Plasma TiAlN coating, ideal for finish machining (fine cuts) of stainless steels and high temp alloys

### DNP25GT

Universal grade for high temp alloys, aluminum, non-ferrous and ferrous materials  
S25 Substrate with PVD TiN Coating  
Not for interrupted cuts

### DSP10HT

For Titanium and Titanium Alloys (unalloyed Ti, alpha-alloys, alpha-beta alloys, beta-alloys)  
S10 Substrate (1700 Vickers) with CVD TiB<sub>2</sub>/TiN coating  
For cutting speeds 100-230 SFM.

### DSP15HT

Hardest grade for High Temp Alloys  
Medium to rough machining of high temp alloys and finish machining of stainless steels  
With SER chip-breaker, also suitable for Interrupted machining of high temp alloys  
With SEF & SEM chip-breakers, also use on aluminum, non-ferrous metals and plastics  
Submicron K30 Substrate with 3 micron PVD Super-Nitride AlTiN Coating

### DSP20HT

Tougher alternative to DPC35RT grade  
For high temp alloys Inconel 718, Inconel 625, Nimonic, Udimet, Hastelloy, Waspalloy  
Submicron S20 Substrate (1700 Vickers) with 8 micron PVD AlTiN coating  
For cutting speeds 100-220 SFM.

### DUP15VT

Hard & wear resistant for high temp alloys, aluminum, non-ferrous and ferrous materials  
S15 Substrate with PVD AlCrN Coating  
Not for interrupted cuts

### DUP25GT

Universal grade for high temp alloys, aluminum, non-ferrous and ferrous materials  
S25 Substrate with PVD TiAlN/WC/C Coating  
Not for interrupted cuts



## Steel Chip Breakers

### PEF Finishing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .004"     | Max: .079"     |
| Feed Rate    | Min: .002"/rev | Max: .008"/rev |

Small chip-breaker for finishing applications. Very light honed, sharp cutting edge. Optimum chip breaking achieved at small depth of cuts and small feed rates.

### UEM Precision Finishing to Light Roughing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .020"     | Max: .157"     |
| Feed Rate    | Min: .003"/rev | Max: .013"/rev |

Small-Medium (intermediate) chip-breaker for both finishing and medium applications. Small honed, relatively sharp cutting edge, positive rake ensures lower cutting pressure than PEM chip breaker for boring applications. Optimum chip breaking achieved at small-medium depth of cut and small-medium feed rates.

### PEM Light Roughing to Finishing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .031"     | Max: .197"     |
| Feed Rate    | Min: .006"/rev | Max: .016"/rev |

Medium chip-breaker for finishing, medium and roughing applications. Medium honed, safe cutting edge for most cutting conditions with a wide range of depth of cut and feed rates. Most general purpose chip breaker for alloy steels.

### PEU Chip Breaker

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .020"     | Max: .157"     |
| Feed Rate    | Min: .003"/rev | Max: .013"/rev |

Small-Medium chip breaker for finishing and medium applications. Small honed, relatively sharp cutting edge on 11 degree positive inserts for alloy steels and stainless steel materials

### PER Roughing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .047"     | Max: .315"     |
| Feed Rate    | Min: .013"/rev | Max: .030"/rev |

Large chip breaker for roughing and heavy roughing applications. Large honed, strong cutting edge for large depth of cuts and heavy feed rates allows for high material removal rates. Strong cutting edge ideal for interrupted cuts.

### PEX Wiper

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .060"     | Max: .157"     |
| Feed Rate    | Min: .008"/rev | Max: .031"/rev |

Wiper nose with varying nose radii for better surface finish or higher feed rates, preferably on alloy steel materials.

### PSH & PSS Roughing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .079"     | Max: .492"     |
| Feed Rate    | Min: .016"/rev | Max: .063"/rev |

Large chip breaker for heavy roughing on single sided (flat bottom) negative inserts. Flat bottom of the insert provides the most rigid clamping due to maximum surface area on the toolholder's insert pocket. Positive rake, negative land and heavily honed cutting edge for heavy roughing applications with large depth of cut and high feed rate (very high material removal rate). For continuous, varying and interrupted cuts. PSS chip breaker also suitable for heavy duty roughing of cast irons.

### PST Extra Heavy Roughing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .098"     | Max: .492"     |
| Feed Rate    | Min: .031"/rev | Max: .063"/rev |

Large chip breaker and very strong cutting edge for extra heavy duty roughing on single sided (flat bottom) negative inserts. Flat bottom of the insert provides the most rigid clamping due to maximum surface area on the toolholder's insert pocket. Positive rake, negative land and heavily honed cutting edge for extra heavy duty roughing applications with large depth of cut and very high feed rate (very high material removal rate). For continuous, varying and interrupted cuts.

## UEXR/UEXL High Performance Chip Breaker

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .039"     | Max: .126"     |
| Feed Rate    | Min: .008"/rev | Max: .018"/rev |

High positive and large scoop chip breaker allows free flowing chips with minimal cutting tool pressure. Ideal for boring applications or whenever chatter is a problem. The precise ground periphery, sharp cutting edge and deep chip channel makes this insert perfect on thin walled tubes or long, slender parts or deep bores. Also, use this insert on applications where chip breaking and chip control is a problem. Directional chip breaker (right hand – left hand), not good for facing.

## UEN Chip Breaker

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .003"     | Max: .156"     |
| Feed Rate    | Min: .003"/rev | Max: .016"/rev |

General purpose, very light honed, positive cutting edge for finishing and general purpose machining of various materials.

## Stainless Steel Chip Breakers

### MEF Finishing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .020"     | Max: .157"     |
| Feed Rate    | Min: .004"/rev | Max: .013"/rev |

Small chip-breaker for finishing applications. Very light honed, sharp cutting edge allows machining without work hardening on austenitic or precipitation hardening stainless steels. Optimum chip breaking achieved at small depth of cuts and small feed rates.

### MEH High Performance

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .039"     | Max: .148"     |
| Feed Rate    | Min: .007"/rev | Max: .017"/rev |

Newly developed, high-performance chip breaker for finishing, medium and roughing applications. Sharp, positive edge prevents work hardening; ideal for stainless steels. Innovative Chip-Impact-Protector design prevents chip-damage to the cutting when machining up to shoulders.

### MEM Medium

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .047"     | Max: .217"     |
| Feed Rate    | Min: .006"/rev | Max: .016"/rev |

Medium, general purpose chip-breaker for finishing, medium and roughing applications. Sharp, positive edge prevents work hardening; ideal for stainless steels.

### MER Roughing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .047"     | Max: .305"     |
| Feed Rate    | Min: .013"/rev | Max: .031"/rev |

Roughing chip-breaker for stainless steels for heavy material removal rate. Relatively sharp but strong cutting edge for large depth of cut and high feed rate. Use for interrupted cuts or heavy machining of stainless steels with heavy feed.

## UEFR / UEFL Chip Breaker

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .002"     | Max: .039"     |
| Feed Rate    | Min: .002"/rev | Max: .008"/rev |

High positive and very sharp cutting edge with small chip breaker allows free cutting and chip breaking with small depth of cut and small feed rates. Ideal for boring applications or whenever chatter is a problem. The precise ground periphery, and sharp cutting edge makes this insert perfect on thin walled tubes or small, long and slender parts, or deep small bores. Also, use this insert on applications where chip breaking and chip control is a problem due to very small feed rates. Directional chip breaker (right hand – left hand), not good for facing.

## High Temp Alloy Chip Breakers

### SEF Finishing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .020"     | Max: .157"     |
| Feed Rate    | Min: .003"/rev | Max: .010"/rev |

Precision ground periphery with small, upsharp cutting edge and small chip breaker. Ideal for finishing applications on high temp alloys. Also use on aluminum and non-ferrous materials.

### SEH High Performance

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .039"     | Max: .138"     |
| Feed Rate    | Min: .003"/rev | Max: .018"/rev |

High Performance, sharp cutting edge with medium chip breaker and high edge security, ideal for medium and rough machining of high temp alloys and titanium alloys.

### SEM Finishing to Light Roughing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .039"     | Max: .138"     |
| Feed Rate    | Min: .004"/rev | Max: .013"/rev |

Upsharp cutting edge with medium chip breaker, ideal for finishing, medium and light roughing of high temp alloys. Also use on aluminum and non-ferrous materials.

### SER Roughing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .047"     | Max: .236"     |
| Feed Rate    | Min: .006"/rev | Max: .016"/rev |

Sharp cutting edge with large chip breaker, ideal for rough machining of high temp alloys with higher depth of cut and feed rate.

## Cast Iron Chip Breakers

### KEF Finishing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .004"     | Max: .080"     |
| Feed Rate    | Min: .002"/rev | Max: .012"/rev |

Small chip-breaker for finishing applications. Very light honed, sharp cutting edge. Optimum chip breaking achieved at small depth of cuts and small feed rates.

### KEU Medium

Flat top, no chip breaker, ideal for cast irons. General purpose.

### KEM Medium

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .008"     | Max: .125"     |
| Feed Rate    | Min: .002"/rev | Max: .012"/rev |

Medium chip-breaker for finishing, medium and light roughing applications on cast irons.

### KER Roughing

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .032"     | Max: .472"     |
| Feed Rate    | Min: .012"/rev | Max: .024"/rev |

Large chip-breaker with a strong cutting edge for medium to rough machining of cast irons at large depth of cut and heavy feeds. Also use for interrupted cuts.

## NFU High Performance Chip Breaker

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .039"     | Max: .315"     |
| Feed Rate    | Min: .003"/rev | Max: .039"/rev |

Very upsharp, high positive, precision ground and polished cutting edge for aluminum, non-ferrous metals and plastics. Use for finishing, medium or rough machining of aluminums, non-ferrous metals and plastics. Large, ridged chip breaker alloys free flow evacuation of chips with little cutting pressure. Also, use for very fine cuts with small feed rate on stainless steels and high temp alloys for superb surface finish.

## UEU High Performance Chip Breaker

|              |                |                |
|--------------|----------------|----------------|
| Depth of Cut | Min: .002"     | Max: .039"     |
| Feed Rate    | Min: .002"/rev | Max: .008"/rev |

Precision ground periphery and positive, sharp cutting edge with small chip breaker. Best for finishing and medium machining of various materials.



## Negative Inserts

| Material                                  | Application                        | Chip Breaker | Insert                                                                              | Grade                      |         | SFM<br>Surface foot per minute | a <sub>p</sub> Depth of Cut<br>inch | f <sub>n</sub> Feed Rate<br>inch per Rev |
|-------------------------------------------|------------------------------------|--------------|-------------------------------------------------------------------------------------|----------------------------|---------|--------------------------------|-------------------------------------|------------------------------------------|
|                                           |                                    |              |                                                                                     | Harder                     | Tougher |                                |                                     |                                          |
| P Steel & Alloy Steel                     | Finishing                          | PEF          |    | DPC15HT                    |         | 330 1188                       | .004" - .079"                       | .002" - .008"                            |
|                                           |                                    |              |                                                                                     | DPC25UT                    |         | 281 1010                       |                                     |                                          |
|                                           | Medium                             | PEM          |    | DPC15HT                    |         | 330 1188                       | .031" - .197"                       | .006" - .016"                            |
|                                           |                                    |              |                                                                                     | DPC25UT                    |         | 281 1010                       |                                     |                                          |
|                                           |                                    |              |                                                                                     | DPC35RT                    |         | 165 594                        |                                     |                                          |
|                                           | Roughing                           | PER          |    | DPC15HT                    |         | 330 1188                       | .047" - .315"                       | .013" - .030"                            |
|                                           |                                    |              |                                                                                     | DPC25UT                    |         | 281 1010                       |                                     |                                          |
|                                           |                                    |              |                                                                                     | DPC35RT                    |         | 165 594                        |                                     |                                          |
|                                           | Wiper<br>(High Surface Finish)     | PEX          |    | DPC15HT                    |         | 330 1188                       | .060" - .157"                       | .008" - .031"                            |
|                                           |                                    |              |                                                                                     | DPC25UT                    |         | 281 1010                       |                                     |                                          |
|                                           | Medium and Precision Finishing     | UEM          |    | DPC15HT                    |         | 330 1188                       | .020" - .157"                       | .003" - .013"                            |
|                                           |                                    |              |                                                                                     | DPC25UT                    |         | 281 1010                       |                                     |                                          |
|                                           |                                    |              |                                                                                     | DPC35RT                    |         | 165 594                        |                                     |                                          |
|                                           | For Thin Wall Tubing & Deep Boring | UEX          |    | DPC15HT                    |         | 330 1188                       | .039" - .126"                       | .008" - .018"                            |
|                                           |                                    |              |                                                                                     | DPC25UT                    |         | 281 1010                       |                                     |                                          |
|                                           |                                    |              |                                                                                     | DPC35RT                    |         | 165 594                        |                                     |                                          |
|                                           | Roughing                           | PSH          |    | DPC15HT                    |         | 330 1188                       | .079" - .492"                       | .016" - .063"                            |
|                                           |                                    |              |                                                                                     | DPC25UT                    |         | 281 1010                       |                                     |                                          |
|                                           |                                    |              |                                                                                     | DPC35RT                    |         | 165 594                        |                                     |                                          |
|                                           | Heavy Roughing                     | PSS          |    | DPC15HT                    |         | 330 1188                       | .079" - .492"                       | .016" - .063"                            |
|                                           |                                    |              |                                                                                     | DPC25UT                    |         | 281 1010                       |                                     |                                          |
|                                           |                                    |              |                                                                                     | DPC35RT                    |         | 165 594                        |                                     |                                          |
|                                           | Extra Heavy Duty Roughing          | PST          |    | DPC15HT                    |         | 330 1188                       | .098" - .492"                       | .031" - .063"                            |
|                                           |                                    |              |                                                                                     | DPC25UT                    |         | 281 1010                       |                                     |                                          |
|                                           |                                    |              |                                                                                     | DPC35RT                    |         | 165 594                        |                                     |                                          |
| M Stainless Steel                         | High Performance                   | MEH          |   | DMC20HT                    |         | 429 759                        | .039" - .148"                       | .007" - .017"                            |
|                                           | Finishing                          | MEF          |  | DMC30UT                    |         | 238 594                        | .020" - .157"                       | .004" - .013"                            |
|                                           | Medium                             | MEM          |  | DMC30UT                    |         |                                | .047" - .217"                       | .006" - .016"                            |
|                                           | Roughing                           | MER          |  | DMC30UT                    |         |                                | .047" - .305"                       | .013" - .031"                            |
| K Cast Iron                               | Finishing                          | KEF          |  | DKC10UT                    |         | 376 891                        | .004" - .080"                       | .002" - .012"                            |
|                                           | Roughing                           | KER          |  | DKC10UT                    |         | 376 891                        | .032" - .472"                       | .012" - .024"                            |
|                                           |                                    |              |                                                                                     | DKC15RT                    |         | 314 743                        |                                     |                                          |
| S Titanium & Super Alloy                  | High Performance                   | SEH          |  | DSP10HT<br>(Titanium Only) |         | 230 100                        | .039" - .138"                       | .003" - .018"                            |
|                                           |                                    |              |                                                                                     | DSP20HT                    |         | 200 100                        |                                     |                                          |
| S Titanium - Super Alloy & Multi-Material | Finishing                          | SEF          |  | DSP15HT                    |         | 100 1066                       | .020" - .157"                       | .003" - .010"                            |
|                                           | Medium                             | SEM          |  | DSP15HT                    |         |                                | .039" - .138"                       | .004" - .013"                            |
|                                           | Roughing                           | SER          |  | DSP15HT                    |         |                                | .047" - .236"                       | .006" - .016"                            |

## Positive Inserts

| Material                 | Application         | Chip Breaker | Insert                                                                              | Grade<br>← Harder Tougher → |     | SFM<br>Surface foot per minute | a <sub>p</sub> Depth of Cut<br>inch | f <sub>n</sub> Feed Rate<br>inch per Rev |
|--------------------------|---------------------|--------------|-------------------------------------------------------------------------------------|-----------------------------|-----|--------------------------------|-------------------------------------|------------------------------------------|
|                          |                     |              |                                                                                     |                             |     |                                |                                     |                                          |
| S Multi-Material         | General Purpose     | UEF          |    | DNU25GT                     | 83  | 545                            | .002" - .039"                       | .002" - .008"                            |
|                          | Universal           |              |                                                                                     | DUP25GT                     | 96  | 1123                           |                                     |                                          |
|                          | Unstable Condition  |              |                                                                                     | DUP35RT                     | 92  | 1066                           |                                     |                                          |
|                          | General Purpose     | UEU          |    | DUP15VT                     | 119 | 1403                           | .002" - .039"                       | .002" - .008"                            |
|                          | Universal           |              |                                                                                     | DUP25GT                     | 96  | 1123                           |                                     |                                          |
|                          | Unstable Condition  |              |                                                                                     | DPC35RT                     | 92  | 1066                           |                                     |                                          |
| P Steel & Alloy Steel    | Finishing           | PEF          |    | DPC15HT                     | 330 | 1188                           | .004" - .079"                       | .002" - .008"                            |
|                          |                     |              |                                                                                     | DPC25UT                     | 281 | 1010                           |                                     |                                          |
|                          |                     |              |                                                                                     | DPC35RT                     | 165 | 594                            |                                     |                                          |
|                          | Medium              | PEM          |    | DPC15HT                     | 330 | 1188                           | .031" - .197"                       | .006" - .016"                            |
|                          |                     |              |                                                                                     | DPC25UT                     | 281 | 1010                           |                                     |                                          |
|                          |                     |              |                                                                                     | DPC35RT                     | 165 | 594                            |                                     |                                          |
|                          | Universal           | PEU          |    | DPC15HT                     | 330 | 1188                           | .020" - .157"                       | .006" - .016"                            |
|                          |                     |              |                                                                                     | DPC25UT                     | 281 | 1010                           |                                     |                                          |
|                          |                     |              |                                                                                     | DPC35RT                     | 165 | 594                            |                                     |                                          |
|                          | High Performance    | UEX          |  | DPC15HT                     | 330 | 1188                           | .039" - .126"                       | .008" - .018"                            |
|                          | Universal           |              |                                                                                     | DPC25UT                     | 281 | 1010                           |                                     |                                          |
|                          | Unstable Condition  |              |                                                                                     | DPC35RT                     | 165 | 594                            |                                     |                                          |
| M Stainless Steel        | High Performance    | MEH          |  | DMC20HT                     | 429 | 759                            | .039" - .148"                       | .007" - .017"                            |
|                          | Universal           | MEM          |  | DCM30UT                     | 238 | 594                            | .047" - .217"                       | .006" - .016"                            |
| K Cast Iron              | General Application | KEM          |  | DKC15RT                     | 59  | 743                            | .008" - .125"                       | .002" - .012"                            |
| N Aluminum               | General Purpose     | NFU          |  | DNU10GT                     | 446 | 6353                           | .039" - .315"                       | .003" - .039"                            |
|                          | High Performance    |              |                                                                                     | DNX10UT                     | 581 | 7623                           |                                     |                                          |
| S Titanium & Super Alloy | High Performance    | SEH          |  | DSP10HT<br>(Titanium Only)  | 230 | 100                            | .039" - .138"                       | .003" - .018"                            |
|                          |                     |              |                                                                                     | DSP20HT                     | 200 | 100                            |                                     |                                          |

## Multi-Material Applications Positive Precision Ground Inserts

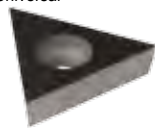
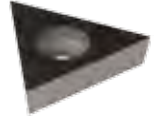
| Description                                                                                                                                     | ANSI              | Grade<br>DNU25GT | Grade<br>DUP25GT | Grade<br>DUP35RT |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|------------------|------------------|
| <b>CDGX-UEFR</b><br>80° Diamond<br>Universal<br>Right Hand     | CDGX-1.510.5-UEFR | 68562            | 68563            | 68564            |
|                                                                                                                                                 | CDGX-1.511-UEFR   | 68572            | 68573            | 68574            |
| <b>CDGX-UEFL</b><br>80° Diamond<br>Universal<br>Left Hand      | CDGX-1.510.5-UEFL | 68567            | 68568            |                  |
|                                                                                                                                                 | CDGX-1.511-UEFL   | 68577            | 68578            |                  |
| <b>CCGX-UEFR</b><br>80° Diamond<br>Universal<br>Right Hand     | CCGX-21.51-UEFR   | 68592            | 68593            | 68594            |
|                                                                                                                                                 |                   |                  |                  |                  |
| <b>CCGX-UEFL</b><br>80° Diamond<br>Universal<br>Left Hand      | CCGX-21.51-UEFL   | 68597            | 68598            |                  |
|                                                                                                                                                 |                   |                  |                  |                  |
| <b>DCGX-UEFR</b><br>55° Diamond<br>Universal<br>Right Hand     | DCGX-21.51-UEFR   | 68712            | 68713            | 68714            |
|                                                                                                                                                 |                   |                  |                  |                  |
| <b>DCGX-UEFL</b><br>55° Diamond<br>Universal<br>Left Hand     | DCGX-21.51-UEFL   | 68717            | 68718            | 68719            |
|                                                                                                                                                 |                   |                  |                  |                  |
| <b>TCGX-UEFF</b><br>60° Triangle<br>Universal<br>Right Hand  | TCGX-21.50.5-UEFR | 68762            | 68763            | 68764            |
|                                                                                                                                                 | TCGX-21.51-UEFR   | 68772            | 68773            | 68774            |
| <b>VBGX-UEFR</b><br>35° Diamond<br>Universal<br>Right Hand   | VBGX-221-UEFR     | 68902            | 68903            |                  |
|                                                                                                                                                 |                   |                  |                  |                  |
| <b>VBGX-UEFL</b><br>35° Diamond<br>Universal<br>Left Hand    | VBGX-221-UEFL     | 68907            | 68908            | 68909            |
|                                                                                                                                                 |                   |                  |                  |                  |
| <b>VCGX-UEFR</b><br>35° Diamond<br>Universal<br>Right Hand   | VCGX-221-UEFR     | 68962            | 68963            | 68964            |
|                                                                                                                                                 |                   |                  |                  |                  |
| <b>VCGX-UEFL</b><br>35° Diamond<br>Universal<br>Left Hand    | VCGX-221-UEFL     | 68967            | 68968            | 68969            |
|                                                                                                                                                 |                   |                  |                  |                  |

## Multi-Material Applications Positive Precision Ground Inserts

| Description                                                                                                                      | ANSI               | Grade<br>DNU10GT | Grade<br>DUP15VT | Grade<br>DUP25GT | Grade<br>DUP35RT |
|----------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|------------------|------------------|------------------|
| <b>CCGT-UEU</b><br>80° Diamond<br>Universal     | CCGT-21.50.2-UEU   | 79450            | 79451            |                  |                  |
|                                                                                                                                  | CCGT-21.50.5-UEU   |                  |                  | 79453            | 79454            |
|                                                                                                                                  | CCGT-21.51-UEU     | 79455            | 79456            | 79458            | 79459            |
|                                                                                                                                  | CCGT-32.50.5-UEU   |                  |                  | 79463            | 79464            |
|                                                                                                                                  | CCGT-32.51-UEU     | 79465            | 79466            | 79468            | 79469            |
|                                                                                                                                  | CCGT-431-UEU       | 79475            | 79476            | 79478            | 79479            |
| <b>CPGT-UEU</b><br>80° Diamond<br>Universal     | CCGT-432-UEU       | 79480            | 79481            | 79483            | 79484            |
|                                                                                                                                  | CPGT-1.81.20.5-UEU | 79485            | 79486            | 79488            | 79489            |
|                                                                                                                                  | CPGT-1.81.21-UEU   | 79490            | 79491            | 79493            | 79494            |
|                                                                                                                                  | CPGT-21.51-UEU     | 79500            | 79501            | 79503            | 79504            |
|                                                                                                                                  | CPGT-32.50.5-UEU   | 79507            |                  | 79508            | 79509            |
|                                                                                                                                  | CPGT-32.51-UEU     | 79510            | 79511            | 79513            | 79514            |
| <b>DCGT-UEU</b><br>55° Diamond<br>Universal     | DCGT-21.50.2-UEU   | 79530            | 79531            |                  |                  |
|                                                                                                                                  | DCGT-21.50.5-UEU   |                  |                  | 79533            | 79534            |
|                                                                                                                                  | DCGT-21.51-UEU     | 79535            | 79536            | 79538            | 79539            |
|                                                                                                                                  | DCGT-32.50.2-UEU   | 79540            | 79541            |                  |                  |
|                                                                                                                                  | DCGT-32.50.5-UEU   |                  |                  | 79543            | 79544            |
|                                                                                                                                  | DCGT-32.51-UEU     | 79545            | 79546            | 79548            | 79549            |
|                                                                                                                                  | DCGT-32.52-UEU     | 79550            | 79551            | 79553            | 79554            |
|                                                                                                                                  | DCGT-431-UEU       | 79555            | 79556            | 79558            | 79559            |
| <b>TCGT-UEU</b><br>60° Triangle<br>Universal   | DCGT-432-UEU       | 79560            | 79561            | 79563            | 79564            |
|                                                                                                                                  | TCGT-21.50.2-UEU   | 79585            | 79586            | 79588            | 79589            |
|                                                                                                                                  | TCGT-21.50.5-UEU   |                  |                  | 79593            | 79594            |
|                                                                                                                                  | TCGT-21.51-UEU     | 79595            | 79596            | 79598            | 79599            |
|                                                                                                                                  | TCGT-32.50.5-UEU   |                  |                  | 79608            | 79609            |
|                                                                                                                                  | TCGT-32.51-UEU     | 79610            | 79611            | 79613            | 79614            |
| <b>TPGT-UEU</b><br>60° Triangle<br>Universal  | TCGT-32.52-UEU     | 79615            | 79616            | 79618            | 79619            |
|                                                                                                                                  | TPGT-21.50.2-UEU   |                  |                  | 79623            | 79624            |
|                                                                                                                                  | TPGT-21.50.5-UEU   |                  |                  | 79628            | 79629            |
|                                                                                                                                  | TPGT-21.51-UEU     | 79630            | 79631            | 79633            | 79634            |
|                                                                                                                                  | TPGT-32.50.5-UEU   |                  |                  | 79643            | 79644            |
|                                                                                                                                  | TPGT-32.51-UEU     | 79645            | 79646            | 79648            | 79649            |
| <b>VBGT-UEU</b><br>35° Diamond<br>Universal   | TPGT-32.52-UEU     | 79650            | 79651            | 79653            | 79654            |
|                                                                                                                                  | VBGT-221-UEU       | 79660            | 79661            | 79663            | 79664            |
|                                                                                                                                  | VBGT-331-UEU       | 79670            | 79671            | 79673            | 79674            |
|                                                                                                                                  | VBGT-332-UEU       | 79675            | 79676            | 79678            | 79679            |
| <b>VCGT-UEU</b><br>35° Diamond<br>Universal   | VCGT-220.2-UEU     | 79680            | 79681            |                  |                  |
|                                                                                                                                  | VCGT-220.5-UEU     |                  |                  | 79683            | 79684            |
|                                                                                                                                  | VCGT-221-UEU       | 79685            | 79686            | 79688            | 79689            |
|                                                                                                                                  | VCGT-330.5-UEU     |                  |                  | 79698            | 79699            |
|                                                                                                                                  | VCGT-331-UEU       | 79700            | 79701            | 79703            | 79704            |
|                                                                                                                                  | VCGT-332-UEU       | 79705            | 79706            | 79708            | 79709            |
| <b>WCGT-UEU</b><br>80° Trigon Universal       | WCGT-1.51.50.2-UEU | 79710            | 79711            | 79713            | 79714            |
|                                                                                                                                  | WCGT-1.51.50.5-UEU | 79715            | 79716            | 79718            | 79719            |
|                                                                                                                                  | WCGT-21.51-UEU     | 79725            | 79726            | 79728            | 79729            |
|                                                                                                                                  | WCGT-32.51-UEU     | 79735            | 79736            | 79738            | 79739            |
|                                                                                                                                  | WCGT-32.52-UEU     |                  | 79741            | 79743            | 79744            |
|                                                                                                                                  |                    |                  |                  |                  |                  |



## Multi-Material Applications Positive Precision Ground Inserts

| Description                                                                                                                                         | ANSI               | Grade<br>DKU10HT | Grade<br>DUP15VT | Grade<br>DUP35RT |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|------------------|------------------|
| <b>CDGW-KEU</b><br>80° Diamond<br>Universal<br>                     | CDGW-1.20.60.2-KEU | 79340            | 79341            | 79343            |
|                                                                                                                                                     | CDGW-1.20.60.5-KEU | 79344            | 79345            | 79347            |
|                                                                                                                                                     | CDGW-1.510.5-KEU   | 79348            | 79349            | 79351            |
|                                                                                                                                                     | CDGW-1.511-KEU     | 79352            | 79353            | 79355            |
| <b>CCGW-KEU</b><br>80° Diamond<br>Universal<br>                     | CCGW-21.51-KEU     | 79356            | 79357            | 79359            |
|                                                                                                                                                     | CCGW-32.52-KEU     | 79364            | 79365            | 79367            |
|                                                                                                                                                     |                    |                  |                  |                  |
|                                                                                                                                                     |                    |                  |                  |                  |
| <b>CPGW-KEU</b><br>80° Diamond<br>Universal<br>                     | CPGW-1.81.20.5-KEU | 79368            | 79369            | 79371            |
|                                                                                                                                                     | CPGW-1.81.21-KEU   | 79372            | 79373            | 79375            |
|                                                                                                                                                     | CPGW-21.51-KEU     | 79376            | 79377            | 79379            |
|                                                                                                                                                     | CPGW-32.51-KEU     | 79380            | 79381            | 79383            |
|                                                                                                                                                     | CPGW-32.52-KEU     | 79384            | 79385            | 79387            |
| <b>DCGW-KEU</b><br><b>DCMW-KEU</b><br>55° Diamond<br>Universal<br> | DCGW-21.51-KEU     | 79388            | 79389            | 79391            |
|                                                                                                                                                     | DCMW-32.51-KEU     | 70770            | 79392            |                  |
|                                                                                                                                                     | DCMW-32.52-KEU     | 70771            | 79393            |                  |
|                                                                                                                                                     |                    |                  |                  |                  |
| <b>TCGW-KEU</b><br>60° Triangle<br>Universal<br>                  | TCGW-21.51-KEU     | 79400            | 79401            | 79403            |
|                                                                                                                                                     | TCGW-32.52-KEU     | 79408            | 79409            | 79411            |
| <b>TPGW-KEU</b><br>60° Triangle<br>Universal<br>                  | TPGW-21.51-KEU     | 79412            | 79413            | 79415            |
|                                                                                                                                                     | TPGW-32.51-KEU     | 79416            | 79417            | 79419            |
|                                                                                                                                                     | TPGW-32.52-KEU     | 79420            | 79421            | 79423            |
|                                                                                                                                                     |                    |                  |                  |                  |
| <b>VBGW-KEU</b><br>35° Diamond<br>Universal<br>                   | VBGW-221-KEU       | 79424            | 79425            | 79427            |
|                                                                                                                                                     | VBGW-331-KEU       | 79428            | 79429            | 79431            |
|                                                                                                                                                     | VBGW-332-KEU       | 79432            | 79433            | 79435            |
| <b>VCGW-KEU</b><br>35° Diamond<br>Universal<br>                   | VCGW-221-KEU       | 79436            | 79437            | 79439            |
|                                                                                                                                                     | VCGW-331-KEU       | 79440            | 79441            | 79443            |
|                                                                                                                                                     | VCGW-332-KEU       | 79444            | 79445            | 79447            |
|                                                                                                                                                     |                    |                  |                  |                  |

## Alloy Steel Applications Positive Inserts

| Description                                                                                                                          | ANSI               | Grade<br>DPC15HT | Grade<br>DPC25UT | Grade<br>DPC35RT |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|------------------|------------------|
| <b>CCMT-PEF</b><br>80° Diamond<br>Finishing<br>    | CCMT-21.50.5-PEF   | 71873            | 71874            |                  |
|                                                                                                                                      | CCMT-21.51-PEF     | 71877            | 71878            |                  |
|                                                                                                                                      | CCMT-21.52-PEF     | 71879            | 71880            |                  |
|                                                                                                                                      | CCMT-32.51-PEF     | 71883            | 71884            |                  |
|                                                                                                                                      | CCMT-32.52-PEF     | 71885            | 71886            |                  |
| <b>CCMT-PEM</b><br>80° Diamond<br>Medium<br>       | CCMT-21.50.5-PEM   | 71875            | 71876            |                  |
|                                                                                                                                      | CCMT-21.51-PEM     | 71933            | 71934            |                  |
|                                                                                                                                      | CCMT-21.52-PEM     | 71881            | 71882            |                  |
|                                                                                                                                      | CCMT-32.51-PEM     | 71935            | 71936            |                  |
|                                                                                                                                      | CCMT-32.52-PEM     | 71887            | 71888            |                  |
|                                                                                                                                      | CCMT-431-PEM       | 71937            | 71938            |                  |
| <b>DCMT-PEF</b><br>55° Diamond<br>Finishing<br>    | DCMT-21.51-PEF     | 71893            | 71894            |                  |
|                                                                                                                                      | DCMT-32.51-PEF     | 71897            | 71898            |                  |
| <b>DCMT-PEM</b><br>55° Diamond<br>Medium<br>       | DCMT-21.51-PEM     | 71895            | 71896            |                  |
|                                                                                                                                      | DCMT 32.51-PEM     | 71899            | 71900            |                  |
|                                                                                                                                      | DCMT 32.52-PEM     | 71901            | 71902            |                  |
| <b>RCMX-UEX</b><br>Metric Round<br>                | RCMX-1003MO-UEX    |                  | 71957            |                  |
|                                                                                                                                      | RCMX-1204MO-UEX    | 71958            | 71959            |                  |
|                                                                                                                                      | RCMX-1606MO-UEX    | 71962            | 71963            |                  |
|                                                                                                                                      | RCMX-2006MO-UEX    | 71967            | 71968            |                  |
|                                                                                                                                      | RCMX-2507MO-UEX    | 71972            | 71973            |                  |
|                                                                                                                                      | RCMX-3209MO-UEX    | 71976            | 71977            |                  |
| <b>RCMT-UM</b><br>Inch Round<br>                  | RCMT-43-UM         |                  | 79926            |                  |
|                                                                                                                                      | RCMT-64-UM         |                  | 79929            |                  |
|                                                                                                                                      | RCMT-84-UM         |                  | 79931            |                  |
| <b>SCMT-PEF</b><br>Square<br>Finishing<br>       | SCMT-32.51-PEF     | 71903            | 71904            |                  |
|                                                                                                                                      |                    |                  |                  |                  |
| <b>SCMT-PEM</b><br>Square<br>Medium<br>          | SCMT-32.52-PEM     | 71905            | 71906            |                  |
|                                                                                                                                      | SCMT-432-PEM       | 71907            | 71908            |                  |
|                                                                                                                                      | SCMT-433-PEM       | 71939            | 71940            |                  |
| <b>TCMT-PEF</b><br>60° Triangle<br>Finishing<br> | TCMT-1.21.20.5-PEF |                  | 80249            |                  |
|                                                                                                                                      | TCMT-21.50.5-PEF   | 71909            | 71910            |                  |
|                                                                                                                                      | TCMT-21.51-PEF     | 71911            | 71912            |                  |
| <b>TCMT-PEM</b><br>60° Triangle<br>Medium<br>    | TCMT-21.51-PEM     | 71941            | 71942            |                  |
|                                                                                                                                      | TCMT-21.52-PEM     | 71913            | 71914            |                  |
|                                                                                                                                      | TCMT-32.51-PEM     | 71915            | 71916            |                  |
|                                                                                                                                      | TCMT-32.52-PEM     | 71917            | 71918            |                  |
| <b>TPMR-PEU</b><br>60° Triangle<br>Medium<br>    | TPMR-221-PEU       | 71945            | 71946            | 71947            |
|                                                                                                                                      | TPMR-222-PEU       | 71948            | 71949            | 71950            |
|                                                                                                                                      | TPMR-321-PEU       | 71951            | 71952            | 71953            |
|                                                                                                                                      | TPMR-322-PEU       | 71954            | 71955            | 71956            |
| <b>VBMT-PEF</b><br>35° Diamond<br>Finishing<br>  | VBMT-331-PEF       | 71919            | 71920            |                  |
|                                                                                                                                      | VBMT-332-PEF       | 71921            | 71922            |                  |
|                                                                                                                                      | VBMT-333-PEF       | 71923            | 71924            |                  |

## Alloy Steel Applications Positive Inserts

| Description                                                                                                                   | ANSI             | Grade<br>DPC15HT | Grade<br>DPC25UT | Grade<br>DPC35RT |
|-------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|------------------|
| <b>VCMT-PEF</b><br>35° Diamond<br>Finishing  | VCMT-221-PEF     | 71925            | 71926            |                  |
|                                                                                                                               | VCMT331-PEF      | 71927            | 71928            |                  |
|                                                                                                                               | VCMT332-PEF      | 71931            | 71932            |                  |
| <b>VCMT-PEM</b><br>35° Diamond<br>Medium     | VCMT-331-PEM     | 71943            | 71944            |                  |
|                                                                                                                               | VCMT-332-PEM     | 71929            | 71930            |                  |
| <b>WCMT-PEF</b><br>80° Trigon<br>Finishing   | WCMT-1.210.5-PEF |                  | 80251            |                  |

## Alloy Steel & Stainless Steel Applications (for lower cutting pressure) Positive Precision Ground Inserts

| Description                                                                                                                                                | ANSI            | Alloy Steel<br>DPC25UT | Alloy Steel<br>DPC35RT | Stainless Steel<br>DMC30UT |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------|------------------------|----------------------------|
| <b>CCGT-UEXL</b><br>80° Diamond<br>Universal<br>Left Hand                | CCGT-21.51 UEXL | 70676                  | 70677                  | 70678                      |
|                                                                                                                                                            | CCGT-21.52 UEXL | 70682                  | 70683                  | 70684                      |
|                                                                                                                                                            | CCGT-32.51 UEXL | 70688                  | 70689                  | 70690                      |
|                                                                                                                                                            | CCGT-32.52 UEXL | 70694                  | 70695                  | 70696                      |
|                                                                                                                                                            | CCGT-432 UEXL   | 70700                  | 70701                  | 70702                      |
|                                                                                                                                                            | CCGT-433 UEXL   | 70706                  | 70707                  | 70708                      |
| <b>CCGT-UEXR</b><br>80° Diamond<br>Universal<br>Right Hand              | CCGT-21.51 UEXR | 70679                  | 70680                  | 70681                      |
|                                                                                                                                                            | CCGT-21.52 UEXR | 70685                  | 70686                  | 70687                      |
|                                                                                                                                                            | CCGT-31.51 UEXR | 70691                  | 70692                  | 70693                      |
|                                                                                                                                                            | CCGT-31.52 UEXR | 70697                  | 70698                  | 70699                      |
|                                                                                                                                                            | CCGT-432 UEXR   | 70703                  | 70704                  | 70705                      |
|                                                                                                                                                            | CCGT-433 UEXR   | 70709                  | 70710                  | 70711                      |
| <b>DCGT-UEXL</b><br>55° Diamond<br>Medium<br>Left Hand                  | DCGT-21.51 UEXL | 70712                  | 70713                  | 70714                      |
|                                                                                                                                                            | DCGT-32.51 UEXL | 70718                  | 70719                  | 70720                      |
|                                                                                                                                                            | DCGT-32.52 UEXL | 70725                  | 70726                  | 70727                      |
| <b>DCGT-UEXR</b><br>55° Diamond<br>Roughing<br>Right Hand               | DCGT-21.51 UEXR | 70715                  | 70716                  | 70717                      |
|                                                                                                                                                            | DCGT-32.51 UEXR | 70721                  | 70722                  | 70723                      |
|                                                                                                                                                            | DCGT-32.52 UEXR | 70729                  | 70730                  | 70731                      |
| <b>TCGT-UEXL</b><br>60° Triangle<br>Universal<br>Left Hand              | TCGT-21.51 UEXL | 70732                  | 70733                  | 70734                      |
|                                                                                                                                                            | TCGT-32.51 UEXL | 70738                  | 70739                  | 70740                      |
|                                                                                                                                                            | TCGT-32.52 UEXL | 70744                  | 70745                  | 70746                      |
| <b>TCGT-UEXR</b><br>60° Triangle<br>Finishing/<br>Medium<br>Right Hand  | TCGT-21.51 UEXR | 70735                  | 70736                  | 70737                      |
|                                                                                                                                                            | TCGT-32.51 UEXR | 70741                  | 70742                  | 70743                      |
|                                                                                                                                                            | TCGT-32.52 UEXR | 70747                  | 70748                  | 70749                      |

## Titanium & High Temp Alloy Applications Positive Inserts

| Description                                                                                                                    | ANSI            | Titanium Grade<br>DSP10HT | High Temp Grade<br>DSP20HT |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------|----------------------------|
| <b>CCMT-SEH</b><br>80° Diamond<br>Universal  | CCMT-32.51-SEH  | 69725                     | 69722                      |
|                                                                                                                                |                 |                           |                            |
| <b>DCMT-SEH</b><br>55° Diamond<br>Universal  | DCMT-32.51-SEH  | 69728                     | 69729                      |
|                                                                                                                                |                 |                           |                            |
| <b>RCMT-SEH</b><br>Round<br>Roughing         | RCMT-1606MO-SEH | 69732                     |                            |
|                                                                                                                                | RCMT-2006MO-SEH | 69734                     |                            |

## Alloy Steel Applications Positive Ground Inserts

| Description                                                                                                                             | ANSI           | Grade<br>DNU25GT | Grade<br>DNP25GT | Grade<br>DPP30GT |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|------------------|------------------|
| <b>TPG-UEN</b><br>60° Triangle<br>General Purpose     | TPG-221-UEN    |                  | 71607            | 71608            |
|                                                                                                                                         | TPG-222-UEN    | 71611            | 71613            |                  |
|                                                                                                                                         | TPG-321-UEN    |                  |                  | 71620            |
|                                                                                                                                         | TPG-322-UEN    | 71623            | 71625            | 71626            |
|                                                                                                                                         | TPG-431-UEN    | 71629            | 71631            |                  |
|                                                                                                                                         | TPG-432-UEN    | 71635            | 71637            | 71638            |
| <b>TPGB-UEN</b><br>60° Triangle<br>General Purpose    | TPGB-21.51-UEN | 71652            |                  | 71654            |
|                                                                                                                                         | TPGB-21.52-UEN | 71655            |                  | 71657            |
|                                                                                                                                         | TPGB-321-UEN   | 71659            |                  | 71661            |
|                                                                                                                                         | TPGB-322-UEN   | 71662            |                  | 71664            |
|                                                                                                                                         | TPGB-431-UEN   | 71673            |                  | 71675            |
|                                                                                                                                         | TPGB-432-UEN   | 71676            |                  | 71678            |
| <b>TPGH-UEN</b><br>60° Triangle<br>General Purpose  | TPGH-21.51-UEN | 71700            | 71703            | 71704            |
|                                                                                                                                         | TPGH-21.52-UEN | 71706            | 71709            | 71708            |
|                                                                                                                                         | TPGH-321-UEN   | 71712            | 71716            | 71715            |
|                                                                                                                                         | TPGH-322-UEN   | 71718            | 71720            | 71722            |
|                                                                                                                                         | TPGH-431-UEN   | 71726            | 71728            | 71730            |
|                                                                                                                                         | TPGH-432-UEN   | 71734            | 71737            | 71736            |
| <b>TPHT-UEN</b><br>60° Triangle<br>General Purpose  | TPHT-32.51-UEN | 71748            | 71750            | 71751            |
|                                                                                                                                         | TPHT-32.52-UEN | 71753            | 71755            | 71756            |

## Multi-Material Applications Positive Convex Radius Inserts

| Description                                                                                                                                                                   | ANSI          | Radius | Grade<br>DNU25GT | Grade<br>DUP25GT |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|------------------|------------------|
| <b>SDGX-UEN</b><br>3/8" Square<br>Convex Radius  | SDGX-09C01-E  | .016"  |                  | 95299            |
|                                                                                                                                                                               | SDGX-09C03-E  | .047"  | 95305            | 95307            |
|                                                                                                                                                                               | SDGX-09C04-E  | .062"  | 95309            | 95311            |
| <b>SDGX-UEN</b><br>3/4" Square<br>Convex Radius  | SDGX-19C05-E  | .078"  |                  | 95250            |
|                                                                                                                                                                               | SDGX-19C06-E  | .094"  | 95253            | 95254            |
|                                                                                                                                                                               | SDGX-19C07-E  | .109"  | 95257            | 95258            |
|                                                                                                                                                                               | SDGX-19C08-E  | .125   | 95261            | 95262            |
|                                                                                                                                                                               | SDGX-19C09-E  | .141"  |                  | 95266            |
|                                                                                                                                                                               | SDGX-19C10-E  | .156"  | 95269            | 95270            |
|                                                                                                                                                                               | SDGX-19C11-E  | .178"  |                  | 95274            |
|                                                                                                                                                                               | SDGX-19C12-E  | .188"  | 95277            | 95278            |
|                                                                                                                                                                               | SDGX-19C13-E  | .203"  |                  | 95282            |
|                                                                                                                                                                               | SDGX-19C14-E  | .219"  | 95285            | 95286            |
|                                                                                                                                                                               | SDGX-19C15-E* | .234"  | 95289            | 95290            |
|                                                                                                                                                                               | SDGX-19C16-E* | .250"  | 95293            | 95294            |

\*All SDGX inserts have 4 cutting edges, except .234" & .250" radius inserts that have 2 cutting edges.

## Stainless Steel Applications Positive Inserts

| Description                                                                                                                               | ANSI           | Grade<br>DMC20HT | Grade<br>DMC30UT |
|-------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|------------------|
| <b>CCMT-MEM</b><br>80° Diamond<br>Finishing/Medium       | CCMT-32.51-MEM |                  | 70750            |
|                                                                                                                                           | CCMT-32.52-MEM |                  | 70751            |
|                                                                                                                                           | CCMT-431-MEM   |                  | 70752            |
|                                                                                                                                           | CCMT-432-MEM   |                  | 70756            |
| <b>CCMT-MEH</b><br>80° Diamond<br>High Performance       | CCMT-31.51-MEH | 70786            |                  |
|                                                                                                                                           | CCMT-31.52-MEH | 70787            |                  |
| <b>DCMT-MEM</b><br>55° Diamond<br>Finishing /<br>Medium  | DCMT-32.51-MEM |                  | 70760            |
|                                                                                                                                           | DCMT-32.52-MEM |                  | 70761            |
| <b>DCMT-MEH</b><br>55° Diamond<br>High Performance       | DCMT-32.51-MEH | 70788            |                  |
|                                                                                                                                           | DCMT-32.52-MEH | 70789            |                  |
| <b>SCMT-MEM</b><br>Square<br>Medium                      | SCMT-432-MEM   |                  | 70772            |
| <b>TCMT-MEM</b><br>60° Triangle<br>Medium               | TCMT-21.51-MEM |                  | 70776            |
|                                                                                                                                           | TCMT-21.52-MEM |                  | 70777            |
|                                                                                                                                           | TCMT-32.51-MEM |                  | 70778            |
|                                                                                                                                           | TCMT-32.52-MEM |                  | 70779            |
| <b>VCMT-MEM</b><br>35° Diamond<br>Medium               | VCMT-331-MEM   |                  | 70783            |
|                                                                                                                                           | VCMT-332-MEM   |                  | 70784            |
|                                                                                                                                           | VCMT-333-MEM   |                  | 70785            |

## Cast Iron Applications Positive Inserts

| Description                                                                                                                            | ANSI           | Grade<br>DKC10UT | Grade<br>DKC15RT |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|------------------|
| <b>CCMT-KEM</b><br>80° Diamond<br>Finishing/Medium  | CCMT-32.51-KEM |                  | 70753            |
|                                                                                                                                        | CCMT-32.52-KEM |                  | 70754            |
|                                                                                                                                        | CCMT-432-KEM   |                  | 70755            |
| <b>DCMT-KEM</b><br>55° Diamond<br>Finishing/Medium  | DCMT-21.51-KEM | 70762            | 70763            |
|                                                                                                                                        | DCMT-21.52-KEM | 70764            | 70765            |
|                                                                                                                                        | DCMT-32.51-KEM | 70766            | 70767            |
|                                                                                                                                        | DCMT-32.52-KEM | 70768            | 70769            |
| <b>SCMT-KEM</b><br>Square<br>Medium                 | SCMT-432-KEM   |                  | 70773            |

## Aluminum Applications Ground & Polished Inserts

| Description                                                                                                                       | ANSI             | Grade<br>DNU10GT | Grade<br>DNX10UT |
|-----------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|
| <b>CCGT-NFU</b><br>80° Diamond<br>Universal     | CCGT-21.50.5-NFU | 80020            | 80021            |
|                                                                                                                                   | CCGT-21.51-NFU   | 80024            | 80025            |
|                                                                                                                                   | CCGT-32.50.5-NFU | 80028            | 80029            |
|                                                                                                                                   | CCGT-32.51-NFU   | 80032            | 80033            |
|                                                                                                                                   | CCGT-32.52-NFU   | 80036            | 80037            |
|                                                                                                                                   | CCGT-431-NFU     | 80040            | 80041            |
|                                                                                                                                   | CCGT-432-NFU     | 80044            | 80045            |
| <b>DCGT-NFU</b><br>55° Diamond<br>Universal     | DCGT-21.50.5-NFU | 80048            | 80049            |
|                                                                                                                                   | DCGT-21.51-NFU   | 80052            | 80053            |
|                                                                                                                                   | DCGT-32.50.5-NFU | 80056            | 80057            |
|                                                                                                                                   | DCGT-32.51-NFU   | 80060            | 80061            |
| <b>RCMT-NFU</b><br>Round<br>Universal           | RCMT-0602MO-NFU  | 70798            |                  |
|                                                                                                                                   |                  |                  |                  |
| <b>RCGT-NFU</b><br>Round<br>Universal           | RCGT-0602MO-NFU  | 80068            | 80069            |
|                                                                                                                                   | RCGT-0803MO-NFU  | 80072            | 80073            |
|                                                                                                                                   | RCGT-1003MO-NFU  | 80076            | 80077            |
| <b>SCGT-NFU</b><br>Square<br>Universal         | SCGT-432-NFU     | 80084            | 80085            |
|                                                                                                                                   |                  |                  |                  |
| <b>TCGT-NFU</b><br>60° Triangle<br>Universal  | TCGT-21.51-NFU   | 80089            | 80090            |
|                                                                                                                                   | TCGT-32.51-NFU   | 80093            | 80094            |
| <b>VCGT-NFU</b><br>35° Triangle<br>Universal  | VCGT-220.5-NFU   | 80098            | 80099            |
|                                                                                                                                   | VCGT-221-NFU     | 80103            | 80104            |
|                                                                                                                                   | VCGT-330.5-NFU   | 80107            | 80108            |
|                                                                                                                                   | VCGT-331-NFU     | 80111            | 80112            |
|                                                                                                                                   | VCGT-332-NFU     | 80115            | 80116            |
|                                                                                                                                   | VCGT-333-NFU     | 80119            | 80120            |
|                                                                                                                                   | VCGT-448-NFU     | 80123            | 80124            |
| <b>VPGT-NFU</b><br>35° Triangle<br>Universal  | VPGT-221-NFU     | 80127            | 80128            |
|                                                                                                                                   | VPGT-333-NFU     | 80131            | 80133            |
|                                                                                                                                   | VPGT-444-NFU     | 80135            | 80136            |
| <b>WCGT-NFU</b><br>80° Trigon<br>Universal    | WCGT-32.50.5-NFU | 80140            | 80141            |
|                                                                                                                                   | WCGT-32.51-NFU   | 80144            | 80145            |
|                                                                                                                                   | WCGT-32.52-NFU   | 80148            | 80149            |
|                                                                                                                                   | WCGT-431-NFU     | 80152            | 80153            |
|                                                                                                                                   | WCGT-432-NFU     | 80156            | 80157            |

## Alloy Steel Applications Negative Inserts

| Description                                 | ANSI         | DPC15HT | Grade<br>DPC25UT | DPC35RT |
|---------------------------------------------|--------------|---------|------------------|---------|
| <b>CNMG-PEF</b><br>80° Diamond<br>Finishing | CNMG-431-PEF | 69250   | 69251            |         |
|                                             | CNMG-432-PEF | 69252   | 69253            |         |
| <b>CNMG-UEM</b><br>80° Diamond<br>Universal | CNMG-431-UEM | 69826   | 69828            |         |
|                                             | CNMG-432-UEM | 69832   | 69833            | 69834   |
| <b>CNMG-PEM</b><br>80° Diamond<br>Medium    | CNMG-322-PEM | 69491   | 69276            | 69277   |
|                                             | CNMG-432-PEM | 69408   | 69278            | 69279   |
|                                             | CNMG-433-PEM | 69280   | 69281            | 69282   |
|                                             | CNMG-542-PEM | 69283   | 69284            | 69285   |
|                                             | CNMG-543-PEM | 69286   | 69287            | 69288   |
|                                             | CNMG-544-PEM | 69492   | 69289            | 69290   |
|                                             | CNMG-643-PEM | 69409   | 69291            | 69292   |
|                                             | CNMG-644-PEM | 69410   | 69293            | 69294   |
| <b>CNMG-PER</b><br>80° Diamond<br>Roughing  | CNMG-432-PER | 69351   | 69352            | 69353   |
|                                             | CNMG-433-PER | 69354   | 69355            | 69356   |
|                                             | CNMG-542-PER | 69357   | 69358            | 69359   |
|                                             | CNMG-543-PER | 69360   | 69361            | 69362   |
|                                             | CNMG-544-PER | 69363   | 69364            | 69365   |
|                                             | CNMG-643-PER | 69366   | 69367            | 69368   |
|                                             | CNMG-644-PER | 69369   | 69370            | 69371   |
|                                             | CNMG-646-PER | 69372   | 69373            | 69374   |
| <b>DNMG-PEF</b><br>55° Diamond<br>Finishing | DNMG-331-PEF | 69254   | 69255            |         |
|                                             | DNMG-332-PEF | 69256   | 69257            |         |
|                                             | DNMG-431-PEF | 69258   | 69259            |         |
|                                             | DNMG-432-PEF | 69260   | 69261            |         |
|                                             | DNMG-441-PEF | 69262   | 69263            |         |
|                                             | DNMG-442-PEF | 69264   | 69265            |         |
| <b>DNMG-UEM</b><br>55° Diamond<br>Universal | DNMG-331-UEM | 69835   | 69836            | 69837   |
|                                             | DNMG-332-UEM | 69840   | 69841            |         |
|                                             | DNMG-432-UEM |         | 69844            |         |
|                                             | DNMG-441-UEM | 69845   | 69846            | 69847   |
|                                             | DNMG-442-UEM | 69848   | 69849            | 69850   |
| <b>DNMG-PEM</b><br>55° Diamond<br>Medium    | DNMG-332-PEM | 69295   | 69296            | 69297   |
|                                             | DNMG-432-PEM | 69298   | 69299            | 69300   |
|                                             | DNMG-433-PEM | 69301   | 69302            | 69303   |
|                                             | DNMG-442-PEM | 69304   | 69305            | 69306   |
|                                             | DNMG-443-PEM | 69307   | 69308            | 69309   |
|                                             | DNMG-444-PEM | 69310   | 69311            | 69312   |
| <b>DNMG-PER</b><br>55° Diamond<br>Roughing  | DNMG-432-PER | 69375   | 69376            | 69377   |
|                                             | DNMG-433-PER | 69378   | 69379            | 69380   |
|                                             | DNMG-442-PER | 69381   | 69382            | 69383   |
|                                             | DNMG-443-PER | 69384   | 69385            | 69386   |
|                                             | DNMG-444-PER | 69387   | 69388            | 69389   |
| <b>SNMG-PEF</b><br>Square<br>Finishing      | SNMG-431-PEF | 69266   | 69267            |         |
|                                             |              |         |                  |         |
| <b>SNMG-UEM</b><br>Square<br>Universal      | SNMG-321-UEM | 69851   | 69852            |         |
| <b>SNMG-PEM</b><br>Square<br>Medium         | SNMG-432-PEM | 69313   | 69314            | 69315   |
|                                             | SNMG-433-PEM | 69316   | 69317            | 69318   |
|                                             | SNMG-542-PEM | 69319   | 69320            | 69321   |
|                                             | SNMG-643-PEM | 69322   | 69323            | 69324   |

## Alloy Steel Applications Negative Inserts

| Description                                  | ANSI         | DPC15HT | Grade<br>DPC25UT | DPC35RT |
|----------------------------------------------|--------------|---------|------------------|---------|
| <b>SNMG-PER</b><br>Square<br>Roughing        | SNMG-432-PER | 69390   | 69391            | 69392   |
|                                              | SNMG-433-PER | 69393   | 69394            | 69395   |
|                                              | SNMG-643-PER | 69396   | 69397            | 69398   |
|                                              | SNMG-644-PER | 69399   | 69400            | 69401   |
| <b>TNMG-PEF</b><br>60° Triangle<br>Finishing | TNMG-331-PEF | 69268   | 69269            |         |
|                                              | TNMG-332-PEF | 69270   | 69271            |         |
| <b>TNMG-UEM</b><br>60° Triangle<br>Universal | TNMG-331-UEM | 69853   | 69854            | 69855   |
|                                              | TNMG-332-UEM | 69856   | 69857            | 69858   |
| <b>TNMG-PEM</b><br>60° Triangle<br>Medium    | TNMG-332-PEM | 69325   | 69326            | 69327   |
|                                              | TNMG-333-PEM | 69328   | 69329            | 69330   |
|                                              | TNMG-432-PEM | 69331   | 69332            | 69333   |
|                                              | TNMG-433-PEM | 69334   | 69335            |         |
| <b>VNMG-PEF</b><br>35° Diamond<br>Finishing  | VNMG-331-PEF | 69272   | 69273            |         |
|                                              | VNMG-332-PEF | 69274   | 69275            |         |
| <b>VNMG-UEM</b><br>35° Diamond<br>Universal  | VNMG-332-UEM | 69859   | 69860            |         |
| <b>VNMG-PEM</b><br>35° Diamond<br>Finishing  | VNMG-332-PEM | 69336   | 69337            | 69338   |
|                                              | VNMG-333-PEM | 69339   | 69340            | 69341   |
| <b>WNMG-UEM</b><br>80° Trigon<br>Universal   | WNMG-331-UEM | 69861   | 69862            | 69863   |
|                                              | WNMG-332-UEM | 69864   | 69865            | 69866   |
|                                              | WNMG-431-UEM | 69867   | 69868            | 69869   |
|                                              | WNMG-432-UEM | 69870   | 69871            | 69872   |
|                                              | WNMG-433-UEM |         | 69873            |         |
| <b>WNMG-PEM</b><br>80° Trigon<br>Medium      | WNMG-332-PEM | 69342   | 69343            | 69344   |
|                                              | WNMG-432-PEM | 69345   | 69346            | 69347   |
|                                              | WNMG-433-PEM | 69348   | 69349            | 69350   |
| <b>WNMG-PER</b><br>80° Trigon<br>Roughing    | WNMG-432-PER | 69402   | 69403            | 69404   |
|                                              | WNMG-433-PER | 69405   | 69406            | 69407   |



## Alloy Steel& Stainless Steel Applications Negative Inserts (for lower cutting pressure)

| Description                                                                                                                          | ANSI          | Alloy Steel<br>DPC15HT | Alloy Steel<br>DPC25UT | Alloy Steel<br>DPC35RT | Stainless Steel<br>DMC30UT |
|--------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------|------------------------|------------------------|----------------------------|
| <b>CNMX-UEXL</b><br>80° Diamond<br>Left Hand<br>     | CNMX-431-UEXL |                        | 69411                  | 69412                  | 69413                      |
|                                                                                                                                      | CNMX-432-UEXL |                        | 69417                  | 69418                  | 69419                      |
|                                                                                                                                      |               |                        |                        |                        |                            |
| <b>CNMX-UEXR</b><br>80° Diamond<br>Right Hand<br>    | CNMX-431-UEXR |                        | 69414                  | 69415                  | 69416                      |
|                                                                                                                                      | CNMX-432-UEXR |                        | 69420                  | 69421                  | 69422                      |
|                                                                                                                                      |               |                        |                        |                        |                            |
| <b>DNMX-UEXL</b><br>55° Diamond<br>Left Hand<br>     | DNMX-331-UEXL | 69429                  | 69430                  | 69431                  |                            |
|                                                                                                                                      | DNMX-332-UEXL | 69435                  | 69436                  | 69437                  |                            |
|                                                                                                                                      | DNMX-431-UEXL |                        | 69441                  |                        |                            |
|                                                                                                                                      | DNMX-432-UEXL |                        | 69447                  |                        |                            |
|                                                                                                                                      | DNMX-441-UEXL | 69453                  | 69454                  | 69455                  | 69456                      |
| <b>DNMX-UEXR</b><br>55° Diamond<br>Right Hand<br>   | DNMX-442-UEXL | 69461                  | 69462                  | 69463                  | 69464                      |
|                                                                                                                                      |               |                        |                        |                        |                            |
|                                                                                                                                      | DNMX-331-UEXR | 69432                  | 69433                  | 69434                  |                            |
|                                                                                                                                      | DNMX-332-UEXR | 69438                  | 69439                  | 69440                  |                            |
|                                                                                                                                      | DNMX-431-UEXR |                        | 69444                  |                        |                            |
|                                                                                                                                      | DNMX-432-UEXR |                        | 69450                  |                        |                            |
| <b>DNMX-UEXR</b><br>55° Diamond<br>Right Hand<br>   | DNMX-441-UEXR | 69457                  | 69458                  | 69459                  | 69460                      |
|                                                                                                                                      | DNMX-442-UEXR | 69465                  | 69466                  | 69467                  | 69468                      |
|                                                                                                                                      |               |                        |                        |                        |                            |
| <b>TNMX-UEL</b><br>60° Triangle<br>Left Hand<br>   | TNMX-321-UEXL | 69469                  | 69470                  | 69471                  | 69472                      |
|                                                                                                                                      | TNMX-322-UEXL | 69477                  | 69478                  | 69479                  | 69480                      |
| <b>TNMX-UEXR</b><br>60° Triangle<br>Right Hand<br> | TNMX-321-UEXR | 69473                  | 69474                  | 69475                  | 69476                      |
|                                                                                                                                      | TNMX-322-UEXR | 69481                  | 69482                  | 69483                  | 69484                      |

## Heavy Duty Roughing Steel Applications Single Sided Negative Inserts

| Description                                                                                                                              | ANSI         | DPC15HT | Grade<br>DPC25UT | DPC35RT |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------|------------------|---------|
| <b>CNMM-PSH</b><br>80° Diamond<br>Roughing<br>         | CNMM-432-PSH | 70160   | 70161            | 70162   |
|                                                                                                                                          | CNMM-433-PSH | 70163   | 70164            | 70165   |
|                                                                                                                                          | CNMM-543-PSH | 70166   | 70167            | 70168   |
|                                                                                                                                          | CNMM-544-PSH | 70169   | 70170            | 70171   |
|                                                                                                                                          | CNMM-643-PSH | 70172   | 70173            | 70174   |
|                                                                                                                                          | CNMM-644-PSH | 70175   | 70176            | 70177   |
|                                                                                                                                          | CNMM-646-PSH | 70178   | 70179            | 70180   |
| <b>CNMM-PSS</b><br>80° Diamond<br>Heavy Roughing<br>   | CNMM-644-PSS | 70205   | 70206            | 70207   |
|                                                                                                                                          |              |         |                  |         |
| <b>CNMM-PST</b><br>80° Diamond<br>X Heavy Roughing<br> | CNMM-856-PST | 70216   | 70217            | 70218   |
|                                                                                                                                          | CNMM-866-PST | 70220   | 70221            | 70222   |
| <b>SNMM-PHS</b><br>Square<br>Roughing<br>              | SNMM-432-PSH | 70181   | 70182            | 70183   |
|                                                                                                                                          | SNMM-433-PSH | 70184   | 70185            | 70186   |
|                                                                                                                                          | SNMM-543-PSH | 70187   | 70188            | 70189   |
|                                                                                                                                          | SNMM-544-PSH | 70190   | 70191            | 70192   |
|                                                                                                                                          | SNMM-643-PSH | 70193   | 70194            | 70195   |
|                                                                                                                                          | SNMM-644-PSH | 70196   | 70197            | 70198   |
|                                                                                                                                          | SNMM-646-PSH | 70199   | 70200            | 70201   |
| <b>SNMM-PSS</b><br>Square<br>Heavy Roughing<br>       | SNMM-648-PSH | 70202   | 70203            | 70204   |
|                                                                                                                                          |              |         |                  |         |
| <b>SNMM-PSS</b><br>Square<br>Heavy Roughing<br>       | SNMM-644-PSS | 70210   | 70211            | 70212   |
|                                                                                                                                          | SNMM-646-PSS | 70213   | 70214            | 70215   |
| <b>SNMM-PST</b><br>Square<br>X Heavy Roughing<br>    | SNMM-856-PST | 70224   | 70225            | 70226   |
|                                                                                                                                          | SNMM-866-PST | 70228   | 70229            | 70230   |

## Wiper Inserts for Alloy Steel & Stainless Steel Applications

| Description                                                                                                                                  | ANSI         | Grade<br>DPC15HT | Grade<br>DPC25UT |
|----------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|------------------|
| <b>CNMG-PEX</b><br>80° Diamond<br>High<br>Performance<br> | CNMG-432-PEX | 69485            | 69486            |
|                                                                                                                                              | CNMG-433-PEX | 69489            | 69490            |
| <b>DNMG-PEX</b><br>55° Diamond<br>High<br>Performance<br> | DNMG-443-PEX | 69487            | 69488            |
|                                                                                                                                              |              |                  |                  |

## Stainless Steel Applications Negative Inserts

| Description                                                                                                                               | ANSI         | Grade<br>DMC20HT | Grade<br>DMC30UT |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|------------------|
| <b>CNMG-MEF</b><br>80° Diamond<br>Finishing              | CNMG-321-MEF |                  | 69964            |
|                                                                                                                                           | CNMG-431-MEF |                  | 69965            |
|                                                                                                                                           | CNMG-432-MEF |                  | 69966            |
|                                                                                                                                           | CNMG-433-MEF |                  | 69967            |
| <b>CNMG-MEM</b><br>80° Diamond<br>Medium                 | CNMG-432-MEM |                  | 69968            |
|                                                                                                                                           | CNMG-433-MEM |                  | 69969            |
| <b>CNMG-MEH</b><br>80° Diamond<br>High<br>Performance    | CNMG-432-MEH | 70020            |                  |
|                                                                                                                                           | CNMG-433-MEH | 70021            |                  |
|                                                                                                                                           | CNMG-543-MEH | 70022            |                  |
|                                                                                                                                           | CNMG-544-MEH | 70023            |                  |
|                                                                                                                                           | CNMG-643-MEH | 70024            |                  |
|                                                                                                                                           | CNMG-644-MEH | 70028            |                  |
| <b>CNMG-MER</b><br>80° Diamond<br>Roughing               | CNMG-433-MER |                  | 69970            |
|                                                                                                                                           | CNMG-543-MER |                  | 69971            |
|                                                                                                                                           | CNMG-643-MER |                  | 69972            |
| <b>DNMG-MEF</b><br>55° Diamond<br>Finishing              | DNMG-331-MEF |                  | 69973            |
|                                                                                                                                           | DNMG-441-MEF |                  | 69974            |
|                                                                                                                                           | DNMG-442-MEF |                  | 69975            |
| <b>DNMG-MEM</b><br>55° Diamond<br>Medium                | DNMG-332-MEM |                  | 69976            |
|                                                                                                                                           | DNMG-432-MEM |                  | 69977            |
|                                                                                                                                           | DNMG-442-MEM |                  | 69978            |
|                                                                                                                                           | DNMG-443-MEM |                  | 69979            |
| <b>DNMG-MEH</b><br>55° Diamond<br>High<br>Performance  | DNMG-442-MEH | 70037            |                  |
|                                                                                                                                           | DNMG-443-MEH | 70038            |                  |
| <b>DNMG-MER</b><br>55° Diamond<br>Medium               | DNMG-442-MER |                  | 69980            |
|                                                                                                                                           | DNMG-443-MER |                  | 69981            |
| <b>SNMG-MEF</b><br>Square<br>Finishing                 | SNMG-321-MEF |                  | 69982            |
| <b>SNMG-MEH</b><br>Square<br>High<br>Performance       | SNMG-543-MEH | 70041            |                  |
|                                                                                                                                           | SNMG-544-MEH | 70044            |                  |
|                                                                                                                                           | SNMG-643-MEH | 70052            |                  |
|                                                                                                                                           | SNMG-644-MEH | 70053            |                  |
| <b>SNMG-MER</b><br>Square<br>Roughing                  | SNMG-432-MER |                  | 69983            |
|                                                                                                                                           | SNMG-433-MER |                  | 69984            |
|                                                                                                                                           | SNMG-643-MER |                  | 69985            |

## Stainless Steel Applications Negative Inserts

| Description                                                                                                                              | ANSI         | Grade<br>DMC20HT | Grade<br>DMC30UT |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|------------------|
| <b>TNMG-MEM</b><br>60° Triangle<br>Medium             | TNMG-332-MEM |                  | 69986            |
|                                                                                                                                          | TNMG-432-MEM |                  | 69987            |
|                                                                                                                                          | TNMG-433-MEM |                  | 69988            |
| <b>WNMG-MEF</b><br>80° Trigon<br>Finishing            | WNMG-331-MEF |                  | 69989            |
|                                                                                                                                          | WNMG-431-MEF |                  | 69990            |
|                                                                                                                                          | WNMG-432-MEF |                  | 69991            |
| <b>WNMG-MEH</b><br>80° Trigon<br>High<br>Performance  | WNMG-432-MEH | 70056            |                  |
|                                                                                                                                          |              |                  |                  |
| <b>WNMG-MEM</b><br>80° Trigon<br>Medium               | WNMG-332-MEM |                  | 69992            |
|                                                                                                                                          | WNMG-432-MEM |                  | 69993            |
|                                                                                                                                          | WNMG-433-MEM |                  | 69994            |
|                                                                                                                                          | WNMG-434-MEM |                  | 69995            |
| <b>WNMG-MER</b><br>80° Trigon<br>Roughing             | WNMG-432-MER |                  | 69996            |
|                                                                                                                                          | WNMG-433-MER |                  | 69997            |

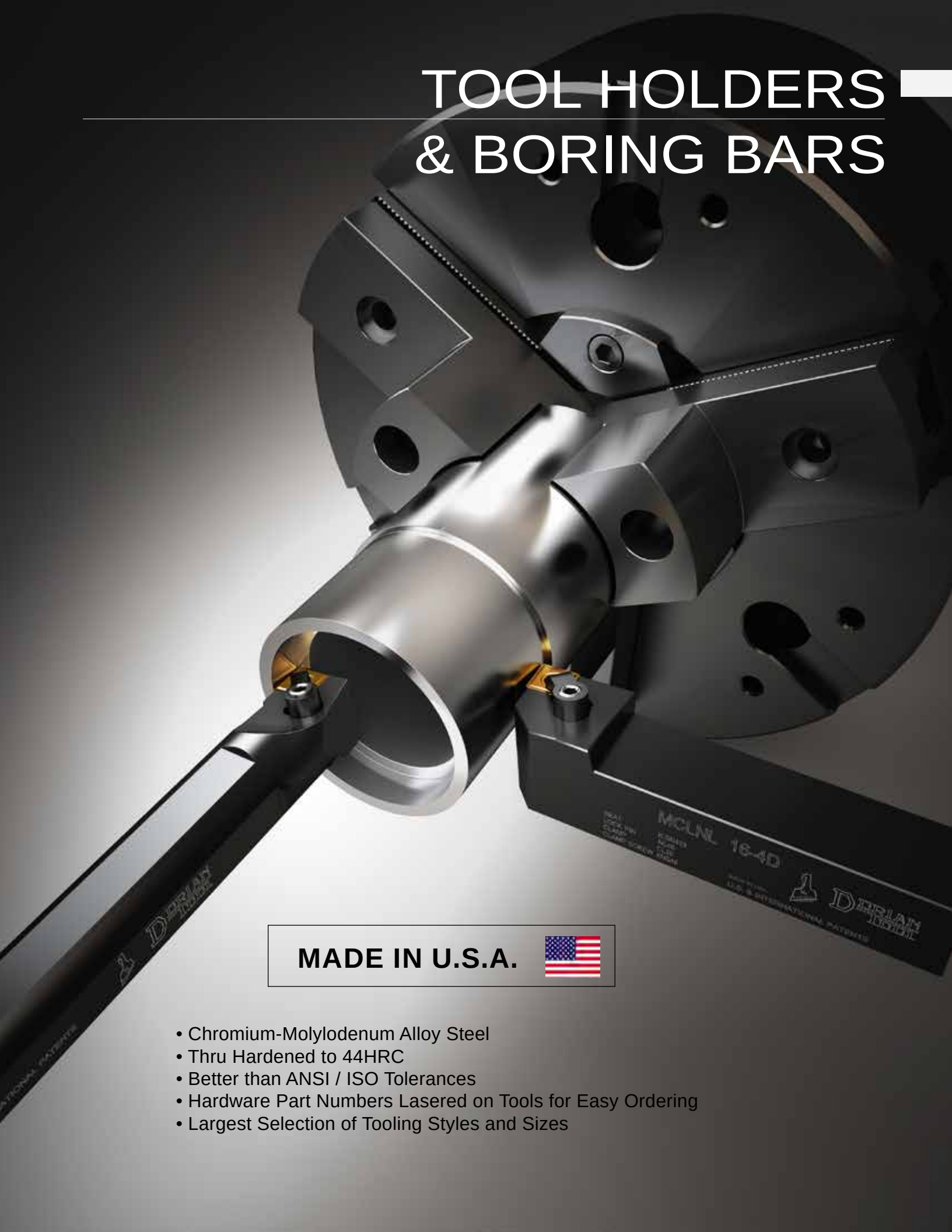
## Cast Iron Applications Negative Inserts

| Description                                                                                                                             | ANSI         | DKC10UT | DKC15RT |
|-----------------------------------------------------------------------------------------------------------------------------------------|--------------|---------|---------|
| <b>CNMG-KEF</b><br>80° Diamond<br>Finishing<br>        | CNMG-431-KEF | 67052   | 67053   |
| <b>CNMA-KEU</b><br>80° Diamond<br>General Purpose<br>  | CNMA-432-KEU | 69874   | 69875   |
|                                                                                                                                         | CNMA-433-KEU | 69876   | 69877   |
|                                                                                                                                         | CNMA-644-KEU |         | 69878   |
|                                                                                                                                         | CNMA-866-KEU |         | 69879   |
| <b>CNMG-KER</b><br>80° Diamond<br>Roughing<br>         | CNMG-432-KER | 69904   | 69905   |
|                                                                                                                                         | CNMG-433-KER | 69906   | 69907   |
|                                                                                                                                         | CNMG-434-KER | 69908   | 69909   |
|                                                                                                                                         | CNMG-543-KER | 69910   | 69911   |
|                                                                                                                                         | CNMG-544-KER | 69912   | 69913   |
| <b>DNMG-KEF</b><br>55° Diamond<br>Finishing<br>        | DNMG-331-KEF | 67054   | 67055   |
|                                                                                                                                         | DNMG-332-KEF | 67056   | 67057   |
| <b>DNMA-KEU</b><br>55° Diamond<br>General Purpose<br>  | DNMA-442-KEU |         | 69880   |
| <b>DNMG-KER</b><br>55° Diamond<br>Roughing<br>        | DNMG-432-KER | 69914   | 69915   |
|                                                                                                                                         | DNMG-433-KER | 69916   | 69917   |
|                                                                                                                                         | DNMG-442-KER | 69918   | 69919   |
|                                                                                                                                         | DNMG-443-KER | 69920   | 69921   |
| <b>SNMA-KEU</b><br>Square<br>General Purpose<br>     | SNMA-432-KEU | 69882   | 69883   |
|                                                                                                                                         | SNMA-433-KEU | 69884   | 69885   |
|                                                                                                                                         | SNMA-434-KEU | 69886   | 69887   |
|                                                                                                                                         | SNMA-664-KEU |         | 69888   |
|                                                                                                                                         | SNMA-856-KEU |         | 69889   |
| <b>SNMG-KER</b><br>Square<br>Roughing<br>            | SNMG-432-KER | 69922   | 69923   |
|                                                                                                                                         | SNMG-433-KER | 69924   | 69925   |
|                                                                                                                                         | SNMG-643-KER |         | 69926   |
|                                                                                                                                         | SNMG-644-KER | 69927   | 69928   |
| <b>TNMA-KEU</b><br>Triangle<br>General Purpose<br>   | TNMA-332-KEU | 69890   | 69891   |
|                                                                                                                                         | TNMA-333-KEU | 69892   | 69893   |
|                                                                                                                                         | TNMA-434-KEU | 69894   | 69895   |
| <b>WNMA-KEU</b><br>80° Trigon<br>General Purpose<br> | WNMA-432-KEU | 69896   | 69897   |
|                                                                                                                                         | WNMA-433-KEU | 69898   | 69899   |
| <b>WNMA-KER</b><br>80° Trigon<br>Roughing<br>        | WNMG-432-KER | 69929   | 69930   |
|                                                                                                                                         | WNMG-433-KER |         | 69931   |

## Titanium & High Temp Alloy Applications Negative Inserts

| Description                                                                                                                        | ANSI         | Titanium Grade<br>DSP10HT | High TempGrade<br>DSP15HT | High TempGrade<br>DSP20HT |
|------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------|---------------------------|---------------------------|
| <b>CNGG-SEF</b><br>80° Diamond<br>Finishing<br>   | CNGG-431-SEF |                           | 67058                     |                           |
|                                                                                                                                    | CNGG-432-SEF |                           | 67059                     |                           |
|                                                                                                                                    | CNGG-433-SEF |                           | 67060                     |                           |
| <b>CNM/GG-SEM</b><br>80° Diamond<br>Medium<br>    | CNGG-431-SEM |                           | 67061                     |                           |
|                                                                                                                                    | CNGG-432-SEM |                           | 67065                     |                           |
|                                                                                                                                    | CNGG-433-SEM |                           | 67066                     |                           |
|                                                                                                                                    | CNMG-431-SEM |                           | 67067                     |                           |
|                                                                                                                                    | CNMG-432-SEM |                           | 67068                     |                           |
| <b>CNGG-SER</b><br>80° Diamond<br>Roughing<br>    | CNGG-432-SER |                           | 67069                     |                           |
|                                                                                                                                    | CNGG-433-SER |                           | 67070                     |                           |
| <b>CNMG-SEH</b><br>80° Diamond<br>Roughing<br>    | CNMG-432-SEH | 69726                     |                           | 69727                     |
| <b>DNGG-SEF</b><br>55° Diamond<br>Finishing<br>   | DNGG-431-SEF |                           | 67071                     |                           |
|                                                                                                                                    | DNGG-432-SEF |                           | 67072                     |                           |
|                                                                                                                                    | DNGG-433-SEF |                           | 67073                     |                           |
|                                                                                                                                    | DNGG-441-SEF |                           | 67074                     |                           |
|                                                                                                                                    | DNGG-442-SEF |                           | 67082                     |                           |
|                                                                                                                                    | DNGG-443-SEF |                           | 67083                     |                           |
| <b>DNMG-SEM</b><br>55° Diamond<br>Medium<br>     | DNMG-431-SEM |                           | 67084                     |                           |
|                                                                                                                                    | DNMG-432-SEM |                           | 67085                     |                           |
|                                                                                                                                    | DNMG-433-SEM |                           | 67086                     |                           |
|                                                                                                                                    | DNMG-441-SEM |                           | 67087                     |                           |
|                                                                                                                                    | DNMG-442-SEM |                           | 67088                     |                           |
|                                                                                                                                    | DNMG-443-SEM |                           | 67089                     |                           |
| <b>DNMG-SEH</b><br>55° Diamond<br>Roughing<br>  | DNMG-442-SEH | 69730                     |                           | 69731                     |
| <b>VNMG-SEF</b><br>35° Diamond<br>Finishing<br> | VNMG-331-SEF |                           | 67095                     |                           |
|                                                                                                                                    | VNMG-332-SEF |                           | 67096                     |                           |
| <b>WNGG-SEF</b><br>80° Trigon<br>Finishing<br>  | WNGG-431-SEF |                           | 67097                     |                           |
|                                                                                                                                    | WNGG-432-SEF |                           | 67098                     |                           |
|                                                                                                                                    | WNGG-433-SEF |                           | 67099                     |                           |
| <b>WNM/GG-SEM</b><br>80° Trigon<br>Medium<br>   | WNGG-431-SEM |                           | 67100                     |                           |
|                                                                                                                                    | WNGG-432-SEM |                           | 67101                     |                           |
|                                                                                                                                    | WNMG-431-SEM |                           | 67102                     |                           |
|                                                                                                                                    | WNMG-432-SEM |                           | 67103                     |                           |
|                                                                                                                                    | WNMG-433-SEM |                           | 67104                     |                           |
| <b>WNMG-SEH</b><br>80° Trigon<br>Medium<br>     | WNGG-432-SEH | 69736                     |                           | 69737                     |

# TOOL HOLDERS & BORING BARS



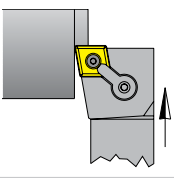
**MADE IN U.S.A.**



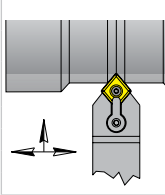
- Chromium-Molybdenum Alloy Steel
- Thru Hardened to 44HRC
- Better than ANSI / ISO Tolerances
- Hardware Part Numbers Lasered on Tools for Easy Ordering
- Largest Selection of Tooling Styles and Sizes



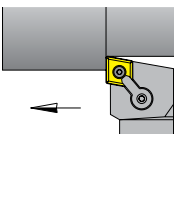
**MCFN R/L Toolholder Style F - 0° End Cutting Edge Angle for negative 80° diamond CNM\_ inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CNM_ Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                  | MCFNR/L12-4B     | -          | 50011     | 0.75   | 4.50   | 432              |
|                                                                                  | MCFNR/L16-4C     | 50014      | 50015     | 1.00   | 5.00   |                  |
|                                                                                  | MCFNR/L16-4D     | -          | 50019     | 1.00   | 6.00   |                  |
|                                                                                  | MCFNR/L16-5D     | 50022      | 50023     | 1.00   | 6.00   | 543              |
|                                                                                  | MCFNR/L16-6D     | 50026      | 50027     | 1.00   | 6.00   | 643              |

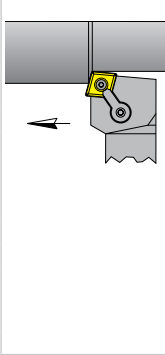
**MCMNN Toolholder Style M - 40° Side Cutting Edge Angle for negative 80° diamond CNM\_ inserts**

|  | ANSI Description | UPC # | Shank  |        | CNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|-------|--------|--------|------------------|
|                                                                                   |                  |       | Height | Length |                  |
|                                                                                   | MCMNN12-4B       | 50198 | 0.75   | 4.50   | 432              |
|                                                                                   | MCMNN16-4D       | 50200 | 1.00   | 6.00   |                  |
|                                                                                   | MCMNN16-5D       | 50202 | 1.00   | 6.00   |                  |
|                                                                                   | MCMNN20-5D       | 50204 | 1.25   | 6.00   | 543              |
|                                                                                   | MCMNN16-6D       | 50206 | 1.00   | 6.00   |                  |
|                                                                                   | MCMNN20-6D       | 50208 | 1.25   | 6.00   | 643              |

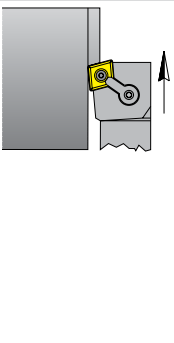
**MCGN R/L Toolholder Style G- 0° Side Cutting Edge Angle for negative 80° diamond CNM\_ inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CNM_ Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                  | MCGNR/L12-4B     | 50036      | 50037     | 0.75   | 4.50   | 432              |
|                                                                                  | MCGNR/L16-4C     | -          | 50041     | 1.00   | 5.00   |                  |
|                                                                                  | MCGNR/L16-4D     | 50044      | 50045     | 1.00   | 6.00   |                  |
|                                                                                  | MCGNR/L16-5D     | 50048      | -         | 1.00   | 6.00   | 543              |
|                                                                                  | MCGNR/L16-6D     | -          | 50053     | 1.00   | 6.00   |                  |
|                                                                                  | MCGNR/L85-6D     | 50056      | 50057     | 1.25   | 6.00   | 643              |

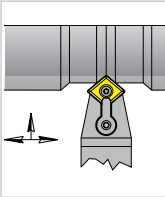
**MCRN R/L Toolholder Style R- 15° Side Cutting Edge Angle for negative 80° diamond CNM\_ inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                   | MCRNR/L12-3B     | 50218      | 50219     | 0.75   | 4.5    | 322              |
|                                                                                   | MCRNR/L12-4B     | 50220      | 50221     | 0.75   | 4.5    |                  |
|                                                                                   | MCRNR/L16-4C     | 50224      | -         | 1.00   | 5.0    |                  |
|                                                                                   | MCRNR/L16-4D     | 50228      | 50229     | 1.00   | 6.0    | 432              |
|                                                                                   | MCRNR/L20-4D     | 50232      | 50233     | 1.25   | 6.0    |                  |
|                                                                                   | MCRNR/L24-4E     | -          | 50237     | 1.50   | 7.0    |                  |
|                                                                                   | MCRNR/L16-5D     | 50240      | 50241     | 1.00   | 6.0    | 543              |
|                                                                                   | MCRNR/L20-5D     | 50244      | 50245     | 1.25   | 6.0    |                  |
|                                                                                   | MCRNR/L85-5D     | 50248      | 50249     | 1.25   | 6.0    |                  |
|                                                                                   | MCRNR/L16-6D     | 50252      | 50253     | 1.00   | 6.0    | 643              |
|                                                                                   | MCRNR/L20-6D     | 50256      | 50257     | 1.25   | 6.0    |                  |
|                                                                                   | MCRNR/L24-6E     | 50260      | 50261     | 1.50   | 7.0    |                  |
|                                                                                   | MCRNR/L86-6E     | 50264      | -         | 1.50   | 7.0    |                  |

**MCKN R/L Toolholder Style K- 15° End Cutting Edge Angle for negative 80° diamond CNM\_ inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                   | MCKNR/L12-4B     | 50066      | -         | 0.75   | 4.50   | 432              |
|                                                                                   | MCKNR/L16-4C     | 50070      | 50071     | 1.00   | 5.00   |                  |
|                                                                                   | MCKNR/L16-4D     | 50074      | 50075     | 1.00   | 6.00   |                  |
|                                                                                   | MCKNR/L20-4D     | 50078      | 50079     | 1.25   | 6.00   |                  |
|                                                                                   | MCKNR/L16-5D     | 50082      | 50083     | 1.00   | 6.00   | 543              |
|                                                                                   | MCKNR/L20-5D     | 50086      | 50087     | 1.25   | 6.00   |                  |
|                                                                                   | MCKNR/L85-5D     | 50090      | 50091     | 1.25   | 6.00   |                  |
|                                                                                   | MCKNR/L16-6D     | -          | 50095     | 1.00   | 6.00   | 643              |
|                                                                                   | MCKNR/L20-6D     | 50098      | 50099     | 1.25   | 6.00   |                  |
|                                                                                   | MCKNR/L24-6E     | 50102      | 50103     | 1.50   | 7.00   |                  |
|                                                                                   | MCKNR/L86-6E     | 50106      | 50107     | 1.50   | 7.00   |                  |

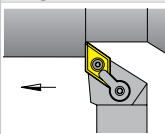
**MCYNN Toolholder Style Y - 50° Side Cutting Edge Angle for negative 80° diamond CNM\_ inserts**

|  | ANSI Description | UPC # | Shank  |        | CNM_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|-------|--------|--------|------------------|
|                                                                                    |                  |       | Height | Length |                  |
|                                                                                    | MCYNN12-4B       | 50274 | 0.75   | 4.5    | 432              |
|                                                                                    | MCYNN16-4D       | 50276 | 1.00   | 6.0    |                  |
|                                                                                    | MCYNN16-5D       | 50280 | 1.00   | 6.0    | 543              |
|                                                                                    | MCYNN16-6D       | 50284 | 1.00   | 6.0    |                  |
|                                                                                    | MCYNN20-6D       | 50286 | 1.25   | 6.0    | 643              |
|                                                                                    | MCYNN24-6E       | 50288 | 1.50   | 7.0    |                  |

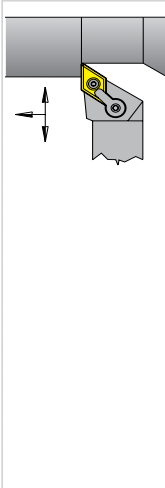
**MCLN R/L Toolholder Style L - Negative 5° End or Side Cutting Edge Angle for negative 80° diamond CNM\_ inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CNM_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                    | MCLNR/L08-3A     | 50108      | 50109     | 0.500  | 4.00   | 322              |
|                                                                                    | MCLNR/L10-3A     | 50118      | 50119     | 0.625  | 4.00   |                  |
|                                                                                    | MCLNR/L12-3B     | 50110      | 50111     | 0.750  | 4.50   | 322              |
|                                                                                    | MCLNR/L16-3C     | 50112      | 50113     | 1.000  | 5.00   |                  |
|                                                                                    | MCLNR/L10-4B     | 50116      | 50117     | 0.625  | 4.50   | 432              |
|                                                                                    | MCLNR/L12-4B     | 50120      | 50121     | 0.750  | 4.50   |                  |
|                                                                                    | MCLNR/L16-4C     | 50124      | 50125     | 1.000  | 5.00   |                  |
|                                                                                    | MCLNR/L16-4D     | 50128      | 50129     | 1.000  | 6.00   |                  |
|                                                                                    | MCLNR/L20-4D     | 50132      | 50133     | 1.250  | 6.00   |                  |
|                                                                                    | MCLNR/L24-4D     | 50136      | 50137     | 1.500  | 6.00   |                  |
|                                                                                    | MCLNR/L24-4E     | 50140      | 50141     | 1.500  | 7.00   |                  |
|                                                                                    | MCLNR/L85-4D     | 50144      | 50145     | 1.250  | 6.00   |                  |
|                                                                                    | MCLNR/L16-5C     | 50148      | 50149     | 1.000  | 5.00   | 543              |
|                                                                                    | MCLNR/L16-5D     | 50152      | 50153     | 1.000  | 6.00   |                  |
|                                                                                    | MCLNR/L20-5D     | 50156      | 50157     | 1.250  | 6.00   |                  |
|                                                                                    | MCLNR/L86-5E     | 50160      | -         | 1.500  | 7.00   |                  |
|                                                                                    | MCLNR/L16-6C     | -          | 50165     | 1.000  | 5.00   | 643              |
|                                                                                    | MCLNR/L16-6D     | 50168      | 50169     | 1.000  | 6.00   |                  |
|                                                                                    | MCLNR/L20-6D     | 50172      | 50173     | 1.250  | 6.00   |                  |
|                                                                                    | MCLNR/L20-6E     | 50174      | 50175     | 1.250  | 7.00   |                  |
|                                                                                    | MCLNR/L24-6D     | 50176      | 50177     | 1.500  | 6.00   |                  |
|                                                                                    | MCLNR/L24-6E     | 50180      | 50181     | 1.500  | 7.00   |                  |
|                                                                                    | MCLNR/L85-6D     | 50184      | 50185     | 1.250  | 6.00   |                  |
|                                                                                    | MCLNR/L86-6E     | 50188      | 50189     | 1.500  | 7.00   |                  |

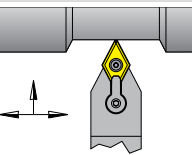
**MDGN R/L Toolholder Style G- 0° Side Cutting Edge Angle for negative 55° diamond DNM\_ inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | DNM_ Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                     | MDGNR/L12-4B     | 50298      | -         | 0.75   | 4.50   | 432              |
|                                                                                     | MDGNR/L16-4D     | 50302      | -         | 1.00   | 6.00   |                  |
|                                                                                     | MDGNR/L16-5D     | 50306      | 50307     | 1.00   | 6.00   | 543              |

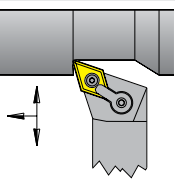
**MDJN R/L Toolholder Style J- 3° Side Cutting Edge Angle for negative 55° diamond DNM\_ inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | DNM_ Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                     | MDJNR/L08-3A     | 50316      | 50317     | 0.500  | 4.00   | 332              |
|                                                                                     | MDJNR/L10-3B     | 50320      | 50321     | 0.625  | 4.50   |                  |
|                                                                                     | MDJNR/L12-3B     | 50312      | 50313     | 0.750  | 4.50   |                  |
|                                                                                     | MDJNR/L16-3C     | 50314      | 50315     | 1.000  | 5.00   | 432              |
|                                                                                     | MDJNR/L16-3D     | 51318      | 51319     | 1.000  | 6.00   |                  |
|                                                                                     | MDJNR/L12-4B     | 50324      | 50325     | 0.750  | 4.50   | 432              |
|                                                                                     | MDJNR/L16-4C     | 50328      | 50329     | 1.000  | 5.00   |                  |
|                                                                                     | MDJNR/L16-4D     | 50332      | 50333     | 1.000  | 6.00   |                  |
|                                                                                     | MDJNR/L20-4D     | 50336      | 50337     | 1.250  | 6.00   | 432              |
|                                                                                     | MDJNR/L24-4D     | 50340      | 50341     | 1.500  | 6.00   |                  |
|                                                                                     | MDJNR/L24-4E     | 50344      | 50345     | 1.500  | 7.00   |                  |
|                                                                                     | MDJNR/L85-4D     | -          | 50349     | 1.250  | 6.00   | 543              |
|                                                                                     | MDJNR/L16-5C     | 50350      | 50351     | 1.000  | 5.00   |                  |
|                                                                                     | MDJNR/L16-5D     | 50352      | 50353     | 1.000  | 6.00   |                  |
|                                                                                     | MDJNR/L20-5D     | 50356      | 50357     | 1.250  | 6.00   | 543              |
|                                                                                     | MDJNR/L24-5D     | 50360      | -         | 1.500  | 6.00   |                  |
|                                                                                     | MDJNR/L24-5E     | 50364      | 50365     | 1.500  | 7.00   |                  |
|                                                                                     | MDJNR/L86-5E     | 50368      | -         | 1.500  | 7.00   |                  |

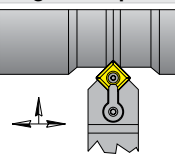
**MDPNN Toolholder Style P- 27.5° Side Cutting Edge Angle for negative 55° diamond DNM\_ inserts**

|                                                                                   | ANSI Description | UPC # | Shank  |        | DNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|-------|--------|--------|------------------|
|                                                                                   |                  |       | Height | Length |                  |
|  | MDPNN12-4B       | 50370 | 0.75   | 4.50   | 432              |
|                                                                                   | MDPNN16-4D       | 50372 | 1.00   | 6.00   |                  |
|                                                                                   | MDPNN20-4D       | 50374 | 1.25   | 6.00   |                  |
|                                                                                   | MDPNN16-5D       | 50376 | 1.00   | 6.00   |                  |
|                                                                                   | MDPNN20-5D       | 50378 | 1.25   | 6.00   | 543              |
|                                                                                   | MDPNN24-5D       | 50380 | 1.50   | 6.00   |                  |

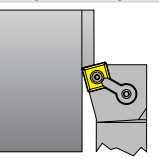
**MDQNR/L Toolholder Style Q- 17.5° Side Cutting Edge Angle for negative 55° diamond DNM\_ inserts**

|                                                                                   | ANSI Description | UPC #      |           | Shank  |        | DNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MDQNR/L12-4B     | 50371      | 50373     | 0.75   | 4.5    | 432              |
|                                                                                   | MDQNR/L16-4C     | 50375      | 50377     | 1.00   | 5.0    |                  |
|                                                                                   | MDQNR/L16-4D     | 50379      | 50381     | 1.00   | 6.0    |                  |
|                                                                                   | MDQNR/L20-4D     | 50383      | 50385     | 1.25   | 6.0    |                  |
|                                                                                   | MDQNR/L24-4D     | 50387      | 50389     | 1.50   | 6.0    |                  |
|                                                                                   | MDQNR/L20-5D     | 50395      | -         | 1.25   | 6.0    |                  |
|                                                                                   | MDQNR/L24-5E     | 50403      | -         | 1.50   | 7.0    | 543              |

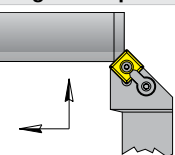
**MSDNN Toolholder Style D - 45° Side Cutting Edge Angle for negative square SNM\_ inserts**

|                                                                                   | ANSI Description | UPC # | Shank  |        | SNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|-------|--------|--------|------------------|
|                                                                                   |                  |       | Height | Length |                  |
|  | MSDNN08-3A       | 50392 | 0.500  | 4.00   | 322              |
|                                                                                   | MSDNN08-3B       | 50394 | 0.500  | 4.50   |                  |
|                                                                                   | MSDNN10-3B       | 50396 | 0.625  | 4.50   |                  |
|                                                                                   | MSDNN12-3B       | 50398 | 0.750  | 4.50   |                  |
|                                                                                   | MSDNN12-4B       | 50400 | 0.750  | 4.50   | 432              |
|                                                                                   | MSDNN16-4D       | 50402 | 1.000  | 6.00   |                  |
|                                                                                   | MSDNN85-4D       | 50404 | 1.250  | 6.00   |                  |
|                                                                                   | MSDNN16-5D       | 50406 | 1.000  | 6.00   |                  |
|                                                                                   | MSDNN20-5D       | 50408 | 1.250  | 6.00   | 543              |
|                                                                                   | MSDNN85-5D       | 50410 | 1.250  | 6.00   |                  |
|                                                                                   | MSDNN86-5E       | 50412 | 1.500  | 7.00   |                  |
|                                                                                   | MSDNN16-6D       | 50414 | 1.000  | 6.00   |                  |
|                                                                                   | MSDNN20-6D       | 50416 | 1.250  | 6.00   | 643              |
|                                                                                   | MSDNN20-6E       | 50417 | 1.250  | 7.00   |                  |
|                                                                                   | MSDNN24-6E       | 50418 | 1.500  | 7.00   |                  |
|                                                                                   | MSDNN86-6E       | 50422 | 1.500  | 7.00   |                  |

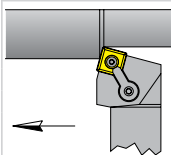
**MSKNR/L Toolholder Style K- 15° End Cutting Edge Angle for negative square SNM\_ inserts**

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | SNM_ Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MSKNR/L08-3A     | 50432      | 50433     | 0.500  | 4.00   | 322              |
|                                                                                     | MSKNR/L08-3B     | 50436      | 50437     | 0.500  | 4.50   |                  |
|                                                                                     | MSKNR/L10-3B     | 50440      | 50441     | 0.625  | 4.50   |                  |
|                                                                                     | MSKNR/L12-3B     | 50444      | -         | 0.750  | 4.50   |                  |
|                                                                                     | MSKNR/L12-4B     | 50448      | 50449     | 0.750  | 4.50   | 432              |
|                                                                                     | MSKNR/L16-4C     | 50452      | -         | 1.000  | 5.00   |                  |
|                                                                                     | MSKNR/L16-4D     | 50456      | 50457     | 1.000  | 6.00   |                  |
|                                                                                     | MSKNR/L16-5D     | 50460      | 50461     | 1.000  | 6.00   |                  |
|                                                                                     | MSKNR/L20-5D     | 50464      | 50465     | 1.250  | 6.00   | 543              |
|                                                                                     | MSKNR/L85-5D     | 50468      | -         | 1.250  | 6.00   |                  |
|                                                                                     | MSKNR/L20-6D     | 50472      | 50473     | 1.250  | 6.00   |                  |
|                                                                                     | MSKNR/L24-6D     | 50476      | -         | 1.500  | 6.00   |                  |
|                                                                                     | MSKNR/L24-6E     | 50480      | 50481     | 1.500  | 7.00   | 643              |

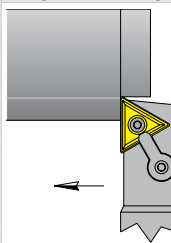
**MSSNR/L Toolholder Style S- 45° Side Cutting Edge Angle for negative square SNM\_ inserts**

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | SNM_ Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MSSNR/L08-3A     | 50564      | 50565     | 0.500  | 4.00   | 322              |
|                                                                                     | MSSNR/L08-3B     | 50568      | 50569     | 0.500  | 4.50   |                  |
|                                                                                     | MSSNR/L12-4B     | 50572      | 50573     | 0.750  | 4.50   |                  |
|                                                                                     | MSSNR/L16-4D     | 50580      | 50581     | 1.000  | 6.00   |                  |
|                                                                                     | MSSNR/L85-4D     | 50582      | 50583     | 1.250  | 6.00   | 432              |
|                                                                                     | MSSNR/L16-5D     | 50584      | -         | 1.000  | 6.00   |                  |
|                                                                                     | MSSNR/L20-5D     | 50588      | 50589     | 1.250  | 6.00   |                  |
|                                                                                     | MSSNR/L20-5E     | 50590      | -         | 1.250  | 7.00   |                  |
|                                                                                     | MSSNR/L20-6D     | 50592      | 50593     | 1.250  | 6.00   | 543              |
|                                                                                     | MSSNR/L24-6E     | 50596      | -         | 1.500  | 7.00   |                  |
|                                                                                     |                  |            |           |        |        |                  |
|                                                                                     |                  |            |           |        |        |                  |

**MSRNR/L Toolholder Style R- 15° Side Cutting Edge Angle for negative square SNM\_ inserts**

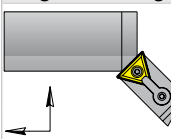
|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | SNM_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MSRNR/L08-3A     | 50490      | -         | 0.500  | 4.00   | 322              |
|                                                                                    | MSRNR/L08-3B     | -          | 50495     | 0.500  | 4.50   |                  |
|                                                                                    | MSRNR/L10-3B     | 50498      | 50499     | 0.625  | 4.50   |                  |
|                                                                                    | MSRNR/L12-3B     | 50502      | 50503     | 0.750  | 4.50   |                  |
|                                                                                    | MSRNR/L12-4B     | 50506      | 50507     | 0.750  | 4.50   | 432              |
|                                                                                    | MSRNR/L16-4C     | -          | 50511     | 1.000  | 5.00   |                  |
|                                                                                    | MSRNR/L16-4D     | 50514      | 50515     | 1.000  | 6.00   |                  |
|                                                                                    | MSRNR/L20-4D     | 50518      | 50519     | 1.250  | 6.00   |                  |
|                                                                                    | MSRNR/L85-4D     | 50522      | 50523     | 1.250  | 6.00   | 543              |
|                                                                                    | MSRNR/L16-5C     | 50526      | 50527     | 1.000  | 5.00   |                  |
|                                                                                    | MSRNR/L16-5D     | 50530      | 50531     | 1.000  | 6.00   |                  |
|                                                                                    | MSRNR/L20-5D     | 50534      | 50535     | 1.250  | 6.00   |                  |
|                                                                                    | MSRNR/L85-5D     | 50538      | 50539     | 1.250  | 6.00   | 643              |
|                                                                                    | MSRNR/L16-6D     | 50542      | 50543     | 1.000  | 6.00   |                  |
|                                                                                    | MSRNR/L20-6D     | 50546      | 50547     | 1.250  | 6.00   |                  |
|                                                                                    | MSRNR/L24-6E     | 50550      | 50551     | 1.500  | 7.00   |                  |
|                                                                                    | MSRNR/L85-6D     | 50554      | 50555     | 1.250  | 6.00   |                  |

**MTANR/L Toolholder Style A- 0° Side Cutting Edge Angle for negative triangle TNM\_ inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MTANR/L08-2A     | 50606      | 50607     | 0.500  | 4.00   | 221              |
|                                                                                    | MTANR/L10-2B     | 50610      | 50611     | 0.625  | 4.50   |                  |
|                                                                                    | MTANR/L10-3B     | 50614      | 50615     | 0.625  | 4.50   |                  |
|                                                                                    | MTANR/L12-3B     | 50618      | 50619     | 0.750  | 4.50   |                  |
|                                                                                    | MTANR/L16-3D     | -          | 50623     | 1.000  | 6.00   | 322 or 332*      |
|                                                                                    | MTANR/L64-3D     | 50626      | 50627     | 1.000  | 6.00   |                  |
|                                                                                    | MTANR/L16-4D     | 50630      | 50631     | 1.000  | 6.00   |                  |
|                                                                                    | MTANR/L85-4D     | 50638      | 50639     | 1.250  | 6.00   |                  |
|                                                                                    | MTANR/L86-4E     | 50642      | -         | 1.500  | 7.00   | 432              |
|                                                                                    | MTANR/L16-5D     | 50646      | -         | 1.000  | 6.00   |                  |
|                                                                                    | MTANR/L20-5D     | 50650      | 50651     | 1.250  | 6.00   |                  |
|                                                                                    | MTANR/L20-5E     | 50652      | -         | 1.250  | 7.00   |                  |
|                                                                                    | MTANR/L24-6E     | 50654      | 50655     | 1.500  | 7.00   | 663              |

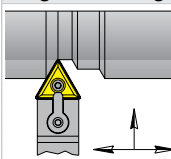
\* Change shim to ITSN-322 when using TNMG-332 inserts

**MTCNN Toolholder Style C- 0° End Cutting Edge Angle for negative triangle TNM\_ inserts**

|                                                                                      | ANSI Description | UPC # | Shank  |        | TNM_ Gage Insert |
|--------------------------------------------------------------------------------------|------------------|-------|--------|--------|------------------|
|                                                                                      |                  |       | Height | Length |                  |
|  | MTCNN08-3A       | 50664 | 0.500  | 4.00   | 322 or 332*      |
|                                                                                      | MTCNN08-3B       | 50666 | 0.500  | 4.50   |                  |
|                                                                                      | MTCNN44-3D       | 50668 | 1.000  | 6.00   |                  |
|                                                                                      | MTCNN44-3F       | 50670 | 1.000  | 8.00   |                  |
|                                                                                      | MTCNN12-4B       | 50672 | 0.750  | 4.50   | 432              |
|                                                                                      | MTCNN64-4D       | 50674 | 1.000  | 6.00   |                  |
|                                                                                      | MTCNN64-4F       | 50676 | 1.000  | 8.00   |                  |
|                                                                                      | MTCNN66-4E       | 50678 | 1.500  | 7.00   |                  |
|                                                                                      | MTCNN66-4F       | 50680 | 1.500  | 8.00   |                  |

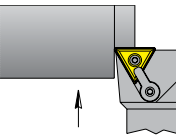
\* Change shim to ITSN-322 when using TNMG-332 inserts

**MTENN Toolholder Style E- 30° Side Cutting Edge Angle for negative triangle TNM\_ inserts**

|                                                                                      | ANSI Description | UPC # | Shank  |        | TNM_ Gage Insert |
|--------------------------------------------------------------------------------------|------------------|-------|--------|--------|------------------|
|                                                                                      |                  |       | Height | Length |                  |
|  | MTENN08-2A       | 50690 | 0.500  | 4.00   | 221              |
|                                                                                      | MTENN10-3B       | 50692 | 0.625  | 4.50   |                  |
|                                                                                      | MTENN12-3B       | 50694 | 0.750  | 4.50   |                  |
|                                                                                      | MTENN64-3D       | 50696 | 1.000  | 6.00   |                  |
|                                                                                      | MTENN12-4B       | 50698 | 0.750  | 4.50   | 322 or 332*      |
|                                                                                      | MTENN16-4D       | 50700 | 1.000  | 6.00   |                  |
|                                                                                      | MTENN85-4D       | 50702 | 1.250  | 6.00   |                  |
|                                                                                      | MTENN86-4E       | 50704 | 1.500  | 7.00   |                  |
|                                                                                      | MTENN20-5D       | 50706 | 1.250  | 6.00   | 543              |
|                                                                                      | MTENN20-5E       | 50708 | 1.250  | 7.00   |                  |
|                                                                                      | MTENN24-5E       | 50710 | 1.500  | 7.00   |                  |
|                                                                                      |                  |       |        |        |                  |

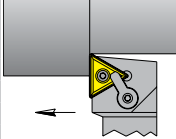
\* Change shim to ITSN-322 when using TNMG-332 inserts

**MTFN R/L Toolholder Style F- 0° End Cutting Edge Angle for negative triangle TNM\_ inserts**

|                                                                                  | ANSI Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MTFNR/L08-2A     | 50722      | 50723     | 0.500  | 4.00   | 221              |
|                                                                                  | MTFNR/L10-3B     | 50734      | 50735     | 0.625  | 4.50   | 322              |
|                                                                                  | MTFNR/L12-3B     | 50738      | 50739     | 0.750  | 4.50   | or 332*          |
|                                                                                  | MTFNR/L16-3D     | 50746      | -         | 1.000  | 6.00   | 332*             |
|                                                                                  | MTFNR/L16-4C     | 50750      | 50751     | 1.000  | 5.00   | 432              |
|                                                                                  | MTFNR/L16-4D     | 50754      | 50755     | 1.000  | 6.00   |                  |
|                                                                                  | MTFNR/L20-4D     | 50758      | 50759     | 1.250  | 6.00   |                  |
|                                                                                  | MTFNR/L85-4D     | -          | 50767     | 1.250  | 6.00   |                  |
|                                                                                  | MTFNR/L16-5D     | 50774      | 50775     | 1.000  | 6.00   | 543              |
|                                                                                  | MTFNR/L20-5D     | 50778      | 50779     | 1.250  | 6.00   | 663              |
|                                                                                  | MTFNR/L24-6E     | 50792      | 50793     | 1.500  | 7.00   |                  |

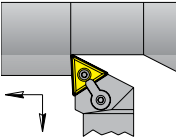
\* Change shim to ITSN-322 when using TNMG-332 inserts

**MTGN R/L Toolholder Style G- 0° Side Cutting Edge Angle for negative triangle TNM\_ inserts**

|                                                                                  | ANSI Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MTGNR/L08-2A     | 50802      | 50803     | 0.500  | 4.00   | 221              |
|                                                                                  | MTGNR/L10-2B     | -          | 50807     | 0.625  | 4.50   | 322 or 332*      |
|                                                                                  | MTGNR/L10-3B     | 50810      | 50811     | 0.625  | 4.50   |                  |
|                                                                                  | MTGNR/L12-3B     | 50814      | 50815     | 0.750  | 4.50   |                  |
|                                                                                  | MTGNR/L16-3C     | 50818      | 50819     | 1.000  | 5.00   |                  |
|                                                                                  | MTGNR/L16-3D     | 50822      | 50823     | 1.000  | 6.00   | 432              |
|                                                                                  | MTGNR/L16-4C     | 50826      | -         | 1.000  | 5.00   |                  |
|                                                                                  | MTGNR/L16-4D     | 50830      | 50831     | 1.000  | 6.00   |                  |
|                                                                                  | MTGNR/L20-4D     | 50834      | 50835     | 1.250  | 6.00   |                  |
|                                                                                  | MTGNR/L24-4D     | 50836      | -         | 1.500  | 6.00   | 543              |
|                                                                                  | MTGNR/L24-4E     | 50838      | -         | 1.500  | 7.00   |                  |
|                                                                                  | MTGNR/L85-4D     | 50842      | 50843     | 1.250  | 6.00   |                  |
|                                                                                  | MTGNR/L86-4E     | 50846      | -         | 1.500  | 7.00   |                  |
|                                                                                  | MTGNR/L16-5C     | 50850      | 50851     | 1.000  | 5.00   | 663              |
|                                                                                  | MTGNR/L16-5D     | 50854      | 50855     | 1.000  | 6.00   |                  |
|                                                                                  | MTGNR/L20-5D     | 50858      | 50859     | 1.250  | 6.00   |                  |
|                                                                                  | MTGNR/L24-5E     | 50862      | 50863     | 1.500  | 7.00   |                  |
|                                                                                  | MTGNR/L24-6E     | 50872      | 50873     | 1.500  | 7.00   |                  |

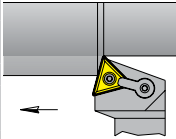
\* Change shim to ITSN-322 when using TNMG-332 inserts

**MTJN R/L Toolholder Style J- 3° Side Cutting Edge Angle for negative triangle TNM\_ inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MTJNR/L08-2A     | 50882      | 50883     | 0.500  | 4.00   | 221              |
|                                                                                    | MTJNR/L10-2B     | 50886      | -         | 0.625  | 4.50   | 322 or 332*      |
|                                                                                    | MTJNR/L10-3B     | 50890      | 50891     | 0.625  | 4.50   |                  |
|                                                                                    | MTJNR/L12-3B     | 50894      | 50895     | 0.750  | 4.50   |                  |
|                                                                                    | MTJNR/L16-3D     | 50898      | 50899     | 1.000  | 6.00   |                  |
|                                                                                    | MTJNR/L16-4D     | 50902      | 50903     | 1.000  | 6.00   | 432              |
|                                                                                    | MTJNR/L20-4D     | 50906      | 50907     | 1.250  | 6.00   |                  |
|                                                                                    | MTJNR/L20-4E     | 50908      | 50909     | 1.250  | 7.00   |                  |
|                                                                                    | MTJNR/L16-5D     | 50914      | 50915     | 1.000  | 6.00   |                  |
|                                                                                    | MTJNR/L20-5D     | 50918      | 50919     | 1.250  | 6.00   | 543              |
|                                                                                    | MTJNR/L24-5E     | 50922      | 50923     | 1.500  | 7.00   |                  |
|                                                                                    | MTJNR/L85-5D     | 50926      | 50927     | 1.250  | 6.00   |                  |
|                                                                                    | MTJNR/L86-5E     | 50930      | -         | 1.500  | 7.00   |                  |
|                                                                                    | MTJNR/L24-6E     | 50934      | 50935     | 1.500  | 7.00   | 663              |

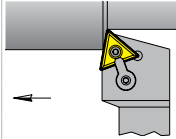
\* Change shim to ITSN-322 when using TNMG-332 inserts

**MTRN R/L Toolholder Style R - 15° Side Cutting Edge Angle for negative triangle TNM\_ inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MTRNR/L08-2A     | 50960      | 50961     | 0.500  | 4.00   | 221              |
|                                                                                    | MTRNR/L10-2B     | 50964      | -         | 0.625  | 4.50   | 322 or 332*      |
|                                                                                    | MTRNR/L16-3D     | 50976      | 50977     | 1.000  | 6.00   |                  |
|                                                                                    | MTRNR/L16-4D     | 50980      | 50981     | 1.000  | 6.00   |                  |
|                                                                                    | MTRNR/L20-4D     | 50984      | 50985     | 1.250  | 6.00   |                  |
|                                                                                    | MTRNR/L85-4D     | 50988      | -         | 1.250  | 6.00   | 432              |
|                                                                                    | MTRNR/L16-5D     | 50992      | -         | 1.000  | 6.00   |                  |
|                                                                                    | MTRNR/L20-5D     | 50996      | 50997     | 1.250  | 6.00   |                  |
|                                                                                    | MTRNR/L24-6E     | 51012      | 51013     | 1.500  | 7.00   |                  |
|                                                                                    |                  |            |           |        |        | 663              |

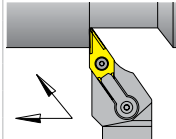
\* Change shim to ITSN-322 when using TNMG-332 inserts

**MTWN R/L Toolholder Style W - 10° Side Cutting Edge Angle for negative triangle TNM\_ inserts**

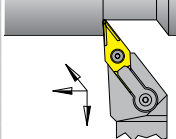
|                                                                                   | ANSI Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MTWNR/L12-3B     | 51022      | 51023     | 0.750  | 4.50   | 322 or 332*      |
|                                                                                   | MTWNR/L16-4D     | 51026      | -         | 1.000  | 6.00   | 432              |
|                                                                                   | MTWNR/L20-4D     | 51030      | 51031     | 1.250  | 6.00   |                  |
|                                                                                   |                  |            |           |        |        |                  |

\* Change shim to ITSN-322 when using TNMG-332 inserts

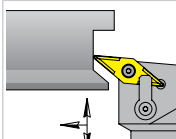
**MVGN R/L Toolholder Style G- 0° Side Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

|                                                                                   | ANSI Description | UPC #      |           | Shank  |        | VNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MVGNR/L12-3B     | 51044      | 51045     | 0.75   | 4.50   | 332              |
|                                                                                   | MVGNR/L16-3D     | -          | 51049     | 1.00   | 6.00   | 432              |
|                                                                                   | MVGNR/L16-4D     | 51052      | -         | 1.00   | 6.00   |                  |

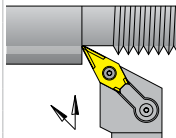
**MVJN R/L Toolholder Style J- Negative 3° Side Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

|                                                                                   | ANSI Description | UPC #      |           | Shank  |        | VNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MVJNR/L12-3B     | 51062      | 51063     | 0.75   | 4.50   | 332              |
|                                                                                   | MVJNR/L16-3C     | 51066      | 51067     | 1.00   | 5.00   |                  |
|                                                                                   | MVJNR/L16-3D     | 51070      | 51071     | 1.00   | 6.00   |                  |
|                                                                                   | MVJNR/L20-3D     | 51074      | 51075     | 1.25   | 6.00   |                  |
|                                                                                   | MVJNR/L24-3E     | 51078      | 51079     | 1.50   | 7.00   | 432              |
|                                                                                   | MVJNR/L12-4B     | 51082      | 51083     | 0.75   | 4.50   |                  |
|                                                                                   | MVJNR/L16-4C     | 51086      | -         | 1.00   | 5.00   |                  |
|                                                                                   | MVJNR/L16-4D     | 51090      | 51091     | 1.00   | 6.00   |                  |
|                                                                                   | MVJNR/L20-4D     | 51094      | 51095     | 1.25   | 6.00   |                  |
|                                                                                   | MVJNR/L24-4E     | 51098      | 51099     | 1.50   | 7.00   |                  |

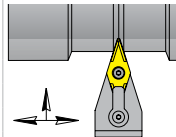
**MVLN R/L Toolholder Style L- Negative 5° End Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | VNM_ Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MVLNR/L16-4C     | 51108      | 51109     | 1.00   | 5.00   | 432              |
|                                                                                     | MVLNR/L16-4D     | 51112      | 51113     | 1.00   | 6.00   |                  |
|                                                                                     | MVLNR/L20-4D     | 51116      | 51117     | 1.25   | 6.00   |                  |
|                                                                                     | MVLNR/L24-4D     | -          | 51121     | 1.50   | 6.00   |                  |

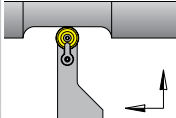
**MVTN R/L Toolholder Style N- Negative 27.5° End Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

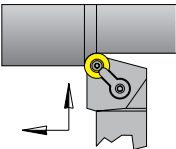
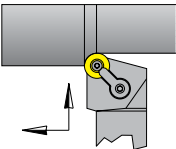
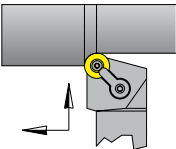
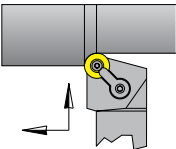
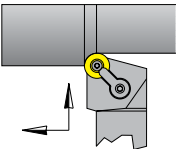
|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | VNM_ Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MVTNR/L12-3B     | 51134      | -         | 0.75   | 4.50   | 332              |
|                                                                                     | MVTNR/L16-3C     | 51138      | -         | 1.00   | 5.00   |                  |
|                                                                                     | MVTNR/L16-3D     | 51142      | 51143     | 1.00   | 6.00   |                  |
|                                                                                     | MVTNR/L20-3D     | 51146      | 51147     | 1.25   | 6.00   |                  |
|                                                                                     | MVTNR/L24-3E     | 51150      | -         | 1.50   | 7.00   |                  |

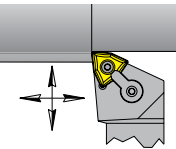
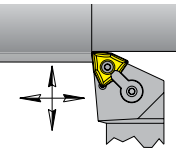
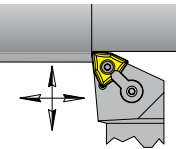
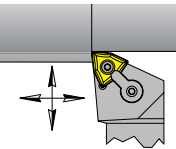
**MVVNN Toolholder Style V- 17.5° Side Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

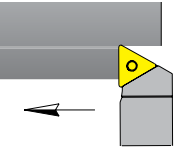
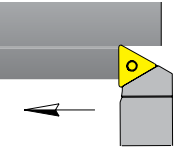
|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | VNM_ Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MVVNN12-3B       | 51160      | -         | 0.75   | 4.50   | 332              |
|                                                                                     | MVVNN16-3C       | 51162      | -         | 1.00   | 5.00   |                  |
|                                                                                     | MVVNN16-3D       | 51164      | -         | 1.00   | 6.00   |                  |
|                                                                                     | MVVNN16-4C       | 51166      | -         | 1.00   | 5.00   | 432              |
|                                                                                     | MVVNN16-4D       | 51168      | -         | 1.00   | 6.00   |                  |

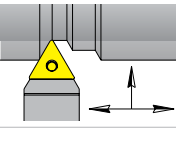
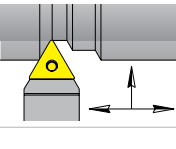
**MRGO R/L Toolholder Style G- Profiling, Plunging and Turning for positive round RCM\_ inserts**

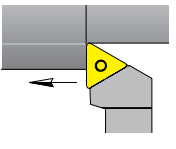
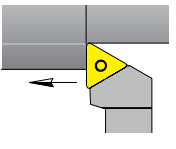
|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | RCM_ Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|  | MRGOR/L85-4D     | 51244      | 51245     | 1.250  | 6.00   | 43               |
|                                                                                     | MRGOR/L20-6E     | 51248      | 51249     | 1.250  | 7.00   | 64               |
|                                                                                     | MRGOR/L24-8E     | 51252      | -         | 1.500  | 7.00   | 84               |

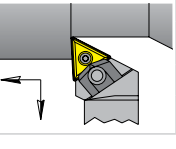
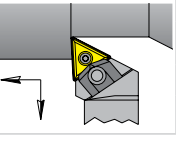
| MRGN R/L Toolholder Style G- 0° Side Cutting Edge Angle for negative round RNM_ inserts |                  |            |           |        |        |                  |
|-----------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|        | ANSI Description | UPC #      |           | Shank  |        | RNM_ Gage Insert |
|                                                                                         |                  | Right Hand | Left Hand | Height | Length |                  |
|        | MRGNR/L08-3A     | 51178      | -         | 0.500  | 4.00   | 32               |
|                                                                                         | MRGNR/L10-3B     | -          | 51183     | 0.625  | 4.50   |                  |
|                                                                                         | MRGNR/L12-3B     | 51186      | 51187     | 0.750  | 4.50   |                  |
|                                                                                         | MRGNR/L16-3D     | 51190      | 51191     | 1.000  | 6.00   |                  |
|        | MRGNR/L10-4B     | -          | 51195     | 0.625  | 4.50   | 43               |
|                                                                                         | MRGNR/L12-4B     | 51198      | 51199     | 0.750  | 4.50   |                  |
|                                                                                         | MRGNR/L16-4C     | 51202      | 51203     | 1.000  | 5.00   |                  |
|                                                                                         | MRGNR/L16-4D     | 51206      | 51207     | 1.000  | 6.00   |                  |
|        | MRGNR/L20-4D     | 51210      | 51211     | 1.250  | 6.00   | 43               |
|                                                                                         | MRGNR/L24-4E     | 51214      | 51215     | 1.500  | 7.00   |                  |
|                                                                                         | MRGNR/L85-4D     | 51218      | 51219     | 1.250  | 6.00   |                  |
|                                                                                         | MRGNR/L86-4E     | -          | 51223     | 1.500  | 7.00   |                  |
|        | MRGNR/L16-5D     | 51226      | 51227     | 1.000  | 6.00   | 54               |
|                                                                                         | MRGNR/L20-6D     | 51230      | 51231     | 1.250  | 6.00   | 64               |
|                                                                                         | MRGNR/L24-6E     | 51234      | 51235     | 1.500  | 7.00   |                  |

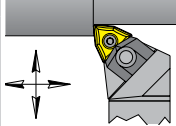
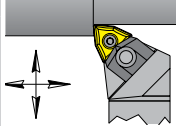
| MWLN R/L Toolholder Style L- Negative 5° End or Side Cutting Edge Angle for negative 80° trigon WNM_ inserts |                  |            |           |        |        |                  |
|--------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                             | ANSI Description | UPC #      |           | Shank  |        | WNM_ Gage Insert |
|                                                                                                              |                  | Right Hand | Left Hand | Height | Length |                  |
|                             | MWLN R/L12-3B    | 51262      | 51263     | 0.75   | 4.50   | 332              |
|                                                                                                              | MWLN R/L16-3C    | 51264      | 51265     | 1.00   | 5.00   |                  |
|                                                                                                              | MWLN R/L12-4B    | 51266      | 51267     | 0.75   | 4.50   |                  |
|                                                                                                              | MWLN R/L12-4D    | 51268      | -         | 0.75   | 6.00   |                  |
|                             | MWLN R/L16-4C    | 51280      | 51281     | 1.25   | 5.00   | 432              |
|                                                                                                              | MWLN R/L16-4D    | 51270      | 51271     | 1.00   | 6.00   |                  |
|                                                                                                              | MWLN R/L20-4D    | 51274      | 51275     | 1.25   | 6.00   |                  |
|                                                                                                              | MWLN R/L20-4E    | 54276      | 51277     | 1.25   | 7.00   |                  |
|                             | MWLN R/L85-4E    | 51296      | -         | 1.25   | 7.00   | 543              |
|                                                                                                              | MWLN R/L16-5D    | 51282      | 51283     | 1.00   | 6.00   |                  |
|                                                                                                              | MWLN R/L20-5D    | 51286      | -         | 1.25   | 6.00   |                  |
|                                                                                                              |                  |            |           |        |        |                  |

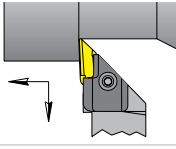
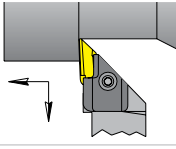
| TA R/L Toolholder Style A- 0° Side Cutting Edge Angle for negative triangle TNM_ inserts |                  |            |           |        |        |                  |
|------------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|       | ANSI Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|                                                                                          |                  | Right Hand | Left Hand | Height | Length |                  |
|       | TAR/L08-2B       | 54401      | 54402     | 0.500  | 4.500  | 221              |
|                                                                                          | TAR/L10-3B       | 54407      | 54408     | 0.625  | 4.500  |                  |
|                                                                                          | TAR/L12-3B       | -          | 54412     | 0.750  | 4.500  |                  |
|                                                                                          | TAR/L16-4D       | 54417      | 54418     | 1.000  | 6.000  |                  |

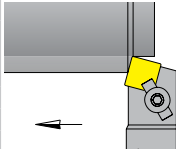
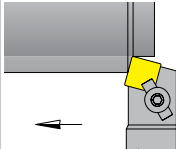
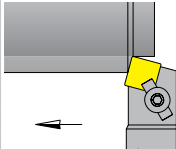
| TEN Toolholder Style E- 30° Side Cutting Edge Angle for negative triangle TNM_ inserts |                  |         |        |        |                  |  |
|----------------------------------------------------------------------------------------|------------------|---------|--------|--------|------------------|--|
|     | ANSI Description | UPC #   | Shank  |        | TNM_ Gage Insert |  |
|                                                                                        |                  | Neutral | Height | Length |                  |  |
|     | TE10-3B          | 54428   | 0.625  | 4.500  | 322              |  |
|                                                                                        | TE12-3B          | 54431   | 0.750  | 4.500  |                  |  |
|                                                                                        | TE16-4D          | 54436   | 1.000  | 6.000  | 432              |  |
|                                                                                        |                  |         |        |        |                  |  |

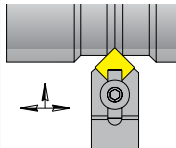
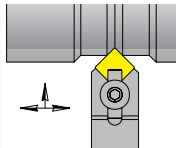
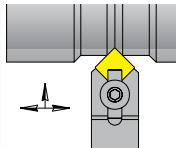
| TG R/L Toolholder Style G- 0° Side Cutting Edge Angle for negative triangle TNM_ inserts |                  |            |           |        |        |                  |
|------------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|       | ANSI Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|                                                                                          |                  | Right Hand | Left Hand | Height | Length |                  |
|       | TGR/L08-2B       | 54441      | 54442     | 0.500  | 4.50   | 221              |
|                                                                                          | TGR/L10-3B       | 54447      | 54448     | 0.625  | 4.50   |                  |
|                                                                                          | TGR/L12-3B       | 54451      | 54452     | 0.750  | 4.50   |                  |
|                                                                                          | TGR/L16-4D       | 54457      | 54458     | 1.000  | 6.00   |                  |

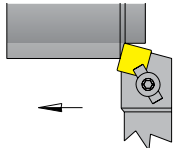
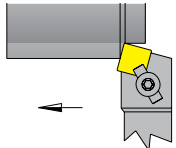
| WTJN R/L Toolholder Style J- 3° Side Cutting Edge Angle for negative triangle TNM_ inserts |                  |            |           |        |        |                  |
|--------------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|         | ANSI Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|                                                                                            |                  | Right Hand | Left Hand | Height | Length |                  |
|         | WTJNR/L12-3C     | 51623      | -         | 0.75   | 5.0    | 332              |
|                                                                                            | WTJNR/L16-3D     | -          | 51629     | 1.00   | 6.0    |                  |
|                                                                                            |                  |            |           |        |        |                  |
|                                                                                            |                  |            |           |        |        |                  |

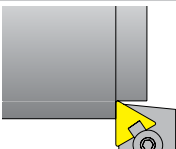
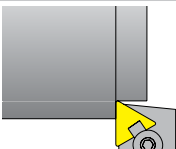
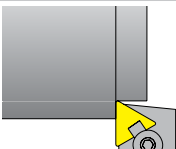
| WWLN R/L Toolholder Style L- 5° End or Side Cutting Edge Angle for negative 80° trigon WNM_ inserts |                  |            |           |        |        |                  |
|-----------------------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                   | ANSI Description | UPC #      |           | Shank  |        | WNM_ Gage Insert |
|                                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|                   | WWLNR/L16-4D     | 51637      | 51638     | 1.00   | 6.0    | 432              |
|                                                                                                     |                  |            |           |        |        |                  |
|                                                                                                     |                  |            |           |        |        |                  |
|                                                                                                     |                  |            |           |        |        |                  |

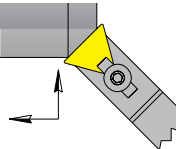
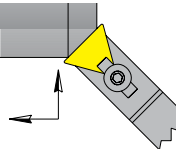
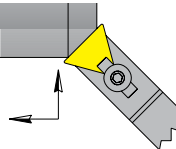
| CKJNR Toolholder Style J- 3° Side Cutting Edge Angle for negative KNUX inserts     |                  |            |           |        |        |                  |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|  | ANSI Description | UPC #      |           | Shank  |        | KNUX Gage Insert |
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |
|  | CKJNR12-5C       | 51592      | -         | 0.75   | 5.0    | 160405           |
|                                                                                    | CKJNR16-5D       | 51594      | -         | 1.00   | 6.0    |                  |
|                                                                                    | CKJNR20-5E       | 51596      | -         | 1.25   | 7.0    |                  |
|                                                                                    |                  |            |           |        |        |                  |

| CSBP R/L Toolholder Style B- 15° Side Cutting Edge Angle for 11° positive square SPG inserts |                  |            |           |        |        |                 |
|----------------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|-----------------|
|            | ANSI Description | UPC #      |           | Shank  |        | SPG Gage Insert |
|                                                                                              |                  | Right Hand | Left Hand | Height | Length |                 |
|            | CSBPR/L10-3B     | 51300      | 51301     | 0.625  | 4.50   | 322             |
|                                                                                              | CSBPR/L12-3B     | 51304      | -         | 0.750  | 4.50   |                 |
|                                                                                              | CSBPR/L12-4B     | 51308      | 51309     | 0.750  | 4.50   |                 |
|                                                                                              | CSBPR/L16-4D     | 51312      | -         | 1.000  | 6.00   |                 |
|            | CSBPR/L20-6D     | 51320      | 51321     | 1.250  | 6.00   | 633             |
|                                                                                              |                  |            |           |        |        |                 |
|                                                                                              |                  |            |           |        |        |                 |
|                                                                                              |                  |            |           |        |        |                 |

| CSDPN Toolholder Style D- 45° Side Cutting Edge Angle for 11° positive square SPG inserts |                  |         |        |        |                 |  |
|-------------------------------------------------------------------------------------------|------------------|---------|--------|--------|-----------------|--|
|        | ANSI Description | UPC #   | Shank  |        | SPG Gage Insert |  |
|                                                                                           |                  | Neutral | Height | Length |                 |  |
|        | CSDPN08-3J       | 51330   | 0.500  | 3.50   | 322             |  |
|                                                                                           | CSDPN10-3B       | 51332   | 0.625  | 4.50   |                 |  |
|                                                                                           | CSDPN12-3B       | 51334   | 0.750  | 4.50   |                 |  |
|                                                                                           | CSDPN12-4B       | 51336   | 0.750  | 4.50   |                 |  |
|        | CSDPN16-4D       | 51338   | 1.000  | 6.00   | 422             |  |
|                                                                                           | CSDPN16-6D       | 51346   | 1.000  | 6.00   |                 |  |
|                                                                                           | CSDPN85-6D       | 51348   | 1.250  | 6.00   |                 |  |
|                                                                                           | CSDPN86-6E       | 51350   | 1.500  | 7.00   |                 |  |

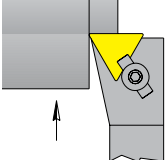
| CSRPR R/L Toolholder Style R- 15° Side Cutting Edge Angle for 11° positive square SPG inserts |                  |            |           |        |        |                 |
|-----------------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|-----------------|
|           | ANSI Description | UPC #      |           | Shank  |        | SPG Gage Insert |
|                                                                                               |                  | Right Hand | Left Hand | Height | Length |                 |
|           | CSRPR/L08-3J     | 51364      | 51365     | 0.500  | 3.50   | 322             |
|                                                                                               | CSRPR/L16-6D     | 51368      | 51369     | 1.000  | 6.00   |                 |
|                                                                                               | CSRPR/L85-6D     | -          | 51373     | 1.250  | 6.00   |                 |
|                                                                                               | CSRPR/L86-6E     | 51376      | 51377     | 1.500  | 7.00   |                 |

| CTAPR R/L Toolholder Style A- 0° Side Cutting Edge Angle for 11° positive triangle TPG inserts |                  |            |           |        |        |                 |
|------------------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|-----------------|
|            | ANSI Description | UPC #      |           | Shank  |        | TPG Gage Insert |
|                                                                                                |                  | Right Hand | Left Hand | Height | Length |                 |
|            | CTAPR/L06-2J     | 51382      | 51383     | 0.375  | 3.50   | 221             |
|                                                                                                | CTAPR/L08-2J     | 51386      | 51387     | 0.500  | 3.50   |                 |
|                                                                                                | CTAPR/L10-2B     | 51390      | 51391     | 0.625  | 4.50   |                 |
|                                                                                                | CTAPR/L12-3B     | 51398      | 51399     | 0.750  | 4.50   |                 |
|            | CTAPR/L16-3D     | 51402      | 51403     | 1.000  | 6.00   | 322             |
|                                                                                                | CTAPR/L65-3D     | 51406      | 51407     | 1.250  | 6.00   |                 |
|                                                                                                | CTAPR/L16-4D     | 51410      | 51411     | 1.000  | 6.00   |                 |
|                                                                                                | CTAPR/L85-4D     | 51414      | -         | 1.250  | 6.00   |                 |

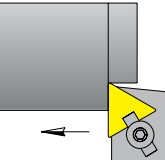
| CTCON Toolholder Style C- 0° End Cutting Edge Angle for 11° positive triangle TPG inserts |                  |         |        |        |                 |  |
|-------------------------------------------------------------------------------------------|------------------|---------|--------|--------|-----------------|--|
|       | ANSI Description | UPC #   | Shank  |        | TPG Gage Insert |  |
|                                                                                           |                  | Neutral | Height | Length |                 |  |
|       | CTCON08-3J       | 51424   | 0.50   | 3.50   | 322             |  |
|                                                                                           | CTCON44-3F       | 51426   | 1.00   | 8.00   |                 |  |
|                                                                                           | CTCON12-4B       | 51428   | 0.75   | 4.50   |                 |  |
|                                                                                           | CTCON64-4F       | 51430   | 1.00   | 8.00   |                 |  |
|       | CTCON66-4F       | 51432   | 1.50   | 8.00   | 432             |  |
|                                                                                           |                  |         |        |        |                 |  |
|                                                                                           |                  |         |        |        |                 |  |
|                                                                                           |                  |         |        |        |                 |  |



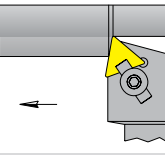
**CTFP R/L Toolholder Style F- 0° End Cutting Edge Angle for 11° positive triangle TPG inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | TPG Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|-----------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                 |
|                                                                                  | CTFPR/L10-3B     | 51442      | 51443     | 0.625  | 4.50   | 322             |
|                                                                                  | CTFPR/L12-3B     | 51446      | 51447     | 0.750  | 4.50   |                 |
|                                                                                  | CTFPR/L16-3D     | 51450      | -         | 1.000  | 6.00   |                 |
|                                                                                  | CTFPR/L12-4B     | 51454      | -         | 0.750  | 4.50   |                 |
|                                                                                  | CTFPR/L16-4C     | 51458      | 51459     | 1.000  | 5.00   | 432             |
|                                                                                  | CTFPR/L16-4D     | 51462      | 51463     | 1.000  | 6.00   |                 |
|                                                                                  | CTFPR/L20-4D     | 51466      | 51467     | 1.250  | 6.00   |                 |
|                                                                                  | CTFPR/L85-4D     | 51470      | -         | 1.250  | 6.00   |                 |

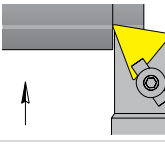
**CTGP R/L Toolholder Style G- 0° Side Cutting Edge Angle for 11° positive triangle TPG inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | TPG Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|-----------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                 |
|                                                                                  | CTGPR/L10-3B     | 51492      | 51493     | 0.625  | 4.50   | 322             |
|                                                                                  | CTGPR/L12-3B     | 51496      | 51497     | 0.750  | 4.50   |                 |
|                                                                                  | CTGPR/L16-4C     | -          | 51501     | 1.000  | 5.00   |                 |
|                                                                                  | CTGPR/L16-4D     | 51504      | 51505     | 1.000  | 6.00   |                 |
|                                                                                  | CTGPR/L20-4D     | 51508      | 51509     | 1.250  | 6.00   | 432             |
|                                                                                  | CTGPR/L85-4D     | 51512      | 51513     | 1.250  | 6.00   |                 |
|                                                                                  | CTGPR/L16-5D     | 51516      | 51517     | 1.000  | 6.00   |                 |
|                                                                                  | CTGPR/L20-5D     | 51520      | 51521     | 1.250  | 6.00   |                 |
|                                                                                  | CTGPR/L24-5E     | 51524      | 51525     | 1.500  | 7.00   | 543             |

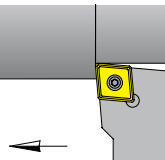
**CTRP R/L Toolholder Style R- 15° Side Cutting Edge Angle for 11° positive triangle TPG inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | TPG Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|-----------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                 |
|                                                                                   | CTRPR/L10-2B     | 51534      | 51535     | 0.625  | 4.50   | 221             |
|                                                                                   | CTRPR/L12-3B     | 51538      | 51539     | 0.750  | 4.50   | 322             |
|                                                                                   | CTRPR/L16-3D     | 51542      | 51543     | 1.000  | 6.00   |                 |
|                                                                                   | CTRPR/L85-4D     | 51546      | 51547     | 1.250  | 6.00   | 432             |

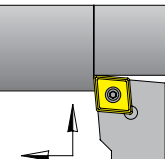
**CTCE R/L Toolholder Style L -10° End Cutting Edge Angle for 20° positive triangle TEGE inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | TEGE Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                    | CTCER/L06-7      | 51418      | 51419     | 0.375  | 2.50   | 1.81.51          |

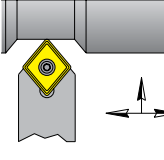
**SCGC R/L Toolholder Style G- 0° Side Cutting Edge Angle for 7° positive 80° diamond CC\_T inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CC_T Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                    | SCGCR/L05-2      | 51790      | 51791     | 0.312  | 2.50   | 21.51            |
|                                                                                    | SCGCR/L06-2J     | 51792      | 51793     | 0.375  | 3.50   |                  |
|                                                                                    | SCGCR/L08-2A     | 51794      | 51795     | 0.500  | 4.00   |                  |
|                                                                                    | SCGCR/L10-3A     | -          | 51797     | 0.625  | 4.00   |                  |
|                                                                                    | SCGCR/L12-3B     | 51798      | 51799     | 0.750  | 4.50   | 32.52            |

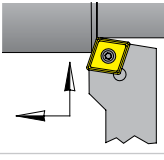
**SCLC R/L Toolholder Style L- Negative 5° End or Side Cutting Edge Angle for 7° positive 80° diamond CC\_T inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CC_T Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                    | SCLCR/L05-2      | 51806      | 51807     | 0.312  | 2.500  | 21.51            |
|                                                                                    | SCLCR/L06-2J     | 51800      | 51801     | 0.375  | 3.500  |                  |
|                                                                                    | SCLCR/L10-2A     | -          | 51819     | 0.625  | 4.000  |                  |
|                                                                                    | SCLCR/L08-3A     | 51804      | 51805     | 0.500  | 4.000  |                  |
|                                                                                    | SCLCR/L10-3A     | -          | 51823     | 0.625  | 4.000  | 32.52            |
|                                                                                    | SCLCR/L10-3B     | 51808      | 51809     | 0.625  | 4.500  |                  |
|                                                                                    | SCLCR/L12-3B     | 51812      | 51813     | 0.750  | 4.500  |                  |
|                                                                                    | SCLCR/L16-3D     | 51816      | 51817     | 1.000  | 6.000  |                  |
|                                                                                    | SCLCR/L12-4B     | 51820      | 51821     | 0.750  | 4.500  | 432              |
|                                                                                    | SCLCR/L16-4D     | 51824      | 51825     | 1.000  | 6.000  |                  |

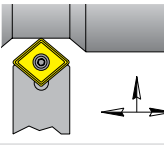
**SCMCN Toolholder Style M- 40° Side Cutting Edge Angle for 7° positive 80° diamond CC\_T inserts**

|  | ANSI Description | UPC # Neutral | Shank  |        | CC_T Gage Insert |
|-----------------------------------------------------------------------------------|------------------|---------------|--------|--------|------------------|
|                                                                                   |                  |               | Height | Length |                  |
|                                                                                   | SCMCN08-2J       | 51833         | 0.500  | 3.500  | 21.51            |
|                                                                                   | SCMCN10-2A       | 51829         | 0.625  | 4.000  |                  |
|                                                                                   | SCMCN08-3J       | 51830         | 0.500  | 3.500  |                  |
|                                                                                   | SCMCN08-3A       | 51836         | 0.500  | 4.000  |                  |
|                                                                                   | SCMCN10-3A       | 51831         | 0.625  | 4.000  | 32.52            |
|                                                                                   | SCMCN10-3B       | 51838         | 0.625  | 4.500  |                  |
|                                                                                   | SCMCN12-3B       | 51840         | 0.750  | 4.500  |                  |
|                                                                                   | SCMCN16-3D       | 51832         | 1.000  | 6.000  |                  |
|                                                                                   | SCMCN12-4B       | 51842         | 0.750  | 4.500  | 432              |
|                                                                                   | SCMCN16-4D       | 51844         | 1.000  | 6.000  |                  |

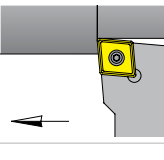
**SCRCR R/L Toolholder Style R -15° Side Cutting Edge Angle for 7° positive 80° diamond CC\_T inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CC_T Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                   | SCRCR/L06-2      | 51859      | 51861     | 0.375  | 2.500  | 21.51            |
|                                                                                   | SCRCR/L08-2J     | 51863      | 51865     | 0.500  | 3.500  |                  |
|                                                                                   | SCRCR/L10-3A     | 51868      | 51869     | 0.625  | 4.000  |                  |

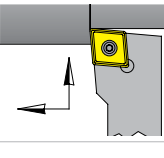
**SCYCN Toolholder Style Y- 50° Side Cutting Edge Angle for 7° positive 80° diamond CC\_T inserts**

|  | ANSI Description | UPC # Neutral | Shank  |        | CC_T Gage Insert |
|-----------------------------------------------------------------------------------|------------------|---------------|--------|--------|------------------|
|                                                                                   |                  |               | Height | Length |                  |
|                                                                                   | SCYCN06-2J       | 51854         | 0.375  | 3.500  | 21.51            |
|                                                                                   | SCYCN08-3A       | 51856         | 0.500  | 4.000  | 32.52            |
|                                                                                   | SCYCN12-4B       | 51862         | 0.750  | 4.500  | 432              |

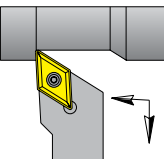
**SCGPR R/L Toolholder Style G- 0° End Cutting Edge Angle for 11° positive 80° diamond CP\_T inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CP_T Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                     | SCGPR/L06-2      | 51870      | 51871     | 0.375  | 2.500  | 21.51            |
|                                                                                     | SCGPR/L08-3J     | 51874      | 51875     | 0.500  | 3.500  | 32.52            |
|                                                                                     | SCGPR/L12-3B     | 51878      | 51879     | 0.750  | 4.500  |                  |

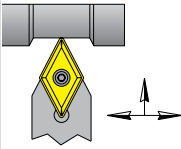
**SCLPR R/L Toolholder Style L -Negative 5° End or Side Cutting Edge Angle for 11° positive 80° diamond CP\_T inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | CP_T Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                     | SCLPR/L08-3J     | 51886      | -         | 0.500  | 3.500  | 32.52            |
|                                                                                     | SCLPR/L12-3B     | 51890      | 51891     | 0.750  | 4.500  |                  |

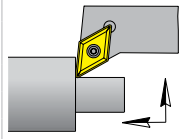
**SDJCR R/L Toolholder Style J- Negative 3° Side Cutting Edge Angle for 7° positive 55° diamond DC\_T inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | DC_T Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |
|                                                                                     | SDJCR/L06-2J     | 51872      | 51873     | 0.375  | 3.500  | 21.51            |
|                                                                                     | SDJCR/L08-2A     | 51876      | 51877     | 0.500  | 4.000  |                  |
|                                                                                     | SDJCR/L08-3A     | 51880      | 51881     | 0.500  | 4.000  |                  |
|                                                                                     | SDJCR/L10-3B     | 51884      | 51885     | 0.625  | 4.500  |                  |
|                                                                                     | SDJCR/L12-3B     | 51888      | 51889     | 0.750  | 4.500  | 32.52            |
|                                                                                     | SDJCR/L16-3D     | 51892      | -         | 1.000  | 6.000  |                  |
|                                                                                     | SDJCR/L16-4D     | -          | 51901     | 1.000  | 6.000  |                  |
|                                                                                     |                  |            |           |        |        |                  |

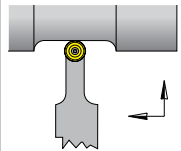
**SDPCN Toolholder Style P- 27.5° Side Cutting Edge Angle for 7° positive 55° diamond DC\_T inserts**

|                                                                                   | ANSI Description | UPC #<br>Neutral | Shank  |        | DC_T<br>Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                   |                  |                  | Height | Length |                     |
|  | SDPCN06-2J       | 51910            | 0.375  | 3.500  | 21.51               |
|                                                                                   | SDPCN06-2D       | 51942            | 0.375  | 6.000  |                     |
|                                                                                   | SDPCN08-2A       | 51912            | 0.500  | 4.000  |                     |
|                                                                                   | SDPCN08-3D       | 51944            | 0.500  | 6.000  | 32.52               |
|                                                                                   | SDPCN10-3B       | 51914            | 0.625  | 4.500  |                     |
|                                                                                   | SDPCN10-3D       | 51945            | 0.625  | 6.000  |                     |
|                                                                                   | SDPCN12-3B       | 51916            | 0.750  | 4.500  | 432                 |
|                                                                                   | SDPCN16-3D       | 51918            | 1.000  | 6.000  |                     |
|                                                                                   | SDPCN12-4B       | 51920            | 0.750  | 4.500  |                     |
|                                                                                   | SDPCN16-4D       | 51922            | 1.000  | 6.000  |                     |

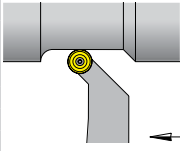
**SDUC R/L Toolholder Style U- 3° End Cutting Edge Angle for 7° positive 55° diamond DC\_T inserts**

|                                                                                   | ANSI Description | UPC #      |           | Shank  |        | DC_T<br>Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SDUCR/L08-2J     | 51946      | 51947     | 0.500  | 3.500  | 21.51               |
|                                                                                   | SDUCR/L10-2A     | 51948      | -         | 0.625  | 4.000  |                     |
|                                                                                   | SDUCR/L10-3A     | 51954      | 51959     | 0.625  | 4.000  |                     |

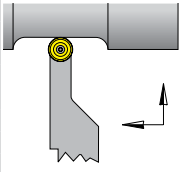
**SROCN Toolholder Style O- Profiling, Plunging and Turning for 7° positive round RC\_T inserts**

|                                                                                   | ANSI Description | UPC #<br>Neutral | Shank  |        | RC_T<br>Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                   |                  |                  | Height | Length |                     |
|  | SROCN10-06A      | 52160            | 0.625  | 4.000  | 0602MO              |
|                                                                                   | SROCN20-10D      | 52169            | 1.250  | 6.000  | 1003MO              |

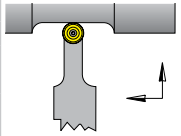
**SRGC R/L Toolholder Style G- Profiling, Plunging and Turning for 7° positive round RC\_T inserts**

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | RC_T<br>Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SRGCR/L16-06D    | -          | 52181     | 1.000  | 6.000  | 0602MO              |
|                                                                                     | SRGCR/L12-08B    | 52184      | -         | 0.750  | 4.500  | 0803MO              |
|                                                                                     | SRGCR/L12-10B    | -          | 52191     | 0.750  | 4.500  | 1003MO              |
|                                                                                     | SRGCR/L20-10D    | 52194      | 52195     | 1.250  | 6.000  |                     |

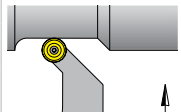
**SRCC R/L Toolholder Style C- Profiling, Plunging and Turning for 7° positive round RC\_T inserts**

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | RC_T<br>Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SRCCR/L12-06B    | 52214      | -         | 0.750  | 4.500  | 0602MO              |
|                                                                                     | SRCCR/L16-06D    | -          | 52217     | 1.000  | 6.000  |                     |
|                                                                                     | SRCCR/L12-08B    | 52220      | 52221     | 0.750  | 4.500  | 0803MO              |
|                                                                                     | SRCCR/L16-08D    | -          | 52223     | 1.000  | 6.000  | 1003MO              |
|                                                                                     | SRCCR/L12-10B    | 52226      | 52227     | 0.750  | 4.500  |                     |

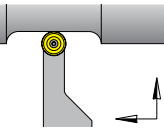
**SROPN Toolholder Style O- Profiling, Plunging and Turning for 11° positive round RP\_T inserts**

|                                                                                     | ANSI Description | UPC #<br>Neutral | Shank  |        | RP_T<br>Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                     |                  |                  | Height | Length |                     |
|  | SROPN16-10D      | 52171            | 1.000  | 6.000  | 1003MO              |
|                                                                                     | SROPN20-10D      | 52172            | 1.250  | 6.000  |                     |

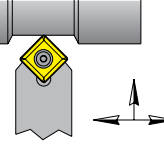
**SRGP R/L Toolholder Style G- Profiling, Plunging and Turning for 11° positive round RP\_T inserts**

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | RP_T<br>Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SRGPR/L16-10D    | 52198      | -         | 1.000  | 6.000  | 1003MO              |

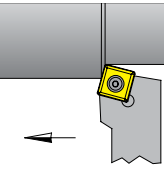
**SRCP R/L Toolholder Style C- Profiling, Plunging and Turning for 11° positive round RP\_T inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | RP_T<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SRCPR/L12-10B    | 52232      | 52233     | 0.750  | 4.500  | 1003MO              |

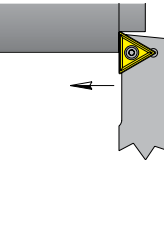
**SSDCN Toolholder Style D - 45° Side Cutting Edge Angle for 7° positive square SC\_T inserts**

|                                                                                    | ANSI Description | UPC #<br>Neutral | Shank  |        | SC_T<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                    |                  |                  | Height | Length |                     |
|  | SSDCN08-3A       | 51932            | 0.500  | 4.000  | 32.52               |
|                                                                                    | SSDCN10-3B       | 51934            | 0.625  | 4.500  |                     |
|                                                                                    | SSDCN12-3B       | 51936            | 0.750  | 4.500  |                     |
|                                                                                    | SSDCN16-4D       | 51938            | 1.000  | 6.000  | 432                 |

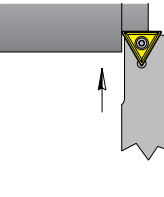
**SSRCR R/L Toolholder Style R - 15° Side Cutting Edge Angle for 7° positive square SC\_T inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | SC_T<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SSRCR/L08-3A     | 51952      | 51953     | 0.500  | 4.000  | 32.52               |
|                                                                                    | SSRCR/L10-3A     | 51956      | -         | 0.625  | 4.000  |                     |
|                                                                                    | SSRCR/L10-3B     | 51960      | 51961     | 0.625  | 4.500  |                     |
|                                                                                    | SSRCR/L12-3B     | -          | 51965     | 0.750  | 4.500  |                     |
|                                                                                    | SSRCR/L16-4C     | 51968      | -         | 1.000  | 5.000  | 432                 |
|                                                                                    | SSRCR/L16-4D     | 51972      | 51973     | 1.000  | 6.000  |                     |

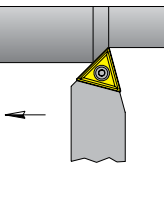
**STAC R/L Toolholder Style A- 0° Side Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | TC_T<br>Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                     |
|  | STACR/L06-2      | 51556      | 51557     | 0.375  | 2.50   | 21.51               |
|                                                                                     | STACR/L08-2J     | 51558      | -         | 0.500  | 3.50   |                     |
|                                                                                     | STACR/L10-2A     | 51560      | 51561     | 0.625  | 4.00   |                     |
|                                                                                     | STACR/L10-3B     | -          | 51565     | 0.625  | 4.50   | 32.52               |
|                                                                                     | STACR/L12-3B     | 51562      | 51567     | 0.750  | 4.50   |                     |
|                                                                                     | STACR/L64-3D     | 51564      | 51569     | 1.000  | 6.00   |                     |
|                                                                                     | STACR/L85-4D     | 51566      | -         | 1.250  | 6.00   | 432                 |
|                                                                                     | STACR/L106-4D    | 51568      | -         | 1.500  | 6.00   |                     |

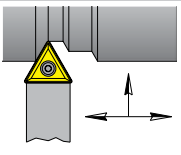
**STCCR Toolholder Style C - 0° End Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|                                                                                      | ANSI Description | UPC #<br>R.H. | Shank  |        | TC_T<br>Gage Insert |
|--------------------------------------------------------------------------------------|------------------|---------------|--------|--------|---------------------|
|                                                                                      |                  |               | Height | Length |                     |
|  | STCCR06-2        | 51578         | 0.375  | 2.50   | 21.51               |
|                                                                                      | STCCR08-2J       | 51580         | 0.500  | 3.50   |                     |
|                                                                                      | STCCR10-2A       | 51582         | 0.625  | 4.00   |                     |
|                                                                                      | STCCR12-3B       | 51584         | 0.750  | 4.50   | 32.52               |
|                                                                                      | STCCR64-3D       | 51586         | 1.000  | 6.00   |                     |
|                                                                                      | STCCR85-4D       | 51588         | 1.250  | 6.00   | 432                 |
|                                                                                      | STCCR106-4D      | 51590         | 1.500  | 6.00   |                     |

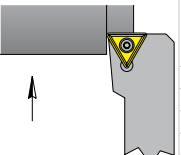
**STDCR Toolholder Style D - 45° Side Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|                                                                                      | ANSI Description | UPC #<br>R.H. | Shank  |        | TC_T<br>Gage Insert |
|--------------------------------------------------------------------------------------|------------------|---------------|--------|--------|---------------------|
|                                                                                      |                  |               | Height | Length |                     |
|  | STDCR06-2        | 51600         | 0.375  | 2.50   | 21.51               |
|                                                                                      | STDCR08-2J       | 51602         | 0.500  | 3.50   |                     |
|                                                                                      | STDCR10-2A       | 51604         | 0.625  | 4.00   |                     |
|                                                                                      | STDCR12-3B       | 51606         | 0.750  | 4.50   | 32.52               |
|                                                                                      | STDCR64-3D       | 51608         | 1.000  | 6.00   |                     |
|                                                                                      | STDCR85-4D       | 51610         | 1.250  | 6.00   | 432                 |
|                                                                                      | STDCR106-4D      | 51612         | 1.500  | 6.00   |                     |

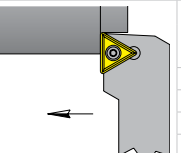
**STECN Toolholder Style E- 30° Side Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|  | ANSI Description | UPC #<br>Neutral | Shank  |        | TC_T<br>Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                  |                  |                  | Height | Length |                     |
|                                                                                  | STECN06-2        | 51622            | 0.375  | 2.50   | 21.51               |
|                                                                                  | STECN08-2J       | 51624            | 0.500  | 3.50   |                     |
|                                                                                  | STECN10-2A       | 51626            | 0.625  | 4.00   |                     |
|                                                                                  | STECN12-3B       | 51628            | 0.750  | 4.50   | 32.52               |
|                                                                                  | STECN64-3D       | 51630            | 1.000  | 6.00   |                     |
|                                                                                  | STECN85-4D       | 51632            | 1.250  | 6.00   |                     |
|                                                                                  | STECN106-4D      | 51634            | 1.500  | 6.00   | 432                 |

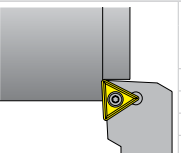
**STFCR/L Toolholder Style F- 0° End Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | TC_T<br>Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                     |
|                                                                                  | STFCR/L06-2      | 51644      | 51645     | 0.375  | 2.500  | 21.51               |
|                                                                                  | STFCR/L08-2J     | 51648      | -         | 0.500  | 3.500  |                     |
|                                                                                  | STFCR/L10-2A     | 51652      | 51653     | 0.625  | 4.000  |                     |
|                                                                                  | STFCR/L10-3B     | -          | 51657     | 0.625  | 4.500  | 32.52               |
|                                                                                  | STFCR/L12-3B     | 51660      | -         | 0.750  | 4.500  |                     |
|                                                                                  | STFCR/L16-3D     | 51664      | 51665     | 1.000  | 6.000  |                     |
|                                                                                  | STFCR/L20-4D     | 51668      | 51669     | 1.250  | 6.000  | 432                 |

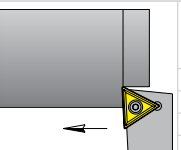
**STGCR/L Toolholder Style G- 0° Side Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|  | ANSI Description | Right Hand | Left Hand | Shank  |        | TC_T<br>Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                  |                  |            |           | Height | Length |                     |
|                                                                                  | STGCR/L06-2      | 51672      | -         | 0.375  | 2.500  | 21.51               |
|                                                                                  | STGCR/L08-2J     | 51676      | 51677     | 0.500  | 3.500  |                     |
|                                                                                  | STGCR/L10-2A     | 51680      | 51681     | 0.625  | 4.000  |                     |
|                                                                                  | STGCR/L10-3B     | 51684      | 51685     | 0.625  | 4.500  | 32.52               |
|                                                                                  | STGCR/L12-3B     | 51688      | 51689     | 0.750  | 4.500  |                     |
|                                                                                  | STGCR/L16-3D     | 51692      | 51693     | 1.000  | 6.000  |                     |
|                                                                                  | STGCR/L20-4D     | -          | 51697     | 1.250  | 6.000  | 432                 |

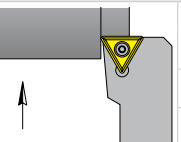
**STJCR/L Toolholder Style J- 3° Side Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|  | ANSI Description | Right Hand | Left Hand | Shank  |        | TC_T<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    |                  |            |           | Height | Length |                     |
|                                                                                    | STJCR/L06-2      | 51700      | 51701     | 0.375  | 2.500  | 21.51               |
|                                                                                    | STJCR/L08-2J     | -          | 51705     | 0.500  | 3.500  |                     |
|                                                                                    | STJCR/L10-2A     | 51708      | 51709     | 0.625  | 4.000  |                     |
|                                                                                    | STJCR/L10-3B     | -          | 51713     | 0.625  | 4.500  | 32.52               |
|                                                                                    | STJCR/L12-3B     | 51716      | -         | 0.750  | 4.500  |                     |
|                                                                                    | STJCR/L16-3D     | 51720      | 51721     | 1.000  | 6.000  |                     |
|                                                                                    | STJCR/L20-4D     | 51724      | 51725     | 1.250  | 6.000  | 432                 |

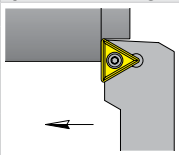
**STNCR/L Toolholder Style N- 3° Side Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|  | ANSI Description | Right Hand | Left Hand | Shank  |        | TC_T<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    |                  |            |           | Height | Length |                     |
|                                                                                    | STNCR/L06-2      | 51734      | 51735     | 0.375  | 2.500  | 21.51               |
|                                                                                    | STNCR/L08-2J     | 51736      | -         | 0.500  | 3.500  |                     |
|                                                                                    | STNCR/L10-2A     | 51738      | 51747     | 0.625  | 4.000  |                     |
|                                                                                    | STNCR/L10-2B     | 51749      | -         | 0.625  | 4.500  | 32.52               |
|                                                                                    | STNCR/L12-3B     | 51740      | -         | 0.750  | 4.500  |                     |
|                                                                                    | STNCR/L64-3D     | 51742      | -         | 1.000  | 6.000  |                     |
|                                                                                    | STNCR/L85-4D     | 51746      | -         | 1.250  | 6.000  | 432                 |
|                                                                                    | STNCR/L106-4D    | 51748      | 51763     | 1.500  | 6.000  |                     |

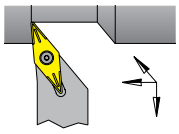
**STFPR/L Toolholder Style F- 0° End Cutting Edge Angle for 11° positive triangle TP\_T inserts**

|  | ANSI Description | Right Hand | Left Hand | Shank  |        | TC_T<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    |                  |            |           | Height | Length |                     |
|                                                                                    | STFPR/L06-2      | 51764      | 51765     | 0.375  | 2.500  | 21.51               |
|                                                                                    | STFPR/L08-2J     | -          | 51767     | 0.500  | 3.500  |                     |

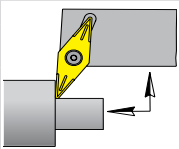
**STGPR/L Toolholder Style G- 0° Side Cutting Edge Angle for 11° positive triangle TP\_T inserts**

|  | ANSI Description | UPC #      |           | Shank  |        | TC_T<br>Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                     |
|                                                                                   | STGPR/L06-2      | 51771      | 51773     | 0.375  | 2.500  | 21.51               |
|                                                                                   | STGPR/L08-2J     | -          | 51775     | 0.500  | 3.500  |                     |

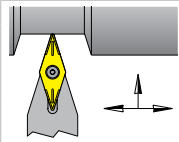
**SVJBR/L Toolholder Style J- Negative 3° Side Cutting Edge Angle for 5° positive 35° diamond VB\_T inserts**

|  | ANSI Description | Right Hand | Left Hand | Shank  |        | VB_T<br>Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                   |                  |            |           | Height | Length |                     |
|                                                                                   | SVJBR/L06-2      | 51984      | 51985     | 0.375  | 2.500  | 221                 |
|                                                                                   | SVJBR/L08-2J     | 51986      | 51987     | 0.500  | 3.500  |                     |
|                                                                                   | SVJBR/L10-2A     | 51988      | 51989     | 0.625  | 4.000  |                     |
|                                                                                   | SVJBR/L12-3B     | 52006      | 52007     | 0.750  | 4.500  | 332                 |
|                                                                                   | SVJBR/L16-3C     | 52010      | 52011     | 1.000  | 5.000  |                     |
|                                                                                   | SVJBR/L16-3D     | 52014      | 52015     | 1.000  | 6.000  |                     |

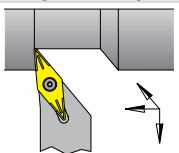
**SVUBR/L Toolholder Style U- 3° End Cutting Edge Angle for 5° positive 35° diamond VB\_T inserts**

|  | ANSI Description | Right Hand | Left Hand | Shank  |        | VB_T<br>Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                   |                  |            |           | Height | Length |                     |
|                                                                                   | SVUBR/L08-2J     | 51996      | 51997     | 0.500  | 3.500  | 221                 |
|                                                                                   | SVUBR/L10-2A     | 51998      | 51999     | 0.625  | 4.000  |                     |

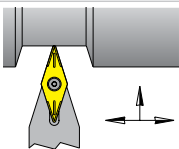
**SVVBN Toolholder Style V- 17.5° Side Cutting Edge Angle for 5° positive 35° diamond VB\_T inserts**

|  | ANSI Description | UPC #<br>Neutral | Shank  |        | VB_T<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                    |                  |                  | Height | Length |                     |
|                                                                                    | SVVBN12-3B       | 52062            | 0.750  | 4.500  | 332                 |
|                                                                                    | SVVBN16-3D       | 52064            | 1.000  | 6.000  |                     |

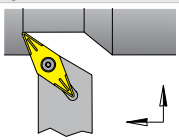
**SVJCR/L Toolholder Style J- Negative 3° Side Cutting Edge Angle for 7° positive 35° diamond VC\_T inserts**

|  | ANSI Description | Right Hand | Left Hand | Shank  |        | VC_T<br>Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                     |                  |            |           | Height | Length |                     |
|                                                                                     | SVJCR/L06-2J     | 52028      | 52029     | 0.375  | 3.500  | 221                 |
|                                                                                     | SVJCR/L08-2A     | 52032      | 52033     | 0.500  | 4.000  |                     |
|                                                                                     | SVJCR/L10-2B     | 52036      | -         | 0.625  | 4.500  |                     |
|                                                                                     | SVJCR/L12-3B     | 52040      | -         | 0.750  | 4.500  | 332                 |
|                                                                                     | SVJCR/L16-3C     | 52044      | -         | 1.000  | 5.000  |                     |
|                                                                                     | SVJCR/L16-3D     | 52048      | 52049     | 1.000  | 6.000  |                     |
|                                                                                     | SVJCR/L20-3D     | 52052      | -         | 1.250  | 6.000  | 448                 |
|                                                                                     | SVJCR/L16-4D     | 52054      | 52055     | 1.000  | 6.000  |                     |

**SVVCN Toolholder Style V- 17.5° Side Cutting Edge Angle for 7° positive 35° diamond VC\_T inserts**

|  | ANSI Description | UPC #<br>Neutral | Shank  |        | VC_T<br>Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                     |                  |                  | Height | Length |                     |
|                                                                                     | SVVCN06-2J       | 52076            | 0.375  | 3.500  | 221                 |
|                                                                                     | SVVCN12-3B       | 52082            | 0.750  | 4.500  |                     |
|                                                                                     | SVVCN20-3D       | 52086            | 1.250  | 6.000  | 332                 |

**SVTCR/L Toolholder Style T- 27.5° End Cutting Edge Angle for 7° positive 35° diamond VC\_T inserts**

|  | ANSI Description | Right Hand | Left Hand | Shank  |        | VC_T<br>Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                     |                  |            |           | Height | Length |                     |
|                                                                                     | SVTCR/L16-4D     | 52102      | 52103     | 1.000  | 6.000  | 448                 |
|                                                                                     | SVTCR/L20-4D     | 52106      | 52107     | 1.250  | 6.000  |                     |

**SVJP R/L Toolholder Style J - Negative 3° Side Cutting Edge Angle for 11° positive 35° diamond VP\_T inserts**

| ANSI Description | UPC #      |           | Shank  |        | VC_T Gage Insert |
|------------------|------------|-----------|--------|--------|------------------|
|                  | Right Hand | Left Hand | Height | Length |                  |
| SVJPR/L16-4D     | 52248      | -         | 1.000  | 6.000  | 448              |
| SVJPR/L20-4D     | 52250      | 52251     | 1.250  | 6.000  |                  |

**SVLP R/L Toolholder Style L - 5° End Cutting Edge Angle for 11° positive 35° diamond VP\_T inserts**

| ANSI Description | UPC #      |           | Shank  |        | VP_T Gage Insert |
|------------------|------------|-----------|--------|--------|------------------|
|                  | Right Hand | Left Hand | Height | Length |                  |
| SVLPR/L16-4D     | 52274      | 52275     | 1.000  | 6.000  | 448              |
| SVLPR/L20-4D     | 52276      | 52277     | 1.250  | 6.000  |                  |

**SSQD R Toolholder Style Q - Convex Radius Cutting Edge for 15° positive square convex SDGX inserts**

| ANSI Description | UPC # | Shank  |        | SDGX Gage Insert |
|------------------|-------|--------|--------|------------------|
|                  |       | Height | Length |                  |
| SSQDR12-6B-08    | 52136 | 0.750  | 4.500  | 19C_             |
| SSQDR16-6D-08    | 52138 | 1.000  | 6.000  |                  |
| SSQDR20-6D-08    | 52140 | 1.250  | 6.000  |                  |
| SSQDR12-6B-16    | 52142 | 0.750  | 4.500  | 19C_             |
| SSQDR16-6D-16    | 52144 | 1.000  | 6.000  |                  |
| SSQDR20-6D-16    | 52146 | 1.250  | 6.000  |                  |

**SWLC R/L Toolholder Style L - Negative 5° End or Side Cutting Edge Angle for 7° positive 80° trigon WC\_T inserts**

| ANSI Description | UPC #      |           | Shank  |        | WC_T Gage Insert |
|------------------|------------|-----------|--------|--------|------------------|
|                  | Right Hand | Left Hand | Height | Length |                  |
| SWLCR/L06-2J     | 52096      | 52097     | 0.375  | 3.500  | 21.51            |
| SWLCR/L08-3A     | 52100      | 52101     | 0.500  | 4.000  |                  |
| SWLCR/L10-3B     | 52104      | 52105     | 0.625  | 4.500  |                  |
| SWLCR/L12-3B     | 52108      | 52109     | 0.750  | 4.500  | 432              |
| SWLCR/L12-4B     | 52116      | -         | 0.750  | 4.500  |                  |
| SWLCR/L16-4D     | 52120      | 52121     | 1.000  | 6.000  |                  |

**DCLN R/L Toolholder Style L - 5° end or side cutting lead angle for negative 80° diamond CNM inserts**

| ANSI Description | UPC #      |           | Shank  |        | CNM Gage Insert |
|------------------|------------|-----------|--------|--------|-----------------|
|                  | Right Hand | Left Hand | Height | Length |                 |
| DCLNR/L12-4B     | 53800      | 53801     | 0.75   | 4.50   | 432             |
| DCLNR/L16-4D     | 53802      | 53803     | 1.00   | 6.00   | 432             |
| DCLNR/L20-4D     | 53804      | 53805     | 1.25   | 6.00   | 432             |

**DDJN R/L Toolholder Style J - 3° side cutting lead angle for negative 55° diamond DNM inserts**

| ANSI Description | UPC #      |           | Shank  |        | DNM Gage Insert |
|------------------|------------|-----------|--------|--------|-----------------|
|                  | Right Hand | Left Hand | Height | Length |                 |
| DDJNR/L12-4B     | 53810      | 53811     | 0.75   | 4.50   | 432             |
| DDJNR/L16-4D     | 53812      | 53813     | 1.00   | 6.00   | 432             |
| DDJNR/L20-4D     | 53814      | 53815     | 1.25   | 6.00   | 432             |

**DDPNN Toolholder Style P - 27.5° side cutting lead angle for negative 55° diamond DNM inserts**

| ANSI Description | UPC # | Shank  |        | DNM Gage Insert |
|------------------|-------|--------|--------|-----------------|
|                  |       | Height | Length |                 |
| DDPNN12-4B       | 53816 | 0.75   | 4.50   | 432             |
| DDPNN16-4D       | 53817 | 1.00   | 6.00   | 432             |
| DDPNN20-4D       | 53818 | 1.25   | 6.00   | 432             |

**DTENN Toolholder Style E - 30° side cutting lead angle for negative triangle TNM inserts**

| ANSI Description | UPC # | Shank  |        | TNM Gage Insert |
|------------------|-------|--------|--------|-----------------|
|                  |       | Height | Length |                 |
| DTENN12-3B       | 53836 | 0.75   | 4.50   | 332             |
| DTENN16-3D       | 53837 | 1.00   | 6.00   | 332             |
| DTENN16-4D       | 53838 | 1.00   | 6.00   | 432             |

**DTJN R/L Toolholder Style J - 3° side cutting lead angle for negative triangle TNM inserts**

| ANSI Description | UPC #      |           | Shank  |        | TNM Gage Insert |
|------------------|------------|-----------|--------|--------|-----------------|
|                  | Right Hand | Left Hand | Height | Length |                 |
| DTJNR/L12-3B     | 53828      | 53829     | 0.75   | 4.50   | 332             |
| DTJNR/L16-3D     | 53830      | 53831     | 1.00   | 6.00   | 332             |
| DTJNR/L16-4D     | 53832      | 53833     | 1.00   | 6.00   | 432             |

**DVJN R/L Toolholder Style J - Negative 3° side cutting lead angle for negative 35° diamond VNM inserts**

| ANSI Description | UPC #      |           | Shank  |        | VNM Gage Insert |
|------------------|------------|-----------|--------|--------|-----------------|
|                  | Right Hand | Left Hand | Height | Length |                 |
| DVJNR/L12-3B     | 53840      | 53841     | 0.75   | 4.50   | 332             |
| DVJNR/L16-3D     | 53842      | 53843     | 1.00   | 6.00   | 332             |
| DVJNR/L20-3D     | 53844      | 53845     | 1.25   | 6.00   | 332             |

**DWLN R/L Toolholder Style L - Negative 5° end or side cutting lead angle for negative 80° trigon WNM inserts**

| ANSI Description | UPC #      |           | Shank  |        | WNM Gage Insert |
|------------------|------------|-----------|--------|--------|-----------------|
|                  | Right Hand | Left Hand | Height | Length |                 |
| DWLNR/L12-4B     | 53848      | 53849     | 0.75   | 4.50   | 432             |
| DWLNR/L16-4D     | 53852      | 53853     | 1.00   | 6.00   | 432             |

**S-MCKN R/L Boring Bar Style K - Negative 15° End Cutting Edge Angle for negative 80° diamond CNM inserts**

| ANSI Description | UPC #      |           | Min. Bore | Bar Size | CNM Gage Insert |
|------------------|------------|-----------|-----------|----------|-----------------|
|                  | Right Hand | Left Hand |           |          |                 |
| S20U-MCKNR/L-4   | 54992      | 54993     | 1.470     | 1.25     | 432             |
| S24U-MCKNR/L-4   | 54994      | 54995     | 1.760     | 1.50     | 432             |
| S32V-MCKNR/L-4   | 54996      | 54997     | 2.400     | 2.00     | 543             |
| S32V-MCKNR/L-5   | 54998      | 54999     | 2.400     | 2.00     |                 |

**S-MCLN R/L Boring Bar Style L - Negative 5° Side & End Cutting Edge Angle for negative 80° diamond CNM inserts**

| ANSI Description | UPC #      |           | Min. Bore | Bar Size | CNM Gage Insert |
|------------------|------------|-----------|-----------|----------|-----------------|
|                  | Right Hand | Left Hand |           |          |                 |
| S12S-MCLNR/L-3   | 55002      | 55003     | 1.000     | 0.75     | 322             |
| S16T-MCLNR/L-3   | 55004      | 55005     | 1.280     | 1.00     |                 |
| S12S-MCLNR/L-4   | 55006      | 55007     | 1.000     | 0.75     |                 |
| S16T-MCLNR/L-4   | 55010      | 55011     | 1.280     | 1.00     | 432             |
| S20U-MCLNR/L-4   | 55014      | 55015     | 1.530     | 1.25     | 432             |
| S24U-MCLNR/L-4   | 55018      | 55019     | 1.780     | 1.50     |                 |
| S28U-MCLNR/L-4   | 55022      | 55023     | 2.030     | 1.75     |                 |
| S32V-MCLNR/L-4   | 55024      | 55025     | 2.562     | 2.00     | 543             |
| S24U-MCLNR/L-5   | 55026      | 55027     | 2.374     | 1.50     |                 |
| S32V-MCLNR/L-5   | 55030      | 55031     | 2.562     | 2.00     |                 |
| S40V-MCLNR/L-5   | 55034      | 55035     | 3.062     | 2.50     | 643             |
| S48Y-MCLNR/L-5   | 55038      | 55039     | 3.562     | 3.00     |                 |
| S32V-MCLNR/L-6   | 55042      | 55043     | 2.562     | 2.00     |                 |
| S36V-MCLNR-6     | 55046      | -         | 2.812     | 2.25     | 643             |
| S40V-MCLNR/L-6   | 55050      | 55051     | 3.062     | 2.50     |                 |



**S-MDPN R/L Boring Bar Style P - Negative 27.5° End Cutting Edge Angle for negative 55° diamond DNM\_ inserts**

|                                                                                  | ANSI Description | UPC #      |           | Min. Bore | Bar Size | DNM_ Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                  |                  | Right Hand | Left Hand |           |          |                  |
|  | S20U-MDPNR/L-4   | 55053      | 55054     | 1.705     | 1.25     | 432              |
|                                                                                  | S24U-MDPNR/L-4   | 55055      | 55056     | 2.000     | 1.50     |                  |

**S-MDQN R/L Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for negative 55° diamond DNM\_ inserts**

|                                                                                  | ANSI Description | UPC #      |           | Min. Bore | Bar Size | DNM_ Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                  |                  | Right Hand | Left Hand |           |          |                  |
|  | S20U-MDQNR-4     | 55057      | -         | 1.705     | 1.25     | 432              |
|                                                                                  | S24U-MDQNR/L-4   | 55059      | 55060     | 2.000     | 1.50     |                  |

**S-MDUN R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for negative 55° diamond DNM\_ inserts**

|                                                                                  | ANSI Description | UPC #      |           | Min. Bore | Bar Size | DNM_ Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                  |                  | Right Hand | Left Hand |           |          |                  |
|  | S16T-MDUNR/L-3   | 55066      | 55067     | 1.300     | 1.00     | 332              |
|                                                                                  | S20U-MDUNR/L-4   | 55070      | 55071     | 2.00      | 1.25     |                  |
|                                                                                  | S24U-MDUNR/L-4   | 55074      | 55075     | 2.25      | 1.50     |                  |
|                                                                                  | S28U-MDUNR/L-4   | 55078      | 55079     | 2.50      | 1.75     |                  |
|                                                                                  | S32V-MDUNR/L-4   | 55082      | 55083     | 3.00      | 2.00     | 543              |
|                                                                                  | S32V-MDUNR/L-5   | 55090      | 55091     | 3.00      | 2.00     |                  |
|                                                                                  | S36V-MDUNR/L-5   | 55094      | 55095     | 3.25      | 2.25     |                  |
|                                                                                  | S40V-MDUNR/L-5   | 55098      | 55099     | 3.50      | 2.50     |                  |

**S-MSKN R/L Boring Bar Style K - 15° End Cutting Edge Angle for negative square SNM\_ inserts**

|                                                                                    | ANSI Description | UPC #      |           | Min. Bore | Bar Size | SNM_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                    |                  | Right Hand | Left Hand |           |          |                  |
|  | S20U-MSKNR/L-4   | 55100      | 55101     | 1.47      | 1.25     | 432              |
|                                                                                    | S24U-MSKNR/L-4   | 55102      | 55103     | 1.76      | 1.50     |                  |
|                                                                                    | S28U-MSKNR-4     | 55104      | -         | 2.01      | 1.75     | 432              |
|                                                                                    | S32V-MSKNR/L-6   | 55106      | 55107     | 2.40      | 2.00     |                  |
|                                                                                    | S40V-MSKNR/L-6   | 55108      | 55109     | 3.03      | 2.50     | 643              |

**S-MTFN R/L Boring Bar Style F - 0° End Cutting Edge Angle for negative triangle TNM\_ inserts**

|                                                                                    | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TNM_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                    |                  | Right Hand | Left Hand |           |          |                  |
|  | S12S-MTFNR-3     | 55150      | -         | 1.000     | 0.75     | 322              |
|                                                                                    | S16T-MTFNR/L-3   | 55154      | 55155     | 1.280     | 1.00     |                  |
|                                                                                    | S20U-MTFNR/L-3   | 55158      | 55159     | 1.530     | 1.25     | 322              |
|                                                                                    | S24U-MTFNR-3     | 55162      | -         | 1.780     | 1.50     |                  |
|                                                                                    | S28U-MTFNR/L-3   | 55166      | 55167     | 2.030     | 1.75     | 432              |
|                                                                                    | S20U-MTFNR/L-4   | 55170      | 55171     | 1.530     | 1.25     |                  |
|                                                                                    | S24U-MTFNR/L-4   | 55174      | 55175     | 2.060     | 1.50     |                  |
|                                                                                    | S28U-MTFNR/L-4   | 55178      | 55179     | 2.312     | 1.75     |                  |
|                                                                                    | S32V-MTFNR/L-4   | 55182      | 55183     | 2.562     | 2.00     |                  |
|                                                                                    | S36V-MTFNR-4     | 55186      | -         | 2.812     | 2.25     |                  |
|                                                                                    | S40V-MTFNR/L-4   | 55190      | 55191     | 3.062     | 2.50     |                  |
|                                                                                    | S48Y-MTFNR/L-4   | 55194      | 55195     | 3.562     | 3.00     |                  |

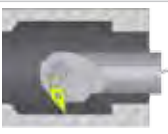
**S-MTUN R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for negative triangle TNM\_ inserts**

|                                                                                    | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TNM_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                    |                  | Right Hand | Left Hand |           |          |                  |
|  | S12S-MTUNR/L-3   | 55204      | 55205     | 1.000     | 0.75     | 322              |
|                                                                                    | S16T-MTUNR/L-3   | 55208      | 55209     | 1.280     | 1.00     |                  |
|                                                                                    | S20U-MTUNR/L-3   | 55212      | 55213     | 1.530     | 1.25     | 322              |
|                                                                                    | S24U-MTUNR/L-3   | 55216      | 55217     | 2.060     | 1.50     |                  |
|                                                                                    | S20U-MTUNR/L-4   | 55220      | 55221     | 1.530     | 1.25     | 432              |
|                                                                                    | S24U-MTUNR/L-4   | 55224      | 55225     | 2.060     | 1.50     |                  |
|                                                                                    | S32V-MTUNR/L-4   | 55228      | 55229     | 2.562     | 2.00     |                  |
|                                                                                    | S40V-MTUNR/L-4   | 55232      | 55233     | 3.062     | 2.50     |                  |

**S-MVUN R/L Boring Bar Style U - Negative 3° Side Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

|                                                                                   | ANSI Description | UPC #      |           | Min. Bore | Bar Size | VNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                   |                  | Right Hand | Left Hand |           |          |                  |
|  | S16T-MVUNR/L-3   | 55266      | 55267     | 2.00      | 1.00     | 332              |
|                                                                                   | S20U-MVUNR/L-3   | 55270      | 55271     | 2.25      | 1.25     |                  |
|                                                                                   | S24U-MVUNR/L-3   | 55274      | 55275     | 2.50      | 1.50     |                  |
|                                                                                   | S28U-MVUNR/L-4   | 55278      | 55279     | 3.00      | 1.75     |                  |
|                                                                                   | S32V-MVUNR/L-4   | 55282      | 55283     | 3.25      | 2.00     | 432              |
|                                                                                   | S40V-MVUNR/L-4   | 55290      | 55291     | 3.75      | 2.50     |                  |

**S-MVXN R/L Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

|                                                                                   | ANSI Description | UPC #      |           | Min. Bore | Bar Size | VNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                   |                  | Right Hand | Left Hand |           |          |                  |
|  | S24U-MVXNR/L-3   | 55300      | 55301     | 2.25      | 1.50     | 332              |
|                                                                                   | S28U-MVXNR/L-3   | 55304      | 55305     | 2.50      | 1.75     |                  |
|                                                                                   | S32V-MVXNR-4     | 55308      | -         | 3.00      | 2.00     | 432              |

**S-MWLN R/L Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for negative trigon WNM\_ inserts**

|                                                                                   | ANSI Description | UPC #      |           | Min. Bore | Bar Size | WNM_ Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                   |                  | Right Hand | Left Hand |           |          |                  |
|  | S12S-MWLN/L-3    | 55318      | 55319     | 1.00      | 0.75     | 332              |
|                                                                                   | S16T-MWLN/L-3    | 55320      | 55321     | 1.28      | 1.00     |                  |
|                                                                                   | S16T-MWLN/L-4    | 55322      | 55323     | 1.28      | 1.00     | 432              |
|                                                                                   | S20U-MWLN/L-4    | 55326      | 55327     | 1.53      | 1.25     |                  |
|                                                                                   | S24U-MWLN/L-4    | 55330      | 55331     | 1.78      | 1.50     | 432              |

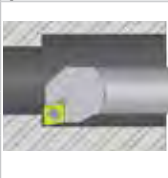
**S-CTFP R/L Boring Bar Style F - 0° End Cutting Edge Angle for 11° positive triangle TPG\_ inserts**

|                                                                                    | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TPG_ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                    |                  | Right Hand | Left Hand |           |          |                  |
|  | S08R-CTFPR/L-2   | 55356      | 55357     | 0.600     | 0.500    | 221              |
|                                                                                    | S10S-CTFPR/L-2   | 55358      | 55359     | 0.770     | 0.625    |                  |
|                                                                                    | S12S-CTFPR/L-3   | 55360      | 55361     | 1.125     | 0.750    | 322              |
|                                                                                    | S16T-CTFPR/L-3   | 55364      | 55365     | 1.280     | 1.000    |                  |
|                                                                                    | S20U-CTFPR/L-3   | 55368      | 55369     | 1.530     | 1.250    | 432              |
|                                                                                    | S24U-CTFPR/L-3   | 55372      | 55373     | 1.840     | 1.500    |                  |
|                                                                                    | S28U-CTFPR/L-3   | 55376      | 55377     | 2.100     | 1.750    |                  |
|                                                                                    | S20U-CTFPR/L-4   | 55380      | 55381     | 1.530     | 1.250    |                  |
|                                                                                    | S24U-CTFPR/L-4   | 55384      | 55385     | 2.060     | 1.500    |                  |
|                                                                                    | S28U-CTFPR/L-4   | 55388      | 55389     | 2.380     | 1.750    |                  |
|                                                                                    | S32V-CTFPR/L-4   | 55392      | 55393     | 2.562     | 2.000    |                  |
|                                                                                    | S36V-CTFPR/L-4   | 55396      | 55397     | 2.880     | 2.250    |                  |
|                                                                                    | S40V-CTFPR/L-4   | 55400      | 55401     | 3.062     | 2.500    | 432              |
|                                                                                    | S48Y-CTFPR/L-4   | 55404      | 55405     | 3.562     | 3.000    |                  |

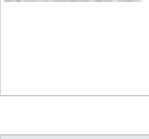
**S-SVQB R/L Boring Bar Style Q - Negative 5° End Cutting Edge Angle for 5° positive 35° diamond VB\_ T inserts**

|                                                                                     | ANSI Description | UPC #      |           | Min. Bore | Bar Size | VB_ T Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|-------------------|
|                                                                                     |                  | Right Hand | Left Hand |           |          |                   |
|  | S10S-SVQBR/L-2   | 55410      | 55411     | 0.85      | 0.625    | 221               |
|                                                                                     | S12S-SVQBR/L-2   | 55412      | 55413     | 0.98      | 0.750    |                   |
|                                                                                     | S16T-SVQBR-3     | 55414      | -         | 1.30      | 1.000    | 332               |

**S-SCFC R/L Boring Bar Style F - 7° End Cutting Edge Angle for 7° positive 80° diamond CC\_ T inserts**

|                                                                                     | ANSI Description | UPC #      |           | Min. Bore | Bar Size | CC_ T Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|-------------------|
|                                                                                     |                  | Right Hand | Left Hand |           |          |                   |
|  | S06M-SCFCL-2     | -          | 55417     | 0.48      | 0.375    | 21.51             |
|                                                                                     | S08R-SCFCR-2     | 55418      | -         | 0.60      | 0.500    |                   |
|                                                                                     | S10S-SCFCR-2     | 55420      | -         | 0.77      | 0.625    | 32.52             |
|                                                                                     | S12S-SCFCR/L-3   | 55422      | 55423     | 0.93      | 0.750    |                   |
|                                                                                     | S16T-SCFCR-3     | 55424      | -         | 1.20      | 1.000    |                   |

| S-SCLC R/L Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC_T inserts |                  |            |           |           |          |                  |
|--------------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                                    | ANSI Description | UPC #      |           | Min. Bore | Bar Size | CC_T Gage Insert |
|                                                                                                                    |                  | Right Hand | Left Hand |           |          |                  |
|                                   | S06M-SCLCR/L-2   | 55470      | 55471     | 0.477     | 0.375    | 21.51            |
|                                                                                                                    | S08M-SCLCR/L-2   | 55474      | 55475     | 0.602     | 0.500    |                  |
|                                                                                                                    | S10R-SCLCR/L-2   | 55478      | 55479     | 0.812     | 0.625    |                  |
|                                                                                                                    | S08M-SCLCR/L-3   | 55482      | 55483     | 0.625     | 0.500    |                  |
|                                   | S10R-SCLCR/L-3   | 55486      | 55487     | 0.797     | 0.625    | 32.52            |
|                                                                                                                    | S12S-SCLCR/L-3   | 55490      | 55491     | 0.954     | 0.750    |                  |
|                                                                                                                    | S16T-SCLCR/L-3   | 55494      | 55495     | 1.250     | 1.000    |                  |
|                                                                                                                    | S16T-SCLCR/L-4   | 55498      | 55499     | 1.280     | 1.000    |                  |
|                                   | S20U-SCLCR/L-4   | 55502      | 55503     | 1.530     | 1.250    | 432              |
|                                                                                                                    | S24U-SCLCR/L-4   | 55506      | 55507     | 1.780     | 1.500    |                  |

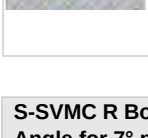
| S-SDUC R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC_T inserts |                  |            |           |           |          |                  |
|-------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                             | ANSI Description | UPC #      |           | Min. Bore | Bar Size | DC_T Gage Insert |
|                                                                                                             |                  | Right Hand | Left Hand |           |          |                  |
|                            | S06M-SDUCR/L-2   | 55560      | 55561     | 0.625     | 0.375    | 21.51            |
|                                                                                                             | S08M-SDUCR/L-2   | 55564      | 55565     | 0.780     | 0.500    |                  |
|                                                                                                             | S10R-SDUCR/L-2   | 55568      | 55569     | 0.840     | 0.625    |                  |
|                                                                                                             | S12S-SDUCR/L-3   | 55572      | 55573     | 1.125     | 0.750    |                  |
|                            | S16T-SDUCR/L-3   | 55576      | 55577     | 1.500     | 1.000    | 32.52            |
|                                                                                                             | S20U-SDUCR/L-3   | 55580      | 55581     | 1.750     | 1.125    |                  |
|                                                                                                             | S16T-SDUCR/L-4   | 55582      | 55583     | 1.500     | 1.000    |                  |
|                                                                                                             |                  |            |           |           |          |                  |

| S-SDQC R/L Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for 7° positive 55° diamond DC_T inserts |                  |            |           |           |          |                  |
|----------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                                | ANSI Description | UPC #      |           | Min. Bore | Bar Size | DC_T Gage Insert |
|                                                                                                                |                  | Right Hand | Left Hand |           |          |                  |
|                               | S08M-SDQCR-2     | 55585      | -         | 0.73      | 0.500    | 21.51            |
|                                                                                                                | S10R-SDQCR/L-2   | 55587      | 55588     | 0.85      | 0.625    |                  |
|                                                                                                                | S12S-SDQCR-3     | 55589      | -         | 0.98      | 0.750    |                  |
|                                                                                                                |                  |            |           |           |          |                  |

| S-SDXC R/L Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC_T inserts |                  |            |           |           |          |                  |
|---------------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                                     | ANSI Description | UPC #      |           | Min. Bore | Bar Size | DC_T Gage Insert |
|                                                                                                                     |                  | Right Hand | Left Hand |           |          |                  |
|                                  | S08R-SDXCR/L-2   | 55426      | 55427     | 0.73      | 0.500    | 21.51            |
|                                                                                                                     | S10S-SDXCL-2     | -          | 55429     | 0.85      | 0.625    |                  |
|                                                                                                                     | S12S-SDXCR/L-3   | 55430      | 55431     | 0.98      | 0.750    |                  |
|                                                                                                                     | S16T-SDXCR/L-3   | 55432      | 55433     | 1.30      | 1.000    |                  |

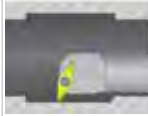
| S-SSKC R/L Boring Bar Style K -15° End Cutting Edge Angle for 7° positive square SC_T inserts |                  |            |           |           |          |                  |
|-----------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                               | ANSI Description | UPC #      |           | Min. Bore | Bar Size | SC_T Gage Insert |
|                                                                                               |                  | Right Hand | Left Hand |           |          |                  |
|            | S10R-SSKCR/L-3   | 55593      | 55594     | 0.800     | 0.625    | 32.52            |
|                                                                                               | S12S-SSKCR/L-3   | 55595      | 55596     | 0.975     | 0.750    |                  |
|                                                                                               | S16T-SSKCR-4     | 55597      | -         | 1.220     | 1.000    |                  |
|                                                                                               |                  |            |           |           |          |                  |

| S-STFC R/L Boring Bar Style F - 0° End Cutting Edge Angle for 7° positive triangle TC_T inserts |                  |            |           |           |          |                  |
|-------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                 | ANSI Description | UPC #      |           | Min. Bore | Bar Size | SC_T Gage Insert |
|                                                                                                 |                  | Right Hand | Left Hand |           |          |                  |
|              | S06M-STFCR/L-2   | 55600      | 55601     | 0.500     | 0.375    | 21.51            |
|                                                                                                 | S08M-STFCR/L-2   | 55604      | 55605     | 0.625     | 0.500    |                  |
|                                                                                                 | S10R-STFCR/L-2   | 55608      | 55609     | 0.812     | 0.625    |                  |
|                                                                                                 | S12S-STFCR/L-2   | 55612      | 55613     | 1.000     | 0.750    |                  |
|              | S16T-STFCR/L-3   | 55616      | 55617     | 1.280     | 1.000    | 32.52            |
|                                                                                                 | S20U-STFCR/L-3   | 55620      | 55621     | 1.530     | 1.250    |                  |
|                                                                                                 | S24U-STFCL-3     | -          | 55625     | 1.780     | 1.500    |                  |
|                                                                                                 |                  |            |           |           |          |                  |

| S-STUC R Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC_T inserts |                  |            |           |           |          |                  |
|--------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                        | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TC_T Gage Insert |
|                                                                                                        |                  | Right Hand | Left Hand |           |          |                  |
|                      | S06M-STUCR-2     | 55628      |           | 0.477     | 0.375    | 21.51            |
|                                                                                                        | S08M-STUCR-2     | 55629      |           | 0.602     | 0.500    |                  |
|                                                                                                        | S10R-STUCR-2     | 55630      |           | 0.797     | 0.625    |                  |
|                                                                                                        | S12S-STUCR-3     | 55631      |           | 0.954     | 0.750    |                  |
|                      | S16T-STUCR-3     | 55632      |           | 1.280     | 1.000    | 32.52            |
|                                                                                                        | S20T-STUCR-4     | 55633      |           | 1.370     | 1.250    |                  |
|                                                                                                        | S24T-STUCR-4     | 55634      |           | 1.680     | 1.500    |                  |
|                                                                                                        |                  |            |           |           |          |                  |

| S-SVMC R Boring Bar Style M - Negative 5° Side Cutting Edge Angle for 7° positive 35° diamond VC_T inserts |                  |            |           |           |          |                  |
|------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                            | ANSI Description | UPC #      |           | Min. Bore | Bar Size | VC_T Gage Insert |
|                                                                                                            |                  | Right Hand | Left Hand |           |          |                  |
|                          | S08R-SVMCR-2     | 55730      |           | 0.580     | 0.500    | 221              |
|                                                                                                            | S10S-SVMCR-2     | 55731      |           | 0.980     | 0.625    |                  |
|                                                                                                            | S12S-SVMCR-3     | 55732      |           | 1.000     | 0.750    |                  |
|                                                                                                            | S16T-SVMCR-3     | 55733      |           | 1.300     | 1.000    |                  |

| S-SVQC R Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for 7° positive 35° diamond VC_T inserts |                  |            |           |           |          |                  |
|--------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                              | ANSI Description | UPC #      |           | Min. Bore | Bar Size | VC_T Gage Insert |
|                                                                                                              |                  | Right Hand | Left Hand |           |          |                  |
|                            | S10R-SVQCR-2     | 55814      |           | 0.85      | 0.625    | 221              |
|                                                                                                              | S12S-SVQCR-2     | 55816      |           | 0.98      | 0.750    |                  |
|                                                                                                              | S16T-SVQCR-3     | 55818      |           | 1.30      | 1.000    |                  |
|                                                                                                              |                  |            |           |           |          |                  |

| S-SVUC R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 35° diamond VC_T inserts |                  |            |           |           |          |                  |
|-------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                             | ANSI Description | UPC #      |           | Min. Bore | Bar Size | VC_T Gage Insert |
|                                                                                                             |                  | Right Hand | Left Hand |           |          |                  |
|                          | S12S-SVUCR/L-2   | 55800      | 55801     | 1.125     | 0.75     | 221              |
|                                                                                                             | S16T-SVUCR-2     | 55804      | -         | 1.300     | 1.00     |                  |
|                                                                                                             | S16T-SVUCR/L-3   | 55808      | 55809     | 1.625     | 1.00     |                  |
|                                                                                                             | S20U-SVUCR/L-3   | 55812      | 55813     | 1.625     | 1.25     |                  |

| S-SVXC R/L Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 35° diamond VC_T inserts |                  |            |           |           |          |                  |
|---------------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                                     | ANSI Description | UPC #      |           | Min. Bore | Bar Size | VC_T Gage Insert |
|                                                                                                                     |                  | Right Hand | Left Hand |           |          |                  |
|                                 | S12S-SVXCR-2     | 55822      | -         | 1.125     | 0.75     | 221              |
|                                                                                                                     | S16T-SVXCR-2     | 55826      | -         | 1.500     | 1.00     |                  |
|                                                                                                                     | S16T-SVXCR/L-3   | 55830      | 55831     | 2.000     | 1.00     |                  |
|                                                                                                                     | S20U-SVXCR/L-3   | 55834      | 55835     | 2.250     | 1.25     |                  |

| S-SWUC R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 80° trigon WC_T inserts |                  |            |           |           |          |                  |
|------------------------------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                                            | ANSI Description | UPC #      |           | Min. Bore | Bar Size | WC_T Gage Insert |
|                                                                                                            |                  | Right Hand | Left Hand |           |          |                  |
|                        | S06M-SWUCR/L-2   | 55912      | 55913     | 0.500     | 0.375    | 21.51            |
|                                                                                                            | S08M-SWUCR/L-2   | 55916      | 55917     | 0.625     | 0.500    |                  |
|                                                                                                            | S10R-SWUCR/L-2   | 55920      | 55921     | 0.812     | 0.625    |                  |
|                                                                                                            | S08M-SWUCR/L-3   | 55924      | 55925     | 0.625     | 0.500    |                  |
|                        | S10R-SWUCR/L-3   | 55928      | 55929     | 0.812     | 0.625    | 32.52            |
|                                                                                                            | S12S-SWUCR/L-3   | 55932      | 55933     | 1.000     | 0.750    |                  |
|                                                                                                            | S16T-SWUCR/L-4   | 55940      | 55941     | 1.280     | 1.000    |                  |
|                                                                                                            | S24U-SWUCR-4     | 55948      | -         | 1.780     | 1.500    |                  |

| S-SCFP R Boring Bar Style F - 0° End Cutting Edge Angle for 11° positive 80° diamond CP_T inserts |                  |       |      |           |          |                  |
|---------------------------------------------------------------------------------------------------|------------------|-------|------|-----------|----------|------------------|
|                                                                                                   | ANSI Description | UPC # |      | Min. Bore | Bar Size | CP_T Gage Insert |
|                                                                                                   |                  | R.H.  | L.H. |           |          |                  |
|               | S06M-SCFPR-2     | 55751 |      | 0.48      | 0.375    | 21.51            |
|                                                                                                   | S08R-SCFPR-2     | 55753 |      | 0.60      | 0.500    |                  |
|                                                                                                   | S10S-SCFPR-2     | 55755 |      | 0.77      | 0.625    |                  |
|                                                                                                   |                  |       |      |           |          |                  |

**S-SCLP R/L Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 11° positive 80° diamond CP\_T inserts**

|                                                                                  | ANSI Description | UPC #      |           | Min. Bore | Bar Size | CP_T Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                  |                  | Right Hand | Left Hand |           |          |                  |
|  | S06M-SCLPR-2     | 55761      | -         | 0.48      | 0.375    | 21.51            |
|                                                                                  | S08R-SCLPR/L-2   | 55763      | 55764     | 0.60      | 0.500    |                  |
|                                                                                  | S10S-SCLPR/L-2   | 55765      | 55766     | 0.77      | 0.625    |                  |
|                                                                                  | S10S-SCLPR/L-3   | 55767      | 55768     | 0.77      | 0.625    |                  |
|                                                                                  | S12S-SCLPR/L-3   | 55769      | 55770     | 0.93      | 0.750    | 32.52            |
|                                                                                  | S16T-SCLPR/L-3   | 55771      | 55772     | 1.20      | 1.000    |                  |

**S-SDUP R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 11° positive 55° diamond DP\_T inserts**

|                                                                                  | ANSI Description | UPC #      |           | Min. Bore | Bar Size | DP_T Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                  |                  | Right Hand | Left Hand |           |          |                  |
|  | S06M-SDUPR/L-2   | 55774      | 55775     | 0.60      | 0.375    | 21.51            |
|                                                                                  | S08R-SDUPR-2     | 55776      | -         | 0.73      | 0.500    |                  |
|                                                                                  | S12S-SDUPR/L-3   | 55780      | 55781     | 0.98      | 0.750    |                  |
|                                                                                  | S16T-SDUPR/L-3   | 55782      | 55783     | 1.30      | 1.000    |                  |
|                                                                                  |                  |            |           |           |          | 32.52            |

**S-SDXP R/L Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 11° positive 55° diamond DP\_T inserts**

|                                                                                  | ANSI Description | UPC #      |           | Min. Bore | Bar Size | DP_T Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                  |                  | Right Hand | Left Hand |           |          |                  |
|  | S10S-SDXPR-2     | 55786      | -         | 0.85      | 0.625    | 21.51            |
|                                                                                  | S16T-SDXPL-3     | -          | 55791     | 1.30      | 1.000    |                  |
|                                                                                  |                  |            |           |           |          |                  |

**S-STFP R/L Boring Bar Style F - 0° End Cutting Edge Angle for 11° positive triangle TPGH and TPGH inserts**

|                                                                                   | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TPG_Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|-----------------|
|                                                                                   |                  | Right Hand | Left Hand |           |          |                 |
|  | S06M-STFPR/L-2   | 55636      | 55637     | 0.470     | 0.375    | 21.51           |
|                                                                                   | S08M-STFPR/L-2   | 55640      | 55641     | 0.600     | 0.500    |                 |
|                                                                                   | S10R-STFPR/L-2   | 55644      | 55645     | 0.770     | 0.625    |                 |
|                                                                                   | S12S-STFPR-3     | 55648      | -         | 0.930     | 0.750    |                 |
|                                                                                   |                  |            |           |           |          | 322             |

**S-STLP R Boring Bar Style L - Negative 5° End Cutting Edge Angle for 11° positive triangle TPGH and TPGH inserts**

|                                                                                    | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TPG_Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|-----------------|
|                                                                                    |                  | Right Hand | Left Hand |           |          |                 |
|  | S06M-STLPR-2     | 55846      |           | 0.430     | 0.375    | 21.51           |
|                                                                                    | S08M-STLPR-2     | 55848      |           | 0.590     | 0.500    |                 |
|                                                                                    | S10R-STLPR-2     | 55850      |           | 0.682     | 0.625    |                 |
|                                                                                    | S12S-STLPR-3     | 55852      |           | 0.845     | 0.750    |                 |
|                                                                                    | S16T-STLPR-3     | 55854      |           | 1.115     | 1.000    | 322             |
|                                                                                    | S20T-STLPR-3     | 55856      |           | 1.370     | 1.250    |                 |
|                                                                                    |                  |            |           |           |          |                 |

**S-STUP R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 11° positive triangle TPGH and TPGH inserts**

|                                                                                    | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TPG_Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|-----------------|
|                                                                                    |                  | Right Hand | Left Hand |           |          |                 |
|  | S16T-STUPR/L-3   | 55682      | 55683     | 1.22      | 1.00     | 322             |
|                                                                                    | S24U-STUPR/L-3   | 55690      | 55691     | 1.84      | 1.50     |                 |
|                                                                                    | S28U-STUPR/L-4   | 55702      | 55703     | 2.38      | 1.75     |                 |
|                                                                                    | S32V-STUPR-4     | 55706      | -         | 2.62      | 2.00     |                 |
|                                                                                    | S40V-STUPR-4     | 55714      | -         | 3.12      | 2.50     |                 |
|                                                                                    |                  |            |           |           |          |                 |

**STCMB Boring Bar - Roughing to Finishing, Square Shoulders to Through Bores for 7° positive triangle TCMT Inserts**

|                                                                                    | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TC_T Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                    |                  | Right Hand | Left Hand |           |          |                  |
|  | STCMB06-2        | 55738      |           | 0.500     | 0.500    | 21.51            |
|                                                                                    | STCMB08-2        | 55740      |           | 0.590     | 0.500    |                  |
|                                                                                    | STCMB10-2        | 55742      |           | 0.750     | 0.625    |                  |
|                                                                                    | STCMB12-3        | 55744      |           | 0.845     | 0.750    |                  |
|                                                                                    | STCMB16-3        | 55746      |           | 1.115     | 1.000    | 32.52            |
|                                                                                    | STCMB20-4        | 55748      |           | 1.370     | 1.250    |                  |
|                                                                                    |                  |            |           |           |          | 432              |

**TPBN Boring Bar - Roughing to Finishing, Square Shoulders to Through Bores for 11° positive triangle TPGH or TPGH Inserts**

|                                                                                   | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TP_Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|----------------|
|                                                                                   |                  | Right Hand | Left Hand |           |          |                |
|  | TPBN06-2         | 55658      |           | 0.430     | 0.500    | 21.51          |
|                                                                                   | TPBN08-2         | 55660      |           | 0.590     | 0.500    |                |
|                                                                                   | TPBN10-2         | 55662      |           | 0.682     | 0.625    |                |
|                                                                                   | TPBN12-3         | 55664      |           | 0.845     | 0.750    |                |
|                                                                                   | TPBN16-3         | 55666      |           | 1.115     | 1.000    | 322            |
|                                                                                   | TPBN20-3         | 55668      |           | 1.370     | 1.250    |                |
|                                                                                   | TPBN20-4         | 55670      |           | 1.370     | 1.250    |                |
|                                                                                   | TPBN24-4         | 55672      |           | 1.680     | 1.500    | 432            |
|                                                                                   |                  |            |           |           |          |                |

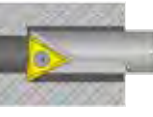
**MINI S-SCLC R/L Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC\_T inserts**

|                                                                                   | ANSI Description | UPC #      |           | Min. Bore | Bar Size | CC_T Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                   |                  | Right Hand | Left Hand |           |          |                  |
|  | S06H-SCLCR/L-2   | 55450      | 55451     | .394      | .375     | 21.51            |
|                                                                                   | S08K-SCLCR/L-2   | 55454      | 55455     | .550      | .500     |                  |
|                                                                                   | S10M-SCLCR/L-2   | 55458      | 55459     | .708      | .625     |                  |
|                                                                                   |                  |            |           |           |          |                  |

**MINI S-SDUC R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC\_T inserts**

|                                                                                   | ANSI Description | UPC #      |           | Min. Bore | Bar Size | DC_T Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                   |                  | Right Hand | Left Hand |           |          |                  |
|  | S06H-SDUCR-2     | 55540      | -         | .492      | .375     | 21.51            |
|                                                                                   | S08K-SDUCR/L-2   | 55544      | 55545     | .610      | .500     |                  |
|                                                                                   | S10M-SDUCR-2     | 55548      | -         | .768      | .625     |                  |
|                                                                                   |                  |            |           |           |          |                  |

**MINI S-STUC R Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|                                                                                    | ANSI Description | UPC #      |           | Min. Bore | Bar Size | TC_T Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                    |                  | Right Hand | Left Hand |           |          |                  |
|  | S08H-STUCR-1.2-2 | 55724      |           | .286      | .500     | 52.50            |
|                                                                                    | S08H-STUCR-1.2-3 | 55726      |           | .313      | .500     |                  |
|                                                                                    | S08H-STUCR-1.2-4 | 55728      |           | .374      | .500     |                  |
|                                                                                    |                  |            |           |           |          |                  |

**MINI S-SWUC R Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 80° trigon WC\_T inserts**

|                                                                                     | ANSI Description | UPC #      |           | Min. Bore | Bar Size | WC_T Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                     |                  | Right Hand | Left Hand |           |          |                  |
|  | S08H-SWUCR-1.2-2 | 55900      |           | 0.228     | .50      | 1.210.0          |
|                                                                                     | S08H-SWUCR-1.2-3 | 55902      |           | 0.308     | .50      |                  |
|                                                                                     | S08H-SWUCR-1.2-4 | 55904      |           | 0.374     | .50      |                  |
|                                                                                     | S06H-SWUCR-2     | 55906      |           | .394      | .375     |                  |
|                                                                                     | S08K-SWUCR-2     | 55907      |           | .550      | .500     | 21.51            |
|                                                                                     | S10M-SWUCR-2     | 55908      |           | .708      | .625     |                  |

**S-DCLNR Boring Bar Style L - Negative 5° End or Side Cutting  
Edge Angle for two 80° diamond CNM\_ inserts**

|  | ANSI<br>Description | UPC #<br>Right Hand | Min.<br>Bore | Bar<br>Size | CNM_ Gage<br>Insert |
|-----------------------------------------------------------------------------------|---------------------|---------------------|--------------|-------------|---------------------|
|                                                                                   | S16T-DCLN-4         | 57510               | 1.500        | 1.00        | 432                 |
|                                                                                   | S20U-DCLN-4         | 57514               | 1.750        | 1.25        |                     |
|                                                                                   | S24U-DCLN-4         | 57518               | 2.000        | 1.50        |                     |
|                                                                                   | S24U-DCLN-5         | 57522               | 2.000        | 1.50        | 543                 |

**S-DTUNR Boring Bar Style U - Negative 3° End or Side Cutting  
Edge Angle for two triangle TNM\_ inserts**

|  | ANSI<br>Description | UPC #<br>Right Hand | Min.<br>Bore | Bar<br>Size | TNM_ Gage<br>Insert |
|-----------------------------------------------------------------------------------|---------------------|---------------------|--------------|-------------|---------------------|
|                                                                                   | S16Q-DTUN-3         | 57550               | 1.500        | 1.00        | 322                 |
|                                                                                   | S20R-DTUN-3         | 57552               | 1.750        | 1.25        |                     |
|                                                                                   | S16T-DTUN-3         | 57554               | 1.500        | 1.00        |                     |
|                                                                                   | S32V-DTUN-4         | 57570               | 2.625        | 2.00        | 432                 |

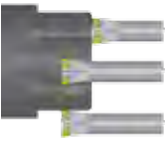
**S-DTUN\_ T R Bar Style U - Negative 3° End or Side Cutting Edge  
Angle for one negative triangle TNM\_ & one Laydown insert**

|  | ANSI<br>Description | UPC #<br>Right Hand | Min.<br>Bore | Bar<br>Size | TNM_ Gage<br>Insert |
|-----------------------------------------------------------------------------------|---------------------|---------------------|--------------|-------------|---------------------|
|                                                                                   | S20R-DTUN-3-T16     | 57578               | 1.75         | 1.25        |                     |
|                                                                                   | S16T-DTUN-3-T16     | 57580               | 1.50         | 1.00        |                     |

**S-DWLN R Boring Bar Style L - Negative 5° End or Side Cutting  
Edge Angle for negative 80° trigon WNM\_ inserts**

|  | ANSI<br>Description | UPC #<br>Right Hand | Min.<br>Bore | Bar<br>Size | WNM_ Gage<br>Insert |
|------------------------------------------------------------------------------------|---------------------|---------------------|--------------|-------------|---------------------|
|                                                                                    | S12M-DWLN-3         | 57610               | 1.25         | 0.75        | 332                 |
|                                                                                    | S20R-DWLN-4         | 57620               | 1.75         | 1.25        | 432                 |
|                                                                                    | S20U-DWLN-4         | 57622               | 1.75         | 1.25        |                     |
|                                                                                    | S24U-DWLN-4         | 57626               | 2.00         | 1.50        |                     |

**MINI S-DCLC R Boring Bar Style L - Negative 5° End or Side Cutting  
Edge Angle for double 7° positive 80° diamond CC\_ T inserts**

|  | ANSI<br>Description | UPC #<br>Right Hand | Min.<br>Bore | Bar<br>Size | CC_ T Gage<br>Insert |
|-------------------------------------------------------------------------------------|---------------------|---------------------|--------------|-------------|----------------------|
|                                                                                     | S08K-DCLC-2         | 57700               | 0.688        | .500        | 21.51                |
|                                                                                     | S10L-DCLC-2         | 57704               | 0.938        | .625        | 32.52                |
|                                                                                     | S12M-DCLC-3         | 57708               | 1.063        | .750        |                      |
|                                                                                     | S16Q-DCLC-4         | 57710               | 1.375        | 1.00        |                      |
|                                                                                     | S20R-DCLC-4         | 57712               | 1.625        | 1.25        | 432                  |

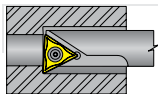
**MINI S-DTUC R Boring Bar Style U - Negative 3° End or Side Cutting  
Edge Angle for double 7° positive triangle TC\_ T inserts**

|  | ANSI<br>Description | UPC #<br>Right Hand | Min.<br>Bore | Bar<br>Size | TC_ T Gage<br>Insert |
|-------------------------------------------------------------------------------------|---------------------|---------------------|--------------|-------------|----------------------|
|                                                                                     | S08K-DTUC-2         | 57736               | 0.875        | 0.500       | 21.51                |
|                                                                                     | S12M-DTUC-2         | 57744               | 1.062        | 0.750       |                      |
|                                                                                     | S16Q-DTUC-3         | 57747               | 1.312        | 1.000       | 32.52                |
|                                                                                     | S20R-DTUC-3         | 57750               | 1.625        | 1.250       |                      |

**MINI S-DTUC-T R Bar Style U - Negative 3° End or Side Cutting  
Edge Angle for one 7° positive triangle TC\_ T & one Laydown inserts**

|  | ANSI<br>Description | UPC #<br>Right Hand | Min.<br>Bore | Bar<br>Size | TC_ T Gage<br>Insert |
|-------------------------------------------------------------------------------------|---------------------|---------------------|--------------|-------------|----------------------|
|                                                                                     | S08K-DTUC-2-T11     | 57758               | 0.875        | 0.500       | 21.51                |
|                                                                                     | S16Q-DTUC-3-T16     | 57770               | 1.312        | 1.000       | 32.52                |
|                                                                                     | S20R-DTUC-3-T16     | 57772               | 1.625        | 1.250       |                      |

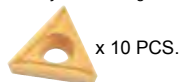




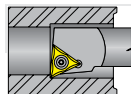
### STUCR Miniature Boring Set

Negative 3° End Cutting Edge Angle  
for 7° positive 60° triangle inserts

- Small hole boring without the use of reamers
- Greater productivity through better tool utilization
- Close tolerances
- Eliminates reamers
- Better surface finish
- Alloy steel boring bar



| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                            |                 |                    |
|--------------|---------------|--------------|-----------------------|----------------------------|-----------------|--------------------|
|              |               |              | (3)<br>Boring Bars    | (10)<br>Inserts            | (1)<br>Torx Key | (1)<br>Storage Box |
| 85076        | .500          | .286         | S08H-STUCR-1.2-2      | TCMT-1.21.20.2-PEF-DPC25UT | T-6             | Storage Box        |
|              | .500          | .313         | S08H-STUCR-1.2-3      |                            |                 |                    |
|              | .500          | .374         | S08H-STUCR-1.2-4      |                            |                 |                    |



### TPBN Medium Boring Set

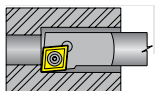
Negative 5° End Cutting Edge Angle  
for 11° positive 60° triangle inserts

**For a Precise Bore  
With a Quality Boring Bar**

From Roughing To Finishing,  
Square Shoulders to Through Bores



| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 27 Piece Set Includes |                            |                  |                    |
|--------------|---------------|--------------|-----------------------|----------------------------|------------------|--------------------|
|              |               |              | (4)<br>Boring Bars    | (20)<br>Inserts            | (2)<br>Torx Keys | (1)<br>Storage Box |
| 85086        | .500          | .430         | TPBN06-2              | (10) TPGH-21.51-EZ-DPP30GT | T-8              | Storage Box        |
|              | .500          | .590         | TPBN08-2              |                            |                  |                    |
|              | .625          | .682         | TPBN10-2              | (10) TPGH-321-EZ-DPP30GT   | T-10             |                    |
|              | .750          | .845         | TPBN12-3              |                            |                  |                    |



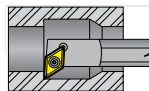
### SCLCR Miniature Boring Set

Negative 5° End Cutting Edge Angle  
for 7° positive 80° diamond inserts

- Precision finishing operation
- For steel & stainless steel
- Sharp cutting edge
- Good chip control



| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                        |                 |                    |
|--------------|---------------|--------------|-----------------------|------------------------|-----------------|--------------------|
|              |               |              | (3)<br>Boring Bars    | (10)<br>Inserts        | (1)<br>Torx Key | (1)<br>Storage Box |
| 85064        | .375          | .394         | S06H-SCLCR-2          | CCMT-21.51-PEM-DPC25UT | T-8             | Storage Box        |
|              | .500          | .550         | S08K-SCLCR-2          |                        |                 |                    |
|              | .625          | .708         | S10M-SCLCR-2          |                        |                 |                    |



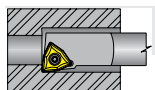
### SDUCR Miniature Boring Set

Negative 3° End Cutting Edge Angle  
for 7° positive 55° diamond inserts

- Precision finishing operation
- For steel & stainless steel
- Sharp cutting edge
- Good chip control



| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                        |                 |                    |
|--------------|---------------|--------------|-----------------------|------------------------|-----------------|--------------------|
|              |               |              | (3)<br>Boring Bars    | (10)<br>Inserts        | (1)<br>Torx Key | (1)<br>Storage Box |
| 85068        | .375          | .492         | S06H-SDUCR-2          | DCMT-21.51-PEF-DPC25UT | T-8             | Storage Box        |
|              | .500          | .610         | S08K-SDUCR-2          |                        |                 |                    |
|              | .625          | .768         | S10M-SDUCR-2          |                        |                 |                    |



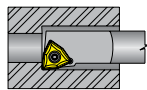
### SWUCR Medium Boring Set

Negative 3° End Cutting Edge Angle  
for 7° positive 80° trigon inserts

- Precision finishing operation
- For steel & stainless steel
- Sharp cutting edge
- Good chip control



| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                        |                 |                    |
|--------------|---------------|--------------|-----------------------|------------------------|-----------------|--------------------|
|              |               |              | (3)<br>Boring Bars    | (10)<br>Inserts        | (1)<br>Torx Key | (1)<br>Storage Box |
| 85072        | .375          | .394         | S06H-SWUCR-2          | WCGT-21.51-UEU-DUP15VT | T-8             | Storage Box        |
|              | .500          | .550         | S08K-SWUCR-2          |                        |                 |                    |
|              | .625          | .708         | S10M-SWUCR-2          |                        |                 |                    |



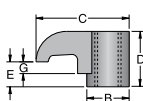
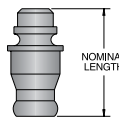
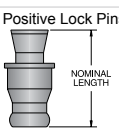
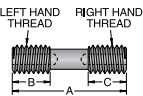
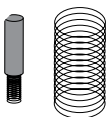
### SWUCR Miniature Boring Set

Negative 3° End Cutting Edge Angle  
for 7° positive 80° trigon inserts

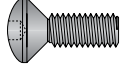
- Precision finishing operation
- For steel & stainless steel
- Sharp cutting edge
- Good chip control

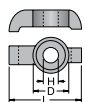


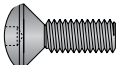
| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                           |                 |                    |
|--------------|---------------|--------------|-----------------------|---------------------------|-----------------|--------------------|
|              |               |              | (3)<br>Boring Bars    | (10)<br>Inserts           | (1)<br>Torx Key | (1)<br>Storage Box |
| 85070        | .500          | .228         | S08H-SWUCR-1.2-2      | WCMT-1.210.2-PEF-DP-C25UT | T-6             | Storage Box        |
|              | .500          | .308         | S08H-SWUCR-1.2-3      |                           |                 |                    |
|              | .500          | .374         | S08H-SWUCR-1.2-4      |                           |                 |                    |

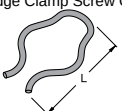
|                                                                                     |                    |              |                       |                       |                        |                    |                        |               |             |
|-------------------------------------------------------------------------------------|--------------------|--------------|-----------------------|-----------------------|------------------------|--------------------|------------------------|---------------|-------------|
|    | <b>Description</b> | <b>UPC #</b> | <b>B</b>              | <b>C</b>              | <b>D</b>               | <b>E</b>           | <b>G</b>               | <b>Thread</b> | <b>PKG.</b> |
|                                                                                     | CL-5               | 90680        | .280                  | .52                   | .350                   | .102               | -                      | 10-32         | 10          |
|                                                                                     | CL-6               | 90681        | .310                  | .58                   | .440                   | .187               | .094                   | 10-32         |             |
|                                                                                     | CL-7               | 90682        | .310                  | .64                   | .310                   | .082               | -                      | 10-32         |             |
|                                                                                     | CL-9               | 90683        | .430                  | .75                   | .660                   | .344               | .125                   | 5/16-24       |             |
|                                                                                     | CL-12              | 90684        | .430                  | .88                   | .660                   | .344               | .125                   | 5/16-24       |             |
|                                                                                     | CL-19              | 90685        | .310                  | .55                   | .310                   | .062               | -                      | 10-32         |             |
|                                                                                     | CL-20              | 90686        | .375                  | .73                   | .380                   | .125               | -                      | 1/4-28        |             |
|                                                                                     | CL-24              | 90687        | .491                  | 1.0                   | .785                   | .453               | .136                   | 3/8-24        |             |
|                                                                                     | CL-30              | 90688        | .430                  | 1.0                   | .660                   | .344               | .125                   | 5/16-24       |             |
|    | <b>Description</b> | <b>UPC #</b> |                       |                       |                        |                    |                        |               |             |
|                                                                                     | DC-5N              | 90151        | Dor-Lock Clamp        |                       |                        |                    |                        |               |             |
|                                                                                     | DCTW-3N            | 90153        |                       |                       |                        |                    |                        |               |             |
|                                                                                     | DCTW-4N            | 53256        |                       |                       |                        |                    |                        |               |             |
|                                                                                     | DD-4N              | 90152        |                       |                       |                        |                    |                        |               |             |
|                                                                                     | DV-3N              | 90154        |                       |                       |                        |                    |                        |               |             |
|    | <b>Description</b> | <b>UPC #</b> |                       |                       |                        |                    |                        |               |             |
|    | DCS-04             | 90155        | Dor-Lock Clamp Screw  |                       |                        |                    |                        |               |             |
|                                                                                     | DSP-04             | 90156        | Dor-Lock Clamp Spring |                       |                        |                    |                        |               |             |
|    | <b>Description</b> | <b>UPC #</b> | <b>Insert I.C.</b>    | <b>Nominal Length</b> | <b>Thread</b>          |                    | <b>Hex Wrench Size</b> | <b>PKG.</b>   |             |
|                                                                                     | Inch               |              |                       |                       |                        |                    |                        |               |             |
|                                                                                     | NL-23              | 90472        | .250                  | .328                  | 8-32                   |                    | 1/16                   | 10            |             |
|                                                                                     | NL-33              | 90473        | .375                  | .344                  | 10-32                  |                    | 5/64                   |               |             |
|                                                                                     | NL-33L             | 90474        | .375                  | .406                  | 10-32                  |                    | 5/64                   |               |             |
|                                                                                     | NL-34              | 90475        | .375                  | .453                  | 10-32                  |                    | 5/64                   |               |             |
|                                                                                     | NL-34L             | 90476        | .375                  | .516                  | 10-32                  |                    | 5/64                   |               |             |
|                                                                                     | NL-43              | 90477        | .500                  | .420                  | 10-32                  |                    | 5/64                   |               |             |
|                                                                                     | NL-44              | 90478        | .500                  | .516                  | 1/4-28                 |                    | 3/32                   |               |             |
|                                                                                     | NL-46              | 90479        | .500                  | .672                  | 1/4-28                 |                    | 3/32                   |               |             |
|                                                                                     | NL-46L             | 90480        | .500                  | .730                  | 1/4-28                 |                    | 3/32                   |               |             |
|                                                                                     | NL-56              | 90481        | .625                  | .703                  | 5/16-24                |                    | 1/8                    |               |             |
|                                                                                     | NL-57              | 90482        | .625                  | .810                  | 5/16-24                |                    | 1/8                    |               |             |
|                                                                                     | NL-58              | 90483        | .625                  | .859                  | 5/16-24                |                    | 1/8                    |               |             |
|                                                                                     | NL-58L             | 90484        | .625                  | .890                  | 5/16-24                |                    | 1/8                    |               |             |
|                                                                                     | NL-66              | 90485        | .750                  | .703                  | 3/8-24                 |                    | 9/64                   |               |             |
|                                                                                     | NL-66L             | 90486        | .750                  | .828                  | 3/8-24                 |                    | 9/64                   |               |             |
|                                                                                     | NL-68              | 90487        | .750                  | .859                  | 3/8-24                 |                    | 9/64                   |               |             |
|                                                                                     | NL-68L             | 90488        | .750                  | .953                  | 3/8-24                 |                    | 9/64                   |               |             |
|                                                                                     | NL-808             | 90489        | 1.00                  | .940                  | 7-16-20                |                    | 5/32                   |               |             |
|                                                                                     | NL-810             | 90490        | 1.00                  | 1.17                  | 7-16-20                |                    | 5/32                   |               |             |
|                                                                                     | Metric             |              |                       |                       |                        |                    |                        |               |             |
|                                                                                     | S535               | 91320        | 09                    | 5                     | -                      |                    | 2,5                    | 10            |             |
|                                                                                     | S635               | 91321        | 12                    | 6                     | -                      |                    | 3,0                    |               |             |
|                                                                                     | S840               | 91322        | 16                    | 8                     | -                      |                    | 3,0                    |               |             |
|                                                                                     | S990               | 91323        | 19                    | 10,5                  | -                      |                    | 3,0                    |               |             |
|                                                                                     | P0502              | 91324        | 16                    | 16                    | -                      |                    | -                      |               |             |
|                                                                                     | P0602              | 91325        | 08                    | 15                    | -                      |                    | -                      |               |             |
|                                                                                     | S311               | 91326        | 16                    | 11                    | -                      |                    | 4,0                    |               |             |
|  | <b>Description</b> | <b>UPC #</b> | <b>Insert I.C.</b>    | <b>Nominal Length</b> | <b>Hex Wrench Size</b> |                    | <b>PKG.</b>            |               |             |
|                                                                                     | PL-46              | 90495        | .500                  | .672                  | 3/32                   |                    | 10                     |               |             |
|                                                                                     | PL-58              | 90496        | .625                  | .859                  | 1/8                    |                    |                        |               |             |
|                                                                                     | PL-68              | 90497        | .750                  | .859                  | 9/64                   |                    |                        |               |             |
|  | <b>Description</b> | <b>UPC #</b> | <b>A</b>              | <b>B</b>              | <b>C</b>               | <b>Thread Size</b> | <b>Hex Wrench Size</b> | <b>PKG.</b>   |             |
|                                                                                     | XNS-26             | 90900        | 0.750                 | .31                   | .31                    | 8-32               | 5/64                   | 10            |             |
|                                                                                     | XNS-35             | 90901        | 0.625                 | .22                   | .22                    | 10-32              | 3/32                   |               |             |
|                                                                                     | XNS-36             | 90902        | 0.750                 | .25                   | .25                    | 10-32              | 3/32                   |               |             |
|                                                                                     | XNS-37             | 90903        | 0.840                 | .31                   | .31                    | 10-32              | 3/32                   |               |             |
|                                                                                     | XNS-38             | 90904        | 1.000                 | .37                   | .37                    | 10-32              | 3/32                   |               |             |
|                                                                                     | XNS-46             | 90905        | 0.750                 | .31                   | .31                    | 1/4-28             | 1/8                    |               |             |
|                                                                                     | XNS-47             | 90906        | 0.875                 | .28                   | .28                    | 1/4-28             | 1/8                    |               |             |
|                                                                                     | XNS-48             | 90907        | 1.000                 | .37                   | .37                    | 1/4-28             | 1/8                    |               |             |
|                                                                                     | XNS-58             | 90910        | 1.000                 | .50                   | .28                    | 5/16-24            | 5/32                   |               |             |
|                                                                                     | XNS-59             | 90911        | 1.125                 | .47                   | .41                    | 5/16-24            | 5/32                   |               |             |
|                                                                                     | XNS-510            | 90908        | 1.250                 | .50                   | .50                    | 5/16-24            | 5/32                   |               |             |
|                                                                                     | XNS-610            | 90912        | 1.250                 | .50                   | .50                    | 3/8-24             | 3/16                   |               |             |
|  | <b>Description</b> | <b>UPC #</b> |                       |                       |                        |                    |                        |               | <b>PKG.</b> |
|                                                                                     | SC510              | 91330        | Clamp Pin             |                       |                        |                    |                        |               | 10          |
|                                                                                     | M428               | 91331        | Spring                |                       |                        |                    |                        |               | 10          |

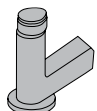
|                                                                                    |                    |              |                  |  |  |             |
|------------------------------------------------------------------------------------|--------------------|--------------|------------------|--|--|-------------|
|  | <b>Description</b> | <b>UPC #</b> |                  |  |  | <b>PKG.</b> |
|                                                                                    | C6016N             | 91332        | Wedge Lock Clamp |  |  | 10          |
|                                                                                    | C8008N             | 91333        |                  |  |  |             |
|                                                                                    | SKN16R             | 91334        | Profiling Clamps |  |  | 10          |
|                                                                                    | SKN16L             | 91335        |                  |  |  |             |

|                                                                                    |                    |              |               |               |                        |             |
|------------------------------------------------------------------------------------|--------------------|--------------|---------------|---------------|------------------------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>Length</b> | <b>Thread</b> | <b>Hex Wrench Size</b> | <b>PKG.</b> |
|                                                                                    | V6016              | 91336        | 23            | M5            | 2.5                    | 10          |
|                                                                                    | V8008N             | 91337        | 23            | M6            | 3.0                    | 10          |

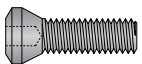
|                                                                                   |                    |              |          |          |          |             |
|-----------------------------------------------------------------------------------|--------------------|--------------|----------|----------|----------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>L</b> | <b>D</b> | <b>H</b> | <b>PKG.</b> |
|                                                                                   | HC-7               | 90915        | .469     | .313     | .172     | 10          |
|                                                                                   | HC-9               | 90917        | .625     | .375     | .203     |             |
|                                                                                   | HC-12              | 90919        | .812     | .500     | .266     |             |

|                                                                                    |                    |              |               |               |                        |             |
|------------------------------------------------------------------------------------|--------------------|--------------|---------------|---------------|------------------------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>Length</b> | <b>Thread</b> | <b>Hex Wrench Size</b> | <b>PKG.</b> |
|                                                                                    | SHC-7              | 90920        | .375          | 8-32          | 3-32                   | 10          |
|                                                                                    | CS-94              | 90921        | .580          | 10-32         | 1/8                    |             |
|                                                                                    | CS-96              | 90923        | .840          | 10-32         | 1/8                    |             |
|                                                                                    | CS-126             | 90925        | .860          | 1/4-28        | 5/32                   |             |

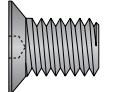
|                                                                                    |                    |              |               |  |  |             |
|------------------------------------------------------------------------------------|--------------------|--------------|---------------|--|--|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>Length</b> |  |  | <b>PKG.</b> |
|                                                                                    | CLP-9              | 90928        | .312          |  |  | 10          |
|                                                                                    | CLP-12             | 90930        | .422          |  |  |             |

|                                                                                    |                    |              |             |  |  |
|------------------------------------------------------------------------------------|--------------------|--------------|-------------|--|--|
|  | <b>Description</b> | <b>UPC #</b> | <b>PKG.</b> |  |  |
|                                                                                    | LV01               | 91338        | 10          |  |  |
|                                                                                    | LV02               | 91339        |             |  |  |
|                                                                                    | LV05               | 91340        |             |  |  |
|                                                                                    | LV06               | 91341        |             |  |  |
|                                                                                    | LV09               | 91342        |             |  |  |

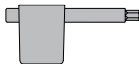
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|------------------------------------------------------------------------------------|--------------------|--------------|--------------|------------------------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>Lever</b> | <b>Hex Wrench Size</b> | <b>PKG.</b> |
|                                                                                    | V0601              | 91344        | LV01         | 3.0                    | 10          |
|                                                                                    | V0802              | 91345        | LV02         | 3.0                    |             |
|                                                                                    | V0805              | 91346        | LV05         | 3.0                    |             |
|                                                                                    | V1006              | 91347        | LV06         | 4.0                    |             |
|                                                                                    | V1209              | 91348        | LV09         | 4.0                    |             |

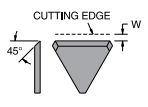
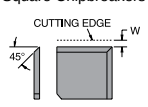
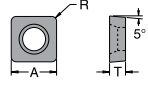
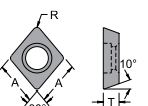
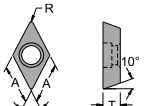
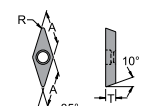
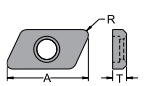
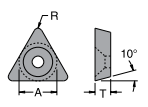
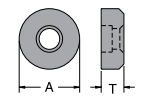
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|--------------------------------------------------------------------------------------|--------------------|--------------|-------------|-----------------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>I.C.</b> | <b>Torx Key</b> | <b>PKG.</b> |
|                                                                                      | TS-06              | 91306        | 0.156       | T-6             | 10          |
|                                                                                      | TS-103-4M1         | 90956        | 0.500       | T-20            |             |
|                                                                                      | TS-18.35-1.5M1     | 91305        | 0.188       | T-6             |             |
|                                                                                      | TS-18.35-1M1       | 91304        | 0.156       | T-6             |             |
|                                                                                      | TS-25.45-6M2       | 90972        | 0.250       | T-8             |             |
|                                                                                      | TS-25.45-8M2       | 90974        | 0.250       | T-8             |             |
|                                                                                      | TS-3.5-7M1         | 90971        | 0.315       | T-8             |             |
|                                                                                      | TS-35.6-9M1        | 90973        | 0.394       | T-15            |             |
|                                                                                      | TS-4.7-10M1        | 90982        | 0.375       | T-15            |             |
|                                                                                      | TS-4.7-8M1         | 90976        | 0.375       | T-15            |             |
|                                                                                      | TS-44-3-M          | 90937        | 0.375       | T-10            | 10          |
|                                                                                      | TS-44-4-M          | 90939        | 0.375       | T-10            |             |
|                                                                                      | TS-5.8-10M1        | 90986        | 0.500       | T-20            |             |
|                                                                                      | TS-83-4M1          | 90950        | 0.500       | T-20            |             |

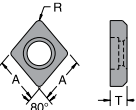
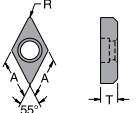
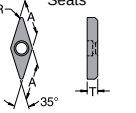
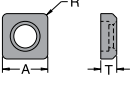
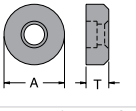
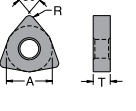
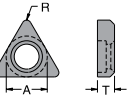
|                                                                                      |                    |              |              |                        |             |
|--------------------------------------------------------------------------------------|--------------------|--------------|--------------|------------------------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>I.C.</b>  | <b>Hex Wrench Size</b> | <b>PKG.</b> |
|                                                                                      | TS-4               | 90931        | .375 or .500 | T-10                   | 10          |
|                                                                                      | TS-6               | 90944        | .500 or .750 | T-20                   |             |
|                                                                                      | TS-10              | 90955        | .625         | T-25                   |             |

|                                                                                      |                    |              |             |               |                        |             |
|--------------------------------------------------------------------------------------|--------------------|--------------|-------------|---------------|------------------------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>I.C.</b> | <b>Thread</b> | <b>Hex Wrench Size</b> | <b>PKG.</b> |
|                                                                                      | S-34               | 91295        | .375        | 10-32         | 5/64                   | 10          |
|                                                                                      | S-46               | 91296        | .500        | 1/4-28        | 3/32                   |             |
|                                                                                      | S-58               | 91297        | .625        | 5/16-24       | 1/8                    |             |
|                                                                                      | S-68               | 91298        | .750        | 3/8-24        | 9/64                   |             |
|                                                                                      | SM-M3              | 53318        | .375        | M3            | 2.5                    | 10          |
|                                                                                      | SM-M3-T            | 53302        | .375        | M3            | 2.5                    |             |
|                                                                                      | SM-M4-245          | 53311        | .375        | M4            | 2.5                    |             |
|                                                                                      | SM-M4              | 53319        | .500        | M4            | 2.5                    |             |
|                                                                                      | SM-M6              | 53320        | .625        | M6            | 4.0                    |             |

|        |       |       |     |     |    |
|--------|-------|-------|-----|-----|----|
| Metric |       |       |     |     |    |
| V83006 | 91327 | 16    | M-3 | 2,5 | 10 |
| B0509  | 91328 | 11-16 | M-5 | 3,5 |    |
| B0609  | 91329 | 12    | M-6 | 4,0 |    |

|                                                                                      |                    |              |                    |              |
|--------------------------------------------------------------------------------------|--------------------|--------------|--------------------|--------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>Description</b> | <b>UPC #</b> |
|                                                                                      | T-6                | 92001        | T-15               | 92006        |
|                                                                                      | T-7                | 92002        | T-20               | 92007        |
|                                                                                      | T-8                | 92003        | T-25               | 92008        |
|                                                                                      | T-9                | 92004        | T-30               | 92009        |
|                                                                                      | T-10               | 92005        |                    |              |

|                                                                                                                                           |             |       |                        |       |       |      |    |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------|------------------------|-------|-------|------|----|
| <div>Triangle Chipbreakers</div> <div></div>             | Description | UPC # | I.C. Effective Width W |       |       | PKG. |    |
|                                                                                                                                           | T2AC        | 90446 | .250                   | .060  |       |      |    |
|                                                                                                                                           | T3AC        | 90452 | .375                   | .060  |       |      |    |
|                                                                                                                                           | T3AE        | 90453 | .375                   | .090  |       |      |    |
|                                                                                                                                           | T3AG        | 90454 | .375                   | .125  |       |      |    |
|                                                                                                                                           | T4AC        | 90459 | .500                   | .060  |       |      |    |
|                                                                                                                                           | T4AE        | 90460 | .500                   | .090  |       |      |    |
|                                                                                                                                           | T4AG        | 60461 | .500                   | .125  |       |      |    |
|                                                                                                                                           | T5AC        | 90465 | .625                   | .100  |       |      |    |
|                                                                                                                                           | T5AG        | 90466 | .625                   | .140  |       |      |    |
| T5AJ                                                                                                                                      | 90467       | .625  | .180                   |       |       |      |    |
| <div>Square Chipbreakers</div> <div></div>               | Description | UPC # | I.C. Effective Width W |       |       | PKG. |    |
|                                                                                                                                           | S3BC        | 90440 | .375                   | .060  |       |      |    |
|                                                                                                                                           | S4BE        | 90442 | .500                   | .060  |       |      |    |
|                                                                                                                                           | S6BG        | 90444 | .750                   | .125  |       |      |    |
| <div>Positive Square Shim Seats</div> <div></div>        | Description | UPC # | A                      | T     | R     | PKG. |    |
|                                                                                                                                           | Inch        |       |                        |       |       |      |    |
|                                                                                                                                           | SM-40       | 90373 | .500                   | .1250 | .0156 |      | 10 |
|                                                                                                                                           | SM-36       | 90374 | .750                   | .1250 | .0469 |      |    |
|                                                                                                                                           | Metric      |       |                        |       |       |      |    |
|                                                                                                                                           | S9012P      | 90370 | 11,4                   | 3,18  | 0,8   |      | 10 |
|                                                                                                                                           |             |       |                        |       |       |      |    |
| <div>Positive 80° Diamond Shim Seats</div> <div></div>  | Description | UPC # | A                      | T     | R     | PKG. |    |
|                                                                                                                                           | Metric      |       |                        |       |       |      |    |
|                                                                                                                                           | S8012P      | 53291 | 11,4                   | 3,18  | 0,8   |      | 10 |
| <div>Positive 55° Diamond Shim Seats</div> <div></div> | Description | UPC # | A                      | T     | R     | PKG. |    |
|                                                                                                                                           | Metric      |       |                        |       |       |      |    |
|                                                                                                                                           | S5515P      | 91351 | 8,4                    | 3,18  | 0,8   |      | 10 |
| <div>Positive 35° Diamond Shim Seats</div> <div></div> | Description | UPC # | A                      | T     | R     | PKG. |    |
|                                                                                                                                           | Metric      |       |                        |       |       |      |    |
|                                                                                                                                           | S3516P      | 53299 | 8,4                    | 3,18  | 0,8   |      | 10 |
| S3516                                                                                                                                     | 91350       | 8,4   | 3,18                   | 0,8   |       |      |    |
| <div>Profiling Shim Seats</div> <div></div>            | Description | UPC # | A                      | T     | R     | PKG. |    |
|                                                                                                                                           | Metric      |       |                        |       |       |      |    |
|                                                                                                                                           | CKN16R      | 91353 | 14,5                   | 4,76  | 1,0   |      | 10 |
| CKN16L                                                                                                                                    | 91354       | 14,5  | 4,76                   | 1,0   |       |      |    |
| <div>Positive Triangle Shim Seats</div> <div></div>    | Description | UPC # | A                      | T     | R     | PKG. |    |
|                                                                                                                                           | Inch        |       |                        |       |       |      |    |
|                                                                                                                                           | SM-41       | 90367 | .332                   | .1250 | .0156 |      | 10 |
|                                                                                                                                           | SM-37       | 90366 | .452                   | .1250 | .0312 |      |    |
|                                                                                                                                           | SM-99       | 90371 | .540                   | .1875 | .0469 |      |    |
|                                                                                                                                           | Metric      |       |                        |       |       |      |    |
| S6016P                                                                                                                                    | 91355       | 8,8   | 3,18                   | 0,8   | 10    |      |    |
| <div>Positive Round Shim Seats</div> <div></div>       | Description | UPC # | A                      | T     | PKG.  |      |    |
|                                                                                                                                           | RS-43P      | 90375 | .500                   | .1875 | 10    |      |    |
|                                                                                                                                           | RS-63P      | 90377 | .750                   | .1875 |       |      |    |
|                                                                                                                                           | RS-83P      | 90378 | 1.00                   | .1875 |       |      |    |

| <div>Negative 80° Diamond Seats</div> <div></div> | Description                                                                                                                         | UPC #       | A     | T     | R     | PKG.  |      |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------|-------|-------|-------|-------|------|
|                                                                                                                                    | Inch                                                                                                                                |             |       |       |       |       |      |
|                                                                                                                                    | ICSN-322                                                                                                                            | 90003       | .375  | .1250 | .0312 | 10    |      |
|                                                                                                                                    | ICSN-332                                                                                                                            | 90007       | .375  | .1875 | .0312 |       |      |
|                                                                                                                                    | ICSN-422                                                                                                                            | 90004       | .500  | .1250 | .0312 |       |      |
|                                                                                                                                    | ICSN-423                                                                                                                            | 90005       | .500  | .1250 | .0469 |       |      |
|                                                                                                                                    | ICSN-433                                                                                                                            | 90008       | .500  | .1875 | .0469 |       |      |
|                                                                                                                                    | ICSN-533                                                                                                                            | 90010       | .625  | .1875 | .0469 |       |      |
|                                                                                                                                    | ICSN-633                                                                                                                            | 90012       | .750  | .1875 | .0469 |       |      |
|                                                                                                                                    | JC-432                                                                                                                              | 90111       | .500  | .1250 | .0312 |       |      |
|                                                                                                                                    | JC-533                                                                                                                              | 90112       | .625  | .1875 | .0469 |       |      |
|                                                                                                                                    | Metric                                                                                                                              |             |       |       |       |       |      |
|                                                                                                                                    | S8009N                                                                                                                              | 91356       | 8,5   | 3,18  | 0,8   | 10    |      |
| S8012N                                                                                                                             | 91357                                                                                                                               | 11,4        | 3,18  | 1,2   |       |       |      |
| S8016N                                                                                                                             | 91358                                                                                                                               | 14,6        | 4,76  | 1,4   |       |       |      |
| S8019N                                                                                                                             | 91359                                                                                                                               | 18,0        | 4,76  | 1,6   |       |       |      |
| <div>Negative 55° Diamond Seats</div> <div></div> | Description                                                                                                                         | UPC #       | A     | T     | R     | PKG.  |      |
|                                                                                                                                    | Inch                                                                                                                                |             |       |       |       |       |      |
|                                                                                                                                    | IDSN-322                                                                                                                            | 90016       | .375  | .1250 | .0312 | 10    |      |
|                                                                                                                                    | IDSN-423                                                                                                                            | 90018       | .500  | .1250 | .0469 |       |      |
|                                                                                                                                    | IDSN-433                                                                                                                            | 90021       | .500  | .1875 | .0469 |       |      |
|                                                                                                                                    | IDSN-533                                                                                                                            | 90024       | .625  | .1875 | .0469 |       |      |
|                                                                                                                                    | IDSN-534                                                                                                                            | 90025       | .625  | .1875 | .625  |       |      |
|                                                                                                                                    | JD-432                                                                                                                              | 90113       | .500  | .1875 | .0312 |       |      |
|                                                                                                                                    | Metric                                                                                                                              |             |       |       |       |       |      |
|                                                                                                                                    | S5515N                                                                                                                              | 91360       | 11,8  | 3,18  | 1,2   | 10    |      |
|                                                                                                                                    | <div>Negative 35° Diamond Seats</div> <div></div>  | Description | UPC # | A     | T     | R     | PKG. |
|                                                                                                                                    |                                                                                                                                     | Inch        |       |       |       |       |      |
|                                                                                                                                    |                                                                                                                                     | IVSN-322    | 90065 | .375  | .1250 | .0312 | 10   |
| IVSN-324                                                                                                                           |                                                                                                                                     | 90066       | .375  | .1250 | .0625 |       |      |
| IVSN-433                                                                                                                           |                                                                                                                                     | 90068       | .500  | .1875 | .0469 |       |      |
| JV-322                                                                                                                             |                                                                                                                                     | 90119       | .375  | .1250 | .0312 |       |      |
| <div>Negative Square Seats</div> <div></div>     |                                                                                                                                     | Description | UPC # | A     | T     | R     | PKG. |
|                                                                                                                                    |                                                                                                                                     | Inch        |       |       |       |       |      |
|                                                                                                                                    |                                                                                                                                     | ISNN-322    | 90050 | .375  | .1250 | .0312 | 10   |
|                                                                                                                                    |                                                                                                                                     | ISNN-323    | 90051 | .375  | .1250 | .0469 |      |
|                                                                                                                                    |                                                                                                                                     | ISNN-333    | 90054 | .375  | .1875 | .0469 |      |
|                                                                                                                                    |                                                                                                                                     | ISNN-423    | 90056 | .500  | .1250 | .0469 |      |
|                                                                                                                                    |                                                                                                                                     | ISNN-433    | 90059 | .500  | .1875 | .0469 |      |
|                                                                                                                                    | ISNN-533                                                                                                                            | 90060       | .625  | .1875 | .0469 |       |      |
|                                                                                                                                    | ISNN-633                                                                                                                            | 90062       | .750  | .1875 | .0469 |       |      |
|                                                                                                                                    | ISNN-634                                                                                                                            | 90063       | .750  | .1875 | .0625 |       |      |
|                                                                                                                                    | ISNN-846                                                                                                                            | 90064       | 1.00  | .2500 | .0937 |       |      |
|                                                                                                                                    | JS-432                                                                                                                              | 90114       | .500  | .1875 | .0312 |       |      |
|                                                                                                                                    | JS-533                                                                                                                              | 90115       | .625  | .1875 | .0469 |       |      |
| Metric                                                                                                                             |                                                                                                                                     |             |       |       |       |       |      |
| S9012N                                                                                                                             | 91361                                                                                                                               | 11,4        | 3,8   | 0,8   | 10    |       |      |
| <div>Negative Round Seats</div> <div></div>     | Description                                                                                                                         | UPC #       | A     | T     | R     | PKG.  |      |
|                                                                                                                                    | Inch                                                                                                                                |             |       |       |       |       |      |
|                                                                                                                                    | IRSN-32                                                                                                                             | 90030       | .375  | .1250 |       | 10    |      |
|                                                                                                                                    | IRSN-43                                                                                                                             | 90031       | .500  | .1875 |       |       |      |
|                                                                                                                                    | IRSN-53                                                                                                                             | 90032       | .625  | .1875 |       |       |      |
|                                                                                                                                    | IRSN-63                                                                                                                             | 90033       | .750  | .1875 |       |       |      |
|                                                                                                                                    | IRSN-84                                                                                                                             | 90034       | 1.00  | .2500 |       |       |      |
|                                                                                                                                    | <div>Negative 80° Trigon Seats</div> <div></div> | Description | UPC # | A     | T     | R     | PKG. |
|                                                                                                                                    |                                                                                                                                     | Inch        |       |       |       |       |      |
|                                                                                                                                    |                                                                                                                                     | IWSN-322    | 90070 | .375  | .1250 | .0312 | 10   |
|                                                                                                                                    |                                                                                                                                     | IWSN-432    | 90071 | .500  | .1875 | .0312 |      |
|                                                                                                                                    |                                                                                                                                     | IWSN-433    | 90072 | .500  | .1875 | .0469 |      |
|                                                                                                                                    |                                                                                                                                     | IWSN-533    | 90073 | .625  | .1875 | .0469 |      |
| Metric                                                                                                                             |                                                                                                                                     |             |       |       |       |       |      |
| S8008P                                                                                                                             |                                                                                                                                     | 91362       | 12,5  | 3,18  | 1,0   | 10    |      |
| <div>Negative Triangle Seats</div> <div></div>  |                                                                                                                                     | Description | UPC # | A     | T     | R     | PKG. |
|                                                                                                                                    |                                                                                                                                     | Inch        |       |       |       |       |      |
|                                                                                                                                    |                                                                                                                                     | ITSN-322    | 90084 | .375  | .1250 | .0312 | 10   |
|                                                                                                                                    |                                                                                                                                     | ITSN-323    | 90085 | .375  | .1250 | .0469 |      |
|                                                                                                                                    |                                                                                                                                     | ITSN-324    | 90086 | .375  | .1250 | .0625 |      |
|                                                                                                                                    | ITSN-332                                                                                                                            | 90087       | .375  | .1875 | .0312 |       |      |
|                                                                                                                                    | ITSN-333                                                                                                                            | 90088       | .375  | .1875 | .0469 |       |      |
|                                                                                                                                    | ITSN-334                                                                                                                            | 90089       | .375  | .1875 | .0625 |       |      |
|                                                                                                                                    | ITSN-423                                                                                                                            | 90090       | .500  | .1250 | .0469 |       |      |
|                                                                                                                                    | ITSN-433                                                                                                                            | 90093       | .500  | .1875 | .0469 |       |      |
|                                                                                                                                    | ITSN-434                                                                                                                            | 90094       | .500  | .1875 | .0625 |       |      |
|                                                                                                                                    | ITSN-533                                                                                                                            | 90098       | .625  | .1875 | .0469 |       |      |
|                                                                                                                                    | ITSN-534                                                                                                                            | 90099       | .625  | .1875 | .0625 |       |      |
| ITSN-633                                                                                                                           | 90105                                                                                                                               | .750        | .1875 | .0469 |       |       |      |
| ITSN-636                                                                                                                           | 90106                                                                                                                               | .750        | .1875 | .0937 |       |       |      |
| JT-322                                                                                                                             | 90117                                                                                                                               | .375        | .1250 | .0312 |       |       |      |
| JT-433                                                                                                                             | 90116                                                                                                                               | .500        | .1875 | .0469 |       |       |      |
| Metric                                                                                                                             |                                                                                                                                     |             |       |       |       |       |      |
| S6016P                                                                                                                             | 91363                                                                                                                               | 8,4         | 3,18  | 0,8   | 10    |       |      |

# CARBIDE BORING BARS

Thru Coolant - High Performance

ULTIMATE RIGIDITY  
MINIMIZE VIBRATIONS  
HEAVY DUTY ROUGHING  
VERY FINE FINISHING  
BETTER SURFACE FINISH



6xD Boring Ratio (8xD for softer materials)

Superior surface finish compared to steel boring bars

All Thru Coolant Bars (Negative Insert boring bars are Jet-Stream)

1/2" and above sizes have threaded ends for coolant connector



**E\_SCLD R/L Thru Coolant Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 15° positive 80° diamond CD\_\_ inserts**

|                                                                                  | UPC #              |            |           | Boring Ratio |       |           |      | CD __ Insert |
|----------------------------------------------------------------------------------|--------------------|------------|-----------|--------------|-------|-----------|------|--------------|
|                                                                                  | Description        | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL  |              |
|  | E02.5H-SCLDR/L-1.2 | 59575      | 59576     | 6:1          | 0.156 | 0.175     | 4.00 | 1.20.60.2    |
|                                                                                  | E03.0H-SCLDR/L-1.2 | 59579      | 59580     |              | 0.187 | 0.205     | 4.00 |              |
|                                                                                  | E03.5H-SCLDR/L-1.2 | 59583      | 59584     |              | 0.218 | 0.245     | 4.00 |              |
|                                                                                  | E04H-SCLDR/L-1.5   | 59587      | 59588     | 6:1          | 0.250 | 0.270     | 4.00 | 1.510.5      |
|                                                                                  | E05K-SCLDR/L-1.5   | 59591      | 59592     |              | 0.312 | 0.335     | 5.00 |              |

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**

|                                                                                  | UPC #          |            |           | Boring Ratio |       |           |       | CC __ Insert |
|----------------------------------------------------------------------------------|----------------|------------|-----------|--------------|-------|-----------|-------|--------------|
|                                                                                  | Description    | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL   |              |
|  | E06M-SCLCR/L-2 | 59595      | 59596     | 6:1          | 0.375 | 0.396     | 6.00  | 21.51        |
|                                                                                  | E08K-SCLCR/L-2 | 59599      | 59600     |              | 0.500 | 0.550     | 5.00  |              |
|                                                                                  | E08R-SCLCR/L-2 | 59603      | 59604     |              | 0.500 | 0.550     | 8.00  |              |
|                                                                                  | E10M-SCLCR/L-2 | 59607      | 59608     |              | 0.625 | 0.740     | 6.00  |              |
|                                                                                  | E10S-SCLCR/L-2 | 59611      | 59612     |              | 0.625 | 0.740     | 10.00 |              |
|  | E08K-SCLCR/L-3 | 59615      | 59616     | 6:1          | 0.500 | 0.550     | 5.00  | 32.52        |
|                                                                                  | E08R-SCLCR/L-3 | 59619      | 59620     |              | 0.500 | 0.550     | 8.00  |              |
|                                                                                  | E10M-SCLCR/L-3 | 59623      | 59624     |              | 0.625 | 0.740     | 6.00  |              |
|                                                                                  | E10S-SCLCR/L-3 | 59627      | 59628     |              | 0.625 | 0.740     | 10.00 |              |
|                                                                                  | E12Q-SCLCR/L-3 | 59967      | 59968     |              | 0.750 | 0.930     | 7.000 |              |
|                                                                                  | E12S-SCLCR/L-3 | 59969      | 59970     |              | 0.750 | 0.930     | 10.00 |              |
|                                                                                  | E16R-SCLCR/L-3 | 59971      | 59972     |              | 1.000 | 1.200     | 8.000 |              |
|                                                                                  | E16T-SCLCR/L-3 | 59973      | 59974     |              | 1.000 | 1.200     | 12.00 |              |
|                                                                                  | E20U-SCLCR/L-4 | 59975      | 59976     |              | 1.250 | 1.470     | 14.00 |              |
|                                                                                  |                |            |           |              |       |           |       |              |

Inserts used: all CC\_\_ series (CCGX, CCGT, CCMT, CCGW).

**E\_SCLP Thru Coolant Integral Carbide Solid Boring Bars - Style L - Negative 5° End & Side Cutting Edge Angle for 11° positive 80° diamond CP\_\_ inserts**

|                                                                                    | UPC #            |            |           | Boring Ratio |       |           |       | CP __ Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------------|-------|-----------|-------|--------------|
|                                                                                    | Description      | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL   |              |
|  | E05K-SCLPR/L-1.8 | 59631      | 59632     | 6:1          | 0.312 | 0.335     | 5.00  | 1.81.20.5    |
|                                                                                    | E06M-SCLPR/L-2   | 59635      | 59636     |              | 0.375 | 0.396     | 6.00  |              |
|                                                                                    | E08K-SCLPR/L-2   | 59639      | 59640     |              | 0.500 | 0.550     | 5.00  |              |
|                                                                                    | E08R-SCLPR/L-2   | 59643      | 59644     |              | 0.500 | 0.550     | 8.00  |              |
|                                                                                    | E10M-SCLPR/L-2   | 59647      | 59648     |              | 0.625 | 0.740     | 6.00  |              |
|  | E10S-SCLPR/L-2   | 59651      | 59652     | 6:1          | 0.625 | 0.740     | 10.00 | 32.52        |
|                                                                                    | E08K-SCLPR/L-3   | 59655      | 59656     |              | 0.500 | 0.550     | 5.00  |              |
|                                                                                    | E08R-SCLPR/L-3   | 59659      | 59660     |              | 0.500 | 0.550     | 8.00  |              |
|                                                                                    | E10M-SCLPR/L-3   | 59663      | 59664     |              | 0.625 | 0.740     | 6.00  |              |
|                                                                                    | E10S-SCLPR/L-3   | 59667      | 59668     |              | 0.625 | 0.740     | 10.00 |              |

Inserts used: all CP\_\_ series (CPGX, CPGT, CPGW, CPMT).

**E\_SDNCR 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**

|                                                                                    | UPC #        |            |           | Boring Ratio |       |           |       | DC __ Insert |
|------------------------------------------------------------------------------------|--------------|------------|-----------|--------------|-------|-----------|-------|--------------|
|                                                                                    | Description  | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL   |              |
|  | E06M-SDNCR-2 | 59671      | 59672     | 6:1          | 0.375 | 0.581     | 6.00  | 21.51        |
|                                                                                    | E08K-SDNCR-2 | 59675      | 59676     |              | 0.500 | 0.775     | 5.00  |              |
|                                                                                    | E08R-SDNCR-2 | 59679      | 59680     |              | 0.500 | 0.775     | 8.00  |              |
|                                                                                    | E10M-SDNCR-2 | 59683      | 59684     |              | 0.625 | 0.969     | 6.00  |              |
|                                                                                    | E10S-SDNCR-2 | 59687      | 59688     |              | 0.625 | 0.969     | 10.00 |              |

Inserts used: all DC\_\_ series (DCMT, DCGW, DCMT, DCGX, DCGT).

**E\_SDQC Thru Coolant Integral Carbide Solid Boring Bars - Style N - Negative 17.5° End Cutting Edge Angle for 7° positive 55° diamond DC\_\_ inserts**

|                                                                                    | UPC #          |            |           | Boring Ratio |       |           |       | DC __ Insert |
|------------------------------------------------------------------------------------|----------------|------------|-----------|--------------|-------|-----------|-------|--------------|
|                                                                                    | Description    | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL   |              |
|  | E06M-SDQCR/L-2 | 59691      | 59692     | 6:1          | 0.375 | 0.487     | 6.00  | 21.51        |
|                                                                                    | E08K-SDQCR/L-2 | 59695      | 59696     |              | 0.500 | 0.650     | 5.00  |              |
|                                                                                    | E08R-SDQCR/L-2 | 59699      | 59700     |              | 0.500 | 0.650     | 8.00  |              |
|                                                                                    | E10M-SDQCR/L-2 | 59703      | 59704     |              | 0.625 | 0.781     | 6.00  |              |
|                                                                                    | E10S-SDQCR/L-2 | 59707      | 59708     |              | 0.625 | 0.781     | 10.00 |              |

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**

|                                                                                   | UPC #          |            |           | Boring Ratio |       |           |       | DC __ Insert |
|-----------------------------------------------------------------------------------|----------------|------------|-----------|--------------|-------|-----------|-------|--------------|
|                                                                                   | Description    | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL   |              |
|  | E06M-SDUCR/L-2 | 59711      | 59712     | 6:1          | 0.375 | 0.581     | 6.00  | 21.51        |
|                                                                                   | E08K-SDUCR/L-2 | 59715      | 59716     |              | 0.500 | 0.712     | 5.00  |              |
|                                                                                   | E08R-SDUCR/L-2 | 59719      | 59720     |              | 0.500 | 0.712     | 8.00  |              |
|                                                                                   | E10M-SDUCR/L-2 | 59723      | 59724     |              | 0.625 | 0.844     | 6.00  |              |
|                                                                                   | E10S-SDUCR/L-2 | 59727      | 59728     |              | 0.625 | 0.844     | 10.00 |              |
|  | E12Q-SDUCR/L-3 | 59987      | 59988     | 6:1          | 0.750 | 1.050     | 7.000 | 32.52        |
|                                                                                   | E12S-SDUCR/L-3 | 59989      | 59990     |              | 0.750 | 1.050     | 10.00 |              |
|                                                                                   | E16R-SDUCR/L-3 | 59991      | 59992     |              | 1.000 | 1.300     | 8.000 |              |
|                                                                                   | E16T-SDUCR/L-3 | 59993      | 59994     |              | 1.000 | 1.300     | 12.00 |              |
|                                                                                   | E20U-SDUCR/L-3 | 59995      | 59996     |              | 1.250 | 1.750     | 14.00 |              |

Inserts used: all DC\_\_ series (DCMT, DCGW, DCMT, DCGX, DCGT).

**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**

|                                                                                   | UPC #          |            |           | Boring Ratio |       |           |        | DC __ Insert |
|-----------------------------------------------------------------------------------|----------------|------------|-----------|--------------|-------|-----------|--------|--------------|
|                                                                                   | Description    | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL    |              |
|  | E06M-SDXCR/L-2 | 59731      | 59732     | 6:1          | 0.375 | 0.581     | 5.66   | 21.51        |
|                                                                                   | E08K-SDXCR/L-2 | 59735      | 59736     |              | 0.500 | 0.712     | 4.66   |              |
|                                                                                   | E08R-SDXCR/L-2 | 59739      | 59740     |              | 0.500 | 0.712     | 7.66   |              |
|                                                                                   | E10M-SDXCR/L-2 | 59743      | 59744     |              | 0.625 | 0.844     | 5.66   |              |
|                                                                                   | E10S-SDXCR/L-2 | 59747      | 59748     |              | 0.625 | 0.844     | 9.66   |              |
|  | E12Q-SDXCR/L-3 | 60007      | 60008     | 6:1          | 0.750 | 0.980     | 6.115  | 32.52        |
|                                                                                   | E12S-SDXCR/L-3 | 60009      | 60010     |              | 0.750 | 0.980     | 9.115  |              |
|                                                                                   | E16R-SDXCR/L-3 | 60011      | 60012     |              | 1.000 | 1.300     | 7.186  |              |
|                                                                                   | E16T-SDXCR/L-3 | 60013      | 60014     |              | 1.000 | 1.300     | 11.186 |              |
|                                                                                   | E20U-SDXCR/L-3 | 60015      | 60016     |              | 1.250 | 1.600     | 14.00  |              |

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**

|                                                                                     | UPC #            |            |           | Boring Ratio |       |           |       | TC __ Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------------|-------|-----------|-------|--------------|
|                                                                                     | Description      | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL   |              |
|  | E04H-STUCR/L-1.2 | 59751      | 59752     | 6:1          | 0.250 | 0.281     | 4.00  | 1.21.20.2    |
|                                                                                     | E05K-STUCR/L-1.2 | 59755      | 59756     |              | 0.312 | 0.339     | 5.00  |              |
|                                                                                     | E06M-STUCR/L-1.2 | 59759      | 59760     |              | 0.375 | 0.409     | 6.00  |              |
|                                                                                     | E06M-STUCR/L-2   | 59763      | 59764     |              | 0.375 | 0.456     | 6.00  |              |
|                                                                                     | E08K-STUCR/L-2   | 59767      | 59768     |              | 0.500 | 0.587     | 5.00  |              |
|  | E08R-STUCR/L-2   | 59771      | 59772     | 6:1          | 0.500 | 0.587     | 8.00  | 21.51        |
|                                                                                     | E10M-STUCR/L-2   | 59775      | 59776     |              | 0.625 | 0.750     | 6.00  |              |
|                                                                                     | E10S-STUCR/L-2   | 59779      | 59780     |              | 0.625 | 0.750     | 10.00 |              |
|                                                                                     | E12Q-STUCR/L-3   | 60027      | 60028     |              | 0.750 | 0.930     | 7.000 |              |
|                                                                                     | E12S-STUCR/L-3   | 60029      | 60030     |              | 0.750 | 0.930     | 10.00 |              |
|  | E16R-STUCR/L-3   | 60031      | 60032     | 6:1          | 1.000 | 1.200     | 8.000 | 32.52        |
|                                                                                     | E16T-STUCR/L-3   | 60033      | 60034     |              | 1.000 | 1.200     | 12.00 |              |
|                                                                                     | E20U-STUCR/L-3   | 60035      | 60036     |              | 1.250 | 1.470     | 14.00 |              |

Inserts used: all TC\_\_ series (TCMT, TCGW, TCGT, TCGX).

**E\_STUP R/L Thru Coolant Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 11° positive triangle TP\_\_ inserts**

|                                                                                     | UPC #          |            |           | Boring Ratio |       |           |       | TP __ Insert |
|-------------------------------------------------------------------------------------|----------------|------------|-----------|--------------|-------|-----------|-------|--------------|
|                                                                                     | Description    | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL   |              |
|  | E06M-STUPR/L-2 | 59783      | 59784     | 6:1          | 0.375 | 0.456     | 6.00  | 21.51        |
|                                                                                     | E08K-STUPR/L-2 | 59787      | 59788     |              | 0.500 | 0.587     | 5.00  |              |
|                                                                                     | E08R-STUPR/L-2 | 59791      | 59792     |              | 0.500 | 0.587     | 8.00  |              |
|                                                                                     | E10M-STUPR/L-2 | 59795      | 59796     |              | 0.625 | 0.750     | 6.00  |              |
|                                                                                     | E10S-STUPR/L-2 | 59799      | 59800     |              | 0.625 | 0.750     | 10.00 |              |

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**

|                                                                                   | UPC #          |            | Boring Ratio |      |           |       | VC__ Insert |
|-----------------------------------------------------------------------------------|----------------|------------|--------------|------|-----------|-------|-------------|
|                                                                                   | Description    | Right Hand | Left Hand    | Dia. | Min. Bore | OAL   |             |
|  | E08K-SVMCR/L-2 | 59803      | 59804        | 6:1  | 0.500     | 0.587 | 221         |
|                                                                                   | E08R-SVMCR/L-2 | 59807      | 59808        |      | 0.500     | 0.587 |             |
|                                                                                   | E10M-SVMCR/L-2 | 59811      | 59812        |      | 0.625     | 0.750 |             |
|                                                                                   | E10S-SVMCR/L-2 | 59815      | 59816        |      | 0.625     | 0.750 |             |

Inserts used: all VC\_\_ series (VCMT, VCGT, VCGW, VCGX).

**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**

|                                                                                    | UPC #          |            | Boring Ratio |      |           |      | VP__ Insert |
|------------------------------------------------------------------------------------|----------------|------------|--------------|------|-----------|------|-------------|
|                                                                                    | Description    | Right Hand | Left Hand    | Dia. | Min. Bore | OAL  |             |
|  | E10M-SVXPR/L-2 | 59859      | 59860        | 6:1  | 0.625     | 1.00 | 221         |
|                                                                                    | E10S-SVXPR/L-2 | 59863      | 59864        |      | 0.625     | 1.00 |             |

Inserts used: all VP\_\_ series (VPMT, VPGT).

**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**

|                                                                                   | UPC #          |            | Boring Ratio |      |           |       | VC__ Insert |
|-----------------------------------------------------------------------------------|----------------|------------|--------------|------|-----------|-------|-------------|
|                                                                                   | Description    | Right Hand | Left Hand    | Dia. | Min. Bore | OAL   |             |
|  | E10M-SVQCR/L-2 | 59819      | 59820        | 6:1  | 0.625     | 0.844 | 221         |
|                                                                                   | E10S-SVQCR/L-2 | 59823      | 59824        |      | 0.625     | 0.844 |             |

Inserts used: all VC\_\_ series (VCMT, VCGT, VCGW, VCGX).

**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**

|                                                                                    | UPC #              |            | Boring Ratio |     |           |       | WC__ Insert |
|------------------------------------------------------------------------------------|--------------------|------------|--------------|-----|-----------|-------|-------------|
|                                                                                    | Description        | Right Hand | Left Hand    | D   | Min. Bore | OAL   |             |
|  | E03.0H-SWLCR/L-1.2 | 59867      | 59868        | 6:1 | 0.187     | 0.205 | 1.210.2     |
|                                                                                    | E03.5H-SWLCR/L-1.2 | 59871      | 59872        |     | 0.218     | 0.245 |             |
|                                                                                    | E04H-SWLCR/L-1.2   | 59875      | 59876        |     | 0.250     | 0.270 |             |
|                                                                                    | E05K-SWLCR/L-1.2   | 59879      | 59880        |     | 0.312     | 0.335 |             |
|                                                                                    | E06M-SWLCR/L-2     | 59883      | 59884        |     | 0.375     | 0.396 |             |
|                                                                                    | E08K-SWLCR/L-2     | 59887      | 59888        |     | 0.500     | 0.550 |             |
|                                                                                    | E08R-SWLCR/L-2     | 59891      | 59892        |     | 0.500     | 0.550 |             |
|                                                                                    | E10M-SWLCR/L-2     | 59895      | 59896        |     | 0.625     | 0.740 |             |
|                                                                                    | E10S-SWLCR/L-2     | 59899      | 59900        |     | 0.625     | 0.740 |             |
|                                                                                    | E08K-SWLCR/L-3     | 59903      | 59904        |     | 0.500     | 0.550 |             |
|                                                                                    | E08R-SWLCR/L-3     | 59907      | 59908        | 6:1 | 0.500     | 0.550 | 21.51       |
|                                                                                    | E10M-SWLCR/L-3     | 59911      | 59912        |     | 0.625     | 0.740 |             |
|                                                                                    | E10S-SWLCR/L-3     | 59915      | 59916        |     | 0.625     | 0.740 |             |
|                                                                                    | E12Q-SWLCR/L-3     | 60047      | 60048        |     | 0.750     | 0.930 |             |
|                                                                                    | E12S-SWLCR/L-3     | 60049      | 60050        |     | 0.750     | 0.930 |             |
|                                                                                    | E16R-SWLCR/L-3     | 60051      | 60052        |     | 1.000     | 1.200 |             |
|                                                                                    | E16T-SWLCR/L-3     | 60053      | 60054        |     | 1.000     | 1.200 |             |
|                                                                                    | E20U-SWLCR/L-4     | 60055      | 60056        |     | 1.250     | 1.530 |             |
|                                                                                    |                    |            |              |     |           |       |             |
|                                                                                    |                    |            |              |     |           |       |             |

Inserts used: all WC\_\_ series (WCMT, WCGT).

**E\_SVUC R/L Thru Coolant Integral Carbide Boring Bar Style Q - Negative 3° End Cutting Edge Angle for 7° positive 35° diamond VC\_\_ inserts**

|                                                                                   | UPC #          |            | Boring Ratio |      |           |       | VC__ Insert |
|-----------------------------------------------------------------------------------|----------------|------------|--------------|------|-----------|-------|-------------|
|                                                                                   | Description    | Right Hand | Left Hand    | Dia. | Min. Bore | OAL   |             |
|  | E10M-SVUCR/L-2 | 59827      | 59828        | 6:1  | 0.625     | 0.844 | 221         |
|                                                                                   | E10S-SVUCR/L-2 | 59831      | 59832        |      | 0.625     | 0.844 |             |

Inserts used: all VC\_\_ series (VCMT, VCGT, VCGW, VCGX).

**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**

|                                                                                     | UPC #          |            | Boring Ratio |      |           |     | VC__ Insert |
|-------------------------------------------------------------------------------------|----------------|------------|--------------|------|-----------|-----|-------------|
|                                                                                     | Description    | Right Hand | Left Hand    | Dia. | Min. Bore | OAL |             |
|  | E10M-SVXCR/L-2 | 59835      | 59836        | 6:1  | 0.625     | 1.0 | 221         |
|                                                                                     | E10S-SVXCR/L-2 | 59839      | 59840        |      | 0.625     | 1.0 |             |

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**

|                                                                                     | UPC #          |            | Boring Ratio |      |           |       | VP__ Insert |
|-------------------------------------------------------------------------------------|----------------|------------|--------------|------|-----------|-------|-------------|
|                                                                                     | Description    | Right Hand | Left Hand    | Dia. | Min. Bore | OAL   |             |
|  | E10M-SVQPR/L-2 | 59843      | 59844        | 6:1  | 0.625     | 0.844 | 221         |
|                                                                                     | E10S-SVQPR/L-2 | 59847      | 59848        |      | 0.625     | 0.844 |             |

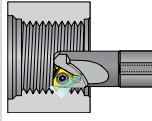
Inserts used: all VP\_\_ series (VPMT, VPGT).

**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**

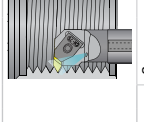
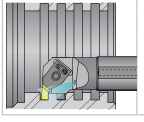
|                                                                                     | UPC #          |            | Boring Ratio |      |           |       | VP__ Insert |
|-------------------------------------------------------------------------------------|----------------|------------|--------------|------|-----------|-------|-------------|
|                                                                                     | Description    | Right Hand | Left Hand    | Dia. | Min. Bore | OAL   |             |
|  | E10M-SVUPR/L-2 | 59851      | 59852        | 6:1  | 0.625     | 0.844 | 221         |
|                                                                                     | E10S-SVUPR/L-2 | 59855      | 59856        |      | 0.625     | 0.844 |             |

Inserts used: all VP\_\_ series (VPMT, VPGT).

**E\_SN R/L Thru Coolant Integral Carbide Threading Bar Internal Laydown Bar for Laydown Inserts**

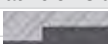
|                                                                                     | UPC #           |            | Boring Ratio |      |           |       | Laydown Insert |
|-------------------------------------------------------------------------------------|-----------------|------------|--------------|------|-----------|-------|----------------|
|                                                                                     | Description     | Right Hand | Left Hand    | Dia. | Min. Bore | OAL   |                |
|  | E03.5H-SNR/L-06 | 59919      | 59920        | 6:1  | 0.218     | 0.249 | 06-A60         |
|                                                                                     | E04H-SNR/L-06   | 59923      | 59924        |      | 0.250     | 0.307 |                |
|                                                                                     | E05K-SNR/L-08   | 59927      | 59928        |      | 0.312     | 0.378 |                |
|                                                                                     | E06M-SNR/L-H11  | 59931      | 59932        |      | 0.375     | 0.500 |                |
|                                                                                     | E08K-SNR/L-H11  | 59935      | 59936        |      | 0.500     | 0.590 |                |
|                                                                                     | E08R-SNR/L-H11  | 59939      | 59940        |      | 0.500     | 0.590 |                |
|                                                                                     | E10M-SNR/L-H16  | 59943      | 59944        |      | 0.625     | 0.750 |                |
|                                                                                     | E10S-SNR/L-H16  | 59947      | 59948        |      | 0.625     | 0.750 |                |
|                                                                                     |                 |            |              |      |           |       |                |
|                                                                                     |                 |            |              |      |           |       |                |

**E\_NE Thru Coolant Integral Carbide Solid Threading & Grooving Bar -Style E- Internal DorNotch Bar for threading and grooving DorNotch inserts**

|                                                                                     | UPC #        |            | Boring Ratio* |      |           |       | Dor-Notch Insert  |
|-------------------------------------------------------------------------------------|--------------|------------|---------------|------|-----------|-------|-------------------|
|                                                                                     | Description  | Right Hand | Left Hand     | Dia. | Min. Bore | OAL   |                   |
|  | E08K-NER/L-2 | 59951      | 59952         | 6:1  | 0.500     | 0.830 | *NG-2L<br>**NG-2R |
|                                                                                     | E08R-NER/L-2 | 59955      | 59956         |      | 0.500     | 0.830 |                   |
|                                                                                     | E10M-NER/L-2 | 59959      | 59960         |      | 0.625     | 1.000 |                   |
|                                                                                     | E10S-NER/L-2 | 59963      | 59964         |      | 0.625     | 1.000 |                   |
|                                                                                     | E12Q-NER/L-2 | 60169      | 60170         |      | 0.750     | 1.125 |                   |
|                                                                                     | E12S-NER/L-2 | 60171      | 60172         |      | 0.750     | 1.125 |                   |
|  |              |            |               | 6:1  |           |       |                   |
|                                                                                     |              |            |               |      |           |       |                   |

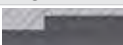
\*For right hand tool. \*\* For left hand tool

**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**

|  | UPC #       |                 |              | Boring<br>Ratio |       |              |       | CN<br>Insert |       |
|----------------------------------------------------------------------------------|-------------|-----------------|--------------|-----------------|-------|--------------|-------|--------------|-------|
|                                                                                  | Description | Right<br>Hand   | Left<br>Hand |                 | Dia.  | Min.<br>Bore | OAL   |              |       |
|                                                                                  |             | E16R-ADCLNR/L-4 | 60067        |                 | 60068 | 1.000        | 1.280 |              | 8.000 |
|                                                                                  |             | E16T-ADCLNR/L-4 | 60069        |                 | 60070 | 1.000        | 1.280 |              | 12.00 |
|                                                                                  |             | E20U-ADCLNR/L-4 | 60071        |                 | 60072 | 1.250        | 1.530 |              | 14.00 |

Inserts used: all CN\_\_ series (CNMG, CNMP, CNGG, CNMX, CNMM, CNMA).

**E\_ADTURN R/L Thru Coolant Jet-Stream™ Carbide Boring Bar Style U - Negative 3° end cutting lead angle for negative triangle TN\_\_ inserts**

|  | UPC #            |               |              | Boring<br>Ratio |       |              |       | TN__<br>Insert |
|----------------------------------------------------------------------------------|------------------|---------------|--------------|-----------------|-------|--------------|-------|----------------|
|                                                                                  | Description      | Right<br>Hand | Left<br>Hand |                 | Dia.  | Min.<br>Bore | OAL   |                |
|                                                                                  | E16R-ADTURNR/L-3 | 60079         | 60080        |                 | 1.000 | 1.280        | 8.000 |                |
|                                                                                  | E16T-ADTURNR/L-3 | 60081         | 60082        |                 | 1.000 | 1.280        | 12.00 |                |
|                                                                                  | E20U-ADTURNR/L-3 | 60083         | 60084        |                 | 1.250 | 1.530        | 14.00 |                |

Inserts used: all TN\_\_ series (TNMG, TNMP, TNMX, TNMA).

**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**

|  | UPC #       |                 |              | Boring<br>Ratio |       |              |       | DN_<br>Insert |       |
|----------------------------------------------------------------------------------|-------------|-----------------|--------------|-----------------|-------|--------------|-------|---------------|-------|
|                                                                                  | Description | Right<br>Hand   | Left<br>Hand |                 | Dia.  | Min.<br>Bore | OAL   |               |       |
|                                                                                  |             | E16R-ADDUNR/L-3 | 60093        |                 | 60094 | 1.000        | 1.300 |               | 8.000 |
|                                                                                  |             | E16T-ADDUNR/L-3 | 60095        |                 | 60096 | 1.000        | 1.300 |               | 12.00 |
|                                                                                  |             | E20U-ADDUNR/L-4 | 60097        |                 | 60098 | 1.250        | 2.000 |               | 14.00 |

Inserts used: all DN\_\_ series (DNMG, DNMP, DNMX, DNMA, DNGG).

**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**



| Description     | UPC #      |           | Boring Ratio | Dia.      |       |       | DN__ Insert |
|-----------------|------------|-----------|--------------|-----------|-------|-------|-------------|
|                 | Right Hand | Left Hand |              | Min. Bore | OAL   |       |             |
| E16R-ADDPNR/L-3 | 60109      | 60110     | 6:1          | 1.000     | 1.500 | 8.000 | 332         |
| E16T-ADDPNR/L-3 | 60111      | 60112     |              | 1.000     | 1.500 | 12.00 |             |
| E20U-ADDPNR/L-4 | 60113      | 60114     | 6:1          | 1.250     | 1.750 | 14.00 | 432         |

Inserts used: all DN\_\_ series (DNMG, DNMP, DNMX, DNMA, DNGG).

**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**

|  | UPC #           |            |           | Boring Ratio | Dia.      |       |       | VN<br>Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-----------|-------|-------|-------------------|
|                                                                                    | Description     | Right Hand | Left Hand |              | Min. Bore | OAL   |       |                   |
|                                                                                    | E20U-ADVUNR/L-3 | 60121      | 60122     | 6:1          | 1.250     | 2.250 | 14.00 | 332               |

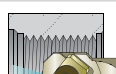
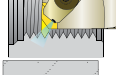
Inserts used: all VN\_\_ series (VNMG, VNMA, VNMP, VNGG).

**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**

|  | UPC #            |               |              | Boring<br>Ratio |      |              |       | WN_<br>Insert |       |
|-----------------------------------------------------------------------------------|------------------|---------------|--------------|-----------------|------|--------------|-------|---------------|-------|
|                                                                                   | Description      | Right<br>Hand | Left<br>Hand |                 | Dia. | Min.<br>Bore | OAL   |               |       |
|                                                                                   | E16R-ADWLNLR/L-4 | 60125         | 60126        |                 |      | 1.000        | 1.450 |               | 8.000 |
|                                                                                   | E16T-ADWLNLR/L-4 | 60127         | 60128        |                 | 6:1  | 1.000        | 1.450 |               | 12.00 |
|                                                                                   | E20U-ADWLNLR/L-4 | 60129         | 60130        |                 |      | 1.250        | 1.530 |               | 14.00 |

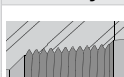
Inserts used: all WN\_\_ series (WNMG, WNMA, WNGG, WNGP).

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

|  | Description    | UPC #      |           | Boring Ratio | Dia.      |       |        | Dor-Notch Insert |
|-----------------------------------------------------------------------------------|----------------|------------|-----------|--------------|-----------|-------|--------|------------------|
|                                                                                   |                | Right Hand | Left Hand |              | Min. Bore | OAL   |        |                  |
|  | E16R-ADNER/L-3 | 60173      | 60174     |              | 1.000     | 1.380 | 8.000  |                  |
|                                                                                   | E16T-ADNER/L-3 | 60175      | 60176     | 6:1          | 1.000     | 1.380 | 12.000 | NG-3L*<br>NG-3R* |
|                                                                                   | E20U-ADNER/L-3 | 60177      | 60178     |              | 1.250     | 1.750 | 14.000 |                  |

\* For right hand bar \*\* For left hand bar

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

|  | UPC #           |            |           | Boring Ratio |       |           |        | Lay-Down Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|-----------------|
|                                                                                    | Description     | Right Hand | Left Hand |              | Dia.  | Min. Bore | OAL    |                 |
|                                                                                    | E12Q-ADLNR/L-16 | 60145      | 60146     | 6:1          | 0.750 | 1.120     | 7.000  | 16-G60          |
|                                                                                    | E12S-ADLNR/L-16 | 60147      | 60148     |              | 0.750 | 1.120     | 10.00  |                 |
|                                                                                    | E16R-ADLNR/L-16 | 60149      | 60150     |              | 1.000 | 1.375     | 8.000  |                 |
|                                                                                    | E16T-ADLNR/L-16 | 60151      | 60152     |              | 1.000 | 1.375     | 12.00  |                 |
|                                                                                    | E20U-ADLNR/L-16 | 60153      | 60154     |              | 1.250 | 1.620     | 14.00  |                 |
| E20U-ADLNR/L-22                                                                    | 60155           | 60156      | 1.250     |              | 1.750 | 14.00     | 22-N60 |                 |

\* For right hand bar \*\* For left hand bar



# THREADING

On Edge - Laydown - DorNotch





Hard and wear resistant C2 substrate with PVD TiN Coating. Very sharp cutting edge. First choice for aluminum and non-ferrous materials.  
Second choice for stainless steels at low SFM  
Can also be used on cast iron at low SFM.

Tough, wear resistant C6 substrate with PVD TiN Coating. Honed edge for edge-security. First choice for carbon and alloy steels.

Hard and wear resistant C2 Substrate with PVD TiAlN Coating. Small honed edge provides sharp cutting action and edge security at the same time.

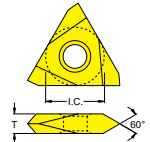
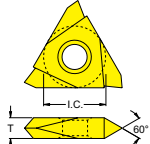
First choice for stainless steels and high temp alloys.

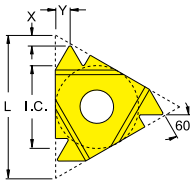
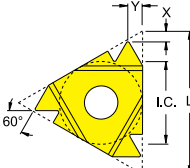
Also use on non-ferrous materials except aluminum.

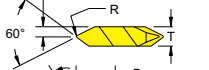
Second choice for carbon and alloy steels, and cast iron.

Most universal and general purpose grade for multi-material applications.

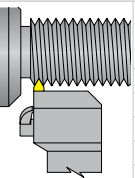


| 60° On Edge Threading                                                                                                                     | ANSI Description |                  | DVK10 Grade |       | DVP656 Grade |       | DASK25B Grade |       | Insert Dimensions |       |           |              |      |  |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------|-------|--------------|-------|---------------|-------|-------------------|-------|-----------|--------------|------|--|
| <div>Negative Rake TNMA &amp; TNMC</div> <div></div>     | TNMA             | TNMC             | TNMA        | TNMC  | TNMA         | TNMC  | TNMA          | TNMC  | I.C.              | Thick | Hole Dia. | Rad.         | TPI  |  |
|                                                                                                                                           | TNMA-32NV        | TNMC-32NV        | 72529       | 72004 | 72528        | 72003 | 72530         | 72005 | .375              | .125  | .150      | .003<br>.005 | 8-36 |  |
|                                                                                                                                           | TNMA-43NV        | TNMC-43NV        | 72536       | 72008 | 72535        | 72010 | 72537         | 72011 | .500              | .187  | .203      | .003<br>.005 | 5-24 |  |
|                                                                                                                                           | TNMA-43NV .010R  | TNMC-43 NV .010R | 72543       | 72018 | 72542        | 72017 | 72544         | 72019 | .500              | .187  | .203      | .010         | 4-20 |  |
|                                                                                                                                           | TNMA-54NV        | TNMC-54NV        | 72557       | 72032 | 72556        | 72031 | 72558         | 72033 | .625              | .250  | .250      | .008<br>.010 | 4-20 |  |
|                                                                                                                                           | TNMA-54NV .010R  | TNMC-54NV .010R  | 72564       | 72039 | 72563        | 72038 | 72565         | 72040 | .625              | .250  | .250      | .010         | 4-20 |  |
| 5° Positive Rake TPMA & TPMC                                                                                                              | TPMA             | TPMC             | TPMA        | TPMC  | TPMA         | TPMC  | TPMA          | TPMC  | I.C.              | Thick | Hole Dia. | Rad.         | TPI  |  |
| <div>5° Positive Rake TPMA &amp; TPMC</div> <div></div> | TPMA-32NV        | TPMC-32NV        | 73394       | 73056 | 73393        | 73055 | 73395         | 73057 | .375              | .125  | .150      | .003<br>.005 | 8-36 |  |
|                                                                                                                                           | TPMA-43NV        | TPMC-43NV        | 73401       | 73063 | 73400        | 73062 | 73402         | 73064 | .500              | .187  | .203      | .003<br>.005 | 5-24 |  |

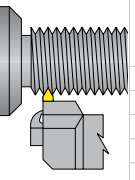
| <div>Laydown<br/>60° Partial Profile</div> <div>External</div>  | Inch Description |               | DVK10 Grade    |               | DVP656 Grade   |               | Insert Dimensions |      |      |      | Pitch |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------|----------------|---------------|----------------|---------------|-------------------|------|------|------|-------|----------|
|                                                                                                                                                    | External Right   | External Left | External Right | External Left | External Right | External Left | I.C. Inch         | L mm | X mm | Y mm | TPI   | mm       |
|                                                                                                                                                    | 11ER-A60         | 11EL-A60      | 74001          | 74005         | 74000          | 74004         | .250              | 11   | 0,8  | 0,9  | 16-48 | 0,5-1,5  |
|                                                                                                                                                    | 16ER-A60         | 16EL-A60      | 74009          | 74013         | 74008          | 74012         | .375              | 16   | 0,8  | 0,9  | 16-48 | 0,5-1,5  |
|                                                                                                                                                    | 16ER-G60         | 16EL-G60      | 74017          | 74021         | 74016          | 74020         | .375              | 16   | 1,2  | 1,7  | 8-14  | 1,75-3,0 |
|                                                                                                                                                    | 16ER-AG60        | 16EL-AG60     | 74025          | 74029         | 74024          | 74028         | .375              | 16   | 1,2  | 1,7  | 8-48  | 0,5-3,0  |
|                                                                                                                                                    | 22ER-N60         | 22EL-N60      | 74033          | 74037         | 74032          | 74036         | .500              | 22   | 1,7  | 2,5  | 5-7   | 3,5-5,0  |
|                                                                                                                                                    | 27ER-Q60         | 27EL-Q60      | 74045          | 74049         | 74044          | 74048         | .625              | 27   | 2,1  | 3,1  | 4-4,5 | 5,5-6,0  |
| <div>Internal</div>                                             | Internal Right   | Internal Left | Internal Right | Internal Left | Internal Right | Internal Left | I.C. Inch         | L mm | X mm | Y mm | TPI   | MM       |
|                                                                                                                                                    | 06IR-A60         | 06IL-A60      | 74113          | 74117         | 74115          | 74119         | .156              | 6,9  | 0,6  | 0,6  | 16-48 | 0,5-1,5  |
|                                                                                                                                                    | 08IR-A60         | 08IL-A60      | 74121          | 74125         | 74123          | 74127         | .187              | 8,7  | 0,6  | 0,7  | 16-48 | 0,5-1,5  |
|                                                                                                                                                    | 11IR-A60         | 11IL-A60      | 74057          | 74061         | 74056          | 74060         | .250              | 11   | 0,8  | 0,9  | 16-48 | 0,5-1,5  |
|                                                                                                                                                    | 16IR-A60         | 16IL-A60      | 74065          | 74069         | 74064          | 74068         | .375              | 16   | 0,8  | 0,9  | 16-48 | 0,5-1,5  |
|                                                                                                                                                    | 16IR-G60         | 16IL-G60      | 74073          | 74077         | 74072          | 74076         | .375              | 16   | 1,2  | 1,7  | 8-14  | 1,75-3,0 |
|                                                                                                                                                    | 16IR-AG60        | 16IL-AG60     | 74081          | 74085         | 74080          | 74084         | .375              | 16   | 1,2  | 1,7  | 8-48  | 0,5-3,0  |
|                                                                                                                                                    | 22IR-N60         | 22IL-N60      | 74089          | 74093         | 74088          | 74092         | .500              | 22   | 1,7  | 2,5  | 5-7   | 3,5-5,0  |
|                                                                                                                                                    | 27IR-Q60         | 27IL-Q60      | 74101          | 74105         | 74100          | 74104         | .625              | 27   | 2,1  | 3,1  | 4-4,5 | 5,5-6,0  |

| <b>DorNotch<br/>60° Partial Profile</b><br><br><b>NT Negative Rake Angle</b><br><br> | ANSI Description |         | DVK10    |         | DVP656   |         | DASK25B  |         | Insert Dimensions |      |       |      |              |      | Pitch   |         |         |         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------|----------|---------|----------|---------|----------|---------|-------------------|------|-------|------|--------------|------|---------|---------|---------|---------|
|                                                                                                                                                                         | NT Right         | NT Left | NT Right | NT Left | NT Right | NT Left | NT Right | NT Left | Gage Dia.         | A IN | B IN  | E IN | R IN         | T IN | EXT. IN | INT. IN | EXT. mm | INT. mm |
|                                                                                                                                                                         | NT-2R            | NT-2L   | 82901    | 82905   | 82900    | 82904   | 82902    | 82906   | .1875             | .219 | .2661 | .075 | .003<br>.005 | .150 | 8-36    | 7-20    | 0,70    | 3       |
|                                                                                                                                                                         | NT-3R            | NT-3L   | 82909    | 82913   | 82908    | 82912   | 82910    | 82914   | .3750             | .344 | .3999 | .098 | .005<br>.008 | .195 | 6-20    | 5-12    | 1,25    | 4       |
|                                                                                                                                                                         | NT-4R            | NT-4L   | 82917    | 82921   | 82916    | 82920   | 82918    | 82922   | .3750             | .453 | .6239 | .128 | .005<br>.008 | .255 | 4-20    | 4-12    | 1,00    | 4       |

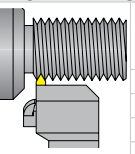
**MTVO-A R/L Threading Toolholder- Style V - O.D. Threading and Shallow Grooving for triangle TNMA inserts**

|                                                                                   | ANSI Description | UPC #      |           | Shank  |        | Max. GRV Depth V | TNMA Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                  |                  |
|  | MTVOR/L08-3A-A   | 58122      | 58123     | 0.500  | 4.000  | 0.150            | 322              |
|                                                                                   | MTVOR/L08-3B-A   | 58126      | -         | 0.500  | 4.500  | 0.150            |                  |
|                                                                                   | MTVOR/L10-3B-A   | 58130      | 58131     | 0.625  | 4.500  | 0.150            |                  |
|                                                                                   | MTVOR/L12-3B-A   | 58134      | -         | 0.750  | 4.500  | 0.150            |                  |
|                                                                                   | MTVOR/L16-3D-A   | 58138      | -         | 1.000  | 6.000  | 0.150            |                  |
|                                                                                   | MTVOR/L12-4B-A   | 58142      | 58143     | 0.750  | 4.500  | 0.230            | 432              |
|                                                                                   | MTVOR/L16-4D-A   | 58146      | 58147     | 1.000  | 6.000  | 0.230            |                  |
|                                                                                   | MTVOR/L20-4D-A   | 58150      | 58151     | 1.250  | 6.000  | 0.230            |                  |
|                                                                                   | MTVOR/L24-4E-A   | 58154      | -         | 1.500  | 7.000  | 0.230            |                  |
|                                                                                   | MTVOR/L16-5D-A   | 58158      | 58159     | 1.000  | 6.000  | 0.292            |                  |
|                                                                                   | MTVOR/L20-5D-A   | 58162      | 58163     | 1.250  | 6.000  | 0.292            | 543              |
|                                                                                   | MTVOR/L20-64D-A  | 58166      | -         | 1.250  | 6.000  | 0.360            |                  |
|                                                                                   | MTVOR/L20-66D-A  | 58170      | 58171     | 1.250  | 6.000  | 0.360            |                  |

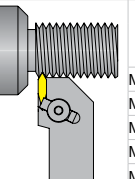
**MTHO-A R/L Threading Toolholder- Style H - Gang Toolholder for Shallow Grooving or I.D. Threading for triangle TNMA inserts**

|                                                                                   | ANSI Description | UPC #      |           | Shank  |        | Min. Bore M | Max. GRV Depth V |      | TNMA Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|-------------|------------------|------|------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |             | Min. I.D.        | O.D. |                  |
|  | MTHOR/L10-3B     | 58176      | 58177     | 0.625  | 4.500  | 2.0         | .100             | .125 | 322              |
|                                                                                   | MTHOR/L12-3B     | 58178      | 58179     | 0.750  | 4.500  |             |                  |      |                  |
|                                                                                   | MTHOR/L12-4B     | -          | 58181     | 0.750  | 4.500  | 3.0         | .125             | .194 | 432              |
|                                                                                   | MTHOR/L16-4D     | 58182      | -         | 1.000  | 6.000  |             |                  |      |                  |
|                                                                                   | MTHOR/L16-5D     | 58186      | -         | 1.000  | 6.000  | 3.0         | .170             | .242 | 543              |
|                                                                                   | MTHOR/L20-5D     | 58188      | 58189     | 1.250  | 6.000  |             |                  |      |                  |

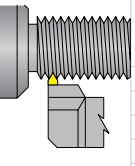
**MTZO R/L Threading Toolholder- Style Z - Reverse Hand Threading for triangle TNMA inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | Max. GRV Depth V | TNMA Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |                  |
|  | MTZOR/L12-3B     | 58260      | 58261     | 0.750  | 4.500  | 0.150            | 322              |
|                                                                                    | MTZOR/L16-4D     | 58268      | 58269     | 1.000  | 6.000  | 0.230            | 432              |
|                                                                                    | MTZOR/L20-4D     | -          | 58273     | 1.250  | 6.000  | 0.230            |                  |
|                                                                                    | MTZOR/L20-66D    | 58284      | 58285     | 1.250  | 6.000  | 0.360            | 663              |
|                                                                                    | MTZOR/L24-66E    | 58288      | -         | 1.500  | 7.000  | 0.360            |                  |

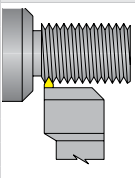
**MTVO-CN R/L Threading Toolholder- Style V - O.D. Threading and Shallow Grooving for triangle TNMC inserts**

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | Max. GRV Depth V | TNMC Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                  |                  |
|  | MTVOR/L08-3A-CN  | 58012      | 58013     | 0.500  | 4.000  | 0.150            | 322              |
|                                                                                     | MTVOR/L08-3B-CN  | 58016      | 58017     | 0.500  | 4.500  | 0.150            |                  |
|                                                                                     | MTVOR/L10-3B-CN  | 58020      | 58021     | 0.625  | 4.500  | 0.150            |                  |
|                                                                                     | MTVOR/L12-3B-CN  | 58024      | 58025     | 0.750  | 4.500  | 0.150            |                  |
|                                                                                     | MTVOR/L16-3D-CN  | 58028      | 58029     | 1.000  | 6.000  | 0.150            |                  |
|                                                                                     | MTVOR/L12-4B-CN  | 58032      | 58033     | 0.750  | 4.500  | 0.230            | 432              |
|                                                                                     | MTVOR/L16-4D-CN  | 58036      | 58037     | 1.000  | 6.000  | 0.230            |                  |
|                                                                                     | MTVOR/L20-4D-CN  | 58040      | 58041     | 1.250  | 6.000  | 0.230            |                  |
|                                                                                     | MTVOR/L24-4E-CN  | 58044      | 58045     | 1.500  | 7.000  | 0.230            |                  |
|                                                                                     | MTVOR/L16-5D-CN  | 58048      | 58049     | 1.000  | 6.000  | 0.292            | 543              |
|                                                                                     | MTVOR/L20-5D-CN  | 58052      | 58053     | 1.250  | 6.000  | 0.292            |                  |

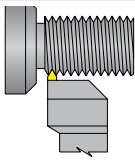
**STHO R/L Threading Toolholder- Style H - Gang Toolholder for Shallow Grooving for I.D. Threading for triangle TNMC inserts**

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | Min. Bore M | Max. GRV Depth V |       | TNMC Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|-------------|------------------|-------|------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |             | Min. I.D.        | O.D.  |                  |
|  | STHOR/L10-3B     | 58196      | 58197     | 0.625  | 4.500  | 2.0         | 0.100            | 0.125 | 322              |
|                                                                                     | STHOR/L12-3B     | -          | 58201     | 0.750  | 4.500  |             |                  |       |                  |
|                                                                                     | STHOR/L12-4B     | 58204      | 58205     | 0.750  | 4.500  | 3.0         | 0.125            | 0.194 | 432              |
|                                                                                     | STHOR/L16-4D     | 58208      | 58209     | 1.000  | 6.000  |             |                  |       |                  |
|                                                                                     | STHOR/L20-4D     | -          | 58213     | 1.250  | 6.000  |             |                  |       |                  |

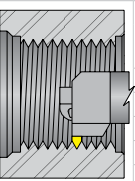
**STVO R/L Threading Toolholder- Style V - O.D. Threading and Shallow Grooving for triangle TNMC inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | Max. GRV Depth V | TNMC Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |                  |
|  | STVOR/L08-3A     | 58070      | -         | 0.500  | 4.000  | 0.150            | 322              |
|                                                                                    | STVOR/L10-3B     | 58074      | 58075     | 0.625  | 4.500  | 0.150            |                  |
|                                                                                    | STVOR/L12-3B     | 58078      | 58079     | 0.750  | 4.500  | 0.150            |                  |
|                                                                                    | STVOR/L16-3D     | 58082      | 58083     | 1.000  | 6.000  | 0.150            |                  |
|                                                                                    | STVOR/L12-4B     | 58086      | 58087     | 0.750  | 4.500  | 0.230            | 432              |
|                                                                                    | STVOR/L16-4D     | 58090      | 58091     | 1.000  | 6.000  | 0.230            |                  |
|                                                                                    | STVOR/L20-4D     | 58094      | 58095     | 1.250  | 6.000  | 0.230            |                  |
|                                                                                    | STVOR/L24-4E     | 58098      | 58099     | 1.500  | 7.000  | 0.230            |                  |
|                                                                                    | STVOR/L16-5D     | 58102      | 58103     | 1.000  | 6.000  | 0.292            | 543              |
|                                                                                    | STVOR/L20-5D     | 58106      | -         | 1.250  | 6.000  | 0.292            |                  |
|                                                                                    | STVOR/L20-64D    | 58110      | 58111     | 1.250  | 6.000  | 0.360            | 643              |
|                                                                                    | STVOR/L20-66D    | 58114      | 58115     | 1.250  | 6.000  | 0.360            | 663              |

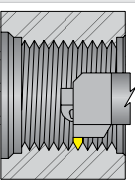
**STZO R/L Threading Toolholder-Style Z - Reverse Hand Threading for triangle TNMC inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | Max. GRV Depth V | TNMC Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|------------------|------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                  |                  |
|  | STZOR/L12-3B     | 58230      | -         | 0.750  | 4.500  | 0.150            | 322              |
|                                                                                    | STZOR/L16-3D     | -          | 58235     | 1.000  | 6.000  | 0.150            |                  |
|                                                                                    | STZOR/L20-4D     | 58242      | -         | 1.250  | 6.000  | 0.230            | 432              |
|                                                                                    | STZOR/L16-5D     | 58246      | -         | 1.000  | 6.000  | 0.292            | 543              |

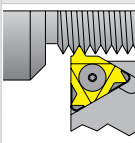
**S-MTHO-A R/L Threading Bar- Style H - I.D. Threading and Shallow Grooving for triangle TNMA inserts**

|                                                                                     | ANSI Description  | UPC #      |           | Min Bore | Length | Dia.  | Max. GRV Depth V | TNMA Gage Insert |
|-------------------------------------------------------------------------------------|-------------------|------------|-----------|----------|--------|-------|------------------|------------------|
|                                                                                     |                   | Right Hand | Left Hand |          |        |       |                  |                  |
|  | S16T-MTHOR/L-3-A  | 58346      | 58347     | 1.388    | 12.00  | 1.000 | 0.120            | 322              |
|                                                                                     | S20U-MTHOR/L-3-A  | 58350      | 58351     | 1.656    | 14.00  | 1.250 | 0.120            |                  |
|                                                                                     | S20U-MTHOR/L-4-A  | 58354      | 58355     | 1.812    | 14.00  | 1.250 | 0.190            | 432              |
|                                                                                     | S24U-MTHOR/L-4-A  | 58358      | 58359     | 2.250    | 14.00  | 1.500 | 0.190            |                  |
|                                                                                     | S32V-MTHOR/L-4-A  | 58362      | 58363     | 3.000    | 16.00  | 2.000 | 0.190            | 543              |
|                                                                                     | S32V-MTHOR/L-5-A  | 58366      | 58367     | 3.500    | 16.00  | 2.000 | 0.250            |                  |
|                                                                                     | S40V-MTHOR/L-5-A  | 58370      | 58371     | 3.750    | 16.00  | 2.500 | 0.250            |                  |
|                                                                                     | S48Y-MTHOR/L-5-A  | 58374      | 58375     | 4.000    | 18.00  | 3.000 | 0.250            | 663              |
|                                                                                     | S40V-MTHOR/L-66-A | 58378      | 58379     | 4.000    | 16.00  | 2.500 | 0.312            |                  |
|                                                                                     | S48Y-MTHOR/L-66-A | -          | 58383     | 4.500    | 18.00  | 3.000 | 0.312            |                  |

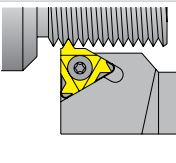
**S-MTHO-C R/L Threading Bar- Style H - I.D. Threading and Shallow Grooving for triangle TNMC inserts**

|                                                                                      | ANSI Description  | UPC #      |           | Min Bore | Length | Dia.  | Max. GRV Depth V | TNMC Gage Insert |
|--------------------------------------------------------------------------------------|-------------------|------------|-----------|----------|--------|-------|------------------|------------------|
|                                                                                      |                   | Right Hand | Left Hand |          |        |       |                  |                  |
|  | S16T-MTHOR/L-3-C  | 58300      | -         | 1.388    | 12.00  | 1.000 | 0.120            | 322              |
|                                                                                      | S20U-MTHOR/L-3-C  | 58304      | -         | 1.656    | 14.00  | 1.250 | 0.120            |                  |
|                                                                                      | S20U-MTHOR/L-4-C  | 58308      | 58309     | 1.812    | 14.00  | 1.250 | 0.190            | 432              |
|                                                                                      | S24U-MTHOR/L-4-C  | 58312      | 58313     | 2.250    | 14.00  | 1.500 | 0.190            |                  |
|                                                                                      | S32V-MTHOR/L-4-C  | 58316      | 58317     | 3.000    | 16.00  | 2.000 | 0.190            | 543              |
|                                                                                      | S32V-MTHOR/L-5-C  | 58320      | 58321     | 3.500    | 16.00  | 2.000 | 0.250            |                  |
|                                                                                      | S40V-MTHOR/L-5-C  | 58324      | -         | 3.750    | 16.00  | 2.500 | 0.250            |                  |
|                                                                                      | S40V-MTHOR/L-66-C | 58332      | 58333     | 4.000    | 16.00  | 2.500 | 0.312            | 663              |

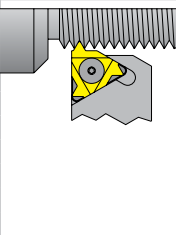
**SE R/L Threading Toolholder- Style E- Laydown for LAYDOWN inserts**

|                                                                                      | ANSI Description | UPC #      |           | Shank  |        | Laydown Gage Insert |
|--------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                      |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SER/L037-3-11    | 58420      | -         | 0.375  | 3.000  | 11-A60              |
|                                                                                      | SER/L062-4-16    | 58428      | 58429     | 0.625  | 4.000  | 16-G60              |
|                                                                                      | SER/L075-5-16    | 58432      | -         | 0.750  | 5.000  |                     |
|                                                                                      | SER/L100-5-16    | 58436      | -         | 1.000  | 5.000  |                     |
|                                                                                      | SER/L125-6-22    | 58444      | 58445     | 1.250  | 6.000  | 27-Q60              |
|                                                                                      | SER/L100-6-27    | 58448      | 58449     | 1.000  | 6.000  |                     |
|                                                                                      | SER/L125-6-27    | 58452      | 58453     | 1.250  | 6.000  |                     |

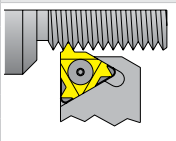
### SE Gang R/L Threading Toolholder- Style EG - Gang Toolholder for Gang Toolposts for LAYDOWN inserts

|                                                                                  | ANSI Description | UPC #      |           | Shank  |        | Laydown Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SEGR/L037-4-11   | 58466      | 58467     | 0.375  | 4.000  | 11-A60              |
|                                                                                  | SEGR/L050-5-16   | 58470      | -         | 0.500  | 5.000  | 16-G60              |
|                                                                                  | SEGR/L062-5-16   | 58474      | 58475     | 0.625  | 5.000  |                     |
|                                                                                  | SEGR/L075-5-16   | 58478      | 58479     | 0.750  | 5.000  |                     |

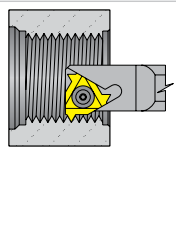
### SE R/L Qualified Threading Toolholder- Style - Laydown Offset Head for LAYDOWN inserts

|                                                                                  | ANSI Description | UPC #      |           | Shank  |        | Laydown Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SER/L050-4-11Q   | 58488      | 58489     | 0.500  | 4.000  | 11-A60              |
|                                                                                  | SER/L075-5-16Q   | 58492      | -         | 0.750  | 5.000  | 16-G60              |
|                                                                                  | SER/L100-6-16Q   | 58496      | -         | 1.000  | 6.000  |                     |
|                                                                                  | SER/L125-6-16Q   | 58500      | -         | 1.250  | 6.000  |                     |
|                                                                                  | SER/L100-6-22Q   | 58504      | 58505     | 1.000  | 6.000  | 22-N60              |
|                                                                                  | SER/L125-6-22Q   | 58508      | -         | 1.250  | 6.000  |                     |
|                                                                                  | SER/L125-6-27Q   | 58511      | 58512     | 1.250  | 6.000  | 27-Q60              |

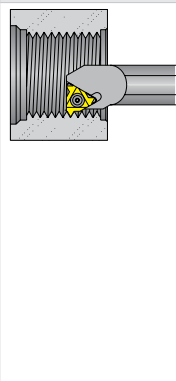
### SE R/L Qualified Threading Toolholder- Style - Drop Head for LAYDOWN inserts

|                                                                                  | ANSI Description | UPC #      |           | Shank  |        | Laydown Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                     |
|  | SER/L075-6-16CQ  | -          | 58523     | 0.750  | 6.000  | 16-G60              |
|                                                                                  | SER/L100-6-16CQ  | 58526      | 58527     | 1.000  | 6.000  |                     |
|                                                                                  | SER/L125-6-16CQ  | 58530      | -         | 1.250  | 6.000  |                     |

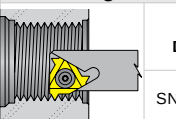
### SN R/L Threading Bar- Style - Internal Small Shank Laydown Bar for LAYDOWN inserts

|                                                                                   | ANSI Description | UPC #      |           | Min Bore | Length | Dia.  | Laydown Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|----------|--------|-------|---------------------|
|                                                                                   |                  | Right Hand | Left Hand |          |        |       |                     |
|  | SNR/L037-40-11   | 58600      | 58601     | 0.500    | 4.000  | 0.375 | 11-A60              |
|                                                                                   | SNR/L050-55-11   | 58604      | 58605     | 0.600    | 5.500  | 0.500 | 16-G60              |
|                                                                                   | SNR/L062-60-16   | 58608      | 58609     | 0.750    | 6.000  | 0.625 |                     |
|                                                                                   | SNR/L075-70-16   | 58612      | 58613     | 0.950    | 7.000  | 0.750 |                     |
|                                                                                   | SNR/L100-80-16   | 58616      | 58617     | 1.150    | 8.000  | 1.000 | 22-N60              |
|                                                                                   | SNR/L075-70-22   | 58620      | -         | 0.900    | 7.000  | 0.750 |                     |
|                                                                                   | SNR/L100-80-22   | 58624      | 58625     | 1.500    | 8.000  | 1.000 |                     |

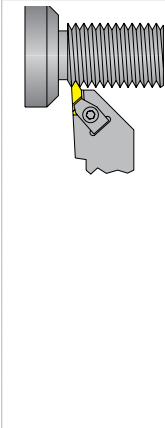
### SN R/L Threading Bar- Style - Internal Laydown Bar for LAYDOWN inserts

|                                                                                    | ANSI Description | UPC #      |           | Min Bore | Length | Dia.  | Laydown Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|----------|--------|-------|---------------------|
|                                                                                    |                  | Right Hand | Left Hand |          |        |       |                     |
|  | SNR/L075-07-16   | 58636      | 58637     | 0.950    | 7.00   | 0.750 | 16-G60              |
|                                                                                    | SNR/L100-08-16   | 58640      | 58641     | 1.150    | 8.00   | 1.000 |                     |
|                                                                                    | SNR/L125-10-16   | 58644      | 58645     | 1.400    | 10.00  | 1.250 |                     |
|                                                                                    | SNR/L150-12-16   | 58648      | 58649     | 1.700    | 12.00  | 1.500 |                     |
|                                                                                    | SNR/L175-14-16   | 58652      | -         | 2.000    | 14.00  | 1.750 |                     |
|                                                                                    | SNR/L200-14-16   | 58656      | 58657     | 2.200    | 14.00  | 2.000 | 22-N60              |
|                                                                                    | SNR/L125-10-22   | 58664      | -         | 1.500    | 10.00  | 1.250 |                     |
|                                                                                    | SNR/L150-12-22   | 58668      | -         | 1.800    | 12.00  | 1.500 |                     |
|                                                                                    | SNR/L175-14-22   | 58672      | -         | 2.100    | 14.00  | 1.750 |                     |
|                                                                                    | SNR/L200-14-22   | 58676      | -         | 2.300    | 14.00  | 2.000 |                     |
|                                                                                    | SNR/L250-16-22   | 58680      | 58681     | 2.800    | 16.00  | 2.500 | 27-Q60              |
|                                                                                    | SNR/L150-12-27   | 58684      | -         | 1.900    | 12.00  | 1.500 |                     |
|                                                                                    | SNR/L250-16-27   | 58692      | -         | 2.900    | 16.00  | 2.500 |                     |

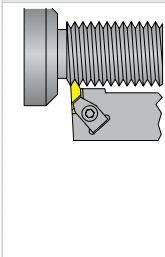
### SN R/L Threading Bar- Style - Internal Laydown Miniature Threading Bar for LAYDOWN inserts

|                                                                                    | ANSI Description | UPC #      |           | Min Bore | Length | Dia.  | Laydown Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|----------|--------|-------|---------------------|
|                                                                                    |                  | Right Hand | Left Hand |          |        |       |                     |
|  | SNR/L0265-K08    | 58578      | 58579     | 0.307    | 5.000  | 0.625 | 08-A60              |

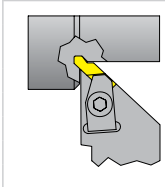
### NS R/L Threading & Grooving Toolholder- Style - External DorNotch Toolholder for threading and grooving DorNotch inserts

|                                                                                   | ANSI Description | UPC #      |           | Shank  |        | DorNotch Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|----------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                      |
|  | NSR/L06-2        | 58770      | 58771     | 0.375  | 2.500  | NG-2R<br>NG-2L       |
|                                                                                   | NSR/L08-2J       | 58774      | 58775     | 0.500  | 3.500  |                      |
|                                                                                   | NSR/L10-2B       | 58778      | 58779     | 0.625  | 4.500  |                      |
|                                                                                   | NSR/L12-2B       | 58782      | 58783     | 0.750  | 4.500  |                      |
|                                                                                   | NSR/L16-2C       | 58786      | -         | 1.000  | 5.000  |                      |
|                                                                                   | NSR/L12-3A       | 58790      | 58791     | 0.750  | 4.000  | NG-3R<br>NG-3L       |
|                                                                                   | NSR/L12-3B       | 58794      | 58795     | 0.750  | 4.500  |                      |
|                                                                                   | NSR/L16-3C       | 58798      | 58799     | 1.000  | 5.000  |                      |
|                                                                                   | NSR/L16-3D       | 58802      | 58803     | 1.000  | 6.000  |                      |
|                                                                                   | NSR/L20-3D       | 58806      | 58807     | 1.250  | 6.000  |                      |
|                                                                                   | NSR/L16-4C       | 58810      | 58811     | 1.000  | 5.000  | NG-4R<br>NG-4L       |
|                                                                                   | NSR/L16-4D       | 58814      | 58815     | 1.000  | 6.000  |                      |
|                                                                                   | NSR/L20-4C       | -          | 58819     | 1.250  | 5.000  |                      |
|                                                                                   | NSR/L20-4D       | 58822      | 58823     | 1.250  | 6.000  |                      |
|                                                                                   | NSR/L24-4D       | -          | 58827     | 1.500  | 6.000  |                      |

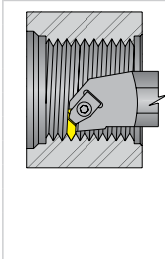
### NE R/L Threading & Grooving Toolholder- Style - Gang External DorNotch Toolholder for threading and grooving DorNotch inserts

|                                                                                   | ANSI Description | UPC #      |           | Shank  |        | DorNotch Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|----------------------|
|                                                                                   |                  | Right Hand | Left Hand | Height | Length |                      |
|  | NER/L06-2        | -          | 58901     | 0.375  | 2.500  | NG-2L<br>NG-2R       |
|                                                                                   | NER/L08-2J       | 58904      | 58905     | 0.500  | 3.500  |                      |
|                                                                                   | NER/L12-2B       | 58912      | 58913     | 0.750  | 4.500  |                      |
|                                                                                   | NER/L12-3B       | 58916      | -         | 0.750  | 4.500  | NG-3L<br>NG-3R       |
|                                                                                   | NER/L16-3D       | 58920      | 58921     | 1.000  | 6.000  |                      |
|                                                                                   | NER/L20-3D       | 58924      | -         | 1.250  | 6.000  | NG-4L<br>NG-4R       |
|                                                                                   | NER/L16-4D       | 58928      | 58929     | 1.000  | 6.000  |                      |
|                                                                                   | NER/L20-4D       | 58932      | 58933     | 1.250  | 6.000  |                      |

### NR R/L Grooving Gang Toolholder- Style - Corner Grooving External DorNotch Toolholder for grooving DorNotch inserts

|                                                                                     | ANSI Description | UPC #      |           | Shank  |        | DorNotch Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|----------------------|
|                                                                                     |                  | Right Hand | Left Hand | Height | Length |                      |
|  | NRR/L12-3B       | 58942      | -         | 0.750  | 4.500  | NG-3L<br>NG-3R       |
|                                                                                     | NRR/L16-3C       | -          | 58945     | 1.000  | 5.000  |                      |
|                                                                                     | NRR/L16-3D       | 58946      | -         | 1.000  | 6.000  |                      |
|                                                                                     | NRR/L20-3D       | 58948      | 58949     | 1.250  | 6.000  |                      |
|                                                                                     | NRR/L24-3D       | 58950      | 58951     | 1.500  | 6.000  |                      |

### S-NE R/L Threading & Grooving Bar - Style - Internal DorNotch Bar for threading and grooving DorNotch inserts

|                                                                                     | ANSI Description | UPC #      |           | Min Bore | Length | Dia.  | DorNotch Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|----------|--------|-------|----------------------|
|                                                                                     |                  | Right Hand | Left Hand |          |        |       |                      |
|  | S10S-NER/L-2     | 58970      | 58971     | 1.000    | 10.00  | 0.375 | NG-2L                |
|                                                                                     | S12S-NER/L-2     | 58974      | 58975     | 1.125    | 10.00  | 0.500 | NG-2R                |
|                                                                                     | S16T-NER/L-3     | 58978      | 58979     | 1.375    | 12.00  | 0.625 | NG-3L<br>NG-3R       |
|                                                                                     | S20U-NER/L-3     | 58982      | 58983     | 1.750    | 14.00  | 0.750 |                      |
|                                                                                     | S24U-NER/L-3     | 58986      | 58987     | 2.000    | 14.00  | 0.875 |                      |
|                                                                                     | S28U-NER/L-3     | 58990      | 58991     | 2.250    | 14.00  | 1.000 | NG-4L<br>NG-4R       |
|                                                                                     | S28U-NER/L-4     | 58994      | 58995     | 2.500    | 14.00  | 1.125 |                      |
|                                                                                     | S32V-NER/L-4     | 58998      | 58999     | 2.750    | 16.00  | 1.375 |                      |



# JET-STREAM™ THRU COOLANT SYSTEM

## Turning-Boring-Threading



CHANGING THE WAY  
METAL IS CUT!

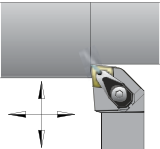
### ON TARGET AT THE CUTTING EDGE

- Performance
- Quality and surface finish
- Insert life
- Chip control



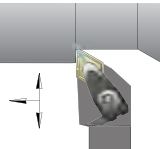


**ADCLN R/L Toolholder Style L - 5° side cutting lead angle for negative 80° diamond CNM\_inserts**

|                                                                                  | ANSI Description | UPC #      |           | Shank  |        | CNM_<br>Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                     |
|  | ADCLNR/L-12-4B   | 53000      | 53001     | 0.75   | 4.50   | 432                 |
|                                                                                  | ADCLNR/L-16-4D   | 53002      | 53003     | 1.00   | 6.00   | 432                 |
|                                                                                  | ADCLNR/L-20-4D   | 53004      | 53005     | 1.25   | 6.00   | 432                 |
|                                                                                  | ADCLNR/L-20-5D   | 53006      | 53007     | 1.25   | 6.00   | 543                 |
|                                                                                  | ADCLNR/L-20-6E   | 53012      | -         | 1.25   | 7.00   | 643                 |
|                                                                                  | ADCLNR/L-24-4E   | 53008      | 53009     | 1.50   | 7.00   | 432                 |
|                                                                                  | ADCLNR/L-24-5E   | 53010      | 53011     | 1.50   | 7.00   | 543                 |
|                                                                                  | ADCLNR/L-24-6E   | 53014      | 53015     | 1.50   | 7.00   | 643                 |

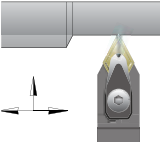
Turning

**ADDJN R/L Toolholder Style J - 3° side cutting lead angle for negative 55° diamond DNM\_inserts**

|                                                                                  | ANSI Description | UPC #      |           | Shank  |        | DNM_<br>Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                  |                  | Right Hand | Left Hand | Height | Length |                     |
|  | ADDJNR/L-12-3B   | 53016      | 53017     | 0.75   | 4.50   | 332                 |
|                                                                                  | ADDJNR/L-12-4B   | 53018      | 53019     | 0.75   | 4.50   | 432                 |
|                                                                                  | ADDJNR/L-16-4D   | 53020      | 53021     | 1.00   | 6.00   | 432                 |
|                                                                                  | ADDJNR/L-20-4D   | 53022      | 53023     | 1.25   | 6.00   | 432                 |
|                                                                                  | ADDJNR/L-24-4E   | 53024      | 53025     | 1.50   | 7.00   | 432                 |

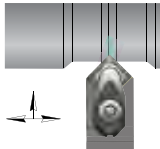
Turning

**ADDPNN Toolholder Style P - 27.5° side cutting lead angle for negative 55° diamond DNM\_inserts**

|                                                                                  | ANSI Description | UPC #<br>Neutral | Shank  |        | DNM_<br>Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                  |                  |                  | Height | Length |                     |
|  | ADDPNN-12-3B     | 53030            | 0.75   | 4.50   | 332                 |
|                                                                                  | ADDPNN-12-4B     | 53031            | 0.75   | 4.50   | 432                 |
|                                                                                  | ADDPNN-16-3D     | 53032            | 1.00   | 6.00   | 332                 |
|                                                                                  | ADDPNN-16-4D     | 53033            | 1.00   | 6.00   | 432                 |
|                                                                                  | ADDPNN-20-4D     | 53034            | 1.25   | 6.00   | 432                 |
|                                                                                  | ADDPNN-24-4E     | 53035            | 1.50   | 7.00   | 432                 |

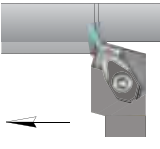
Turning

**ADSDNN Toolholder Style D - 45° side cutting lead angle for negative square SNM\_inserts**

|                                                                                    | ANSI Description | UPC #<br>Neutral | Shank  |        | SNM_<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                    |                  |                  | Height | Length |                     |
|  | ADSDNN-12-4B     | 53053            | 0.75   | 4.50   | 432                 |
|                                                                                    | ADSDNN-16-4D     | 53054            | 1.00   | 6.00   | 432                 |
|                                                                                    | ADSDNN-20-4D     | 53055            | 1.25   | 6.00   | 432                 |
|                                                                                    | ADSDNN-20-5D     | 53056            | 1.25   | 6.00   | 543                 |
|                                                                                    | ADSDNN-24-5E     | 53058            | 1.50   | 7.00   | 543                 |

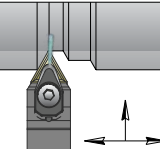
Turning

**ADSRN R/L Toolholder Style R - 15° side cutting lead angle for negative square SNM\_inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | SNM_<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                     |
|  | ADSRNR/L-12-4B   | 53040      | 53041     | 0.75   | 4.50   | 432                 |
|                                                                                    | ADSRNR/L-16-4D   | 53043      | 53044     | 1.00   | 6.00   | 432                 |
|                                                                                    | ADSRNR/L-20-5D   | 53045      | 53046     | 1.25   | 6.00   | 543                 |
|                                                                                    | ADSRNR/L-24-5E   | 53047      | 53048     | 1.50   | 7.00   | 543                 |

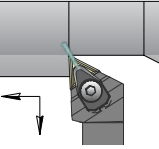
Turning

**ADTENN Toolholder Style E - 30° side cutting lead angle for negative triangle TNM\_inserts**

|                                                                                    | ANSI Description | UPC #<br>Neutral | Shank  |        | TNM_<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------------|--------|--------|---------------------|
|                                                                                    |                  |                  | Height | Length |                     |
|  | ADTENN-12-3B     | 53075            | 0.75   | 4.50   | 332                 |
|                                                                                    | ADTENN-12-4B     | 53076            | 0.75   | 4.50   | 432                 |
|                                                                                    | ADTENN-16-3D     | 53077            | 1.00   | 6.00   | 332                 |
|                                                                                    | ADTENN-16-4D     | 53078            | 1.00   | 6.00   | 432                 |
|                                                                                    | ADTENN-20-4D     | 53079            | 1.25   | 6.00   | 432                 |
|                                                                                    | ADTENN-24-4E     | 53080            | 1.50   | 7.00   | 432                 |

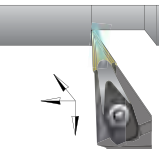
Turning

**ADTJN R/L Toolholder Style J - 3° side cutting lead angle for negative triangle TNM\_inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | TNM_<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                     |
|  | ADTJNR/L-12-3B   | 53063      | 53064     | 0.75   | 4.50   | 332                 |
|                                                                                    | ADTJNR/L-12-4B   | 53065      | 53066     | 0.75   | 4.50   | 432                 |
|                                                                                    | ADTJNR/L-16-3D   | 53067      | 53068     | 1.00   | 6.00   | 332                 |
|                                                                                    | ADTJNR/L-16-4D   | 53069      | 53070     | 1.00   | 6.00   | 432                 |
|                                                                                    | ADTJNR/L-20-4D   | 53071      | 53072     | 1.25   | 6.00   | 432                 |
|                                                                                    | ADTJNR/L-24-4E   | 53073      | 53074     | 1.50   | 7.00   | 432                 |

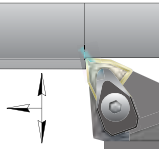
Turning

**ADVJN R/L Toolholder Style J - 3° side cutting lead angle for negative 35° diamond VNM\_inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | VNM_<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                     |
|  | ADVJNR/L-12-3B   | 53081      | 53082     | 0.75   | 4.50   | 332                 |
|                                                                                    | ADVJNR/L-16-3D   | 53083      | 53084     | 1.00   | 6.00   | 332                 |
|                                                                                    | ADVJNR/L-20-3D   | 53085      | 53086     | 1.25   | 6.00   | 332                 |
|                                                                                    | ADVJNR/L-24-3E   | 53087      | 53088     | 1.50   | 7.00   | 332                 |

Turning

**ADWLN R/L Toolholder Style L - 5° end or side cutting lead angle for negative 80° trigon WNM\_inserts**

|                                                                                    | ANSI Description | UPC #      |           | Shank  |        | WNM_<br>Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    |                  | Right Hand | Left Hand | Height | Length |                     |
|  | ADWLNRL/L-12-3B  | 53093      | 53094     | 0.75   | 4.50   | 332                 |
|                                                                                    | ADWLNRL/L-12-4B  | 53095      | 53096     | 0.75   | 4.50   | 432                 |
|                                                                                    | ADWLNRL/L-16-3D  | 53097      | 53098     | 1.00   | 6.00   | 332                 |
|                                                                                    | ADWLNRL/L-16-4D  | 53099      | 53100     | 1.00   | 6.00   | 432                 |
|                                                                                    | ADWLNRL/L-20-4D  | 53101      | 53102     | 1.25   | 6.00   | 432                 |
|                                                                                    | ADWLNRL/L-24-4E  | 53103      | 53104     | 1.50   | 7.00   | 432                 |

Turning

**AS-ADCLN R/L Boring Bar Style L - 5° side & end cutting lead angle for negative 80° diamond CNM\_inserts**

|                                                                                     | ANSI Description  | UPC #      |           | Min. Bore | Bar Size | CNM_<br>Gage Insert |
|-------------------------------------------------------------------------------------|-------------------|------------|-----------|-----------|----------|---------------------|
|                                                                                     |                   | Right Hand | Left Hand |           |          |                     |
|  | AS-12R-ADCLNR/L-3 | 53120      | 53121     | 1.000     | 0.75     | 322                 |
|                                                                                     | AS-16R-ADCLNR/L-4 | 53122      | 53123     | 1.280     | 1.00     | 432                 |
|                                                                                     | AS-20S-ADCLNR/L-4 | 53124      | 53125     | 1.530     | 1.25     | 432                 |
|                                                                                     | AS-24S-ADCLNR/L-4 | 53126      | 53127     | 1.780     | 1.50     | 432                 |
|                                                                                     | AS-32T-ADCLNR/L-4 | 53128      | 53129     | 2.562     | 2.00     | 432                 |
|                                                                                     | AS-32T-ADCLNR/L-5 | 53130      | 53131     | 2.562     | 2.00     | 543                 |

Boring

**AS-ADTUN R/L Boring Bar Style U - 3° end cutting lead angle for negative triangle TNM\_inserts**

|                                                                                     | ANSI Description  | UPC #      |           | Min. Bore | Bar Size | TNM_<br>Gage Insert |
|-------------------------------------------------------------------------------------|-------------------|------------|-----------|-----------|----------|---------------------|
|                                                                                     |                   | Right Hand | Left Hand |           |          |                     |
|  | AS-12R-ADTUNR/L-3 | 53172      | 53173     | 1.000     | 0.75     | 322                 |
|                                                                                     | AS-16R-ADTUNR/L-3 | 53174      | 53175     | 1.280     | 1.00     | 332                 |
|                                                                                     | AS-20S-ADTUNR/L-4 | 53176      | 53177     | 1.530     | 1.25     | 432                 |
|                                                                                     | AS-24S-ADTUNR/L-4 | 53178      | 53179     | 2.060     | 1.50     | 432                 |
|                                                                                     | AS-32T-ADTUNR/L-4 | 53180      | 53181     | 2.562     | 2.00     | 432                 |

Boring

**AS-ADDUN R/L Boring Bar Style U - 3° end cutting lead angle for negative 55° diamond DNM\_inserts**

|                                                                                     | ANSI Description  | UPC #      |           | Min. Bore | Bar Size | DNM_<br>Gage Insert |
|-------------------------------------------------------------------------------------|-------------------|------------|-----------|-----------|----------|---------------------|
|                                                                                     |                   | Right Hand | Left Hand |           |          |                     |
|  | AS-16R-ADDUNR/L-3 | 53137      | 53138     | 1.300     | 1.00     | 332                 |
|                                                                                     | AS-20S-ADDUNR/L-4 | 53139      | 53140     | 2.000     | 1.25     | 432                 |
|                                                                                     | AS-24S-ADDUNR/L-4 | 53141      | 53142     | 2.250     | 1.50     | 432                 |
|                                                                                     | AS-32T-ADDUNR/L-4 | 53143      | 53144     | 3.000     | 2.00     | 432                 |

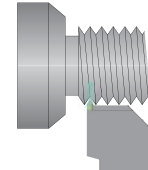
Boring

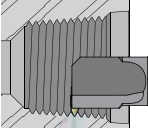
| Boring                                                                            | AS-ADDPN R/L Boring Bar Style P- 27.5° end cutting lead angle for negative 55° diamond DNM_ inserts |            |           |           |          |                  |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------|-----------|-----------|----------|------------------|
|                                                                                   | ANSI Description                                                                                    | UPC #      |           | Min. Bore | Bar Size | DNM_ Gage Insert |
|                                                                                   |                                                                                                     | Right Hand | Left Hand |           |          |                  |
|  | AS-20S-ADDPNR/L-4                                                                                   | 53150      | 53151     | 1.705     | 1.25     | 432              |
|                                                                                   | AS-24S-ADDPNR/L-4                                                                                   | 53152      | 53153     | 2.000     | 1.50     | 432              |

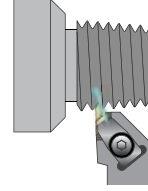
| Boring                                                                            | AS-ADSKN R/L Boring Bar Style K - 15° End cutting lead angle for negative square SNM_ inserts |            |           |           |          |                  |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------|-----------|-----------|----------|------------------|
|                                                                                   | ANSI Description                                                                              | UPC #      |           | Min. Bore | Bar Size | SNM_ Gage Insert |
|                                                                                   |                                                                                               | Right Hand | Left Hand |           |          |                  |
|  | AS-20S-ADSKNR/L-4                                                                             | 53159      | 53160     | 1.53      | 1.25     | 432              |
|                                                                                   | AS-24S-ADSKNR/L-4                                                                             | 53161      | 53162     | 1.76      | 1.50     | 432              |
|                                                                                   | AS-32T-ADSKNR/L-4                                                                             | 53163      | -         | 2.400     | 2.00     | 432              |
|                                                                                   | AS-32T-ADSKNR/L-5                                                                             | 53165      | 53166     | 2.400     | 2.00     | 543              |

| Boring                                                                            | AS-ADVUN R/L Boring Bar Style U - 3° side cutting lead angle for negative 35° diamond VNM_ inserts |            |           |           |          |                  |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------|-----------|-----------|----------|------------------|
|                                                                                   | ANSI Description                                                                                   | UPC #      |           | Min. Bore | Bar Size | VNM_ Gage Insert |
|                                                                                   |                                                                                                    | Right Hand | Left Hand |           |          |                  |
|  | AS-20S-ADVUNR/L-3                                                                                  | 53189      | 53190     | 2.250     | 1.25     | 332              |
|                                                                                   | AS-24S-ADVUNR/L-3                                                                                  | 53191      | 53192     | 2.500     | 1.50     | 332              |

| Boring                                                                             | AS-ADWLN R/L Boring Bar Style L - 5° end & side cutting lead angle for negative 80° trigon WNM_ inserts |            |           |           |          |                  |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------|-----------|-----------|----------|------------------|
|                                                                                    | ANSI Description                                                                                        | UPC #      |           | Min. Bore | Bar Size | WNM_ Gage Insert |
|                                                                                    |                                                                                                         | Right Hand | Left Hand |           |          |                  |
|  | AS-12R-ADWLN/L-3                                                                                        | 53198      | 53199     | 1.000     | 0.75     | 332              |
|                                                                                    | AS-16R-ADWLN/L-4                                                                                        | 53200      | 53201     | 1.280     | 1.00     | 432              |
|                                                                                    | AS-20S-ADWLN/L-4                                                                                        | 53202      | 53203     | 1.530     | 1.25     | 432              |
|                                                                                    | AS-24S-ADWLN/L-4                                                                                        | 53204      | 53205     | 1.780     | 1.50     | 432              |
|                                                                                    | AS-32T-ADWLN/L-4                                                                                        | 53206      | 53207     | 2.000     | 2.00     | 432              |

| Threading                                                                           | ADTVOR Toolholder Style V - O.D. On Edge Threading and shallow grooving for triangle TNMC inserts |            |           |        |        |                  |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------|-----------|--------|--------|------------------|
|                                                                                     | ANSI Description                                                                                  | UPC #      |           | Shank  |        | TNMC Gage Insert |
|                                                                                     |                                                                                                   | Right Hand | Left Hand | Height | Length |                  |
|  | ADTVOR12-3B                                                                                       | 53400      | -         | 0.75   | 4.50   | 322              |
|                                                                                     | ADTVOR16-3D                                                                                       | 53402      | -         | 1.00   | 6.00   |                  |
|                                                                                     | ADTVOR12-4B                                                                                       | 53404      | 53405     | 0.75   | 4.50   | 432              |
|                                                                                     | ADTVOR16-4D                                                                                       | 53406      | -         | 1.00   | 6.00   |                  |
|                                                                                     | ADTVOR20-4D                                                                                       | 53408      | -         | 1.25   | 6.00   | 543              |
|                                                                                     | ADTVOR/L20-5D                                                                                     | 53414      | -         | 1.50   | 7.00   |                  |

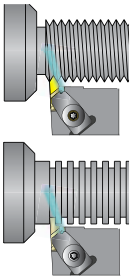
| Threading                                                                           | AS-ADTHO R/L Threading Bar Style H - I.D. On Edge Threading and shallow grooving for triangle TNMC inserts |            |           |           |          |                  |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------|-----------|-----------|----------|------------------|
|                                                                                     | ANSI Description                                                                                           | UPC #      |           | Min. Bore | Bar Size | TNMC Gage Insert |
|                                                                                     |                                                                                                            | Right Hand | Left Hand |           |          |                  |
|  | AS-16R-ADTHOR/L-3                                                                                          | 53436      | -         | 1.390     | 1.00     | 322              |
|                                                                                     | AS-20S-ADTHOR/L-4                                                                                          | 53438      | -         | 1.812     | 1.25     | 432              |
|                                                                                     | AS-32T-ADTHOR/L-4                                                                                          | 53442      | 53443     | 3.000     | 2.00     |                  |

| Threading                                                                           | ADNSR R/L Toolholder Style S - External DorNotch toolholder for threading and grooving DorNotch inserts |            |           |        |        |                     |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------|-----------|--------|--------|---------------------|
|                                                                                     | ANSI Description                                                                                        | UPC #      |           | Shank  |        | Gage Insert         |
|                                                                                     |                                                                                                         | Right Hand | Left Hand | Height | Length |                     |
|  | ADNSR/L12-3B                                                                                            | 53450      | 53451     | 0.75   | 4.50   | * NG-3R<br>** NG-3L |
|                                                                                     | ADNSR/L16-3D                                                                                            | 53452      | 53453     | 1.00   | 6.00   |                     |
|                                                                                     | ADNSR/L20-3D                                                                                            | 53454      | 53455     | 1.25   | 6.00   | * NG-4R<br>** NG-4L |
|                                                                                     | ADNSR/L16-4D                                                                                            | 53456      | -         | 1.00   | 6.00   |                     |
|                                                                                     | ADNSR/L20-4D                                                                                            | 53458      | 53459     | 1.25   | 6.00   |                     |
|                                                                                     | ADNSR/L24-4E                                                                                            | 53460      | 53461     | 1.50   | 7.00   |                     |

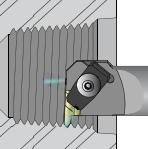
Right hand holder accepts right hand insert. Left hand holder accepts left hand inserts.

Call: 979-282-2861

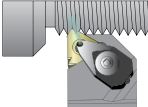
Visit: [www.doriantool.com](http://www.doriantool.com)

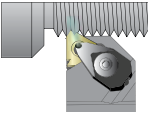
| Threading                                                                          | ADNE R/L Toolholder Style E- Gang external DorNotch toolholder for threading and grooving DorNotch inserts |            |           |        |        |                     |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------|-----------|--------|--------|---------------------|
|                                                                                    | ANSI Description                                                                                           | UPC #      |           | Shank  |        | Gage Insert         |
|                                                                                    |                                                                                                            | Right Hand | Left Hand | Height | Length |                     |
|  | ADNER/L12-3B                                                                                               | 53465      | 53466     | 0.75   | 4.50   | * NG-3L<br>** NG-3R |
|                                                                                    | ADNER/L16-3D                                                                                               | 53467      | 53468     | 1.00   | 6.00   |                     |
|                                                                                    | ADNER/L20-3D                                                                                               | 53469      | 53470     | 1.25   | 6.00   |                     |
|                                                                                    | ADNER/L16-4D                                                                                               | 53471      | 53472     | 1.00   | 6.00   | * NG-4L<br>** NG-4R |
|                                                                                    | ADNER/L20-4D                                                                                               | 53473      | 53474     | 1.25   | 6.00   |                     |

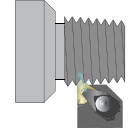
\*Right hand holder accepts left hand insert. Left hand holder accepts right hand inserts.

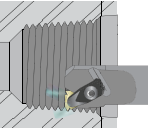
| Threading                                                                          | AS-ADNE R/L Threading Bar Style E- Internal DorNotch Bar for threading and grooving DorNotch inserts |            |           |           |          |                     |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------|-----------|-----------|----------|---------------------|
|                                                                                    | ANSI Description                                                                                     | UPC #      |           | Min. Bore | Bar Size | Gage Insert         |
|                                                                                    |                                                                                                      | Right Hand | Left Hand |           |          |                     |
|  | AS-16R-ADNER/L-3                                                                                     | 53490      | 53491     | 1.38      | 1.00     | * NG-3L<br>** NG-3R |
|                                                                                    | AS-20S-ADNER/L-3                                                                                     | 53492      | 53493     | 1.75      | 1.25     |                     |
|                                                                                    | AS-24S-ADNER/L-3                                                                                     | 53494      | -         | 2.00      | 1.50     | * NG-4L<br>** NG-4R |
|                                                                                    | AS-32T-ADNER/L-4                                                                                     | 53496      | 53497     | 2.75      | 2.00     |                     |

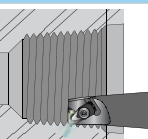
\*Right hand holder accepts left hand insert. Left hand holder accepts right hand inserts.

| Threading                                                                          | ADLER R/L Toolholder Style E- Laydown toolholder for Laydown inserts |            |           |        |        |             |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------|-----------|--------|--------|-------------|
|                                                                                    | ANSI Description                                                     | UPC #      |           | Shank  |        | Gage Insert |
|                                                                                    |                                                                      | Right Hand | Left Hand | Height | Length |             |
|  | ADLER/L12-16C                                                        | 53510      | 53511     | 0.75   | 5.00   | 16-G60      |
|                                                                                    | ADLER/L16-16D                                                        | 53512      | 53513     | 1.00   | 6.00   |             |

| Threading                                                                            | ADLER R/L Qualified Toolholder Style E - Offset head for Laydown inserts |            |           |        |        |             |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------|------------|-----------|--------|--------|-------------|
|                                                                                      | ANSI Description                                                         | UPC #      |           | Shank  |        | Gage Insert |
|                                                                                      |                                                                          | Right Hand | Left Hand | Height | Length |             |
|  | ADLER/L12-16Q-C                                                          | 53522      | -         | 0.75   | 5.00   | 16-G60      |
|                                                                                      | ADLER/L16-16Q-D                                                          | 53524      | 53525     | 1.00   | 6.00   |             |
|                                                                                      | ADLER/L16-22Q-D                                                          | 53528      | -         | 1.00   | 6.00   | 22-N60      |
|                                                                                      | ADLER/L20-22Q-E                                                          | 53530      | -         | 1.25   | 6.00   |             |

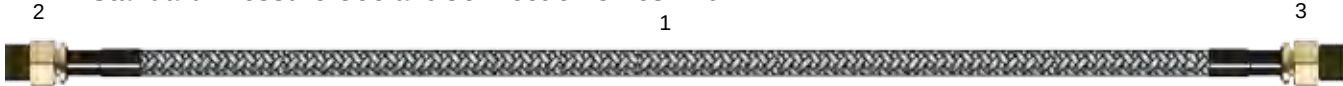
| Threading                                                                            | ADLER R/L API Toolholder Style E- External Laydown API Laydown toolholder for API Laydown inserts |            |           |        |        |             |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------|-----------|--------|--------|-------------|
|                                                                                      | ANSI Description                                                                                  | UPC #      |           | Shank  |        | Gage Insert |
|                                                                                      |                                                                                                   | Right Hand | Left Hand | Height | Length |             |
|  | ADLER/L20-T22API-D                                                                                | 53551      | -         | 1.25   | 6.00   | 22-N60      |
|                                                                                      | ADLER/L24-T27API-F                                                                                | 53553      | -         | 1.50   | 8.00   | 27-Q60      |

| Threading                                                                            | AS-ADLN R/L Threading Bar Style N - Internal Laydown bar for Laydown threading |            |           |           |          |             |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------|-----------|-----------|----------|-------------|
|                                                                                      | ANSI Description                                                               | UPC #      |           | Min. Bore | Bar Size | Gage Insert |
|                                                                                      |                                                                                | Right Hand | Left Hand |           |          |             |
|  | AS-12R-ADLNR/L-16                                                              | 53533      | 53534     | 1.12      | 0.75     | 16-G60      |
|                                                                                      | AS-16R-ADLNR/L-16                                                              | 53535      | 53536     | 1.37      | 1.00     |             |
|                                                                                      | AS-20S-ADLNR/L-16                                                              | 53537      | 53538     | 1.62      | 1.25     |             |
|                                                                                      | AS-24S-ADLNR/L-16                                                              | 53539      | 53540     | 1.87      | 1.50     |             |
|                                                                                      | AS-24S-ADLNR/L-22                                                              | 53543      | -         | 2.00      | 1.50     | 22-N60      |
|                                                                                      | AS-32T-ADLNR/L-22                                                              | 53545      | 53546     | 2.50      | 2.00     |             |

| Threading                                                                            | AS-ADLN R/L API Threading Bar Style N- Internal Laydown API Laydown toolholder for API Laydown inserts |            |           |           |          |             |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------|-----------|-----------|----------|-------------|
|                                                                                      | ANSI Description                                                                                       | UPC #      |           | Min. Bore | Bar Size | Gage Insert |
|                                                                                      |                                                                                                        | Right Hand | Left Hand |           |          |             |
|  | AS-32T-ADLNR/L-22API                                                                                   | 53559      | 53560     | 1.60      | 12.00    | 22-N60      |

## Standard Pressure Coolant Connection 3 Pcs. Kit

Working Pressure



up to 400 psi (30 bar)

| Item | Part #                 | UPC #        | Description                                                        | Bar       | PSI        |
|------|------------------------|--------------|--------------------------------------------------------------------|-----------|------------|
|      | <b>JSPLPCK-062-250</b> | <b>53303</b> | <b>1/16" NPT Standard Pressure Quick Release Coolant 3 pcs Kit</b> | <b>30</b> | <b>400</b> |
| 1    | JS-T250-1200           | 53349        | 1/4" OD, 12" Long Standard Pressure Tubing                         |           |            |
| 2    | JS-MC062-250           | 53346        | 1/16" NPT-1/4" Bore, Straight Std Pressure Quick Release Connector |           |            |
| 3    | JS-MC125-250           | 53347        | 1/8" NPT-1/4" Bore, Straight Std Pressure Quick Release Connector  |           |            |
|      | <b>JSPLPCK-125-250</b> | <b>53304</b> | <b>1/8" NPT Standard Pressure Quick Release Coolant 3 pcs Kit</b>  | <b>30</b> | <b>400</b> |
| 1    | JS-T250-1200           | 53349        | 1/4" OD, 12" Long Standard Pressure Tubing                         |           |            |
| 2    | JS-MC125-250           | 53347        | 1/8" NPT-1/4" Bore, Straight Std Pressure Quick Release Connector  |           |            |
| 3    | JS-MC125-250           | 53347        | 1/8" NPT-1/4" Bore, Straight Std Pressure Quick Release Connector  |           |            |
|      | <b>JSPLPCK-250-250</b> | <b>53305</b> | <b>1/4" NPT Standard Pressure Quick Release Coolant 3 pcs Kit</b>  | <b>30</b> | <b>400</b> |
| 1    | JS-T250-1200           | 53349        | 1/4" OD, 12" Long Standard Pressure Tubing                         |           |            |
| 2    | JS-MC125-250           | 53347        | 1/8" NPT-1/4" Bore, Straight Std Pressure Quick Release Connector  |           |            |
| 3    | JS-MC250-250           | 53348        | 1/4" NPT-1/4" Bore, Straight Std Pressure Quick Release Connector  |           |            |

## High Pressure Coolant Connection 5 Pcs. Kit

Working Pressure



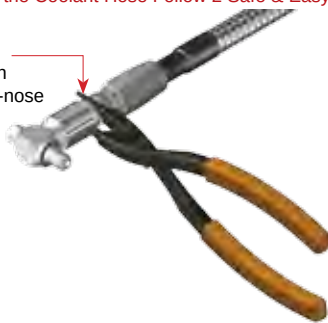
over 400 psi (30 bar)

| Item | Part #                | UPC #        | Description                                                   | Bar        | PSI         |
|------|-----------------------|--------------|---------------------------------------------------------------|------------|-------------|
|      | <b>DT-1/8 HP-QRCK</b> | <b>60473</b> | <b>1/8" NPT High Pressure Quick Release Coolant 5 pcs Kit</b> | <b>200</b> | <b>2800</b> |
| 1    | DT-HPTU-8X4           | 60477        | 8mm High Pressure Coolant Tubing                              |            |             |
| 2    | DT-HP90C-1/8x6        | 60479        | High Pressure Quick Release Straight Intake                   |            |             |
| 3    | DT-HP90C-1/8x6        | 60479        | High Pressure Quick Release Straight Intake                   |            |             |
| 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      |            |             |
|      | <b>DT-1/4 HP-QRCK</b> | <b>60474</b> | <b>1/4" NPT High Pressure Quick Release Coolant 5 pcs Kit</b> | <b>200</b> | <b>2800</b> |
| 1    | DT-HPTU-8X4           | 60477        | 8mm High Pressure Coolant Tubing                              |            |             |
| 2    | DT-HP90C-1/8x6        | 60479        | High Pressure Quick Release Straight Intake                   |            |             |
| 3    | DT-HP90C-1/8x6        | 60479        | High Pressure Quick Release Straight Intake                   |            |             |
| 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      |            |             |

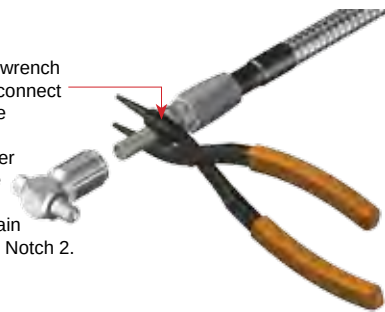
| Item | Part #              | UPC #        | Description                               |
|------|---------------------|--------------|-------------------------------------------|
|      | <b>DT-HP-PLIERS</b> | <b>60476</b> | <b>High Pressure Disconnecting Pliers</b> |

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

1. Place the thinner section of the wrench-nose between the coolant hose and the connector.



2. Close the wrench and it will disconnect Notch 1 of the coolant hose. Use the thicker section of the wrench-nose and close again to disconnect Notch 2.



## Ball-Type Coolant Nozzles Sold Separately

| Acetal Material                                                                     | Brass Material                                                                      | Ball-Type Coolant Nozzles Size | Acetal (Hard Plastic) Material |       | Brass Material |       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------|----------------|-------|
|                                                                                     |                                                                                     |                                | Description                    | UPC # | Description    | UPC # |
|  |  | 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 |

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.

# Jet-Stream™ Thru Coolant System Spare Parts

| Image | Description | UPC # |
|-------|-------------|-------|
|-------|-------------|-------|

## Dor-Lock Clamps for Laydown Threading holders

|                                                                                                                              |              |       |
|------------------------------------------------------------------------------------------------------------------------------|--------------|-------|
| <b>60° PARTIAL PROFILE INSERT STYLE</b><br> | JSLC-HP16R-N | 53242 |
|                                                                                                                              | JSLC-HP16L-N | 53243 |
|                                                                                                                              | JSLC-HP22N   | 53232 |
|                                                                                                                              | JSLC-HP27N   | 53234 |

Includes upper and lower o-rings

## Dor-Lock Clamps for DorNotch Threading holders

|                                                                                                                           |           |       |
|---------------------------------------------------------------------------------------------------------------------------|-----------|-------|
| <b>NT &amp; NTP 60° INSERT STYLE</b><br> | JSLC-HP72 | 53350 |
|                                                                                                                           | JSLC-HP73 | 53351 |
|                                                                                                                           | JSLC-HP76 | 53352 |
|                                                                                                                           | JSLC-HP77 | 53353 |

Includes upper and lower o-rings

## Dor-Lock Clamps for CNMG & SNMG holders

|                                                                                                                          |               |       |
|--------------------------------------------------------------------------------------------------------------------------|---------------|-------|
| <b>CNMG &amp; SNMG INSERT STYLE</b><br> | JSLC-HPC3-B   | 53250 |
|                                                                                                                          | JSLC-HPCTW-4N | 53289 |
|                                                                                                                          | JSLC-HPC5     | 53252 |
|                                                                                                                          | JSLC-HPC6     | 53248 |

Includes upper and lower o-rings

## Dor-Lock Clamps for DNMG & TNMG holders

|                                                                                                                  |               |       |
|------------------------------------------------------------------------------------------------------------------|---------------|-------|
| <b>DNMG INSERT STYLES</b><br>  | JSLC-HPD3     | 53253 |
|                                                                                                                  | JSLC-HPD4     | 53254 |
| <b>TNMG INSERT STYLES</b><br> | JSLC-HPDT3-BR | 53268 |
|                                                                                                                  | JSLC-HPDT3-BL | 53269 |

Includes upper and lower o-rings

## Dor-Lock Clamps for TNMG & WNMG holders

|                                                                                                                             |               |       |
|-----------------------------------------------------------------------------------------------------------------------------|---------------|-------|
| <b>TNMG &amp; WNMG INSERT STYLES</b><br> | JSLC-HPTW3N   | 53261 |
|                                                                                                                             | JSLC-HPTW3R   | 53262 |
|                                                                                                                             | JSLC-HPTW3L   | 53263 |
|                                                                                                                             | JSLC-HPCTW-4N | 53289 |
|                                                                                                                             | JSLC-HPTW4R   | 53265 |
|                                                                                                                             | JSLC-HPTW4L   | 53266 |
|                                                                                                                             | JSLC-HPW3-B   | 53270 |

Includes upper and lower o-rings

## Dor-Lock Clamps for VNMG holders

|                                                                                                                 |           |       |
|-----------------------------------------------------------------------------------------------------------------|-----------|-------|
| <b>VNMG INSERT STYLE</b><br> | JSLC-HPV3 | 53267 |
|-----------------------------------------------------------------------------------------------------------------|-----------|-------|

Includes upper and lower o-rings

## NEW High Volume Turning Dor-Lock Clamp

|                                                                                                                                |                   |       |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------|-------|
| <b>CNMG / TNMG / WNMG INSERT STYLES</b><br> | JSLC-HPCTW-4N-HPV | 53290 |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------|-------|

Includes upper and lower o-rings

| Image | Description | UPC # |
|-------|-------------|-------|
|-------|-------------|-------|

## Jet-Stream™ Shim Seats

|                                                                                                                  |          |       |
|------------------------------------------------------------------------------------------------------------------|----------|-------|
| <b>80° DIAMOND</b><br>          | JC-432   | 90111 |
|                                                                                                                  | JC-533   | 90112 |
|                                                                                                                  | JC-633   | 90118 |
| <b>55° DIAMOND</b><br>          | JD-432   | 90113 |
|                                                                                                                  | IDSN-423 | 90118 |
| <b>35° DIAMOND</b><br>          | IDSN-322 | 90016 |
|                                                                                                                  | JV-322   | 90201 |
| <b>SQUARE</b><br>               | JS-432   | 90114 |
|                                                                                                                  | JS-533   | 90115 |
|                                                                                                                  | ISSN-423 | 90056 |
| <b>TRIANGLE</b><br>            | JT-322   | 90117 |
|                                                                                                                  | JT-433   | 90116 |
| <b>TRIGON</b><br>             | IWSN-322 | 90070 |
|                                                                                                                  | IWSN-423 | 90074 |
|                                                                                                                  | IWSN-433 | 90072 |
| <b>LAYDOWN SHIM SEAT</b><br>  | GXE/I-16 | 92070 |
|                                                                                                                  | NXE/I-22 | 92071 |
|                                                                                                                  | VXE/I-27 | 92074 |
| <b>DORNOTCH SHIM SEAT</b><br> | SM-420   | 90400 |

## Insert Torx Screws/ Shim Screws

|                                                                                                             |               |       |
|-------------------------------------------------------------------------------------------------------------|---------------|-------|
| <b>INSERT SCREWS</b><br> | GTS-1M        | 90964 |
|                                                                                                             | GTS-2         | 90966 |
|                                                                                                             | GTS-3         | 90967 |
|                                                                                                             | TS-35.6-9M1   | 90973 |
|                                                                                                             | TS-35.6-14M1  | 91303 |
|                                                                                                             | TS-45.75-15M1 | 91319 |
|                                                                                                             | TS-5.8-22M1   | 91302 |
|                                                                                                             | SL-344        | 91008 |
|                                                                                                             | SM-M3         | 53318 |
|                                                                                                             | SM-M3-T       | 53302 |
| <b>SHIM SCREWS</b><br>   | SM-M6         | 53320 |
|                                                                                                             | SM-M66        | 53317 |
|                                                                                                             | SM-S4         | 53316 |
|                                                                                                             | SM-M4-245     | 53311 |
|                                                                                                             | SM-M4-6       | 53224 |
|                                                                                                             | SM-M4-8       | 53227 |
|                                                                                                             | SM-M4-6-245   | 53228 |

| Image | Description | UPC # |
|-------|-------------|-------|
|-------|-------------|-------|

## Jet-Stream™ Clamp Screws

|                                                                                                            |             |       |
|------------------------------------------------------------------------------------------------------------|-------------|-------|
| <b>CLAMP SCREWS</b><br> | JSCS-03     | 53323 |
|                                                                                                            | JSCS-04     | 53324 |
|                                                                                                            | JSCS-06     | 53326 |
|                                                                                                            | JSCS-04-HPV | 53321 |

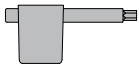
## Jet-Stream™ Clamp O-Ring Seals

|                                                                                                               |          |       |
|---------------------------------------------------------------------------------------------------------------|----------|-------|
| <b>UPPER "O" RINGS</b><br> | JSOR-01  | 53315 |
|                                                                                                               | JSOR-03  | 53328 |
| <b>LOWER "O" RINGS</b><br> | JSOR-04  | 53314 |
|                                                                                                               | JSOR-06  | 53330 |
|                                                                                                               | JSOR-07  | 53327 |
|                                                                                                               | JSOR-08  | 53329 |
|                                                                                                               | JSOR-202 | 53335 |

## Jet-Stream™ Flush Nozzle/Plug

|                                                                                                                          |         |       |
|--------------------------------------------------------------------------------------------------------------------------|---------|-------|
| <b>BORING BAR CHIP FLUSH PLUG</b><br> | JSPN-M3 | 53339 |
|                                                                                                                          | JSPN-M6 | 53334 |
|                                                                                                                          | JSFN-M6 | 53313 |

## Torx Keys

|                                                                                                           |      |       |
|-----------------------------------------------------------------------------------------------------------|------|-------|
| <b>TORX KEYS</b><br> | T-10 | 92005 |
|                                                                                                           | T-20 | 92007 |

## Jet-Stream™ Clamp Alignment Pin

|                                                                                                               |          |       |
|---------------------------------------------------------------------------------------------------------------|----------|-------|
| <b>ALIGNMENT PIN</b><br> | JSCAP-01 | 53325 |
|---------------------------------------------------------------------------------------------------------------|----------|-------|

## Jet-Stream™ Underport Nozzle

|                                                                                                                  |               |       |
|------------------------------------------------------------------------------------------------------------------|---------------|-------|
| <b>Underport Nozzle</b><br> | JSBP-M4-039   | 53244 |
|                                                                                                                  | JSB PE-M4-039 | 53246 |

## Jet-Stream™ Underport Seal

|                                                                                                                |              |       |
|----------------------------------------------------------------------------------------------------------------|--------------|-------|
| <b>UNDERPORT SEAL</b><br> | JSBPS-M4-039 | 53245 |
|----------------------------------------------------------------------------------------------------------------|--------------|-------|



# Solution Tool!™

THE NO! VIBRATION RE-TUNABLE BORING BAR

OUTPERFORMS  
THE BEST

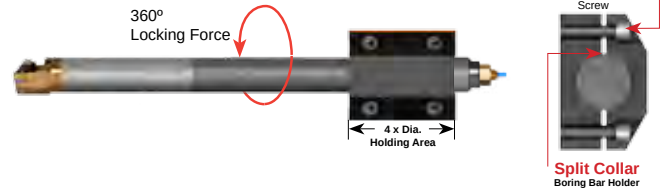


## BEST

### Split Collar Holding System Boring Bar Holding System

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

100 %  
Rigidity!

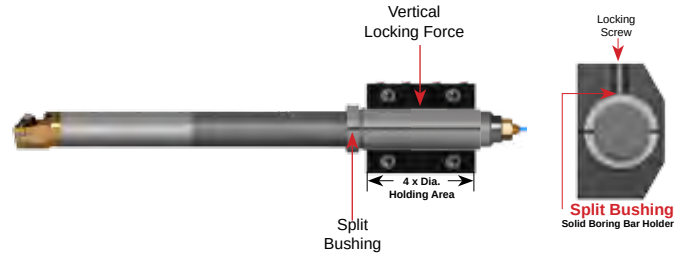


## GOOD

### Split Bushing Holding System With a solid boring bar holder

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

80 %  
Rigidity!



## DO NOT USE IT

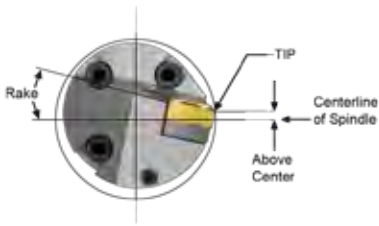
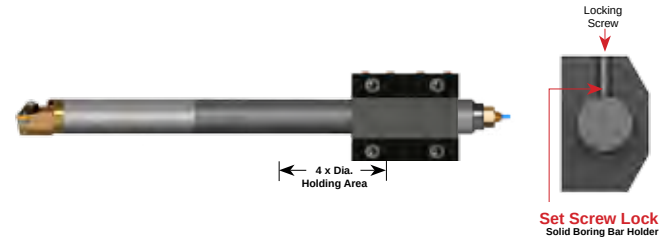
### Set Screw Lock Holding System

#### Solid boring bar holder

#### Without bushing

**Never** lock the screws directly on 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.**

STOP!  
Do not  
Use it



### Insert Center Line Set-Up

Due to the cutting pressure placed on the insert during deep boring, the bar flexes downward. Place the insert cutting edge above the center line by 10% of bar diameter to compensate bar deflection and to reduce vibration. Example: 1" inch bar 1% = .010"z

### Important Recommendations

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.

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, generating poor surface finish and/or vibration.

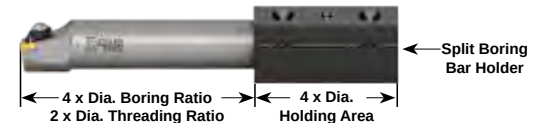
## Maximum Boring & Threading Ratio for Steel, Carbide and Solution Tool! Boring Bars

### Steel Bars

#### 4 x Dia. Boring Ratio

#### 2 x Dia. Threading & Grooving Ratio

- General boring bar applications
- Roughing to Finishing

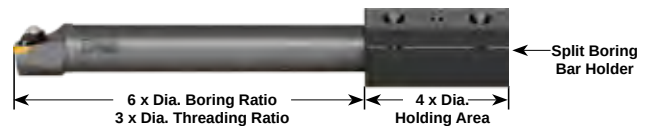


### Carbide Bars

#### 6 x Dia. Boring Ratio

#### 3 x Dia. Threading & Grooving Ratio

- Best for boring small holes
- Rigid for close tolerances and good surface finish
- Rigid for heavy material removal at high depth of cut and feed rate.

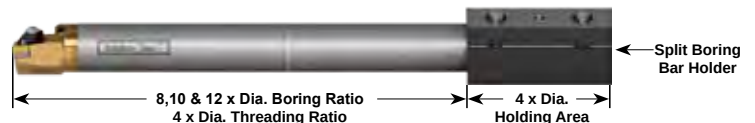


### Solution Tool!™ (Steel Body)

#### 8 x Dia., 10 x Dia., 12 x Dia. Boring Ratio

#### 4 x Dia. Threading & Grooving Ratio

- For deep hole boring applications

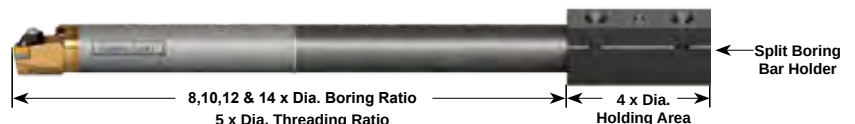


### Solution Tool!™ (Carbide Body)

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

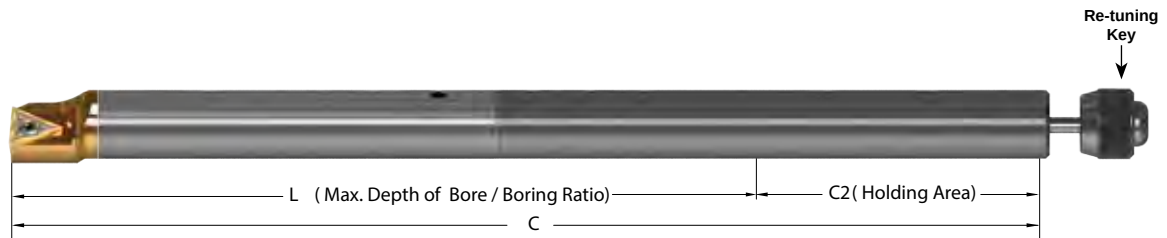
#### 5 x Dia. Threading & Grooving Ratio

- High performance deep hole boring applications for higher material removal rate.



# Integral Bar

Small Diameters 1/2" and 5/8"

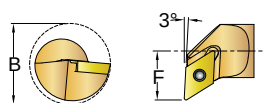


- Deep hole boring made simple
- 8xD, 10xD, 12xD and 14xD boring (overhang) ratios
- For high material removal rate, high surface finish and tight tolerances
- Bars are pretuned at the factory to the specific boring ratio
- Bars can be Re-tuned on the machine to optimize boring performance in challenging application

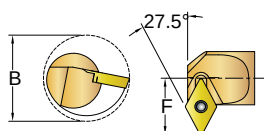
Min Bore (B) in the charts below includes chip clearance.  
Actual minimum bore =  $F + (1/2 \text{ Bar Dia.})$   
Always allow enough room for chip evacuation.



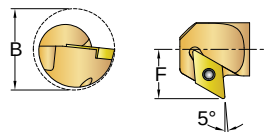
| Bar Description        | UPC #      |           | Boring Ratio | Construction | Min. Bore |      |       |       |      | Gage Insert |       |              |
|------------------------|------------|-----------|--------------|--------------|-----------|------|-------|-------|------|-------------|-------|--------------|
|                        | Right Hand | Left Hand |              |              | Dia.      | B    | C     | L     | C2   | F           | CC_   | Insert Screw |
| DVI08X-08-SCLCR/L-2-CB | 59400      | 59401     | 8 x Dia.     | Carbide Body | 0.500     | .625 | 7.00  | 4.00  | 3.00 | .275        | 21.51 | TS-25.45-6M2 |
| DVI10X-08-SCLCR/L-3-CB | 59404      | 59405     |              | Carbide Body | 0.625     | .781 | 8.13  | 5.00  | 3.13 | .395        | 32.51 | TS-4.7-8M1   |
| DVI08X-10-SCLCR/L-2-CB | 59034      | 59035     | 10 x Dia.    | Carbide Body | 0.500     | .625 | 8.00  | 5.000 | 3.00 | .275        | 21.51 | TS-25.45-6M2 |
| DVI10X-10-SCLCR/L-3-CB | 59046      | 59047     |              | Carbide Body | 0.625     | .781 | 9.38  | 6.25  | 3.13 | .395        | 32.51 | TS-4.7-8M1   |
| DVI08X-12-SCLCR/L-2-CB | 59036      | 59037     | 12 x Dia.    | Carbide Body | 0.500     | .625 | 9.00  | 6.00  | 3.00 | .275        | 21.51 | TS-25.45-6M2 |
| DVI10X-12-SCLCR/L-3-CB | 59048      | 59049     |              | Carbide Body | 0.625     | .781 | 10.63 | 7.50  | 3.13 | .395        | 32.51 | TS-4.7-8M1   |
| DVI08X-14-SCLCR/L-2-CB | 59038      | 59039     | 14 x Dia.    | Carbide Body | 0.500     | .625 | 10.00 | 7.000 | 3.00 | .275        | 21.51 | TS-25.45-6M2 |
| DVI10X-14-SCLCR/L-3-CB | 59050      | 59051     |              | Carbide Body | 0.625     | .781 | 11.88 | 8.75  | 3.13 | .395        | 32.51 | TS-4.7-8M1   |



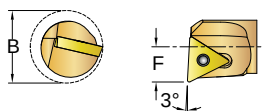
| Bar Description        | Right Hand | Left Hand | Boring Ratio | Construction | Min. Bore |      |       |      |      | Gage Insert |       |              |
|------------------------|------------|-----------|--------------|--------------|-----------|------|-------|------|------|-------------|-------|--------------|
|                        |            |           |              |              | Dia.      | B    | C     | L    | C2   | F           | DC_   | Insert Screw |
| DVI08X-08-SDUCR/L-2-CB | 59406      | 59407     | 8 x Dia.     | Carbide Body | 0.500     | .750 | 7.00  | 4.00 | 3.00 | .437        | 21.51 | TS-25.45-6M2 |
| DVI10X-08-SDUCR/L-2-CB | 59408      | 59409     |              | Carbide Body | 0.625     | .875 | 8.13  | 5.00 | 3.13 | .500        | 21.51 | TS-25.45-6M2 |
| DVI08X-10-SDUCR/L-2-CB | 59150      | 59151     | 10 x Dia.    | Carbide Body | 0.500     | .750 | 8.00  | 5.00 | 3.00 | .437        | 21.51 | TS-25.45-6M2 |
| DVI10X-10-SDUCR/L-2-CB | 60297      | 60298     |              | Carbide Body | 0.625     | .875 | 9.38  | 6.25 | 3.13 | .500        | 21.51 | TS-25.45-6M2 |
| DVI08X-12-SDUCR/L-2-CB | 59152      | 59153     | 12 x Dia.    | Carbide Body | 0.500     | .750 | 9.00  | 6.00 | 3.00 | .437        | 21.51 | TS-25.45-6M2 |
| DVI10X-12-SDUCR/L-2-CB | 59158      | 59159     |              | Carbide Body | 0.625     | .875 | 10.63 | 7.50 | 3.13 | .500        | 21.51 | TS-25.45-6M2 |
| DVI08X-14-SDUCR/L-2-CB | 59154      | 59155     | 14 x Dia.    | Carbide Body | 0.500     | .750 | 10.00 | 7.00 | 3.00 | .437        | 21.51 | TS-25.45-6M2 |
| DVI10X-14-SDUCR/L-2-CB | 59160      | 59161     |              | Carbide Body | 0.625     | .875 | 11.88 | 8.75 | 3.13 | .500        | 21.51 | TS-25.45-6M2 |



| Bar Description      | Right Hand | Left Hand | Boring Ratio | Construction | Min. Bore |       |       |      |      | Gage Insert |       |              |
|----------------------|------------|-----------|--------------|--------------|-----------|-------|-------|------|------|-------------|-------|--------------|
|                      |            |           |              |              | Dia.      | B     | C     | L    | C2   | F           | DC_   | Insert Screw |
| DVI08X-08-SDNCR-2-CB | 59102      |           | 8 x Dia.     | Carbide Body | 0.500     | 0.813 | 7.00  | 4.00 | 3.00 | .500        | 21.51 | TS-25.45-6M2 |
| DVI10X-08-SDNCR-2-CB | 59110      |           |              | Carbide Body | 0.625     | 0.938 | 8.13  | 5.00 | 3.13 | .562        | 21.51 | TS-25.45-6M2 |
| DVI08X-10-SDNCR-2-CB | 59104      |           | 10 x Dia.    | Carbide Body | 0.500     | 0.813 | 8.00  | 5.00 | 3.00 | .500        | 21.51 | TS-25.45-6M2 |
| DVI10X-10-SDNCR-2-CB | 59112      |           |              | Carbide Body | 0.625     | 0.938 | 9.38  | 6.25 | 3.13 | .562        | 21.51 | TS-25.45-6M2 |
| DVI08X-12-SDNCR-2-CB | 59106      |           | 12 x Dia.    | Carbide Body | 0.500     | 0.813 | 9.00  | 6.00 | 3.00 | .500        | 21.51 | TS-25.45-6M2 |
| DVI10X-12-SDNCR-2-CB | 59114      |           |              | Carbide Body | 0.625     | 0.938 | 10.63 | 7.50 | 3.13 | .562        | 21.51 | TS-25.45-6M2 |
| DVI08X-14-SDNCR-2-CB | 59108      |           | 14 x Dia.    | Carbide Body | 0.500     | 0.813 | 10.00 | 7.00 | 3.00 | .500        | 21.51 | TS-25.45-6M2 |
| DVI10X-14-SDNCR-2-CB | 59116      |           |              | Carbide Body | 0.625     | 0.938 | 11.88 | 8.75 | 3.13 | .562        | 21.51 | TS-25.45-6M2 |



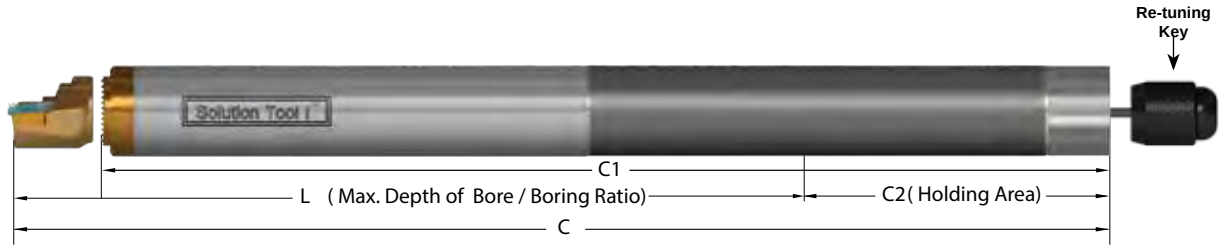
| Bar Description      | Right Hand | Left Hand | Boring Ratio | Construction | Min. Bore |       |       |      |      | Gage Insert |       |              |
|----------------------|------------|-----------|--------------|--------------|-----------|-------|-------|------|------|-------------|-------|--------------|
|                      |            |           |              |              | Dia.      | B     | C     | L    | C2   | F           | DC_   | Insert Screw |
| DVI08X-08-SDXCR-2-CB | 59190      |           | 8 x Dia.     | Carbide Body | 0.500     | 0.750 | 7.00  | 4.00 | 3.00 | .437        | 21.51 | TS-25.45-6M2 |
| DVI10X-08-SDXCR-2-CB | 59198      |           |              | Carbide Body | 0.625     | 0.875 | 8.13  | 5.00 | 3.13 | .500        | 21.51 | TS-25.45-6M2 |
| DVI08X-10-SDXCR-2-CB | 59192      |           | 10 x Dia.    | Carbide Body | 0.500     | 0.750 | 8.00  | 5.00 | 3.00 | .437        | 21.51 | TS-25.45-6M2 |
| DVI10X-10-SDXCR-2-CB | 59200      |           |              | Carbide Body | 0.625     | 0.875 | 9.38  | 6.25 | 3.13 | .500        | 21.51 | TS-25.45-6M2 |
| DVI08X-12-SDXCR-2-CB | 59194      |           | 12 x Dia.    | Carbide Body | 0.500     | 0.750 | 9.00  | 6.00 | 3.00 | .437        | 21.51 | TS-25.45-6M2 |
| DVI10X-12-SDXCR-2-CB | 59202      |           |              | Carbide Body | 0.625     | 0.875 | 10.63 | 7.50 | 3.13 | .500        | 21.51 | TS-25.45-6M2 |
| DVI08X-14-SDXCR-2-CB | 59196      |           | 14 x Dia.    | Carbide Body | 0.500     | 0.750 | 10.00 | 7.00 | 3.00 | .437        | 21.51 | TS-25.45-6M2 |
| DVI10X-14-SDXCR-2-CB | 59204      |           |              | Carbide Body | 0.625     | 0.875 | 11.88 | 8.75 | 3.13 | .500        | 21.51 | TS-25.45-6M2 |



| Bar Description        | Right Hand | Left Hand | Boring Ratio | Construction | Min. Bore |       |       |      |      | Gage Insert |       |              |
|------------------------|------------|-----------|--------------|--------------|-----------|-------|-------|------|------|-------------|-------|--------------|
|                        |            |           |              |              | Dia.      | B     | C     | L    | C2   | F           | TC_   | Insert Screw |
| DVI08X-08-STUCR/L-2-CB | 59410      | 59411     | 8 x Dia.     | Carbide Body | 0.500     | 0.625 | 7.00  | 4.00 | 3.00 | .312        | 21.51 | TS-25.45-6M2 |
| DVI10X-08-STUCR/L-2-CB | 59412      | 59413     |              | Carbide Body | 0.625     | 0.781 | 8.13  | 5.00 | 3.13 | .406        | 21.51 | TS-25.45-6M2 |
| DVI08X-10-STUCR/L-2-CB | 59262      | 59263     | 10 x Dia.    | Carbide Body | 0.500     | 0.625 | 8.00  | 5.00 | 3.00 | .312        | 21.51 | TS-25.45-6M2 |
| DVI10X-10-STUCR/L-2-CB | 59268      | 59269     |              | Carbide Body | 0.625     | 0.781 | 9.38  | 6.25 | 3.13 | .406        | 21.51 | TS-25.45-6M2 |
| DVI08X-12-STUCR/L-2-CB | 59264      | 59265     | 12 x Dia.    | Carbide Body | 0.500     | 0.625 | 9.00  | 6.00 | 3.00 | .312        | 21.51 | TS-25.45-6M2 |
| DVI10X-12-STUCR/L-2-CB | 59270      | 59271     |              | Carbide Body | 0.625     | 0.781 | 10.63 | 7.50 | 3.13 | .406        | 21.51 | TS-25.45-6M2 |
| DVI08X-14-STUCR/L-2-CB | 59266      | 59267     | 14 x Dia.    | Carbide Body | 0.500     | 0.625 | 10.00 | 7.00 | 3.00 | .312        | 21.51 | TS-25.45-6M2 |
| DVI10X-14-STUCR/L-2-CB | 59272      | 59273     |              | Carbide Body | 0.625     | 0.781 | 11.78 | 8.75 | 3.13 | .406        | 21.51 | TS-25.45-6M2 |

# Quick Change Bar

Medium Diameters 3/4", 1" and 1 1/4"

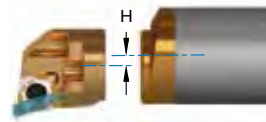


- Deep hole boring made simple
- 8xD, 10xD, 12xD and 14xD boring (overhang) ratios
- For high material removal rate, high surface finish and tight tolerances
- Bars are pretuned at the factory to the specific boring ratio
- Bars can be Re-tuned on the machine to optimize boring performance in challenging application

Min Bore (B) in the Quick Change Head charts below includes chip clearance.

Actual minimum bore =  $F + H + (1/2 \text{ Bar Dia.})$

Always allow enough room for chip evacuation.



| Bar Description       | UPC #<br>Neutral | Boring<br>Ratio | Construction | Dia.  | C     | C1    | L     | C2   | H    | Modular Head | Coolant<br>Attachment<br>Thread |
|-----------------------|------------------|-----------------|--------------|-------|-------|-------|-------|------|------|--------------|---------------------------------|
| DVI12X-08-MQBBN-9-SB  | 59428            | 8 x Dia.        | Steel Body   | 0.750 | 9.00  | 8.20  | 6.00  | 3.00 | 0    | DBOMH-12/20M | 1/8"-27 NPT                     |
| DVI12X-08-MQBBN-9-CB  | 60360            |                 | Carbide Body | 0.750 | 9.00  | 8.20  | 6.00  | 3.00 | 0    |              |                                 |
| DVI16X-08-MQBBN-12-SB | 59340            |                 | Steel Body   | 1.000 | 12.00 | 11.20 | 8.00  | 4.00 | .125 |              |                                 |
| DVI16X-08-MQBBN-12-CB | 60362            |                 | Carbide Body | 1.000 | 12.00 | 11.20 | 8.00  | 4.00 | .125 |              |                                 |
| DVI20X-08-MQBBN-15-SB | 59341            | 10 x Dia.       | Steel Body   | 1.250 | 15.00 | 14.20 | 10.00 | 5.00 | .250 | DBOMH-12/20M | 1/8"-27 NPT                     |
| DVI20X-08-MQBBN-15-CB | 60364            |                 | Carbide Body | 1.250 | 15.00 | 14.20 | 10.00 | 5.00 | .250 |              |                                 |
| DVI12X-10-MQBBN-11-SB | 59342            |                 | Steel Body   | 0.750 | 10.50 | 9.70  | 7.50  | 3.00 | 0    |              |                                 |
| DVI12X-10-MQBBN-11-CB | 60361            |                 | Carbide Body | 0.750 | 10.50 | 9.70  | 7.50  | 3.00 | 0    |              |                                 |
| DVI16X-10-MQBBN-14-SB | 59429            | 12 x Dia.       | Steel Body   | 1.000 | 14.00 | 13.20 | 10.00 | 4.00 | .125 | DBOMH-12/20M | 1/8"-27 NPT                     |
| DVI16X-10-MQBBN-14-CB | 60363            |                 | Carbide Body | 1.000 | 14.00 | 13.20 | 10.00 | 4.00 | .125 |              |                                 |
| DVI20X-10-MQBBN-18-SB | 59471            |                 | Steel Body   | 1.250 | 17.50 | 16.70 | 12.50 | 5.00 | .250 |              |                                 |
| DVI20X-10-MQBBN-18-CB | 60365            |                 | Carbide Body | 1.250 | 17.50 | 16.70 | 12.50 | 5.00 | .250 |              |                                 |
| DVI12X-12-MQBBN-12-SB | 59360            | 14 x Dia.       | Steel Body   | 0.750 | 12.00 | 11.20 | 9.00  | 3.00 | 0    | DBOMH-12/20M | 1/8"-27 NPT                     |
| DVI12X-12-MQBBN-12-CB | 59343            |                 | Carbide Body | 0.750 | 12.00 | 11.20 | 9.00  | 3.00 | 0    |              |                                 |
| DVI16X-12-MQBBN-16-SB | 59361            |                 | Steel Body   | 1.000 | 16.00 | 15.20 | 12.00 | 4.00 | .125 |              |                                 |
| DVI16X-12-MQBBN-16-CB | 59391            |                 | Carbide Body | 1.000 | 16.00 | 15.20 | 12.00 | 4.00 | .125 |              |                                 |
| DVI20X-12-MQBBN-20-SB | 59362            | 14 x Dia.       | Steel Body   | 1.250 | 20.00 | 19.20 | 15.00 | 5.00 | .250 | DBOMH-12/20M | 1/8"-27 NPT                     |
| DVI20X-12-MQBBN-20-CB | 59393            |                 | Carbide Body | 1.250 | 20.00 | 19.20 | 15.00 | 5.00 | .250 |              |                                 |
| DVI12X-14-MQBBN-14-CB | 59344            | 14 x Dia.       | Carbide Body | 0.750 | 13.50 | 12.70 | 10.50 | 3.00 | 0    | DBOMH-12/20M | 1/8"-27 NPT                     |
| DVI16X-14-MQBBN-18-CB | 59392            |                 | Carbide Body | 1.000 | 18.00 | 17.20 | 14.00 | 4.00 | .125 |              |                                 |
| DVI20X-14-MQBBN-23-CB | 59394            |                 | Carbide Body | 1.250 | 22.50 | 21.70 | 17.50 | 5.00 | .250 |              |                                 |



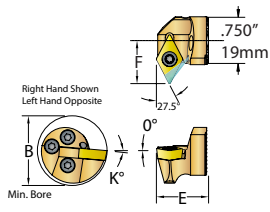
## SCLC R/L Solution Tool!™ Thru Coolant Quick Change Head

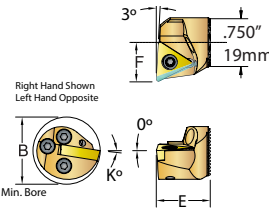
|          | Head Description       |        | UPC #      |                       |
|----------|------------------------|--------|------------|-----------------------|
|          | DBOMH-12/20M-SCLCR/L-3 |        | Right Hand | Left Hand             |
|          |                        |        | 60225      | 60226                 |
| Bar Dia. | Min. Bore              | E      | F          | CCMT/CCGT Gage Insert |
| 0.750"   | 1.000"                 |        |            |                       |
| 1.000"   | 1.250"                 | 0.820" | .500"      | 32.52                 |
| 1.250"   | 1.500"                 |        |            |                       |

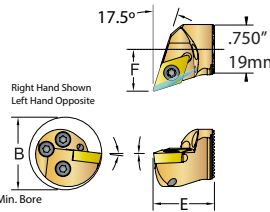
## SCLPR-3 Solution Tool!™ Thru Coolant Quick Change Head

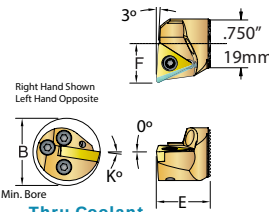
|          | Head Description     |        | UPC #      |                |
|----------|----------------------|--------|------------|----------------|
|          | DBOMH-12/20M-SCLPR-3 |        | Right Hand |                |
|          |                      |        | 60259      |                |
| Bar Dia. | Min. Bore            | E      | F          | DC Gage Insert |
| 0.750"   | 1.000"               |        |            |                |
| 1.000"   | 1.250"               | 0.820" | 0.600"     | 32.52          |
| 1.250"   | 1.500"               |        |            |                |

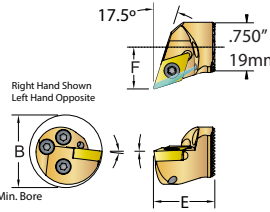


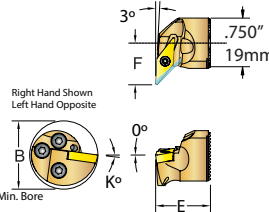
| SDNC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                              |                        |           |            |           |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|-----------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                       |
|                                                                                                                                                                      | DBOMH-12/20M-SDNCR/L-3 |           | Right Hand | Left Hand |                       |
|                                                                                                                                                                      |                        |           | 60229      | 60230     |                       |
|                                                                                                                                                                      | Bar Dia.               | Min. Bore | E          | F         | DCMT/DCGT-Gage Insert |
|                                                                                                                                                                      | 0.750"                 | 1.160"    |            |           |                       |
|                                                                                                                                                                      | 1.000"                 | 1.410"    | 0.820"     | 0.660"    | 32.52                 |
|                                                                                                                                                                      | 1.250"                 | 1.660"    |            |           |                       |

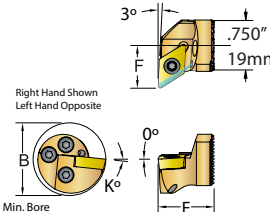
| STUC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                                |                        |           |            |           |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|-----------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                       |
|                                                                                                                                                                        | DBOMH-12/20M-STUCR/L-2 |           | Right Hand | Left Hand |                       |
|                                                                                                                                                                        |                        |           | 60255      | 60256     |                       |
|                                                                                                                                                                        | Bar Dia.               | Min. Bore | E          | F         | TCMT/TCGT Gage Insert |
|                                                                                                                                                                        | 0.750"                 | 1.000"    |            |           |                       |
|                                                                                                                                                                        | 1.000"                 | 1.250"    | 0.820"     | 0.500"    | 21.51                 |
|                                                                                                                                                                        | 1.250"                 | 1.500"    |            |           |                       |

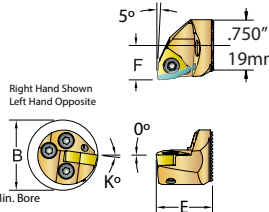
| SDQC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                              |                        |           |            |           |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                  |
|                                                                                                                                                                      | DBOMH-12/20M-SDQCR/L-2 |           | Right Hand | Left Hand |                  |
|                                                                                                                                                                      |                        |           | 60251      | 60252     |                  |
|                                                                                                                                                                      | Bar Dia.               | Min. Bore | E          | F         | DC__ Gage Insert |
|                                                                                                                                                                      | 0.750"                 | 1.125"    |            |           |                  |
|                                                                                                                                                                      | 1.000"                 | 1.375"    | 0.820"     | .500"     | 21.51            |
|                                                                                                                                                                      | 1.250"                 | 1.625"    |            |           |                  |

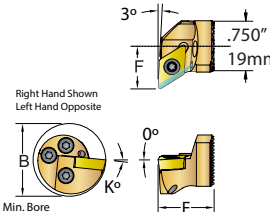
| STUC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                                |                        |           |            |           |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|-----------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                       |
|                                                                                                                                                                        | DBOMH-12/20M-STUCR/L-3 |           | Right Hand | Left Hand |                       |
|                                                                                                                                                                        |                        |           | 60235      | 60236     |                       |
|                                                                                                                                                                        | Bar Dia.               | Min. Bore | E          | F         | TCMT/TCGT Gage Insert |
|                                                                                                                                                                        | 0.750"                 | 1.090"    |            |           |                       |
|                                                                                                                                                                        | 1.000"                 | 1.340"    | 0.820"     | 0.590"    | 32.52                 |
|                                                                                                                                                                        | 1.250"                 | 1.590"    |            |           |                       |

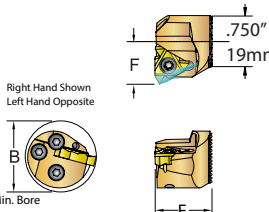
| SDQC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                              |                        |           |            |           |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                  |
|                                                                                                                                                                      | DBOMH-12/20M-SDQCR/L-3 |           | Right Hand | Left Hand |                  |
|                                                                                                                                                                      |                        |           | 60231      | 60232     |                  |
|                                                                                                                                                                      | Bar Dia.               | Min. Bore | E          | F         | DC__ Gage Insert |
|                                                                                                                                                                      | 0.750"                 | 1.125"    |            |           |                  |
|                                                                                                                                                                      | 1.000"                 | 1.375"    | 0.820"     | 0.625"    | 32.52            |
|                                                                                                                                                                      | 1.250"                 | 1.625"    |            |           |                  |

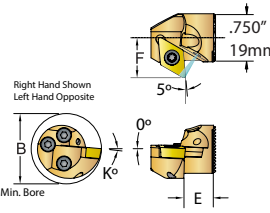
| SVUC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                                |                        |           |            |           |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|-----------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                       |
|                                                                                                                                                                        | DBOMH-12/20M-SVUCR/L-2 |           | Right Hand | Left Hand |                       |
|                                                                                                                                                                        |                        |           | 60237      | 60238     |                       |
|                                                                                                                                                                        | Bar Dia.               | Min. Bore | E          | F         | VCMT/VCGT Gage Insert |
|                                                                                                                                                                        | 0.750"                 | 1.125"    |            |           |                       |
|                                                                                                                                                                        | 1.000"                 | 1.375"    | 0.820"     | 0.625"    | 221                   |
|                                                                                                                                                                        | 1.250"                 | 1.625"    |            |           |                       |

| SDUC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                                |                        |           |            |           |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|-----------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                       |
|                                                                                                                                                                        | DBOMH-12/20M-SDUCR/L-2 |           | Right Hand | Left Hand |                       |
|                                                                                                                                                                        |                        |           | 60247      | 60248     |                       |
|                                                                                                                                                                        | Bar Dia.               | Min. Bore | E          | F         | DCMT/DCGT-Gage Insert |
|                                                                                                                                                                        | 0.750"                 | 1.025"    |            |           |                       |
|                                                                                                                                                                        | 1.000"                 | 1.275"    | 0.820"     | 0.525"    | 21.51                 |
|                                                                                                                                                                        | 1.250"                 | 1.525"    |            |           |                       |

| SWLC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                                  |                        |           |            |           |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                  |
|                                                                                                                                                                          | DBOMH-12/20M-SWLCR/L-3 |           | Right Hand | Left Hand |                  |
|                                                                                                                                                                          |                        |           | 60241      | 60242     |                  |
|                                                                                                                                                                          | Bar Dia.               | Min. Bore | E          | F         | WC__ Gage Insert |
|                                                                                                                                                                          | 0.750"                 | 1.000"    |            |           |                  |
|                                                                                                                                                                          | 1.000"                 | 1.250"    | 0.820"     | 0.500"    | 32.52            |
|                                                                                                                                                                          | 1.250"                 | 1.500"    |            |           |                  |

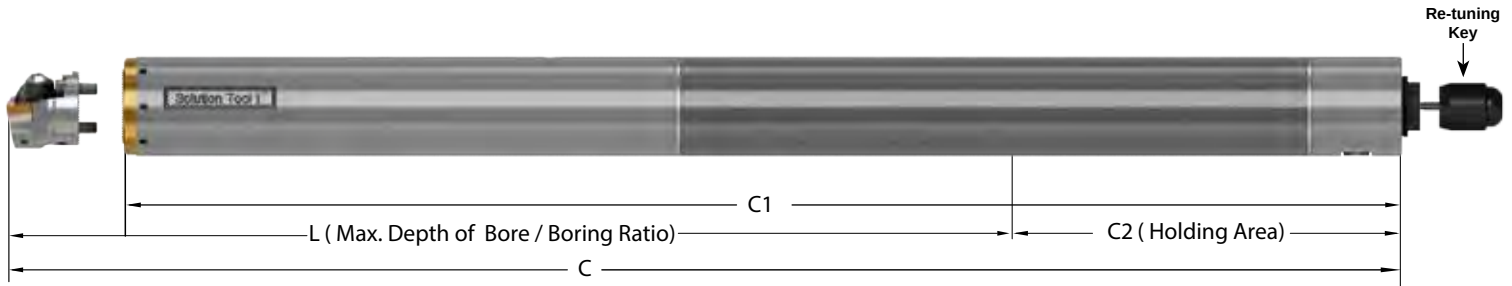
| SDUC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                                |                        |           |            |           |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|-----------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                       |
|                                                                                                                                                                        | DBOMH-12/20M-SDUCR/L-3 |           | Right Hand | Left Hand |                       |
|                                                                                                                                                                        |                        |           | 60227      | 60228     |                       |
|                                                                                                                                                                        | Bar Dia.               | Min. Bore | E          | F         | DCMT/DCGT-Gage Insert |
|                                                                                                                                                                        | 0.750"                 | 1.038"    |            | 0.625"    |                       |
|                                                                                                                                                                        | 1.000"                 | 1.278"    | 0.820"     | 0.745"    | 32.52                 |
|                                                                                                                                                                        | 1.250"                 | 1.538"    |            | 0.880"    |                       |

| SN R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                                    |                       |           |            |           |                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------|------------|-----------|---------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description      |           | UPC #      |           |                     |
|                                                                                                                                                                          | DBOMH-12/20M-SNR/L-16 |           | Right Hand | Left Hand |                     |
|                                                                                                                                                                          |                       |           | 60243      | 60244     |                     |
|                                                                                                                                                                          | Bar Dia.              | Min. Bore | E          | F         | Laydown Gage Insert |
|                                                                                                                                                                          | 0.750"                | 1.125"    |            |           |                     |
|                                                                                                                                                                          | 1.000"                | 1.375"    | 0.820"     | .613"     | 16-A60              |
|                                                                                                                                                                          | 1.250"                | 1.625"    |            |           |                     |

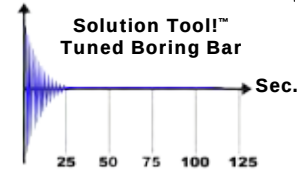
| SDXC R/L Solution Tool!™ Thru Coolant Quick Change Head                                                                                                                |                        |           |            |           |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------|------------|-----------|-----------------------|
|  <p>Right Hand Shown<br/>Left Hand Opposite</p> <p>Min. Bore</p> <p>Thru Coolant</p> | Head Description       |           | UPC #      |           |                       |
|                                                                                                                                                                        | DBOMH-12/20M-SDXCR/L-3 |           | Right Hand | Left Hand |                       |
|                                                                                                                                                                        |                        |           | 60233      | 60234     |                       |
|                                                                                                                                                                        | Bar Dia.               | Min. Bore | E          | F         | DCMT/DCGT-Gage Insert |
|                                                                                                                                                                        | 0.750"                 | 1.125"    |            |           |                       |
|                                                                                                                                                                        | 1.000"                 | 1.375"    | 0.468"     | 0.625"    | 32.52                 |
|                                                                                                                                                                        | 1.250"                 | 1.625"    |            |           |                       |

# Modular Jet-Stream™ Bar

Diameters 1 1/2", 2", 2 1/2", 3", 4"

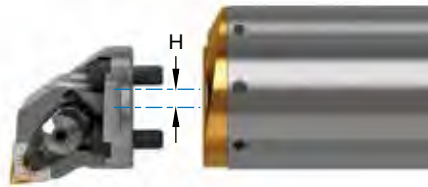


- Deep hole boring made simple
- 8xD, 10xD and 12xD boring (overhang) ratios
- For high material removal rate, high surface finish and tight tolerances
- Bars are pretuned at the factory to the specific boring ratio
- Bars can be Re-tuned on the machine to optimize boring performance in challenging applications



Actual minimum bore = F + H + (1/2 Bar Dia.)

Always allow enough room for chip evacuation.



| Bar Description          | UPC # Neutral | Boring Ratio | Construction | D     | C      | C1     | L      | C2     | H     | Modular Head | Coolant Attachment Thread |
|--------------------------|---------------|--------------|--------------|-------|--------|--------|--------|--------|-------|--------------|---------------------------|
| ASI24X-8-DVI-MBBB-18-SB  | 59321         | 8 x Dia.     | Steel Body   | 1.500 | 18.000 | 16.500 | 12.000 | 6.000  | 0     | DBOMH24/40   | 1/4"-18 NPT               |
| ASI32X-8-DVI-MBBB-24-SB  | 59323         |              | Steel Body   | 2.000 | 24.000 | 22.500 | 16.000 | 8.000  | .250  |              | 1/4"-18 NPT               |
| ASI40X-8-DVI-MBBB-30-SB  | 59324         |              | Steel Body   | 2.500 | 30.000 | 28.500 | 20.000 | 10.000 | .500  |              |                           |
| ASI48X-8-DVI-MBBB-36-SB  | 59325         |              | Steel Body   | 3.000 | 36.000 | 34.500 | 24.000 | 12.000 | .750  |              |                           |
| ASI64X-8-DVI-MBBB-48-SB  | 59326         |              | Steel Body   | 4.000 | 48.000 | 46.500 | 32.000 | 16.000 | 1.250 |              |                           |
| ASI24X-10-DVI-MBBB-21-SB | 59433         | 10 x Dia.    | Steel Body   | 1.500 | 21.000 | 19.500 | 15.000 | 6.000  | 0     | DBOMH24/40   | 1/4"-18 NPT               |
| ASI32X-10-DVI-MBBB-28-SB | 59435         |              | Steel Body   | 2.000 | 28.000 | 26.500 | 20.000 | 8.000  | .250  |              | 1/4"-18 NPT               |
| ASI40X-10-DVI-MBBB-35-SB | 59436         |              | Steel Body   | 2.500 | 35.000 | 33.500 | 25.000 | 10.000 | .500  |              |                           |
| ASI48X-10-DVI-MBBB-42-SB | 59437         |              | Steel Body   | 3.000 | 42.000 | 40.500 | 30.000 | 12.000 | .750  |              |                           |
| ASI64X-10-DVI-MBBB-56-SB | 59438         |              | Steel Body   | 4.000 | 56.000 | 54.500 | 40.000 | 16.000 | 1.250 |              |                           |
| ASI24X-12-DVI-MBBB-24-SB | 59446         | 12 x Dia.    | Steel Body   | 1.500 | 24.000 | 22.500 | 18.000 | 6.000  | 0     | DBOMH24/40   | 1/4"-18 NPT               |
| ASI32X-12-DVI-MBBB-32-SB | 59448         |              | Steel Body   | 2.000 | 32.000 | 30.500 | 24.000 | 8.000  | .250  |              | 1/4"-18 NPT               |
| ASI40X-12-DVI-MBBB-40-SB | 59449         |              | Steel Body   | 2.500 | 40.000 | 38.500 | 30.000 | 10.000 | .500  |              |                           |
| ASI48X-12-DVI-MBBB-48-SB | 59450         |              | Steel Body   | 3.000 | 48.000 | 46.500 | 36.000 | 12.000 | .750  |              |                           |
| ASI64X-12-DVI-MBBB-64-SB | 59451         |              | Steel Body   | 4.000 | 64.000 | 62.500 | 48.000 | 16.000 | 1.250 |              |                           |
| ASI24X-14-DVI-MBBB-27-CB | 59459         | 14 x Dia.    | Carbide Body | 1.500 | 27.000 | 25.500 | 21.000 | 6.000  | 0     | DBOMH24/40   | 1/4"-18 NPT               |
| ASI28X-14-DVI-MBBB-32-CB | 59460         |              | Carbide Body | 1.750 | 31.500 | 30.000 | 24.500 | 7.000  | .125  |              |                           |
| ASI32X-14-DVI-MBBB-36-CB | 59461         |              | Carbide Body | 2.000 | 36.000 | 34.500 | 28.000 | 8.000  | .250  |              |                           |
| ASI40X-14-DVI-MBBB-45-CB | 59462         |              | Carbide Body | 2.500 | 45.000 | 43.500 | 35.000 | 10.000 | .500  |              |                           |
| ASI48X-14-DVI-MBBB-54-CB | 59463         |              | Carbide Body | 3.000 | 54.000 | 52.500 | 42.000 | 12.000 | .750  |              |                           |
| ASI64X-14-DVI-MBBB-72-CB | 59464         |              | Carbide Body | 4.000 | 72.000 | 70.500 | 56.000 | 16.000 | 1.250 |              |                           |



## ADCLN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head

| Head Description        |        |                |        | UPC #      |           |
|-------------------------|--------|----------------|--------|------------|-----------|
|                         |        |                |        | Right Hand | Left Hand |
| DBOMH-24/40M-ADCLNR/L-4 |        |                |        | 59507      | 59508     |
| DBOMH-24/40M-ADCLNR/L-5 |        |                |        | 59509      | 59510     |
| E                       | F      | CN Gage Insert | Seat   |            |           |
| 1.575"                  | .940"  | 432            | DC-432 |            |           |
| 1.575"                  | 1.125" | 543            | DC-533 |            |           |

## ADDQN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head

| Head Description        |        |                |        | UPC #      |           |
|-------------------------|--------|----------------|--------|------------|-----------|
|                         |        |                |        | Right Hand | Left Hand |
| DBOMH-24/40M-ADDQNR/L-4 |        |                |        | 59476      | 59477     |
| E                       | F      | DN Gage Insert | Seat   |            |           |
| 1.625"                  | 1.125" | 432            | DD-432 |            |           |

| ADDNN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                            |        |                            |           |
|-----------------------------------------------------------------|----------------------------|--------|----------------------------|-----------|
|                                                                 | Head Description           |        | UPC #                      |           |
|                                                                 |                            |        | Right Hand                 | Left Hand |
|                                                                 | DBOMH-24/40M-ADDNNR-4-1250 |        | 59565                      |           |
|                                                                 | DBOMH-24/40M-ADDNNR-4-1750 |        | 59566                      |           |
|                                                                 |                            |        | DBOMH-24/40M-ADDNNR-4-2250 | 59567     |
|                                                                 | E                          | F      | DN __<br>Gage Insert       | Seat      |
|                                                                 | 1.750"                     | 1.250" | 432                        | DD-432    |
|                                                                 | 1.750"                     | 1.750" |                            |           |
|                                                                 | 1.750"                     | 2.250" |                            |           |

| ADDXN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                            |       |                      |           |
|-----------------------------------------------------------------|----------------------------|-------|----------------------|-----------|
|                                                                 | Head Description           |       | UPC #                |           |
|                                                                 |                            |       | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ADDXNR-4-1250 |       | 59571                |           |
|                                                                 | DBOMH-24/40M-ADDXNR-4-1750 |       | 59572                |           |
|                                                                 | DBOMH-24/40M-ADDXNR-4-2250 |       | 59573                |           |
|                                                                 | E                          | F     | DN __<br>Gage Insert | Seat      |
|                                                                 | .690                       | 1.250 | 432                  | DD-432    |
|                                                                 | .690                       | 1.750 |                      |           |
|                                                                 | .690                       | 2.250 |                      |           |

| ADDUN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                         |        |                      |           |
|-----------------------------------------------------------------|-------------------------|--------|----------------------|-----------|
|                                                                 | Head Description        |        | UPC #                |           |
|                                                                 |                         |        | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ADDUNR/L-4 |        | 59387                | 59388     |
|                                                                 | E                       | F      | DN __<br>Gage Insert | Seat      |
|                                                                 | 1.575"                  | 1.125" | 432                  | DD-432    |

| ADTUN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                         |        |                      |           |
|-----------------------------------------------------------------|-------------------------|--------|----------------------|-----------|
|                                                                 | Head Description        |        | UPC #                |           |
|                                                                 |                         |        | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ADTUNR/L-3 |        | 59515                | 59516     |
|                                                                 | DBOMH-24/40M-ADTUNR/L-4 |        | 59517                | 59518     |
|                                                                 | E                       | F      | TN __<br>Gage Insert | Seat      |
|                                                                 | 1.575"                  | .890"  | 332                  | DT-322    |
|                                                                 | 1.575"                  | 1.125" | 432                  | DT-432    |

| ADVUN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                         |        |                      |           |
|-----------------------------------------------------------------|-------------------------|--------|----------------------|-----------|
|                                                                 | Head Description        |        | UPC #                |           |
|                                                                 |                         |        | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ADVUNR/L-3 |        | 59521                | 59522     |
|                                                                 | E                       | F      | VN __<br>Gage Insert | Seat      |
|                                                                 | 1.575"                  | 1.312" | 332                  | DV-322    |
|                                                                 | 1.575"                  |        | 432                  | DT-432    |

| ADWLN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                        |       |                      |           |
|-----------------------------------------------------------------|------------------------|-------|----------------------|-----------|
|                                                                 | Head Description       |       | UPC #                |           |
|                                                                 |                        |       | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ADWLN/L-4 |       | 59525                | 59526     |
|                                                                 | E                      | F     | WN __<br>Gage Insert | Seat      |
|                                                                 | 1.575"                 | .940" | 432                  | DW-432    |

| ASCLC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                        |       |                      |           |
|-----------------------------------------------------------------|------------------------|-------|----------------------|-----------|
|                                                                 | Head Description       |       | UPC #                |           |
|                                                                 |                        |       | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ASCLC/L-4 |       | 59529                | 59530     |
|                                                                 | E                      | F     | CC __<br>Gage Insert | Seat      |
|                                                                 | 1.575"                 | .920" | 432                  |           |

| ASDQC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                         |       |                      |           |
|-----------------------------------------------------------------|-------------------------|-------|----------------------|-----------|
|                                                                 | Head Description        |       | UPC #                |           |
|                                                                 |                         |       | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ASDQCR/L-3 |       | 59474                | 59475     |
|                                                                 | DBOMH-24/40M-ASDQCR/L-4 |       | 59389                | 59390     |
|                                                                 | E                       | F     | DC __<br>Gage Insert | Seat      |
|                                                                 | 1.595"                  | 1.06" | 32.52                |           |
|                                                                 | 1.595"                  | 1.06" | 432                  |           |

| ASDUC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                         |        |                      |           |
|-----------------------------------------------------------------|-------------------------|--------|----------------------|-----------|
|                                                                 | Head Description        |        | UPC #                |           |
|                                                                 |                         |        | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ASDUCR/L-3 |        | 59533                | 59534     |
|                                                                 | DBOMH-24/40M-ASDUCR/L-4 |        | 59535                | 59536     |
|                                                                 | E                       | F      | DC __<br>Gage Insert | Seat      |
|                                                                 | 1.575"                  | 1.125" | 32.52                |           |
|                                                                 | 1.575"                  | 1.125" | 432                  |           |

| ASTUC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                         |       |                      |           |
|-----------------------------------------------------------------|-------------------------|-------|----------------------|-----------|
|                                                                 | Head Description        |       | UPC #                |           |
|                                                                 |                         |       | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ASTUCR/L-3 |       | 59539                | 59540     |
|                                                                 | DBOMH-24/40M-ASTUCR/L-4 |       | 59541                | 59542     |
|                                                                 | E                       | F     | TC __<br>Gage Insert | Seat      |
|                                                                 | 1.575"                  | .890" | 32.52                |           |
|                                                                 | 1.575"                  | .890" | 432                  |           |

| ASVUC R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                         |        |                      |           |
|-----------------------------------------------------------------|-------------------------|--------|----------------------|-----------|
|                                                                 | Head Description        |        | UPC #                |           |
|                                                                 |                         |        | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ASVUCR/L-3 |        | 59545                | 59546     |
|                                                                 | E                       | F      | VC __<br>Gage Insert | Seat      |
|                                                                 | 1.575"                  | 1.200" | 332                  |           |

| ADLN R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                         |      |                        |           |
|----------------------------------------------------------------|-------------------------|------|------------------------|-----------|
|                                                                | Head Description        |      | UPC #                  |           |
|                                                                |                         |      | Right Hand             | Left Hand |
|                                                                | DBOMH-24/40M-ADLNR/L-16 |      | 59549                  | 59550     |
|                                                                | DBOMH-24/40M-ADLNR/L-22 |      | 59553                  | 59554     |
|                                                                | E                       | F    | Laydown<br>Gage Insert | Seat      |
|                                                                | 1.575                   | .900 | 16-A60                 |           |
|                                                                | 1.575                   | .922 | 22-N60                 |           |

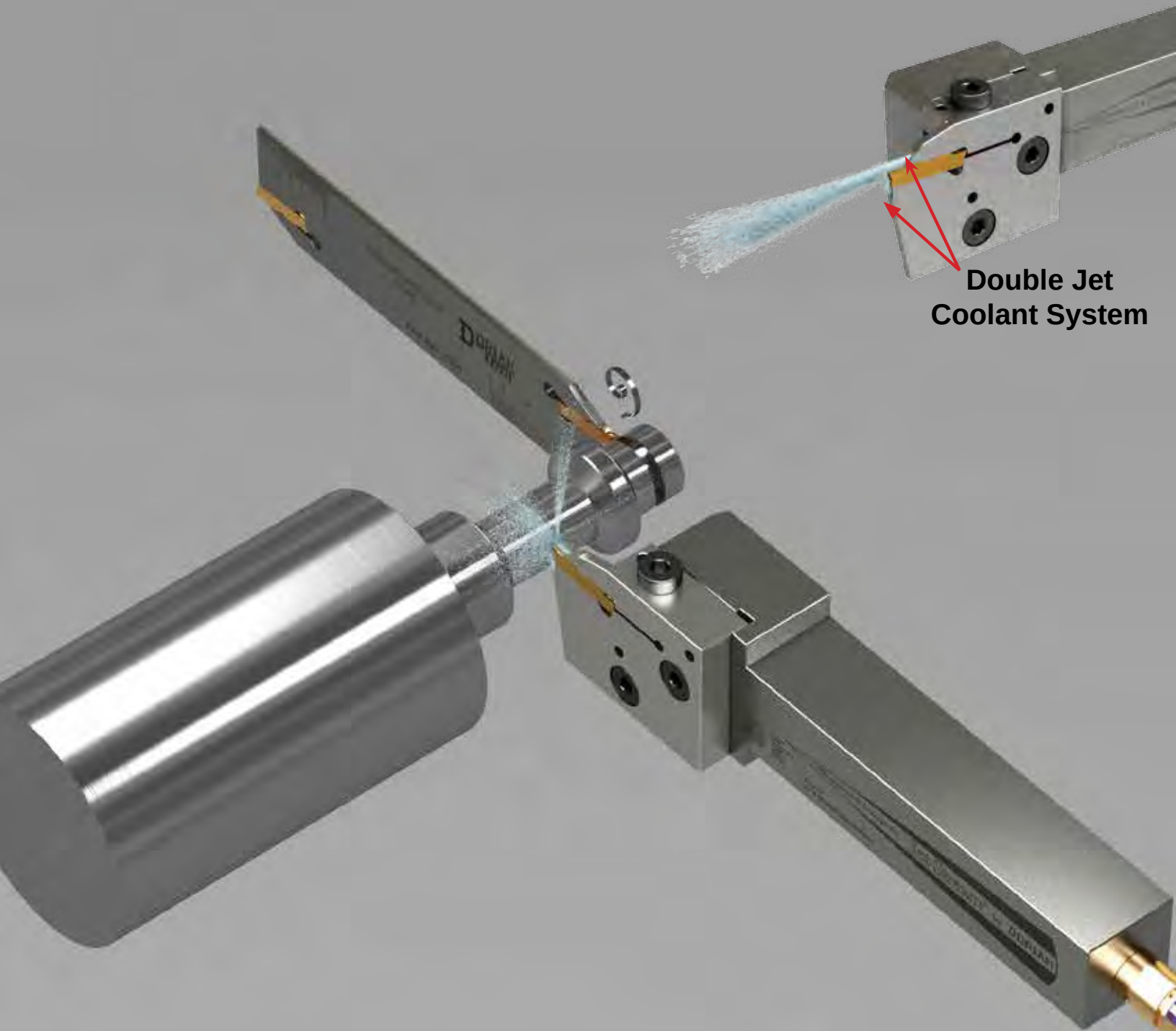
| ADNE R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                        |       |                         |           |
|----------------------------------------------------------------|------------------------|-------|-------------------------|-----------|
|                                                                | Head Description       |       | UPC #                   |           |
|                                                                |                        |       | Right Hand              | Left Hand |
|                                                                | DBOMH-24/40M-ADNER/L-3 |       | 59557                   | 59558     |
|                                                                | E                      | F     | DorNotch<br>Gage Insert | Seat      |
|                                                                | 1.575                  | 1.000 | NG-3L NG-3R             |           |

| ADTHO R/L Solution Tool!™ Thru Coolant Jet-Stream™ Modular Head |                         |       |                      |           |
|-----------------------------------------------------------------|-------------------------|-------|----------------------|-----------|
|                                                                 | Head Description        |       | UPC #                |           |
|                                                                 |                         |       | Right Hand           | Left Hand |
|                                                                 | DBOMH-24/40M-ADTHOR/L-4 |       | 59561                | 59562     |
|                                                                 | E                       | F     | TN __<br>Gage Insert | Seat      |
|                                                                 | 1.575                   | 1.125 | 432                  |           |

# KOOL CUT™

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## MODULAR TURNING & GROOVING SYSTEM



### BUILT FOR PRODUCTIVITY!

Interchangeable Shanks & Cartridges Technology





## Left Hand Straight Toolholder Style

### KOOL Cut™ Modular

Turning, Facing & Grooving  
Shank and Cartridges

#### ADDN-MTL\_

Left Hand Straight Modular Shank

For:

#### ADKDN-TL\_

Left Hand Turning & Grooving Cartridge

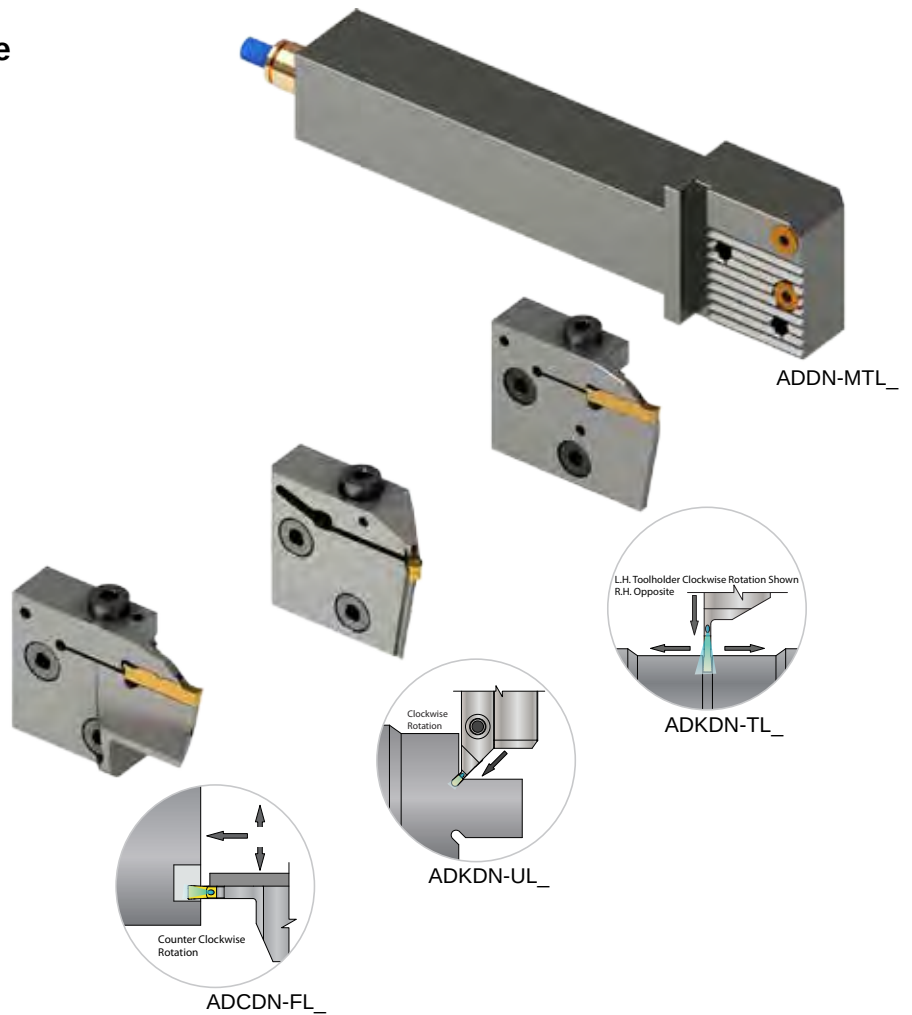
#### ADKDN-UL\_

Left Hand 45 ° Grooving Cartridge

#### ADCDN-FL\_

Left Hand Face Grooving Cartridge

Note: The cartridges listed above will only work with the ADDN-MTL\_ Left Hand Toolholder Style Modular Shank.



## Right Hand Straight Toolholder Style

### KOOL Cut™ Modular

Turning, Facing & Grooving  
Shank and Cartridges

#### ADDN-MTR\_

Right Hand Straight Modular Shank

For:

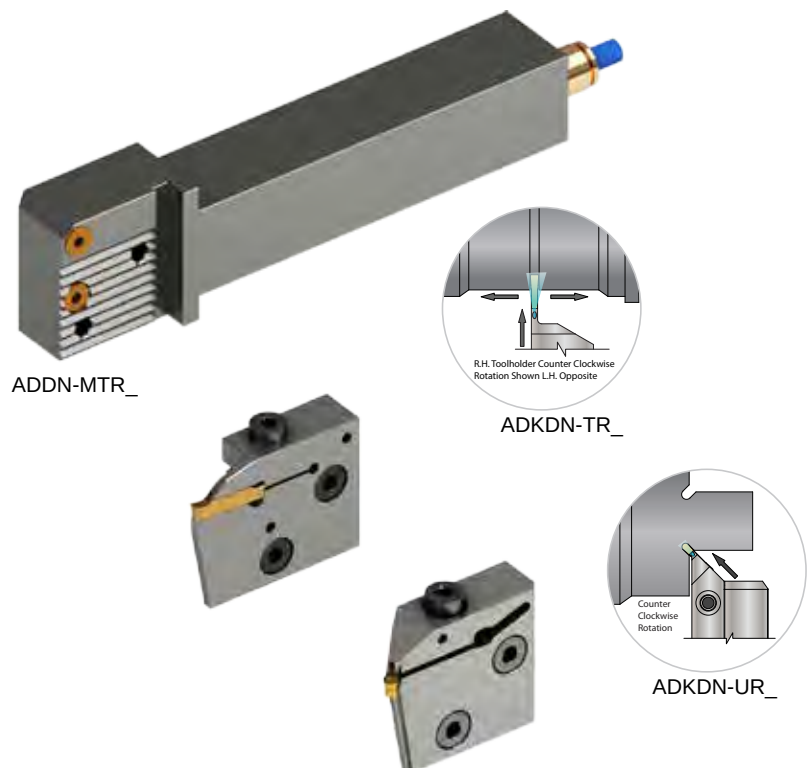
#### ADKDN-TR\_

Right Hand Turning & Grooving Cartridge

#### ADKDN-UR\_

Right Hand 45 ° Grooving Cartridge

Note: The cartridges listed above will only work with the ADDN-MTR\_ Right Hand Toolholder Style Modular Shank.



## Left Hand 90° Gang Toolholder Style

### KOOL Cut™ Modular

Turning, Facing & Grooving  
Shank and Cartridges

#### ADDN-MGL\_

Left Hand 90° Gang Style Modular Shank

For:

#### ADKDN-TL\_

Left Hand 45° Grooving Cartridge

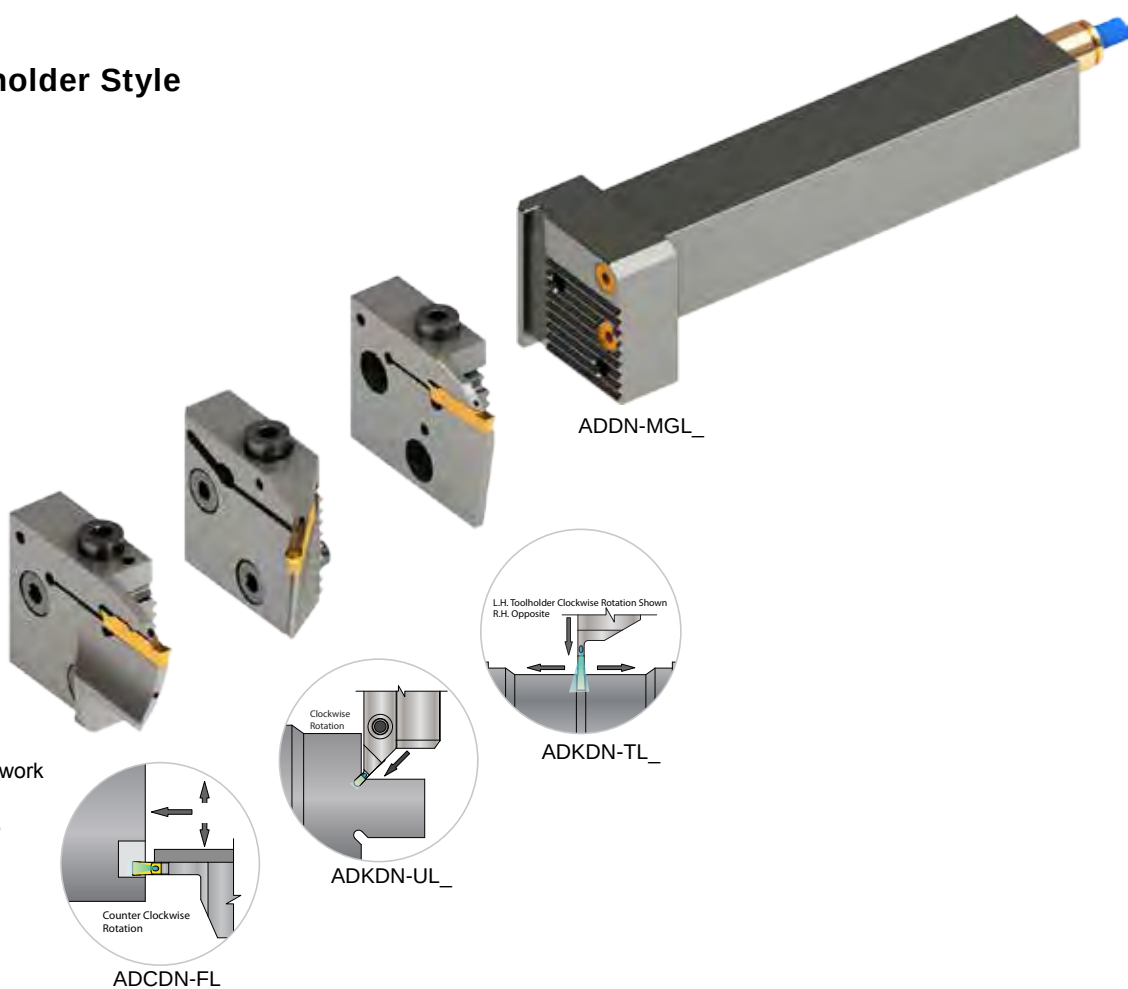
#### ADKDN-UL\_

Left Hand Turning & Grooving Cartridge

#### ADCDN-FL\_

Left Hand Face Grooving Cartridge

Note: The cartridges listed above will only work with the ADDN-MGL\_ Left Hand 90° Gang Toolholder Style Modular Shank.



## Right Hand 90° Gang Toolholder Style

### KOOL Cut™ Modular

Turning, Facing & Grooving  
Shank and Cartridges

#### ADDN-MGR\_

Right Hand 90° Gang Style Modular Shank

For:

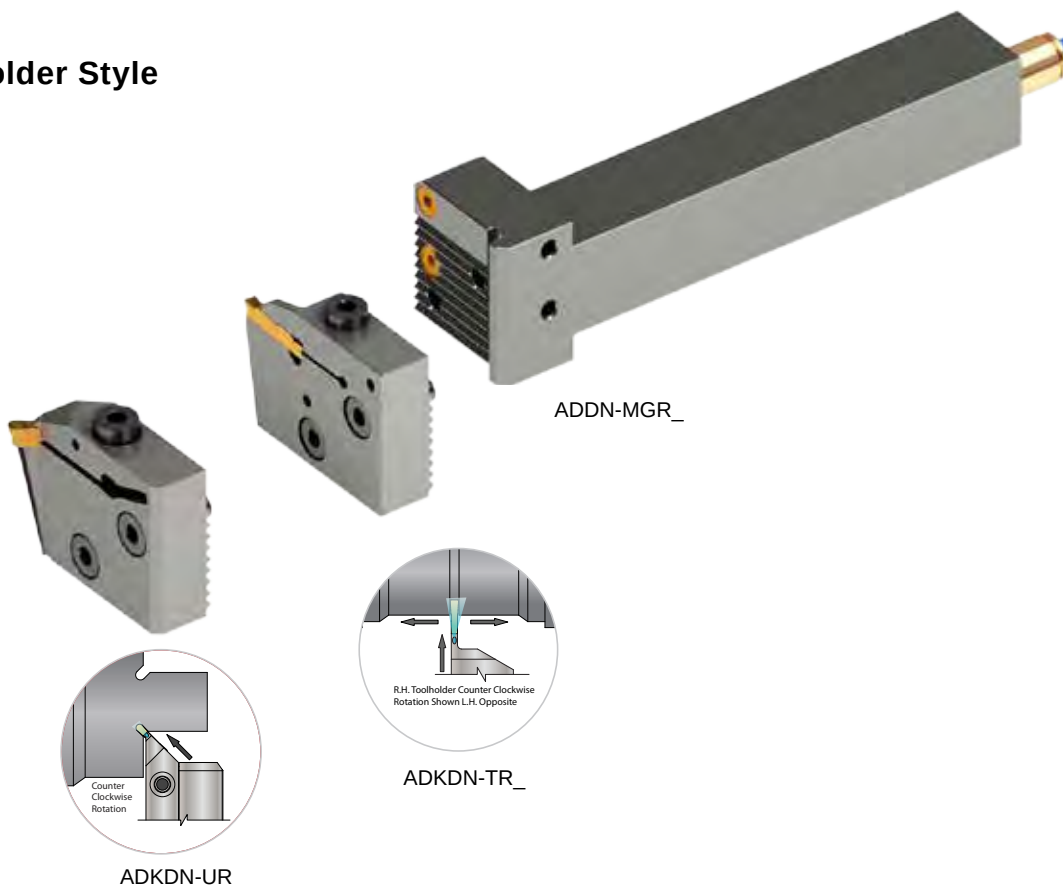
#### ADKDN-TR\_

Right Hand 45° Grooving Cartridge

#### ADKDN-UR\_

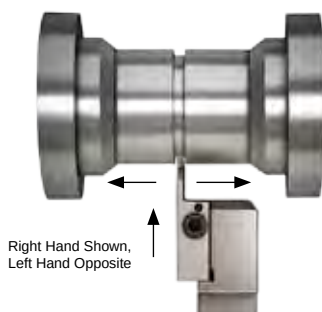
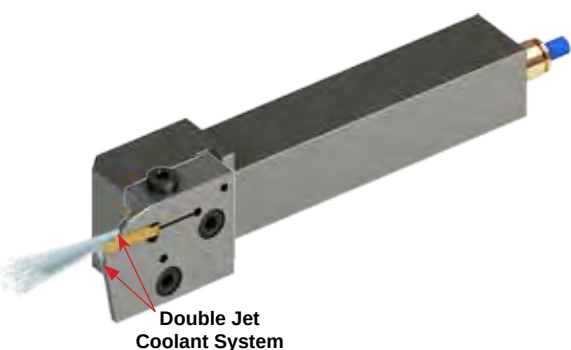
Right Hand Turning & Grooving Cartridge

Note: The cartridges listed above will only work with the ADDN-MGR\_ Right Hand 90° Gang Toolholder Style Modular Shank.



# Kool Cut™ Modular Turning & Grooving System *Right Hand*

Grade DUP35UG



|   |                       |   |
|---|-----------------------|---|
| P | Carbon & Alloy Steel  | ● |
| M | Stainless Steel       | ● |
| K | Cast Iron             | ○ |
| N | Non Ferrous Materials | ○ |
| S | Super Alloys          | ○ |

For Universal Turning & Grooving Applications

## Cartridges

| Description   | UPC # | Max. Groove Depth |
|---------------|-------|-------------------|
| ADKDN-TR20-06 | 61750 | 0.236"            |
| ADKDN-TR20-12 | 61751 | 0.472"            |
| ADKDN-TR20-18 | 61752 | 0.709"            |

## Inserts

| Description        | Width | UPC # |
|--------------------|-------|-------|
| DNTQ-22-2002-3EU-N | .079" | 82440 |

## Right Hand Straight Toolholder

| Description   | UPC # | Shank Size |
|---------------|-------|------------|
| ADDN-MTR-12-C | 61987 | 0.750"     |
| ADDN-MTR-16-D | 61988 | 1.000"     |
| ADDN-MTR-20-E | 61989 | 1.250"     |

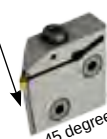


Each toolholder will hold any cartridge on this page



## Right Hand Gang 90° Toolholder

| Description   | UPC # | Shank Size |
|---------------|-------|------------|
| ADDN-MGR-12-C | 61996 | 0.750"     |
| ADDN-MGR-16-D | 61997 | 1.000"     |
| ADDN-MGR-20-E | 61998 | 1.250"     |



|               |       |        |
|---------------|-------|--------|
| ADKDN-TR30-09 | 61753 | 0.354" |
| ADKDN-TR30-18 | 61754 | 0.709" |
| ADKDN-TR30-27 | 61755 | 1.063" |

|                    |       |       |
|--------------------|-------|-------|
| DNTQ-22-3003-3EU-N | .118" | 82442 |
| DNTR-22-3015-3EU-N |       | 82459 |

|               |       |        |
|---------------|-------|--------|
| ADKDN-TR40-12 | 61756 | 0.472" |
| ADKDN-TR40-18 | 61757 | 0.709" |
| ADKDN-TR40-24 | 61758 | 0.945" |
| ADKDN-TR40-30 | 61759 | 1.181" |

|                    |       |       |
|--------------------|-------|-------|
| DNTQ-25-4004-3EU-N | .157" | 82443 |
| DNTR-25-4020-3EU-N |       | 82460 |

|               |       |        |
|---------------|-------|--------|
| ADKDN-TR50-10 | 61760 | 0.394" |
| ADKDN-TR50-15 | 61761 | 0.591" |
| ADKDN-TR50-25 | 61762 | 0.984" |
| ADKDN-TR50-40 | 61763 | 1.575" |

|                    |       |       |
|--------------------|-------|-------|
| DNTQ-25-5004-3EU-N | .197" | 82444 |
| DNTR-25-5025-3EU-N |       | 82461 |

|               |       |        |
|---------------|-------|--------|
| ADKDN-TR60-12 | 61764 | 0.472" |
| ADKDN-TR60-18 | 61765 | 0.709" |
| ADKDN-TR60-30 | 61766 | 1.181" |
| ADKDN-TR60-48 | 61767 | 1.890" |

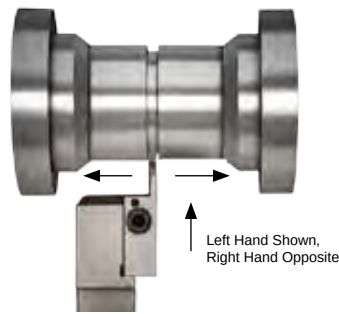
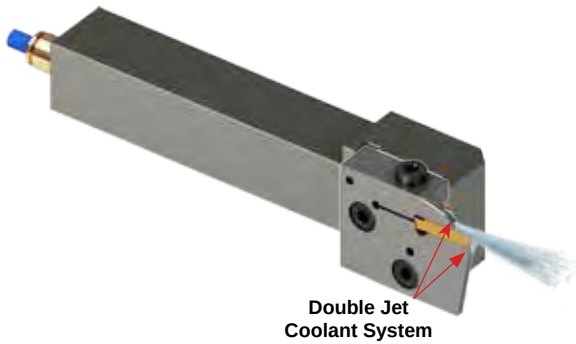
|                    |       |       |
|--------------------|-------|-------|
| DNTQ-25-6004-3EU-N | .236" | 82445 |
|--------------------|-------|-------|

|               |       |        |
|---------------|-------|--------|
| ADKDN-UR30-06 | 61911 | 0.236" |
| ADKDN-UR40-08 | 61912 | 0.315" |
| ADKDN-UR50-10 | 61913 | 0.394" |

|                    |       |       |
|--------------------|-------|-------|
| DNTR-22-3015-3EU-N | .118" | 82459 |
| DNTR-25-4020-3EU-N | .157" | 82460 |
| DNTR-25-5025-3EU-N | .197" | 82461 |

# Kool Cut™ Modular Turning & Grooving System *Left Hand*

Grade DUP35UG



|   |                       |   |
|---|-----------------------|---|
| P | Carbon & Alloy Steel  | ● |
| M | Stainless Steel       | ● |
| K | Cast Iron             | ○ |
| N | Non Ferrous Materials | ○ |
| S | Super Alloys          | ○ |

For Universal Turning & Grooving Applications

## Cartridges

| Description   | UPC # | Max. Groove Depth |
|---------------|-------|-------------------|
| ADKDN-TL20-06 | 61768 | 0.236"            |
| ADKDN-TL20-12 | 61769 | 0.472"            |
| ADKDN-TL20-18 | 61770 | 0.709"            |

|               |       |        |
|---------------|-------|--------|
| ADKDN-TL30-09 | 61771 | 0.354" |
| ADKDN-TL30-18 | 61772 | 0.709" |
| ADKDN-TL30-27 | 61773 | 1.063" |

|               |       |        |
|---------------|-------|--------|
| ADKDN-TL40-12 | 61774 | 0.472" |
| ADKDN-TL40-18 | 61775 | 0.709" |
| ADKDN-TL40-24 | 61776 | 0.945" |
| ADKDN-TL40-30 | 61777 | 1.181" |

|               |       |        |
|---------------|-------|--------|
| ADKDN-TL50-10 | 61778 | 0.394" |
| ADKDN-TL50-15 | 61779 | 0.591" |
| ADKDN-TL50-25 | 61780 | 0.984" |
| ADKDN-TL50-40 | 61781 | 1.575" |

|               |       |        |
|---------------|-------|--------|
| ADKDN-TL60-12 | 61782 | 0.472" |
| ADKDN-TL60-18 | 61783 | 0.709" |
| ADKDN-TL60-30 | 61784 | 1.181" |
| ADKDN-TL60-48 | 61785 | 1.890" |

|               |       |        |
|---------------|-------|--------|
| ADKDN-UL30-06 | 61916 | 0.236" |
| ADKDN-UL40-08 | 61917 | 0.315" |
| ADKDN-UL50-10 | 61918 | 0.394" |

## Inserts

| Description        | Width | UPC # |
|--------------------|-------|-------|
| DNTQ-22-2002-3EU-N | .079" | 82440 |

|                    |       |       |
|--------------------|-------|-------|
| DNTQ-22-3003-3EU-N | .118" | 82442 |
| DNTR-22-3015-3EU-N |       | 82459 |

|                    |       |       |
|--------------------|-------|-------|
| DNTQ-25-4004-3EU-N | .157" | 82443 |
| DNTR-25-4020-3EU-N |       | 82460 |

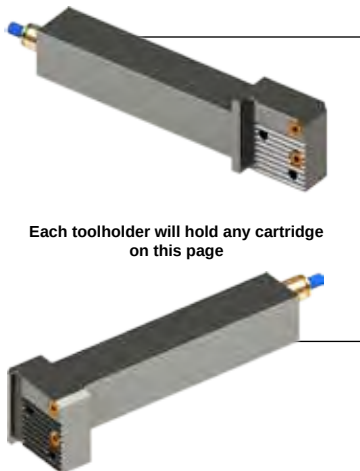
|                    |       |       |
|--------------------|-------|-------|
| DNTQ-25-5004-3EU-N | .197" | 82444 |
| DNTR-25-5025-3EU-N |       | 82461 |

|                    |       |       |
|--------------------|-------|-------|
| DNTQ-25-6004-3EU-N | .236" | 82445 |
|--------------------|-------|-------|

|                    |       |       |
|--------------------|-------|-------|
| DNTR-22-3015-3EU-N | .118" | 82459 |
| DNTR-25-4020-3EU-N | .157" | 82460 |
| DNTR-25-5025-3EU-N | .197" | 82461 |

## Left Hand Straight Toolholder

| Description   | UPC # | Shank Size |
|---------------|-------|------------|
| ADDN-MTL-12-C | 61990 | 0.750"     |
| ADDN-MTL-16-D | 61991 | 1.000"     |
| ADDN-MTL-20-E | 61992 | 1.250"     |



## Left Hand Gang 90° Toolholder

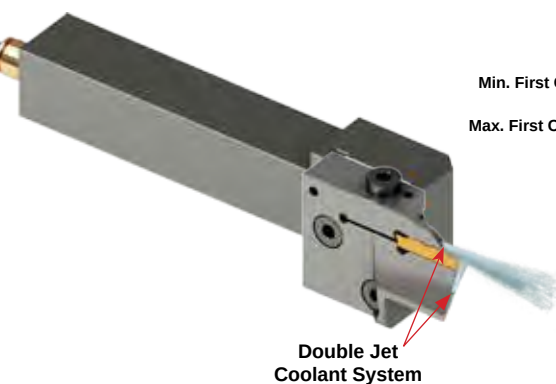
| Description   | UPC # | Shank Size |
|---------------|-------|------------|
| ADDN-MGL-12-C | 61993 | 0.750"     |
| ADDN-MGL-16-D | 61994 | 1.000"     |
| ADDN-MGL-20-E | 61995 | 1.250"     |





# Kool Cut™ Modular Face Grooving System *Left Hand*

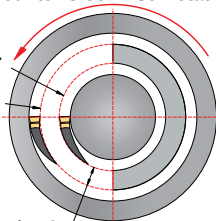
Grade DUP35UG



Counter Clockwise Rotation

Min. First Cut Dia.

Max. First Cut Dia.



First Cut Dia. Range



|   |                       |   |
|---|-----------------------|---|
| P | Carbon & Alloy Steel  | ● |
| M | Stainless Steel       | ● |
| K | Cast Iron             | ○ |
| N | Non Ferrous Materials | ○ |
| S | Super Alloys          | ○ |

For Universal Turning & Grooving Applications

Double Jet Coolant System

## Cartridges

| Description          | UPC # | Max. Groove Depth | First Cut Dia. |         |
|----------------------|-------|-------------------|----------------|---------|
|                      |       |                   | Min.           | Max.    |
| ADCDN-FL30-022030-12 | 62208 | 0.472"            | 0.866"         | 1.181"  |
| ADCDN-FL30-030038-12 | 62209 | 0.472"            | 1.181"         | 1.496"  |
| ADCDN-FL30-038048-12 | 62210 | 0.472"            | 1.496"         | 1.890"  |
| ADCDN-FL30-048060-12 | 62211 | 0.472"            | 1.890"         | 2.362"  |
| ADCDN-FL30-060075-12 | 62212 | 0.472"            | 2.362"         | 2.953"  |
| ADCDN-FL30-075100-12 | 62213 | 0.472"            | 2.953"         | 3.937"  |
| ADCDN-FL30-100200-12 | 62214 | 0.472"            | 3.937"         | 7.874"  |
| ADCDN-FL30-200300-12 | 62215 | 0.472"            | 7.874"         | 11.811" |
| ADCDN-FL30-300->12   | 62216 | 0.472"            | 11.811"        | >       |

## Inserts

| Description        | UPC # |
|--------------------|-------|
| .118"              |       |
| DNTQ-22-3003-3EU-N | 82442 |

## Left Hand Straight Toolholder

| Description   | UPC # | Shank Size |
|---------------|-------|------------|
| ADDN-MTL-12-C | 61990 | 0.750"     |
| ADDN-MTL-16-D | 61991 | 1.000"     |
| ADDN-MTL-20-E | 61992 | 1.250"     |

|                      |       |        |         |         |
|----------------------|-------|--------|---------|---------|
| ADCDN-FL30-060075-18 | 62217 | 0.709" | 2.362"  | 2.953"  |
| ADCDN-FL30-075100-18 | 62218 | 0.709" | 2.953"  | 3.937"  |
| ADCDN-FL30-100200-18 | 62219 | 0.709" | 3.937"  | 7.874"  |
| ADCDN-FL30-200300-18 | 62220 | 0.709" | 7.874"  | 11.811" |
| ADCDN-FL30-300->18   | 62221 | 0.709" | 11.811" | >       |

|                    |       |
|--------------------|-------|
| .118"              |       |
| DNTQ-22-3003-3EU-N | 82442 |

|                      |       |        |         |        |
|----------------------|-------|--------|---------|--------|
| ADCDN-FL30-100200-24 | 62222 | 0.945" | 7.874"  | 0.945" |
| ADCDN-FL30-200300-24 | 62223 | 0.945" | 11.811" | 0.945" |
| ADCDN-FL30-300->24   | 62224 | 0.945" | >       | 0.945" |

|                    |       |
|--------------------|-------|
| .118"              |       |
| DNTQ-22-3003-3EU-N | 82442 |

|                      |       |        |         |         |
|----------------------|-------|--------|---------|---------|
| ADCDN-FL60-050075-13 | 62253 | 0.512" | 1.969"  | 2.953"  |
| ADCDN-FL60-075130-13 | 62254 | 0.512" | 2.953"  | 5.118"  |
| ADCDN-FL60-130300-13 | 62255 | 0.512" | 5.118"  | 11.811" |
| ADCDN-FL60-300500-13 | 62256 | 0.512" | 11.811" | 19.685" |
| ADCDN-FL60-500->13   | 62257 | 0.512" | 19.685" | >       |

|                    |       |
|--------------------|-------|
| .236"              |       |
| DNTQ-25-6004-3EU-N | 82445 |

|                      |       |        |         |         |
|----------------------|-------|--------|---------|---------|
| ADCDN-FL60-075130-26 | 62258 | 1.024" | 2.953"  | 5.118"  |
| ADCDN-FL60-130300-26 | 62259 | 1.024" | 5.118"  | 11.811" |
| ADCDN-FL60-300500-26 | 62260 | 1.024" | 11.811" | 19.685" |
| ADCDN-FL60-500->26   | 62261 | 1.024" | 19.685" | >       |

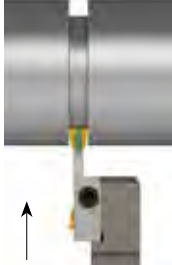
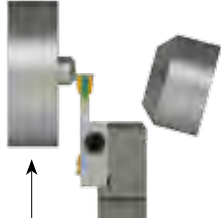
|                    |       |
|--------------------|-------|
| .236"              |       |
| DNTQ-25-6004-3EU-N | 82445 |

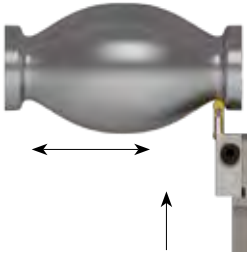
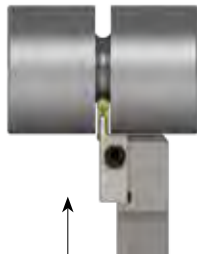
|                      |       |        |         |         |
|----------------------|-------|--------|---------|---------|
| ADCDN-FL60-075130-39 | 62262 | 1.535" | 2.953"  | 5.118"  |
| ADCDN-FL60-130300-39 | 62263 | 1.535" | 5.118"  | 11.811" |
| ADCDN-FL60-300500-39 | 62264 | 1.535" | 11.811" | 19.685" |
| ADCDN-FL60-500->39   | 62265 | 1.535" | 19.685" | >       |

|                    |       |
|--------------------|-------|
| .236"              |       |
| DNTQ-25-6004-3EU-N | 82445 |

## Left Hand Gang 90° Toolholder

| Description   | UPC # | Shank Size |
|---------------|-------|------------|
| ADDN-MGL-12-C | 61993 | 0.750"     |
| ADDN-MGL-16-D | 61994 | 1.000"     |
| ADDN-MGL-20-E | 61995 | 1.250"     |

| Insert Specification                                                                                                                                    |        |        |                                              |                                                                        |        | Insert Application                                                                                                                                                                                                                                         |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|----------------------------------------------|------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>Double-End Cutting Edge</b><br><b>DNTQ-N-_____DUP35UG</b><br><br><b>Neutral Straight Nose</b><br>Multi-Cutting Direction<br>Right Hand and Left Hand |        |        |                                              |                                                                        |        |    |  |  |
|                                                                        |        |        |                                              |                                                                        |        |                                                                                                                                                                                                                                                            |  |  |
| Cutting Data                                                                                                                                            |        |        |                                              |                                                                        |        | Insert Geometry, Material Application                                                                                                                                                                                                                      |  |  |
| Insert Dimension                                                                                                                                        |        |        | Maximum $a_p$<br>Depth of Cut<br>for Turning | Maximum $f_n$<br>Feed Rate for<br>Turning, Grooving<br>and Parting-off |        |                                                                                                                                                                                                                                                            |  |  |
| Width                                                                                                                                                   | Length | Radius | inch                                         | in/rev.                                                                | mm/rev |                                                                                                                                                                                                                                                            |  |  |
| 0.79"                                                                                                                                                   | .866"  | .05mm  | 0.039"                                       | 0.006                                                                  | 0.15   |                                                                                                                                                                                                                                                            |  |  |
| .118"                                                                                                                                                   | .866"  | .07mm  | 0.059"                                       | 0.008                                                                  | 0.20   |                                                                                                                                                                                                                                                            |  |  |
| .157"                                                                                                                                                   | .984"  | .1mm   | 0.079"                                       | 0.009                                                                  | 0.23   |                                                                                                                                                                                                                                                            |  |  |
| .197"                                                                                                                                                   | .984"  | .1mm   | 0.098"                                       | 0.010                                                                  | 0.25   |                                                                                                                                                                                                                                                            |  |  |
| .236"                                                                                                                                                   | .984"  | .1mm   | 0.118"                                       | 0.012                                                                  | 0.30   |                                                                                                                                                                                                                                                            |  |  |
|                                                                                                                                                         |        |        |                                              |                                                                        |        | ● First Choice Grade      ○ Second Best                                                                                                                                                                                                                    |  |  |

| Insert Specification                                                                                                                                 |        |        |                                              |                                                                        |        | Insert Application                                                                                                                                                                                                                                            |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|----------------------------------------------|------------------------------------------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>Double-End Cutting Edge</b><br><b>DNTR-N-_____DUP35UG</b><br><br><b>Neutral Round Nose</b><br>Multi-Cutting Direction<br>Right Hand and Left Hand |        |        |                                              |                                                                        |        |    |  |  |
|                                                                     |        |        |                                              |                                                                        |        |                                                                                                                                                                                                                                                               |  |  |
| Cutting Data                                                                                                                                         |        |        |                                              |                                                                        |        | Insert Geometry, Material Application                                                                                                                                                                                                                         |  |  |
| Insert Dimension                                                                                                                                     |        |        | Maximum $a_p$<br>Depth of Cut<br>for Turning | Maximum $f_n$<br>Feed Rate for<br>Turning, Grooving<br>and Parting-off |        |                                                                                                                                                                                                                                                               |  |  |
| Width                                                                                                                                                | Length | Radius | inch                                         | in/rev.                                                                | mm/rev |                                                                                                                                                                                                                                                               |  |  |
| .118"                                                                                                                                                | .866"  | 1.5mm  | 0.059"                                       | 0.012                                                                  | 0.30   |                                                                                                                                                                                                                                                               |  |  |
| .157"                                                                                                                                                | .984"  | 2.0mm  | 0.079"                                       | 0.014                                                                  | 0.35   |                                                                                                                                                                                                                                                               |  |  |
| .197"                                                                                                                                                | .984"  | 3.0mm  | 0.098"                                       | 0.016                                                                  | 0.40   |                                                                                                                                                                                                                                                               |  |  |
|                                                                                                                                                      |        |        |                                              |                                                                        |        | ● First Choice Grade      ○ Second Best                                                                                                                                                                                                                       |  |  |

## "T" Square Nose

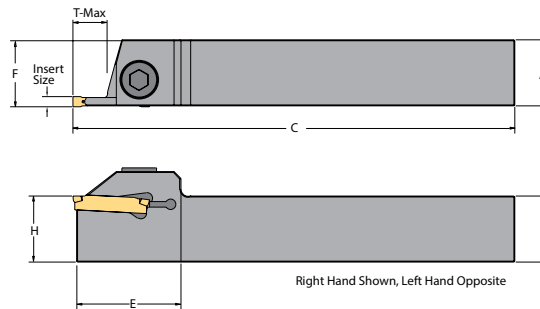
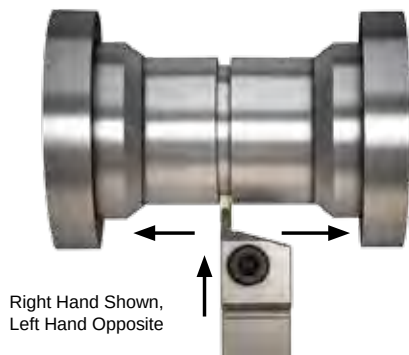
| DUP35UG Insert Grade                                              |                                |
|-------------------------------------------------------------------|--------------------------------|
| Material Application                                              |                                |
| P30                                                               | M25                            |
| K30                                                               | N30                            |
| S30                                                               |                                |
| Wear Resistant      Toughness<br>01    10    20    30    40    50 |                                |
| Grade Specification                                               | Grain Size .7-1 $\mu$ m        |
|                                                                   | Coating, PVD TiAlN 4 $\mu$ m   |
|                                                                   | High Wear Resistant            |
|                                                                   | Impact Resistant               |
| Universal Application at Medium Vc                                |                                |
| Insert Cutting Geometry Specification                             | Good Chip Control              |
|                                                                   | Honed Cutting Edge             |
|                                                                   | Universal Application          |
|                                                                   | Turning, Grooving, Parting-Off |
| For all Material types                                            |                                |

|  | UPC # | Application                                       | Part Number                | Insert Size |       | DUP35UG |
|-------------------------------------------------------------------------------------|-------|---------------------------------------------------|----------------------------|-------------|-------|---------|
|                                                                                     | 82440 | Neutral<br><br>Turning<br>Grooving<br>Parting-Off | DNTQ-22 2002-3EU-N DUP35UG | .079"       | .866" | ●       |
|                                                                                     | 82442 |                                                   | DNTQ-22 3003-3EU-N DUP35UG | .118"       | .866" | ●       |
|                                                                                     | 82443 |                                                   | DNTQ-25 4004-3EU-N DUP35UG | .157"       | .984" | ●       |
|                                                                                     | 82444 |                                                   | DNTQ-25 5004-3EU-N DUP35UG | .197"       | .984" | ●       |
|                                                                                     | 82445 |                                                   | DNTQ-25 6004-3EU-N DUP35UG | .236"       | .984" | ●       |

## "R" Round Nose

|  | UPC # | Application                      | Part Number                | Insert Size<br>Width   Length |       | DUP35UG |
|-------------------------------------------------------------------------------------|-------|----------------------------------|----------------------------|-------------------------------|-------|---------|
|                                                                                     | 82459 | Turning<br>Grooving<br>Profiling | DNTR-22 3015-3EU-N DUP35UG | .118"                         | .866" | ●       |
|                                                                                     | 82460 |                                  | DNTR-25 4020-3EU-N DUP35UG | .157"                         | .984" | ●       |
|                                                                                     | 82461 |                                  | DNTR-25 5025-3EU-N DUP35UG | .197"                         | .984" | ●       |

## Turning & Grooving Right Hand & Left Hand Toolholder



### Grade DUP35UG

|   |                       |   |
|---|-----------------------|---|
| P | Carbon & Alloy Steel  | ● |
| M | Stainless Steel       | ● |
| K | Cast Iron             | ○ |
| N | Non Ferrous Materials | ○ |
| S | Super Alloys          | ○ |

For Universal Turning & Grooving Applications

### Right Hand Toolholder

| Description       | UPC # | A      | B      | C     | H      | F      | Max. Depth of Cut |
|-------------------|-------|--------|--------|-------|--------|--------|-------------------|
| DETGFR12-030C-S09 | 63606 |        |        |       |        |        | 0.354"            |
| DETGFR12-030C-M14 | 63636 | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.551"            |
| DETGFR12-030C-L20 | 63666 |        |        |       |        |        | 0.787"            |
| DETGFR16-030D-S09 | 63614 |        |        |       |        |        | 0.354"            |
| DETGFR16-030D-M14 | 63644 | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.551"            |
| DETGFR85-030D-S09 | 63622 |        |        |       |        |        | 0.354"            |
| DETGFR85-030D-M14 | 63652 | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.551"            |
| DETGFR85-030D-L20 | 63682 |        |        |       |        |        | 0.787"            |
| DETGFR12-040C-S12 | 63608 |        |        |       |        |        | 0.472"            |
| DETGFR12-040C-M18 | 63638 | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.709"            |
| DETGFR12-040C-L24 | 63668 |        |        |       |        |        | 0.945"            |
| DETGFR16-040D-S12 | 63616 |        |        |       |        |        | 0.472"            |
| DETGFR16-040D-M18 | 63646 | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.709"            |
| DETGFR16-040D-L24 | 63676 |        |        |       |        |        | 0.945"            |
| DETGFR85-040D-S12 | 63624 |        |        |       |        |        | 0.472"            |
| DETGFR85-040D-M18 | 63654 | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.709"            |
| DETGFR85-040D-L24 | 63684 |        |        |       |        |        | 0.945"            |

### Inserts

| Description        | Width | UPC # |
|--------------------|-------|-------|
| DNTQ-22-3003-3EU-N | .118" | 82442 |
| DNTR-22-3015-3EU-N |       | 82459 |
| DNTQ-25-4004-3EU-N | .157" | 82443 |
| DNTR-25-4020-3EU-N |       | 82460 |

### Left Hand Toolholder

| Description       | UPC # | A      | B      | C     | H      | F      | Max. Depth of Cut |
|-------------------|-------|--------|--------|-------|--------|--------|-------------------|
| DETGFL12-030C-S09 | 63607 |        |        |       |        |        | 0.354"            |
| DETGFL12-030C-M14 | 63637 | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.551"            |
| DETGFL16-030D-S09 | 63615 |        |        |       |        |        | 0.354"            |
| DETGFL16-030D-M14 | 63645 | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.551"            |
| DETGFL85-030D-S09 | 63623 |        |        |       |        |        | 0.354"            |
| DETGFL85-030D-M14 | 63653 | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.551"            |
| DETGFL85-030D-L20 | 63683 |        |        |       |        |        | 0.787"            |
| DETGFL12-040C-S12 | 63609 |        |        |       |        |        | 0.472"            |
| DETGFL12-040C-M18 | 63639 | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.709"            |
| DETGFL12-040C-L24 | 63669 |        |        |       |        |        | 0.945"            |
| DETGFL16-040D-S12 | 63617 |        |        |       |        |        | 0.472"            |
| DETGFL16-040D-M18 | 63647 | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.709"            |
| DETGFL16-040D-L24 | 63677 |        |        |       |        |        | 0.945"            |
| DETGFL85-040D-S12 | 63625 |        |        |       |        |        | 0.472"            |
| DETGFL85-040D-M18 | 63655 | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.709"            |
| DETGFL85-040D-L24 | 63685 |        |        |       |        |        | 0.945"            |

### Inserts

| Description        | UPC # | Size  |
|--------------------|-------|-------|
| DNTQ-22-3003-3EU-N |       | .118" |
| DNTR-22-3015-3EU-N |       |       |
| DNTQ-25-4004-3EU-N |       | .157" |
| DNTR-25-4020-3EU-N |       |       |

# Kool Cut™ Twin Edge Parting-Off Insert Blades *Neutral*

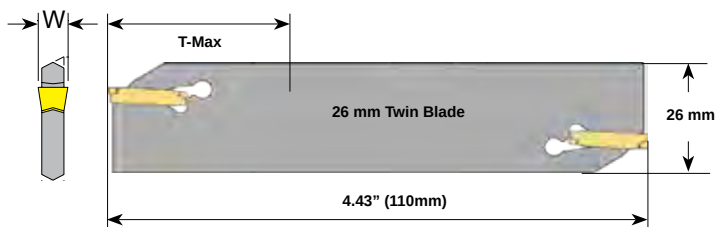
- Double Cutting Edge
- High Rigidity
- Better Finish
- Straight Cut



## Grade DUP35UG

|   |                       |   |
|---|-----------------------|---|
| P | Carbon & Alloy Steel  | ● |
| M | Stainless Steel       | ● |
| K | Cast Iron             | ○ |
| N | Non Ferrous Materials | ○ |
| S | Super Alloys          | ○ |

For Universal Turning & Grooving Applications

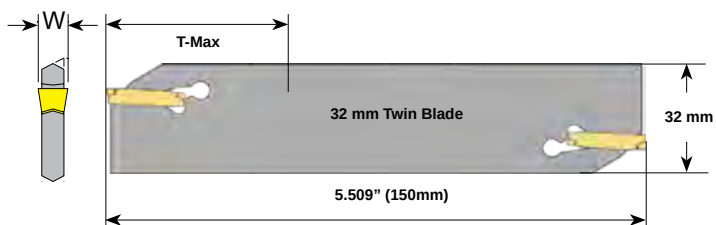


Insert Key  
Sold separately

| Description       | UPC # | T.Max<br>Inch | Insert<br>Size |
|-------------------|-------|---------------|----------------|
| TWECOB-DNTF-26-20 | 61965 | 1.000         | 0.079"         |
| TWECOB-DNTF-26-30 | 61966 | 1.550         | 0.118"         |
| TWECOB-DNTF-26-40 | 61967 | 1.650         | 0.157"         |

| Description        | UPC # |
|--------------------|-------|
| DNTQ-22-2002-3EU-N | 82440 |
| DNTQ-22-3003-3EU-N | 82442 |
| DNTQ-25-4004-3EU-N | 82443 |

| Description | UPC # |
|-------------|-------|
| KCIK-DN     | 61204 |



Insert Key  
Sold separately

| Description       | UPC # | T.Max<br>Inch | Insert<br>Size |
|-------------------|-------|---------------|----------------|
| TWECOB-DNTF-32-20 | 61968 | 1.150         | 0.079"         |
| TWECOB-DNTF-32-30 | 61969 | 1.750         | 0.118"         |
| TWECOB-DNTF-32-40 | 61970 | 1.950         | 0.157"         |
| TWECOB-DNTF-32-50 | 61971 | 2.350         | 0.197"         |
| TWECOB-DNTF-32-60 | 61972 | 2.750         | 0.236"         |

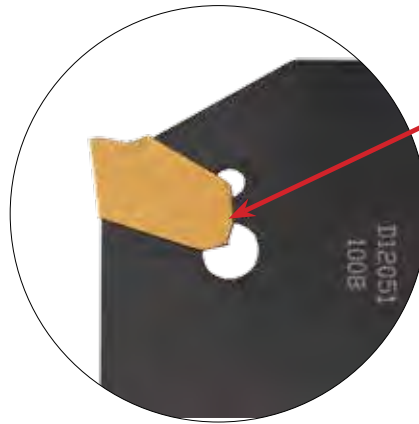
| Description        | UPC # |
|--------------------|-------|
| DNTQ-22-2002-3EU-N | 82440 |
| DNTQ-22-3003-3EU-N | 82442 |
| DNTQ-25-4004-3EU-N | 82443 |
| DNTQ-25-5004-3EU-N | 82444 |
| DNTQ-25-6004-3EU-N | 82445 |

| Description | UPC # |
|-------------|-------|
| KCIK-DN     | 61204 |



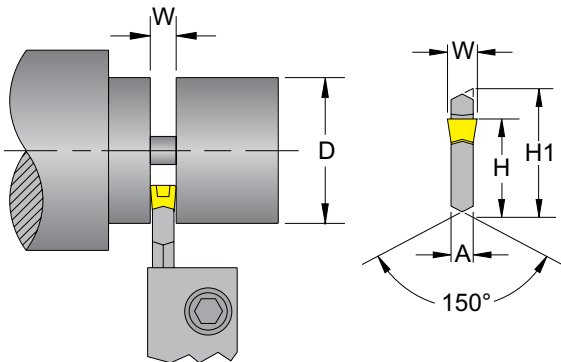
# SLOT GRIP

## POSITIVE STOP BLADES FOR CUT-OFF & GROOVING SGTN INSERTS



### Positive Stop

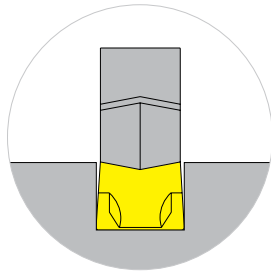
Improved design featuring a "Positive Stop". Inserts are securely held in Slot Grip Positive Stop Blades by a tapered locking system featuring a "Positive Stop" that prevents insert drift and the blade pocket from spreading once the insert is firmly in place.



Designed for use with standard SGTN cut-off inserts and standard cut-off blade holders. The insert's cutting edge location repeats accurately and as a result prevents insert splitting under heavy feed and shock loads. The blade and insert geometry allows free chip flow, minimizing insert breakage due to chip build-up.

| Description | UPC # | Insert Used  | W<br>inch | D Max<br>inch | A<br>inch | L<br>inch | H<br>inch | H 1<br>inch |
|-------------|-------|--------------|-----------|---------------|-----------|-----------|-----------|-------------|
| SGIH19-2    | 62950 | SGT(N/R/L)-2 | .087      | 1.57          | .063      | 3.38      | .618      | 0.75        |
| SGIH26-2    | 62951 | SGT(N/R/L)-2 | .087      | 2.00          | .063      |           |           |             |
| SGIH26-3    | 62952 | SGT(N/R/L)-3 | .122      | 3.00          | .094      | 4.33      | .842      | 1.02        |
| SGIH26-4    | 62953 | SGT(N/R/L)-4 | .161      | 3.15          | .125      |           |           |             |
| SGIH32-3    | 62956 | SGT(N/R/L)-3 | .122      | 3.94          | .094      |           |           |             |
| SGIH32-4    | 62957 | SGT(N/R/L)-4 | .161      | 3.94          | .125      |           |           |             |
| SGIH32-5    | 62958 | SGT(N/R/L)-5 | .201      | 4.71          | .156      | 5.90      | .984      | 1.25        |
| SGIH32-6    | 62959 | SGT(N/R/L)-6 | .252      | 4.72          | .203      |           |           |             |
| SGIH32-8    | 62960 | SGT(N/R/L)-8 | .315      | 5.51          | .268      |           |           |             |
| SGIH32-9    | 62961 | SGT(N/R/L)-9 | .378      | 5.51          | .312      |           |           |             |

For Slot Grip Cut Off inserts see complete Kool Cut Catalog



**Cut-Off & Grooving Inserts** are Designed for use with standard cut-off inserts and standard cut-off blade holders. The insert's cutting edge location repeats accurately and as a result prevents insert splitting under heavy feed and shock loads. The blade and insert geometry permits free chip flow, minimizing insert breakage due to chip build-up.

### Chipbreaker Geometry

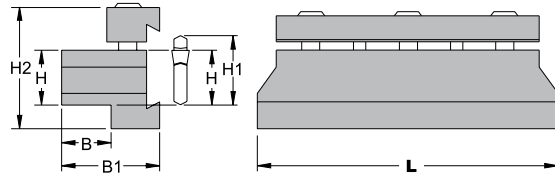
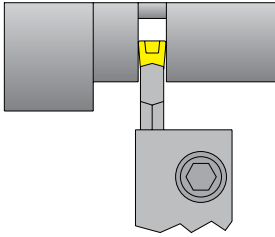
- Reduced machining force
- Controlled, coiled chip flow
- Higher material removal rate

### Application

- Quickly inserted into adjustable blades
- For cut-off and grooving
- Fair for interrupted cuts

|                               |            |                |            |                        | Material              |                                           |                                                                                                                                                                     |
|-------------------------------|------------|----------------|------------|------------------------|-----------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANSI Insert Grade             |            |                |            |                        | Carbon & Alloy Steel  | Aluminum & Non-Ferrous Metals & Materials | Carbon & Alloy Steel<br>300 & 400 Series Stainless Steel<br>Cast Iron, Copper/Brass<br>Aluminum & Non-Ferrous Materials<br>High Temp Alloys<br>Hard Steel to 58 HRC |
| Insert Coating                |            |                |            |                        | P35<br>CVD TiN Coated | K25 N25<br>Uncoated                       | K25 P25 M25<br>PVD TiAlN Coated                                                                                                                                     |
| Insert Grade                  |            | Dimensions     |            |                        | DC656                 | DK25                                      | DASK25B                                                                                                                                                             |
| Description                   | ANSI       | Insert Size mm | Lead Angle | Width + .05<br>inch mm | UPC #                 | UPC #                                     | UPC #                                                                                                                                                               |
| <b>SGTN</b><br>Neutral<br>    | SGTN-2     | 2              | 0°         | .087 2                 | 82222                 | 82220                                     | 82223                                                                                                                                                               |
|                               | SGTN-2.4   | 2.4            | 0          | .094 2.4               | 82306                 | 82304                                     | 82307                                                                                                                                                               |
|                               | SGTN-3     | 3              | 0°         | .122 3                 | 82226                 | 82224                                     | 82227                                                                                                                                                               |
|                               | SGTN-4     | 4              | 0°         | .161 4                 | 82230                 | 82228                                     | 82231                                                                                                                                                               |
|                               | SGTN-4.8   | 4.8            | 0          | .189 4.8               | 82318                 | 82316                                     | 82319                                                                                                                                                               |
|                               | SGTN-5     | 5              | 0°         | .201 5                 | 82234                 | 82232                                     | 82235                                                                                                                                                               |
|                               | SGTN-6     | 6              | 0°         | .252 6                 | 82238                 | 82236                                     | 82239                                                                                                                                                               |
|                               | SGTN-8     | 8              | 0°         | .315 8                 | 82242                 | 82240                                     | 82243                                                                                                                                                               |
|                               | SGTN-9     | 9              | 0°         | .378 9                 | 82246                 | 82244                                     | 82247                                                                                                                                                               |
| <b>SGTR</b><br>Right Hand<br> | SGTR-2-8   | 2              | 8°         | .087 2                 | 82250                 | 82248                                     | 82251                                                                                                                                                               |
|                               | SGTR-2.4-8 | 2.4            | 8          | .094 2.4               | 82310                 | 82308                                     | 82311                                                                                                                                                               |
|                               | SGTR-3-8   | 3              | 8°         | .122 3                 | 82254                 | 82252                                     | 82255                                                                                                                                                               |
|                               | SGTR-4-8   | 4              | 8°         | .161 4                 | 82258                 | 82256                                     | 82259                                                                                                                                                               |
|                               | SGTR-4.8-8 | 4.8            | 8          | .189 4.8               | 82322                 | 82320                                     | 82323                                                                                                                                                               |
|                               | SGTR-5-8   | 5              | 8°         | .201 5                 | 82262                 | 82260                                     | 82263                                                                                                                                                               |
|                               | SGTR-6-8   | 6              | 8°         | .252 6                 | 82266                 | 82264                                     | 82267                                                                                                                                                               |
|                               | SGTR-8-8   | 8              | 8°         | .315 8                 | 82270                 | 82268                                     | 82271                                                                                                                                                               |
|                               | SGTR-9-8   | 9              | 8°         | .378 9                 | 82274                 | 82272                                     | 82275                                                                                                                                                               |
| <b>SGTL</b><br>Left Hand<br>  | SGTL-2-8   | 2              | 8°         | .087 2                 | 82278                 | 82276                                     | 82279                                                                                                                                                               |
|                               | SGTL-2.4-8 | 2.4            | 8          | .094 2.4               | 82314                 | 82312                                     | 82315                                                                                                                                                               |
|                               | SGTL-3-8   | 3              | 8°         | .122 3                 | 82282                 | 82280                                     | 82283                                                                                                                                                               |
|                               | SGTL-4-8   | 4              | 8°         | .161 4                 | 82286                 | 82284                                     | 82287                                                                                                                                                               |
|                               | SGTL-4.8-8 | 4.8            | 8          | .189 4.8               | 82326                 | 82324                                     | 82327                                                                                                                                                               |
|                               | SGTL-5-8   | 5              | 8°         | .201 5                 | 82290                 | 82288                                     | 82291                                                                                                                                                               |
|                               | SGTL-6-8   | 6              | 8°         | .252 6                 | 82294                 | 82292                                     | 82295                                                                                                                                                               |
|                               | SGTL-8-8   | 8              | 8°         | .315 8                 | 82298                 | 82296                                     | 82299                                                                                                                                                               |
|                               | SGTL-9-8   | 9              | 8°         | .378 9                 | 82302                 | 82300                                     | 82303                                                                                                                                                               |

## SGTBN Neutral Hand Cut-Off Toolholder for Cut-Off SGIH blades

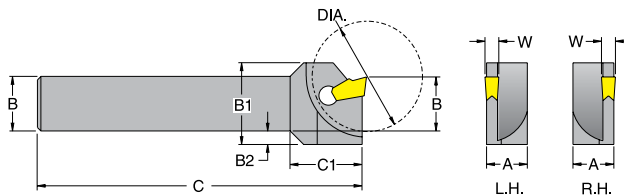
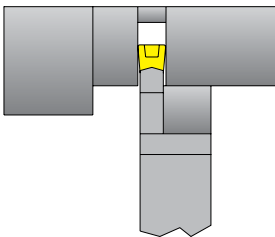


The two piece clamp style of this tool provides a precise and rigid blade locking and easy mounting of the tool into CNC turrets. Simple block design accommodates Slot Grip and competitive blade systems. Slot Grip Cut-Off toolholders come in a broad selection of shank sizes.

| Inch Description | UPC # Neutral | H     | H1    | H2    | B     | B1    | L    | Blade Used             | Screw used             |
|------------------|---------------|-------|-------|-------|-------|-------|------|------------------------|------------------------|
| SGTBN12,7-2      | 62970         | 0.500 | 0.750 | 1.375 | 0.500 | 1.000 | 3.00 | SGIH19-2               | ASHCSFP-050-080-025-MA |
| SGTBN16-2        | 62971         | 0.625 | 0.750 | 1.375 | 0.625 | 1.000 | 3.00 |                        |                        |
| SGTBN16-5        | 62972         | 0.625 | 1.020 | 1.750 | 0.625 | 1.250 | 3.50 | SGIH26-2 Thru SGIH26-6 | ASHCSFP-060-100-030-MA |
| SGTBN19-5        | 62973         | 0.750 | 1.020 | 2.000 | 0.750 | 1.375 | 3.50 |                        |                        |
| SGTBN19-6        | 62974         | 0.750 | 1.250 | 2.000 | 0.750 | 1.375 | 4.50 | SGIH32-3 Thru SGIH32-9 | ASHCSFP-060-100-030-MA |
| SGTBN25,4-6      | 62975         | 1.000 | 1.250 | 2.125 | 0.875 | 1.500 | 4.50 |                        |                        |
| SGTBN31,8-6      | 62976         | 1.250 | 1.250 | 2.375 | 1.125 | 1.750 | 4.50 |                        |                        |
| SGTBN38,1-6      | 62977         | 1.500 | 1.250 | 2.875 | 1.625 | 2.250 | 4.50 |                        |                        |

For Slot Grip Cut Off inserts see complete Kool Cut Catalog

## SGTH R/L Cut-Off Toolholder for Cut-Off SGTN inserts



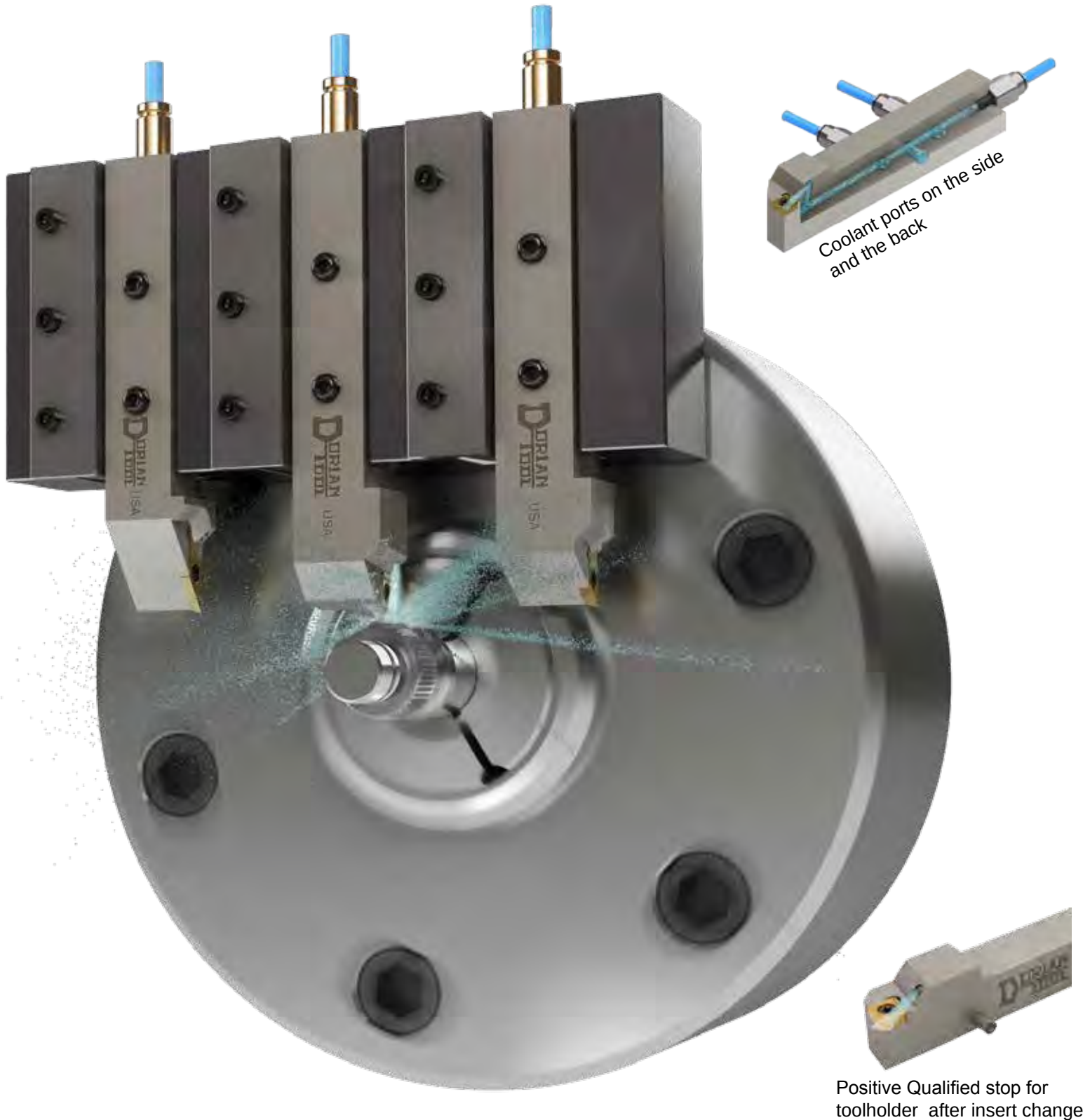
The square shank design of the Cut-Off toolholder ensures a precise center line of the insert with respect to the center of the work-piece, when the toolholder is mounted directly on the CNC turret. Inserts are securely held in Slot Grip blades by a tapered locking system. No additional clamping devices are required. Slot Grip Cut-Off toolholders come in a broad selection of shank sizes.

| Inch Description | UPC # |       | A    | B     | B1    | B2   | C     | C1    | Max. Dia | W           | Insert used    |
|------------------|-------|-------|------|-------|-------|------|-------|-------|----------|-------------|----------------|
|                  | R.H.  | L.H.  |      |       |       |      |       |       |          |             |                |
| SGTHR/L-9,5-2    | 63000 | 63001 | .375 | 0.375 | 0.750 | .187 | 3.375 | 0.703 | 1.109    | .087 & 0.93 | SGTN/R/L-2,2,4 |
| SGTHR/L-12,7-2   | 63002 | 63003 | .391 | 0.500 | 0.828 | .156 | 4.328 | 0.703 | 1.172    | .087 & 0.93 |                |
| SGTHR/L-16-2     | -     | 63005 | .391 | 0.625 | 0.750 | -    | 4.328 | 0.703 | 1.172    | .087 & 0.93 |                |
| SGTHR/L-19-2     | 63006 | 63007 | .469 | 0.750 | 0.937 | -    | 4.328 | 0.781 | 1.266    | .087 & 0.93 |                |
| SGTHR/L-19,5-3   | 63008 | 63009 | .375 | 0.375 | 0.750 | .187 | 3.375 | 0.703 | 1.109    | .120        | SGTN/R/L-3     |
| SGTHR/L-12,7-3   | 63010 | 63011 | .391 | 0.500 | 0.828 | .237 | 4.328 | 0.828 | 1.266    | .120        |                |
| SGTHR/L-16-3     | 63012 | 63013 | .469 | 0.625 | 0.937 | .156 | 4.328 | 0.828 | 1.266    | .120        |                |
| SGTHR/L-19-3     | 63014 | 63015 | .469 | 0.750 | 0.937 | -    | 4.328 | 0.828 | 1.406    | .120        |                |
| SGTHR/L-25,4-3   | 63016 | 63017 | .984 | 1.000 | 1.187 | -    | 5.875 | 0.984 | 2.062    | .120        | SGTN/R/L-4     |
| SGTHR/L-16-4     | 63018 | 63019 | .469 | 0.625 | 0.937 | .156 | 4.328 | 0.828 | 1.328    | .160        |                |
| SGTHR/L-19-4     | 63020 | 63021 | .469 | 0.750 | 0.937 | -    | 4.328 | 0.906 | 1.531    | .160        |                |
| SGTHR/L-25,4-4   | 63022 | 63023 | .984 | 1.000 | 1.187 | -    | 5.875 | 1.187 | 2.500    | .160        |                |
| SGTHR/L-19-5     | 63024 | 63025 | .469 | 0.750 | 0.937 | -    | 4.328 | 0.906 | 1.531    | .187 & .200 | SGTN/R/L-4,8-5 |
| SGTHR/L-25,4-5   | 63026 | -     | .984 | 1.000 | 1.187 | -    | 5.875 | 1.600 | 3.000    | .187 & .200 |                |

For Slot Grip Cut Off inserts see complete Kool Catalog.

# SWISS SCREW MACHINE TOOLS

with Advanced Thru Coolant Jet-Stream™ System





## High Pressure Coolant Quick Connection

for Standard or High Pressure Applications  
with Side or End Coolant Connection

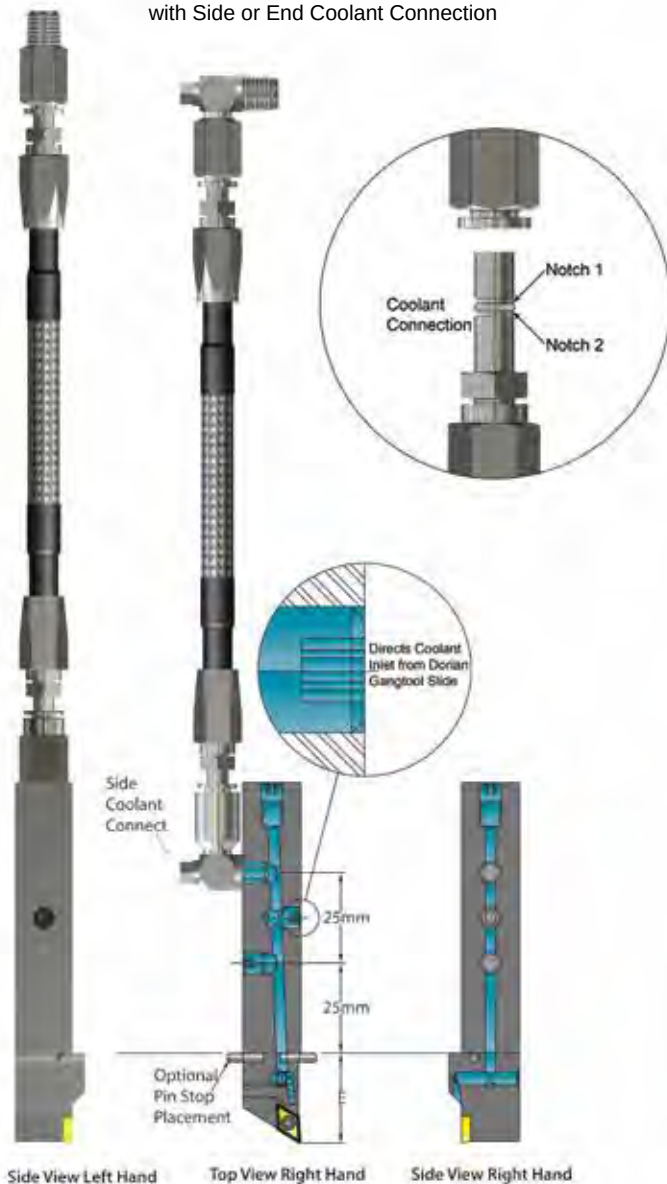
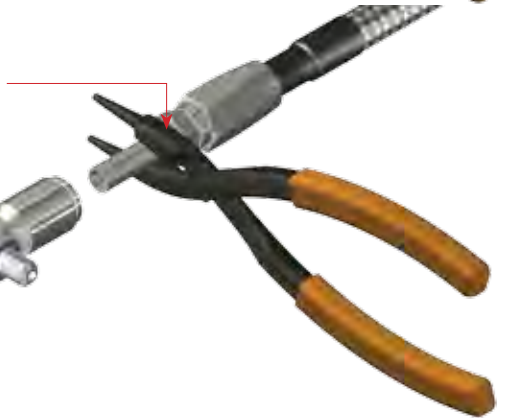
| Item | Part Number  | UPC # | Description                        |
|------|--------------|-------|------------------------------------|
| 1    | DT-HP-PLIERS | 60476 | High Pressure Disconnecting Pliers |

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

1. Place the **thinner section** of the wrench-nose between the coolant hose and the connector.



2. Close the wrench and it will disconnect **Notch 1** of the coolant hose. Use the **thicker section** of the wrench-nose and close again to disconnect **Notch 2**.

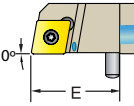


## Swiss Toolholders-High Pressure Coolant Connection 7 Pcs. Kit Working Pressure

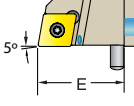


| Item | Part Number    | UPC # | Description                                              | Bar | PSI  |
|------|----------------|-------|----------------------------------------------------------|-----|------|
| 1    | DT-HPTU-ASSY   | 60480 | Swiss High Pressure Quick Release Coolant 7 pcs. Kit     | 200 | 2800 |
| 2    | DT-HPTU-8X4    | 60477 | 8mm High Pressure 8mm Coolant Tubing Only                |     |      |
| 3    | DT-HP90C-1/8x6 | 60479 | High Pressure Quick Release Straight Intec               |     |      |
| 4    | DT-HP90C-1/8x6 | 60479 | High Pressure Quick Release Straight Intec               |     |      |
| 5    | DT-HP90C-1/8x6 | 60490 | 1/8" NPT Straight High Pressure Quick Release Connector  |     |      |
| 6    | DT-HP90C-1/8x6 | 60489 | 1/8" NPT 90° Elbow High Pressure Quick Release Connector |     |      |
| 7    | DT-HP90C-1/8x6 | 60487 | 6mm Straight High Pressure Quick Release Connector       |     |      |
|      | DT-HPTU-8X4    | 60486 | 6mm 90° Banjo High Pressure Quick Release Connector      |     |      |

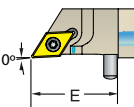
**ASCAC Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side**  
**Cutting Edge Angle for 7° positive 80° diamond CC\_W inserts**

| Coolant Outlet                                                                   | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | CC_W Gage Insert |
|----------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                  |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASCACR/L 1010-H06  | 60754      | 60755     | mm     | 10     | 100    | 25            | CCGW-060204      |
|                                                                                  | ASCACR/L 1212-H06  | 60756      | 60757     | mm     | 12     | 100    | 25            | CCGW-060204      |
|                                                                                  | ASCACR/L 1616-H06  | 60758      | 60759     | mm     | 16     | 100    | 25            | CCGW-060204      |
|                                                                                  | ASCACR/L 1212-H09  | 60760      | 60761     | mm     | 12     | 100    | 25            | CCGW-09T308      |
|                                                                                  | ASCACR/L 1616-H09  | 60762      | 60763     | mm     | 16     | 100    | 25            | CCGW-09T308      |
|                                                                                  | ASCACR/L 2020-K09  | 60764      | 60765     | mm     | 20     | 125    | 25            | CCGW-09T308      |
| Inch                                                                             |                    |            |           |        |        |        |               |                  |
|                                                                                  | ASCACR/L 08-2A     | 60692      | -         | inch   | 0.500  | 4.000  | 1.000         | CCGW-21.51       |

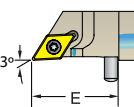
**ASCNC Jet-Stream™ Thru Coolant R/L Toolholder Style N - Negative 5°**  
**End or Side Cutting Edge Angle for 7° positive 80° diamond CC\_W inserts**

| Coolant Outlet                                                                   | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | CC_W Gage Insert |
|----------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                  |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASCNCR/L 1010-H06  | 60770      | 60771     | mm     | 10     | 100    | 25            | CCGW-060204      |
|                                                                                  | ASCNCR/L 1212-H06  | 60772      | 60773     | mm     | 12     | 100    | 25            | CCGW-060204      |
|                                                                                  | ASCNCR/L 1616-H06  | 60774      | 60775     | mm     | 16     | 100    | 25            | CCGW-060204      |
|                                                                                  | ASCNCR/L 1212-H09  | 60776      | 60777     | mm     | 12     | 100    | 25            | CCGW-09T308      |
|                                                                                  | ASCNCR/L 1616-H09  | 60778      | 60779     | mm     | 16     | 100    | 25            | CCGW-09T308      |
|                                                                                  | ASCNCR/L 2020-K09  | 60780      | 60781     | mm     | 20     | 125    | 25            | CCGW-09T308      |
| Inch                                                                             |                    |            |           |        |        |        |               |                  |
|                                                                                  | ASCNCR/L 08-2A     | 60698      | 60699     | inch   | 0.500  | 4.000  | 0.500         | CCGW-21.51       |
|                                                                                  | ASCNCR/L 08-3A     | 60701      | 60702     | inch   | 0.500  | 4.000  | 0.500         | CCGW-32.52       |

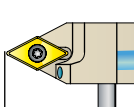
**ASDAC Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side**  
**Cutting Edge Angle for 7° positive 55° diamond DC\_W inserts**

| Coolant Outlet                                                                   | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | DC_W Gage Insert |
|----------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                  |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASDACR/L 1010-H07  | 60798      | 60799     | mm     | 10     | 100    | 25            | DCGW-070204      |
|                                                                                  | ASDACR/L 1212-H07  | 60800      | 60801     | mm     | 12     | 100    | 25            | DCGW-070204      |
|                                                                                  | ASDACR/L 1616-H07  | 60802      | 60803     | mm     | 16     | 100    | 25            | DCGW-070204      |
|                                                                                  | ASDACR/L 1212-H11  | 60804      | 60805     | mm     | 12     | 100    | 25            | DCGW-11T308      |
|                                                                                  | ASDACR/L 1616-H11  | 60806      | 60807     | mm     | 16     | 100    | 25            | DCGW-11T308      |
|                                                                                  | ASDACR/L 2020-K11  | 60808      | -         | mm     | 20     | 125    | 25            | DCGW-11T308      |
| Inch                                                                             |                    |            |           |        |        |        |               |                  |
|                                                                                  | ASDACR/L 08-3A     | 60705      | -         | inch   | 0.500  | 4.000  | 1.000         | DCGW-32.52       |

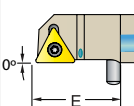
**ASDNC Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side**  
**Cutting Edge Angle for 7° positive 55° diamond DC\_W inserts**

| Coolant Outlet                                                                     | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | DC_W Gage Insert |
|------------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                    |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASDNCR/L 1010-H07  | 60810      | 60811     | mm     | 10     | 100    | 25            | DCGW-070204      |
|                                                                                    | ASDNCR/L 1212-H07  | 60812      | 60813     | mm     | 12     | 100    | 25            | DCGW-070204      |
|                                                                                    | ASDNCR/L 1616-H07  | 60814      | 60815     | mm     | 16     | 100    | 25            | DCGW-070204      |
|                                                                                    | ASDNCR/L 1212-H11  | 60816      | 60817     | mm     | 12     | 100    | 25            | DCGW-11T308      |
|                                                                                    | ASDNCR/L 1616-H11  | 60818      | 60819     | mm     | 16     | 100    | 25            | DCGW-11T308      |
|                                                                                    | ASDNCR/L 2020-K11  | 60820      | 60821     | mm     | 20     | 125    | 25            | DCGW-11T308      |
| Inch                                                                               |                    |            |           |        |        |        |               |                  |
|                                                                                    | ASDNCR/L 08-2A     | 60708      | 60709     | inch   | 0.500  | 4.000  | 1.000         | DCGW-21.51       |
|                                                                                    | ASDNCR/L 08-3A     | 60711      | 60712     | inch   | 0.500  | 4.000  | 1.000         | DCGW-32.52       |

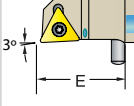
**ASDPC Jet-Stream™ Thru Coolant Neutral Toolholder Style P - 27.5°**  
**Side Cutting Edge Angle for 7° positive 55° diamond DC\_W inserts**

| Coolant Outlet                                                                     | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | DC_W Gage Insert |
|------------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                    |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASDPCN 1010-H07    | 60824      |           | mm     | 10     | 100    | 25            | DCGW-070204      |
|                                                                                    | ASDPCN 1212-H07    | 60825      |           | mm     | 12     | 100    | 25            | DCGW-070204      |
|                                                                                    | ASDPCN 1212-H11    | 60826      |           | mm     | 12     | 100    | 25            | DCGW-11T308      |
|                                                                                    | ASDPCN 1616-H11    | 60827      |           | mm     | 16     | 100    | 25            | DCGW-11T308      |
|                                                                                    | Inch               |            |           |        |        |        |               |                  |
|                                                                                    | ASDPCN 08-3A       | 60714      |           | inch   | 0.500  | 4.000  | 1.000         | DCGW-32.52       |

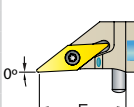
**ASTAC Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side**  
**Cutting Edge Angle for 7° positive triangle TC\_W inserts**

| Coolant Outlet                                                                     | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | Gage Insert |
|------------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|-------------|
|                                                                                    |                    | Right Hand | Left Hand |        | Height | Length |               |             |
|  | ASTACR/L 1010-H11  | 60846      | 60847     | mm     | 10     | 100    | 25            | TCGW-110204 |
|                                                                                    | ASTACR/L 1212-H11  | 60848      | 60849     | mm     | 12     | 100    | 25            | TCGW-110204 |
|                                                                                    | ASTACR/L 1616-H11  | 60850      | 60851     | mm     | 16     | 100    | 25            | TCGW-110204 |
|                                                                                    | ASTACR/L 2020-K11  | 60852      | 60853     | mm     | 20     | 125    | 25            | TCGW-110204 |
| Inch                                                                               |                    |            |           |        |        |        |               |             |
|                                                                                    | ASTACR/L 08-2A     | 60716      | -         | inch   | 0.500  | 4.000  | 1.000         | TCGW-21.51  |

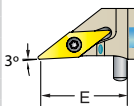
**ASTNC Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side**  
**Cutting Edge Angle for 7° positive triangle TC\_W inserts**

| Coolant Outlet                                                                    | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | TC_W Gage Insert |
|-----------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                   |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASTNCR/L 1010-H11  | 60858      | 60859     | mm     | 10     | 100    | 25            | TCGW-110204      |
|                                                                                   | ASTNCR/L 1212-H11  | 60860      | 60861     | mm     | 12     | 100    | 25            | TCGW-110204      |
|                                                                                   | ASTNCR/L 1616-H11  | 60862      | 60863     | mm     | 16     | 100    | 25            | TCGW-110204      |
|                                                                                   | ASTNCR/L 1616-H16  | 60864      | 60865     | mm     | 16     | 100    | 25            | TCGW-16T308      |
|                                                                                   | Inch               |            |           |        |        |        |               |                  |
|                                                                                   | ASTNCR/L 08-2A     | 60720      | -         | inch   | 0.500  | 4.000  | 1.000         | TCGW-21.51       |

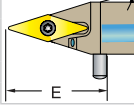
**ASVAB Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side**  
**Cutting Edge Angle for 5° positive 35° diamond VB\_W inserts**

| Coolant Outlet                                                                    | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | VB_W Gage Insert |
|-----------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                   |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASVABR/L 1010-H11  | 60870      | 60871     | mm     | 10     | 100    | 25            | VBGW-110304      |
|                                                                                   | ASVABR/L 1212-H11  | 60872      | 60873     | mm     | 12     | 100    | 25            | VBGW-110304      |
|                                                                                   | ASVABR/L 1212-K16  | 60874      | 60875     | mm     | 12     | 107    | 32            | VBGW-160408      |
|                                                                                   | ASVABR/L 1616-K16  | 60876      | 60877     | mm     | 16     | 107    | 32            | VBGW-160408      |
|                                                                                   | ASVABR/L 2020-K16  | 60878      | 60879     | mm     | 20     | 132    | 32            | VBGW-160408      |
| Inch                                                                              |                    |            |           |        |        |        |               |                  |
|                                                                                   | ASVABR/L 08-2A     | -          | 60724     | inch   | 0.500  | 4.000  | 1.000         | VBGW-110304      |
|                                                                                   | ASVABR/L 08-3A     | 60725      | -         | inch   | 0.500  | 4.000  | 1.000         | VBGW-332         |

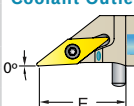
**ASVNB Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side**  
**Cutting Edge Angle for 5° positive 35° diamond VB\_W inserts**

| Coolant Outlet                                                                    | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | VB_W Gage Insert |
|-----------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                   |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASVNBRL 1010-H11   | 60882      | 60883     | mm     | 10     | 100    | 25            | VBGW-110304      |
|                                                                                   | ASVNBRL 1212-H11   | 60884      | 60885     | mm     | 12     | 100    | 25            | VBGW-110304      |
|                                                                                   | ASVNBRL 1212-K16   | 60886      | 60887     | mm     | 12     | 107    | 32            | VBGW-160408      |
|                                                                                   | ASVNBRL 1616-K16   | 60888      | 60889     | mm     | 16     | 107    | 32            | VBGW-160408      |
|                                                                                   | ASVNBRL 2020-K16   | 60890      | 60891     | mm     | 20     | 132    | 32            | VBGW-160408      |
| Inch                                                                              |                    |            |           |        |        |        |               |                  |
|                                                                                   | ASVNBRL 08-2A      | 60727      | 60728     | inch   | 0.500  | 4.000  | 1.000         | VBGW-221         |
|                                                                                   | ASVNBRL 08-3A      | 60729      | 60730     | inch   | 0.500  | 4.250  | 1.250         | VBGW-332         |

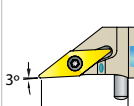
**ASVVB Jet-Stream™ Thru Coolant Neutral Toolholder Style V- 17.5°**  
**Side Cutting Edge Angle for 5° positive 35° diamond VB\_W inserts**

| Coolant Outlet                                                                      | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | VB_W Gage Insert |
|-------------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                     |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASVVBN 1010-H11    | 60893      |           | mm     | 10     | 100    | 25            | VBGW-110304      |
|                                                                                     | ASVVBN 1212-H11    | 60894      |           | mm     | 12     | 100    | 25            | VBGW-110304      |
|                                                                                     | ASVVBN 1212-K16    | 60895      |           | mm     | 12     | 107    | 32            | VBGW-160408      |
|                                                                                     | ASVVBN 1616-K16    | 60896      |           | mm     | 16     | 107    | 32            | VBGW-160408      |
|                                                                                     | Inch               |            |           |        |        |        |               |                  |

**ASVAC Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side**  
**Cutting Edge Angle for 7° positive 35° diamond VC\_W inserts**

| Coolant Outlet                                                                      | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | VC_W Gage Insert |
|-------------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                     |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASVACR/L 1010-H11  | 60902      | 60903     | mm     | 10     | 100    | 25            | VCGW-110304      |
|                                                                                     | ASVACR/L 1212-H11  | 60904      | 60905     | mm     | 12     | 100    | 25            | VCGW-110304      |
|                                                                                     | ASVACR/L 1212-K16  | 60906      | 60907     | mm     | 12     | 107    | 32            | VCGW-160408      |
|                                                                                     | ASVACR/L 1616-K16  | 60908      | 60909     | mm     | 16     | 107    | 32            | VCGW-160408      |
|                                                                                     | Inch               |            |           |        |        |        |               |                  |

**ASVNC Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side**  
**Cutting Edge Angle for 7° positive 35° diamond VC\_W inserts**

| Coolant Outlet                                                                      | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | VC_W Gage Insert |
|-------------------------------------------------------------------------------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                                                                                     |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|  | ASVNCRL 1010-H11   | 60914      | 60915     | mm     | 10     | 100    | 25            | VCGW-110304      |
|                                                                                     | ASVNCRL 1212-H11   | 60916      | 60917     | mm     | 12     | 100    | 25            | VCGW-110304      |
|                                                                                     | ASVNCRL 1616-H11   | 60918      | 60919     | mm     | 16     | 100    | 25            | VCGW-110304      |
|                                                                                     | ASVNCRL 1212-K16   | 60920      | 60921     | mm     | 12     | 107    | 32            | VCGW-160408      |
|                                                                                     | ASVNCRL 1616-K16   | 60922      | 60923     | mm     | 16     | 107    | 32            | VCGW-160408      |
| Inch                                                                                |                    |            |           |        |        |        |               |                  |
|                                                                                     | ASVNCRL 08-2A      | 60738      | 60739     | inch   | 0.500  | 4.000  | 1.000         | VCGW-221         |
|                                                                                     | ASVNCRL 08-3A      | 60741      | 60742     | inch   | 0.500  | 4.250  | 1.250         | VCGW-332         |

**ASVVC Jet-Stream™ Thru Coolant Neutral Toolholder Style V - 17.5°**  
**Side Cutting Edge Angle for 7° positive 35° diamond VC\_W inserts**

| Coolant Outlet | METRIC Description | UPC # |  | System |
|----------------|--------------------|-------|--|--------|
|----------------|--------------------|-------|--|--------|

### ASVNP Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side Cutting Edge Angle for 11° positive 35° diamond VP\_W inserts

| Coolant Outlet | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | VP_W Gage Insert |
|----------------|--------------------|------------|-----------|--------|--------|--------|---------------|------------------|
|                |                    | Right Hand | Left Hand |        | Height | Length |               |                  |
|                | ASVNP/R/L 1010-H11 | 60948      | 60649     | mm     | 10     | 100    | 25            | VPGW-110304      |
|                | ASVNP/R/L 1212-H11 | 60950      | 60951     | mm     | 12     | 100    | 25            | VPGW-110304      |
|                | ASVNP/R/L 1212-K16 | 60952      | 60953     | mm     | 12     | 107    | 32            | VPGW-160408      |
|                | ASVNP/R/L 1616-K16 | 60954      | 60955     | mm     | 16     | 107    | 32            | VPGW-160408      |
|                | ASVNP/R/L 2020-K16 | 60956      | 60957     | mm     | 20     | 132    | 32            | VPGW-160408      |
| Inch           |                    |            |           |        |        |        |               |                  |
|                | ASVNP/R/L 08-2A    | 60745      | 60746     | inch   | 0.500  | 4.000  | 1.000         | VPGW-221         |
|                | ASVNP/R/L 08-3A    | 60747      | 60748     | inch   | 0.500  | 4.250  | 1.250         | VPGW-332         |

### ASVVP Jet-Stream™ Thru Coolant Neutral Toolholder Style V - 17.5° Side Cutting Edge Angle for 11° positive 35° diamond VP\_W inserts

| Coolant Outlet                                                                   | METRIC          | UPC #   | Shank  |        | E (Tool Stop) | VP_W        |             |
|----------------------------------------------------------------------------------|-----------------|---------|--------|--------|---------------|-------------|-------------|
|                                                                                  | Description     | Neutral | System | Height | Length        | Gage Insert |             |
|                                                                                  |                 |         |        |        |               |             |             |
|  | ASVVPN 1010-H11 | 60959   | mm     | 10     | 100           | 25          | VPGW-110304 |
|                                                                                  | ASVVPN 1212-H11 | 60960   | mm     | 12     | 100           | 25          | VPGW-110304 |
|                                                                                  | ASVVPN 1212-K16 | 60961   | mm     | 12     | 107           | 32          | VPGW-160408 |
|                                                                                  | ASVVPN 1616-K16 | 60962   | mm     | 16     | 107           | 32          | VPGW-160408 |

### ASE Jet-Stream™ Thru Coolant Threading Toolholder - Right and Left Hand for LayDown Insert

| Coolant Outlet | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | Gage Insert |
|----------------|--------------------|------------|-----------|--------|--------|--------|---------------|-------------|
|                |                    | Right Hand | Left Hand |        | Height | Length |               |             |
|                | ASER/L 1010-H11    | 61078      | -         | mm     | 10     | 100    | 25            | 11-A60      |
|                | ASER/L 1212-H11    | 61080      | -         | mm     | 12     | 100    | 25            |             |
|                | ASER/L 1616-H16    | 61082      | 61083     | mm     | 16     | 100    | 25            | 16-G60      |

### ANS Jet-Stream™ Thru Coolant Threading Toolholder - Right and Left Hand for DorNotch V Thread Inserts

| Coolant Outlet | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | Gage Insert |
|----------------|--------------------|------------|-----------|--------|--------|--------|---------------|-------------|
|                |                    | Right Hand | Left Hand |        | Height | Length |               |             |
|                | ANSR/L 1212-H02    | 61088      | 61089     | mm     | 12     | 100    | 25            | NG-2R NG-2L |
|                | ANSR/L 1616-H02    | 61090      | 61091     | mm     | 16     | 100    | 25            |             |
|                | ANSR/L 1212-H03    | 61092      | 61093     | mm     | 12     | 100    | 25            | NG-3R NG-3L |
|                | ANSR/L 1616-H03    | 61094      | 61095     | mm     | 16     | 100    | 25            |             |
|                | Inch               |            |           |        |        |        |               |             |
|                | ANSR/L 08-2A       | 61108      | -         | inch   | 0.500  | 4.000  | 1.000         | NG-2R NG-2L |
|                | ANSR/L 08-3A       | 61110      | -         | inch   | 0.500  | 4.000  | 1.000         | NG-3R NG-3L |

### ASTVO Jet-Stream™ Thru Coolant Threading Toolholder- Right and Left Hand for On Edge TNMC Inserts

| Coolant Outlet | METRIC Description | UPC #      |           | System | Shank  |        | E (Tool Stop) | Gage Insert |
|----------------|--------------------|------------|-----------|--------|--------|--------|---------------|-------------|
|                |                    | Right Hand | Left Hand |        | Height | Length |               |             |
|                | ASTVOR/L 1010-H16  | 61098      | -         |        | 10     | 100    | 25            | TNMC-322    |
|                | ASTVOR/L 1212-H16  | 61100      | -         |        | 12     | 100    | 25            |             |
|                | ASTVOR/L 1616-H16  | 61102      | 61103     |        | 16     | 100    | 25            |             |
|                | Inch               |            |           |        |        |        |               |             |
|                | ASTVOR/L 08-3A     | 61112      | -         |        | 0.500  | 4.000  | 1.000         | TNMC-322    |

### ASGTH Jet-Stream™ Thru Coolant Cut-Off Toolholder - Right and Left Hand for SGTN Cut-Off Inserts for Swiss Screw Machines

| Coolant Outlet | METRIC Description | UPC #      |           | System | Insert Size |        | Shank  |        | E (Tool Stop) | Max. Dia. | Gage Insert |
|----------------|--------------------|------------|-----------|--------|-------------|--------|--------|--------|---------------|-----------|-------------|
|                |                    | Right Hand | Left Hand |        | Height      | Length | Height | Length |               |           |             |
|                | ASGTHR/L 1010-H02  | 62922      | 62923     | mm     | 2.0         | 2.4    | 10     | 100    | 25            | 28        | SGTN-2.0    |
|                | ASGTHR/L 1212-H02  | 62924      | 62925     | mm     | 2.0         | 2.4    | 12     | 100    | 25            | 28        |             |
|                | ASGTHR/L 1616-H02  | 62926      | 62927     | mm     | 2.0         | 2.4    | 16     | 100    | 25            | 28        |             |
|                | ASGTHR/L 2020-K02  | 62928      | 62929     | mm     | 2.0         | 2.4    | 20     | 125    | 25            | 32        |             |
|                | ASGTHR/L 2525-K02  | 62930      | 62931     | mm     | 2.0         | 2.4    | 25     | 132    | 32            | 40        |             |
|                | ASGTHR/L 1010-H03  | 62932      | 62933     | mm     | 3.0         |        | 10     | 100    | 25            | 28        | SGTN-3.0    |
|                | ASGTHR/L 1212-H03  | 62934      | 62935     | mm     | 3.0         |        | 12     | 100    | 25            | 32        |             |
|                | ASGTHR/L 1616-H03  | 62936      | 62937     | mm     | 3.0         |        | 16     | 100    | 25            | 32        |             |
|                | ASGTHR/L 2020-K03  | 62938      | 62939     | mm     | 3.0         |        | 20     | 125    | 25            | 36        |             |
|                | ASGTHR/L 2525-K03  | 62940      | 62941     | mm     | 3.0         |        | 25     | 132    | 32            | 52        |             |
|                | Inch               |            |           |        |             |        |        |        |               |           |             |
|                | ASGTHR/L 08-2A     | 62942      | 62943     | inch   | 0.079       | 0.098  | 0.500  | 4.000  | 1.000         | 1.102     | SGTN-2.0    |
|                | ASGTHR/L 16-2C     | 62944      | 62945     | inch   | 0.079       | 0.098  | 1.000  | 5.000  | 1.250         | 1.575     |             |
|                | ASGTHR/L 08-3A     | 62946      | 62947     | inch   | 3.0         |        | 0.500  | 4.000  | 1.000         | 1.260     | SGTN-3.0    |
|                | ASGTHR/L 16-3C     | 62948      | 62949     | inch   | 3.0         |        | 1.000  | 5.000  | 1.250         | 2.047     |             |

### ADDN Jet-Stream™ Thru Coolant External Turning, Grooving & Cut-off Toolholders

| Coolant Outlet | METRIC Description     | UPC #      |           | System | Insert Size | Shank  |        | E (Tool Stop) | Grooving Max. | Max. Dia. | Insert       |
|----------------|------------------------|------------|-----------|--------|-------------|--------|--------|---------------|---------------|-----------|--------------|
|                |                        | Right Hand | Left Hand |        |             | Height | Length |               |               |           |              |
|                | ADDN-TFR/L-1010-H20-06 | 61000      | 61001     | mm     | 2           | 10     | 107    | 32            | 6             | 12        | DN -22 N-20  |
|                | ADDN-TFR/L-1212-H20-06 | 61002      | 61003     | mm     | 2           | 12     | 107    | 32            | 6             | 12        | DN -22 N-20  |
|                | ADDN-TFR/L-1212-H30-09 | 61008      | 61009     | mm     | 3           | 12     | 107    | 32            | 9             | 18        | DN -22 N-30- |
|                | ADDN-TFR/L-1616-H20-06 | 61004      | 61005     | mm     | 2           | 16     | 107    | 32            | 6             | 12        | DN -22 N-20  |
|                | ADDN-TFR/L-1616-H30-09 | 61006      | 61007     | mm     | 3           | 16     | 107    | 32            | 9             | 18        | DN -22 N-30- |
|                | ADDN-TFR/L-2020-K20-06 | 61028      | 61029     | mm     | 2           | 20     | 132    | 32            | 6             | 12        | DN -22 N-20  |
|                | ADDN-TFR/L-2020-K30-09 | 61030      | 61031     | mm     | 3           | 20     | 132    | 32            | 9             | 18        | DN -22 N-30- |
|                | Inch                   |            |           |        |             |        |        |               |               |           |              |
|                | ADDN-TFR/L-08-20A-06   | 61040      | 61041     | inch   | .079        | .500   | 4.250  | 1.250         | 0.236         | 0.472     | DN -22 N-20  |
|                | ADDN-TFR/L-08-30A-09   | 61042      | 61043     | inch   | .079        | .500   | 4.250  | 1.250         | 0.354         | 0.709     | DN -22 N-30- |

### ADDN Jet-Stream™ Thru Coolant External Turning, Grooving & Cut-off Toolholders

| Coolant Outlet | METRIC Description     | UPC #      |           | System | Insert Size | Shank  |        | E (Tool Stop) | Grooving Max. | Max. Dia. | Insert       |
|----------------|------------------------|------------|-----------|--------|-------------|--------|--------|---------------|---------------|-----------|--------------|
|                |                        | Right Hand | Left Hand |        |             | Height | Length |               |               |           |              |
|                | ADDN-TFR/L-1010-H20-12 | 61010      | 61011     | mm     | 2           | 10     | 107    | 32            | 12            | 24        | DN -22 N-20  |
|                | ADDN-TFR/L-1212-H20-12 | 61012      | 61013     | mm     | 2           | 12     | 107    | 32            | 12            | 24        | DN -22 N-20  |
|                | ADDN-TFR/L-1212-H30-14 | 61018      | 61019     | mm     | 3           | 12     | 107    | 32            | 14            | 28        | DN -22 N-30- |
|                | ADDN-TFR/L-1616-H20-12 | 61014      | 61015     | mm     | 2           | 16     | 107    | 32            | 12            | 24        | DN -22 N-20  |
|                | ADDN-TFR/L-1616-H30-14 | 61016      | 61017     | mm     | 3           | 16     | 107    | 32            | 14            | 28        | DN -22 N-30- |
|                | ADDN-TFR/L-2020-K20-12 | 61032      | 61033     | mm     | 2           | 20     | 132    | 32            | 12            | 24        | DN -22 N-20  |
|                | ADDN-TFR/L-2020-K30-14 | 61034      | 61035     | mm     | 3           | 20     | 132    | 32            | 14            | 28        | DN -22 N-30- |
|                | Inch                   |            |           |        |             |        |        |               |               |           |              |
|                | ADDN-TFR/L-08-20A-12   | 61044      | 61045     | inch   | .079        | 0.500  | 1.250  | 4.250         | 0.472         | 0.945     | DN -22 N-20  |
|                | ADDN-TFR/L-08-30A-14   | 61046      | 61047     | inch   | 0.118       | 0.500  | 1.250  | 4.250         | 0.551         | 1.102     | DN -22 N-30- |

### ADDN Jet-Stream™ Thru Coolant External Turning, Grooving & Cut-off Toolholders

| Coolant Outlet | METRIC Description     | UPC #      |           | System | Insert Size | Shank  |        | E (Tool Stop) | Grooving Max. | Max. Dia. | Insert       |
|----------------|------------------------|------------|-----------|--------|-------------|--------|--------|---------------|---------------|-----------|--------------|
|                |                        | Right Hand | Left Hand |        |             | Height | Length |               |               |           |              |
|                | ADDN-TFR/L-1010-H20-18 | 61020      | 61021     | mm     | 2           | 10     | 107    | 32            | 18            | 36        | DN -22 N-20  |
|                | ADDN-TFR/L-1212-H20-18 | 61022      | 61023     | mm     | 2           | 12     | 107    | 32            | 18            | 36        | DN -22 N-20  |
|                | ADDN-TFR/L-1616-H20-18 | 61024      | 61025     | mm     | 2           | 16     | 107    | 32            | 18            | 36        | DN -22 N-20  |
|                | ADDN-TFR/L-1616-H30-20 | 61026      | 61027     | mm     | 3           | 16     | 107    | 32            | 20            | 40        | DN -22 N-30- |
|                | ADDN-TFR/L-2020-K20-18 | 61036      | 61037     | mm     | 2           | 20     | 132    | 32            | 18            | 36        | DN -22 N-20  |
|                | ADDN-TFR/L-2020-K30-20 | 61038      | 61039     | mm     | 3           | 20     | 132    | 32            | 20            | 40        | DN -22 N-30- |
|                | Inch                   |            |           |        |             |        |        |               |               |           |              |
|                | ADDN-TFR/L-08-20A-18   | 61048      | 61049     | inch   | .079        | 0.500  | 1.250  | 4.250         | 0.709         | 1.417     | DN -22 N-30- |





# KNURLING TOOLS

from THE KNURLING TOOL SPECIALISTS

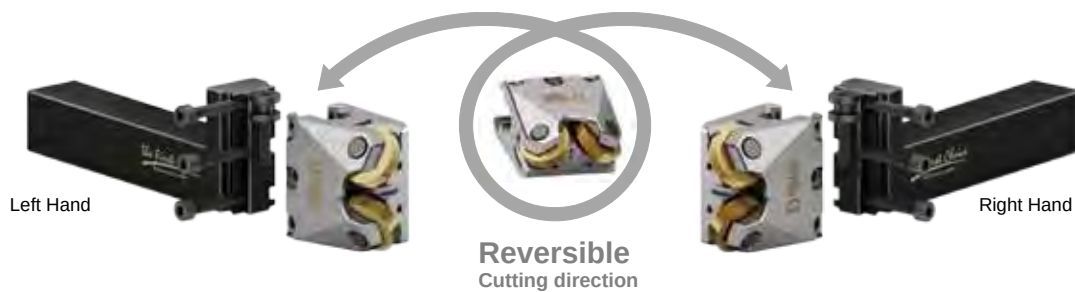


**SPECIALISTS** for  
**CNC &**  
**MANUAL LATHES**



# CNC MODULAR KNURLING TOOLS

## FLEXIBILITY FOR MULTIPLE KNURLING APPLICATIONS



### Versatility

- **Multi** diameter, diamond pattern knurl cutting action
- **Reversible** Knurling Head for Right or Left knurling direction.
- **Heavy duty** diamond pattern knurl cutting action
- **Extra heavy duty** diamond pattern knurl cutting action
- **Double Wheel** knurl forming head
- **Straight pattern** knurl forming head
- **Shoulder** knurl forming head
- **Small diameter**, long parts, and special application knurl forming head

### Modular

The CNC Modular Knurling Tool includes three inch shank and three metric shank sizes and eight standard knurling heads to create any knurling tool combination.

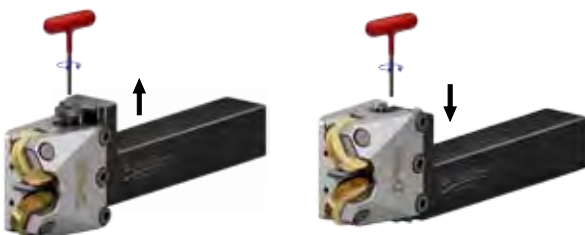
### Adjustable

The dovetail mounting of the shank and head ensures that the tool is rigid and adjustable, yet easy to use. By turning the adjustment screw clockwise or counterclockwise the center height of the head can be adjusted. Each eighth turn of the screw, which is marked on the screw, moves the head .004". After the desired center height has been reached, tightening the lock screws ensures that the head will remain in position while knurling a part.



**CNC Modular  
Knurling Tool Shank**

| Description | UPC # | Shank Size |
|-------------|-------|------------|
| CNC-75      | 21010 | 0.750"     |
| CNC-100     | 21020 | 1.000"     |
| CNC-125     | 21030 | 1.250"     |



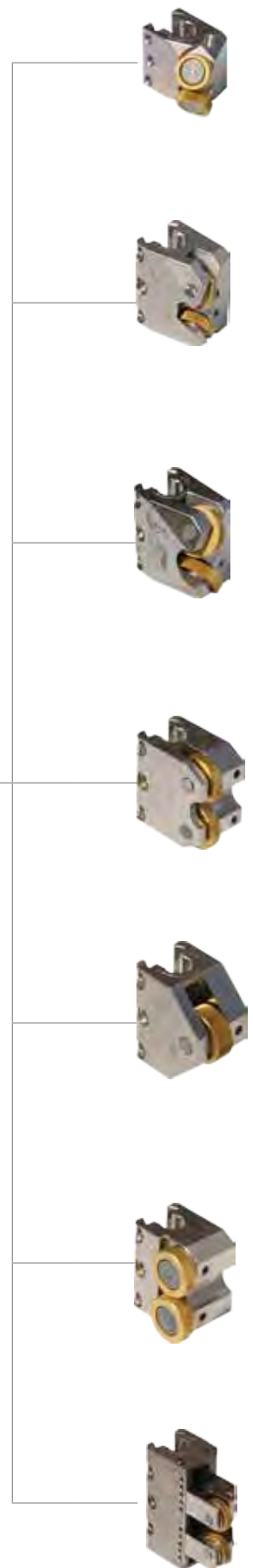
### Two Ways to Knurl

#### Forming (five heads available)

Knurl forming action (material displacement by means of rolling) is generally for special application. It creates a better quality of knurl pattern, but speeds and feeds are sacrificed for this quality. The force applied through forming is increased in larger diameters making knurling difficult and slow.

#### Cutting (three heads available)

Knurl cutting action cuts a perfect knurl pattern 10 to 20 times faster than any conventional form-knurling tool. It is engineered to knurl any material, including thin wall tubing, with minimum pressure on the spindle and work piece. Knurl cutting action speeds up knurling enough to become applicable for high production CNC use.



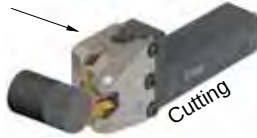


Cutting

### 1 Light Duty 60° Diamond Cutting Modular Knurling Head + CNC Modular Knurling Tool Shank

| Description | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|-------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|             |       |            |             |             | Description   | UPC # |                          |
| CNC-75-1-2  | 20410 | .750"      | 6 7/8"      | SW2         |               |       |                          |
| CNC-100-1-2 | 20420 | 1.000"     | 6 7/8"      | SW2         | SW2.0P-2S     | 29055 | CNCKH-1-2                |
| CNC-125-1-2 | 20430 | 1.250      | 7 3/8"      | SW2         |               |       |                          |

Supplied with a set of Full Faced straight high speed TiN coated knurl wheels, 30 TPI for a male diamond pattern.  
Diameter range 1/2" to 1-1/2"

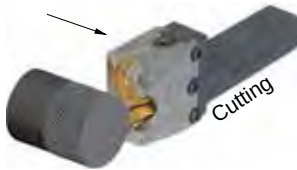


Cutting

### 2 Heavy Duty 60° Diamond Cutting Modular Knurling Head + CNC Modular Knurling Tool Shank

| Description | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|-------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|             |       |            |             |             | Description   | UPC # |                          |
| CNC-75-2-R  | 20510 | .750"      | 6 7/8"      |             |               |       |                          |
| CNC-100-2-R | 20520 | 1.000"     | 6 7/8"      | R           | KPS-25- 87-C  | 28925 | CNCKH-2-R                |
| CNC-125-2-R | 20530 | 1.250      | 7 3/8"      |             |               |       |                          |

Supplied with a set of Full Faced straight high speed knurl wheels, 25 TPI for a male diamond pattern.  
Diameter range 1" to 5"

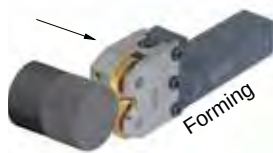


Cutting

### 3 Extra Heavy Duty 60° Diamond Cutting Modular Knurling Head + CNC Modular Knurling Tool Shank

| Description | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|-------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|             |       |            |             |             | Description   | UPC # |                          |
| CNC-75-3-M  | 20610 | .750"      | 7"          |             |               |       |                          |
| CNC-100-3-M | 20620 | 1.000"     | 7"          | M           | KPS-31-100-C  | 28945 | CNCKH-3-M                |
| CNC-125-3-M | 20630 | 1.250      | 7 1/2"      |             |               |       |                          |

Supplied with a set of Full Faced straight high speed TiN coated knurl wheels, 25 TPI for a male diamond pattern.  
Diameter range greater than 2"



Forming

### 4 Double Wheel Forming Modular Knurling Head + CNC Modular Knurling Tool Shank

| Description | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|-------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|             |       |            |             |             | Description   | UPC # |                          |
| CNC-75-4-M  | 20646 | .750"      | 7"          |             |               |       |                          |
| CNC-100-4-M | 20648 | 1.000"     | 7"          | M           | KPS-31-125-C  | 28950 | CNCKH-4-M                |
| CNC-125-4-M | 20650 | 1.250      | 7 1/2"      |             |               |       |                          |

Supplied with a set of Beveled diagonal high speed beveled TiN coated knurl wheels, 25 TPI for a male diamond pattern.  
Diameter range greater than 5/16"

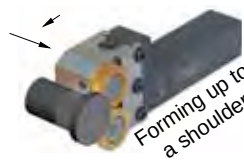


Forming

### 5 Single Wheel Forming Modular Knurling Head + CNC Modular Knurling Tool Shank

| Description | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|-------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|             |       |            |             |             | Description   | UPC # |                          |
| CNC-75-5-O  | 20710 | .750"      | 6 3/4"      |             |               |       |                          |
| CNC-100-5-O | 20720 | 1.000"     | 6 3/4"      | O           | KPS-31-125-C  | 28950 | CNCKH-5-O                |
| CNC-125-5-O | 20730 | 1.250      | 7 1/4"      |             |               |       |                          |

Supplied with one Beveled straight high speed beveled TiN coated knurl wheel, 25 TPI for a straight pattern.  
Unlimited diameter range

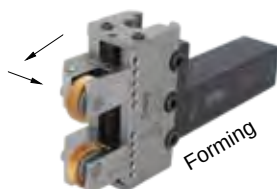


Forming up to a shoulder

### 6 Shoulder Forming Modular Knurling Head + CNC Modular Knurling Tool Shank

| Description | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|-------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|             |       |            |             |             | Description   | UPC # |                          |
| CNC-75-6-4  | 20780 | .750"      | 6 3/4"      |             |               |       |                          |
| CNC-100-6-4 | 20790 | 1.000"     | 6 3/4"      | SW4         | SW4.0P-2S     | 29085 | CNCKH-6-4                |
| CNC-125-6-4 | 20800 | 1.250      | 7 1/4"      |             |               |       |                          |

Supplied with a set of Beveled diagonal high speed beveled TiN coated knurl wheels, 25 TPI for a male diamond pattern.  
Diameter range greater than 5/16"



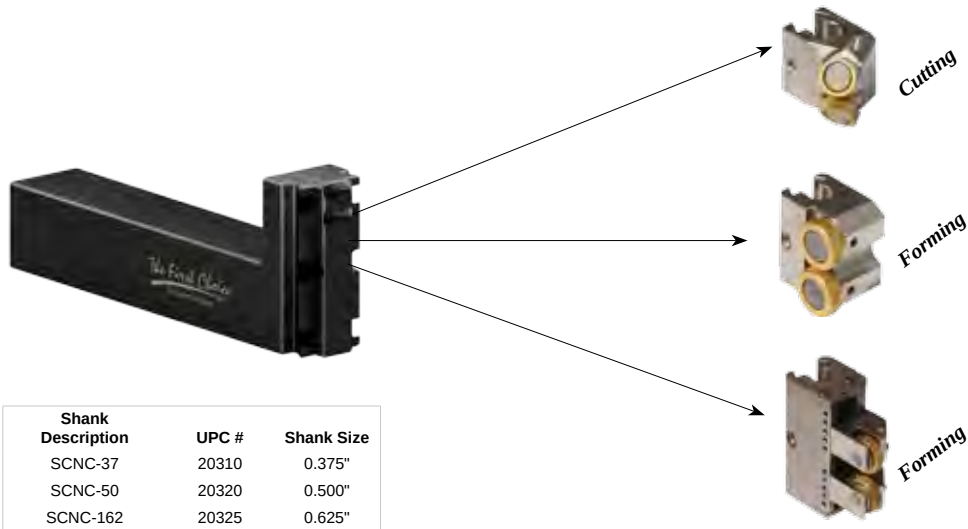
Forming

### 7-R Straddle Forming Modular Knurling Head + CNC Modular Knurling Tool Shank

| Description | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|-------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|             |       |            |             |             | Description   | UPC # |                          |
| CNC-75-7-R  | 20910 | .750"      | 7 3/8"      |             |               |       |                          |
| CNC-100-7-R | 20920 | 1.000"     | 7 3/8"      | R           | KPS-25-75-C   | 28915 | CNCKH-7-R                |
| CNC-125-7-R | 20930 | 1.250      | 7 7/8"      |             |               |       |                          |

Supplied with a set of Beveled diagonal high speed beveled TiN coated knurl wheels, 30 TPI for a male diamond pattern.  
Diameter range up to 1"

## Small CNC Modular Knurling Tool Shank



| Shank Description | UPC # | Shank Size |
|-------------------|-------|------------|
| SCNC-37           | 20310 | 0.375"     |
| SCNC-50           | 20320 | 0.500"     |
| SCNC-162          | 20325 | 0.625"     |

### 1 SMALL Light Duty 60° Diamond Cutting Modular Knurling Head + SMALL CNC Modular Knurling Tool Shank *Reversible Cutting Direction*



| Description  | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|--------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|              |       |            |             |             | Description   | UPC # |                          |
| SCNC-37-1-2  | 20010 | 3/8"       | 4"          | SW2         |               |       | SCNCKH-1-2               |
| SCNC-50-1-2  | 20020 | 1/2"       | 4-1/4"      | SW2         | SW2.0P-2S     | 29055 |                          |
| SCNC-162-1-2 | 20025 | 5/8"       | 4-1/4"      | SW2         |               |       |                          |

Supplied with a set of Full Faced straight high speed TiN coated knurl wheels, 30 TPI for a male diamond pattern

### 6 SMALL Shoulder Forming Modular Knurling Head + SMALL CNC Modular Knurling Tool Shank *Reversible Direction*



| Description  | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|--------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|              |       |            |             |             | Description   | UPC # |                          |
| SCNC-37-6-2  | 20110 | 3/8"       | 4"          | SW2         |               |       | SCNCKH-6-2               |
| SCNC-50-6-2  | 20120 | 1/2"       | 4-1/4"      |             | SW2.0P-2S     | 29055 |                          |
| SCNC-162-6-2 | 20125 | 5/8"       | 4-1/4"      |             |               |       |                          |

Supplied with a set of Beveled diagonal high speed TiN coated knurl wheels, 25 TPI for a male diamond pattern

### 7-D SMALL Straddle Forming Modular Knurling Head + SMALL CNC Modular Knurling Tool Shank *Reversible Direction*



| Description  | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|--------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|              |       |            |             |             | Description   | UPC # |                          |
| SCNC-37-7-D  | 20210 | 3/8"       | 4-1/2"      | R           |               |       | SCNCKH-7-D               |
| SCNC-50-7-D  | 20220 | 1/2"       | 4-3/4"      |             | KPS-18-50-C   | 28905 |                          |
| SCNC-162-7-D | 20225 | 5/8"       | 4-3/4"      |             |               |       |                          |

Supplied with a set of Beveled diagonal high speed TiN coated knurl wheels, 30 TPI for a male diamond pattern



Forming

### SCKN - Self-Centering Knurling Tool HD SCKN Heavy Duty Self-Centering Knurling Tool *Reversible Direction*

| Description      | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |  |
|------------------|-------|-------------|---------------|-------|------------|--|
|                  |       |             | Description   | UPC # |            |  |
| SCKN-38-DW-D     | 22151 | D *         | KPS-18-50     | 28805 | 0.375      |  |
| SCKN-50-DW-D     | 22111 | D *         | KPS-18-50     | 28805 | 0.500      |  |
| SCKN-162-DW-D    | 22115 | D *         | KPS-18-50     | 28805 | 0.625      |  |
| SCKN-75-DW-M     | 22121 | M **        | KPS-31-100    | 28845 | 0.750      |  |
| SCKN-100-DW-M    | 22131 | M **        | KPS-31-100    | 28845 | 1.000      |  |
| SCKN-125-DW-M    | 22141 | M **        | KPS-31-100    | 28845 | 1.250      |  |
| HD SCKN-75-DW-O  | 22410 | O **        | KPS-31-125-C  | 28950 | 0.750      |  |
| HD SCKN-100-DW-O | 22420 | O **        | KPS-31-125-C  | 28950 | 1.000      |  |
| HD SCKN-100-DW-P | 22430 | P **        | KPS-50-125-C  | 28955 | 1.000      |  |
| HD SCKN-125-DW-P | 22440 | P **        | KPS-50-125-C  | 28955 | 1.250      |  |

Supplied with one (1) set of beveled diagonal high speed knurl wheels, \*30 TPI, \*\*25 TPI

\*\*\* Warning: May cause deflections on small part diameters, and too much pressure on large diameters



Forming

### SSCK - Shoulder Self-Centering Knurling Tool *Reversible Direction*

| Description   | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |  |
|---------------|-------|-------------|---------------|-------|------------|--|
|               |       |             | Description   | UPC # |            |  |
| SSCK-38-DW-2  | 22210 | SW2 *       | SW2.0P-2S     | 29055 | 0.375      |  |
| SSCK-50-DW-2  | 22220 | SW2 *       | SW2.0P-2S     | 29055 | 0.500      |  |
| SSCK-162-DW-2 | 22218 | SW2 *       | SW2.0P-2S     | 29055 | 0.625      |  |
| SSCK-75-DW-4  | 22240 | SW4 **      | SW4.0P-2S     | 29085 | 0.750      |  |
| SSCK-100-DW-4 | 22250 | SW4 **      | SW4.0P-2S     | 29085 | 1.000      |  |
| SSCK-125-DW-4 | 22260 | SW4 **      | SW4.0P-2S     | 29085 | 1.250      |  |

Supplied with one (1) set of beveled diagonal high speed TiN coated knurl wheels, \*30 TPI, \*\*25 TPI

\*\*\* Warning: May cause deflection on small part diameters, and too much pressure on large diameters



Forming

### 3SHKT - Three Swivel Head Knurling Tool *Reversible Direction*

| Description | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |  |
|-------------|-------|-------------|---------------|-------|------------|--|
|             |       |             | Description   | UPC # |            |  |
| 3SHKT-50-D  | 21510 | D *         | KPS-18-62     | 28810 | 0.500      |  |
| 3SHKT-162-D | 21515 | D *         | KPS-18-62     | 28810 | 0.625      |  |
| 3SHKT-75-M  | 21530 | M **        | KPS-31-100    | 28845 | 0.750      |  |
| 3SHKT-100-M | 21540 | M **        | KPS-31-100    | 28845 | 1.000      |  |
| 3SHKT-125-M | 21550 | M **        | KPS-31-100    | 28845 | 1.250      |  |

\* Supplied with three (3) sets of beveled diagonal right and diagonal left high speed TiN coated knurl wheels, 20 TPI, 30 TPI, 40 TPI

\*\* Supplied with three (3) sets of beveled diagonal right and diagonal left high speed TiN coated knurl wheels, 16 TPI, 25 TPI, 35 TPI.

\*\*\* Warning: May cause deflection on small part diameters, and too much pressure on large diameters



Forming

### FKT - Fixed Forming Knurling Tool

| Description | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |  |
|-------------|-------|-------------|---------------|-------|------------|--|
|             |       |             | Description   | UPC # |            |  |
| FKT-38-D    | 21910 | D *         | KPS-18-50     | 28805 | 0.375      |  |
| FKT-50-D    | 21920 | D *         | KPS-18-50     | 28805 | 0.500      |  |
| FKT-162-D   | 21955 | D *         | KPS-18-62     | 28810 | 0.625      |  |
| FKT-75-M    | 21930 | M **        | KPS-31-75     | 28840 | 0.750      |  |
| FKT-100-M   | 21940 | M **        | KPS-31-100    | 28845 | 1.000      |  |
| FKT-125-O   | 21950 | O **        | KPS-31-125    | 28850 | 1.250      |  |

Supplied with one (1) set of diagonal high speed beveled TiN coated knurl wheels, \*30 TPI, \*\* 25 TPI

\*\*\* Warning: May cause deflection on small part diameters, and too much pressure on large diameters



Forming

### SFKT - Shoulder Fixed Forming Knurling Tool

| Description | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |  |
|-------------|-------|-------------|---------------|-------|------------|--|
|             |       |             | Description   | UPC # |            |  |
| SFKT-38-2   | 22010 | SW2 *       | SW2.0P-2S     | 29055 | 0.375      |  |
| SFKT-50-2   | 22020 | SW2 *       | SW2.0P-2S     | 29055 | 0.500      |  |
| SFKT-162-2  | 22055 | SW2 *       | SW2.0P-2S     | 29055 | 0.625      |  |
| SFKT-75-4   | 22030 | SW4 **      | SW4.0P-2S     | 29085 | 0.750      |  |
| SFKT-100-4  | 22040 | SW4 **      | SW4.0P-2S     | 29085 | 1.000      |  |
| SFKT-125-4  | 22050 | SW4 **      | SW4.0P-2S     | 29085 | 1.250      |  |

Supplied with one (1) set of beveled diagonal high speed TiN coated knurl wheels, \* 30 TPI (0.8mm), \*\* 25 TPI (1.0mm)

\*\*\* Warning: May cause deflections on small part diameters, and too much pressure on large diameters



Forming

### SWFKT - Single Wheel Fixed Forming Knurling Tool HDSWFKT - Heavy Duty Single Wheel Fixed Forming Knurling Tool

| Description   | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |  |
|---------------|-------|-------------|---------------|-------|------------|--|
|               |       |             | Description   | UPC # |            |  |
| SWFKT-831-B   | 21705 | B *         | KPS-12-38     | 28800 | 0.312      |  |
| SWFKT-38-D    | 21720 | D *         | KPS-18-50     | 28805 | 0.375      |  |
| SWFKT-50-D    | 21730 | D *         | KPS-18-50     | 28805 | 0.500      |  |
| SWFKT-162-D   | 21765 | D *         | KPS-18-62     | 28810 | 0.625      |  |
| SWFKT-75-M    | 21740 | M **        | KPS-31-75     | 28840 | 0.750      |  |
| SWFKT-100-O   | 21750 | O **        | KPS-31-100    | 28845 | 1.000      |  |
| SWFKT-125-O   | 21760 | O **        | KPS-31-125    | 28850 | 1.250      |  |
| HDSWFKT-75-O  | 21810 | O **        | KPS-31-100-C  | 28945 | 0.750      |  |
| HDSWFKT-100-P | 21820 | P **        | KPS-50-125-C  | 28955 | 1.000      |  |
| HDSWFKT-125-P | 21830 | P **        | KPS-50-125-C  | 28955 | 1.250      |  |

Supplied with one (1) straight high speed beveled TiN coated knurl wheel, \*30 TPI, \*\*25 TPI

\*\*\* Warning: May cause deflection on small part diameters, and too much pressure on large diameters





### SSWFKT - Single Shoulder Wheel Fixed Forming Knurling Tool

| Description  | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |
|--------------|-------|-------------|---------------|-------|------------|
|              |       |             | Description   | UPC # |            |
| SSWFKT-38-2  | 21777 | SW2 *       | SW2.0P-1S     | 29050 | 0.375      |
| SSWFKT-50-2  | 21781 | SW2 *       | SW2.0P-1S     | 29050 | 0.500      |
| SSWFKT-162-2 | 21783 | SW2 *       | SW2.0P-1S     | 29050 | 0.625      |
| SSWFKT-75-4  | 21789 | SW4 **      | SW4.0P-1S     | 29080 | 0.750      |
| SSWFKT-100-4 | 21793 | SW4 **      | SW4.0P-1S     | 29080 | 1.000      |
| SSWFKT-125-4 | 21797 | SW4 **      | SW4.0P-1S     | 29080 | 1.250      |



Supplied with one (1) beveled straight high speed TiN coated knurl wheel, \* 30 TPI (0.8mm), \*\* 25 TPI (1.00mm)  
 \*\*\* Warning: May cause deflection on small part diameters, and too much pressure on large diameters



### 107ST - Straight Cutting Knurling Tool With A Square Shank For CNC

| Description       | UPC # |       | Knurl Wheel | Knurl Pin Set |       | Shank Size |
|-------------------|-------|-------|-------------|---------------|-------|------------|
|                   | R.H.  | LH.   |             | Description   | UPC # |            |
| 107ST-50-R-RH/LH  | 21110 | 21210 | RDL*        | KPS-25-100-C  | 28930 | 0.500      |
| 107ST-162-R-RH/LH | 21115 | 21215 | RDL*        | KPS-25-100-C  | 28930 | 0.625      |
| 107ST-75-M-RH/LH  | 21130 | 21230 | MDL**       | KPS-31-125-C  | 28950 | 0.750      |
| 107ST-100-M-RH/LH | 21140 | 21240 | MDL**       | KPS-31-125-C  | 28950 | 1.000      |
| 107ST-125-M-RH/LH | 21150 | 21250 | MDL**       | KPS-31-125-C  | 28950 | 1.250      |



Supplied with one (1) full faced diagonal left high speed TiN coated knurl wheel, \* 30 TPI, \*\* 25 TPI  
 \*\*\* Warning: May cause deflection on small part diameters, and too much pressure on large diameters



### 107ST - Straight Cutting Shoulder Knurling Tool With A Square Shank For CNC

| Description       | UPC # |       | Knurl Wheel | Knurl Pin Set |       | Shank Size |
|-------------------|-------|-------|-------------|---------------|-------|------------|
|                   | R.H.  | LH.   |             | Description   | UPC # |            |
| 107ST-50-2-RH/LH  | 21111 | 21211 | SW2L*       | SW2.0P-1S     | 29050 | 0.500      |
| 107ST-162-2-RH/LH | 21116 | 21216 | SW2L*       | SW2.0P-1S     | 29050 | 0.625      |
| 107ST-75-4-RH/LH  | 21131 | 21231 | SW4L**      | SW4.0P-1S     | 29080 | 0.750      |
| 107ST-100-4-RH/LH | 21141 | 21241 | SW4L**      | SW4.0P-1S     | 29080 | 1.000      |
| 107ST-125-4-RH/LH | 21151 | 21251 | SW4L**      | SW4.0P-1S     | 29080 | 1.250      |



Supplied with one (1) full faced diagonal left high speed TiN coated knurl wheel, \* 30 TPI (.8mm), \*\* 25 TPI (1.0mm)  
 \*\*\* Warning: May cause deflection on small part diameters, and too much pressure on large diameters



### FACEKT - Face Forming Knurling Tool

| Description  | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |
|--------------|-------|-------------|---------------|-------|------------|
|              |       |             | Description   | UPC # |            |
| FACEKT-75-2  | 21620 | SW2 *       | SW2.0P-1S     | 29050 | 0.750      |
| FACEKT-100-2 | 21630 | SW2 *       | SW2.0P-1S     | 29050 | 1.000      |
| FACEKT-75-4  | 21640 | SW4 **      | SW4.0P-1S     | 29080 | 0.750      |
| FACEKT-100-4 | 21650 | SW4 **      | SW4.0P-1S     | 29080 | 1.000      |



Supplied with one (1) beveled straight high speed TiN coated knurl wheel, \* 30 TPI (.8mm), \*\* 25 TPI (1.0mm)  
 \*\*\* Limited band width from knurl wheel



### TIKT - True Internal Forming Knurling Tool

| Description | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |
|-------------|-------|-------------|---------------|-------|------------|
|             |       |             | Description   | UPC # |            |
| TIKT-50-B   | 22611 | B *         | KPS-12-38     | 28800 | 0.500      |
| TIKT-75-D   | 22621 | D *         | KPS-18-50     | 28805 | 0.750      |
| TIKT-100-R  | 22631 | R **        | KPS-25-75     | 28820 | 1.000      |
| TIKT-125-M  | 22641 | M **        | KPS-31-100    | 28845 | 1.250      |



Supplied with one (1) set of beveled diagonal high speed knurl wheels, \*30 TPI, \*\*25 TPI  
 \*\*\* Warning: May cause deflections on small part diameters, and too much pressure on large diameters



### SIKT - Shoulder Internal Forming Knurling Tool

| Description | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |
|-------------|-------|-------------|---------------|-------|------------|
|             |       |             | Description   | UPC # |            |
| SIKT-50-2   | 22610 | SW2 *       | SW2.0P-1S     | 29050 | 0.500      |
| SIKT-75-4   | 22620 | SW4 **      | SW4.0P-1S     | 29080 | 0.750      |
| SIKT-100-4  | 22630 | SW4 **      | SW4.0P-1S     | 29080 | 1.000      |
| SIKT-125-4  | 22640 | SW4 **      | SW4.0P-1S     | 29080 | 1.250      |



Supplied with one (1) beveled straight high speed TiN coated knurl wheel, \* 30 TPI, \*\* 25 TPI.



### MMKT - Milling Machine Forming Knurling Tool

| Description | UPC # | Knurl Wheel | Knurl Pin Set |       | Shank Size |
|-------------|-------|-------------|---------------|-------|------------|
|             |       |             | Description   | UPC # |            |
| MMKT-38-D   | 22510 | D *         | KPS-18-62     | 28810 | 0.375      |
| MMKT-50-R   | 22520 | R **        | KPS-25-87     | 28825 | 0.500      |
| MMKT-75-O   | 22530 | O **        | KPS-31-100    | 28845 | 0.750      |
| MMKT-100-O  | 22540 | O **        | KPS-31-125    | 28850 | 1.000      |
| MMKT-125-P  | 22550 | P **        | KPS-50-150    | 28860 | 1.250      |



Supplied with one (1) beveled straight high speed TiN coated knurl wheel, \*30 TPI (0.8mm), \*\*25 TPI (1.0mm)



#### KTW109 Heavy Duty Style Straddle Square Shank Knurling Tool **Reversible Direction**

| Description     | UPC # | Diameter Range*** | Knurl Wheel | Knurl Arm Set |             | Shank Size |
|-----------------|-------|-------------------|-------------|---------------|-------------|------------|
|                 |       |                   |             | Supplied      | Optional    |            |
| KTM109-75-15-M  | 22814 | 0 - 1.50"         | M*          | W109-3-25-M   | W109-3-25-4 | 0.750      |
| KTM109-100-15-M | 22816 |                   | M*          | W109-3-25-M   | W109-3-25-4 | 1.000      |
| KTW109-125-15-M | 22818 |                   | M*          | W109-3-25-M   | W109-3-25-4 | 1.250      |
| KTM109-75-25-M  | 22823 |                   | M*          | W109-3-25-M   | W109-3-25-4 | 0.750      |
| KTM109-100-25-M | 22824 | .125" - 2.50"     | M*          | W109-3-25-M   | W109-3-25-4 | 1.000      |
| KTM109-125-25-M | 22826 |                   | M*          | W109-3-25-M   | W109-3-25-4 | 1.250      |



\* Supplied with one (1) set of beveled diagonal high speed TiN coated knurl wheels for a male diamond pattern, 25 TPI

\*\*\*Warning: This tool has the capability to adjust the wheels until they touch, but physically applying a knurl on small diameters may not be possible



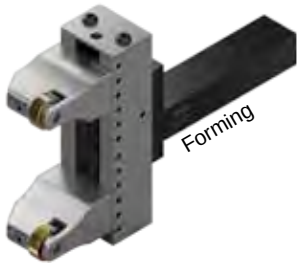
#### KTW109 Shoulder Style Straddle Square Shank Forming Knurling Tool **Reversible Direction**

| Description     | UPC # | Diameter Range*** | Knurl Wheel | Knurl Arm Set |             | Shank Size |
|-----------------|-------|-------------------|-------------|---------------|-------------|------------|
|                 |       |                   |             | Supplied      | Optional    |            |
| KTW109-75-15-4  | 22832 | 0 - 1.50"         | SW4*        | W109-3-25-4   | W109-3-25-M | 0.750      |
| KTW109-100-15-4 | 22833 |                   | SW4*        | W109-3-25-4   | W109-3-25-M | 1.000      |
| KTW109-125-15-4 | 22834 |                   | SW4*        | W109-3-25-4   | W109-3-25-M | 1.250      |
| KTW109-75-25-4  | 22841 |                   | SW4*        | W109-3-25-M   | W109-3-25-4 | 0.750      |
| KTW109-100-25-4 | 22842 | .125" - 2.50"     | SW4*        | W109-3-25-M   | W109-3-25-4 | 1.000      |
| KTW109-125-25-4 | 22843 |                   | SW4*        | W109-3-25-M   | W109-3-25-4 | 1.250      |



\* Supplied with one (1) set of beveled diagonal high speed TiN coated knurl wheels for a male diamond pattern, 25 TPI

\*\*\*Warning: This tool has the capability to adjust the wheels until they touch, but physically applying a knurl on small diameters may not be possible



#### KTO109-40 Heavy Duty Style Straddle Square Shank Knurling Tool **Reversible Direction**

| Description     | UPC # | Diameter Range*** | Knurl Wheel | Knurl Arm Set |             | Shank Size |
|-----------------|-------|-------------------|-------------|---------------|-------------|------------|
|                 |       |                   |             | Supplied      | Optional    |            |
| KTO109-100-40-O | 22869 | 5/8" - 4.0"       | O*          | W109-3-40-O   | W109-3-40-4 | 1.000      |
| KTO109-125-40-O | 22870 |                   | O*          | W109-3-40-O   | W109-3-40-4 | 1.250      |



\* Supplied with one (1) set of beveled diagonal high speed TiN coated knurl wheels for a male diamond pattern, 25 TPI

\*\*\*Warning: Physically applying a knurl on small diameters may not be possible



#### KTW109-40 Shoulder Style Straddle Square Shank Knurling Tool **Reversible Direction**

| Description     | UPC # | Diameter Range*** | Knurl Wheel | Knurl Arm Set |             | Shank Size |
|-----------------|-------|-------------------|-------------|---------------|-------------|------------|
|                 |       |                   |             | Supplied      | Optional    |            |
| KTW109-100-40-4 | 22873 | 5/8" - 4.0"       | SW4*        | W109-3-40-4   | W109-3-40-O | 1.000      |
| KTW109-125-40-4 | 22874 |                   | SW4*        | W109-3-40-4   | W109-3-40-O | 1.250      |



\* Supplied with one (1) set of beveled diagonal high speed TiN coated knurl wheels for a male diamond pattern, 25 TPI

\*\*\*Warning: Physically applying a knurl on small diameters may not be possible



#### CNC109-M Side Mount Flange Style Square Shank Knurling Tool

| Description         | UPC #       | Diameter Range*** | Knurl Wheel | Knurl Arm Set |             | Shank Size |
|---------------------|-------------|-------------------|-------------|---------------|-------------|------------|
|                     |             |                   |             | Supplied      | Optional    |            |
| CNC109-75-15-M-R/L  | 21449 21452 | 0 - 1.50"         | M*          | W109-3-25-M   | W109-3-25-4 | 0.750      |
| CNC109-100-15-M-R/L | 21450 21453 |                   | M*          | W109-3-25-M   | W109-3-25-4 | 1.000      |
| CNC109-125-15-M-R/L | 21451 21454 |                   | M*          | W109-3-25-M   | W109-3-25-4 | 1.250      |
| CNC109-75-25-M-R/L  | 21461 21464 |                   | M*          | W109-3-25-M   | W109-3-25-4 | 0.750      |
| CNC109-100-25-M-R/L | 21462 21465 | .125" - 2.50"     | M*          | W109-3-25-M   | W109-3-25-4 | 1.000      |
| CNC109-125-25-M-R/L | 21463 21466 |                   | M*          | W109-3-25-M   | W109-3-25-4 | 1.250      |



\* Supplied with one (1) set of beveled diagonal high speed TiN coated knurl wheels, 25 TPI

\*\*\* Warning: This tool has the capability to adjust the wheels until they touch, but physically applying a knurl on small diameters may not be possible



#### CNC109-4 Side Mount Shoulder Style Square Shank Knurling Tool

| Description         | UPC #       | Diameter Range*** | Knurl Wheel | Knurl Arm Set |             | Shank Size |
|---------------------|-------------|-------------------|-------------|---------------|-------------|------------|
|                     |             |                   |             | Supplied      | Optional    |            |
| CNC109-75-15-4-R/L  | 21473 21476 | 0 - 1.50"         | SW4*        | W109-3-25-4   | W109-3-25-M | 0.750      |
| CNC109-100-15-4-R/L | 21474 21477 |                   | SW4*        | W109-3-25-4   | W109-3-25-M | 1.000      |
| CNC109-125-15-4-R/L | 21475 21478 |                   | SW4*        | W109-3-25-4   | W109-3-25-M | 1.250      |
| CNC109-75-25-4-R/L  | 21485 21488 |                   | SW4*        | W109-3-25-4   | W109-3-25-M | 0.750      |
| CNC109-100-25-4-R/L | 21486 21489 | .125" - 2.50"     | SW4*        | W109-3-25-4   | W109-3-25-M | 1.000      |
| CNC109-125-25-4-R/L | 21487 21490 |                   | SW4*        | W109-3-25-4   | W109-3-25-M | 1.250      |



\* Supplied with one (1) set of beveled diagonal high speed TiN coated knurl wheels, 25 TPI

\*\*\* Warning: This tool has the capability to adjust the wheels until they touch, but physically applying a knurl on small diameters may not be possible

# 3 WHEEL KNURLING TOOL

for CUTTING & FORMING



Heavy Duty Shoulderless Carbide Pin



High Speed Pin

## PROPERTIES

### 1. For small diameters

When side pressure does not allow the use of a one or two wheel knurling tool.

### 2. For long lengths

When support or live center is not permissible. The part would deflect if a standard one or two wheel knurling tool is used.

### 3. For high precision knurling

When the finished diameter of the knurled part demands close tolerance. The three wheel knurling system applies less pressure per wheel controlling the displacement and the form of the material. This makes the knurl uniform and precise.

### 4. For high production

High production without sacrificing performance and quality.

### 5. For automation

When cost is a factor. The high performance of this tool will keep the manufacturing cost lower.

### 6. Which machine to use on

Automatic Screw Machines, CNC Lathes, and Turret Lathes.

## FEATURES:

- Minimum diameter .085" (2,16mm)
- Maximum diameter 1.500" (38,1mm)
- For straight or diamond knurl
- Infinite lengths
- Precise scroll gear
- Fine diameter adjustment
- Dial allows for visual diameter adjustment
- Knurl to a shoulder
- Self-adjust to parts and tool misalignment
- Easy to setup
- Simple to operate
- Manual knurl diameter release for manual lathes

## 3WSKT -Three wheel knurling tool with optional round or square shanks

- Made of heat treated precision ground alloy steel.
- The dovetail guide and adjustable arms ensure the most possible accuracy and rigidity.
- A precise scroll gear allows for fine diameter settings.
- Scaled dial makes setting the diameter easy.
- This tool is engineered for most demanding knurling jobs in Screw Machine, C.N.C. Lathe, and Turret Lathe Applications.
- Square shank can be reversed for right hand or left hand operation.
- Square shank with preset center height.

## Resulting Knurl Pattern

Straight pattern with 3 straight wheels



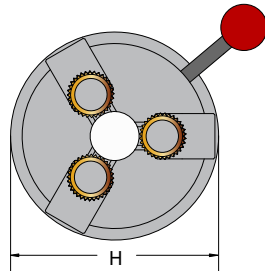
Male 60° diamond pattern with diagonal wheels (2 Right & 1 Left or 2 Left & 1 Right)



## Recommended Use:

For best results, use beveled knurl wheels. End-feed the knurling tool into the blank until the desired length of the knurl is done.

The Three Wheel Knurling Tool can knurl up to a shoulder, minimum diameter of .085" (2.16mm) up to 1.500" (38.1mm) diameter, and infinite lengths. The Heavy Duty Three Wheel Knurling Tool is recommended for shoulderless applications for improved wheel life.

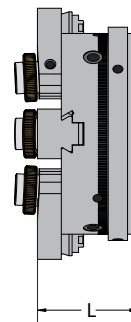
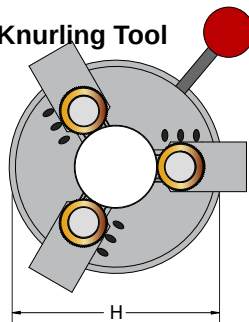


| Specifications |       |                                       |                    |                    |                   |                  |       |
|----------------|-------|---------------------------------------|--------------------|--------------------|-------------------|------------------|-------|
| Description    | UPC # | Capacity                              | H                  | L                  | Knurl Wheel Style | Knurl Pin Set*** | UPC # |
| 3WKT-06-2      | 23004 | 2.16mm to 6.4mm<br>(.085" to 0.250")  | 44.5mm<br>(1.750") | 40.0mm<br>(1.575") | SW2 *             | SW2.0P-3S        | 29060 |
| 3WKT-12-2      | 23009 | 2.16mm to 12.7mm<br>(.085" to 0.500") | 57.2mm<br>(2.250") | 40.0mm<br>(1.575") | SW2 *             | SW2.0P-3S        | 29060 |
| 3WKT-25-2      | 23024 | 3.2mm to 25.4mm<br>(0.125" to 1.000") | 76.2mm<br>(3.000") | 40.0mm<br>(1.575") | SW2 *             | SW2.0P-3S        | 29060 |
| 3WKT-40-2      | 23034 | 4.75mm to 38.1mm<br>(.187" to 1.500") | 108mm<br>(4.250")  | 62.0mm<br>(2.440") | SW2 *             | SW2.0P-3S        | 29060 |

| Optional Square Shank |       |            |        |
|-----------------------|-------|------------|--------|
| Description    UPC #  |       | Shank Size |        |
|                       |       | Square     | Length |
| 3WSKT-06-50           | 23095 | .500"      | 3.00"  |
| 3WSKT-06-162          | 23097 | .625"      | 3.50"  |
| 3WSKT-06-75           | 23099 | .750"      | 4.00"  |
|                       |       |            |        |
| 3WSKT-12-162          | 23082 | .625"      | 3.50"  |
| 3WSKT-12-75           | 23102 | .750"      | 4.00"  |
| 3WSKT-12-100          | 23078 | 1.00"      | 5.00"  |
|                       |       |            |        |
| 3WSKT-25-75           | 23079 | .750"      | 4.00"  |
| 3WSKT-25-100          | 23080 | 1.00"      | 5.00"  |
|                       |       |            |        |
| 3WSKT-40-100          | 23081 | 1.00"      | 5.00"  |

| Optional Round Shank |       |            |        |
|----------------------|-------|------------|--------|
| Description          | UPC # | Shank Size |        |
|                      |       | Dia.       | Length |
| 3WRKT-06-50          | 23110 | .500"      | 3.00"  |
| 3WRKT-06-162         | 23106 | .625"      | 3.50"  |
| 3WRKT-06-75          | 23111 | .750"      | 4.00"  |
| 3WRKT-12-162         | 23115 | .625"      | 3.50"  |
| 3WRKT-12-75          | 23112 | .750"      | 4.00"  |
| 3WRKT-12-100         | 23114 | 1.00"      | 5.00"  |
| 3WRKT-25-75          | 23130 | .750"      | 4.00"  |
| 3WRKT-25-100         | 23124 | 1.00"      | 5.00"  |
| 3WRKT-40-100         | 23140 | 1.00"      | 5.00"  |

## Heavy Duty Shoulderless 3-Wheel Knurling Tool



| 3 Wheel Knurling Tool Head Specifications |       |               |        |        |                   |                        |
|-------------------------------------------|-------|---------------|--------|--------|-------------------|------------------------|
| Description                               | UPC # | Capacity      | H      | L      | Knurl Wheel Style | Knurl Pin Set*** UPC # |
| 3WKT-40-2                                 | 23033 | .187" to 1.5" | 4.250" | 2.645" | M**               | SM4.0P-3S 29092        |

| Optional Square Shank |       |            |        |
|-----------------------|-------|------------|--------|
| Description           |       | Shank Size |        |
|                       |       | Square     | Length |
| 3WSKT-40-100          | 23081 | 1.00"      | 5.00"  |

| Optional Round Shank |       |            |        |
|----------------------|-------|------------|--------|
| Description          | UPC # | Shank Size |        |
|                      |       | Dia.       | Length |
| 3WRKT-40-100         | 23140 | 1.00"      | 5.00"  |

Knurl Tool Head and Optional Shanks are Sold Separately

\* Supplied with one (1) set of two (2) diagonal right and one (1) diagonal left beveled high speed TiN coated knurl wheels, 30 TPI (0.8mm)

\*\* Supplied with one (1) set of two (2) diagonal right and one (1) diagonal left beveled high speed TiN coated knurl wheels, 25 TPI (1.0mm)

\*\*\* One (1) set consists of three (3) knurling pins and washers



## Knurling Wheel Styles

| Straight Tooth                                                                    |                                                                                                   | 30° Diagonal Helix Angle                                                          |                                                                                   | 60° Diamond Angle                                                                   |                                                                                     |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                   |                                                                                                   | Right Hand                                                                        | Left Hand                                                                         | Male                                                                                | Female                                                                              |
|  |                                                                                                   |  |  |  |  |
| Resulting Knurl Pattern                                                           |                                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| Straight * Pattern                                                                | Left Hand Knurl Pattern<br>Or Male Diamond Pattern When Right Hand & Left Hand are used in pairs* |                                                                                   | Right Hand Knurl Pattern                                                          | Female Diamond ** Knurl Pattern                                                     | Male Diamond ** Knurl Pattern                                                       |

\* In-feed and End-feed knurling application. \*\* In-feed knurling application only.

### Edge Prep



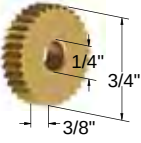
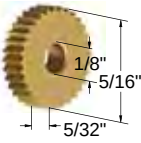
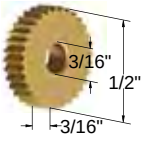
**Full Faced:** Sharp leading edge for Cutting Type knurling tools only.

**Beveled Edge:** Edge security for forming type knurling tools only.

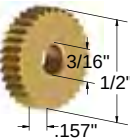
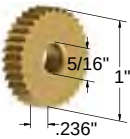
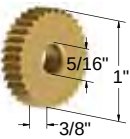
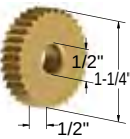
### Knurl Wheel Material

**High Speed Steel Knurl Wheels:** Tough and shock resistant. Best recommended for materials such as Carbon Steel, Alloy Steel, and Stainless Steel.

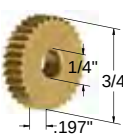
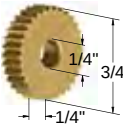
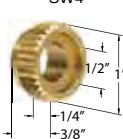
**Cobalt Knurl Wheels:** The 8.5% cobalt content adds hardness and wear resistance to the wheels. Best recommended for abrasive and soft materials such as Free Machining Steel, Aluminum, and nonferrous materials

| Knurl Wheel Series                                                                             | Description | Pattern        | Grade                 | Edge Prep    | 10 TPI | 12 TPI | 14 TPI | 16 TPI | 20 TPI | 25 TPI | 30 TPI | 35 TPI | 40 TPI | 50 TPI | 80 TPI | 64 DP | 96 DP | 128 DP | 160 DP |
|------------------------------------------------------------------------------------------------|-------------|----------------|-----------------------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|--------|
| <b>A</b><br>  | AS-TPI-HS   | Straight       | High Speed TiN Coated | Sharp Corner | 23502  | 23504  | 23506  | 23508  | 23510  | 23512  | 23514  | 23516  | 23518  | 23520  | -      | 23524 | 23526 | 23528  | -      |
|                                                                                                | AS-TPI-HSB  |                | Beveled Corner        | -            | -      | 23537  | -      | 23541  | 23543  | -      | -      | -      | -      | -      | -      | -     | 23559 | -      | -      |
|                                                                                                | AS-TPI-C    |                | Cobalt TiN Coated     | Sharp Corner | -      | -      | -      | -      | 23576  | 23578  | 23580  | 23582  | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | AS-TPI-CB   |                | Beveled Corner        | -            | -      | 23603  | -      | 23607  | -      | 23611  | 23613  | 23615  | 23617  | 23619  | -      | -     | -     | -      | -      |
|                                                                                                | ADR-TPI-HS  | Diagonal Right | High Speed TiN Coated | Sharp Corner | 23634  | 23636  | 23638  | 23640  | 23642  | 23644  | 23646  | -      | 23650  | 23652  | -      | -     | 23658 | 23660  | -      |
|                                                                                                | ADR-TPI-HSB |                | Beveled Corner        | -            | -      | 23669  | -      | -      | 23675  | 23677  | -      | -      | 23683  | -      | -      | -     | 23691 | -      | -      |
|                                                                                                | ADR-TPI-C   |                | Cobalt TiN Coated     | Sharp Corner | 23700  | 23702  | -      | 23706  | 23708  | 23710  | -      | -      | -      | -      | -      | -     | -     | 23726  | -      |
|                                                                                                | ADR-TPI-CB  |                | Beveled Corner        | -            | -      | -      | 23737  | -      | -      | 23743  | -      | 23747  | -      | -      | -      | -     | 23757 | -      | -      |
|                                                                                                | ADL-TPI-HS  | Diagonal Left  | High Speed TiN Coated | Sharp Corner | 23766  | 23768  | 23770  | 23772  | 23774  | 23776  | 23778  | -      | 23782  | 23784  | -      | -     | -     | 23792  | -      |
|                                                                                                | ADL-TPI-HSB |                | Beveled Corner        | -            | -      | 23799  | 23801  | 23803  | -      | 23807  | 23809  | -      | 23815  | -      | -      | -     | 23823 | -      | -      |
|                                                                                                | ADL-TPI-C   |                | Cobalt TiN Coated     | Sharp Corner | 23832  | 23834  | -      | 23838  | 23840  | 23842  | -      | -      | -      | -      | -      | -     | -     | 23858  | -      |
|                                                                                                | ADL-TPI-CB  |                | Beveled Corner        | -            | -      | -      | 23869  | -      | -      | 23875  | 23877  | 23879  | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | AM-TPI-HS   | Male Diamond   | High Speed TiN Coated | Sharp Corner | -      | -      | -      | -      | 23906  | 23908  | -      | -      | 23914  | 23916  | -      | -     | -     | -      | -      |
|                                                                                                | AM-TPI-HSB  |                | Beveled Corner        | -            | -      | -      | -      | -      | 23939  | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | AF-TPI-HS   | Female Diamond | High Speed TiN Coated | Sharp Corner | -      | -      | -      | 23970  | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | AF-TPI-HSB  |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
| <b>B</b><br> | BS-TPI-HS   | Straight       | High Speed TiN Coated | Sharp Corner | -      | -      | -      | -      | -      | -      | -      | -      | 24110  | -      | -      | -     | 24116 | 24118  | 24120  |
|                                                                                                | BS-TPI-HSB  |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | 24129  | -      | -      | -      | 24137  | -     | -     | -      | -      |
|                                                                                                | BS-TPI-C    |                | Cobalt TiN Coated     | Sharp Corner | -      | -      | -      | -      | -      | -      | 24152  | 24154  | 24156  | 24158  | -      | -     | 24162 | -      | -      |
|                                                                                                | BS-TPI-CB   |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | BDR-TPI-HS  | Diagonal Right | High Speed TiN Coated | Sharp Corner | -      | -      | -      | -      | -      | -      | -      | 24200  | 24202  | -      | -      | -     | 24208 | 24210  | -      |
|                                                                                                | BDR-TPI-HSB |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | 24221  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | BDR-TPI-C   |                | Cobalt TiN Coated     | Sharp Corner | -      | -      | -      | -      | -      | -      | -      | -      | 24248  | -      | -      | -     | -     | -      | -      |
|                                                                                                | BDR-TPI-CB  |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | 24267  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | BDL-TPI-HS  | Diagonal Left  | High Speed TiN Coated | Sharp Corner | -      | -      | -      | -      | -      | -      | -      | 24292  | 24294  | -      | -      | -     | 24300 | 24302  | -      |
|                                                                                                | BDL-TPI-HSB |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | 24313  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | BDL-TPI-C   |                | Cobalt TiN Coated     | Sharp Corner | -      | -      | -      | -      | -      | -      | -      | -      | 24340  | -      | -      | -     | -     | -      | -      |
|                                                                                                | BDL-TPI-CB  |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | 24359  | -      | -      | -      | -      | -     | -     | -      | -      |
| <b>C</b><br> | CS-TPI-HS   | Straight       | High Speed TiN Coated | Sharp Corner | -      | -      | -      | 24502  | 24504  | 24506  | 24508  | 24510  | 24512  | 24514  | 24516  | -     | -     | 24522  | 24524  |
|                                                                                                | CS-TPI-HSB  |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | CS-TPI-C    |                | Cobalt TiN Coated     | Sharp Corner | -      | -      | -      | -      | -      | -      | 24562  | -      | 24566  | 24568  | 24570  | -     | -     | -      | 24578  |
|                                                                                                | CS-TPI-CB   |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | 24597  | -     | -     | -      | -      |
|                                                                                                | CDR-TPI-HS  | Diagonal Right | High Speed TiN Coated | Sharp Corner | -      | -      | -      | 24610  | -      | 24614  | 24616  | -      | -      | -      | -      | 24624 | 24626 | -      | -      |
|                                                                                                | CDR-TPI-HSB |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | 24641  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | CDR-TPI-C   |                | Cobalt TiN Coated     | Sharp Corner | -      | -      | -      | -      | -      | 24668  | 24670  | -      | 24674  | -      | 24678  | 24680 | 24682 | -      | -      |
|                                                                                                | CDR-TPI-CB  |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | CDL-TPI-HS  | Diagonal Left  | High Speed TiN Coated | Sharp Corner | -      | -      | -      | 24718  | 24720  | 24722  | 24724  | -      | -      | -      | 24732  | 24734 | -     | -      | -      |
|                                                                                                | CDL-TPI-HSB |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | 24749  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | CDL-TPI-C   |                | Cobalt TiN Coated     | Sharp Corner | -      | -      | -      | -      | -      | 24776  | 24778  | -      | 24782  | -      | 24786  | 24788 | -     | -      | -      |
|                                                                                                | CDL-TPI-CB  |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | CM-TPI-HS   | Male Diamond   | High Speed TiN Coated | Sharp Corner | -      | -      | -      | -      | -      | -      | -      | -      | 24836  | -      | -      | 24842 | -     | -      | -      |
|                                                                                                | CM-TPI-HSB  |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | CF-TPI-HS   | Female Diamond | High Speed TiN Coated | Sharp Corner | -      | -      | -      | -      | -      | 24884  | -      | -      | -      | 24892  | -      | -     | 24898 | -      | -      |
|                                                                                                | CF-TPI-HSB  |                | Beveled Corner        | -            | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |

NOTE: For forming-type knurling tools, beveled wheels are recommended for longer tool life. For cutting-type tools, full-face (sharp corner) wheels are the only choice. All Dorian Tool knurl wheels are PVD TiN coated to provide less friction and longer tool life. For a complete selection of knurling wheels, please refer to our general catalog.

| Knurl Wheel Series                                                                             | Description | Pattern        | Grade      | Edge Prep      | 10 TPI | 12 TPI | 14 TPI | 16 TPI | 20 TPI | 25 TPI | 30 TPI | 35 TPI | 40 TPI | 50 TPI | 80 TPI | 64 DP | 96 DP | 128 DP | 160 DP |
|------------------------------------------------------------------------------------------------|-------------|----------------|------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|--------|
| <b>D</b><br>   | DS-TPI-HS   | Straight       | High Speed | Sharp Corner   | -      | -      | -      | 25001  | 25003  | 25005  | 25007  | 25009  | -      | 25013  | 25015  | 25017 | 25019 | 25021  | -      |
|                                                                                                | DS-TPI-HSB  |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | 25030  | 25032  | 25034  | 25036  | 25038  | 25040  | -      | -     | 25046 | 25048  | -      |
|                                                                                                | DS-TPI-C    |                | Cobalt     | Sharp Corner   | -      | -      | -      | -      | 25004  | 25006  | 25008  | 25010  | -      | -      | 25016  | -     | -     | -      | 25024  |
|                                                                                                | DS-TPI-CB   |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | 25031  | 25033  | 25035  | -      | 25039  | 25041  | 25043  | -     | -     | -      | 25051  |
|                                                                                                | DDR-TPI-HS  | Diagonal Right | High Speed | Sharp Corner   | -      | -      | -      | 25055  | 25057  | 25059  | 25061  | 25063  | 25065  | 25067  | 25069  | -     | -     | -      | -      |
|                                                                                                | DDR-TPI-HSB |                | TIN Coated | Beveled Corner | -      | -      | -      | 25082  | 25084  | 25086  | 25088  | 25090  | 25092  | 25094  | -      | -     | -     | -      | -      |
|                                                                                                | DDR-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | -      | 25056  | 25058  | -      | 25062  | -      | -      | -      | -      | -     | 25074 | 25076  | 25078  |
|                                                                                                | DDR-TPI-CB  |                | TIN Coated | Beveled Corner | -      | -      | -      | 25083  | 25085  | 25087  | 25089  | -      | 25093  | -      | 25097  | 25099 | 25101 | -      | -      |
|                                                                                                | DDL-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | -      | -      | -      | 25109  | 25111  | 25113  | 25115  | 25117  | 25119  | 25121  | 25123  | -     | -     | -      | -      |
|                                                                                                | DDL-TPI-HSB |                | TIN Coated | Beveled Corner | -      | -      | -      | 25136  | 25138  | 25140  | 25142  | 25144  | 25146  | 25148  | -      | -     | -     | -      | -      |
|                                                                                                | DDL-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | -      | 25110  | 25112  | -      | 25116  | -      | -      | -      | -      | -     | 25128 | 25130  | 25132  |
|                                                                                                | DDL-TPI-CB  |                | TIN Coated | Beveled Corner | -      | -      | -      | 25137  | 25139  | 25141  | 25143  | -      | 25147  | -      | 25151  | 25153 | 25155 | -      | -      |
|                                                                                                | DF-TPI-HS   | Female Diamond | High Speed | Sharp Corner   | -      | -      | -      | -      | -      | -      | 25169  | -      | -      | -      | -      | -     | 25181 | -      | -      |
|                                                                                                | DF-TPI-HS   |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | 25192  | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | DF-TPI-C    | Female Diamond | Cobalt     | Sharp Corner   | -      | -      | -      | -      | -      | -      | 25170  | -      | 25174  | -      | -      | -     | -     | -      | -      |
|                                                                                                | DF-TPI-CB   |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | 25205  | -     | -     | -      | -      |
| <b>M</b><br>   | MS-TPI-HS   | Straight       | High Speed | Sharp Corner   | 25303  | 25305  | 25307  | 25309  | 25311  | 25313  | 25315  | 25317  | -      | 25321  | -      | 25323 | 25325 | -      | -      |
|                                                                                                | MS-TPI-HSB  |                | TIN Coated | Beveled Corner | 25336  | 25338  | 25340  | 25342  | 25344  | 25346  | 25348  | 25350  | -      | -      | -      | 25356 | 25358 | 25360  | -      |
|                                                                                                | MS-TPI-C    |                | Cobalt     | Sharp Corner   | 25304  | 25306  | 25308  | 25310  | 25312  | 25314  | 25316  | 25318  | -      | 25322  | -      | 25324 | 25326 | -      | -      |
|                                                                                                | MS-TPI-CB   |                | TIN Coated | Beveled Corner | 25337  | 25339  | 25341  | 25343  | 25345  | 25347  | 25349  | -      | -      | -      | -      | 25357 | 25359 | -      | -      |
|                                                                                                | MDR-TPI-HS  | Diagonal Right | High Speed | Sharp Corner   | 25369  | 25371  | 25373  | 25375  | 25377  | 25379  | -      | 25383  | -      | -      | -      | -     | -     | 25393  | -      |
|                                                                                                | MDR-TPI-HSB |                | TIN Coated | Beveled Corner | 25402  | 25404  | 25406  | 25408  | 25410  | 25412  | 25414  | 25416  | -      | -      | -      | -     | 25424 | -      | -      |
|                                                                                                | MDR-TPI-C   |                | Cobalt     | Sharp Corner   | -      | 25372  | 25374  | 25376  | 25378  | 25380  | 25382  | -      | 25386  | -      | -      | -     | 25392 | -      | -      |
|                                                                                                | MDR-TPI-CB  |                | TIN Coated | Beveled Corner | -      | 25405  | 25407  | 25409  | 25411  | 25413  | 25415  | -      | -      | -      | -      | -     | 25425 | -      | -      |
|                                                                                                | MDL-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | 25435  | 25437  | 25439  | 25441  | 25443  | 25445  | 25447  | 25449  | -      | -      | -      | -     | -     | 25459  | -      |
|                                                                                                | MDL-TPI-HSB |                | TIN Coated | Beveled Corner | 25468  | 25470  | 25472  | 25474  | 25476  | 25478  | 25480  | 25482  | -      | -      | -      | -     | 25490 | -      | -      |
|                                                                                                | MDL-TPI-C   |                | Cobalt     | Sharp Corner   | -      | 25438  | 25440  | 25442  | 25444  | 25446  | 25448  | -      | 25452  | -      | -      | 25456 | 25458 | -      | -      |
|                                                                                                | MDL-TPI-CB  |                | TIN Coated | Beveled Corner | -      | 25471  | 25473  | 25475  | 25477  | 25479  | 25481  | -      | -      | -      | -      | -     | 25491 | -      | -      |
|                                                                                                | MF-TPI-HS   | Female Diamond | High Speed | Sharp Corner   | -      | -      | -      | -      | -      | -      | 25513  | -      | -      | -      | -      | -     | 25523 | -      | -      |
|                                                                                                | MF-TPI-HSB  |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | MF-TPI-C    | Female Diamond | Cobalt     | Sharp Corner   | -      | -      | -      | -      | -      | -      | 25514  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | MF-TPI-CB   |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | 25543  | -      | 25547  | -      | -      | -      | -      | -     | -     | -      | -      |
| <b>O</b><br>  | OS-TPI-HS   | Straight       | High Speed | Sharp Corner   | 25604  | 25606  | 25608  | 25610  | 25612  | 25614  | 25616  | 25618  | -      | -      | -      | 25624 | 25626 | -      | -      |
|                                                                                                | OS-TPI-HSB  |                | TIN Coated | Beveled Corner | -      | -      | 25641  | 25643  | 25645  | 25647  | 25649  | -      | -      | -      | -      | 25657 | 25659 | -      | -      |
|                                                                                                | OS-TPI-C    |                | Cobalt     | Sharp Corner   | -      | -      | 25674  | 25676  | 25678  | 25680  | 25682  | 25684  | -      | -      | -      | 25690 | -     | 25694  | -      |
|                                                                                                | OS-TPI-CB   |                | TIN Coated | Beveled Corner | -      | -      | 25707  | 25709  | 25711  | 25713  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | ODR-TPI-HS  | Diagonal Right | High Speed | Sharp Corner   | 25736  | -      | -      | 25742  | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | ODR-TPI-HSB |                | TIN Coated | Beveled Corner | -      | 25771  | -      | -      | 25777  | 25779  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | ODR-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | -      | -      | -      | 25812  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | ODR-TPI-CB  |                | TIN Coated | Beveled Corner | -      | -      | 25839  | -      | -      | 25845  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | ODL-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | 25868  | 25870  | -      | 25874  | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | ODL-TPI-HSB |                | TIN Coated | Beveled Corner | -      | 25903  | -      | -      | 25909  | 25911  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | ODL-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | 25938  | -      | -      | 25944  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | ODL-TPI-CB  |                | TIN Coated | Beveled Corner | -      | -      | 25971  | -      | -      | 25977  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | OM-TPI-HS   | Male Diamond   | High Speed | Sharp Corner   | -      | -      | -      | -      | 26008  | 26010  | 26012  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | OM-TPI-HSB  |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | -      | 26043  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | OF-TPI-HS   | Female Diamond | High Speed | Sharp Corner   | -      | -      | -      | -      | 26074  | 26076  | 26078  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | OF-TPI-HSB  |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | 26107  | 26109  | 26111  | -      | -      | -      | -      | -     | -     | -      | -      |
| <b>P</b><br> | PS-TPI-HS   | Straight       | High Speed | Sharp Corner   | -      | -      | 26202  | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PS-TPI-HSB  |                | TIN Coated | Beveled Corner | 26215  | 26217  | -      | -      | -      | 26225  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PS-TPI-C    |                | Cobalt     | Sharp Corner   | -      | -      | -      | 26238  | 26240  | 26242  | -      | -      | -      | -      | -      | -     | 26248 | -      | -      |
|                                                                                                | PS-TPI-CB   |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | 26257  | 26259  | 26261  | -      | -      | -      | -      | -     | 26265 | -      | -      |
|                                                                                                | PDR-TPI-HS  | Diagonal Right | High Speed | Sharp Corner   | -      | 26268  | -      | -      | 26274  | -      | 26278  | -      | -      | -      | -      | -     | 26282 | -      | -      |
|                                                                                                | PDR-TPI-HSB |                | TIN Coated | Beveled Corner | -      | 26285  | -      | -      | -      | 26293  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PDR-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PDR-TPI-CB  |                | TIN Coated | Beveled Corner | -      | -      | -      | 26323  | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PDL-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | -      | 26336  | -      | -      | 26342  | -      | 26346  | -      | -      | -      | -      | -     | 26350 | -      | -      |
|                                                                                                | PDL-TPI-HSB |                | TIN Coated | Beveled Corner | -      | 26353  | -      | -      | -      | 26361  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PDL-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PDL-TPI-CB  |                | TIN Coated | Beveled Corner | -      | -      | -      | 26391  | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PM-TPI-HS   | Male Diamond   | High Speed | Sharp Corner   | -      | 26404  | -      | 26408  | 26410  | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PM-TPI-HSB  |                | TIN Coated | Beveled Corner | -      | -      | -      | -      | 26427  | 26429  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PF-TPI-C    | Female Diamond | High Speed | Sharp Corner   | -      | -      | -      | 26442  | -      | 26446  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                                | PF-TPI-CB   |                | TIN Coated | Beveled Corner | -      | -      | -      | 26459  | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |

NOTE: For forming-type knurling tools, beveled wheels are recommended for longer tool life. For cutting-type tools, full-face (sharp corner) wheels are the only choice. All Dorian Tool knurl wheels are PVD TiN coated to provide less friction and longer tool life. For a complete selection of knurling wheels, please refer to our general catalog.

| Knurl Wheel Series                                                                        | Description  | Pattern        | Grade      | Edge Prep      | 10 TPI | 12 TPI | 14 TPI | 16 TPI | 20 TPI | 25 TPI | 30 TPI | 35 TPI | 40 TPI | 50 TPI | 80 TPI | 64 DP | 96 DP | 128 DP | 160 DP |
|-------------------------------------------------------------------------------------------|--------------|----------------|------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|--------|
| <br>R     | RS-TPI-HS    | Straight       | High Speed | Sharp Corner   | 26501  | 26503  | 26505  | 26507  | 26509  | 26511  | 26513  | 26515  | 26517  | 26519  | -      | 26521 | 26523 | -      | -      |
|                                                                                           | RS-TPI-HSB   |                | TiN Coated | Beveled Corner | 26532  | -      | 26536  | 26538  | 26540  | 26542  | 26544  | -      | 26548  | -      | -      | 26552 | 26554 | -      | -      |
|                                                                                           | RS-TPI-C     |                | Cobalt     | Sharp Corner   | 26502  | 26504  | 26506  | 26508  | 26510  | 26512  | 26514  | 26516  | 26518  | 26520  | -      | -     | 26524 | 26526  | -      |
|                                                                                           | RS-TPI-CB    |                | TiN Coated | Beveled Corner | -      | 26535  | 26537  | 26539  | 26541  | 26543  | 26545  | 26547  | -      | -      | -      | -     | 26555 | -      | -      |
|                                                                                           | RDR-TPI-HS   | Diagonal Right | High Speed | Sharp Corner   | 26563  | -      | 26567  | 26569  | 26571  | 26573  | 26575  | -      | 26579  | -      | -      | 26583 | -     | -      | -      |
|                                                                                           | RDR-TPI-HSB  |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | 26604  | 26606  | 26608  | -      | 26612  | -      | -     | -     | -      | -      |
|                                                                                           | RDR-TPI-C    |                | Cobalt     | Sharp Corner   | 26564  | 26566  | 26568  | -      | 26572  | 26574  | 26576  | -      | 26580  | 26582  | -      | -     | 26586 | 26588  | -      |
|                                                                                           | RDR-TPI-CB   |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | 26603  | -      | 26607  | -      | 26611  | -      | -      | -     | 26617 | -      | -      |
|                                                                                           | RDL-TPI-HS   | Diagonal Left  | High Speed | Sharp Corner   | 26625  | -      | 26629  | -      | 26633  | 26635  | 26637  | -      | 26641  | -      | -      | 26645 | -     | -      | -      |
|                                                                                           | RDL-TPI-HSB  |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | 26666  | 26668  | 26670  | -      | 26674  | -      | -     | -     | -      | -      |
|                                                                                           | RDL-TPI-C    |                | Cobalt     | Sharp Corner   | 26626  | 26628  | 26630  | -      | 26634  | 26636  | 26638  | -      | 26642  | 26644  | -      | -     | 26648 | 26650  | -      |
|                                                                                           | RDL-TPI-CB   |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | 26665  | -      | 26669  | -      | -      | -      | -      | -     | 26679 | -      | -      |
|                                                                                           | RF-TPI-HS    | Female         | High Speed | Sharp Corner   | -      | -      | -      | -      | -      | 26697  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | RF-TPI-HSB   | Diamond        | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | RF-TPI-C     | Female         | Cobalt     | Sharp Corner   | -      | -      | -      | -      | -      | -      | -      | -      | -      | 26706  | -      | -     | -     | -      | -      |
|                                                                                           | RF-TPI-CB    | Diamond        | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | 26731  | -      | -      | -      | -      | -     | -     | -      | -      |
| <br>S     | SS-TPI-HS    | Straight       | High Speed | Sharp Corner   | -      | 26804  | 26806  | 26808  | 26810  | 26812  | 26814  | 26816  | 26818  | -      | -      | 26822 | 26824 | 26826  | -      |
|                                                                                           | SS-TPI-HSB   |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | 26841  | 26843  | 26845  | -      | -      | -      | -      | -     | -     | -      | 26859  |
|                                                                                           | SS-TPI-C     |                | Cobalt     | Sharp Corner   | 26862  | 26864  | -      | 26868  | 26870  | 26872  | 26874  | -      | -      | -      | -      | 26882 | 26884 | -      | -      |
|                                                                                           | SS-TPI-CB    |                | TiN Coated | Beveled Corner | -      | 26895  | -      | -      | -      | 26903  | 26905  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SDR-TPI-HS   | Diagonal Right | High Speed | Sharp Corner   | 26924  | 26926  | -      | -      | -      | 26934  | 26936  | -      | -      | 26942  | -      | -     | -     | -      | -      |
|                                                                                           | SDR-TPI-HSB  |                | TiN Coated | Beveled Corner | -      | -      | 26959  | -      | -      | 26965  | 26967  | -      | -      | -      | -      | 26975 | -     | -      | -      |
|                                                                                           | SDR-TPI-C    |                | Cobalt     | Sharp Corner   | -      | -      | -      | -      | 26994  | -      | 26998  | 27000  | -      | 27004  | -      | -     | -     | -      | 27012  |
|                                                                                           | SDR-TPI-CB   |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | 27033  | -      | -      | -     | -     | -      | -      |
|                                                                                           | SDL-TPI-HS   | Diagonal Left  | High Speed | Sharp Corner   | 27048  | 27050  | -      | -      | -      | 27058  | 27060  | -      | -      | 27066  | -      | -     | -     | -      | -      |
|                                                                                           | SDL-TPI-HSB  |                | TiN Coated | Beveled Corner | -      | -      | 27083  | -      | -      | 27089  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SDL-TPI-C    |                | Cobalt     | Sharp Corner   | -      | -      | -      | -      | 27118  | -      | 27122  | 27124  | -      | 27128  | -      | 27130 | -     | -      | 27136  |
|                                                                                           | SDL-TPI-CB   |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | 27157  | -      | -      | -     | -     | -      | -      |
|                                                                                           | SM-TPI-HS    | Male           | High Speed | Sharp Corner   | -      | -      | -      | 27178  | -      | 27182  | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SM-TPI-HSB   | Diamond        | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SF-TPI-HS    | Female         | High Speed | Sharp Corner   | -      | -      | -      | -      | -      | -      | -      | -      | 27250  | 27252  | -      | -     | -     | 27258  | -      |
|                                                                                           | SF-TPI-HSB   | Diamond        | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
| <br>SW2  | SW2S-TPI-HS  | Straight       | High Speed | Sharp Corner   | -      | -      | -      | 27401  | 27403  | 27405  | 27407  | -      | 27411  | -      | -      | 27415 | 27417 | 27419  | -      |
|                                                                                           | SW2S-TPI-HSB |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | 27428  | 27430  | 27432  | -      | -      | -      | -      | -     | 27442 | -      | -      |
|                                                                                           | SW2S-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | -      | 27402  | 27404  | 27406  | 27408  | 27410  | 27412  | -      | -      | -     | -     | -      | -      |
|                                                                                           | SW2S-TPI-CB  |                | TiN Coated | Beveled Corner | -      | -      | -      | 27427  | 27429  | 27431  | 27433  | 27435  | 27437  | 27439  | -      | -     | -     | -      | -      |
|                                                                                           | SW2R-TPI-HS  | Diagonal Right | High Speed | Sharp Corner   | -      | -      | -      | -      | 27453  | -      | 27457  | 27459  | -      | -      | -      | -     | 27467 | 27469  | -      |
|                                                                                           | SW2R-TPI-HSB |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | 27478  | 27480  | 27482  | -      | -      | -      | -      | 27490 | -     | -      | -      |
|                                                                                           | SW2R-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | -      | -      | 27454  | 27456  | 27458  | -      | -      | -      | -      | -     | 27468 | -      | -      |
|                                                                                           | SW2R-TPI-CB  |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | 27479  | 27481  | 27483  | -      | -      | -      | -      | -     | 27493 | -      | -      |
|                                                                                           | SW2L-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | -      | -      | -      | 27501  | 27503  | 27505  | 27507  | 27509  | -      | -      | -      | -     | 27517 | 27519  | -      |
|                                                                                           | SW2L-TPI-HSB |                | TiN Coated | Beveled Corner | -      | -      | -      | 27526  | 27528  | 27530  | 27532  | -      | -      | -      | -      | 27540 | -     | -      | -      |
|                                                                                           | SW2L-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | -      | -      | 27504  | 27506  | 27508  | -      | -      | -      | -      | -     | 27518 | -      | -      |
|                                                                                           | SW2L-TPI-CB  |                | TiN Coated | Beveled Corner | -      | -      | -      | -      | 27529  | 27531  | 27533  | -      | -      | -      | -      | -     | 27543 | -      | -      |
|                                                                                           | SW2F-TPI-HS  | Female         | High Speed | Sharp Corner   | -      | -      | -      | 27551  | -      | 27555  | 27557  | -      | 27561  | 27563  | -      | -     | 27567 | -      | -      |
|                                                                                           | SW2F-TPI-HSB | Diamond        | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SW2F-TPI-C   | Female         | Cobalt     | Sharp Corner   | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SW2F-TPI-CB  | Diamond        | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
| <br>SW4 | SW4S-TPI-HS  | Straight       | High Speed | Sharp Corner   | -      | -      | 28001  | 28003  | 28005  | 28007  | 28009  | -      | 28013  | -      | -      | 28017 | 28019 | -      | -      |
|                                                                                           | SW4S-TPI-HSB |                | TiN Coated | Beveled Corner | -      | -      | 28028  | 28030  | 28032  | 28034  | 28036  | -      | 28040  | -      | -      | 28044 | 28046 | -      | -      |
|                                                                                           | SW4S-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | 28002  | 28004  | 28006  | 28008  | 28010  | 28012  | 28014  | -      | -      | 28018 | 28020 | -      | -      |
|                                                                                           | SW4S-TPI-CB  |                | TiN Coated | Beveled Corner | -      | -      | 28029  | 28031  | 28033  | 28035  | 28037  | -      | 28041  | 28043  | -      | 28045 | 28047 | -      | -      |
|                                                                                           | SW4R-TPI-HS  | Diagonal Right | High Speed | Sharp Corner   | -      | -      | 28055  | 28057  | 28059  | 28061  | 28063  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SW4R-TPI-HSB |                | TiN Coated | Beveled Corner | -      | -      | 28082  | 28084  | 28086  | 28088  | 28090  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SW4R-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | 28056  | 28058  | 28060  | 28062  | 28064  | 28066  | 28068  | 28070  | -      | -     | 28074 | -      | -      |
|                                                                                           | SW4R-TPI-CB  |                | TiN Coated | Beveled Corner | -      | -      | 28083  | 28085  | 28087  | 28089  | 28091  | 28093  | -      | -      | -      | -     | 28101 | -      | -      |
|                                                                                           | SW4L-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | -      | -      | 28109  | 28111  | 28113  | 28115  | 28117  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SW4L-TPI-HSB |                | TiN Coated | Beveled Corner | -      | -      | 28136  | 28138  | 28140  | 28142  | 28144  | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SW4L-TPI-C   |                | Cobalt     | Sharp Corner   | -      | -      | 28110  | 28112  | 28114  | 28116  | 28118  | 28120  | 28122  | 28124  | -      | -     | 28128 | -      | -      |
|                                                                                           | SW4L-TPI-CB  |                | TiN Coated | Beveled Corner | -      | -      | 28137  | 28139  | 28141  | 28143  | 28145  | 28147  | -      | -      | -      | -     | 28155 | -      | -      |
|                                                                                           | SW4F-TPI-HS  | Female         | High Speed | Sharp Corner   | -      | -      | 28163  | 28165  | 28167  | -      | -      | -      | -      | -      | -      | -     | 28181 | -      | -      |
|                                                                                           | SW4F-TPI-HSB | Diamond        | TiN Coated | Beveled Corner | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SW4F-TPI-C   | Female         | Cobalt     | Sharp Corner   | -      | -      | -      | 28166  | 28168  | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |
|                                                                                           | SW4F-TPI-CB  | Diamond        | TiN Coated | Beveled Corner | -      | -      | -      | 28193  | 28195  | -      | -      | -      | -      | -      | -      | -     | -     | -      | -      |

NOTE: For forming-type knurling tools, beveled wheels are recommended for longer tool life. For cutting-type tools, full-face (sharp corner) wheels are the only choice. All Dorian Tool knurl wheels are PVD TiN coated to provide less friction and longer tool life. For a complete selection of knurling wheels, please refer to our general catalog.



# MILLING CUTTERS





| Insert                                                                           | Description                       | Grade<br>DPP15HM<br>UPC # | Grade<br>DPC25UM<br>UPC # | Grade<br>DPP35RM<br>UPC # | Grade<br>DMC35UM<br>UPC # | Grade<br>DKC10UM<br>UPC # | Grade<br>DK10M<br>UPC # | Grade<br>DKP10VM<br>UPC # |
|----------------------------------------------------------------------------------|-----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-------------------------|---------------------------|
|  | APKT-1003-PDSR-<br>(.019" radius) | 94757                     | 94758                     | 94759                     | 94754                     | 94753                     | -                       | -                         |
|  | APHT-1003-PDFR-<br>(.019" radius) | -                         | -                         | -                         | -                         | -                         | 94750                   | 94751                     |
|  | APKT-1604-PDSR-<br>(.032" radius) | 94767                     | 94768                     | 94769                     | 94764                     | 94763                     | -                       | -                         |
|  | APHT-1604-PDFR-<br>(.032" radius) | -                         | -                         | -                         | -                         | -                         | 94760                   | 94761                     |
|  | APKT-160416SR-<br>(.063" radius)  | -                         | 94771                     | -                         | -                         | -                         | -                       | -                         |
|                                                                                  | APKT-160424SR-<br>(.094" radius)  | -                         | 94772                     | -                         | -                         | -                         | -                       | -                         |
|                                                                                  | APKT-160432SR-<br>(.125" radius)  | -                         | 94774                     | -                         | -                         | -                         | -                       | -                         |

**DPP15HM:** Multi-purpose grade for milling carbon and alloy steels, stainless steels and cast iron with nodular graphite. This TiAlN P25 grade is especially suitable for high cutting speeds in dry machining.

**DPC25UM:** First choice for carbon and alloy steels. Tough P30 substrate with MT-CVD multi-layer Al<sub>2</sub>O<sub>3</sub> coating.

**DPP35RM:** First choice for Tool Steels. Very tough P35 substrate with Nanotop PVD AlTiN coating. Ideal for dry milling at low to medium cutting speeds for roughing.

**DMC35UM:** First choice for Austenitic Stainless Steels at low to medium cutting speeds and wet machining. Extremely tough M40, fine grained carbide substrate with thin and tough PVD multi-layer coating.

**DKC10UM:** First choice for grey cast iron (GG), nodular cast iron (GGG), malleable cast iron and alloyed cast iron. K15 substrate with extremely hard and wear resistant MT-CVD multi-layer coating.

**DKP10VM:** First choice for aluminum and other non-ferrous metals. Upsharp cutting edge. Very hard and wear resistant K10 substrate with extremely thin PVD TiAlN coating. Also, first choice for finishing stainless steels and cast irons.

**DK10M:** Uncoated grade for Aluminum and Non Ferrous materials.

### HIGH POSITIVE 90° APKT-1003 MILLING CUTTER

E90-000-AP10-R8

THRU  
COOLANT

| End Mills Description  | C     | D     | Shank Size | F    | H     | Insert Qty. | APKT Gage Insert | UPC #            |       |
|------------------------|-------|-------|------------|------|-------|-------------|------------------|------------------|-------|
| E90-038-AP10-050       | 3.000 | 0.375 | 0.500      | .390 | 1.000 | 1           | 1003             | 65600            |       |
| E90-044-AP10-062       | 3.250 | 0.437 | 0.625      | .390 | 1.062 | 1           |                  | 65601            |       |
| E90-050-AP10-062       | 3.250 | 0.500 | 0.625      | .390 | 1.062 | 1           |                  | 65602            |       |
| E90-062-AP10-062       | 3.250 | 0.625 | 0.625      | .390 | 1.062 | 2           |                  | 65604            |       |
| E90-075-AP10-075       | 3.375 | 0.750 | 0.750      | .390 | 1.125 | 2           |                  | 65606            |       |
| E90-087-AP10-075       | 3.375 | 0.875 | 0.750      | .390 | 1.125 | 3           |                  | 65608            |       |
| E90-100-AP10-075       | 3.500 | 1.000 | 0.750      | .390 | 1.125 | 3           |                  | 65610            |       |
| E90-100-AP10-100       | 4.000 | 1.000 | 1.000      | .390 | 1.250 | 3           |                  | 65612            |       |
| E90-125-AP10-100       | 4.000 | 1.250 | 1.000      | .390 | 1.250 | 4           |                  | 65614            |       |
| E90-150-AP10-100       | 4.000 | 1.500 | 1.000      | .390 | 1.250 | 5           |                  | 65616            |       |
| E90-200-AP10-100       | 4.000 | 2.000 | 1.000      | .390 | 1.250 | 6           | 65618            |                  |       |
| E90-200-AP10-R8        | 5.625 | 2.000 | R8         | .390 | 1.640 | 6           | 65619            |                  |       |
| Face Mills Description | C     | D     | Shank Size | F    | H     | H1          | Insert Qty.      | APKT Gage Insert | UPC # |
| E90A-200-AP10-075      | 1.570 | 2.000 | 0.750      | .390 | .187  | .312        | 6                | 1003             | 65632 |
| E90A-250-AP10-100      | 1.750 | 2.500 | 1.000      | .390 | .219  | .375        | 8                |                  | 65634 |

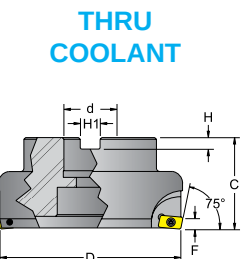
### HIGH POSITIVE 90° APKT-1604 MILLING CUTTER

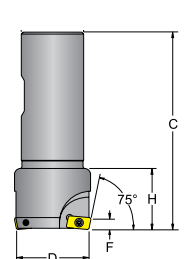
| End Mills Description  | C     | D    | Shank Size | F    | H     | Insert Qty. | APKT Gage Insert | UPC #            |       |
|------------------------|-------|------|------------|------|-------|-------------|------------------|------------------|-------|
| E90-100-AP16-075       | 4.000 | 1.00 | 0.75       | .618 | 1.625 | 2           | 1604             | 65646            |       |
| E90-100-AP16-100       | 4.500 | 1.00 | 1.00       | .618 | 1.750 | 2           |                  | 65648            |       |
| E90-125-AP16-100       | 4.500 | 1.25 | 1.00       | .618 | 1.625 | 3           |                  | 65650            |       |
| E90-150-AP16-100       | 4.500 | 1.50 | 1.00       | .618 | 1.625 | 3           |                  | 65652            |       |
| E90-150-AP16-125       | 4.500 | 1.50 | 1.25       | .618 | 1.625 | 3           |                  | 65654            |       |
| Face Mills Description | C     | D    | Shank Size | F    | H     | H1          | Insert Qty.      | APKT Gage Insert | UPC # |
| E90A-200-AP16-075      | 1.570 | 2.00 | 0.750      | .618 | .187  | .312        | 5                | 1604             | 65662 |
| E90A-250-AP16-100      | 1.750 | 2.50 | 1.000      | .618 | .219  | .375        | 5                |                  | 65664 |
| E90A-300-AP16-100      | 1.750 | 3.00 | 1.000      | .618 | .219  | .375        | 5                |                  | 65666 |
| E90A-400-AP16-150      | 2.000 | 4.00 | 1.500      | .618 | .375  | .625        | 8                |                  | 65668 |
| E90A-500-AP16-150      | 2.380 | 5.00 | 1.500      | .618 | .375  | .625        | 10               |                  | 65670 |

### EXTENDED 90° APKT-1003 & 1604 MILLING CUTTER

|   |  |      |      |            |       |       |      |             |             |                  |                  |       |  |
|-------------------------------------------------------------------------------------|--|------|------|------------|-------|-------|------|-------------|-------------|------------------|------------------|-------|--|
|  |  |      |      |            |       |       |      |             |             |                  |                  |       |  |
|  |  |      |      |            |       |       |      |             |             |                  |                  |       |  |
|  |  |      |      |            |       |       |      |             |             |                  |                  |       |  |
| End Mills Description                                                               |  | C    | D    | Shank Size |       | F     | H    | Insert Qty. | Flutes Qty. | APKT Gage Insert | UPC #            |       |  |
| EX90-075-AP10-075                                                                   |  | 3.50 | 0.75 | 0.75       | 1.125 | 1.500 |      | 4           | 1           | 1003             | 65680            |       |  |
| EX90-100-AP10-100                                                                   |  | 4.25 | 1.00 | 1.00       | 1.500 | 1.875 |      | 8           | 2           |                  | 65682            |       |  |
| EX90-125-AP10-125                                                                   |  | 4.50 | 1.25 | 1.25       | 1.875 | 2.125 |      | 12          | 4           |                  | 65684            |       |  |
| Face Mills Description                                                              |  | C    | D    | Shank Size |       | F     | H    | H1          | Insert Qty. | Flutes Qty.      | APKT Gage Insert | UPC # |  |
| EX90A-200-AP16-100                                                                  |  | 2.00 | 2.00 | 1.00       | 1.000 | .219  | .375 |             | 6           | 3                | 1604             | 65690 |  |
| EX90A-250-AP16-100                                                                  |  | 2.50 | 2.50 | 1.00       | 1.750 | .219  | .375 |             | 12          | 4                |                  | 65692 |  |
| EX90A-300-AP16-125                                                                  |  | 2.50 | 3.00 | 1.25       | 1.750 | .281  | .500 |             | 15          | 5                |                  | 65694 |  |
| EX90A-500-AP16-150                                                                  |  | 2.50 | 5.00 | 1.50       | 1.750 | .375  | .625 |             | 24          | 8                |                  | 65698 |  |

### HIGH POSITIVE 75° APKT-1003 & 1604 MILLING CUTTER

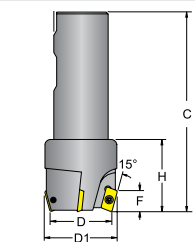
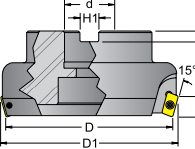




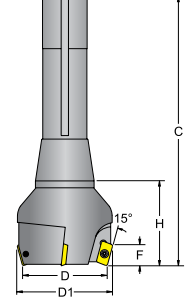


| End Mills Description  | C     | D    | Shank Size | F    | H    | Insert Qty. | APKT Gage Insert | UPC #            |       |
|------------------------|-------|------|------------|------|------|-------------|------------------|------------------|-------|
| F75-125-AP10-075       | 3.500 | 1.25 | 0.75       | .150 | 1.00 | 3           | 1003             | 65778            |       |
| F75-150-AP10-100       | 3.750 | 1.50 | 1.00       | .150 | 1.25 | 3           |                  | 65780            |       |
| F75-200-AP16-100       | 4.000 | 2.00 | 1.00       | .270 | 1.50 | 3           |                  | 65782            |       |
|                        |       |      |            |      |      |             |                  |                  |       |
| Face Mills Description | C     | D    | Shank Size | F    | H    | H1          | Insert Qty.      | APKT Gage Insert | UPC # |
| F75A-200-AP16-075      | 1.570 | 2.00 | 0.75       | .270 | .312 | .187        | 3                | 1604             | 65790 |
| F75A-250-AP16-100      | 1.750 | 2.50 | 1.00       | .270 | .375 | .219        | 4                |                  | 65792 |

### HIGH POSITIVE 15° APKT-1604 MILLING CUTTER

THRU  
COOLANT



F15-000-AP16-R8




| End Mills Description | C     | D    | Shank Size | F    | H    | Insert Qty. | APKT Gage Insert | UPC # |
|-----------------------|-------|------|------------|------|------|-------------|------------------|-------|
| F15-150-AP16-100      | 4.000 | 1.50 | 1.00       | .586 | 1.50 | 3           | 1604             | 65712 |
| F15-200-AP16-R8       | 5.625 | 2.00 | R8         | .586 | 1.64 | 4           |                  | 65714 |

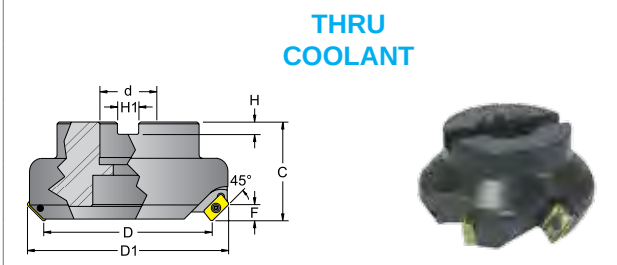
| Face Mills Description | C    | D    | Shank Size | F    | H    | H1   | Insert Qty. | APKT Gage Insert | UPC # |
|------------------------|------|------|------------|------|------|------|-------------|------------------|-------|
| F15A-200-AP16-075      | 1.57 | 2.00 | 0.75       | .586 | .187 | .312 | 4           | 1604             | 65720 |

### HIGH POSITIVE 30° APKT-1604 MILLING CUTTER

THRU  
COOLANT

| End Mills Description  | C     | D    | Shank Size | F    | H    | Insert Qty. | APKT Gage Insert | UPC #            |       |
|------------------------|-------|------|------------|------|------|-------------|------------------|------------------|-------|
| F30-125-AP16-075       | 3.750 | 1.25 | 0.75       | .516 | 1.25 | 3           | 1604             | 65730            |       |
|                        |       |      |            |      |      |             |                  |                  |       |
| Face Mills Description | C     | D    | Shank Size | F    | H    | H1          | Insert Qty.      | APKT Gage Insert | UPC # |
| F30A-200-AP16-075      | 1.57  | 2.00 | 0.75       | .516 | .187 | .312        | 4                | 1604             | 65740 |
| F30A-300-AP16-100      | 1.75  | 3.00 | 1.00       | .516 | .219 | .375        | 6                |                  | 65744 |
| F30A-400-AP16-150      | 2.00  | 4.00 | 1.50       | .516 | .375 | .625        | 8                |                  | 65746 |
| F30A-500-AP16-150      | 2.38  | 5.00 | 1.50       | .516 | .375 | .625        | 8                |                  | 65748 |

### HIGH POSITIVE 45° APKT-1604 MILLING CUTTER

|  | Face Mills Description | C    | D    | Shank Size | F    | H    | H1   | Insert Qty. | APKT Gage Insert | UPC # |
|-------------------------------------------------------------------------------------|------------------------|------|------|------------|------|------|------|-------------|------------------|-------|
|                                                                                     | F45A-250-AP16-100      | 1.75 | 2.50 | 1.00       | .416 | .219 | .375 | 5           | 1604             | 65766 |
|                                                                                     | F45A-300-AP16-100      | 1.75 | 3.00 | 1.00       | .416 | .219 | .375 | 6           |                  | 65768 |
|                                                                                     | F45A-400-AP16-150      | 2.00 | 4.00 | 1.50       | .416 | .375 | .625 | 6           |                  | 65770 |
|                                                                                     | F45A-500-AP16-150      | 2.38 | 5.00 | 1.50       | .416 | .375 | .625 | 8           |                  | 65772 |

| Insert                                                                                              | Description    | Radius | DK25M | DASK25B | DASP35B |
|-----------------------------------------------------------------------------------------------------|----------------|--------|-------|---------|---------|
| <b>TDEX 60°</b><br> | TDEX-110201-EN | .004"  | -     | -       | 95417   |
|                                                                                                     | TDEX-110202-EN | .008"  | -     | -       | 95419   |
|                                                                                                     | TDEX-110204-EN | .015"  | 95420 | 95422   | 95426   |
|                                                                                                     | TDEX-110208-EN | .032"  | 95430 | 95432   | 95436   |
|                                                                                                     | TDEX-160304-EN | .015"  | 95440 | 95442   | 95446   |
|                                                                                                     | TDEX-160308-EN | .032"  | 95450 | 95452   | 95456   |
|                                                                                                     | TDEX-220404-EN | .015"  | 95460 | 95462   | 95466   |
|                                                                                                     | TDEX-220408-EN | .032"  | 95470 | 95472   | 95476   |
| <b>TDEX 45°</b><br> | TDEX-090202-EN | .008"  | 95490 | 95492   | 95495   |
|                                                                                                     | TDEX-090204-EN | .015"  | 95500 | 95502   | 95505   |
|                                                                                                     | TDEX-17T304-EN | .015"  | 95510 | 95512   | 95515   |
|                                                                                                     | TDEX-17T308-EN | .032"  | 95520 | 95522   | 95525   |
|                                                                                                     | TDEX-250404-EN | .015"  | 95530 | 95532   | 95535   |
|                                                                                                     | TDEX-250408-EN | .032"  | 95540 | 95542   | 95545   |
| <b>TEHW</b><br>     | TEHW-0602-AEEN | .004"  | 95590 | 95593   | 95595   |
| <b>SDHW</b><br>     | SDHW-090308-EN | .032"  | 94996 | 94998   | 95002   |

| Insert                                                                                                                                                                         | Description   | Radius | DNU25GT | DUP25GT |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|---------|---------|
| <b>SDGX-UEN</b><br>3/8" Square<br>Convex Radius<br> | SDGX-09C01-E  | .016"  | -       | 95299   |
|                                                                                                                                                                                | SDGX-09C03-E  | .047"  | 95305   | 95307   |
|                                                                                                                                                                                | SDGX-09C04-E  | .062"  | 95309   | 95311   |
|                                                                                                                                                                                |               |        |         |         |
| <b>SDGX-UEN</b><br>3/4" Square<br>Convex Radius<br> | SDGX-19C05-E  | .078"  |         | 95250   |
|                                                                                                                                                                                | SDGX-19C06-E  | .094"  | 95253   | 95254   |
|                                                                                                                                                                                | SDGX-19C07-E  | .109"  | 95257   | 95258   |
|                                                                                                                                                                                | SDGX-19C08-E  | .125   | 95261   | 95262   |
|                                                                                                                                                                                | SDGX-19C09-E  | .141"  |         | 95266   |
|                                                                                                                                                                                | SDGX-19C10-E  | .156"  | 95269   | 95270   |
|                                                                                                                                                                                | SDGX-19C11-E  | .178"  |         | 95274   |
|                                                                                                                                                                                | SDGX-19C12-E  | .188"  | 95277   | 95278   |
|                                                                                                                                                                                | SDGX-19C13-E  | .203"  |         | 95282   |
|                                                                                                                                                                                | SDGX-19C14-E  | .219"  | 95285   | 95286   |
|                                                                                                                                                                                | SDGX-19C15-E* | .234"  | 95289   | 95290   |
|                                                                                                                                                                                | SDGX-19C16-E* | .250"  | 95293   | 95294   |

\*All SDGX inserts have 4 cutting edges, except .234" & .250" radius inserts that have 2 cutting edges.

| Insert                                                                                                                                  | Description    | DNU25GT | DNP25GT | DPP30GT |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|---------|---------|
| <b>TPHT-UEN</b><br>60° Triangle<br>General Purpose<br> | TPHT-32.51-UEN | 71748   | 71750   | 71751   |
|                                                                                                                                         | TPHT-32.52-UEN | 71753   | 71755   | 71756   |
|                                                                                                                                         |                |         |         |         |

| Insert                                                                                            | Description    | DUP30M |
|---------------------------------------------------------------------------------------------------|----------------|--------|
| <b>SPMT</b><br> | SPMT-060304-EN | 95051  |

#### DK25M / DNU25GT

Uncoated, hard and wear resistant C2 Substrate for Aluminum & Non Ferrous materials.

#### DASK25B

C2 Substrate with PVD TiN-TiAlN-TiN multi-layer coating. For general purpose milling of non-ferrous metals such as aluminum, copper, brass, and bronze, high temp alloys, 300-series stainless steels and cast iron with medium to high SFM.

#### DASP35B

C5 Substrate with PVD TiN-TiAlN-TiN multi-layer coating. For general purpose milling of carbon steels, alloy steels and tool steels in annealed state with medium to high SFM.

#### DUP25GT

C2 Substrate with PVD TiN-TiAlN coating. For general purpose milling of carbon steels, alloy steels, stainless steels, high temp alloys, hardened metals and non ferrous materials with medium to high SFM.

#### DNP25GT

C2 Substrate with PVD TiN coating. For general purpose milling of high temp alloys, hardened metals and non ferrous materials with medium SFM.

#### DPP30GT

C5 Substrate with PVD TiN coating. For general purpose milling of carbon steels, alloy steels and stainless steels at medium SFM.

#### DUP30M

C5 Substrate with PVD TiN-TiAlN multi-layer coating. For general purpose milling of carbon steels, alloy steels and tool steels in annealed state with medium to high SFM. Also use on stainless steels.

|                                                                                                          |  |                    |          |          |           |                   |          |                     |             |                    |                    |              |
|----------------------------------------------------------------------------------------------------------|--|--------------------|----------|----------|-----------|-------------------|----------|---------------------|-------------|--------------------|--------------------|--------------|
| <b>CONVEX RADIUS CUTTER</b><br><br>Cutting Rake - 15° for 15° positive square convex radius SDGX inserts |  | <b>Description</b> | <b>C</b> | <b>D</b> | <b>D1</b> | <b>Shank Size</b> | <b>H</b> | <b>R-Range Min.</b> | <b>Max.</b> | <b>Insert Qty.</b> | <b>SDGX Insert</b> | <b>UPC #</b> |
|                                                                                                          |  | QV-062-S304-062    | 3.250    | 0.625    | 0.503     | 0.625             | 1.000    | .0156               | .0625       | 1                  | 09C_               | 65103        |
|                                                                                                          |  | QV-100-S608-075    | 3.500    | 1.000    | 0.754     | 0.750             | 1.000    | .0781               | .1250       | 1                  |                    | 65118        |
|                                                                                                          |  | QV-100-S608-100    | 3.625    | 1.000    | 0.754     | 1.000             | 1.125    | .0781               | .1250       | 1                  |                    | 65120        |
|                                                                                                          |  | QV-200-S608-100    | 3.750    | 2.000    | 1.750     | 1.000             | 1.250    | .0781               | .1250       | 3                  |                    | 65122        |
|                                                                                                          |  | QV-100-S612-075    | 3.500    | 1.000    | 0.632     | 0.750             | 1.000    | .1406               | .1875       | 1                  | 19C_               | 65124        |
|                                                                                                          |  | QV-100-S616-075    | 3.500    | 1.000    | 0.510     | 0.750             | 1.000    | .2031               | .2500       | 1                  |                    | 65130        |
|                                                                                                          |  | QV-100-S616-100    | 3.625    | 1.000    | 0.510     | 1.000             | 1.125    | .2031               | .2500       | 1                  |                    | 65132        |
|                                                                                                          |  | QV-200-S616-100    | 3.750    | 2.000    | 1.500     | 1.000             | 1.250    | .2031               | .2500       | 3                  |                    | 65134        |

|                                                                                     |  |                    |          |          |                   |          |          |                    |                         |              |
|-------------------------------------------------------------------------------------|--|--------------------|----------|----------|-------------------|----------|----------|--------------------|-------------------------|--------------|
| <b>15° DOVETAIL CUTTER</b><br><br>Cutting Rake - 15° for 15° positive TDEX inserts. |  | <b>Description</b> | <b>C</b> | <b>D</b> | <b>Shank Size</b> | <b>F</b> | <b>H</b> | <b>Insert Qty.</b> | <b>TDEX Gage Insert</b> | <b>UPC #</b> |
|                                                                                     |  | D15X-050-TD11-037  | 2.42     | 0.500    | 0.375             | .359     | 0.42     | 1                  | 110204                  | 65225        |
|                                                                                     |  | D15X-100-TD11-050  | 2.42     | 1.000    | 0.500             | .359     | 0.42     | 3                  |                         | 65226        |
|                                                                                     |  | D15X-187-TD16-075  | 3.20     | 1.875    | 0.750             | .550     | 0.75     | 3                  | 160308                  | 65227        |
|                                                                                     |  | D15X-250-TD22-100  | 3.75     | 2.500    | 1.000             | .750     | 1.00     | 3                  | 220408                  | 65228        |

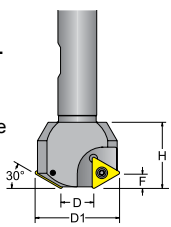
|                                                                                     |  |                    |          |          |                   |          |          |                    |                         |              |
|-------------------------------------------------------------------------------------|--|--------------------|----------|----------|-------------------|----------|----------|--------------------|-------------------------|--------------|
| <b>45° DOVETAIL CUTTER</b><br><br>Cutting Rake - 11° for 11° positive TDEX inserts. |  | <b>Description</b> | <b>C</b> | <b>D</b> | <b>Shank Size</b> | <b>F</b> | <b>H</b> | <b>Insert Qty.</b> | <b>TDEX Gage Insert</b> | <b>UPC #</b> |
|                                                                                     |  | D45X-050-TD09-037  | 2.39     | 0.500    | 0.375             | .247     | .125     | 1                  |                         | 65233        |
|                                                                                     |  | D45X-075-TD09-037  | 2.39     | 0.750    | 0.375             | .247     | .125     | 2                  | 090202                  | 65234        |
|                                                                                     |  | D45X-100-TD09-050  | 2.39     | 1.000    | 0.500             | .250     | .244     | 3                  |                         | 65235        |
|                                                                                     |  | D45X-137-TD17-062  | 2.94     | 1.375    | 0.625             | .375     | .320     | 2                  | 17T304                  | 65236        |
|                                                                                     |  | D45X-187-TD17-075  | 2.94     | 1.875    | 0.750             | .468     | .444     | 3                  |                         | 65237        |
|                                                                                     |  | D45X-225-TD25-100  | 3.50     | 2.250    | 1.000             | .700     | .696     | 2                  | 250404                  | 65238        |
|                                                                                     |  | D45X-250-TD25-100  | 3.50     | 2.500    | 1.000             | .700     | .700     | 3                  |                         | 65239        |

|                                                                                              |  |                    |          |          |                   |          |          |                    |                         |              |
|----------------------------------------------------------------------------------------------|--|--------------------|----------|----------|-------------------|----------|----------|--------------------|-------------------------|--------------|
| <b>60° DOVETAIL CUTTER</b><br><br>Cutting Rake - 15° for 15° positive triangle TDEX inserts. |  | <b>Description</b> | <b>C</b> | <b>D</b> | <b>Shank Size</b> | <b>F</b> | <b>H</b> | <b>Insert Qty.</b> | <b>TDEX Gage Insert</b> | <b>UPC #</b> |
|                                                                                              |  | D60X-050-TD11-037  | 2.390    | 0.500    | 0.375             | .325     | .142     | 1                  |                         | 65244        |
|                                                                                              |  | D60X-075-TD11-037  | 2.390    | 0.750    | 0.375             | .325     | .282     | 2                  | 110204                  | 65245        |
|                                                                                              |  | D60X-100-TD11-050  | 2.390    | 1.000    | 0.500             | .325     | .375     | 3                  |                         | 65246        |
|                                                                                              |  | D60X-137-TD16-062  | 2.862    | 1.375    | 0.625             | .510     | .550     | 3                  | 160308                  | 65247        |
|                                                                                              |  | D60X-187-TD16-075  | 3.000    | 1.875    | 0.750             | .510     | .550     | 3                  |                         | 65248        |
|                                                                                              |  | D60X-225-TD22-100  | 3.500    | 2.250    | 1.000             | .700     | .750     | 3                  | 220408                  | 65249        |
|                                                                                              |  | D60X-250-TD22-100  | 3.500    | 2.500    | 1.000             | .700     | .750     | 3                  |                         | 65250        |

|                                                                                                      |  |                                                                |          |          |           |                   |          |          |                    |                         |              |
|------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------|----------|----------|-----------|-------------------|----------|----------|--------------------|-------------------------|--------------|
| <b>DOUBLE 45° CHAMFER MILL</b><br><br>Cutting Rake - 15° for 15° positive square SDHW & SPHX inserts |  | <b>Description</b>                                             | <b>C</b> | <b>D</b> | <b>D1</b> | <b>Shank Size</b> | <b>F</b> | <b>H</b> | <b>Insert Qty.</b> | <b>SDHW Gage Insert</b> | <b>UPC #</b> |
|                                                                                                      |  | C45-112-SD09-075                                               | 3.375    | 0.625    | 1.125     | 0.750             | 0.230    | 0.750    | 2                  |                         | 65414        |
|                                                                                                      |  | C45-125-SD09-075                                               | 3.375    | 0.772    | 1.250     | 0.750             | 0.230    | 0.750    | 2                  |                         | 65416        |
|                                                                                                      |  | C45-150-SD09-100                                               | 3.500    | 1.040    | 1.500     | 1.000             | 0.230    | 1.000    | 3                  | 090308                  | 65418        |
|                                                                                                      |  | C45XL-112-SD09-075                                             | 7.75     | 0.625    | 1.125     | 0.750             | 0.230    | 0.750    | 2                  |                         | 65420        |
|                                                                                                      |  | C45XL-150-SD09-100                                             | 7.75     | 1.040    | 1.500     | 1.000             | 0.230    | 1.000    | 3                  |                         | 65421        |
|                                                                                                      |  | <b>Cutting Rake - 15° for 15° positive square SPHX inserts</b> |          |          |           |                   |          |          | <b>Insert Qty.</b> | <b>SPMT Gage Insert</b> | <b>UPC #</b> |
|                                                                                                      |  | C45-062-SP06-062                                               | 3.000    | 0.325    | 0.625     | 0.625             | 0.159    | 0.750    | 1                  |                         | 65410        |
|                                                                                                      |  | C45-075-SP06-062                                               | 3.000    | 0.448    | 0.750     | 0.625             | 0.159    | 0.750    | 2                  | 060304                  | 65411        |

|                                                                                    |  |                    |          |          |                   |          |          |          |                    |                   |                    |              |
|------------------------------------------------------------------------------------|--|--------------------|----------|----------|-------------------|----------|----------|----------|--------------------|-------------------|--------------------|--------------|
| <b>T-SLOT CUTTER</b><br><br>Cutting Rake - 20° for positive TEHW SPHX SDHW inserts |  | <b>Description</b> | <b>C</b> | <b>D</b> | <b>Shank Size</b> | <b>F</b> | <b>H</b> | <b>N</b> | <b>No. Inserts</b> | <b>No. Flutes</b> | <b>Gage Insert</b> | <b>UPC #</b> |
|                                                                                    |  | SLOT-078-SP06-075  | 3.250    | 0.781    | 0.750             | 0.328    | 0.928    | 0.406    | 2                  | 1                 |                    | 65183        |
|                                                                                    |  | SLOT-097-SP06-075  | 3.438    | 0.969    | 0.750             | 0.390    | 1.100    | 0.531    | 4                  | 2                 | SPMT-060304        | 65184        |
|                                                                                    |  | SLOT-125-SP06-100  | 3.938    | 1.250    | 1.000             | 0.484    | 1.375    | 0.660    | 3                  | 1                 |                    | 65185        |
|                                                                                    |  | SLOT-147-SD09-100  | 4.438    | 1.469    | 1.000             | 0.624    | 1.757    | 0.781    | 4                  | 2                 |                    | 65186        |
|                                                                                    |  | SLOT-184-SD09-125  | 4.813    | 1.844    | 1.250             | 0.827    | 2.108    | 1.031    | 5                  | 2                 | SDHW-090308        | 65187        |
|                                                                                    |  | SLOT-222-SD09-125  | 5.375    | 2.219    | 1.250             | 1.093    | 2.714    | 1.281    | 6                  | 2                 |                    | 65188        |



| CHAMFER MILL                                                                                                                                      |     | Description     | O.A.L. | Shank Size | D     | D1    | F    | H    | Insert Qty. | TPHT Gage Insert | UPC # |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------|--------|------------|-------|-------|------|------|-------------|------------------|-------|
| Cutting Rake<br>- 11° for 11° positive triangle TPHT inserts<br> | 30° | C30-062-TP3-075 | 3.500  | 0.625      | 1.600 | 0.750 | .275 | 1.25 | 2           | 32.52            | 65400 |
|                                                                                                                                                   | 45° | C45-075-TP3-075 | 3.500  | 0.750      | 1.517 | 0.750 | .392 | 1.25 | 2           | 32.52            | 65402 |
|                                                                                                                                                   | 60° | C60-100-TP3-075 | 3.500  | 1.000      | 1.560 | 0.750 | .484 | 1.25 | 2           | 32.52            | 65404 |

15° CNMG  
RECYCLE  
MILLING CUTTER

Cutting Rake -  
Negative 7° for  
negative 80° diamond  
CNMG 432 inserts

RECYCLE MILLING CUTTER

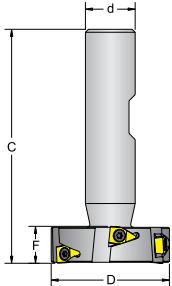
After the cutting edges are used on your turning toolholder, do not throw the insert away. It can be used in these milling cutters to utilize four more cutting edges that were not used in your lathe work.

| End Mills Description | C     | D   | D1   | Shank Size | F   | H    | Insert Qty. | CNMG Gage Insert | UPC # |
|-----------------------|-------|-----|------|------------|-----|------|-------------|------------------|-------|
| REC15-200-CN4-075     | 3.750 | 2.0 | 2.25 | 0.75       | .45 | 1.50 | 3           |                  | 65850 |
| REC15-200-CN4-100     | 4.000 | 2.0 | 2.25 | 1.00       | .45 | 1.50 | 3           | 432              | 65852 |
| REC15-200-CN4-R8      | 5.625 | 2.0 | 2.25 | R8         | .45 | 1.75 | 3           |                  | 65854 |

| Face Mills Description | C     | D   | D1   | Shank Size | F   | H    | H1   | Insert Qty. | CNMG Gage Insert | UPC # |
|------------------------|-------|-----|------|------------|-----|------|------|-------------|------------------|-------|
| REC15A-300-CN4-100     | 1.750 | 3.0 | 3.23 | 1.00       | .45 | .250 | .375 | 4           |                  | 65856 |
| REC15A-400-CN4-150     | 2.000 | 4.0 | 4.23 | 1.50       | .45 | .375 | .625 | 5           | 432              | 65858 |

WOODRUFF KEY SEAT CUTTER

Cutting Rake - 20° for positive TEHW inserts

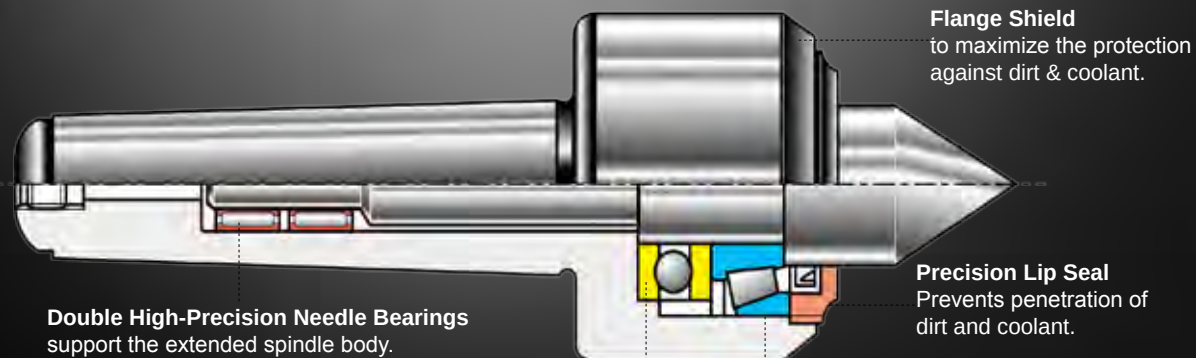



| American Standard Size | Description        | C     | D     | d     | F     | Insert Qty. | TEHW Gage Insert | Insert Torx Screw | Torx Key | UPC # |
|------------------------|--------------------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|-------|
| 806                    | DWKC-806-TEO6-050  | 2.250 | 0.750 | 0.500 | 0.250 | 2           | 0602             | TS-08             | T-8      | 65141 |
| 607                    | DWKC-607-TEO6-050  | 2.188 | 0.875 | 0.500 | 0.188 | 2           |                  |                   |          | 65142 |
| 707                    | DWKC-707-TEO6-050  | 2.219 | 0.875 | 0.500 | 0.219 | 2           | 0602             | TS-08             | T-8      | 65143 |
| 807                    | DWKC-807-TEO6-050  | 2.250 | 0.875 | 0.500 | 0.250 | 2           |                  |                   |          | 65144 |
| 608                    | DWKC-608-TEO6-050  | 2.188 | 1.000 | 0.500 | 0.188 | 3           |                  |                   |          | 65145 |
| 708                    | DWKC-708-TEO6-050  | 2.219 | 1.000 | 0.500 | 0.219 | 3           | 0602             | TS-08             | T-8      | 65146 |
| 808                    | DWKC-808-TEO6-050  | 2.250 | 1.000 | 0.500 | 0.250 | 3           |                  |                   |          | 65147 |
| 1008                   | DWKC-1008-TEO6-050 | 2.313 | 1.000 | 0.500 | 0.313 | 3           |                  |                   |          | 65148 |
| 609                    | DWKC-609-TEO6-050  | 2.188 | 1.125 | 0.500 | 0.188 | 4           |                  |                   |          | 65150 |
| 709                    | DWKC-709-TEO6-050  | 2.219 | 1.125 | 0.500 | 0.219 | 4           | 0602             | TS-08             | T-8      | 65151 |
| 809                    | DWKC-809-TEO6-050  | 2.250 | 1.125 | 0.500 | 0.250 | 4           |                  |                   |          | 65152 |
| 1009                   | DWKC-1009-TEO6-050 | 2.313 | 1.125 | 0.500 | 0.313 | 4           |                  |                   |          | 65153 |
| 710                    | DWKC-710-TEO6-050  | 2.219 | 1.250 | 0.500 | 0.219 | 6           | 0602             | TS-08             | T-8      | 65155 |
| 1210                   | DWKC-1210-TEO6-050 | 2.375 | 1.250 | 0.500 | 0.375 | 6           |                  |                   |          | 65158 |
| 811                    | DWKC-811-TEO6-050  | 2.250 | 1.375 | 0.500 | 0.250 | 6           |                  |                   |          | 65159 |
| 1011                   | DWKC-1011-TEO6-050 | 2.313 | 1.375 | 0.500 | 0.313 | 6           | 0602             | TS-08             | T-8      | 65160 |
| 1211                   | DWKC-1211-TEO6-050 | 2.375 | 1.375 | 0.500 | 0.375 | 6           |                  |                   |          | 65161 |
| 1012                   | DWKC-1012-TEO6-050 | 2.313 | 1.500 | 0.500 | 0.313 | 6           | 0602             | TS-08             | T-8      | 65163 |
| 1212                   | DWKC-1212-TEO6-050 | 2.375 | 1.500 | 0.500 | 0.375 | 6           |                  |                   |          | 65164 |

| Spare Parts Milling Insert Torx Screw                                               |              | Description | UPC # | PKG. |
|-------------------------------------------------------------------------------------|--------------|-------------|-------|------|
|  | TS-06        |             | 91306 |      |
|                                                                                     | TS-25.45-6M2 |             | 90972 | 10   |
|                                                                                     | TS-4.7-6M1   |             | 90975 |      |
|                                                                                     | TS-4.7-8M1   |             | 90976 |      |
|                                                                                     | TS-4.7-10M1  |             | 90982 |      |
|                                                                                     | TS-1032-5M1  |             | 90960 | 10   |
|                                                                                     | TS-5.8-10M1  |             | 90986 |      |

# HIGH PERFORMANCE LIVE CENTERS

PERFORMANCE,  
TECHNOLOGY &  
QUALITY



**Double High-Precision Needle Bearings**  
support the extended spindle body.  
This reduces deflection, increases  
rigidity and neutralize vibration.

**Full Axial Thrust Bearing**  
will support heavy thrust loads

**Precision HEAVY DUTY Taper Roller Bearings**  
will outlast any traditional ball bearing system. All  
Dorian Precision and Heavy Duty live centers feature  
Precision Heavy Duty Taper Roller Bearings.

**Flange Shield**  
to maximize the protection  
against dirt & coolant.

**Precision Lip Seal**  
Prevents penetration of  
dirt and coolant.

|  <b>Precision General Purpose</b><br>Precision <b>TAPER ROLLER</b> Bearings | Live Center with 60° Standard Steel Point |                 |      |      |      |      |             |             |          |                            |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                                                                             | UPC #                                     | Description     | A    | B    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                             | 48200                                     | PLC-PRE-S60-MT1 | 0.63 | 1.49 | 1.45 | 0.79 | MT1         | 1.10        | 8500     | 110                        | 365                   |
|                                                                                                                                                             | 48201                                     | PLC-PRE-S60-MT2 | 0.87 | 1.89 | 1.65 | 0.98 | MT2         | 2.00        | 6000     | 220                        | 792                   |
|                                                                                                                                                             | 48202                                     | PLC-PRE-S60-MT3 | 0.87 | 2.17 | 1.69 | 1.06 | MT3         | 2.20        | 5000     | 572                        | 1144                  |
|                                                                                                                                                             | 48203                                     | PLC-PRE-S60-MT4 | 1.14 | 2.40 | 2.00 | 1.49 | MT4         | 3.50        | 4000     | 1078                       | 1320                  |
|                                                                                                                                                             | 48204                                     | PLC-PRE-S60-MT5 | 1.49 | 3.15 | 2.16 | 1.77 | MT5         | 7.7         | 3000     | 1672                       | 1430                  |
|                                                                                                                                                             | 48205                                     | PLC-PRE-S60-MT6 | 1.65 | 3.70 | 2.67 | 2.00 | MT6         | 17.6        | 2500     | 3388                       | 3300                  |

| <br><b>Precision General Purpose</b><br>Precision <b>TAPER ROLLER</b> Bearings | Live Center with 60° Extended Medium Slim Steel Point |                   |      |      |      |      |      |      |             |             |          |                            |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                                                                                | UPC #                                                 | Description       | A    | B    | C    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                                | 48266                                                 | PLC-PRE-EMSSP-MT2 | 0.87 | 1.89 | 0.31 | 1.65 | 1.26 | 0.43 | MT2         | 2.00        | 6000     | 220                        | 792                   |
|                                                                                                                                                                | 48267                                                 | PLC-PRE-EMSSP-MT3 | 0.87 | 2.17 | 0.39 | 1.69 | 1.57 | 0.59 | MT3         | 2.20        | 5000     | 572                        | 1144                  |
|                                                                                                                                                                | 48268                                                 | PLC-PRE-EMSSP-MT4 | 1.14 | 2.40 | 0.47 | 2.00 | 1.97 | 0.62 | MT4         | 3.50        | 4000     | 1078                       | 1320                  |

|                                                                                                                                                                |                                                 |                  |      |      |      |      |      |             |             |          |                            |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| <br><b>Precision General Purpose</b><br>Precision <b>TAPER ROLLER</b> Bearings | Live Center with 60° Extended Large Steel Point |                  |      |      |      |      |      |             |             |          |                            |                       |
|                                                                                                                                                                | UPC #                                           | Description      | A    | B    | C    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                                | 48269                                           | PLC-PRE-ELSP-MT3 | 0.87 | 2.17 | 0.23 | 1.69 | 1.57 | MT3         | 2.20        | 5000     | 572                        | 1144                  |
|                                                                                                                                                                | 48270                                           | PLC-PRE-ELSP-MT4 | 1.14 | 2.40 | 0.31 | 2.00 | 1.97 | MT4         | 3.50        | 4000     | 1078                       | 1320                  |
|                                                                                                                                                                | 48271                                           | PLC-PRE-ELSP-MT5 | 1.49 | 3.15 | 0.47 | 2.16 | 2.68 | MT5         | 7.7         | 3000     | 1672                       | 1430                  |
|                                                                                                                                                                | 48272                                           | PLC-PRE-ELSP-MT6 | 1.65 | 3.70 | 0.63 | 2.67 | 2.76 | MT6         | 17.6        | 2500     | 3388                       | 3300                  |

|  <b>Heavy Duty</b><br>Precision <b>HEAVY DUTY TAPER ROLLER</b> Bearings | Live Center with 60° Standard Steel Point |                  |      |      |      |      |             |             |          |                            |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                                                                           | UPC #                                     | Description      | A    | B    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                           | 48206                                     | PLC-HDA-S60-MT2  | 0.87 | 2.01 | 1.69 | 0.99 | MT2         | 1.98        | 7500     | 506                        | 1012                  |
|                                                                                                                                                           | 48207                                     | PLC-HDA-S60-MT3  | 0.87 | 2.17 | 1.69 | 1.10 | MT3         | 2.20        | 6000     | 2090                       | 1144                  |
|                                                                                                                                                           | 48208                                     | PLC-HDA-S60-MT4  | 1.14 | 2.40 | 2.01 | 1.50 | MT4         | 3.53        | 4500     | 3300                       | 1320                  |
|                                                                                                                                                           | 48209                                     | PLC-HDA-S60-MT5  | 1.50 | 3.15 | 2.32 | 1.85 | MT5         | 7.70        | 2800     | 4400                       | 2640                  |
|                                                                                                                                                           | 48210                                     | PLC-HDA-S60-MT6  | 1.65 | 4.26 | 3.47 | 2.17 | MT6         | 22.0        | 2000     | 10560                      | 3300                  |
|                                                                                                                                                           | 48211                                     | PLC-HDA-S60-MT6S | 2.36 | 5.44 | 4.57 | 2.40 | MT6S        | 26.4        | 1700     | 19800                      | 6600                  |
|                                                                                                                                                           | 48212                                     | PLC-HDA-S60-M80  | 2.44 | 5.75 | 4.57 | 2.96 | M80*        | 39.6        | 1100     | 19800                      | 6600                  |
|                                                                                                                                                           | 48213                                     | PLC-HDA-S60-M100 | 3.07 | 7.01 | 5.28 | 3.06 | M100*       | 85.8        | 900      | 29700                      | 11000                 |

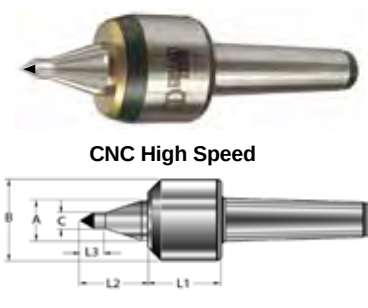
| <br><b>Heavy Duty</b><br>Precision <b>HEAVY DUTY TAPER ROLLER</b> Bearings | Live Center with 60° Extended Medium Slim Steel Point |                   |      |      |      |      |      |      |             |             |          |                            |                       |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|--|
|                                                                                                                                                              | UPC #                                                 | Description       | A    | B    | C    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |  |
|                                                                                                                                                              | 48273                                                 | PLC-HDA-EMSSP-MT3 | 0.87 | 2.17 | 0.39 | 1.69 | 1.57 | 0.59 | MT3         | 2.20        | 6000     | 2090                       | 1144                  |  |
|                                                                                                                                                              | 48274                                                 | PLC-HDA-EMSSP-MT4 | 1.14 | 2.40 | 0.47 | 2.01 | 1.97 | 0.62 | MT4         | 3.53        | 4500     | 3300                       | 1320                  |  |
|                                                                                                                                                              | 48275                                                 | PLC-HDA-EMSSP-MT5 | 1.50 | 3.15 | 0.62 | 2.32 | 2.68 | 0.70 | MT5         | 7.70        | 2800     | 4400                       | 2640                  |  |

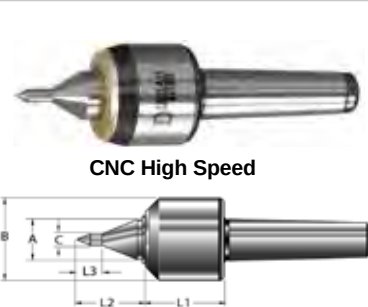
| <br><b>Heavy Duty</b><br>Precision <b>HEAVY DUTY TAPER ROLLER</b> Bearings | Live Center with 60° Extended Large Steel Point |                  |      |      |      |      |      |             |             |          |                            |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                                                                              | UPC #                                           | Description      | A    | B    | C    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                              | 48277                                           | PLC-HDA-ELSP-MT3 | 0.87 | 2.17 | 0.23 | 1.69 | 1.57 | MT3         | 2.20        | 6000     | 2090                       | 1144                  |
|                                                                                                                                                              | 48278                                           | PLC-HDA-ELSP-MT4 | 1.14 | 2.40 | 0.31 | 2.01 | 1.97 | MT4         | 3.53        | 4500     | 3300                       | 1320                  |
|                                                                                                                                                              | 48279                                           | PLC-HDA-ELSP-MT5 | 1.50 | 3.15 | 0.47 | 2.32 | 2.68 | MT5         | 7.70        | 2800     | 4400                       | 2640                  |
| <br><b>Heavy Duty</b><br>Precision <b>HEAVY DUTY TAPER ROLLER</b> Bearings | 48280                                           | PLC-HDA-ELSP-MT6 | 1.65 | 4.26 | 0.63 | 3.47 | 2.76 | MT6         | 22.0        | 2000     | 10560                      | 3300                  |

|  <p><b>CNC High Speed</b></p> | CNC High Speed Heavy Duty Live Center with 60° Standard Steel Point |                 |      |      |      |      |             |             |          |                            |                       |
|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                               | UPC #                                                               | Description     | A    | B    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                               | 48220                                                               | PLC-CNC-S60-MT3 | 0.87 | 2.17 | 1.85 | 1.10 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                               | 48221                                                               | PLC-CNC-S60-MT4 | 1.14 | 2.40 | 2.17 | 1.58 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                               | 48222                                                               | PLC-CNC-S60-MT5 | 1.50 | 3.15 | 2.48 | 1.89 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                               | 48223                                                               | PLC-CNC-S60-MT6 | 1.65 | 3.66 | 2.88 | 2.17 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

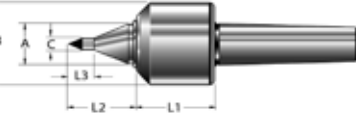
|  <p><b>CNC High Speed</b></p> | CNC High Speed Heavy Duty Live Center with 60° Standard Carbide Point |                 |      |      |      |      |      |             |             |          |                            |                       |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                               | UPC #                                                                 | Description     | A    | B    | C    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                               | 48224                                                                 | PLC-CNC-C60-MT3 | 0.87 | 2.17 | 0.39 | 1.85 | 1.10 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                               | 48225                                                                 | PLC-CNC-C60-MT4 | 1.14 | 2.40 | 0.47 | 2.17 | 1.58 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                               | 48226                                                                 | PLC-CNC-C60-MT5 | 1.50 | 3.15 | 0.70 | 2.48 | 1.89 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                               | 48227                                                                 | PLC-CNC-C60-MT6 | 1.65 | 3.66 | 0.78 | 2.88 | 2.17 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

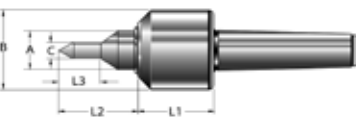
|  <p><b>CNC High Speed</b></p> | CNC High Speed Heavy Duty Live Center with 60° Extended Medium Slim Steel Point |                   |      |      |      |      |      |      |             |             |          |                            |                       |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                                | UPC #                                                                           | Description       | A    | B    | C    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                | 48282                                                                           | PLC-CNC-EMSSP-MT3 | 0.87 | 2.17 | 0.39 | 1.85 | 1.65 | 0.59 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                                | 48283                                                                           | PLC-CNC-EMSSP-MT4 | 1.14 | 2.40 | 0.47 | 2.17 | 2.01 | 0.62 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                                | 48284                                                                           | PLC-CNC-EMSSP-MT5 | 1.50 | 3.15 | 0.62 | 2.48 | 2.21 | 0.70 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                                | 48285                                                                           | PLC-CNC-EMSSP-MT6 | 1.65 | 3.66 | 0.70 | 2.88 | 3.07 | 0.78 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

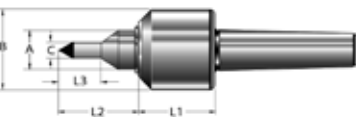
|  <p><b>CNC High Speed</b></p> | CNC High Speed Heavy Duty Live Center with 60° Extended Medium Slim Carbide Point |                   |      |      |      |      |      |      |             |             |          |                            |                       |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                                 | UPC #                                                                             | Description       | A    | B    | C    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                 | 48286                                                                             | PLC-CNC-EMSCP-MT3 | 0.87 | 2.17 | 0.39 | 1.85 | 1.65 | 0.59 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                                 | 48287                                                                             | PLC-CNC-EMSCP-MT4 | 1.14 | 2.40 | 0.47 | 2.17 | 2.01 | 0.62 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                                 | 48288                                                                             | PLC-CNC-EMSCP-MT5 | 1.50 | 3.15 | 0.62 | 2.48 | 2.21 | 0.70 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                                 | 48289                                                                             | PLC-CNC-EMSCP-MT6 | 1.65 | 3.66 | 0.70 | 2.88 | 3.07 | 0.78 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

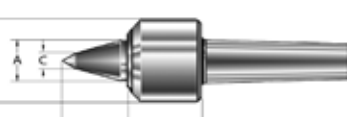
|  <p><b>CNC High Speed</b></p> | CNC High Speed Heavy Duty Live Center with 60° Extended Small Slim Steel Point |                   |      |      |      |      |       |       |             |             |          |                            |                       |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------|------|------|------|------|-------|-------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                                 | UPC #                                                                          | Description       | A    | B    | C    | L1   | L2    | L3    | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                 | 48600                                                                          | PLC-CNC-ESSSP-MT3 | 0.87 | 2.17 | 0.27 | 1.85 | 1.65  | 0.787 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                                 | 48601                                                                          | PLC-CNC-ESSSP-MT4 | 1.14 | 2.40 | 0.31 | 2.17 | 2.00  | 0.866 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                                 | 48602                                                                          | PLC-CNC-ESSSP-MT5 | 1.50 | 3.15 | 0.39 | 2.48 | 2.24  | 0.945 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                                 | 48603                                                                          | PLC-CNC-ESSSP-MT6 | 1.65 | 3.66 | 0.39 | 2.88 | 3.110 | 1.102 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

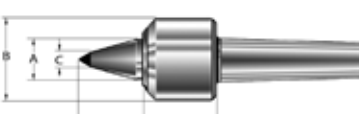


| CNC High Speed Heavy Duty Live Center with 60° Extended Small Slim Carbide Point                                                                                                              |       |                   |      |      |      |      |       |       |             |             |          |                            |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|------|------|------|------|-------|-------|-------------|-------------|----------|----------------------------|-----------------------|
| <br><b>CNC High Speed</b><br> | UPC # | Description       | A    | B    | C    | L1   | L2    | L3    | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                                                               | 48604 | PLC-CNC-ESSCP-MT3 | 0.87 | 2.17 | 0.27 | 1.85 | 1.65  | 0.787 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                                                                                                               | 48605 | PLC-CNC-ESSCP-MT4 | 1.14 | 2.40 | 0.31 | 2.17 | 2.00  | 0.866 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                                                                                                               | 48606 | PLC-CNC-ESSCP-MT5 | 1.50 | 3.15 | 0.39 | 2.48 | 2.24  | 0.945 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                                                                                                               | 48607 | PLC-CNC-ESSCP-MT6 | 1.65 | 3.66 | 0.39 | 2.88 | 3.110 | 1.102 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

| CNC High Speed Heavy Duty Live Center with 60° Extended Large Slim Steel Point                                                                                                                |       |                   |      |      |      |      |      |      |             |             |          |                            |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| <br><b>CNC High Speed</b><br> | UPC # | Description       | A    | B    | C    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                                                               | 48608 | PLC-CNC-ELSSP-MT3 | 0.87 | 2.17 | 0.47 | 1.85 | 1.65 | 1.02 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                                                                                                               | 48609 | PLC-CNC-ELSSP-MT4 | 1.14 | 2.40 | 0.55 | 2.17 | 2.00 | 1.18 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                                                                                                               | 48610 | PLC-CNC-ELSSP-MT5 | 1.50 | 3.15 | 0.70 | 2.48 | 2.20 | 1.26 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                                                                                                               | 48611 | PLC-CNC-ELSSP-MT6 | 1.65 | 3.66 | 0.78 | 2.88 | 2.20 | 1.57 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

| CNC High Speed Heavy Duty Live Center with 60° Extended Large Slim Carbide Point                                                                                                                |       |                   |      |      |      |      |      |      |             |             |          |                            |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| <br><b>CNC High Speed</b><br> | UPC # | Description       | A    | B    | C    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                                                                 | 48612 | PLC-CNC-ELSCP-MT3 | 0.87 | 2.17 | 0.47 | 1.85 | 1.65 | 1.02 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                                                                                                                 | 48613 | PLC-CNC-ELSCP-MT4 | 1.14 | 2.40 | 0.55 | 2.17 | 2.00 | 1.18 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                                                                                                                 | 48614 | PLC-CNC-ELSCP-MT5 | 1.50 | 3.15 | 0.70 | 2.48 | 2.20 | 1.26 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                                                                                                                 | 48615 | PLC-CNC-ELSCP-MT6 | 1.65 | 3.66 | 0.78 | 2.88 | 2.20 | 1.57 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

| <br><b>CNC High Speed</b><br> | CNC High Speed Heavy Duty Live Center with 60° Extended Large Steel Point |                  |      |      |      |      |      |             |             |          |                            |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                                                                                                                   | UPC #                                                                     | Description      | A    | B    | C    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                                                                   | 48232                                                                     | PLC-CNC-ELSP-MT3 | 0.87 | 2.17 | 0.23 | 1.85 | 1.65 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                                                                                                                   | 48233                                                                     | PLC-CNC-ELSP-MT4 | 1.14 | 2.40 | 0.31 | 2.17 | 2.01 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                                                                                                                   | 48234                                                                     | PLC-CNC-ELSP-MT5 | 1.50 | 3.15 | 0.47 | 2.48 | 2.21 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                                                                                                                   | 48235                                                                     | PLC-CNC-ELSP-MT6 | 1.65 | 3.66 | 0.59 | 2.88 | 3.07 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

| <br><b>CNC High Speed</b><br> | CNC High Speed Heavy Duty Live Center with 60° Extended Large Carbide Point |                  |      |      |      |      |      |             |             |          |                            |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
|                                                                                                                                                                                                   | UPC #                                                                       | Description      | A    | B    | C    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|                                                                                                                                                                                                   | 48236                                                                       | PLC-CNC-ELCP-MT3 | 0.87 | 2.17 | 0.23 | 1.85 | 1.65 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
|                                                                                                                                                                                                   | 48237                                                                       | PLC-CNC-ELCP-MT4 | 1.14 | 2.40 | 0.31 | 2.17 | 2.01 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
|                                                                                                                                                                                                   | 48238                                                                       | PLC-CNC-ELCP-MT5 | 1.50 | 3.15 | 0.39 | 2.48 | 2.21 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
|                                                                                                                                                                                                   | 48239                                                                       | PLC-CNC-ELCP-MT6 | 1.65 | 3.66 | 0.47 | 2.88 | 3.07 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

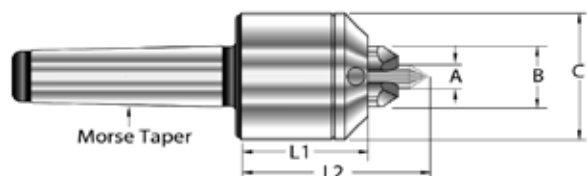
# FACE DRIVERS

*The Mechanical and Compact Design of the Dorian Face Driver is*  
**Accurate Powerful Simple Reliable**  
*Engineered for Proven Performance!*

The Perfetta™ Face Driver is engineered to drive a workpiece without clamping the outside diameter, allowing a precision turning of the workpiece over the entire length in one set-up and one operation. The center point of the Face Driver holds the work piece with high rigidity, accuracy and concentricity. The Driver Pins, engage and drive the workpiece with a constant force safely and reliably.



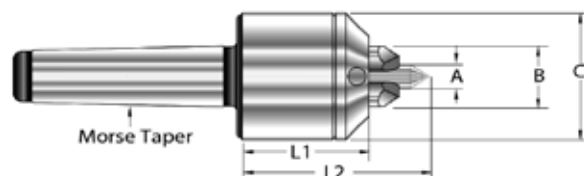
## 12mm (.472") Minimum Diameter



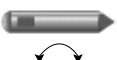
| UPC # | Description   | Capacity |      | A    | B    | C    | L1   | L2   | Morse Taper |
|-------|---------------|----------|------|------|------|------|------|------|-------------|
|       |               | Min.     | Max. |      |      |      |      |      |             |
| 48354 | PLC-FD-12-MT3 | 0.47     | 1.00 | 0.32 | 0.79 | 1.90 | 2.05 | 2.64 | MT3         |
| 48355 | PLC-FD-12-MT4 | 0.47     | 1.00 | 0.32 | 0.79 | 1.90 | 2.05 | 2.64 | MT4         |

| UPC #                                                                               | Driving Pin Description | UPC #                                                                               | Driving Pin Description | UPC #                                                                               | Driving Pin Description | UPC #                                                                               | Center Point Description |
|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|--------------------------|
| 48367                                                                               | PLC-FDP-12-N            | 48368                                                                               | PLC-FDP-12-L            | 48369                                                                               | PLC-FDP-12-R            | 48370                                                                               | PLC-FDP-12-C             |
| Clockwise & Counter Clockwise                                                       |                         | Counter Clockwise                                                                   |                         | Clockwise                                                                           |                         | 60° Center Point                                                                    |                          |
|  |                         |  |                         |  |                         |  |                          |

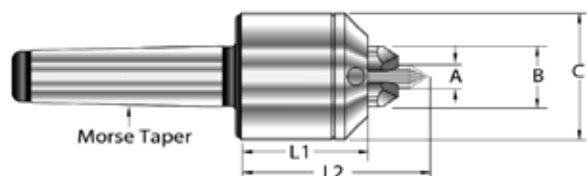
## 22mm (.866") Minimum Diameter



| UPC # | Description   | Capacity |      | A    | B    | C    | L1   | L2   | Morse Taper |
|-------|---------------|----------|------|------|------|------|------|------|-------------|
|       |               | Min.     | Max. |      |      |      |      |      |             |
| 48357 | PLC-FD-22-MT3 | 1.18     | 1.85 | 0.47 | 1.18 | 2.44 | 2.52 | 3.39 | MT3         |
| 48358 | PLC-FD-22-MT4 | 1.18     | 1.85 | 0.47 | 1.18 | 2.44 | 2.52 | 3.39 | MT4         |
| 48359 | PLC-FD-22-MT5 | 1.18     | 1.85 | 0.47 | 1.18 | 2.44 | 2.52 | 3.39 | MT5         |

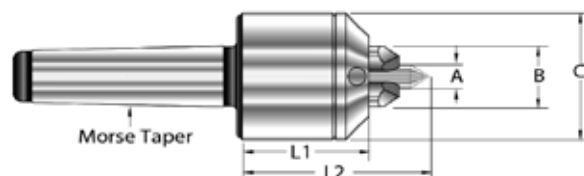
| UPC #                                                                                | Driving Pin Description | UPC #                                                                                 | Driving Pin Description | UPC #                                                                                 | Driving Pin Description | UPC #                                                                                 | Center Point Description |
|--------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|--------------------------|
| 48371                                                                                | PLC-FDP-22-N            | 48372                                                                                 | PLC-FDP-22-L            | 48373                                                                                 | PLC-FDP-22-R            | 48374                                                                                 | PLC-FDP-22-C             |
| Clockwise & Counter Clockwise                                                        |                         | Counter Clockwise                                                                     |                         | Clockwise                                                                             |                         | 60° Center Point                                                                      |                          |
|  |                         |  |                         |  |                         |  |                          |

## 42mm (1.654") Minimum Diameter



| UPC #                                                                               | Description             | Capacity                                                                            |                         | A                                                                                   | B                       | C                                                                                   | L1                       | L2    | Morse Taper |
|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|--------------------------|-------|-------------|
|                                                                                     |                         | Min.                                                                                | Max.                    |                                                                                     |                         |                                                                                     |                          |       |             |
| 48360                                                                               | PLC-FD-42-MT4           | 1.575                                                                               | 2.756                   | .71                                                                                 | 1.61                    | 3.43                                                                                | 3.740                    | 4.921 | MT4         |
| 48361                                                                               | PLC-FD-42-MT5           | 1.575                                                                               | 2.756                   | .71                                                                                 | 1.61                    | 3.43                                                                                | 3.740                    | 4.921 | MT5         |
| 48362                                                                               | PLC-FD-42-MT6           | 1.575                                                                               | 2.756                   | .71                                                                                 | 1.61                    | 3.43                                                                                | 3.740                    | 4.921 | MT6         |
| UPC #                                                                               | Driving Pin Description | UPC #                                                                               | Driving Pin Description | UPC #                                                                               | Driving Pin Description | UPC #                                                                               | Center Point Description |       |             |
| 48375                                                                               | PLC-FDP-42-N            | 48376                                                                               | PLC-FDP-42-L            | 48377                                                                               | PLC-FDP-42-R            | 48378                                                                               | PLC-FDP-42-C             |       |             |
| Clockwise & Counter Clockwise                                                       |                         | Counter Clockwise                                                                   |                         | Clockwise                                                                           |                         | 60° Center Point                                                                    |                          |       |             |
|  |                         |  |                         |  |                         |  |                          |       |             |
|  |                         |  |                         |  |                         |                                                                                     |                          |       |             |

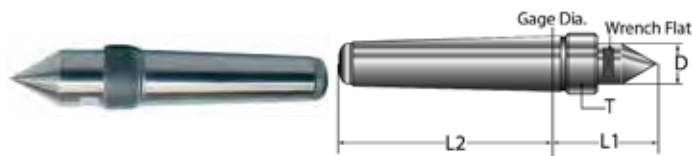
## 65mm (2.559") Minimum Diameter



| UPC # | Description   | Capacity |      | A    | B    | C    | L1   | L2   | Morse Taper |
|-------|---------------|----------|------|------|------|------|------|------|-------------|
|       |               | Min.     | Max. |      |      |      |      |      |             |
| 48363 | PLC-FD-65-MT4 | 2.25     | 3.55 | 0.91 | 2.25 | 4.29 | 3.94 | 5.51 | MT4         |
| 48364 | PLC-FD-65-MT5 | 2.25     | 3.55 | 0.91 | 2.25 | 4.29 | 3.94 | 5.51 | MT5         |
| 48365 | PLC-FD-65-MT6 | 2.25     | 3.55 | 0.91 | 2.25 | 4.29 | 3.94 | 5.51 | MT6         |

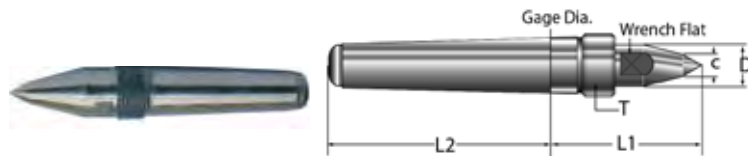
| UPC #                                                                                | Driving Pin Description | UPC #                                                                                 | Driving Pin Description | UPC #                                                                                 | Driving Pin Description | UPC #                                                                                 | Center Point Description |
|--------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|--------------------------|
| 48380                                                                                | PLC-FDP-65-N            | 48381                                                                                 | PLC-FDP-65-L            | 48382                                                                                 | PLC-FDP-65-R            | 48383                                                                                 | PLC-FDP-65-C             |
| Clockwise & Counter Clockwise                                                        |                         | Counter Clockwise                                                                     |                         | Clockwise                                                                             |                         | 60° Center Point                                                                      |                          |
|  |                         |  |                         |  |                         |  |                          |
|   |                         |  |                         |  |                         |  |                          |

### CNC Steel Morse Taper Threaded Dead Center with 60° Steel Point



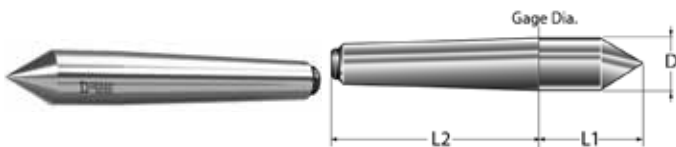
| UPC # | Description     | D     | Gage Dia. | L1    | L2    | T Thread  | Morse Taper |
|-------|-----------------|-------|-----------|-------|-------|-----------|-------------|
| 48440 | PLC-CNC-TDC-MT3 | 1.102 | 0.938     | 2.560 | 3.190 | M36 x 1.5 | MT3         |
| 48441 | PLC-CNC-TDC-MT4 | 1.260 | 1.231     | 3.010 | 4.04  | M36 x 1.5 | MT4         |
| 48442 | PLC-CNC-TDC-MT5 | 1.498 | 1.500     | 3.407 | 5.10  | M48 x 1.5 | MT5         |

### CNC Steel Morse Taper Threaded Dead Center with 60° Extended Steel Point



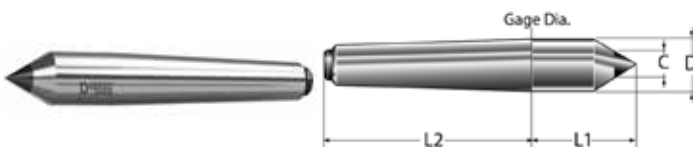
| UPC # | Description      | D     | Gage Dia. | C     | L1    | L2    | T Thread | Morse Taper |
|-------|------------------|-------|-----------|-------|-------|-------|----------|-------------|
| 48443 | PLC-CNC-XTDC-MT3 | 1.102 | 0.938     | 0.510 | 3.150 | 3.190 | 36 x 1.5 | MT3         |
| 48444 | PLC-CNC-XTDC-MT4 | 1.260 | 1.231     | 0.510 | 3.640 | 4.04  | 36 x 1.5 | MT4         |
| 48445 | PLC-CNC-XTDC-MT5 | 1.498 | 1.500     | 0.788 | 4.115 | 5.10  | 48 x 1.5 | MT5         |

### Precision CNC Steel Morse Taper Dead Center with 60° Steel Point



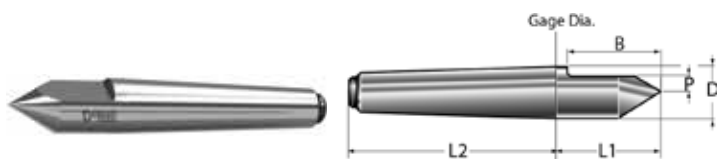
| UPC # | Description   | D    | Gage Dia. | L1   | L2   | Morse Taper |
|-------|---------------|------|-----------|------|------|-------------|
| 48453 | PLC-MTDC-SMT1 | 0.48 | 0.475     | 1.03 | 2.12 | MT1         |
| 48454 | PLC-MTDC-SMT2 | 0.71 | 0.700     | 1.38 | 2.56 | MT2         |
| 48455 | PLC-MTDC-SMT3 | 0.95 | 0.938     | 1.73 | 3.19 | MT3         |
| 48456 | PLC-MTDC-SMT4 | 1.24 | 1.231     | 2.24 | 4.06 | MT4         |
| 48457 | PLC-MTDC-SMT5 | 1.76 | 1.748     | 2.68 | 5.19 | MT5         |
| 48458 | PLC-MTDC-SMT6 | 2.51 | 2.494     | 3.38 | 7.25 | MT6         |

### Precision CNC Steel Morse Taper Dead Center with 60° Partial Carbide Point



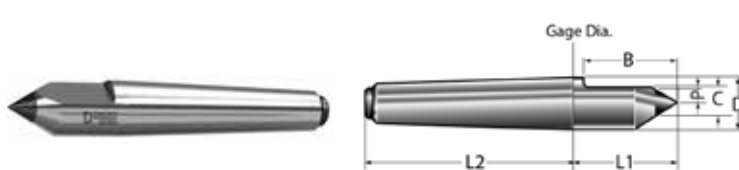
| UPC # | Description   | D    | Gage Dia. | C    | L1   | L2   | Morse Taper |
|-------|---------------|------|-----------|------|------|------|-------------|
| 48459 | PLC-MTDC-CMT2 | 0.71 | 0.700     | 0.28 | 1.38 | 2.56 | MT2         |
| 48460 | PLC-MTDC-CMT3 | 0.95 | 0.938     | 0.43 | 1.73 | 3.19 | MT3         |
| 48461 | PLC-MTDC-CMT4 | 1.24 | 1.231     | 0.55 | 2.24 | 4.06 | MT4         |
| 48462 | PLC-MTDC-CMT5 | 1.76 | 1.748     | 0.71 | 2.68 | 5.19 | MT5         |
| 48463 | PLC-MTDC-CMT6 | 2.51 | 2.494     | 0.79 | 3.38 | 7.25 | MT6         |

### Precision CNC Steel Morse Taper Half Moon Dead Center with 60° Steel Point



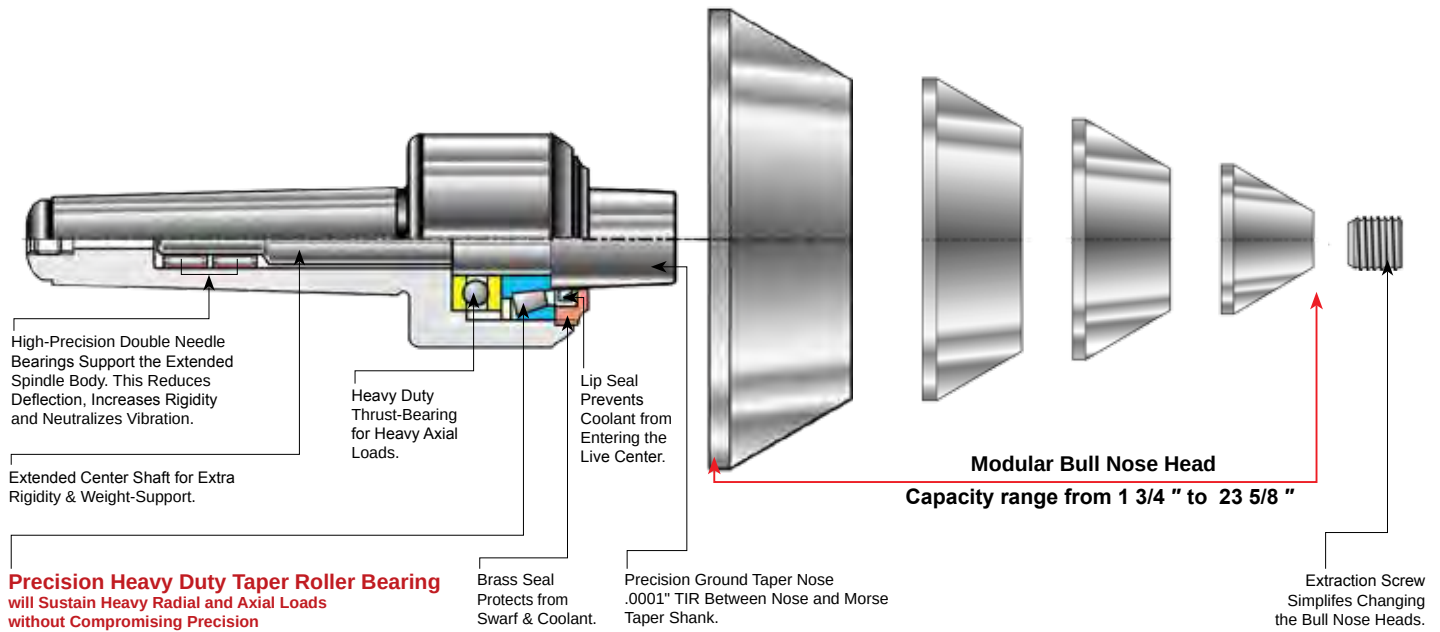
| UPC # | Description   | D    | Gage Dia. | B    | P    | L1   | L2   | Morse Taper |
|-------|---------------|------|-----------|------|------|------|------|-------------|
| 48464 | PLC-HMDC-SMT1 | 0.48 | 0.475     | 0.87 | 0.06 | 1.03 | 2.12 | MT1         |
| 48465 | PLC-HMDC-SMT2 | 0.71 | 0.700     | 1.18 | 0.08 | 1.38 | 2.56 | MT2         |
| 48466 | PLC-HMDC-SMT3 | 0.95 | 0.938     | 1.50 | 0.12 | 1.73 | 3.19 | MT3         |
| 48467 | PLC-HMDC-SMT4 | 1.24 | 1.231     | 1.97 | 0.20 | 2.24 | 4.06 | MT4         |
| 48468 | PLC-HMDC-SMT5 | 1.76 | 1.748     | 2.48 | 0.28 | 2.68 | 5.19 | MT5         |
| 48469 | PLC-HMDC-SMT6 | 2.51 | 2.494     | 3.11 | 0.39 | 3.38 | 7.25 | MT6         |

### Precision CNC Steel Morse Taper Half Moon Dead Center with 60° Carbide Point



| UPC # | Description   | D    | Gage Dia. | B    | C    | P    | L1   | L2   | Morse Taper |
|-------|---------------|------|-----------|------|------|------|------|------|-------------|
| 48470 | PLC-HMDC-CMT2 | 0.71 | 0.700     | 1.18 | 0.28 | 0.08 | 1.38 | 2.56 | MT2         |
| 48471 | PLC-HMDC-CMT3 | 0.95 | 0.938     | 1.50 | 0.43 | 0.12 | 1.73 | 3.19 | MT3         |
| 48472 | PLC-HMDC-CMT4 | 1.24 | 1.231     | 1.97 | 0.55 | 0.20 | 2.24 | 4.06 | MT4         |
| 48473 | PLC-HMDC-CMT5 | 1.76 | 1.748     | 2.48 | 0.71 | 0.28 | 2.68 | 5.19 | MT5         |
| 48474 | PLC-HMDC-CMT6 | 2.51 | 2.494     | 3.11 | 0.79 | 0.39 | 3.38 | 7.25 | MT6         |

# MODULAR BULL NOSE SYSTEM FOR PIPES



**Extra Heavy Duty Modular Bull Nose Live Center**

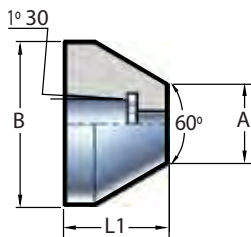


| UPC # | Description     | Morse Taper | Max. RPM | Max. workpiece weight (lb) | Thrust load (lb) |
|-------|-----------------|-------------|----------|----------------------------|------------------|
| 48400 | PLC-HDA-BN-MT3  | 3           | 6000     | 2090                       | 1144             |
| 48401 | PLC-HDA-BN-MT4  | 4           | 4500     | 3300                       | 1320             |
| 48402 | PLC-HDA-BN-MT5  | 5           | 2800     | 4400                       | 2640             |
| 48403 | PLC-HDA-BN-MT6  | 6           | 2000     | 10560                      | 3300             |
| 48404 | PLC-HDA-BN-MT6X | 6           | 1700     | 19800                      | 6600             |

**CNC Modular Bull Nose Dead Center**



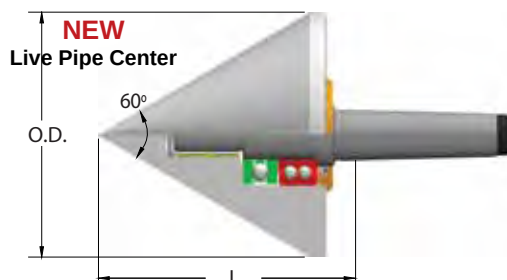
| UPC # | Description      | Morse Taper | Extractor Nut (sold separately) |
|-------|------------------|-------------|---------------------------------|
| 48406 | PLC-CNC-BNDC-MT3 | 3           | 48449                           |
| 48407 | PLC-CNC-BNDC-MT4 | 4           | 48450                           |
| 48408 | PLC-CNC-BNDC-MT5 | 5           | 48451                           |
| 48409 | PLC-CNC-BNDC-MT6 | 6           | 48452                           |



**Modular Bull Nose Head Adapters**

| UPC #       | 48420              | 48421              | 48422              | 48423              | 48424              | 48425              | 48426              | 48427              | 48428              | 48429              | 48430              |
|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Description | PLCBN-HA-0177-0386 | PLCBN-HA-0374-0583 | PLCBN-HA-0571-0780 | PLCBN-HA-0768-0977 | PLCBN-HA-0965-1174 | PLCBN-HA-1162-1371 | PLCBN-HA-1359-1568 | PLCBN-HA-1556-1765 | PLCBN-HA-1753-1962 | PLCBN-HA-1950-2147 | PLCBN-HA-2147-2364 |
| A           | 1.77               | 3.74               | 5.71               | 7.68               | 9.65               | 11.62              | 13.59              | 15.56              | 17.53              | 19.50              | 21.47              |
| B           | 3.86               | 5.83               | 7.80               | 9.77               | 11.74              | 13.71              | 15.68              | 17.65              | 19.62              | 21.47              | 23.64              |
| L1          | 2.17               | 2.17               | 2.17               | 2.17               | 2.17               | 2.17               | 2.17               | 2.17               | 2.17               | 2.17               | 2.17               |
| Nose Taper  | 60°                | 60°                | 60°                | 60°                | 60°                | 60°                | 60°                | 60°                | 60°                | 60°                | 60°                |

## INTEGRAL LIVE PIPE CENTERS

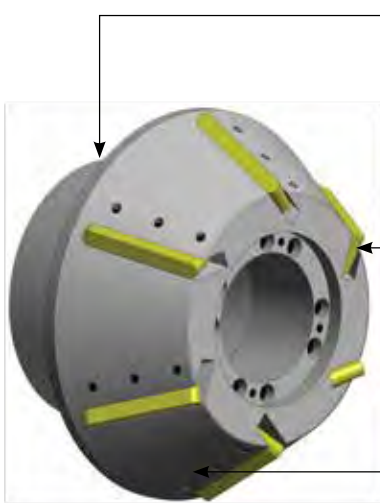
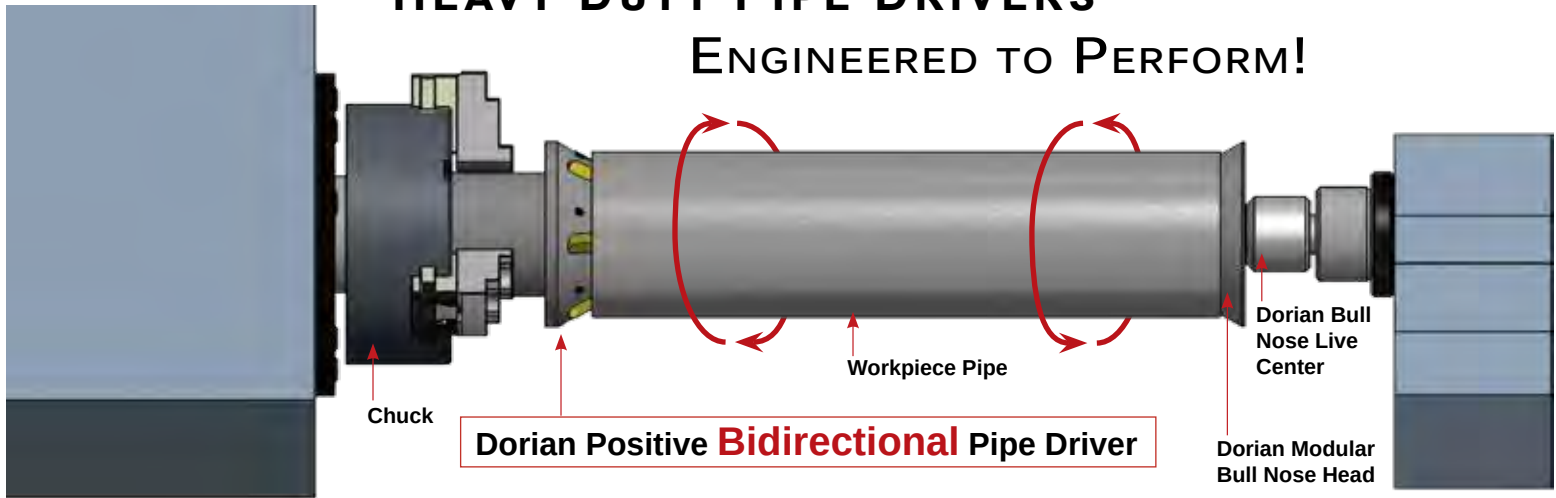


**Live Pipe Center**

| UPC # | Description  | OD in | L in | Morse Taper | Max. workpiece weight | Max. RPM | Thrust load |
|-------|--------------|-------|------|-------------|-----------------------|----------|-------------|
| 48390 | DPLC-MT4-125 | 5.31  | 5.75 | MT4         | 7700 lbs              | 4000     | 3372 lbs    |
| 48391 | DPLC-MT5-150 | 6.22  | 6.20 | MT5         | 7700 lbs              | 3600     | 3372 lbs    |
| 48392 | DPLC-MT6-150 | 6.22  | 6.25 | MT6         | 7700 lbs              | 3600     | 3372 lbs    |



# HEAVY DUTY PIPE DRIVERS ENGINEERED TO PERFORM!



## Replaceable Hub

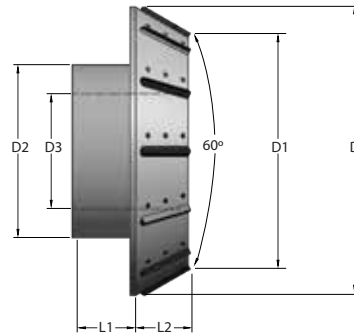
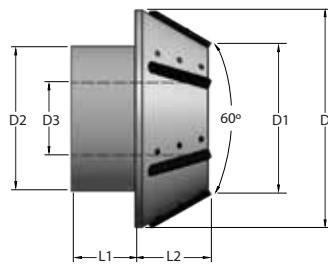
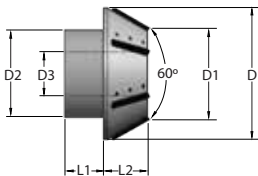
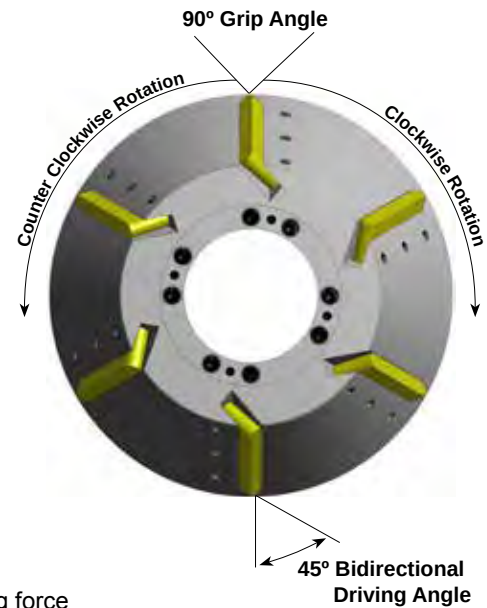
- Can be chucked on O.D. or I.D.
- Regrindable & Replaceable if damaged or scarred without needing to replace the pipe driver body
- Heat treated alloy steel

## Positive Pipe Driver Blades

- Indexable blades with 4 driving sides
- Hardened D2 Tool Steel (60HRC)
- Simple & Quick Installation
- Engages to pipe's I.D. with positive locking action

## Pipe Driver Body

- Heat treated alloy steel
- Holds the driving blades with a positive rake
- Blade slots are 45° to maximize grip & driving force



**1 3/4" to 23 5/8"**  
**Pipe ID**  
**Diameter Capacity**

| Dorian Positive Pipe Driver |             |       |       |       |      |      |      | No. Blades Included | Blade Description | Dorian Bull Nose Cross-over |                   |             |
|-----------------------------|-------------|-------|-------|-------|------|------|------|---------------------|-------------------|-----------------------------|-------------------|-------------|
| UPC #                       | Description | D     | D1    | D2    | D3   | L1   | L2   |                     |                   | UPC #                       | Description       | Range       |
| 48540                       | DPD045-150  | 5.91  | 1.77  | 2.76  | -    | 2.99 | 4.13 | 6                   | PDB045-150        | 48420                       | PLCBN-HA0177-0386 | 1.77-3.86   |
| 48541                       | DPD095-200  | 7.87  | 3.74  | 4.72  | 1.81 | 2.99 | 4.13 | 6                   | PDB200-600        | 48421                       | PLCBN-HA0374-0583 | 3.74-5.83   |
| 48542                       | DPD195-300  | 11.81 | 7.68  | 7.76  | 4.06 | 3.46 | 4.13 | 9                   | PDB200-600        | 48421                       | PLCBN-HA0374-0583 | 3.74-5.83   |
| 48543                       | DPD295-400  | 15.75 | 11.61 | 7.76  | 4.06 | 3.46 | 4.13 | 12                  | PDB200-600        | 48422                       | PLCBN-HA0571-0780 | 5.71-7.80   |
| 48544                       | DPD395-500  | 19.69 | 15.55 | 11.69 | 7.99 | 3.94 | 4.13 | 12                  | PDB200-600        | 48423                       | PLCBN-HA0768-0977 | 7.68-9.77   |
| 48545                       | DPD495-600  | 23.62 | 19.49 | 11.69 | 7.99 | 3.94 | 4.13 | 15                  | PDB200-600        | 48424                       | PLCBN-HA0965-1174 | 9.65-11.74  |
|                             |             |       |       |       |      |      |      |                     |                   | 48425                       | PLCBN-HA1162-1371 | 11.62-13.71 |
|                             |             |       |       |       |      |      |      |                     |                   | 48426                       | PLCBN-HA1359-1568 | 13.59-15.68 |
|                             |             |       |       |       |      |      |      |                     |                   | 48427                       | PLCBN-HA1556-1765 | 15.56-17.65 |
|                             |             |       |       |       |      |      |      |                     |                   | 48428                       | PLCBN-HA1753-1962 | 17.53-19.62 |
|                             |             |       |       |       |      |      |      |                     |                   | 48429                       | PLCBN-HA1950-2147 | 19.50-21.47 |
|                             |             |       |       |       |      |      |      |                     |                   | 48430                       | PLCBN-HA2147-2364 | 21.47-23.64 |

# SUPER QUICK CHANGE

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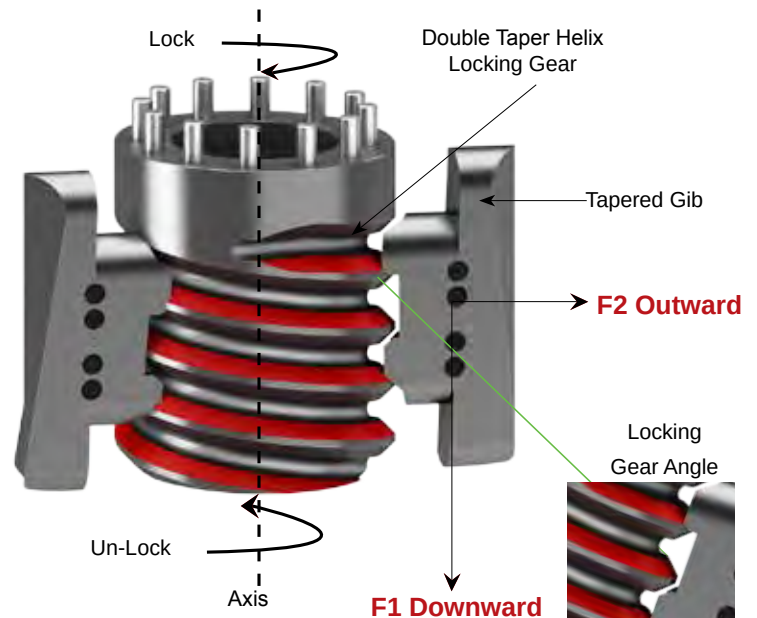
## TOOL POST

RIGIDITY,  
REPEATABILITY &  
QUALITY



## The Triple Action Wedge-Locking System

is a powerful combination of a **downward, outward and inward force** simultaneously locking the holder.



### 1. F1 Downward Force:

(shown right) Rotating the locking gear moves the gib down, expanding the tool post dovetail to lock the toolholder.

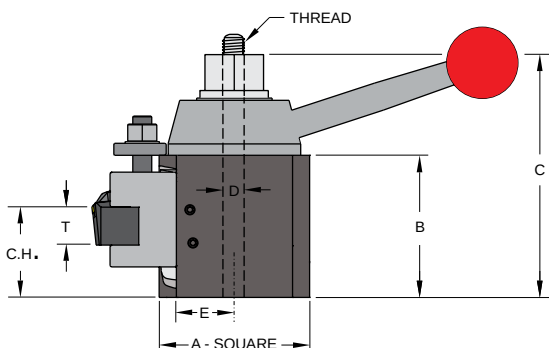
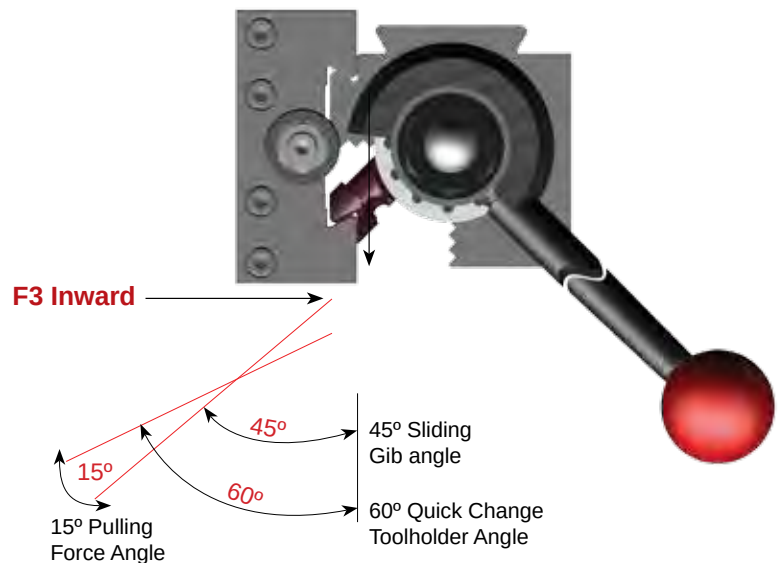
### 2. F2 Outward Force:

(shown right) When the gibs make full contact with the toolholder dovetail, the double-angle helix of the locking gear forces the gib outward, neutralizing any backlash to zero.

### 3. F3 Inward Force:

(shown right) The differential between the sliding gib angle and the quick change holder angle pulls the toolholder towards the tool post dovetail surface, creating a one-piece locking effect.

## Wedge Style Sliding Gib



| Description<br>UPC # | SDN25AXA<br>01000 | SDN30BXA<br>01002 | SDN35CXA<br>01004 | SDN40CA<br>01006 | SDN50DA<br>01008 | SDN60EA<br>01010 |
|----------------------|-------------------|-------------------|-------------------|------------------|------------------|------------------|
| Lathe Swing Over Bed | ≤12               | 13-15             | 14-17             | 16-20            | 17-32            | ≥25              |
| A                    | 2.625             | 3.000             | 3.500             | 4.000            | 5.000            | 6.000            |
| B                    | 2.500             | 2.750             | 3.250             | 3.750            | 4.625            | 5.000            |
| C                    | 4.240             | 4.710             | 5.650             | 6.335            | 7.435            | 8.060            |
| D                    | 0.500             | 0.625             | 0.750             | 0.875            | 1.000            | 1.125            |
| E                    | 0.880             | 1.115             | 1.199             | 1.530            | 1.900            | 2.207            |
| T-Tool Capacity*     | 1/2-3/4           | 5/8-1.0           | 3/4-1.0           | 1.0-1¼           | 1¼-1½            | 1 1/2            |
| Optimum C.H.**       | 1.250             | 1.312             | 1.625             | 1.937            | 2.562            | 3.000            |
| C.H. MIN.            | 0.875             | 1.062             | 1.250             | 1.562            | 2.000            | 2.500            |
| C.H. MAX.            | 1.875             | 1.937             | 2.250             | 2.562            | 3.575            | 3.500            |
| Thread               | 1/2-20            | 5/8-18            | 3/4-16            | 7/8-14           | 1.0-14           | 1½-12            |

\*\* Optimum center height is calculated with the smaller tool size of the tool capacity. If the higher size tool is to be used, add 1/8" to the optimum center height.

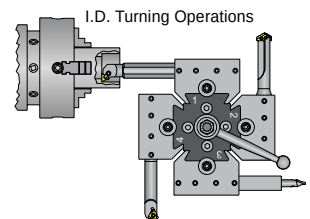
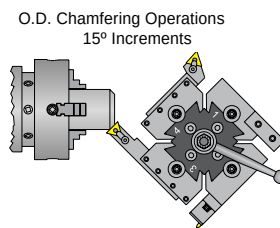
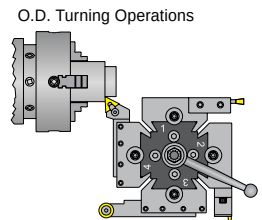
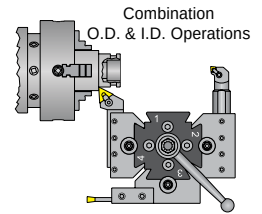
| Use With SDN Tool Post                                                                                                                          | SDN25AXA                                                           | SDN30BXA                                                           | SDN35CXA                                                           | SDN40CA                                                           | SDN50DA                                                       | SDN60EA                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------|
| <b>Turning &amp; Facing</b><br><br><b>UPC #</b>                | D25AXA-1<br><br>Tool Capacity<br>1/2" to 3/4"<br><br>01100         | D30BXA-1<br><br>Tool Capacity<br>5/8" to 1"<br><br>01250           | D35CXA-1<br><br>Tool Capacity<br>3/4" to 1"<br><br>01400           | D40CA-1<br><br>Tool Capacity<br>1" to 1 1/4"<br><br>01550         | D50DA-1<br><br>Tool Capacity<br>1 1/4" to 1 1/2"<br><br>01700 | D60EA-1<br><br>Tool Capacity<br>1 1/2"<br><br>01850          |
| <b>Turning, Facing and Boring</b><br><br><b>UPC #</b>          | D25AXA-2<br><br>Tool Capacity<br>1/2" to 3/4"<br><br>01104         | D30BXA-2<br><br>Tool Capacity<br>5/8" to 1"<br><br>01254           | D35CXA-2<br><br>Tool Capacity<br>3/4" to 1"<br><br>01404           | D40CA-2<br><br>Tool Capacity<br>1" to 1 1/4"<br><br>01554         | D50DA-2<br><br>Tool Capacity<br>1 1/4" to 1 1/2"<br><br>01704 | D60EA-2<br><br>Tool Capacity<br>1 1/2"<br><br>01854          |
| <b>Heavy Duty Boring</b><br><br><b>UPC #</b>                   | D25AXA-4-CNC<br><br>Tool Capacity<br>3/4"<br><br>01110             | D30BXA-4-CNC<br><br>Tool Capacity<br>1"<br><br>01260               | D35CXA-4-CNC<br><br>Tool Capacity<br>1"<br><br>01410               | D40CA-4-CNC<br><br>Tool Capacity<br>1 1/4"<br><br>01560           | D50DA-4-CNC<br><br>Tool Capacity<br>1 1/2"<br><br>01710       | D60EA-4-CNC<br><br>Tool Capacity<br>2"<br><br>01860          |
| <b>Extra Heavy Duty Boring</b><br><br><b>UPC #</b>             | D25AXA-41-CNC<br><br>Tool Capacity<br>1"<br><br>01114              | D30BXA-41-CNC<br><br>Tool Capacity<br>1 1/4"<br><br>01264          | D35CXA-41-CNC<br><br>Tool Capacity<br>1 1/4"<br><br>01414          | D40CA-41-CNC<br><br>Tool Capacity<br>1 1/2"<br><br>01564          | D50DA-41-CNC<br><br>Tool Capacity<br>2"<br><br>01714          | D60EA-41-CNC<br><br>Tool Capacity<br>2 1/2"<br><br>01864     |
| <b>Oversized Extra Heavy Duty Boring</b><br><br><b>UPC #</b>  | -                                                                  | -                                                                  | D35CXA-41-150-CNC<br><br>Tool Capacity<br>1 1/2"<br><br>01418      | D40CA-41-200-CNC<br><br>Tool Capacity<br>2"<br><br>01568          | D50DA-41-250-CNC<br><br>Tool Capacity<br>2 1/2"<br><br>01718  | D60EA-41-300-CNC<br><br>Tool Capacity<br>3"<br><br>01868     |
| <b>Morse Taper</b><br><br><b>UPC #</b>                       | -                                                                  | -                                                                  | D35CXA-5-4<br><br>Tool Capacity<br>Morse Taper 4<br><br>01424      | D40CA-5-4<br><br>Tool Capacity<br>Morse Taper 4<br><br>01572      | D50DA-5-5<br><br>Tool Capacity<br>Morse Taper 5<br><br>01722  | D60EA-5-5<br><br>Tool Capacity<br>Morse Taper 5<br><br>01872 |
| <b>Extra HD Cut-Off Blade Toolholder</b><br><br><b>UPC #</b> | D25AXA-7-71C<br><br>Blade Size<br>19-2<br><br>01126                | D30BXA-7-71C<br><br>Blade Size<br>19-2<br><br>01276                | D35CXA-7-71C<br><br>Blade Size<br>26-2 to 26-6<br><br>01428        | D40CA-7-71C<br><br>Blade Size<br>26-2 to 26-6<br><br>01576        | D50DA-7-71C<br><br>Blade Size<br>32-3 to 32-9<br><br>01726    | D60EA-7-71C<br><br>Blade Size<br>32-3 to 32-9<br><br>01876   |
| <b>ID &amp; OD Threading</b><br><br><b>UPC #</b>             | D25AXA-881-OE<br><br>On Edge for OD<br>Laydown for ID<br><br>01132 | D30BXA-881-OE<br><br>On Edge for OD<br>Laydown for ID<br><br>01282 | D35CXA-881-OE<br><br>On Edge for OD<br>Laydown for ID<br><br>01434 | D40CA-881-OE<br><br>On Edge for OD<br>Laydown for ID<br><br>01582 |                                                               |                                                              |
| <b>Dovetail Drill Chuck Holder</b><br><br><b>UPC #</b>       | D25AXA-35<br><br>Tool Capacity<br><b>0-12"</b><br><br>01140        | D30BXA-35<br><br>Tool Capacity<br><b>0-12"</b><br><br>01290        | D35CXA-35<br><br>Tool Capacity<br><b>0-12"</b><br><br>01442        | D40CA-35<br><br>Tool Capacity<br><b>0-12"</b><br><br>01590        |                                                               |                                                              |
| <b>5C Collet Holder</b><br><br><b>UPC #</b>                  | D25AXA-36<br><br>5C Collet<br><br>01142                            | D30BXA-36<br><br>5C Collet<br><br>01292                            | D35CXA-36<br><br>5C Collet<br><br>01444                            | D40CA-36<br><br>5C Collet<br><br>01592                            |                                                               |                                                              |



# QUADRA INDEXING

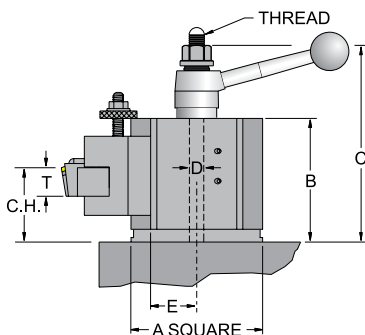
## QUICK CHANGE

**STRONG  
RIGID &  
PRECISE**



### Locking and Indexing System

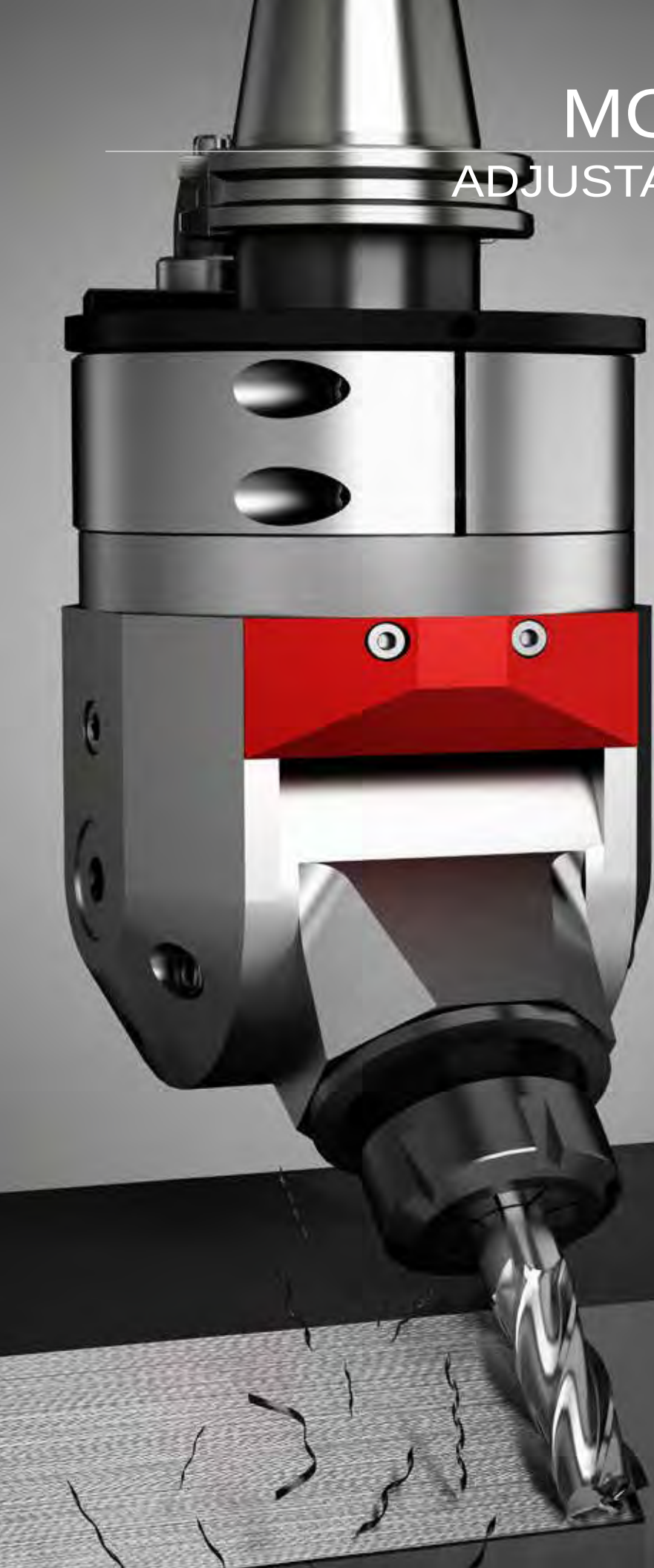
24 Super Precise Positioning Ball Bearings  
& 2 Pre-Loaded Indexing Pins



| Description<br>UPC # | QITP25N<br>00000 | QITP30N<br>00002 | QITP35N<br>00004 | QITP40N<br>00006 | QITP50N<br>00008 | QITP60N<br>00010 |
|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Lathe Swing Over Bed | ≤12"             | 13-15"           | 14-17"           | 16-20"           | 17-32"           | ≥25-XHD          |
| A                    | 2.500            | 3.000            | 3.500            | 4.000            | 5.000            | 6.000            |
| B                    | 2.570            | 3.205            | 3.460            | 4.070            | 5.230            | 5.615            |
| C                    | 5.210            | 5.720            | 6.415            | 7.525            | 9.135            | 9.855            |
| D                    | 0.500            | 0.500            | 0.625            | 0.750            | 1.000            | 1.125            |
| E                    | 0.880            | 1.115            | 1.245            | 1.530            | 1.897            | 2.207            |
| T-Tool Capacity      | 1/2-3/4          | 5/8-1.0          | 3/4-1.0          | 1.0-1 1/4        | 1 1/4 - 1 1/2    | 1 1/2            |
| Optimum C.H.*        | 1.422            | 1.747            | 1.835            | 2.202            | 2.995            | 3.440            |
| C.H. MIN.            | 0.995            | 1.213            | 1.445            | 1.757            | 2.245            | 2.750            |
| C.H. MAX.            | 1.849            | 2.282            | 2.225            | 2.646            | 3.744            | 4.129            |
| Thread               | 1/2-20           | 1/2-20           | 5/8-18           | 3/4-16           | 1.0-14           | 1 1/4-12         |

\*Optimum center height is calculated with the smaller tool size of the tool capacity.

| Use With Quadra Tool Post                                                                                                                       | QITP25N                                                | QITP30N                                                | QITP35N                                                | QITP40N                                                | QITP50N                                            | QITP60N                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------|---------------------------------------------------|
| <b>Turning &amp; Facing</b><br><br><b>UPC #</b>                | QITP25N-1<br><br>Tool Capacity<br>1/2" to 3/4"         | QITP30N-1<br><br>Tool Capacity<br>5/8" to 1"           | QITP35N-1<br><br>Tool Capacity<br>3/4" to 1"           | QITP40N-1<br><br>Tool Capacity<br>1" to 1 1/4"         | QITP50N-1<br><br>Tool Capacity<br>1 1/4" to 1 1/2" | QITP60N-1<br><br>Tool Capacity<br>1 1/2"          |
| <b>Turning, Facing and Boring</b><br><br><b>UPC #</b>          | QITP25N-2<br><br>Tool Capacity<br>1/2" to 3/4"         | QITP30N-2<br><br>Tool Capacity<br>5/8" to 1"           | QITP35N-2<br><br>Tool Capacity<br>3/4" to 1"           | QITP40N-2<br><br>Tool Capacity<br>1" to 1 1/4"         | QITP50N-2<br><br>Tool Capacity<br>1 1/4" to 1 1/2" | QITP60N-2<br><br>Tool Capacity<br>1 1/2"          |
| <b>Heavy Duty Boring</b><br><br><b>UPC #</b>                   | QITP25N-4-CNC<br><br>Tool Capacity<br>3/4"             | QITP30N-4-CNC<br><br>Tool Capacity<br>1"               | QITP35N-4-CNC<br><br>Tool Capacity<br>1"               | QITP40N-4-CNC<br><br>Tool Capacity<br>1 1/4"           | QITP50N-4-CNC<br><br>Tool Capacity<br>1 1/2"       | QITP60N-4-CNC<br><br>Tool Capacity<br>2"          |
| <b>Extra Heavy Duty Boring</b><br><br><b>UPC #</b>             | -                                                      | -                                                      | QITP35N-41-CNC<br><br>Tool Capacity<br>1 1/4"          | QITP40N-41-CNC<br><br>Tool Capacity<br>1 1/2"          | QITP50N-41-CNC<br><br>Tool Capacity<br>2"          | QITP60N-41-CNC<br><br>Tool Capacity<br>2 1/2"     |
| <b>Morse Taper</b><br><br><b>UPC #</b>                       | -                                                      | -                                                      | QITP35N-5-4<br><br>Tool Capacity<br>Morse Taper 4      | QITP40N-5-4<br><br>Tool Capacity<br>Morse Taper 4      | QITP50N-5-5<br><br>Tool Capacity<br>Morse Taper 5  | QITP60N-5-5<br><br>Tool Capacity<br>Morse Taper 5 |
| <b>Extra HD Cut-Off Blade Toolholder</b><br><br><b>UPC #</b> | QITP25N-7-71C<br><br>Blade Size<br>19-2                | QITP30N-7-71C<br><br>Blade Size<br>19-2                | QITP35N-7-71C<br><br>Blade Size<br>26-2 to 26-6        | QITP40N-7-71C<br><br>Blade Size<br>26-2 to 26-6        | QITP50N-7-71C<br><br>Blade Size<br>32-3 to 32-9    | QITP60N-7-71C<br><br>Blade Size<br>32-3 to 32-9   |
| <b>ID &amp; OD Threading Toolholder</b><br><br><b>UPC #</b>  | QITP25N-881-OE<br><br>On Edge for OD<br>Laydown for ID | QITP30N-881-OE<br><br>On Edge for OD<br>Laydown for ID | QITP35N-881-OE<br><br>On Edge for OD<br>Laydown for ID | QITP40N-881-OE<br><br>On Edge for OD<br>Laydown for ID |                                                    |                                                   |
| <b>5C Collet Holder</b><br><br><b>UPC #</b>                  | QITP25N-36<br><br>5C Collet                            | QITP30N-36<br><br>5C Collet                            | QITP35N-36<br><br>5C Collet                            | QITP40N-36<br><br>5C Collet                            |                                                    |                                                   |



# MODULAR CNC ADJUSTABLE ANGLE HEADS

## **ADVANCED DESIGN & STATE OF THE ART TECHNOLOGY!**

Choose from two styles (Universal and 90°)  
and six models for any milling, drilling,  
tapping and face milling operations.

# MODULAR CNC ANGLE HEADS

**Featuring  
Modular  
V-Flange  
Toolholders  
For all Heads**



**CAT 40 Holder  
ISO 40 Holder  
BT 40 Holder**



**CAT 50 Holder  
ISO 50 Holder  
BT 50 Holder**



| Modular V-Flange Toolholders | UPC # |
|------------------------------|-------|
| CAT40                        | 46001 |
| CAT50                        | 46002 |
| ISO40-DIN69871               | 46012 |
| ISO50- DIN69871              | 46021 |
| BT40                         | 46005 |
| BT50                         | 46006 |

| Style                                                                                                                                                                                 | Features                                                                                                                                                                                                                                                                                                                                                                                                          | Shank | Description          | UPC # |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------|-------|
| <br><b>Pivoting<br/>Modular CNC<br/>Angle Head</b><br><br><b>Toolholding:<br/>ER25 Collet System</b> | <ul style="list-style-type: none"> <li>• 4000 rpm max.</li> <li>• 11 lb.ft. torque</li> <li>• 1 to 1 Driving Ratio</li> <li>• 5/8" max tool shank size</li> <li>• 14.5 lb weight</li> <li>• Capable of machining in two axial positioning angles</li> <li>• Designed to perform any CNC medium duty operations</li> <li>• Interchangeable Taper Holder</li> <li>• Automatic tool change capability</li> </ul>     | CAT40 | PLCNC-AAH-ER25-CAT40 | 45953 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | CAT50 | PLCNC-AAH-ER25-CAT50 | 45957 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT40  | PLCNC-AAH-ER25-BT40  | 45952 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT50  | PLCNC-AAH-ER25-BT50  | 45956 |
| <br><b>Pivoting<br/>Modular CNC<br/>Angle Head</b><br><br><b>Toolholding:<br/>ER32 Collet System</b> | <ul style="list-style-type: none"> <li>• 3500 RPM max.</li> <li>• 30 lb.ft. torque</li> <li>• 1 to 1 Driving Ratio</li> <li>• 3/4" max tool shank size</li> <li>• 46 lb weight</li> <li>• Capable of machining in two axial positioning angles</li> <li>• Designed to perform any CNC medium duty operations</li> <li>• Interchangeable Taper Holder</li> <li>• Automatic tool change capability</li> </ul>       | CAT40 | PLCNC-AAH-ER32-CAT40 | 45943 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | CAT50 | PLCNC-AAH-ER32-CAT50 | 45963 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT40  | PLCNC-AAH-ER32-BT40  | 45942 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT50  | PLCNC-AAH-ER32-BT50  | 45962 |
| <br><b>90° Modular CNC<br/>Angle Head</b><br><br><b>Toolholding:<br/>ER16 Collet System</b>          | <ul style="list-style-type: none"> <li>• 4000 RPM max.</li> <li>• 5 lb.ft. torque</li> <li>• 1 to 1 Driving Ratio</li> <li>• 3/8" max tool shank size</li> <li>• 14.5 lb weight</li> <li>• Fixed 90 Degree head with 0-360 degree circular rotation</li> <li>• Designed to perform any CNC light duty operations</li> <li>• Interchangeable Taper Holder</li> <li>• Automatic tool change capability</li> </ul>   | CAT40 | 90CNC-AAH-ER16-CAT40 | 45968 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | CAT50 | 90CNC-AAH-ER16-CAT50 | 45972 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT40  | 90CNC-AAH-ER16-BT40  | 45967 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT50  | 90CNC-AAH-ER16-BT50  | 45971 |
| <br><b>90° Modular CNC<br/>Angle Head</b><br><br><b>Toolholding:<br/>ER25 Collet System</b>        | <ul style="list-style-type: none"> <li>• 3500 RPM max.</li> <li>• 15 lb.ft. torque</li> <li>• 1 to 1 Driving Ratio</li> <li>• 5/8" max tool shank size</li> <li>• 14.5 lb weight</li> <li>• Fixed 90 Degree head with 0-360 degree circular rotation</li> <li>• Designed to perform any CNC medium duty operations</li> <li>• Interchangeable Taper Holder</li> <li>• Automatic tool change capability</li> </ul> | CAT40 | 90CNC-AAH-ER25-CAT40 | 45977 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | CAT50 | 90CNC-AAH-25-CAT50   | 45981 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT40  | 90CNC-AAH-ER25-BT40  | 45976 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT50  | 90CNC-AAH-ER25-BT50  | 45980 |
| <br><b>90° Modular CNC<br/>Angle Head</b><br><br><b>Toolholding:<br/>ER32 Collet System</b>        | <ul style="list-style-type: none"> <li>• 3500 RPM max.</li> <li>• 44 lb.ft. torque</li> <li>• 1 to 1 Driving Ratio</li> <li>• 3/4" max tool shank size</li> <li>• 44 lb weight</li> <li>• Fixed 90 Degree head with 0-360 degree circular rotation</li> <li>• Designed to perform any CNC heavy duty operations</li> <li>• Interchangeable Taper Holder</li> <li>• Automatic tool change capability</li> </ul>    | CAT40 | 90CNC-AAH-ER32-CAT40 | 45986 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | CAT50 | 90CNC-AAH-ER32-CAT50 | 45990 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT40  | 90CNC-AAH-ER32-BT40  | 45985 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT50  | 90CNC-AAH-ER32-BT50  | 45989 |
| <br><b>90° Modular CNC<br/>Angle Head</b><br><br><b>Toolholding:<br/>CAT40-ISO40-BT40</b>          | <ul style="list-style-type: none"> <li>• 2000 RPM max.</li> <li>• 30 lb.ft. torque</li> <li>• 1 to 1 Driving Ratio</li> <li>• 3/4" max tool shank size</li> <li>• 44 lb weight</li> <li>• Fixed 90 Degree head with 0-360 degree circular rotation</li> <li>• Designed to perform any CNC heavy duty operations</li> <li>• Interchangeable Taper Holder</li> <li>• Automatic tool change capability</li> </ul>    | CAT40 | 90CNC-AAH-TP40-CAT40 | 45936 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | CAT50 | 90CNC-AAH-TP40-CAT50 | 45996 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT40  | 90CNC-AAH-TP40-BT40  | 45935 |
|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   | BT50  | 90CNC-AAH-TP40-BT50  | 45995 |



## R8 Right Angle Milling Attachment for Vertical Milling Machines



| Features                                                                                                                                                                                                                                                                                                                               | Output | Shank                      | Description | UPC # |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------|-------------|-------|
| <ul style="list-style-type: none"> <li>• For Manual Machines</li> <li>• Ductile Iron Body</li> <li>• Precision Hardened &amp; Ground Spiral Bevel Gears</li> <li>• Sealed High Speed Bearings</li> <li>• 1.33 to 1 Gear Ratio</li> <li>• Grease Fitting</li> <li>• Alignment Flats on 2 Sides</li> <li>• R-8 Collet Spindle</li> </ul> | R8     | 3 3/8" Quill with R8 Taper | MMRAA-R8    | 04000 |

### Draw Bar



#### Standard Draw Bars

| Machine Type                       | Bar Length | Hex Length | Description | UPC # |
|------------------------------------|------------|------------|-------------|-------|
| 1 J Head Bridgeport Step Pulley    | 18.000     | 2.500      | SDB-1J      | 04080 |
| 2 J Head Bridgeport Variable Speed | 18.000     | 5.500      | SDB-2J      | 04082 |
| Alliant-Sharp                      | 18.000     | 6.500      | SDB-AS      | 04084 |
| Index Lagun                        | 18.000     | 8.500      | SDB-IL      | 04086 |

#### Special Draw Bars to be used with R8 Milling Attachment

| Machine Type      | Bar Length | Hex Length | Description | UPC # |
|-------------------|------------|------------|-------------|-------|
| Bridgeport Kondia | 18.000     | 8.500      | BDBRA-2J800 | 04090 |
| Index Lagun       | 18.000     | 11.500     | ILBRA-110   | 04092 |
| Alliant-Sharp     | 18.000     | 9.500      | ADBRA-190   | 04094 |

V-FLANGE  
TOOLING

QUALITY,  
SPEED  
&  
PERFORMANCE



## PRECISION BALANCED TO 12,000 RPM

Each holder comes with a Certificate of Inspection



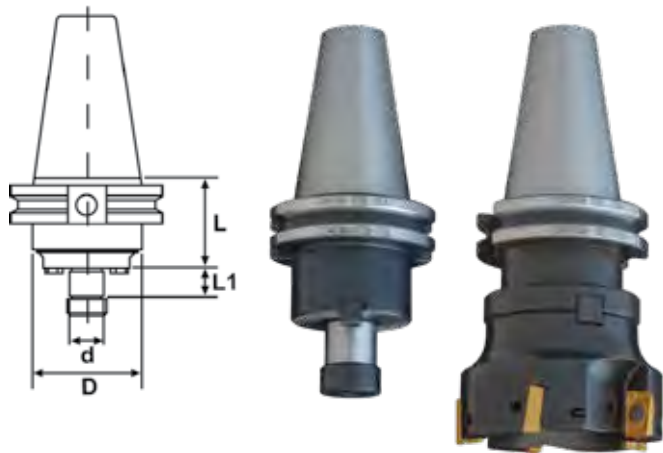
- .0001" Taper-Bore Runout Tolerance.
- Made of 8620 Alloy Steel with Case Hardness of 56-60 HRC and Core
- Tapers Ground to AT-3 Specifications or BETTER.
- H5 Bore Tolerance for air-tight fit provides maximum contact surface area.
- Thru Coolant Feature
- Made In Italy.

### End Mill Holders

| UPC # | Description         | Hole Dia. (d) (in) | Gage Length (L) (in) | Body Dia. (D) (in) |
|-------|---------------------|--------------------|----------------------|--------------------|
| 45011 | CAT40 EMH-0250-2500 | 1/4                | 2.50                 | 0.88               |
| 45017 | CAT40 EMH-0375-2500 | 3/8                | 2.50                 | 1.00               |
| 45023 | CAT40-EMH-0500-2500 | 1/2                | 2.50                 | 1.25               |
| 45026 | CAT40 EMH-0625-1750 | 5/8                | 1.75                 | 1.75               |
| 45027 | CAT40 EMH-0625-3000 | 5/8                | 3.00                 | 1.50               |
| 45030 | CAT40 EMH-0750-1750 | 3/4                | 1.75                 | 1.75               |
| 45031 | CAT40 EMH-0750-3000 | 3/4                | 3.00                 | 1.75               |
| 45037 | CAT40 EMH-1000-2000 | 1                  | 2.00                 | 1.75               |
| 45038 | CAT40 EMH-1000-4000 | 1                  | 4.00                 | 2.00               |
| 45069 | CAT50 EMH-0500-4000 | 1/2                | 4.00                 | 1.25               |
| 45079 | CAT50 EMH-0750-4000 | 3/4                | 4.00                 | 1.75               |
| 45080 | CAT50 EMH-0750-6000 | 3/4                | 6.00                 | 1.75               |
| 45086 | CAT50 EMH-1000-4000 | 1                  | 4.00                 | 2.00               |
| 45087 | CAT50 EMH-1000-6000 | 1                  | 6.00                 | 2.00               |
| 45090 | CAT50 EMH-1250-4000 | 1-1/4              | 4.00                 | 2.50               |
| 45091 | CAT50 EMH-1250-6000 | 1-1/4              | 6.00                 | 2.50               |
| 45094 | CAT50 EMH-1500-4500 | 1-1/2              | 4.50                 | 2.75               |
| 45095 | CAT50 EMH-1500-7000 | 1-1/2              | 7.00                 | 2.75               |

## PRECISION BALANCED TO 12,000 RPM

Each holder comes with a Certificate of Inspection



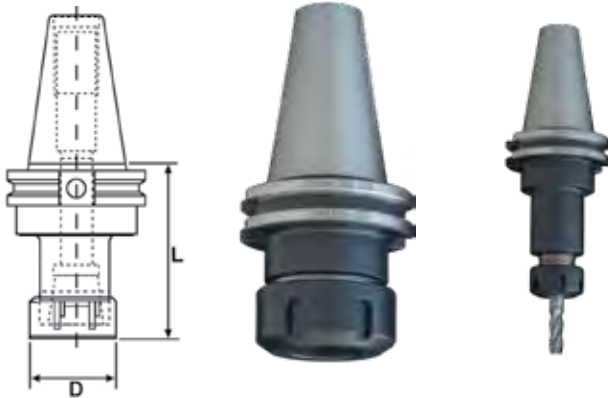
### Shell Mill Holders

| UPC # | Description         | Arbor Dia. (d) (in) | Arbor Length (L1) (in) | Gage Length (L) (in) | Body Dia. (D) (in) | Arbor Thread (AT) (in) | Key Size (in) |
|-------|---------------------|---------------------|------------------------|----------------------|--------------------|------------------------|---------------|
| 45121 | CAT40 SMH-0750-1750 | 3/4                 | 0.67                   | 1.75                 | 1.75               | 3/8-24                 | 5/16          |
| 45123 | CAT40 SMH-1000-1750 | 1                   | 0.67                   | 1.75                 | 2.25               | 1/2-20                 | 3/8           |
| 45125 | CAT40 SMH-1250-2000 | 1-1/4               | 0.67                   | 2.00                 | 2.88               | 5/8-18                 | 1/2           |
| 45127 | CAT40 SMH-1500-2000 | 1-1/2               | 0.93                   | 2.00                 | 3.75               | 3/4-16                 | 5/8           |
| 45138 | CAT50 SMH-0750-1750 | 3/4                 | .68                    | 1.75                 | 2.75               | 3/8-24                 | 5/16          |
| 45142 | CAT50 SMH-1000-1750 | 1                   | .68                    | 1.75                 | 2.75               | 1/2-20                 | 3/8           |
| 45146 | CAT50 SMH-1250-1750 | 1-1/4               | .68                    | 1.75                 | 2.75               | 5/8-18                 | 1/2           |
| 45150 | CAT50 SMH-1500-2000 | 1-1/2               | .94                    | 2.00                 | 3.75               | 3/4-16                 | 5/8           |
| 45154 | CAT50 SMH-2000-2000 | 2                   | .94                    | 2.00                 | 4.88               | 1-14                   | 5/8           |

- .0002" Taper-Arbor Runout Tolerance.
- Made of 8620 Alloy Steel with Case Hardness of 56-60 HRC and Core Hardness of 36-40 HRC.
- Tapers Ground to AT-3 Specifications or BETTER.
- H5 Arbor Tolerance.
- Made In Italy.

## PRECISION BALANCED TO 12,000 RPM

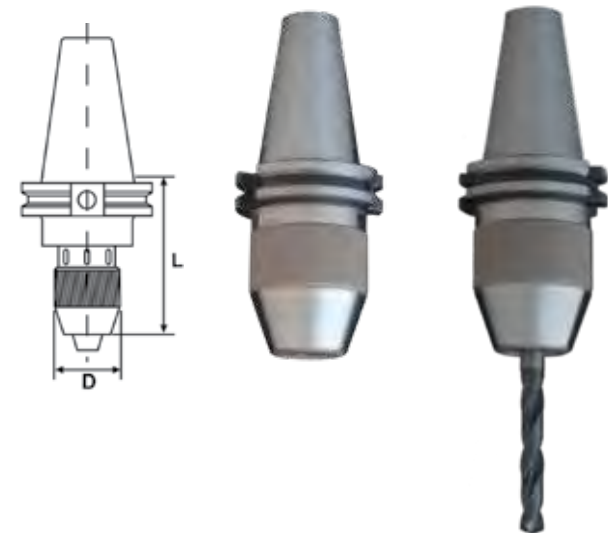
Each holder comes with a Certificate of Inspection



- .0001" Taper-Bore Runout Tolerance.
- Made of 8620 Alloy Steel with Case Hardness of 56-60 HRC and Core Hardness of 36-40 HRC.
- Tapers Ground to AT-3 Specifications or BETTER
- Thru Coolant Feature.
- Made In Italy.

### ER Collet Holder

| UPC # | Description      | Collet Series | Collet Range (in) | Nose Dia. (D) (in) | Gage Length (L) (in) |
|-------|------------------|---------------|-------------------|--------------------|----------------------|
| 45173 | CAT40 ER11H-2500 | ER11          | .019-.275         | 0.63               | 2.50                 |
| 45174 | CAT40 ER11H-4000 | ER11          | .019-.275         | 0.63               | 4.00                 |
| 45175 | CAT40 ER11H-6000 | ER11          | .019-.275         | 0.63               | 6.00                 |
| 45176 | CAT40 ER16H-2500 | ER16          | .019-.406         | 1.26               | 2.50                 |
| 45178 | CAT40 ER16H-4000 | ER16          | .019-.406         | 1.26               | 4.00                 |
| 45179 | CAT40 ER16H-6000 | ER16          | .019-.406         | 1.26               | 6.00                 |
| 45180 | CAT40 ER20H-2500 | ER20          | .039-.511         | 1.38               | 2.50                 |
| 45181 | CAT40 ER20H-4000 | ER20          | .039-.511         | 1.38               | 4.00                 |
| 45182 | CAT40 ER20H-6000 | ER20          | .039-.511         | 1.38               | 6.00                 |
| 45183 | CAT40 ER25H-2500 | ER25          | .039-.629         | 1.65               | 2.50                 |
| 45184 | CAT40 ER25H-4000 | ER25          | .039-.629         | 1.65               | 4.00                 |
| 45185 | CAT40 ER25H-6000 | ER25          | .039-.629         | 1.65               | 6.00                 |
| 45186 | CAT40 ER32H-2500 | ER32          | .078-.787         | 1.97               | 2.50                 |
| 45188 | CAT40 ER32H-4000 | ER32          | .078-.787         | 1.97               | 4.00                 |
| 45189 | CAT40 ER32H-6000 | ER32          | .078-.787         | 1.97               | 6.00                 |
| 45191 | CAT40 ER40H-2500 | ER40          | .118-1.023        | 2.48               | 2.50                 |
| 45193 | CAT40 ER40H-4000 | ER40          | .118-1.023        | 2.48               | 4.00                 |
| 45197 | CAT50 ER16H-4120 | ER16          | .019" - .406"     | 1.26               | 4.12                 |
| 45205 | CAT50 ER25H-4000 | ER25          | .039" - .629"     | 1.65               | 4.00                 |
| 45206 | CAT50 ER25H-6000 | ER25          | .039" - .629"     | 1.65               | 6.00                 |
| 45208 | CAT50 ER32H-4000 | ER32          | .078" - .787"     | 1.97               | 4.00                 |
| 45209 | CAT50 ER32H-6000 | ER32          | .078" - .787"     | 1.97               | 6.00                 |
| 45210 | CAT50 ER32H-8000 | ER32          | .078" - .787"     | 1.97               | 8.00                 |



- Provides exceptionally high torque - up to three times the gripping strength of conventional drill chucks.
- Features a corrosion-resistant surface treatment to ensure durability.
- Chuck will not come off during operation.
- Replaceable chuck.

### Integral Keyless Drill Chuck Holders

| UPC # | Description   | Capacity | Gage Length (L) (in) | Body Dia. (D) (in) |
|-------|---------------|----------|----------------------|--------------------|
| 45307 | CAT40-KDCH-13 | 1/32-1/2 | 3.50                 | 2.00               |
| 45308 | CAT40-KDCH-16 | 1/8-5/8  | 4.50                 | 2.25               |

### SPARE PARTS

#### ER Standard Nuts



| Style | Description | UPC # | Thread     | Height (mm) | Body Dia. (mm) |
|-------|-------------|-------|------------|-------------|----------------|
| ER11  | ER11NTM16   | 49773 | M13 X .075 | 12          | 16             |
| ER16  | ER16NTS32   | 49780 | M22 X 1,5  | 17          | 32             |
| ER20  | ER20NTS35   | 49781 | M25 X 1,5  | 19          | 35             |
| ER25  | ER25NTS42   | 49782 | M32 X 1,5  | 20          | 42             |
| ER32  | ER32NTS50   | 49783 | M40 X 1,5  | 22,5        | 50             |
| ER40  | ER40NTS63   | 49784 | M50 X 1,5  | 25,5        | 63             |

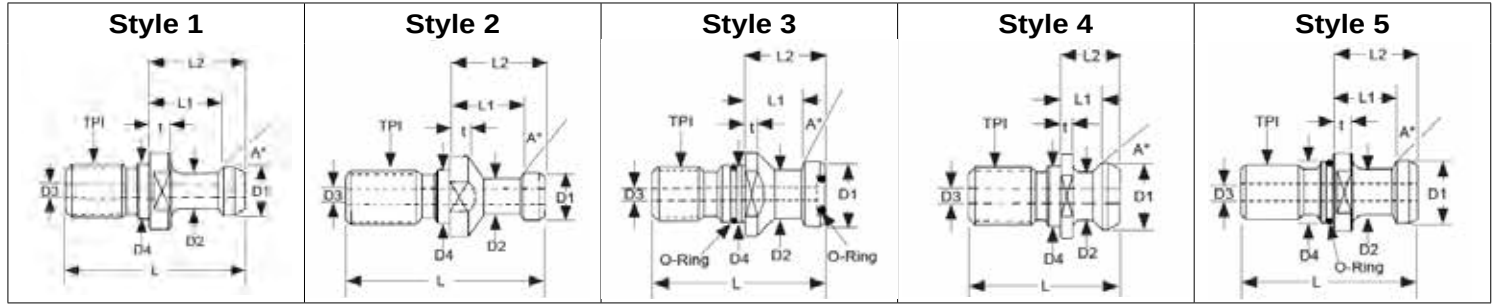
#### ER Standard Wrench



| Style | Description | UPC # | Wrench Type |
|-------|-------------|-------|-------------|
| ER11  | ER11MNWR    | 49987 | ER Mini     |
| ER16  | ER16STWR    | 49994 | ER Standard |
| ER20  | ER20STWR    | 49995 | ER Standard |
| ER25  | ER25STWR    | 49996 | ER Standard |
| ER32  | ER32STWR    | 49997 | ER Standard |
| ER40  | ER40STWR    | 49998 | ER Standard |



# RETENTION KNOBS



Precision Ground

Precision Ground

| UPC # | CAT 40 Description | Machine Used on                                              | Thru Coolant | Style | Threads TPI | A Angle | D1 Knob Dia. | D2 Neck Dia. | D3 Hole Dia. | D4 Pilot Dia. | L OAL | Shoulder |       |       |
|-------|--------------------|--------------------------------------------------------------|--------------|-------|-------------|---------|--------------|--------------|--------------|---------------|-------|----------|-------|-------|
|       |                    |                                                              |              |       |             |         |              |              |              |               |       | L1       | t     | L2    |
| 47287 | RKCT40-4-0004      | MAZAK, FADAL, DMG, HURCO                                     | NA           | 4     | 5/8-11      | 45°     | 0.740        | 0.490        | NA           | 0.636         | 1.620 | 0.440    | 0.120 | 0.640 |
| 47286 | RKCT40-4-0003-C    | FADAL, DMG, HURCO                                            | Coolant      | 4     | 5/8-11      | 45°     | 0.740        | 0.490        | 0.281        | 0.636         | 1.620 | 0.440    | 0.120 | 0.640 |
| 47831 | RKCT40-1-0103      | MORI SEIKI, OKK, KIRA                                        | NA           | 1     | 5/8-11      | 90°     | 0.589        | 0.392        | NA           | 0.636         | 2.250 | 0.988    | 0.234 | 1.264 |
| 47305 | RKCT40-1-0022      | BRIDGEPORT, LEADWELL                                         | NA           | 1     | 5/8-11      | 45°     | 0.589        | 0.392        | NA           | 0.636         | 2.250 | 0.988    | 0.124 | 1.264 |
| 47304 | RKCT40-1-0021      | HAAS, CHEVALIER, FEELER, FRYER, JOHNFORD                     | NA           | 1     | 5/8-11      | 45°     | 0.589        | 0.392        | NA           | 0.636         | 2.250 | 0.988    | 0.234 | 1.264 |
| 47313 | RKCT40-1-0030-C    | HAAS, CHEVALIER, FEELER, FRYER, JOHNFORD                     | Coolant      | 1     | 5/8-11      | 45°     | 0.589        | 0.392        | 0.200        | 0.636         | 2.250 | 0.988    | 0.234 | 1.264 |
| 47386 | RKCT40-1-0121      | MAKINO, MITSUBISHI, ENSHU, HITACHI, KIRA, OKUMA, MILLTRONICS | NA           | 1     | 5/8-11      | 60°     | 0.589        | 0.392        | NA           | 0.636         | 2.250 | 0.988    | 0.234 | 1.264 |
| 47288 | RKCT40-4-0005-C    | MAZAK, FADAL, DMG, HURCO                                     | Coolant      | 4     | 5/8-11      | 45°     | 0.740        | 0.490        | 0.280        | 0.641         | 1.620 | 0.440    | 0.120 | 0.640 |
| 47359 | RKCT40-5-0076-C    | MAKINO                                                       | Coolant      | 5     | 5/8-11      | 15°     | 0.746        | 0.549        | 0.236        | 0.641         | 2.008 | 0.792    | 0.276 | 1.028 |
| 47387 | RKCT40-3-0122-C    | MORI SEIKI                                                   | Coolant      | 3     | 5/8-11      | 15°     | 0.747        | 0.548        | 0.236        | 0.641         | 2.004 | 0.787    | 0.157 | 1.024 |
| 47343 | RKCT40-2-0060-C    | KITAMURA, DOOSAN, HYUNDAI, KIA                               | Coolant      | 2     | 5/8-11      | 15°     | 0.747        | 0.549        | 0.281        | 0.641         | 2.004 | 0.787    | 0.157 | 1.024 |
| UPC # | CAT 50 Description | Machine Used on                                              | Thru Coolant | Style | Threads TPI | A Angle | D1 Knob Dia. | D2 Neck Dia. | D3 Hole Dia. | D4 Pilot Dia. | L OAL | Shoulder |       |       |
|       |                    |                                                              |              |       |             |         |              |              |              |               |       | L1       | t     | L2    |
| 47292 | RKCT50-4-0010      | MAZAK, DMG, G&L, HURCO, FADAL, WALTER GRINDERS               | NA           | 4     | 1-8         | 45°     | 1.140        | 0.820        | NA           | 1.026         | 2.575 | 0.700    | 0.200 | 1.000 |
| 47291 | RKCT50-4-0009-C    | MAZAK, DMG, G&L, HURCO, FADAL                                | Coolant      | 4     | 1-8         | 45°     | 1.140        | 0.820        | 0.468        | 1.026         | 2.575 | 0.700    | 0.200 | 1.000 |
| 47320 | RKCT50-1-0037-C    | OKK                                                          | Coolant      | 1     | 1-8         | 90°     | 0.903        | 0.668        | 0.250        | 1.026         | 3.350 | 1.384    | 0.392 | 1.778 |
| 47319 | RKCT50-1-0036-C    | OKUMA, HITACHI, SNK, TOSHIBA                                 | Coolant      | 1     | 1-8         | 60°     | 0.903        | 0.668        | 0.335        | 1.026         | 3.355 | 1.384    | 0.392 | 1.778 |
| 47306 | RKCT50-1-0023      | OKUMA, HITACHI, SNK, TOSHIBA                                 | NA           | 1     | 1-8         | 60°     | 0.903        | 0.668        | NA           | 1.026         | 3.355 | 1.384    | 0.392 | 1.778 |
| 47308 | RKCT50-1-0025-C    | HAAS, MILLTRONICS, VIPER, ENSHU, AWEA                        | Coolant      | 1     | 1-8         | 45°     | 0.903        | 0.668        | 0.312        | 1.026         | 3.355 | 1.384    | 0.392 | 1.778 |
| 47309 | RKCT50-1-0026      | HAAS, MILLTRONICS, VIPER, ENSHU, AWEA                        | NA           | 1     | 1-8         | 45°     | 0.903        | 0.668        | NA           | 1.026         | 3.355 | 1.384    | 0.392 | 1.778 |
| 47317 | RKCT50-1-0034-C    | DOOSAN, HYUNDAI, KIA                                         | Coolant      | 1     | 1-8         | 45°     | 0.903        | 0.668        | 0.390        | 1.026         | 3.355 | 1.384    | 0.392 | 1.778 |
| 47388 | RKCT50-1-0123-C    | TOYODA                                                       | Coolant      | 1     | 1-8         | 45°     | 0.903        | 0.668        | 0.236        | 1.030         | 3.353 | 1.384    | 0.400 | 1.778 |
| 47389 | RKCT50-1-0124      | MORI SEIKI, OKK, YANG                                        | NA           | 1     | 1-8         | 90°     | 0.903        | 0.668        | NA           | 1.026         | 3.350 | 1.384    | 0.392 | 1.778 |
| 47318 | RKCT50-1-0035-C    | MAKINO                                                       | Coolant      | 1     | 1-8         | 45°     | 0.903        | 0.668        | 0.236        | 1.026         | 3.353 | 1.384    | 0.392 | 1.778 |

## Milling Drilling Reaming Tapping

## Ultra Precision 0.0002" TIR

**100% Inspection:** Each and every collet is inspected to be precise within .0002" or better prior to shipping.

**Maximum Contact Surface Area:** Each Dorian ER Collet features 16 full length slits (instead of competition's 8), enabling the collet to collapse uniformly to provide a concentric and full 360° gripping surface.

**Material:** Premium Grade Special Alloy Steel with high a modulus of elasticity. Combined with the 16-slit design, this material provides full surface contact on the tool when collapsed.

**Inch and Metric Sizes:** Choice of Inch and Metric sizes optimizes contact surface area for ultra high precision applications.

**16 Slits for  
Uniform  
Gripping**



### Ultra Precision ER 11 Collets



### Ultra Precision ER 16 Collets



### Ultra Precision ER 20 Collets



| Description      | UPC # | Holding Capacity |       |        |     |
|------------------|-------|------------------|-------|--------|-----|
|                  |       | Inch             |       | Metric |     |
| ER11- STIMC-10   | 46236 | 0.020            | 0.039 | 0.5    | 1.0 |
| ER11- STIMC-15   | 46237 | 0.039            | 0.059 | 1.0    | 1.5 |
| ER11- STIMC-20   | 46238 | 0.059            | 0.079 | 1.5    | 2.0 |
| ER11- STIMC-0937 | 46249 | 0.074            | 0.094 | 1.9    | 2.4 |
| ER11- STIMC-25   | 46239 | 0.079            | 0.098 | 2.0    | 2.5 |
| ER11- STIMC-30   | 46240 | 0.098            | 0.118 | 2.5    | 3.0 |
| ER11- STIMC-0125 | 46250 | 0.105            | 0.125 | 2.7    | 3.2 |
| ER11- STIMC-35   | 46241 | 0.118            | 0.138 | 3.0    | 3.5 |
| ER11- STIMC-40   | 46242 | 0.138            | 0.157 | 3.5    | 4.0 |
| ER11- STIMC-45   | 46243 | 0.157            | 0.177 | 4.0    | 4.5 |
| ER11- STIMC-0187 | 46251 | 0.168            | 0.188 | 4.3    | 4.8 |
| ER11- STIMC-50   | 46244 | 0.177            | 0.197 | 4.5    | 5.0 |
| ER11- STIMC-55   | 46245 | 0.197            | 0.217 | 5.0    | 5.5 |
| ER11- STIMC-60   | 46246 | 0.217            | 0.236 | 5.5    | 6.0 |
| ER11- STIMC-0250 | 46252 | 0.230            | 0.250 | 5.9    | 6.4 |
| ER11- STIMC-65   | 46247 | 0.236            | 0.256 | 6.0    | 6.5 |
| ER11- STIMC-70   | 46248 | 0.256            | 0.276 | 6.5    | 7.0 |

| Description      | UPC # | Holding Capacity |       |        |      |
|------------------|-------|------------------|-------|--------|------|
|                  |       | Inch             |       | Metric |      |
| ER16- STIMC-10   | 46290 | 0.020            | 0.039 | 0.5    | 1.0  |
| ER16- STIMC-15   | 46288 | 0.039            | 0.059 | 1.0    | 1.5  |
| ER16- STIMC-20   | 46291 | 0.059            | 0.079 | 1.5    | 2.0  |
| ER16- STIMC-0937 | 46275 | 0.074            | 0.094 | 1.9    | 2.4  |
| ER16- STIMC-25   | 46289 | 0.059            | 0.098 | 1.5    | 2.5  |
| ER16- STIMC-30   | 46292 | 0.079            | 0.118 | 2.0    | 3.0  |
| ER16- STIMC-0125 | 46276 | 0.087            | 0.125 | 2.2    | 3.2  |
| ER16- STIMC-40   | 46293 | 0.118            | 0.157 | 3.0    | 4.0  |
| ER16- STIMC-0187 | 46278 | 0.150            | 0.188 | 3.8    | 4.8  |
| ER16- STIMC-50   | 46294 | 0.157            | 0.197 | 4.0    | 5.0  |
| ER16- STIMC-60   | 46295 | 0.197            | 0.236 | 5.0    | 6.0  |
| ER16- STIMC-0250 | 46280 | 0.213            | 0.250 | 5.4    | 6.4  |
| ER16- STIMC-70   | 46296 | 0.236            | 0.276 | 6.0    | 7.0  |
| ER16- STIMC-80   | 46297 | 0.276            | 0.315 | 7.0    | 8.0  |
| ER16- STIMC-90   | 46298 | 0.315            | 0.354 | 8.0    | 9.0  |
| ER16- STIMC-0375 | 46284 | 0.335            | 0.375 | 8.5    | 9.5  |
| ER16- STIMC-100  | 46299 | 0.354            | 0.394 | 9.0    | 10.0 |

| Description      | UPC # | Holding Capacity |       |        |      |
|------------------|-------|------------------|-------|--------|------|
|                  |       | Inch             |       | Metric |      |
| ER20- STIMC-10   | 46353 | 0.020            | 0.039 | 0.5    | 1.0  |
| ER20- STIMC-15   | 46354 | 0.039            | 0.059 | 1.0    | 1.5  |
| ER20- STIMC-20   | 46355 | 0.059            | 0.079 | 1.5    | 2.0  |
| ER20- STIMC-30   | 46356 | 0.079            | 0.118 | 2.0    | 3.0  |
| ER20- STIMC-0937 | 46386 | 0.075            | 0.094 | 1.9    | 2.4  |
| ER20- STIMC-0125 | 46387 | 0.087            | 0.125 | 2.2    | 3.2  |
| ER20- STIMC-40   | 46358 | 0.118            | 0.157 | 3.0    | 4.0  |
| ER20- STIMC-0187 | 46388 | 0.150            | 0.188 | 3.8    | 4.8  |
| ER20- STIMC-50   | 46359 | 0.157            | 0.197 | 4.0    | 5.0  |
| ER20- STIMC-60   | 46360 | 0.197            | 0.236 | 5.0    | 6.0  |
| ER20- STIMC-0250 | 46389 | 0.213            | 0.250 | 5.4    | 6.4  |
| ER20- STIMC-70   | 46361 | 0.236            | 0.276 | 6.0    | 7.0  |
| ER20- STIMC-80   | 46362 | 0.276            | 0.315 | 7.0    | 8.0  |
| ER20- STIMC-90   | 46363 | 0.315            | 0.354 | 8.0    | 9.0  |
| ER20- STIMC-0375 | 46390 | 0.335            | 0.375 | 8.5    | 9.5  |
| ER20- STIMC-100  | 46364 | 0.354            | 0.394 | 9.0    | 10.0 |
| ER20- STIMC-110  | 46365 | 0.394            | 0.433 | 10.0   | 11.0 |
| ER20- STIMC-120  | 46367 | 0.433            | 0.472 | 11.0   | 12.0 |
| ER20- STIMC-0500 | 46391 | 0.461            | 0.500 | 11.7   | 12.7 |
| ER20- STIMC-130  | 46368 | 0.472            | 0.512 | 12.0   | 13.0 |

## Ultra Precision ER 25 Collets



## Ultra Precision ER 32 Collets



## Ultra Precision ER 40 Collets



| Description      | UPC # | Holding Capacity |        |      |      |
|------------------|-------|------------------|--------|------|------|
|                  |       | Inch             | Metric |      |      |
| ER25- STIMC-10   | 46428 | 0.020            | 0.039  | 0.5  | 1.0  |
| ER25- STIMC-15   | 46429 | 0.039            | 0.059  | 1.0  | 1.5  |
| ER25- STIMC-20   | 46430 | 0.059            | 0.079  | 1.5  | 2.0  |
| ER25- STIMC-0937 | 46499 | 0.075            | 0.094  | 1.9  | 2.4  |
| ER25- STIMC-30   | 46431 | 0.079            | 0.118  | 2.0  | 3.0  |
| ER25- STIMC-0125 | 46500 | 0.086            | 0.125  | 2.2  | 3.2  |
| ER25- STIMC-40   | 46433 | 0.118            | 0.157  | 3.0  | 4.0  |
| ER25- STIMC-0187 | 46501 | 0.148            | 0.188  | 3.8  | 4.8  |
| ER25- STIMC-50   | 46434 | 0.157            | 0.197  | 4.0  | 5.0  |
| ER25- STIMC-60   | 46435 | 0.197            | 0.236  | 5.0  | 6.0  |
| ER25- STIMC-0250 | 46502 | 0.211            | 0.250  | 5.4  | 6.4  |
| ER25- STIMC-70   | 46436 | 0.236            | 0.276  | 6.0  | 7.0  |
| ER25- STIMC-80   | 46437 | 0.276            | 0.315  | 7.0  | 8.0  |
| ER25- STIMC-90   | 46438 | 0.315            | 0.354  | 8.0  | 9.0  |
| ER25- STIMC-0375 | 46503 | 0.336            | 0.375  | 8.5  | 9.5  |
| ER25- STIMC-100  | 46439 | 0.354            | 0.394  | 9.0  | 10.0 |
| ER25- STIMC-110  | 46440 | 0.394            | 0.433  | 10.0 | 11.0 |
| ER25- STIMC-120  | 46442 | 0.433            | 0.472  | 11.0 | 12.0 |
| ER25- STIMC-0500 | 46517 | 0.461            | 0.500  | 11.7 | 12.7 |
| ER25- STIMC-130  | 46443 | 0.472            | 0.512  | 12.0 | 13.0 |
| ER25- STIMC-140  | 46444 | 0.512            | 0.551  | 13.0 | 14.0 |
| ER25- STIMC-150  | 46445 | 0.551            | 0.591  | 14.0 | 15.0 |
| ER25- STIMC-0625 | 46518 | 0.586            | 0.625  | 14.9 | 15.9 |
| ER25- STIMC-160  | 46446 | 0.591            | 0.630  | 15.0 | 16.0 |

| Description      | UPC # | Holding Capacity |        |      |      |
|------------------|-------|------------------|--------|------|------|
|                  |       | Inch             | Metric |      |      |
| ER32- STIMC-20   | 46521 | 0.059            | 0.079  | 1.5  | 2.0  |
| ER32- STIMC-0937 | 46543 | 0.075            | 0.094  | 1.9  | 2.4  |
| ER32- STIMC-30   | 46522 | 0.079            | 0.118  | 2.0  | 3.0  |
| ER32- STIMC-0125 | 46544 | 0.086            | 0.125  | 2.2  | 3.2  |
| ER32- STIMC-40   | 46524 | 0.118            | 0.157  | 3.0  | 4.0  |
| ER32- STIMC-0187 | 46545 | 0.148            | 0.188  | 3.8  | 4.8  |
| ER32- STIMC-50   | 46525 | 0.157            | 0.197  | 4.0  | 5.0  |
| ER32- STIMC-60   | 46526 | 0.197            | 0.236  | 5.0  | 6.0  |
| ER32- STIMC-0250 | 46546 | 0.211            | 0.250  | 5.4  | 6.4  |
| ER32- STIMC-70   | 46527 | 0.236            | 0.276  | 6.0  | 7.0  |
| ER32- STIMC-80   | 46528 | 0.276            | 0.315  | 7.0  | 8.0  |
| ER32- STIMC-90   | 46529 | 0.315            | 0.354  | 8.0  | 9.0  |
| ER32- STIMC-0375 | 46547 | 0.336            | 0.375  | 8.5  | 9.5  |
| ER32- STIMC-100  | 46530 | 0.354            | 0.394  | 9.0  | 10.0 |
| ER32- STIMC-110  | 46531 | 0.394            | 0.433  | 10.0 | 11.0 |
| ER32- STIMC-120  | 46533 | 0.433            | 0.472  | 11.0 | 12.0 |
| ER32- STIMC-0500 | 46569 | 0.461            | 0.500  | 11.7 | 12.7 |
| ER32- STIMC-130  | 46534 | 0.472            | 0.512  | 12.0 | 13.0 |
| ER32- STIMC-140  | 46535 | 0.512            | 0.551  | 13.0 | 14.0 |
| ER32- STIMC-150  | 46536 | 0.551            | 0.591  | 14.0 | 15.0 |
| ER32- STIMC-0625 | 46570 | 0.586            | 0.625  | 14.9 | 15.9 |
| ER32- STIMC-160  | 46537 | 0.591            | 0.630  | 15.0 | 16.0 |
| ER32- STIMC-170  | 46538 | 0.630            | 0.669  | 16.0 | 17.0 |
| ER32- STIMC-180  | 46539 | 0.669            | 0.709  | 17.0 | 18.0 |
| ER32- STIMC-190  | 46540 | 0.709            | 0.748  | 18.0 | 19.0 |
| ER32- STIMC-0750 | 46571 | 0.713            | 0.750  | 18.1 | 19.1 |
| ER32- STIMC-200  | 46542 | 0.748            | 0.787  | 19.0 | 20.0 |

| Description       | UPC # | Holding Capacity |        |      |      |
|-------------------|-------|------------------|--------|------|------|
|                   |       | Inch             | Metric |      |      |
| ER40- STIMC- 30   | 46623 | 0.079            | 0.118  | 2.0  | 3.0  |
| ER40- STIMC- 0125 | 46649 | 0.087            | 0.125  | 2.2  | 3.2  |
| ER40- STIMC- 40   | 46624 | 0.118            | 0.157  | 3.0  | 4.0  |
| ER40- STIMC- 0187 | 46650 | 0.150            | 0.188  | 3.8  | 4.8  |
| ER40- STIMC- 50   | 46625 | 0.157            | 0.197  | 4.0  | 5.0  |
| ER40- STIMC- 60   | 46626 | 0.197            | 0.236  | 5.0  | 6.0  |
| ER40- STIMC- 0250 | 46651 | 0.213            | 0.250  | 5.4  | 6.4  |
| ER40- STIMC- 70   | 46627 | 0.236            | 0.276  | 6.0  | 7.0  |
| ER40- STIMC- 80   | 46628 | 0.276            | 0.315  | 7.0  | 8.0  |
| ER40- STIMC- 90   | 46629 | 0.315            | 0.354  | 8.0  | 9.0  |
| ER40- STIMC- 0375 | 46652 | 0.335            | 0.375  | 8.5  | 9.5  |
| ER40- STIMC- 100  | 46630 | 0.354            | 0.394  | 9.0  | 10.0 |
| ER40- STIMC- 110  | 46631 | 0.394            | 0.433  | 10.0 | 11.0 |
| ER40- STIMC- 120  | 46633 | 0.433            | 0.472  | 11.0 | 12.0 |
| ER40- STIMC- 0500 | 46653 | 0.461            | 0.500  | 11.7 | 12.7 |
| ER40- STIMC- 130  | 46634 | 0.472            | 0.512  | 12.0 | 13.0 |
| ER40- STIMC- 140  | 46635 | 0.512            | 0.551  | 13.0 | 14.0 |
| ER40- STIMC- 150  | 46636 | 0.551            | 0.591  | 14.0 | 15.0 |
| ER40- STIMC- 0625 | 46683 | 0.587            | 0.625  | 14.9 | 15.9 |
| ER40- STIMC- 160  | 46637 | 0.591            | 0.630  | 15.0 | 16.0 |
| ER40- STIMC- 170  | 46638 | 0.630            | 0.669  | 16.0 | 17.0 |
| ER40- STIMC- 180  | 46639 | 0.669            | 0.709  | 17.0 | 18.0 |
| ER40- STIMC- 190  | 46640 | 0.709            | 0.748  | 18.0 | 19.0 |
| ER40- STIMC- 200  | 46642 | 0.748            | 0.787  | 19.0 | 20.0 |
| ER40- STIMC-0750  | 46686 | 0.713            | 0.750  | 18.1 | 19.1 |
| ER40- STIMC- 210  | 46643 | 0.787            | 0.827  | 20.0 | 21.0 |
| ER40- STIMC- 220  | 46644 | 0.827            | 0.866  | 21.0 | 22.0 |
| ER40- STIMC- 0875 | 46684 | 0.835            | 0.875  | 21.2 | 22.2 |
| ER40- STIMC- 230  | 46645 | 0.866            | 0.906  | 22.0 | 23.0 |
| ER40- STIMC- 240  | 46646 | 0.906            | 0.945  | 23.0 | 24.0 |
| ER40- STIMC- 250  | 46647 | 0.945            | 0.984  | 24.0 | 25.0 |
| ER40- STIMC- 1000 | 46685 | 0.961            | 1.000  | 24.4 | 25.4 |
| ER40- STIMC- 260  | 46648 | 0.984            | 1.024  | 25.0 | 26.0 |

## Ultra Precision ER Collets -SETS



| Part Number  | UPC # | Piece Per SET | Collet Size                                                                         |
|--------------|-------|---------------|-------------------------------------------------------------------------------------|
| ER11-MCS-13C | 46768 | 13            | 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7                                   |
| ER16-MCS-10C | 46769 | 10            | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10                                                       |
| ER20-MCS-12C | 46770 | 12            | 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13                                              |
| ER25-MCS-15C | 46771 | 15            | 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,14, 15, 16                                   |
| ER32-MCS-18C | 46772 | 18            | 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,14, 15, 16, 17, 18, 19, 20                      |
| ER40-MCS-23C | 46773 | 23            | 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 |



# TOOLS PRESETTERS & TIGHTENING FIXTURES

PRECISION,  
PERFORMANCE  
&

**EFFICIENCY**





## ACCU-SET PLUS™ Tool Presetter

The ACCU-SET PLUS™ Tool Presetter is the result of our pursuit of high technology while striving to maintain simplicity of use. Rigidity, precision, and repeatability are all standard on this high precision presetter.

### Precision

- Resolution .00005in (.001mm)
- Accuracy  $\pm .0002$ in (.005mm)
- Repeatability  $\pm .0002$ in (.005mm)
- Axis Squareness .0002in (.005mm) TIR

### Hardware

- Rigid, All- Steel Construction
- High Precision Linear Guides and Bearings
- Heat Treated Components
- Spring Loaded Indicator will not Damage Cutting Edge
- CAT, BT, HSK, ISO and VDI Interchangeable Sleeves

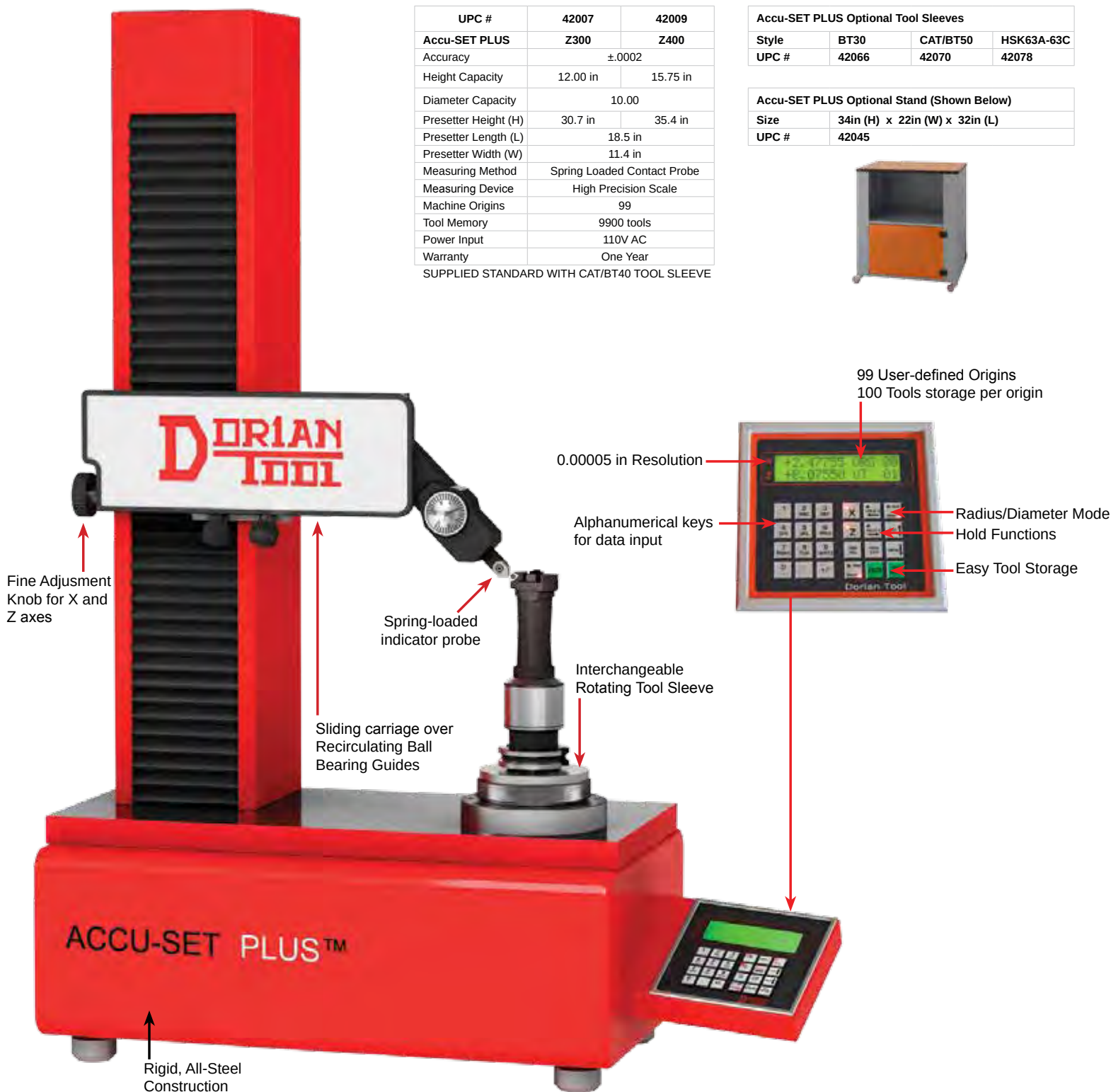
| UPC #                | 42007                       | 42009    |
|----------------------|-----------------------------|----------|
| Accu-SET PLUS        | Z300                        | Z400     |
| Accuracy             | $\pm .0002$                 |          |
| Height Capacity      | 12.00 in                    | 15.75 in |
| Diameter Capacity    | 10.00                       |          |
| Presetter Height (H) | 30.7 in                     | 35.4 in  |
| Presetter Length (L) | 18.5 in                     |          |
| Presetter Width (W)  | 11.4 in                     |          |
| Measuring Method     | Spring Loaded Contact Probe |          |
| Measuring Device     | High Precision Scale        |          |
| Machine Origins      | 99                          |          |
| Tool Memory          | 9900 tools                  |          |
| Power Input          | 110V AC                     |          |
| Warranty             | One Year                    |          |

SUPPLIED STANDARD WITH CAT/BT40 TOOL SLEEVE

| Accu-SET PLUS Optional Tool Sleeves |       |          |            |
|-------------------------------------|-------|----------|------------|
| Style                               | BT30  | CAT/BT50 | HSK63A-63C |
| UPC #                               | 42066 | 42070    | 42078      |

### Accu-SET PLUS Optional Stand (Shown Below)

| Size  | 34in (H) x 22in (W) x 32in (L) |
|-------|--------------------------------|
| UPC # | 42045                          |



## Quik-SET™ Tool Presetter

| UPC #                                       | 42001         | 42030   | 42032   | 42034   |
|---------------------------------------------|---------------|---------|---------|---------|
| Quik-SET                                    | Z300          | Z400    | XM      | Z600    |
| Accuracy                                    | ±.0005        |         |         |         |
| Height Capacity (Z)                         | 12.0 in       | 15.8 in | 12.0 in | 23.6 in |
| Diameter Capacity (X)                       | 10.0 in       | 10.0 in | 15.8 in | 23.6 in |
| Presetter Height (H)                        | 23.6 in       | 27.6 in | 23.6 in | 36.2 in |
| Presetter Length (L)                        | 15.8 in       | 15.8 in | 19.7 in | 23.2 in |
| Presetter Width (W)                         | 5.7 in        | 5.7 in  | 7.7 in  | 7.7 in  |
| Measuring Method                            | Contact Probe |         |         |         |
| Power Input                                 | AA Batteries  |         |         |         |
| Warranty                                    | One Year*     |         |         |         |
| SUPPLIED STANDARD WITH CAT/BT40 TOOL SLEEVE |               |         |         |         |

| Quik-SET Optional Tool Sleeves |       |          |            |
|--------------------------------|-------|----------|------------|
| Style                          | BT30  | CAT/BT50 | HSK63A-63C |
| UPC #                          | 42066 | 42070    | 42078      |

### The Quik-SET™ Tool Presetter is a precision instrument designed for speed and simplicity in manufacturing environments or tool cribs.

This model has been carefully designed to meet the needs of the CNC machine operator. Its portability and ruggedness make this the best presetter for small machining cells.

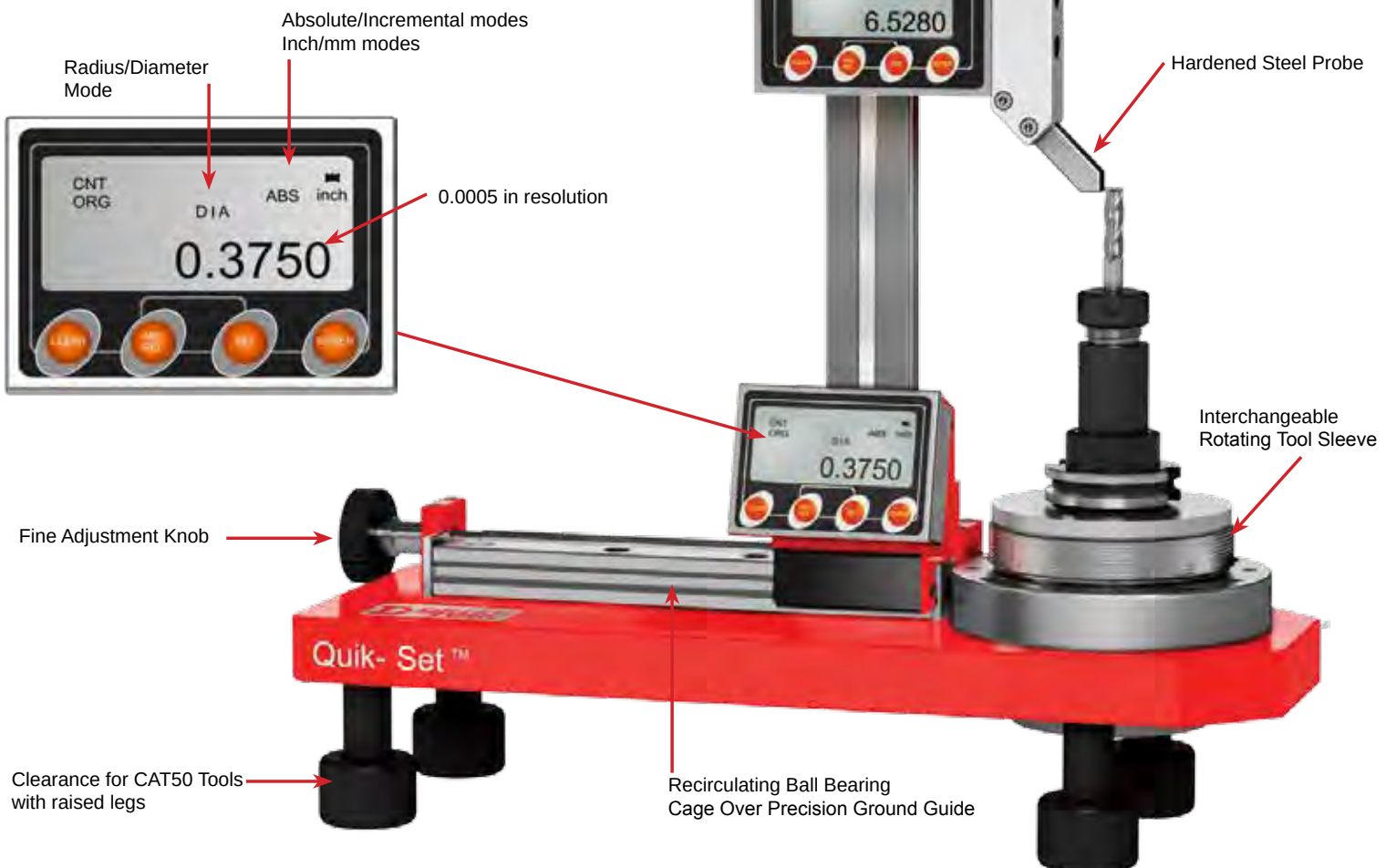
The pre-loaded recirculating ball bearing guide in the X-axis allows for accurate and smooth positioning to measure the tool's diameter, while the Z-axis display can be locked to preset tool lengths quickly and precisely.

### Precision

- Resolution .0005in (0.10mm)
- Accuracy ± .0005in (0.10mm)
- Repeatability .0005in (0.10mm)
- Axis Squareness .0002in (.005mm) TIR

### Hardware

- All Heat Treated Components
- Recirculating Ball Bearing and Linear Guide
- Powered by AA Batteries
- Heavy Duty Steel Base
- CAT, BT, HSK, ISO and VDI Interchangeable Sleeves



## Vision-SET™ Tool Presetter

| UPC #                 | 42022                              | 42024   | 42026   | 42028   |
|-----------------------|------------------------------------|---------|---------|---------|
| Vision-SET            | 360                                | 500     | 360XM   | 500XM   |
| Accuracy              | ±.0002                             |         |         |         |
| Height Capacity (Z)   | 14.0 in                            | 19.5 in | 14.0 in | 19.5 in |
| Diameter Capacity (X) | 12.5 in                            | 12.5 in | 20.5 in | 20.5 in |
| Presetter Height (H)  | 37.4 in                            | 43.3 in | 37.4 in | 43.3 in |
| Presetter Length (L)  | 22.0 in                            |         | 26.0 in |         |
| Presetter OAL         | 39.0 in                            |         | 42.9 in |         |
| Measuring Method      | CMOS High Resolution Camera        |         |         |         |
| Measuring Device      | High Precision Optical Scales      |         |         |         |
| Machine Origins       | Up to 200                          |         |         |         |
| Tool Memory           | 20,000                             |         |         |         |
| Included Accessories  | Post-processor, Dymo Label Printer |         |         |         |
| Power Input           | 110V AC                            |         |         |         |
| Warranty              | One Year*                          |         |         |         |

SUPPLIED STANDARD WITH CAT/BT40 TOOL SLEEVE

### Vision-SET Optional Tool Sleeves

| Style | BT30  | CAT/BT50 | HSK63A-63C |
|-------|-------|----------|------------|
| UPC # | 42105 | 42106    | 42107      |

### Vision-SET Optional Stand (Shown Below)

| Size  | 34in (H) x 22in (W) x 32in (L) |
|-------|--------------------------------|
| UPC # | 42045                          |



### Software

- User-friendly interface Software
- Simple tool offset setting
- Insert profiler to track cutting edge wear
- Geometric functions to measure angles, distances, radii, and many more
- Powerful Post-processor to import tool data to your CNC
- Take screenshots and save to PDF for future reference
- Storage capacity for 200 machine origins and 20,000 tools
- Label printer for easy tool identification
- Software Update through Internet Connection (Ethernet)

### Peripherals

- 17in Color Monitor
- 40 x magnification CMOS Camera
- Ethernet/USB Output/input

### Precision

- Resolution .00005in (.001mm)
- Accuracy ± .0002in (.005mm)
- Repeatability ±.0002in (.005mm)
- Axis Squareness .0002in (.005mm) TIR

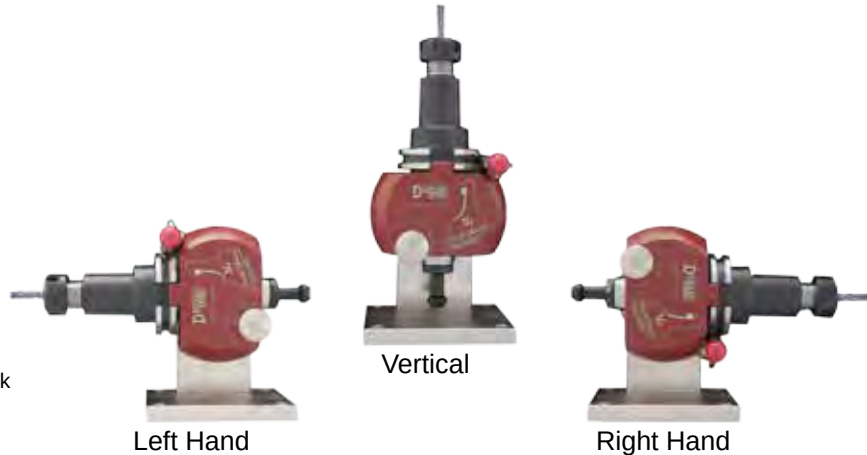
### Hardware

- High-precision optical scales with .00005in/.001mm resolution
- CAT, BT, ISO, HSK, and VDI Interchangeable tool sleeves (pots)
- Easy to replace tool sleeves (with no adapters) and locking knob for tool adjustment
- All Heat Treated Components
- Recirculating Ball Bearing Linear Guides



# SMART TOOL-SETTERS™

## & TIGHTENING FIXTURES



| UPC # | Description | Tool Size    |
|-------|-------------|--------------|
| 36000 | DSTSCH-030  | BT-30        |
| 36001 | DSTSCH-040  | BT-40 CAT-40 |
| 36002 | DSTSCH-050  | BT-50 CAT-50 |
| 36003 | DSTSHSK-063 | HSK-063      |
| 36004 | DSTSHSK-100 | HSK-100      |

### Toolholder Taper Protected From Chips & Scratches

- Teflon Based Xylan Coating
- Quick Lock & Setting
- Multi-Position Setting
- Heavy Duty Construction
- Precise Quality & Workmanship
- Multi-Functional
- Holds CAT, BT or HSK Toolholders

### Mounting

#### Mounting Holes



Mount the Smart Tool-Setter on a solid workbench. Use the 4 holes provided on the base to bolt down the Smart Tool-Setter.

### Holder Loading



Put holder in while locking knob is in unlocked position. Rotate locking knob to locked position to lock holder on the inVin groove located on the diameter of the holder. Locking knob positively locks the tool in and does not allow tool to come out of place.

### Positioning



Vertical



Horizontal Left Hand



Horizontal Right Hand

Pull the indexing knob to unlock, turn into a new position, and release the indexing to lock.

### Application

The Smart Tool-Setter's precise and heavy duty construction make the tool-setter very rigid and able to endure extreme forces without causing any damage to tools or the Smart Tool-Setter. The multi-functioning and positioning of the Smart Tool-Setter allow the operator to switch quickly and easily from one operation to another without loss of time.

#### Small Tool Change



Endmills can be easily, quickly, and precisely set with the Smart Tool-Setter.

#### Large Tool Change



Large tools can be mounted or removed with the Smart Tool-Setter.

#### Pull Stud Change



Pull Studs can be quickly and easily changed using the Smart Tool-Setter.



# TOOL GUIDE 2017<sup>No. 5</sup>

## FOR EVERY DAY MACHINING



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# DORIAN<sup>®</sup> TOOL

*The First Choice™*  
TECHNOLOGY