



# TOOL GUIDE

FOR EVERYDAY MACHINING



DoubleJet JET-STREAM™



No-Vibration Solution Tool!™



DoubleJet KOOL-CUT™

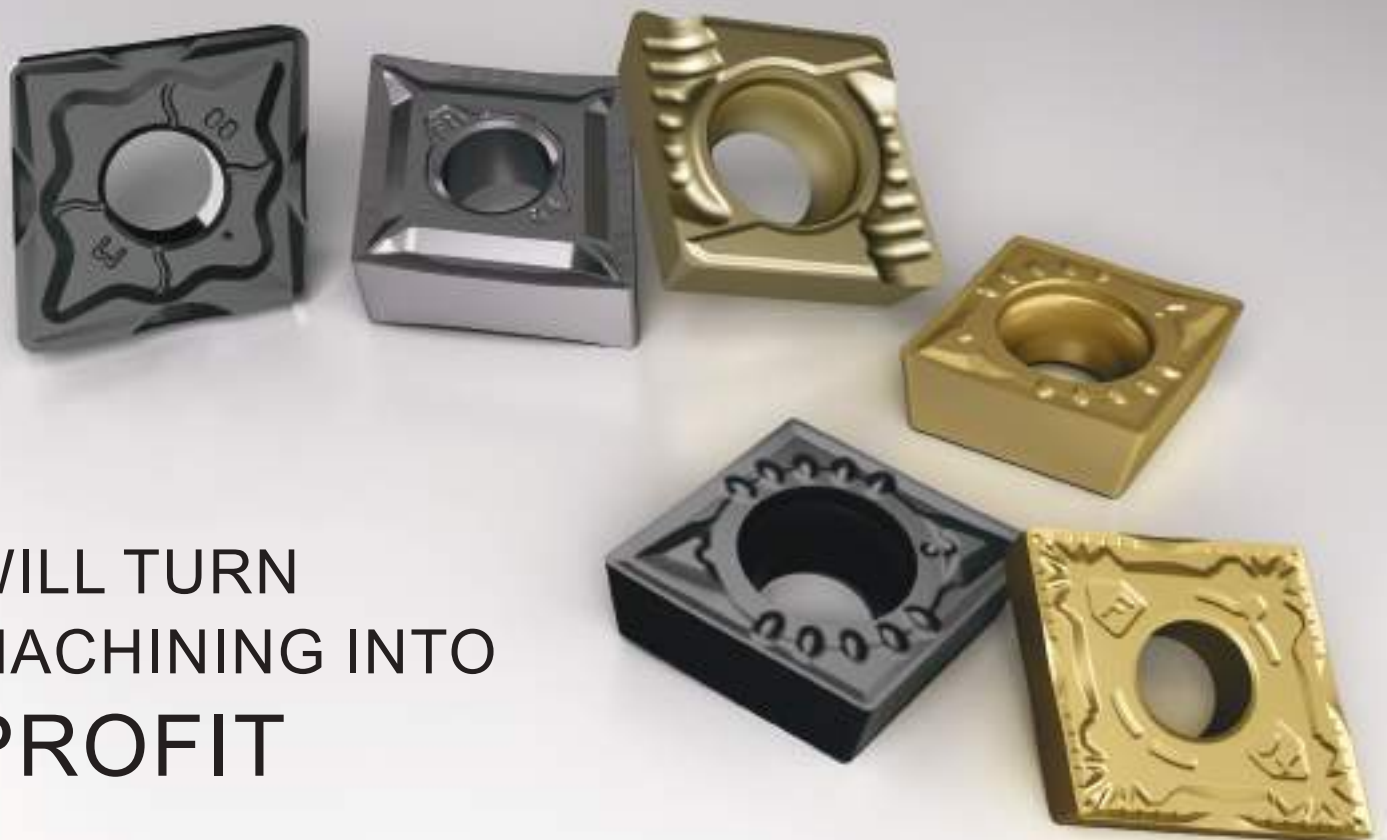
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# CARBIDE INSERTS

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TECHNOLOGY, QUALITY & PERFORMANCE



WILL TURN  
MACHINING INTO  
PROFIT

| Material                               | Turning Application    |                         |                  | Grade Specification |                     |          | Material Application |            |                                                                |   |   |   |   |   |  |  |
|----------------------------------------|------------------------|-------------------------|------------------|---------------------|---------------------|----------|----------------------|------------|----------------------------------------------------------------|---|---|---|---|---|--|--|
|                                        | Uninterrupted Cut      | Universal               | Interrupted Cut  | ANSI Grade          | ISO Grade           | Uncoated | PVD Coated           | CVD Coated | <div><div>● First Choice</div><div>○ Second Choice</div></div> |   |   |   |   |   |  |  |
|                                        | Hard                   | Hard & Tough            | Tough            |                     |                     |          |                      |            |                                                                |   |   |   |   |   |  |  |
|                                        | Wear Resistant         | Impact & Wear Resistant | Impact Resistant |                     |                     |          |                      |            |                                                                |   |   |   |   |   |  |  |
|                                        | 0105101520253035404550 |                         |                  |                     |                     |          |                      |            |                                                                |   |   |   |   |   |  |  |
| High Cutting Speed                     | Medium Cutting Speed   | Low Cutting Speed       |                  |                     |                     |          |                      |            | P                                                              | M | K | N | S | H |  |  |
| P Carbon Steel & Alloy Steel           |                        |                         |                  | C6-C7               | P20-P35 M20-M35     |          | ●                    |            | ●                                                              | ○ |   |   |   |   |  |  |
|                                        |                        |                         |                  | C6-C7               | P10-P25 M10-M25     |          |                      | ●          |                                                                | ○ |   |   |   | ○ |  |  |
|                                        |                        |                         |                  | C5-C6               | P15-P35 M15-M35     |          | ●                    | ●          | ○                                                              |   |   |   |   |   |  |  |
|                                        |                        |                         |                  | C5                  | P25-P45 M25-M45     |          | ●                    | ●          | ○                                                              |   |   |   |   |   |  |  |
|                                        |                        |                         |                  |                     |                     |          |                      |            |                                                                |   |   |   |   |   |  |  |
| M Stainless Steel                      |                        |                         |                  | C6-C7               | P30 M25             |          | ●                    |            | ○                                                              | ● |   |   |   |   |  |  |
|                                        |                        |                         |                  | C5-C6               | P35 M35             |          |                      | ●          | ○                                                              | ● |   |   |   |   |  |  |
|                                        |                        |                         |                  |                     |                     |          |                      |            |                                                                |   |   |   |   |   |  |  |
| K Cast Iron Ferrous Metal & Material   |                        |                         |                  | C3-C4               | M10-K10 S10         | ●        |                      |            |                                                                |   | ● |   |   |   |  |  |
|                                        |                        |                         |                  | C2-C3               | K10 P10 M10         |          |                      | ●          |                                                                | ● |   |   | ○ |   |  |  |
|                                        |                        |                         |                  | C1-C2               | K15 P15 M15         |          |                      | ●          |                                                                | ● |   |   | ○ |   |  |  |
|                                        |                        |                         |                  |                     |                     |          |                      |            |                                                                |   |   |   |   |   |  |  |
| N Aluminum Non Ferrous Material        |                        |                         |                  | C3-C7               | K15 P10 M15 N15 S15 | ●        |                      |            |                                                                |   | ● |   |   |   |  |  |
|                                        |                        |                         |                  | C1-C3               | K25 P25 M25 N25 S25 | ●        |                      |            |                                                                | ● |   |   |   |   |  |  |
|                                        |                        |                         |                  | C4-C8               | M10 K10-N10 S10     |          |                      | ●          | ○                                                              | ○ | ○ | ● | ○ | ○ |  |  |
|                                        |                        |                         |                  | C1-C3               | P10 M15 K25-S25     |          |                      | ●          |                                                                |   | ● | ○ |   |   |  |  |
|                                        |                        |                         |                  |                     |                     |          |                      |            |                                                                |   |   |   |   |   |  |  |
| S High Temp Super Alloy Multi Material |                        |                         |                  | C3-C4               | M10 K10-N10 S10     |          |                      | ●          |                                                                | ○ |   |   | ● |   |  |  |
|                                        |                        |                         |                  | C4-C8               | P10 M10 K10 N10 S10 | ●        |                      |            | ○                                                              |   |   | ● |   |   |  |  |
|                                        |                        |                         |                  | C3-C8               | M20 K20 N20 S20     | ●        |                      |            | ○                                                              |   |   | ● |   | ○ |  |  |
|                                        |                        |                         |                  | C3-C7               | P15 M15 K15 N25 S25 | ●        | ●                    | ●          | ●                                                              | ● | ● | ● |   |   |  |  |
|                                        |                        |                         |                  | C3-C7               | P20 M25 K30 N30 S30 | ●        | ●                    | ●          | ●                                                              | ● | ● | ● |   | ○ |  |  |
|                                        |                        |                         |                  |                     |                     |          |                      |            |                                                                |   |   |   |   |   |  |  |

## 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

### DMC25HT

High Performance Machining of austenitic stainless steels at higher SFM  
M25 (M15-M30) Substrate  
Not for interrupted cuts  
High cutting speeds, ideally at 400-660 SFM.  
PVD Hyper 8 AlTiN Coating

### DMC30UT

Tougher alternative to DMC25HT 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 DUP35RT 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

### DUP35RT

Tough, roughing grade for multi-material applications.  
For roughing of small parts with interrupted cuts.

## Negative 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 |
|----------------------------------------------|---------------------------------------|--------------|-------------------------------------------------------------------------------------|-----------------------------|---------|--------------------------------|-------------------------------------|------------------------------------------|
|                                              |                                       |              |                                                                                     | 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<br>Precision Finishing     | UEM          |    | DPC15HT                     |         | 330 1188                       | .020" - .157"                       | .003" - .013"                            |
|                                              |                                       |              |                                                                                     | DPC25UT                     |         | 281 1010                       |                                     |                                          |
|                                              |                                       |              |                                                                                     | DPC35RT                     |         | 165 594                        |                                     |                                          |
|                                              | For Thin Wall Tubing<br>& 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<br>Roughing                     | PSS          |    | DPC15HT                     |         | 330 1188                       | .079" - .492"                       | .016" - .063"                            |
|                                              |                                       |              |                                                                                     | DPC25UT                     |         | 281 1010                       |                                     |                                          |
|                                              |                                       |              |                                                                                     | DPC35RT                     |         | 165 594                        |                                     |                                          |
|                                              | Extra Heavy Duty<br>Roughing          | PST          |    | DPC15HT                     |         | 330 1188                       | .098" - .492"                       | .031" - .063"                            |
|                                              |                                       |              |                                                                                     | DPC25UT                     |         | 281 1010                       |                                     |                                          |
|                                              |                                       |              |                                                                                     | DPC35RT                     |         | 165 594                        |                                     |                                          |
| M Stainless Steel                            | High Performance                      | MEH          |   | DMC25HT                     |         | 400 660                        | .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<br>& 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                   |         | 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 |                                |                                     |                                          |               |
| 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          |  | DMC25HT                 |         | 400                            | 660                                 | .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 (Titanium Only) |         | 230                            | 100                                 | .039" - .138"                            | .003" - .018" |
|                          |                     |              |                                                                                     | DSP20HT                 |         | 200                            | 100                                 |                                          |               |

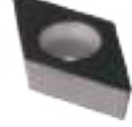
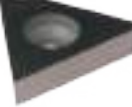
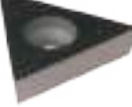
## Multi-Material Applications Positive Precision Ground Inserts

| 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-UEFR</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            |
| <b>TCGT-UEU</b><br>60° Triangle<br>Universal    | DCGT-32.52-UEU     | 79550            | 79551            | 79553            | 79554            |
|                                                                                                                                  | DCGT-431-UEU       | 79555            | 79556            | 79558            | 79559            |
|                                                                                                                                  | 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            |
| <b>TPGT-UEU</b><br>60° Triangle<br>Universal  | TCGT-32.50.5-UEU   |                  |                  | 79608            | 79609            |
|                                                                                                                                  | TCGT-32.51-UEU     | 79610            | 79611            | 79613            | 79614            |
|                                                                                                                                  | 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            |
| <b>VBGT-UEU</b><br>35° Diamond<br>Universal   | TPGT-32.50.5-UEU   |                  |                  | 79643            | 79644            |
|                                                                                                                                  | TPGT-32.51-UEU     | 79645            | 79646            | 79648            | 79649            |
|                                                                                                                                  | 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            |                  |                  |
|                                                                                                                                                      | DCMW-32.52-KEU     | 70771            |                  |                  |
|                                                                                                                                                      |                    |                  |                  |                  |
| <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            |
|                                                                                                                                                      |                    |                  |                  |                  |

## Multi-Material Applications Positive Precision Ground Inserts

| Description                                                                                                                                 | ANSI           | Grade<br>DNU25GT | Grade<br>DNP25GT | Grade<br>DPP30GT |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|------------------|------------------|
| <b>TPG-UEN</b><br>60° Triangle<br>General<br>Purpose<br>  | TPG-221-UEN    |                  | 71607            | 71608            |
|                                                                                                                                             | TPG-222-UEN    | 71611            | 71613            |                  |
|                                                                                                                                             | TPG-321-UEN    | 71617            | 71619            | 71620            |
|                                                                                                                                             | TPG-322-UEN    | 71623            | 71625            | 71626            |
|                                                                                                                                             | TPG-431-UEN    | 71629            | 71631            | 71632            |
|                                                                                                                                             | TPG-432-UEN    | 71635            | 71637            | 71638            |
| <b>TPGB-UEN</b><br>60° Triangle<br>General<br>Purpose<br> | 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<br>Purpose<br> | 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<br>Purpose<br> | TPHT-32.51-UEN | 71748            | 71750            | 71751            |
|                                                                                                                                             | TPHT-32.52-UEN | 71753            | 71755            | 71756            |

## Positive Convex Radius Inserts for Multi-Material Applications

| Description                                                                                                                             | ANSI          | Radius | Grade<br>DNU25GT | Grade<br>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.

## 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            |
|                                                                                                                                  | DCGT-32.52-NFU   | 80064            | 80065            |
| <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-444-NFU     | 80135            |                  |
|                                                                                                                                  |                  |                  |                  |
| <b>WCGT-NFU</b><br>80° Trigon<br>Universal    | WCGT-32.50.5-NFU |                  | 80141            |
|                                                                                                                                  | WCGT-32.51-NFU   | 80144            | 80145            |
|                                                                                                                                  | WCGT-32.52-NFU   | 80148            | 80149            |
|                                                                                                                                  | WCGT-431-NFU     |                  | 80153            |
|                                                                                                                                  | WCGT-432-NFU     | 80156            | 80157            |

## Titanium & High Temp Alloy Applications Positive Inserts

| Description                                                                                                                   | ANSI            | Titanium<br>Grade<br>DSP10HT | High Temp Grade |       |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------|-----------------|-------|
| <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        | RCMX-1204MO-UEx |                              | 71960           |       |
|                                                                                                                               | RCMT-1606MO-SEH | 69732                        |                 |       |
|                                                                                                                               | RCMT-2006MO-SEH | 69734                        |                 |       |

## Stainless Steel Applications Positive Inserts

| Description                                                                                                                          | ANSI             | Grade<br>DMC25HT | 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-21.50.5-MEH | 70270            | 70271            |
|                                                                                                                                      | CCMT-21.51-MEH   | 70272            | 70273            |
|                                                                                                                                      | CCMT-32.51-MEH   | 70274            |                  |
|                                                                                                                                      | CCMT-32.52-MEH   | 70275            |                  |
|                                                                                                                                      | CCMT-431-MEH     | 70276            |                  |
|                                                                                                                                      | CCMT-432-MEH     | 70277            |                  |
| <b>DCMT-MEF</b><br>55° Diamond<br>Finishing         | DCMT-21.50.5-MEF |                  | 71810            |
|                                                                                                                                      | DCMT-32.50.5-MEF |                  | 71814            |
| <b>DCMT-MEM</b><br>55° Diamond<br>Medium            | DCMT-32.51-MEM   |                  | 70760            |
|                                                                                                                                      | DCMT-32.52-MEM   |                  | 70761            |
| <b>DCMT-MEH</b><br>55° Diamond<br>High Performance  | DCMT-21.51-MEH   |                  | 71813            |
|                                                                                                                                      | DCMT-32.51-MEH   | 71816            |                  |
|                                                                                                                                      | DCMT-32.52-MEH   | 71817            |                  |
| <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            |
| <b>VCMT-MEH</b><br>35° Diamond<br>Medium          | VCMT-331-MEH     | 77934            |                  |
|                                                                                                                                      | VCMT-332-MEH     | 77935            |                  |
|                                                                                                                                      | VCMT-333-MEH     | 77936            |                  |
| <b>VBMT-MEH</b><br>35° Diamond<br>Medium          | VBMT-331-MEH     | 77930            | 77931            |
|                                                                                                                                      | VBMT-332-MEH     | 77932            | 77933            |

## 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            |
|                                                                                                                                        |                 |                  |                  |
| <b>RCMX-UEX</b><br>Round<br>Medium                  | RCMX-1606MO-UEX | 71964            | 71965            |
|                                                                                                                                        | RCMX-2006MO-UEX | 71969            | 71970            |
|                                                                                                                                        | RCMX-2507MO-UEX | 71974            | 71975            |
|                                                                                                                                        | RCMX-3209MO-UEX | 71978            | 71979            |

## 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  | 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     | 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            |                  |
| <b>DCMT-PEF</b><br>55° Diamond<br>Finishing  | DCMT-21.50.5-PEF   | 71811            | 71812            |                  |
|                                              | DCMT-21.51-PEF     | 71893            | 71894            |                  |
|                                              | DCMT-32.50.5-PEF   |                  | 71815            |                  |
|                                              | DCMT-32.51-PEF     | 71897            | 71898            |                  |
| <b>DCMT-PEM</b><br>55° Diamond<br>Medium     | 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              | RCMX-1003MO-UEX    |                  |                  | 71957            |
|                                              | RCMX-1204MO-UEX    |                  | 71958            | 71959            |
|                                              | RCMX-1606MO-UEX    | 71961            | 71962            | 71963            |
|                                              | RCMX-2006MO-UEX    | 71966            | 71967            | 71968            |
|                                              | RCMX-2507MO-UEX    | 71971            | 71972            | 71973            |
| <b>RCMT-UM</b><br>Inch Round                 | RCMT-43-UM         |                  | 79926            |                  |
|                                              | RCMT-64-UM         |                  | 79929            |                  |
|                                              | RCMT-84-UM         |                  | 79931            |                  |
| <b>SCMT-PEF</b><br>Square<br>Finishing       | SCMT-32.51-PEF     | 71903            | 71904            |                  |
|                                              |                    |                  |                  |                  |
| <b>SCMT-PEM</b><br>Square<br>Medium          | 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 | 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    | 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    | 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  | 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 Positive Precision Ground Inserts (for lower cutting pressure)

| 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                      |
| <b>DCGT-UEx<sup>1</sup></b><br>55° Diamon<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                      |

## 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-434-PEM | 71793   | 71794            | 71795   |
|                                                                                                                                 | CNMG-542-PEM | 69283   | 69284            | 69285   |
|                                                                                                                                 | CNMG-543-PEM | 69286   | 69287            | 69288   |
|                                                                                                                                 | CNMG-544-PEM | 69492   | 69289            | 69290   |
|                                                                                                                                 | CNMG-643-PEM | 69409   | 69291            | 69292   |
| <b>CNMG-PER</b><br>80° Diamond<br>Roughing     | CNMG-432-PER | 69351   | 69352            | 69353   |
|                                                                                                                                 | CNMG-433-PER | 69354   | 69355            | 69356   |
|                                                                                                                                 | CNMG-434-PER | 71796   | 71797            | 71798   |
|                                                                                                                                 | 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   |
| <b>DNMG-PEF</b><br>55° Diamond<br>Finishing   | CNMG-646-PER | 69372   | 69373            | 69374   |
|                                                                                                                                 | 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            |         |
| <b>DNMG-UEM</b><br>55° Diamond<br>Universal  | DNMG-442-PEF | 69264   | 69265            |         |
|                                                                                                                                 | 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   |
|                                                                                                                                   | WNMG-434-PEM | 77954   | 77955            | 77956   |
| <b>WNMG-PER</b><br>80° Trigon<br>Roughing    | WNMG-432-PER | 69402   | 69403            | 69404   |
|                                                                                                                                   | WNMG-433-PER | 69405   | 69406            | 69407   |
|                                                                                                                                   | WNMG-434-PER | 77957   | 77958            | 77959   |

## 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                      |
|                                                                                                                                      | DNMX-442-UExL | 69461                  | 69462                  | 69463                  | 69464                      |
| <b>DNMX-UExR</b><br>55° Diamond<br>Right Hand<br>   | DNMX-331-UExR | 69432                  | 69433                  | 69434                  |                            |
|                                                                                                                                      | DNMX-332-UExR | 69438                  | 69439                  | 69440                  |                            |
|                                                                                                                                      | DNMX-431-UExR |                        | 69444                  |                        |                            |
|                                                                                                                                      | DNMX-432-UExR |                        | 69450                  |                        |                            |
|                                                                                                                                      | DNMX-441-UExR | 69457                  | 69458                  | 69459                  | 69460                      |
|                                                                                                                                      | DNMX-442-UExR | 69465                  | 69466                  | 69467                  | 69468                      |
| <b>TNMX-UExL</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                      |
| <b>WNMX-UExL</b><br>80° Trigon<br>Left Hand<br>    | WNMX-432-UExL | 78281                  | 78282                  | 78283                  | 78280                      |
|                                                                                                                                      | WNMX-433-UExL |                        | 78289                  | 78290                  | 78288                      |
| <b>WNMX-UExR</b><br>80° Trigon<br>Right Hand<br>   | WNMX-432-UExR | 78285                  | 78286                  | 78287                  | 78284                      |
|                                                                                                                                      | WNMX-433-UExR |                        | 78292                  | 78293                  | 78291                      |

## 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   |
| <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>Extra Heavy<br>Roughing<br> | CNMM-856-PST | 70216   | 70217            | 70218   |
|                                                                                                                                                 | CNMM-866-PST | 70220   | 70221            | 70222   |
| <b>DNMM-PSH</b><br>55° Diamond<br>Extra Heavy<br>Roughing<br> | DNMM-442-PSH | 71989   | 71990            | 71991   |
|                                                                                                                                                 | DNMM-443-PSH | 71992   | 71993            | 71994   |
|                                                                                                                                                 | DNMM-444-PSH | 71995   | 71996            | 71997   |
|                                                                                                                                                 |              |         |                  |         |
| <b>TNMM-PSH</b><br>60° Diamond<br>Extra Heavy<br>Roughing<br> | TNMM-332-PSH | 77869   | 77870            | 77871   |
|                                                                                                                                                 | TNMM-432-PSH | 77872   | 77873            | 77874   |
|                                                                                                                                                 | TNMM-433-PSH | 77875   | 77876            | 77877   |
| <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-PST</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>Extra Heavy<br>Roughing<br>    | SNMM-856-PST | 70224   | 70225            | 70226   |
|                                                                                                                                                 | SNMM-858-PST | 73990   | 73991            | 73992   |
|                                                                                                                                                 | SNMM-866-PST | 70228   | 70229            | 70230   |
|                                                                                                                                                 | SNMM-868-PST | 73993   | 73994            | 73995   |

## 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            |
|                                                                                                                                               |              |                  |                  |
| <b>WNMG-PEX</b><br>80° Trigon<br>High<br>Performance<br>  | WNMG-432-PEX | 77947            | 77948            |
|                                                                                                                                               | WNMG-433-PEX | 77951            | 77952            |

## Stainless Steel Applications Negative Inserts

| Description                                                                                                                                  | ANSI         | Grade<br>DMC25HT | Grade<br>DMC30UT |
|----------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|------------------|
| <b>CNMG-MEF</b><br>80° Diamond<br>Finishing<br>             | CNMG-321-MEF | 71780            | 69964            |
|                                                                                                                                              | CNMG-431-MEF | 71781            | 69965            |
|                                                                                                                                              | CNMG-432-MEF | 71784            | 69966            |
|                                                                                                                                              | CNMG-433-MEF | 71790            | 69967            |
| <b>CNMG-MEM</b><br>80° Diamond<br>Medium<br>                | CNMG-432-MEM |                  | 69968            |
|                                                                                                                                              | CNMG-433-MEM |                  | 69969            |
|                                                                                                                                              | CNMG-543-MEM |                  | 71801            |
| <b>CNMG-MEH</b><br>80° Diamond<br>High<br>Performance<br>   | CNMG-432-MEH | 71785            | 71786            |
|                                                                                                                                              | CNMG-433-MEH | 71791            | 71792            |
|                                                                                                                                              | CNMG-543-MEH | 71799            | 71800            |
|                                                                                                                                              | CNMG-544-MEH | 71802            | 71803            |
|                                                                                                                                              | CNMG-643-MEH |                  | 71804            |
|                                                                                                                                              | CNMG-644-MEH |                  | 71805            |
| <b>CNMG-MER</b><br>80° Diamond<br>Roughing<br>              | CNMG-432-MER |                  | 71787            |
|                                                                                                                                              | CNMG-433-MER |                  | 69970            |
|                                                                                                                                              | CNMG-543-MER |                  | 69971            |
|                                                                                                                                              | CNMG-643-MER |                  | 69972            |
| <b>DNMG-MEF</b><br>55° Diamond<br>Finishing<br>             | DNMG-331-MEF | 71998            | 69973            |
|                                                                                                                                              | DNMG-332-MEF | 71980            | 71981            |
|                                                                                                                                              | DNMG-441-MEF | 71984            | 69974            |
|                                                                                                                                              | DNMG-442-MEF | 71986            | 69975            |
| <b>DNMG-MEM</b><br>55° Diamond<br>Medium<br>               | 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<br> | DNMG-331-MEH | 71999            |                  |
|                                                                                                                                              | DNMG-332-MEH | 71982            |                  |
|                                                                                                                                              | DNMG-432-MEH | 71983            |                  |
|                                                                                                                                              | DNMG-441-MEH | 71985            |                  |
|                                                                                                                                              | DNMG-442-MEH | 71987            |                  |
|                                                                                                                                              | DNMG-443-MEH | 71988            |                  |
| <b>DNMG-MER</b><br>55° Diamond<br>Medium<br>              | DNMG-442-MER |                  | 69980            |
|                                                                                                                                              | DNMG-443-MER |                  | 69981            |
| <b>SNMG-MEF</b><br>Square<br>Finishing<br>                | SNMG-321-MEF | 77680            | 69982            |
|                                                                                                                                              |              |                  |                  |
| <b>SNMG-MEM</b><br>Square<br>Medium<br>                   | SNMG-432-MEM |                  | 77682            |
|                                                                                                                                              | SNMG-433-MEM |                  | 77686            |
| <b>SNMG-MEH</b><br>Square<br>High<br>Performance<br>      | SNMG-432-MEH | 77681            |                  |
|                                                                                                                                              | SNMG-433-MEH | 77685            |                  |
|                                                                                                                                              | SNMG-543-MEH | 77689            |                  |
|                                                                                                                                              | SNMG-544-MEH | 77690            |                  |
| <b>SNMG-MER</b><br>Square<br>Roughing<br>                 | SNMG-432-MER |                  | 69983            |
|                                                                                                                                              | SNMG-433-MER |                  | 69984            |
|                                                                                                                                              | SNMG-643-MER |                  | 69985            |

## Stainless Steel Applications Negative Inserts

| Description                                                                                                                                 | ANSI         | Grade<br>DMC25HT | Grade<br>DMC30UT |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|------------------|
| <b>TNMG-MEF</b><br>60° Triangle<br>Finishing<br>         | TNMG-331-MEF | 77860            | 77861            |
|                                                                                                                                             | TNMG-332-MEF | 77862            | 77863            |
| <b>TNMG-MEM</b><br>60° Triangle<br>Medium<br>            | TNMG-332-MEM | 77864            | 69986            |
|                                                                                                                                             | TNMG-333-MEM | 77865            | 77866            |
|                                                                                                                                             | TNMG-432-MEM | 77867            | 69987            |
|                                                                                                                                             | TNMG-433-MEM | 77868            | 69988            |
| <b>WNMG-MEF</b><br>80° Trigon<br>Finishing<br>           | WNMG-331-MEF |                  | 69989            |
|                                                                                                                                             | WNMG-431-MEF | 77943            | 69990            |
|                                                                                                                                             | WNMG-432-MEF | 77944            | 69991            |
| <b>WNMG-MEH</b><br>80° Trigon<br>High<br>Performance<br> | WNMG-331-MEH | 77942            |                  |
|                                                                                                                                             | WNMG-432-MEH | 77945            |                  |
|                                                                                                                                             | WNMG-433-MEH | 77949            |                  |
|                                                                                                                                             | WNMG-434-MEH | 77953            |                  |
| <b>WNMG-MEM</b><br>80° Trigon<br>Medium<br>              | 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<br>           | WNMG-432-MER | 77946            | 69996            |
|                                                                                                                                             | WNMG-433-MER | 77950            | 69997            |

## Cast Iron Applications Negative Inserts

| Description                                       | ANSI                                                                         | DKC10UT                                   | DKC15RT                                   |
|---------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|
| <b>CNMG-KEF</b><br>80° Diamond<br>Finishing       | CNMG-431-KEF                                                                 | 67052                                     | 67053                                     |
| <b>CNMA-KEU</b><br>80° Diamond<br>General Purpose | CNMA-432-KEU<br>CNMA-433-KEU<br>CNMA-644-KEU<br>CNMA-866-KEU                 | 69874<br>69876<br>69878<br>69879          | 69875<br>69877<br>69878<br>69879          |
| <b>CNMG-KEM</b><br>80° Diamond<br>Medium          | CNMG-432-KEM<br>CNMG-433-KEM                                                 | 71782<br>71788                            | 71783<br>71789                            |
| <b>CNMG-KER</b><br>80° Diamond<br>Roughing        | CNMG-432-KER<br>CNMG-433-KER<br>CNMG-434-KER<br>CNMG-543-KER<br>CNMG-544-KER | 69904<br>69906<br>69908<br>69910<br>69912 | 69905<br>69907<br>69909<br>69911<br>69913 |
| <b>DNMG-KEF</b><br>55° Diamond<br>Finishing       | DNMG-331-KEF                                                                 | 67054                                     | 67055                                     |
| <b>DNMA-KEU</b><br>55° Diamond<br>General Purpose | DNMA-442-KEU<br>DNMA-443-KEU                                                 |                                           | 69880<br>71836                            |
| <b>DNMG-KER</b><br>55° Diamond<br>Roughing        | DNMG-432-KER<br>DNMG-433-KER<br>DNMG-442-KER<br>DNMG-443-KER                 | 69914<br>69916<br>69918<br>69920          | 69915<br>69917<br>69919<br>69921          |
| <b>SNMA-KEU</b><br>Square<br>General Purpose      | SNMA-432-KEU<br>SNMA-433-KEU<br>SNMA-434-KEU<br>SNMA-664-KEU<br>SNMA-856-KEU | 69882<br>69884<br>69886<br>69888<br>69889 | 69883<br>69885<br>69887<br>69888<br>69889 |
| <b>SNMG-KER</b><br>Square<br>Roughing             | SNMG-432-KER<br>SNMG-433-KER<br>SNMG-643-KER<br>SNMG-644-KER                 | 69922<br>69924<br>69926<br>69927          | 69923<br>69925<br>69928<br>69928          |
| <b>TNMA-KEU</b><br>Triangle<br>General Purpose    | TNMA-332-KEU<br>TNMA-333-KEU<br>TNMA-434-KEU                                 | 69890<br>69892<br>69894                   | 69891<br>69893<br>69895                   |
| <b>WNMA-KEU</b><br>80° Trigon<br>General Purpose  | WNMA-432-KEU<br>WNMA-433-KEU                                                 | 69896<br>69898                            | 69897<br>69899                            |
| <b>WNMA-KER</b><br>80° Trigon<br>Roughing         | WNMG-432-KER<br>WNMG-433-KER                                                 | 69929                                     | 69930<br>69931                            |

## Titanium & High Temp Alloy Applications Negative Inserts

| Description                                 | ANSI                                                                                                         | Titanium Grade<br>DSP10HT | High Temp<br>GradeHigh<br>TempGrade | DSP15HT                                            | DSP20HT                                            |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------|----------------------------------------------------|----------------------------------------------------|
| <b>CNMG-SEF</b><br>80° Diamond<br>Finishing | CNMG-431-SEF<br>CNMG-432-SEF<br>CNMG-433-SEF                                                                 |                           |                                     | 67058<br>67059<br>67060                            | 70278<br>70279<br>70281                            |
| <b>CNMG/GG-SEM</b><br>80° Diamond<br>Medium | CNMG-431-SEM<br>CNMG-432-SEM<br>CNMG-433-SEM<br>CNMG-431-SEM<br>CNMG-432-SEM                                 |                           |                                     | 67061<br>67065<br>67066<br>67067<br>67068          |                                                    |
| <b>CNMG-SER</b><br>80° Diamond<br>Roughing  | CNMG-432-SER<br>CNMG-433-SER                                                                                 |                           |                                     | 67069<br>67070                                     | 70280<br>70282                                     |
| <b>CNMG-SEH</b><br>80° Diamond<br>Roughing  | CNMG-432-SEH                                                                                                 | 69726                     |                                     |                                                    | 69727                                              |
| <b>DNMG-SEF</b><br>55° Diamond<br>Finishing | DNMG-431-SEF<br>DNMG-432-SEF<br>DNMG-433-SEF<br>DNMG-441-SEF<br>DNMG-442-SEF<br>DNMG-443-SEF                 |                           |                                     | 67071<br>67072<br>67073<br>67074<br>67082<br>67083 | 71830<br>71831<br>71832<br>71833<br>71834<br>71835 |
| <b>DNMG-SEM</b><br>55° Diamond<br>Medium    | DNMG-431-SEM<br>DNMG-432-SEM<br>DNMG-433-SEM<br>DNMG-441-SEM<br>DNMG-442-SEM<br>DNMG-443-SEM<br>DNMG-442-SEH |                           |                                     | 67084<br>67085<br>67086<br>67087<br>67088<br>67089 |                                                    |
| <b>DNMG-SEH</b><br>55° Diamond<br>Roughing  |                                                                                                              | 69730                     |                                     |                                                    | 69731                                              |
| <b>VNMG-SEF</b><br>35° Diamond<br>Finishing | VNMG-331-SEF<br>VNMG-332-SEF                                                                                 |                           |                                     | 67095<br>67096                                     |                                                    |
| <b>WNGG-SEF</b><br>80° Trigon<br>Finishing  | WNGG-332-SEF<br>WNGG-431-SEF<br>WNGG-432-SEF<br>WNGG-433-SEF                                                 |                           |                                     | 77940<br>67097<br>67098<br>67099                   |                                                    |
| <b>WNMG/GG-SEM</b><br>80° Trigon<br>Medium  | WNGG-431-SEM<br>WNGG-432-SEM<br>WNGG-433-SEM<br>WNMG-431-SEM<br>WNMG-432-SEM<br>WNMG-433-SEM                 |                           |                                     | 67100<br>67101<br>77941<br>67102<br>67103<br>67104 |                                                    |
| <b>WNMG-SEH</b><br>80° Trigon<br>Medium     | WNMG-432-SEH                                                                                                 | 69736                     |                                     |                                                    | 69737                                              |
| <b>SNMG-SEF</b><br>Square<br>Finishing      | SNMG-432-SEF<br>SNMG-433-SEF                                                                                 |                           |                                     | 77683<br>77687                                     |                                                    |
| <b>SNMG-SER</b><br>Square<br>Roughing       | SNMG-432-SER<br>SNMG-433-SER                                                                                 |                           |                                     | 77684<br>77688                                     |                                                    |

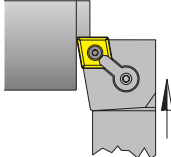
# TOOL HOLDERS & BORING BARS

MADE IN U.S.A.

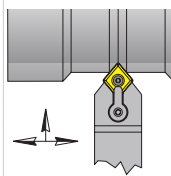


- Chromium-Molybdenum Alloy Steel
- Thru Hardened to 44HRC
- Better than ANSI / ISO Tolerances
- Hardware Part Numbers Lasered on Tools for Easy Ordering
- Largest Selection of Tooling Styles and Sizes

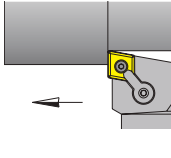
**MCFN R/L Toolholder Style F - 0° End Cutting Edge Angle  
for negative 80° diamond CNM\_ inserts**

|                                                                                  | Description  | UPC #         |              | Shank  |        | CNM_<br>Gage Insert |
|----------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                  |              | Right<br>Hand | Left<br>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 | -             | 50023        | 1.00   | 6.00   | 543                 |
|                                                                                  | MCFNR/L16-6D | 50026         | 50027        | 1.00   | 6.00   | 643                 |

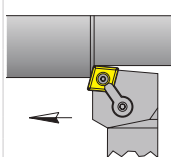
**MCMNN Toolholder Style M - 40° Side Cutting Edge Angle  
for negative 80° diamond CNM\_ inserts**

|                                                                                   | Description | UPC #         |              | Shank  |        | CNM_<br>Gage Insert |
|-----------------------------------------------------------------------------------|-------------|---------------|--------------|--------|--------|---------------------|
|                                                                                   |             | Right<br>Hand | Left<br>Hand | Height | Length |                     |
|  | MCMNN12-4B  | 50198         | -            | 0.75   | 4.50   | 432                 |
|                                                                                   | MCMNN16-4D  | 50200         | -            | 1.00   | 6.00   |                     |
|                                                                                   | MCMNN16-5D  | 50202         | -            | 1.00   | 6.00   | 543                 |
|                                                                                   | MCMNN20-5D  | 50204         | -            | 1.25   | 6.00   |                     |
|                                                                                   | MCMNN20-6D  | 50208         | -            | 1.25   | 6.00   |                     |

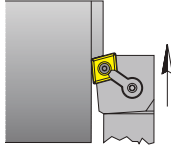
**MCGN R/L Toolholder Style G- 0° Side Cutting Edge Angle  
for negative 80° diamond CNM\_ inserts**

|                                                                                  | Description  | UPC #         |              | Shank  |        | CNM_<br>Gage Insert |
|----------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                  |              | Right<br>Hand | Left<br>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   | 643                 |
|                                                                                  | MCGNR/L85-6D | 50056         | 50057        | 1.25   | 6.00   |                     |

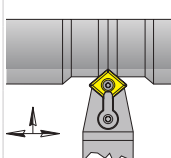
**MCRN R/L Toolholder Style R- 15° Side Cutting Edge Angle  
for negative 80° diamond CNM\_ inserts**

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

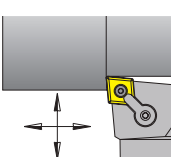
**MCKN R/L Toolholder Style K- 15° End Cutting Edge Angle  
for negative 80° diamond CNM\_ inserts**

|                                                                                  | Description  | UPC #         |              | Shank  |        | CNM_<br>Gage Insert |
|----------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                  |              | Right<br>Hand | Left<br>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   | 543                 |
|                                                                                  | MCKNR/L16-5D | 50082         | 50083        | 1.00   | 6.00   |                     |
|                                                                                  | MCKNR/L20-5D | 50086         | 50087        | 1.25   | 6.00   |                     |
|                                                                                  | MCKNR/L85-5D | 50090         | 50091        | 1.25   | 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         | -            | 1.50   | 7.00   |                     |

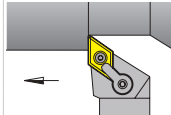
**MCYNN Toolholder Style Y - 50° Side Cutting Edge Angle  
for negative 80° diamond CNM\_ inserts**

|                                                                                    | Description | UPC #         |              | Shank  |        | CNM_<br>Gage Insert |
|------------------------------------------------------------------------------------|-------------|---------------|--------------|--------|--------|---------------------|
|                                                                                    |             | Right<br>Hand | Left<br>Hand | Height | Length |                     |
|  | MCYNN12-4B  | 50274         | -            | 0.75   | 4.5    | 432                 |
|                                                                                    | MCYNN16-4D  | 50276         | -            | 1.00   | 6.0    |                     |
|                                                                                    | MCYNN20-6D  | 50286         | -            | 1.25   | 6.0    | 643                 |
|                                                                                    | MCYNN24-6E  | 50288         | -            | 1.50   | 7.0    |                     |

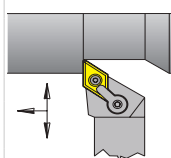
**MCLN R/L Toolholder Style L - Negative 5° End or Side Cutting  
Edge Angle for negative 80° diamond CNM\_ inserts**

|                                                                                    | Description  | UPC #         |              | Shank  |        | CNM_<br>Gage Insert |
|------------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                    |              | Right<br>Hand | Left<br>Hand | Height | Length |                     |
|  | MCLNR/L08-3A | 50108         | 50109        | 0.500  | 4.00   | 322                 |
|                                                                                    | MCLNR/L10-3A | 50118         | -            | 0.625  | 4.00   | 322                 |
|                                                                                    | MCLNR/L12-3B | 50110         | 50111        | 0.750  | 4.50   |                     |
|                                                                                    | 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   | 543                 |
|                                                                                    | MCLNR/L85-4D | 50144         | 50145        | 1.250  | 6.00   |                     |
|                                                                                    | MCLNR/L16-5C | 50148         | 50149        | 1.000  | 5.00   |                     |
|                                                                                    | MCLNR/L16-5D | 50152         | 50153        | 1.000  | 6.00   | 643                 |
|                                                                                    | MCLNR/L20-5D | 50156         | 50157        | 1.250  | 6.00   |                     |
|                                                                                    | MCLNR/L16-6C | -             | 50165        | 1.000  | 5.00   |                     |
|                                                                                    | 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**

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

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

|                                                                                     | Description  | UPC #         |              | Shank  |        | DNM_<br>Gage Insert |
|-------------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                     |              | Right<br>Hand | Left<br>Hand | Height | Length |                     |
|  | MDJNR/L08-3A | 50316         | -            | 0.500  | 4.00   | 332                 |
|                                                                                     | MDJNR/L10-3B | 50320         | -            | 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 | 50318         | 50319        | 1.000  | 6.00   |                     |
|                                                                                     | MDJNR/L12-4B | 50324         | 50325        | 0.750  | 4.50   |                     |
|                                                                                     | MDJNR/L16-4C | 50328         | 50329        | 1.000  | 5.00   | 432                 |
|                                                                                     | MDJNR/L16-4D | 50332         | 50333        | 1.000  | 6.00   |                     |
|                                                                                     | MDJNR/L20-4D | 50336         | 50337        | 1.250  | 6.00   |                     |
|                                                                                     | 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   |                     |
|                                                                                     | MDJNR/L16-5C | 50350         | 50351        | 1.000  | 5.00   | 543                 |
|                                                                                     | MDJNR/L16-5D | 50352         | 50353        | 1.000  | 6.00   |                     |
|                                                                                     | MDJNR/L20-5D | 50356         | 50357        | 1.250  | 6.00   |                     |
|                                                                                     | 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**

| Description | UPC #<br>Neutral | Shank  |        | DNM_<br>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   | 543                 |
| MDPNN20-5D  | 50378            | 1.25   | 6.00   |                     |
| MDPNN24-5D  | 50380            | 1.50   | 6.00   |                     |

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

| Description  | UPC #      |           | Shank  |        | DNM_<br>Gage Insert |
|--------------|------------|-----------|--------|--------|---------------------|
|              | Right Hand | Left Hand | Height | Length |                     |
| MDQNR/L12-4B | 50371      | 50373     | 0.75   | 4.5    | 432                 |
| MDQNR/L16-4C | 50375      | -         | 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 | -          | 50389     | 1.50   | 6.0    |                     |
| MDQNR/L20-5D | 50395      | -         | 1.25   | 6.0    | 543                 |
| MDQNR/L24-5E | 50403      | -         | 1.50   | 7.0    |                     |

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

| Description | UPC #<br>Neutral | Shank  |        | SNM_<br>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   | 543                 |
| MSDNN20-5D  | 50408            | 1.250  | 6.00   |                     |
| MSDNN85-5D  | 50410            | 1.250  | 6.00   |                     |
| 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   |                     |

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

| Description  | UPC #      |           | Shank  |        | SNM_<br>Gage Insert |
|--------------|------------|-----------|--------|--------|---------------------|
|              | Right Hand | Left Hand | Height | Length |                     |
| MSKNR/L08-3A | 50432      | -         | 0.500  | 4.00   | 322                 |
| MSKNR/L08-3B | 50436      | 50437     | 0.500  | 4.50   |                     |
| MSKNR/L10-3B | 50440      | -         | 0.625  | 4.50   |                     |
| MSKNR/L12-3B | 50444      | -         | 0.750  | 4.50   |                     |
| MSKNR/L12-4B | 50448      | -         | 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   | 543                 |
| MSKNR/L20-5D | 50464      | 50465     | 1.250  | 6.00   |                     |
| MSKNR/L20-6D | 50472      | 50473     | 1.250  | 6.00   | 643                 |
| MSKNR/L24-6D | 50476      | -         | 1.500  | 6.00   |                     |
| MSKNR/L24-6E | 50480      | 50481     | 1.500  | 7.00   |                     |

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

| Description  | UPC #      |           | Shank  |        | SNM_<br>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   | 432                 |
| MSSNR/L16-4D | 50580      | 50581     | 1.000  | 6.00   |                     |
| MSSNR/L85-4D | 50582      | 50583     | 1.250  | 6.00   |                     |
| MSSNR/L16-5D | 50584      | -         | 1.000  | 6.00   | 543                 |
| 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   | 643                 |
| MSSNR/L24-6E | 50596      | -         | 1.500  | 7.00   |                     |

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

| Description  | UPC #      |           | Shank  |        | SNM_<br>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 | -          | 50499     | 0.625  | 4.50   |                     |
| MSRNR/L12-3B | 50502      | 50503     | 0.750  | 4.50   | 432                 |
| MSRNR/L12-4B | 50506      | 50507     | 0.750  | 4.50   |                     |
| 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   |                     |

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

| Description  | UPC #      |           | Shank  |        | TNM_<br>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   | 322<br>or<br>332*   |
| MTANR/L12-3B | 50618      | 50619     | 0.750  | 4.50   |                     |
| MTANR/L16-3D | -          | 50623     | 1.000  | 6.00   | 432                 |
| MTANR/L64-3D | 50626      | 50627     | 1.000  | 6.00   |                     |
| MTANR/L16-4D | 50630      | 50631     | 1.000  | 6.00   | 543                 |
| MTANR/L85-4D | 50638      | 50639     | 1.250  | 6.00   |                     |
| MTANR/L86-4E | 50642      | -         | 1.500  | 7.00   | 663                 |
| MTANR/L16-5D | 50646      | -         | 1.000  | 6.00   |                     |
| MTANR/L20-5E | 50652      | -         | 1.250  | 7.00   |                     |
| MTANR/L24-6E | 50654      | 50655     | 1.500  | 7.00   |                     |

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

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

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

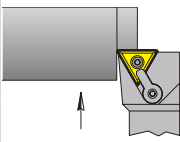
\* Change shim to ITSN-322 when using TNMG-332 inserts

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

| Description | UPC #<br>Neutral | Shank  |        | TNM_<br>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   | 322<br>or<br>332*   |
| MTENN12-4B  | 50698            | 0.750  | 4.50   |                     |
| MTENN16-4D  | 50700            | 1.000  | 6.00   | 432                 |
| 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   |                     |

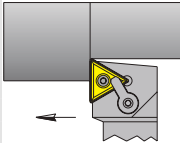
\* Change shim to ITSN-322 when using TNMG-332 inserts

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

|                                                                                  | 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   |                  |
|                                                                                  | MTFNR/L16-4C | 50750      | 50751     | 1.000  | 5.00   |                  |
|                                                                                  | MTFNR/L16-4D | 50754      | 50755     | 1.000  | 6.00   | 432              |
|                                                                                  | 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   |                  |
|                                                                                  | MTFNR/L24-6E | 50792      | 50793     | 1.500  | 7.00   | 663              |

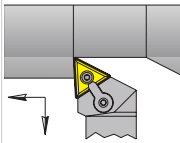
\* Change shim to ITSN-322 when using TNMG-332 inserts

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

|                                                                                  | 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   |                  |
|                                                                                  | MTGNR/L10-3B | 50810      | 50811     | 0.625  | 4.50   |                  |
|                                                                                  | MTGNR/L12-3B | 50814      | 50815     | 0.750  | 4.50   | 322 or 332*      |
|                                                                                  | MTGNR/L16-3C | 50818      | 50819     | 1.000  | 5.00   |                  |
|                                                                                  | MTGNR/L16-3D | 50822      | 50823     | 1.000  | 6.00   |                  |
|                                                                                  | MTGNR/L16-4C | 50826      | -         | 1.000  | 5.00   |                  |
|                                                                                  | MTGNR/L16-4D | 50830      | 50831     | 1.000  | 6.00   | 432              |
|                                                                                  | MTGNR/L20-4D | 50834      | 50835     | 1.250  | 6.00   |                  |
|                                                                                  | MTGNR/L24-4D | 50836      | -         | 1.500  | 6.00   |                  |
|                                                                                  | 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   |                  |
|                                                                                  | MTGNR/L16-5D | 50854      | 50855     | 1.000  | 6.00   | 543              |
|                                                                                  | 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   | 663              |

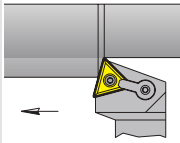
\* Change shim to ITSN-322 when using TNMG-332 inserts

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

|                                                                                    | 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   |                  |
|                                                                                    | MTJNR/L10-3B | 50890      | 50891     | 0.625  | 4.50   |                  |
|                                                                                    | MTJNR/L12-3B | 50894      | 50895     | 0.750  | 4.50   | 322 or 332*      |
|                                                                                    | MTJNR/L16-3D | 50898      | 50899     | 1.000  | 6.00   |                  |
|                                                                                    | MTJNR/L16-4D | 50902      | 50903     | 1.000  | 6.00   |                  |
|                                                                                    | MTJNR/L20-4D | 50906      | 50907     | 1.250  | 6.00   | 432              |
|                                                                                    | MTJNR/L20-4E | 50908      | -         | 1.250  | 7.00   |                  |
|                                                                                    | MTJNR/L16-5D | 50914      | 50915     | 1.000  | 6.00   |                  |
|                                                                                    | MTJNR/L20-5D | 50918      | 50919     | 1.250  | 6.00   |                  |
|                                                                                    | MTJNR/L24-5E | 50922      | 50923     | 1.500  | 7.00   | 543              |
|                                                                                    | 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              |

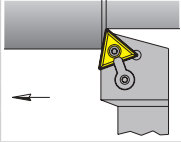
\* Change shim to ITSN-322 when using TNMG-332 inserts

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

|                                                                                    | 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   |                  |
|                                                                                    | MTRNR/L16-3D | 50976      | 50977     | 1.000  | 6.00   | 322 or 332*      |
|                                                                                    | MTRNR/L16-4D | 50980      | 50981     | 1.000  | 6.00   |                  |
|                                                                                    | MTRNR/L20-4D | 50984      | 50985     | 1.250  | 6.00   | 432              |
|                                                                                    | MTRNR/L85-4D | 50988      | -         | 1.250  | 6.00   |                  |
|                                                                                    | MTRNR/L16-5D | 50992      | -         | 1.000  | 6.00   | 543              |
|                                                                                    | MTRNR/L20-5D | 50996      | 50997     | 1.250  | 6.00   |                  |
|                                                                                    | MTRNR/L24-6E | 51012      | 51013     | 1.500  | 7.00   | 663              |

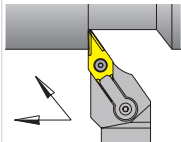
\* Change shim to ITSN-322 when using TNMG-332 inserts

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

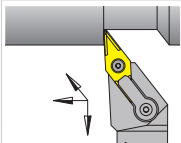
|                                                                                   | Description  | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|-----------------------------------------------------------------------------------|--------------|------------|-----------|--------|--------|------------------|
|                                                                                   |              | 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   |                  |
|                                                                                   | MTWNR/L20-4D | 51030      | 51031     | 1.250  | 6.00   | 432              |

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

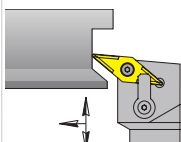
**MVGN R/L Toolholder Style G- 0° Side Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

|                                                                                   | 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   |                  |
|                                                                                   | MVGNR/L16-4D | 51052      | -         | 1.00   | 6.00   | 432              |

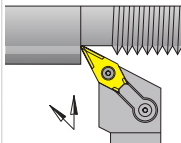
**MVJN R/L Toolholder Style J- Negative 3° Side Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

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

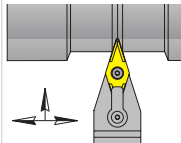
**MVLN R/L Toolholder Style L- Negative 5° End Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

|                                                                                     | Description  | UPC #      |           | Shank  |        | VNM_ Gage Insert |
|-------------------------------------------------------------------------------------|--------------|------------|-----------|--------|--------|------------------|
|                                                                                     |              | Right Hand | Left Hand | Height | Length |                  |
|  | MVLNR/L16-4C | 51108      | 51109     | 1.00   | 5.00   |                  |
|                                                                                     | MVLNR/L16-4D | 51112      | 51113     | 1.00   | 6.00   | 432              |
|                                                                                     | 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**

|                                                                                     | Description  | UPC #      |           | Shank  |        | VNM_ Gage Insert |
|-------------------------------------------------------------------------------------|--------------|------------|-----------|--------|--------|------------------|
|                                                                                     |              | Right Hand | Left Hand | Height | Length |                  |
|  | MVTNR/L12-3B | 51134      | -         | 0.75   | 4.50   |                  |
|                                                                                     | MVTNR/L16-3C | 51138      | -         | 1.00   | 5.00   |                  |
|                                                                                     | MVTNR/L16-3D | 51142      | 51143     | 1.00   | 6.00   | 332              |
|                                                                                     | 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**

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

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

| 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               |

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

| 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    |                  |

**MRGN R/L Toolholder Style G- 0° Side Cutting Edge Angle for negative round RNM\_ inserts**

| 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   | 43               |
| 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   |                  |
| 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   |                  |

**WWLN R/L Toolholder Style L- 5° End or Side Cutting Edge Angle for negative 80° trigon WNM\_ inserts**

| 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**

| Description | UPC #      |           | Shank  |        | KNUX Gage Insert |
|-------------|------------|-----------|--------|--------|------------------|
|             | Right Hand | Left Hand | Height | Length |                  |
| CKJNR12-5C  | 51592      | -         | 0.75   | 5.0    | 160405           |
| CKJNR20-5E  | 51596      | -         | 1.25   | 7.0    |                  |

**MWLN R/L Toolholder Style L- Negative 5° End or Side Cutting Edge Angle for negative 80° trigon WNM\_ inserts**

| Description | UPC #      |           | Shank  |        | WNM_ Gage Insert |
|-------------|------------|-----------|--------|--------|------------------|
|             | Right Hand | Left Hand | Height | Length |                  |
| MWLNRL12-3B | 51262      | 51263     | 0.75   | 4.50   | 332              |
| MWLNRL16-3C | 51264      | 51265     | 1.00   | 5.00   |                  |
| MWLNRL12-4B | 51266      | 51267     | 0.75   | 4.50   |                  |
| MWLNRL12-4D | 51268      | -         | 0.75   | 6.00   |                  |
| MWLNRL16-4C | 51280      | 51281     | 1.00   | 5.00   | 432              |
| MWLNRL16-4D | 51270      | 51271     | 1.00   | 6.00   |                  |
| MWLNRL20-4D | 51274      | 51275     | 1.25   | 6.00   |                  |
| MWLNRL20-4E | 51276      | 51277     | 1.25   | 7.00   |                  |
| MWLNRL85-4E | 51296      | -         | 1.25   | 7.00   | 543              |
| MWLNRL16-5D | 51282      | 51283     | 1.00   | 6.00   |                  |
| MWLNRL20-5D | 51286      | -         | 1.25   | 6.00   |                  |

**CSBP R/L Toolholder Style B- 15° Side Cutting Edge Angle for 11° positive square SPG inserts**

| Description  | UPC #      |           | Shank  |        | SPG Gage Insert |
|--------------|------------|-----------|--------|--------|-----------------|
|              | Right Hand | Left Hand | Height | Length |                 |
| CSBPR/L10-3B | 51300      | -         | 0.625  | 4.50   | 322             |
| CSBPR/L12-3B | 51304      | -         | 0.750  | 4.50   |                 |
| CSBPR/L12-4B | 51308      | 51309     | 0.750  | 4.50   | 422             |

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

| 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  | 322              |
| TAR/L12-3B  | -          | 54412     | 0.750  | 4.500  |                  |
| TAR/L16-4D  | 54417      | 54418     | 1.000  | 6.000  | 432              |

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

| Description | UPC #      |           | Shank  |        | TNM_ Gage Insert |
|-------------|------------|-----------|--------|--------|------------------|
|             | Right Hand | Left Hand | 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              |

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

| Description | UPC #      |           | Shank  |        | SPG Gage Insert |
|-------------|------------|-----------|--------|--------|-----------------|
|             | Right Hand | Left Hand | 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   | 422             |
| CSDPN16-4D  | 51338      | -         | 1.000  | 6.00   |                 |
| CSDPN16-6D  | 51346      | -         | 1.000  | 6.00   | 633             |
| 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**

| 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   | 633             |
| CSRPR/L86-6E | 51376      | 51377     | 1.500  | 7.00   |                 |

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

| 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      | -         | 0.625  | 4.50   | 322              |
| TGR/L12-3B  | 54451      | 54452     | 0.750  | 4.50   |                  |
| TGR/L16-4D  | 54457      | 54458     | 1.000  | 6.00   | 432              |

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

| Description  | UPC #      |           | Shank  |        | TPG Gage Insert |
|--------------|------------|-----------|--------|--------|-----------------|
|              | Right Hand | Left Hand | Height | Length |                 |
| CTAPR/L06-2J | 51382      | -         | 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   | 322             |
| CTAPR/L16-3D | 51402      | 51403     | 1.000  | 6.00   |                 |
| CTAPR/L65-3D | 51406      | 51407     | 1.250  | 6.00   |                 |
| CTAPR/L16-4D | 51410      | 51411     | 1.000  | 6.00   | 432             |
| CTAPR/L85-4D | 51414      | -         | 1.250  | 6.00   |                 |

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

| Description | UPC #   |        | Shank  |  | TPG<br>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   |  | 432                |
| CTCON64-4F  | 51430   | 1.00   | 8.00   |  |                    |
| CTCON66-4F  | 51432   | 1.50   | 8.00   |  |                    |

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

| Description  | UPC #      |           | Shank  |        | TPG<br>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   | 432                |
| CTFPR/L12-4B | 51454      | -         | 0.750  | 4.50   |                    |
| CTFPR/L16-4C | 51458      | 51459     | 1.000  | 5.00   |                    |
| 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**

| Description  | UPC #      |           | Shank  |        | TPG<br>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   | 432                |
| CTGPR/L16-4D | 51504      | 51505     | 1.000  | 6.00   |                    |
| CTGPR/L20-4D | 51508      | 51509     | 1.250  | 6.00   |                    |
| CTGPR/L85-4D | 51512      | 51513     | 1.250  | 6.00   |                    |
| CTGPR/L16-5D | 51516      | 51517     | 1.000  | 6.00   | 543                |
| CTGPR/L20-5D | 51520      | 51521     | 1.250  | 6.00   |                    |
| CTGPR/L24-5E | 51524      | 51525     | 1.500  | 7.00   |                    |

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

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

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

| Description | UPC #      |           | Shank  |        | TEGE<br>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**

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

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

| Description  | UPC #      |           | Shank  |        | CC_T<br>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  | 32.52               |
| SCLCR/L08-3A | 51804      | 51805     | 0.500  | 4.000  |                     |
| SCLCR/L10-3A | -          | 51823     | 0.625  | 4.000  |                     |
| 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**

| Description | UPC #      |           | Shank  |        | CC_T<br>Gage Insert |
|-------------|------------|-----------|--------|--------|---------------------|
|             | Right Hand | Left Hand | 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  | 32.52               |
| SCMCN08-3A  | 51836      |           | 0.500  | 4.000  |                     |
| SCMCN10-3A  | 51831      |           | 0.625  | 4.000  |                     |
| SCMCN10-3B  | 51838      |           | 0.625  | 4.500  |                     |
| SCMCN12-3B  | 51840      |           | 0.750  | 4.500  |                     |
| SCMCN16-3D  | 51832      |           | 1.000  | 6.000  |                     |

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

| Description  | UPC #      |           | Shank  |        | CC_T<br>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  | 32.52               |

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

| Description | UPC #      |           | Shank  |        | CC_T<br>Gage Insert |
|-------------|------------|-----------|--------|--------|---------------------|
|             | Right Hand | Left Hand | 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**

| Description  | UPC #      |           | Shank  |        | CP_T<br>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**

| Description  | UPC #      |           | Shank  |        | CP_T<br>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  |                     |

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

|  | Description  | UPC #      |           | Shank  |        | DC_T<br>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  |                     |
|  | SDJCR/L16-3D | 51892      | -         | 1.000  | 6.000  | 32.52               |
|  | SDJCR/L16-4D | -          | 51901     | 1.000  | 6.000  |                     |
|  |              |            |           |        |        | 432                 |

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

|  | Description | UPC #   |           | Shank  |        | DC_T<br>Gage Insert |
|--|-------------|---------|-----------|--------|--------|---------------------|
|  |             | Neutral | Left Hand | 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  |                     |
|  | SDPCN10-3B  | 51914   | -         | 0.625  | 4.500  |                     |
|  | SDPCN10-3D  | 51945   | -         | 0.625  | 6.000  | 32.52               |
|  | SDPCN12-3B  | 51916   | -         | 0.750  | 4.500  |                     |
|  | SDPCN16-3D  | 51918   | -         | 1.000  | 6.000  |                     |
|  | SDPCN12-4B  | 51920   | -         | 0.750  | 4.500  |                     |
|  | SDPCN16-4D  | 51922   | -         | 1.000  | 6.000  |                     |
|  |             |         |           |        |        | 432                 |

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

|  | 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  |                     |
|  |              |            |           |        |        | 32.52               |

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

|  | Description | UPC #   |           | Shank  |        | RC_T<br>Gage Insert |
|--|-------------|---------|-----------|--------|--------|---------------------|
|  |             | Neutral | Left Hand | Height | Length |                     |
|  | SROCN20-10D | 52169   | -         | 1.250  | 6.000  | 1003MO              |

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

|  | 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 | -          | 52195     | 1.250  | 6.000  |                     |

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

|  | 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      | -         | 0.750  | 4.500  |                     |
|  | SRCCR/L16-08D | -          | 52223     | 1.000  | 6.000  | 0803MO              |
|  | SRCCR/L12-10B | 52226      | 52227     | 0.750  | 4.500  | 1003MO              |

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

|  | Description | UPC #   |           | Shank  |        | RP_T<br>Gage Insert |
|--|-------------|---------|-----------|--------|--------|---------------------|
|  |             | Neutral | Left Hand | Height | Length |                     |
|  | SRPN16-10D  | 52171   | -         | 1.000  | 6.000  | 1003MO              |
|  | SRPN20-10D  | 52172   | -         | 1.250  | 6.000  |                     |

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

|  | 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**

|  | 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**

|  | Description | UPC #   |           | Shank  |        | SC_T<br>Gage Insert |
|--|-------------|---------|-----------|--------|--------|---------------------|
|  |             | Neutral | Left Hand | 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**

|  | 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  |                     |

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

|  | 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**

|  | Description | UPC #      |           | Shank  |        | TC_T<br>Gage Insert |
|--|-------------|------------|-----------|--------|--------|---------------------|
|  |             | Right Hand | Left Hand | Height | Length |                     |
|  | STCCR06-2   | 51578      | -         | 0.375  | 2.50   | 21.51               |
|  | STCCR08-2J  | 51580      | -         | 0.500  | 3.50   |                     |
|  | 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**

|  | UPC #       |            | Shank  |        | TC_T<br>Gage Insert |
|--|-------------|------------|--------|--------|---------------------|
|  | Description | Right Hand | 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**

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

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

|  | UPC #        |            |           | Shank  |        | TC_T<br>Gage Insert |
|--|--------------|------------|-----------|--------|--------|---------------------|
|  | Description  | Right Hand | Left Hand | Height | Length |                     |
|  | STFCR/L06-2  | -          | 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/L16-3D | 51664      | 51665     | 1.000  | 6.000  |                     |
|  | STFCR/L20-4D | 51668      | 51669     | 1.250  | 6.000  | 432                 |

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

|  | UPC #        |            |           | Shank  |        | TC_T<br>Gage Insert |
|--|--------------|------------|-----------|--------|--------|---------------------|
|  | Description  | Right Hand | Left Hand | 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 | -          | 51685     | 0.625  | 4.500  | 32.52               |
|  | STGCR/L12-3B | 51688      | 51689     | 0.750  | 4.500  |                     |
|  | STGCR/L20-4D | -          | 51697     | 1.250  | 6.000  | 432                 |

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

|  | UPC #        |            |           | Shank  |        | TC_T<br>Gage Insert |
|--|--------------|------------|-----------|--------|--------|---------------------|
|  | Description  | Right Hand | Left Hand | 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      | -         | 1.000  | 6.000  | 432                 |
|  | STJCR/L20-4D | 51724      | 51725     | 1.250  | 6.000  |                     |

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

|  | UPC #         |            |           | Shank  |        | TC_T<br>Gage Insert |
|--|---------------|------------|-----------|--------|--------|---------------------|
|  | Description   | Right Hand | Left Hand | 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      | -         | 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  | 432                 |
|  | STNCR/L85-4D  | 51746      | -         | 1.250  | 6.000  |                     |
|  | STNCR/L106-4D | 51748      | 51763     | 1.500  | 6.000  |                     |

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

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

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

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

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

|  | UPC #        |            |           | Shank  |        | VB_T<br>Gage Insert |
|--|--------------|------------|-----------|--------|--------|---------------------|
|  | Description  | Right Hand | Left Hand | Height | Length |                     |
|  | SVJBR/L06-2  | 51984      | 51985     | 0.375  | 2.500  | 221                 |
|  | SVJBR/L08-2J | 51986      | -         | 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 R/L Toolholder Style U - 3° End Cutting Edge Angle  
for 5° positive 35° diamond VB\_T inserts**

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

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

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

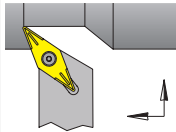
**SVJCR R/L Toolholder Style J - Negative 3° Side Cutting Edge Angle  
for 7° positive 35° diamond VC\_T inserts**

|  | UPC #        |            |           | Shank  |        | VC_T<br>Gage Insert |
|--|--------------|------------|-----------|--------|--------|---------------------|
|  | Description  | Right Hand | Left Hand | Height | Length |                     |
|  | SVJCR/L06-2J | -          | 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/L16-3D | 52048      | 52049     | 1.000  | 6.000  |                     |
|  | SVJCR/L16-4D | 52054      | 52055     | 1.000  | 6.000  | 448                 |

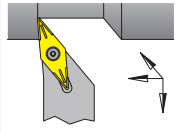
**SVVCN Toolholder Style V - 17.5° Side Cutting Edge Angle  
for 7° positive 35° diamond VC\_T inserts**

|  | UPC #       |         | Shank  |        | VC_T<br>Gage Insert |
|--|-------------|---------|--------|--------|---------------------|
|  | Description | Neutral | Height | Length |                     |
|  | SVVCN20-3D  | 52086   | 1.250  | 6.000  |                     |

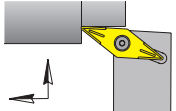
**SVTC R/L Toolholder Style T - 27.5° End Cutting Edge Angle  
for 7° positive 35° diamond VC\_T inserts**

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

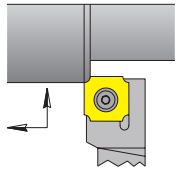
**SVJP R/L Toolholder Style J - Negative 3° Side Cutting Edge Angle  
for 11° positive 35° diamond VP\_T inserts**

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

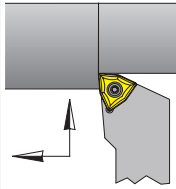
**SVLP R/L Toolholder Style L - 5° End Cutting Edge Angle  
for 11° positive 35° diamond VP\_T inserts**

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

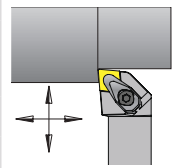
**SSQD R Toolholder Style Q - Convex Radius Cutting Edge  
for 15° positive square convex SDGX inserts**

|                                                                                    | Description   | UPC #         |              | Shank  |        | SDGX<br>Gage Insert |
|------------------------------------------------------------------------------------|---------------|---------------|--------------|--------|--------|---------------------|
|                                                                                    |               | Right<br>Hand | Left<br>Hand | 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_                |
|                                                                                    | SSQDR20-6D-16 | 52146         |              | 1.250  | 6.000  |                     |

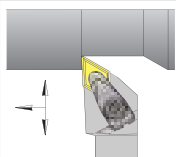
**SWLC R/L Toolholder Style L - Negative 5° End or Side  
Cutting Edge Angle for 7° positive 80° trigon WC\_T inserts**

|                                                                                     | Description  | UPC #         |              | Shank  |        | WC_T<br>Gage Insert |
|-------------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                     |              | Right<br>Hand | Left<br>Hand | Height | Length |                     |
|  | SWLCR/L06-2J | 52096         | 52097        | 0.375  | 3.500  | 21.51               |
|                                                                                     | SWLCR/L08-3A | -             | 52101        | 0.500  | 4.000  |                     |
|                                                                                     | SWLCR/L10-3B | 52104         | 52105        | 0.625  | 4.500  | 32.52               |
|                                                                                     | SWLCR/L12-3B | 52108         | 52109        | 0.750  | 4.500  |                     |
|                                                                                     | SWLCR/L12-4B | 52116         | -            | 0.750  | 4.500  | 432                 |
|                                                                                     | 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**

|                                                                                     | Description  | UPC #         |              | Shank  |        | CNM_<br>Gage Insert |
|-------------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                     |              | Right<br>Hand | Left<br>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**

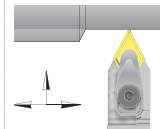
|                                                                                     | Description  | UPC #         |              | Shank  |        | DNM_<br>Gage Insert |
|-------------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                     |              | Right<br>Hand | Left<br>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                 |

**NEW**

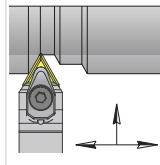
**Single Clamp Toolholders**



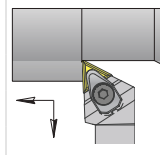
**DDPNN Toolholder Style P - 27.5° side cutting lead angle  
for negative 55° diamond DNM\_ inserts**

|                                                                                    | Description | UPC #   |              | Shank  |        | DNM_<br>Gage Insert |
|------------------------------------------------------------------------------------|-------------|---------|--------------|--------|--------|---------------------|
|                                                                                    |             | Neutral | Left<br>Hand | 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                 |

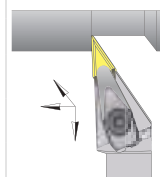
**DTENN Toolholder Style E - 30° side cutting lead angle  
for negative triangle TNM\_ inserts**

|                                                                                     | Description | UPC #   |              | Shank  |        | TNM_<br>Gage Insert |
|-------------------------------------------------------------------------------------|-------------|---------|--------------|--------|--------|---------------------|
|                                                                                     |             | Neutral | Left<br>Hand | 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                 |

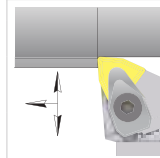
**DTJN R/L Toolholder Style J - 3° side cutting lead angle  
for negative triangle TNM\_ inserts**

|                                                                                      | Description  | UPC #         |              | Shank  |        | TNM_<br>Gage Insert |
|--------------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                      |              | Right<br>Hand | Left<br>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                 |

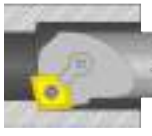
**DVJN R/L Toolholder Style J - Negative 3° side cutting lead angle  
for negative 35° diamond VNM\_ inserts**

|                                                                                      | Description  | UPC #         |              | Shank  |        | VNM_<br>Gage Insert |
|--------------------------------------------------------------------------------------|--------------|---------------|--------------|--------|--------|---------------------|
|                                                                                      |              | Right<br>Hand | Left<br>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                 |

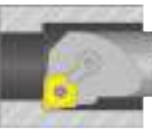
**DWLN R/L Toolholder Style L - Negative 5° end or side cutting  
lead angle for negative 80° trigon WNM\_ inserts**

|                                                                                      | Description | UPC #         |              | Shank  |        | WNM_<br>Gage Insert |
|--------------------------------------------------------------------------------------|-------------|---------------|--------------|--------|--------|---------------------|
|                                                                                      |             | Right<br>Hand | Left<br>Hand | Height | Length |                     |
|  | DWLN/L12-4B | 53848         | 53849        | 0.75   | 4.50   | 432                 |
|                                                                                      | DWLN/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**

|                                                                                  | 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     | 432              |
|                                                                                  | S32V-MCKNR/L-5 | 54998      | 54999     | 2.400     | 2.00     | 543              |

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

|                                                                                  | 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     | 322              |
|                                                                                  | S12S-MCLNR/L-4 | 55006      | 55007     | 1.000     | 0.75     | 432              |
|                                                                                  | 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     |                  |
|                                                                                  | S24U-MCLNR/L-5 | 55026      | 55027     | 2.374     | 1.50     | 543              |
|                                                                                  | S32V-MCLNR/L-5 | 55030      | 55031     | 2.562     | 2.00     |                  |
|                                                                                  | S40V-MCLNR/L-5 | 55034      | 55035     | 3.062     | 2.50     |                  |
|                                                                                  | S48Y-MCLNR/L-5 | 55038      | 55039     | 3.562     | 3.00     |                  |
|                                                                                  | S32V-MCLNR/L-6 | 55042      | 55043     | 2.562     | 2.00     | 643              |
|                                                                                  | S36V-MCLNR/L-6 | 55046      | -         | 2.812     | 2.25     |                  |
|                                                                                  | 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**

|                                                                                   | 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     |                  |

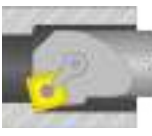
**S-MDQN R/L Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for negative 55° diamond DNM\_ inserts**

|                                                                                    | 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     |                  |

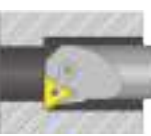
**S-MDUN R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for negative 55° diamond DNM\_ inserts**

|                                                                                    | 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     | 432              |
|                                                                                    | 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     |                  |

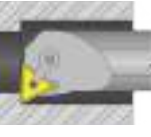
**S-MSKN R/L Boring Bar Style K - 15° End Cutting Edge Angle for negative square SNM\_ inserts**

|                                                                                    | 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     | 432              |
|                                                                                    | S28U-MSKNR-4   | 55104      | -         | 2.01      | 1.75     |                  |
|                                                                                    | S32V-MSKNR/L-6 | 55106      | 55107     | 2.40      | 2.00     | 643              |
|                                                                                    | S40V-MSKNR/L-6 | 55108      | 55109     | 3.03      | 2.50     |                  |

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

|                                                                                   | 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     | 322              |
|                                                                                   | S20U-MTFNR/L-3 | 55158      | 55159     | 1.530     | 1.25     |                  |
|                                                                                   | 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     | 432              |
|                                                                                   | 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**

|                                                                                   | 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     | 322              |
|                                                                                   | S20U-MTUNR/L-3 | 55212      | 55213     | 1.530     | 1.25     |                  |
|                                                                                   | S24U-MTUNR/L-3 | 55216      | 55217     | 2.060     | 1.50     | 332              |
|                                                                                   | 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     |                  |

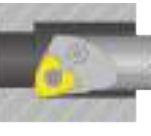
**S-MVUN R/L Boring Bar Style U - Negative 3° Side Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

|                                                                                    | 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     | 332              |
|                                                                                    | S24U-MVUNR/L-3 | 55274      | 55275     | 2.50      | 1.50     |                  |
|                                                                                    | S28U-MVUNR/L-4 | 55278      | 55279     | 3.00      | 1.75     | 432              |
|                                                                                    | S32V-MVUNR/L-4 | 55282      | 55283     | 3.25      | 2.00     |                  |
|                                                                                    | S40V-MVUNR/L-4 | 55290      | 55291     | 3.75      | 2.50     |                  |

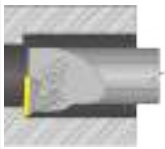
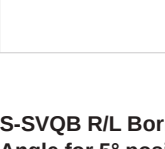
**S-MVXN R/L Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for negative 35° diamond VNM\_ inserts**

|                                                                                     | 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              |

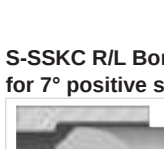
**S-MWLN R/L Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for negative trigon WNM\_ inserts**

|                                                                                     | 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     | 332              |
|                                                                                     | S16T-MWLN/L-4 | 55322      | 55323     | 1.28      | 1.00     | 432              |
|                                                                                     | S20U-MWLN/L-4 | 55326      | 55327     | 1.53      | 1.25     | 432              |
|                                                                                     | S24U-MWLN/L-4 | 55330      | 55331     | 1.78      | 1.50     |                  |

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

|                                                                                   | 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    | 322             |
|                                                                                   | 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    | 432             |
|                                                                                   | S36V-CTFPR/L-4 | 55396      | 55397     | 2.880     | 2.250    |                 |
|                                                                                   | S40V-CTFPR/L-4 | -          | 55401     | 3.062     | 2.500    |                 |
|                                                                                   | S48Y-CTFPR/L-4 | 55404      | 55405     | 3.562     | 3.000    |                 |

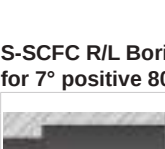
**S-SDXC R/L Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 7° positive 55° diamond DC\_T inserts**

|                                                                                    | 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    | 32.52            |
|                                                                                    | S16T-SDXCR/L-3 | 55432      | 55433     | 1.30      | 1.000    |                  |

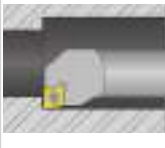
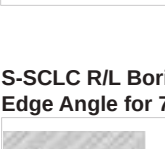
**S-SSKC R/L Boring Bar Style K -15° End Cutting Edge Angle for 7° positive square SC\_T inserts**

|                                                                                    | 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      | -         | 0.975     | 0.750    |                  |
|  | S16T-SSKCR-4   | 55597      | -         | 1.220     | 1.000    | 432              |

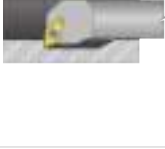
**S-SVQB R/L Boring Bar Style Q - Negative 5° End Cutting Edge Angle for 5° positive 35° diamond VB\_T inserts**

|                                                                                   | 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              |

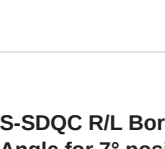
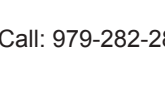
**S-SCFC R/L Boring Bar Style F - 0° End Cutting Edge Angle for 7° positive 80° diamond CC\_T inserts**

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

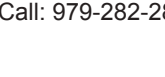
**S-SCLC R/L Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC\_T inserts**

|                                                                                     | Description    | UPC #      |           | Min. Bore | Bar Size | CC_T Gage Insert |
|-------------------------------------------------------------------------------------|----------------|------------|-----------|-----------|----------|------------------|
|                                                                                     |                | Right Hand | Left Hand |           |          |                  |
|  | S06M-SCLCR/L-2 | 55470      | 55471     | 0.477     | 0.375    |                  |
|                                                                                     | S08M-SCLCR/L-2 | 55474      | 55475     | 0.602     | 0.500    | 21.51            |
|  | S10R-SCLCR/L-2 | 55478      | 55479     | 0.812     | 0.625    |                  |
|                                                                                     | S08M-SCLCR/L-3 | 55482      | 55483     | 0.625     | 0.500    | 32.52            |
|  | S10R-SCLCR/L-3 | 55486      | 55487     | 0.797     | 0.625    |                  |
|                                                                                     | S12S-SCLCR/L-3 | 55490      | 55491     | 0.954     | 0.750    | 32.52            |
|  | S16T-SCLCR/L-3 | 55494      | 55495     | 1.250     | 1.000    |                  |
|                                                                                     | S16T-SCLCR/L-4 | 55498      | 55499     | 1.280     | 1.000    | 432              |
|  | S20U-SCLCR/L-4 | 55502      | 55503     | 1.530     | 1.250    |                  |
|                                                                                     | S24U-SCLCR/L-4 | 55506      | 55507     | 1.780     | 1.500    |                  |

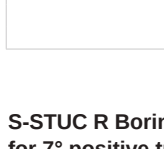
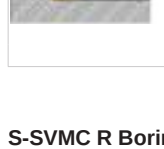
**S-SDUC R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC\_T inserts**

|                                                                                     | Description    | UPC #      |           | Min. Bore | Bar Size | DC_T Gage Insert |
|-------------------------------------------------------------------------------------|----------------|------------|-----------|-----------|----------|------------------|
|                                                                                     |                | Right Hand | Left Hand |           |          |                  |
|  | S06M-SDUCR/L-2 | 55560      | 55561     | 0.625     | 0.375    |                  |
|                                                                                     | S08M-SDUCR/L-2 | 55564      | 55565     | 0.780     | 0.500    | 21.51            |
|  | S10R-SDUCR/L-2 | 55568      | 55569     | 0.840     | 0.625    |                  |
|                                                                                     | S12S-SDUCR/L-3 | 55572      | 55573     | 1.125     | 0.750    | 32.52            |
|  | S16T-SDUCR/L-3 | 55576      | 55577     | 1.500     | 1.000    |                  |
|                                                                                     | S20U-SDUCR/L-3 | 55580      | 55581     | 1.750     | 1.250    | 432              |
|  | S16T-SDUCR/L-4 | 55582      | 55583     | 1.500     | 1.000    |                  |

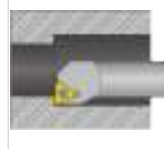
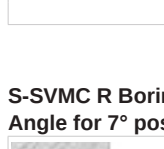
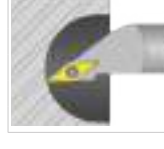
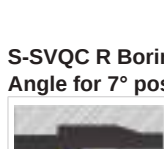
**S-SDQC R/L Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for 7° positive 55° diamond DC\_T inserts**

|                                                                                     | 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    | 32.52            |

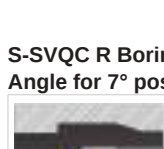
**S-STFC R/L Boring Bar Style F - 0° End Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|                                                                                      | Description    | UPC #      |           | Min. Bore | Bar Size | TC_T Gage Insert |
|--------------------------------------------------------------------------------------|----------------|------------|-----------|-----------|----------|------------------|
|                                                                                      |                | Right Hand | Left Hand |           |          |                  |
|    | S06M-STFCR/L-2 | 55600      | 55601     | 0.500     | 0.375    |                  |
|                                                                                      | S08M-STFCR/L-2 | 55604      | 55605     | 0.625     | 0.500    | 21.51            |
|    | S10R-STFCR/L-2 | 55608      | 55609     | 0.812     | 0.625    |                  |
|                                                                                      | S12S-STFCR/L-2 | 55612      | 55613     | 1.000     | 0.750    | 32.52            |
|   | S16T-STFCR/L-3 | 55616      | 55617     | 1.280     | 1.000    |                  |
|                                                                                      | S20U-STFCR/L-3 | 55620      | 55621     | 1.530     | 1.250    |                  |
|  | S24U-STFCL-3   | -          | 55625     | 1.780     | 1.500    |                  |

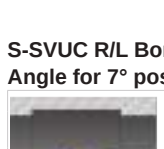
**S-STUC R Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC\_T inserts**

|                                                                                      | Description  | UPC #      |           | Min. Bore | Bar Size | TC_T Gage Insert |
|--------------------------------------------------------------------------------------|--------------|------------|-----------|-----------|----------|------------------|
|                                                                                      |              | Right Hand | Left Hand |           |          |                  |
|   | S06M-STUCR-2 | 55628      | -         | 0.477     | 0.375    |                  |
|                                                                                      | S08M-STUCR-2 | 55629      | -         | 0.602     | 0.500    | 21.51            |
|  | S10R-STUCR-2 | 55630      | -         | 0.797     | 0.625    |                  |
|                                                                                      | S12S-STUCR-3 | 55631      | -         | 0.954     | 0.750    | 32.52            |
|  | S16T-STUCR-3 | 55632      | -         | 1.280     | 1.000    |                  |
|                                                                                      | S20T-STUCR-4 | 55633      | -         | 1.370     | 1.250    | 432              |
|  | S24T-STUCR-4 | 55634      | -         | 1.680     | 1.500    |                  |

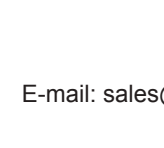
**S-SVMC R Boring Bar Style M - Negative 5° Side Cutting Edge Angle for 7° positive 35° diamond VC\_T inserts**

|                                                                                      | 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    | 332              |
|                                                                                      | 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**

|                                                                                      | 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    | 332              |

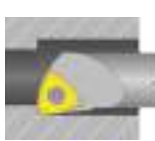
**S-SVUC R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 35° diamond VC\_T inserts**

|                                                                                      | 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     | 332              |
|                                                                                      | 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**

|                                                                                  | 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     | 332              |
|                                                                                  | 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**

|                                                                                  | 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    | 32.52            |
|                                                                                  | 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    | 432              |
|                                                                                  | 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**

|                                                                                  | Description  | UPC #      |           | Min. Bore | Bar Size | CP_T Gage Insert |
|----------------------------------------------------------------------------------|--------------|------------|-----------|-----------|----------|------------------|
|                                                                                  |              | Right Hand | Left Hand |           |          |                  |
|  | 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**

|                                                                                    | 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    | 32.52            |
|                                                                                    | S12S-SCLPR/L-3 | 55769      | 55770     | 0.93      | 0.750    |                  |
|                                                                                    | 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**

|                                                                                    | 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    | 32.52            |
|                                                                                    | S16T-SDUPR/L-3 | 55782      | 55783     | 1.30      | 1.000    |                  |

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

|                                                                                    | 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    |                  |

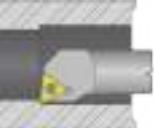
**S-STFP R/L Boring Bar Style F - 0° End Cutting Edge Angle for 11° positive triangle TPGB and TPGH inserts**

|                                                                                    | 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             |

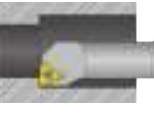
**S-STLP R Boring Bar Style L - Negative 5° End Cutting Edge Angle for 11° positive triangle TPGH and TPGB inserts**

|                                                                                   | 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    | 322             |
|                                                                                   | S16T-STLPR-3 | 55854      | -         | 1.115     | 1.000    |                 |
|                                                                                   | S20T-STLPR-3 | 55856      | -         | 1.370     | 1.250    |                 |

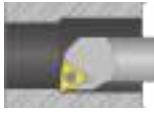
**S-STUP R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 11° positive triangle TPGH and TPGB inserts**

|                                                                                   | 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     | 432             |
|                                                                                   | S32V-STUPR-4   | 55706      | -         | 2.62      | 2.00     |                 |
|                                                                                   | S40V-STUPR-4   | 55714      | -         | 3.12      | 2.50     |                 |

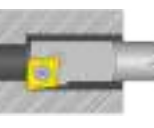
**STCMB Boring Bar - Roughing to Finishing, Square Shoulders to Through Bores for 7° positive triangle TCMT Inserts**

|                                                                                   | 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    | 32.52            |
|                                                                                   | STCMB16-3   | 55746      | -         | 1.115     | 1.000    |                  |
|                                                                                   | STCMB20-4   | 55748      | -         | 1.370     | 1.250    | 432              |

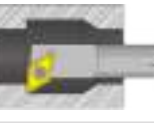
**TPBN Boring Bar - Roughing to Finishing, Square Shoulders to Through Bores for 11° positive triangle TPGH or TPGB Inserts**

|                                                                                     | 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    | 322            |
|                                                                                     | TPBN16-3    | 55666      | -         | 1.115     | 1.000    |                |
|                                                                                     | TPBN20-3    | 55668      | -         | 1.370     | 1.250    |                |
|                                                                                     | TPBN20-4    | 55670      | -         | 1.370     | 1.250    | 432            |
|                                                                                     | TPBN24-4    | 55672      | -         | 1.680     | 1.500    |                |

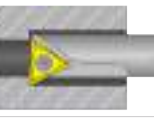
**MINI S-SCLC R/L Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 7° positive 80° diamond CC\_T inserts**

|                                                                                     | 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     |                  |

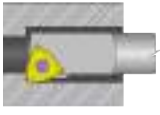
**MINI S-SDUC R/L Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive 55° diamond DC\_T inserts**

|                                                                                     | 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**

|                                                                                     | Description      | UPC #      |           | Min. Bore | Bar Size | TC_T Gage Insert |
|-------------------------------------------------------------------------------------|------------------|------------|-----------|-----------|----------|------------------|
|                                                                                     |                  | Right Hand | Left Hand |           |          |                  |
|  | S08H-STUCR-1.2-2 | 55724      | -         | .286      | .500     | 1.21.20.5        |
|                                                                                     | 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**

|                                                                                   | UPC #            |            | Min. Bore | Bar Size | WC_T Gage Insert |
|-----------------------------------------------------------------------------------|------------------|------------|-----------|----------|------------------|
|                                                                                   | Description      | Right Hand |           |          |                  |
|  | S08H-SWUCR-1.2-2 | 55900      | .228      | .500     | 1.210.0          |
|                                                                                   | S08H-SWUCR-1.2-3 | 55902      | .308      | .500     |                  |
|                                                                                   | S08H-SWUCR-1.2-4 | 55904      | .374      | .500     |                  |
|                                                                                   | S06H-SWUCR-2     | 55906      | .394      | .375     | 21.51            |
|                                                                                   | S08K-SWUCR-2     | 55907      | .550      | .500     |                  |
|                                                                                   | S10M-SWUCR-2     | 55908      | .708      | .625     |                  |

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

|                                                                                    | UPC #       |            | Min. Bore | Bar Size | TC_T Gage Insert |
|------------------------------------------------------------------------------------|-------------|------------|-----------|----------|------------------|
|                                                                                    | Description | Right Hand |           |          |                  |
|  | 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    |                  |

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

|                                                                                   | UPC #       |            | Min. Bore | Bar Size | CNM_ Gage Insert |
|-----------------------------------------------------------------------------------|-------------|------------|-----------|----------|------------------|
|                                                                                   | Description | Right Hand |           |          |                  |
|  | 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**

|                                                                                   | UPC #       |            | Min. Bore | Bar Size | TNM_ Gage Insert |
|-----------------------------------------------------------------------------------|-------------|------------|-----------|----------|------------------|
|                                                                                   | Description | Right Hand |           |          |                  |
|  | 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**

|                                                                                    | UPC #           |            | Min. Bore | Bar Size | TNM_ Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|----------|------------------|
|                                                                                    | Description     | Right Hand |           |          |                  |
|  | S20R-DTUN-3-T16 | 57578      | 1.75      | 1.25     | 322              |
|                                                                                    | 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**

|                                                                                     | UPC #       |            | Min. Bore | Bar Size | WNM_ Gage Insert |
|-------------------------------------------------------------------------------------|-------------|------------|-----------|----------|------------------|
|                                                                                     | Description | Right Hand |           |          |                  |
|  | 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**

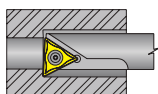
|                                                                                     | UPC #       |            | Min. Bore | Bar Size | CC_T Gage Insert |
|-------------------------------------------------------------------------------------|-------------|------------|-----------|----------|------------------|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

**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**

|                                                                                     | UPC #           |            | Min. Bore | Bar Size | TC_T Gage Insert |
|-------------------------------------------------------------------------------------|-----------------|------------|-----------|----------|------------------|
|                                                                                     | Description     | Right Hand |           |          |                  |
|  | 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



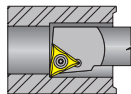
x 10 PCS.



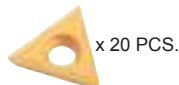
| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                                |            |               |
|--------------|---------------|--------------|-----------------------|--------------------------------|------------|---------------|
|              |               |              | 3 Boring Bars         | 10 Inserts                     | 1 Torx Key | 1 Storage Box |
| 85076        | 0.500         | 0.286        | S08H-STUCR-1.2-2      | TCMT-1.21.20.2-<br>PEF-DPC25UT | T-6        | Storage Box   |
|              | 0.500         | 0.313        | S08H-STUCR-1.2-3      |                                |            |               |
|              | 0.500         | 0.374        | 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



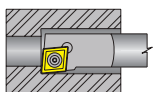
x 20 PCS.



| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 27 Piece Set Includes |                                |             |               |
|--------------|---------------|--------------|-----------------------|--------------------------------|-------------|---------------|
|              |               |              | 4 Boring Bars         | 20 Inserts                     | 2 Torx Keys | 1 Storage Box |
| 85086        | 0.500         | 0.430        | TPBN06-2              | (10) TPGH-21.51-<br>EZ-DPP30GT | T-8         | Storage Box   |
|              | 0.500         | 0.590        | TPBN08-2              |                                |             |               |
|              | 0.625         | 0.682        | TPBN10-2              | (10) TPGH-321-<br>EZ-DPP30GT   | T-10        |               |
|              | 0.750         | 0.845        | 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



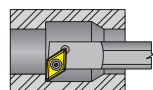
x 10 PCS.



| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                            |            |               |
|--------------|---------------|--------------|-----------------------|----------------------------|------------|---------------|
|              |               |              | 3 Boring Bars         | 10 Inserts                 | 1 Torx Key | 1 Storage Box |
| 85064        | 0.375         | 0.394        | S06H-SCLCR-2          | CCMT-21.51-<br>PEM-DPC25UT | T-8        | Storage Box   |
|              | 0.500         | 0.550        | S08K-SCLCR-2          |                            |            |               |
|              | 0.625         | 0.708        | 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



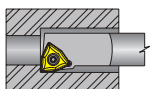
x 10 PCS.



| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                            |            |               |
|--------------|---------------|--------------|-----------------------|----------------------------|------------|---------------|
|              |               |              | 3 Boring Bars         | 10 Inserts                 | 1 Torx Key | 1 Storage Box |
| 85068        | 0.375         | 0.492        | S06H-SDUCR-2          | DCMT-21.51-<br>PEF-DPC25UT | T-8        | Storage Box   |
|              | 0.500         | 0.610        | S08K-SDUCR-2          |                            |            |               |
|              | 0.625         | 0.768        | 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



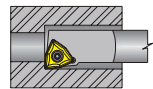
x 10 PCS.



| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                            |            |               |
|--------------|---------------|--------------|-----------------------|----------------------------|------------|---------------|
|              |               |              | 3 Boring Bars         | 10 Inserts                 | 1 Torx Key | 1 Storage Box |
| 85072        | .375          | .394         | S06H-SWUCR-2          | WCGT-21.51-<br>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



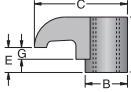
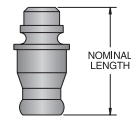
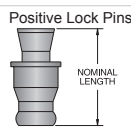
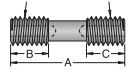
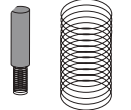
- Precision finishing operation
- For steel & stainless steel
- Sharp cutting edge
- Good chip control



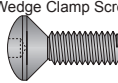
x 10 PCS.

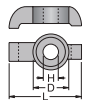


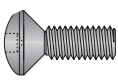
| Set<br>UPC # | Shank<br>Size | Min.<br>Bore | 15 Piece Set Includes |                              |            |               |
|--------------|---------------|--------------|-----------------------|------------------------------|------------|---------------|
|              |               |              | 3 Boring Bars         | 10 Inserts                   | 1 Torx Key | 1 Storage Box |
| 85070        | .500          | .228         | S08H-SWUCR-1.2-2      | WCMT-1.210.2-<br>PEF-DPC25UT | T-6        | Storage Box   |
|              | .500          | .308         | S08H-SWUCR-1.2-3      |                              |            |               |
|              | .500          | .374         | S08H-SWUCR-1.2-4      |                              |            |               |

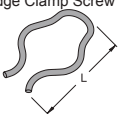
|                                                                                                                                                                               |                                                                                                                           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

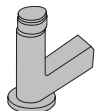
|                                                                                    |                    |              |                  |  |  |             |
|------------------------------------------------------------------------------------|--------------------|--------------|------------------|--|--|-------------|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

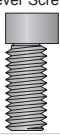
|                                                                                    |                    |              |               |               |                        |             |
|------------------------------------------------------------------------------------|--------------------|--------------|---------------|---------------|------------------------|-------------|
|  | <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          |
|                                                                                    |                    |              |               |               |                        |             |

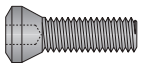
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|-----------------------------------------------------------------------------------|--------------------|--------------|----------|----------|----------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>L</b> | <b>D</b> | <b>H</b> | <b>PKG.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

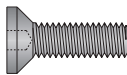
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|------------------------------------------------------------------------------------|--------------------|--------------|---------------|---------------|------------------------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>Length</b> | <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                   |             |

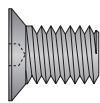
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|------------------------------------------------------------------------------------|--------------------|--------------|---------------|--|--|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>Length</b> |  |  | <b>PKG.</b> |
|          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

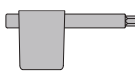
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|------------------------------------------------------------------------------------|--------------------|--------------|-------------|--|--|--|
|  | <b>Description</b> | <b>UPC #</b> | <b>PKG.</b> |  |  |  |
|                                    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

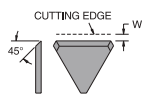
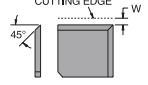
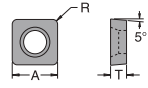
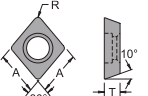
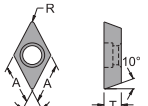
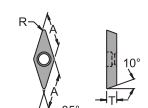
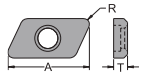
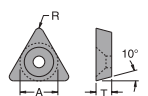
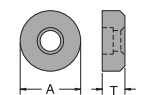
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|------------------------------------------------------------------------------------|--------------------|--------------|--------------|------------------------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>Lever</b> | <b>Hex Wrench Size</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                    |             |
|                                                                                    |                    |              |              |                        |             |
|                                                                                    |                    |              |              |                        |             |

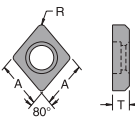
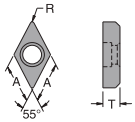
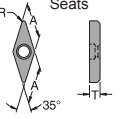
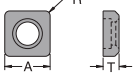
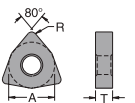
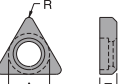
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|--------------------------------------------------------------------------------------|--------------------|--------------|-------------|-----------------|-------------|
|  | <b>Description</b> | <b>UPC #</b> | <b>I.C.</b> | <b>Torx Key</b> | <b>PKG.</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            |             |
|                                                                                      | 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        |                    |              |
|                                                                                      |                    |              |                    |              |

|                                                                                                                       |             |       |      |       |                   |      |      |
|-----------------------------------------------------------------------------------------------------------------------|-------------|-------|------|-------|-------------------|------|------|
| Triangle Chip breakers<br>            | Description | UPC # | I.C. |       | Effective Width W |      | PKG. |
|                                                                                                                       | T2AC        | 90446 | .250 | .060  |                   | 10   |      |
|                                                                                                                       | T3AC        | 90452 | .375 | .060  |                   |      |      |
|                                                                                                                       | T3AE        | 90453 | .375 | .090  |                   |      |      |
|                                                                                                                       | T3AG        | 90454 | .375 | .125  |                   |      |      |
|                                                                                                                       | T4AC        | 90459 | .500 | .060  |                   |      |      |
|                                                                                                                       | T4AE        | 90460 | .500 | .090  |                   |      |      |
|                                                                                                                       | T4AG        | 60461 | .500 | .125  |                   |      |      |
|                                                                                                                       | T5AC        | 90465 | .625 | .100  |                   |      |      |
|                                                                                                                       | T5AG        | 90466 | .625 | .140  |                   |      |      |
| T5AJ                                                                                                                  | 90467       | .625  | .180 |       |                   |      |      |
| Square Chip breakers<br>              | Description | UPC # | I.C. |       | Effective Width W |      | PKG. |
|                                                                                                                       | S3BC        | 90440 | .375 | .060  |                   | 10   |      |
|                                                                                                                       | S4BE        | 90442 | .500 | .060  |                   |      |      |
|                                                                                                                       | S6BG        | 90444 | .750 | .125  |                   |      |      |
| Positive Square Shim Seats<br>        | 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   |      |
| Positive 80° Diamond Shim Seats<br>  | Description | UPC # | A    | T     | R                 | PKG. |      |
|                                                                                                                       | Metric      |       |      |       |                   |      |      |
|                                                                                                                       | S8012P      | 53291 | 11,4 | 3,18  | 0,8               | 10   |      |
| Positive 55° Diamond Shim Seats<br> | Description | UPC # | A    | T     | R                 | PKG. |      |
|                                                                                                                       | Metric      |       |      |       |                   |      |      |
|                                                                                                                       | S5515P      | 91351 | 8,4  | 3,18  | 0,8               | 10   |      |
| Positive 35° Diamond Shim Seats<br> | Description | UPC # | A    | T     | R                 | PKG. |      |
|                                                                                                                       | Metric      |       |      |       |                   |      |      |
|                                                                                                                       | S3516P      | 53299 | 8,4  | 3,18  | 0,8               | 10   |      |
|                                                                                                                       | S3516       | 91350 | 8,4  | 3,18  | 0,8               |      |      |
| Profiling Shim Seats<br>            | Description | UPC # | A    | T     | R                 | PKG. |      |
|                                                                                                                       | Metric      |       |      |       |                   |      |      |
|                                                                                                                       | CKN16R      | 91353 | 14,5 | 4,76  | 1,0               | 10   |      |
| CKN16L                                                                                                                | 91354       | 14,5  | 4,76 | 1,0   |                   |      |      |
| Positive Triangle Shim Seats<br>    | 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   |      |
| Positive Round Shim Seats<br>       | 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>  | Description                                                                                                              |             | UPC # |       | A     |       | T  |    | R |   | PKG. |      |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------|-------|-------|-------|-------|----|----|---|---|------|------|
|                                                                                                                         | Inch                                                                                                                     |             |       |       |       |       |    |    |   |   | 10   |      |
|                                                                                                                         | ICSN-322                                                                                                                 | 90003       | .375  | .1250 | .0312 |       |    |    |   |   |      |      |
|                                                                                                                         | 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>  | Description                                                                                                              |             | UPC # |       | A     |       | T  |    | R |   | PKG. |      |
|                                                                                                                         | Inch                                                                                                                     |             |       |       |       |       |    |    |   |   | 10   |      |
|                                                                                                                         | IDSN-322                                                                                                                 | 90016       | .375  | .1250 | .0312 |       |    |    |   |   |      |      |
|                                                                                                                         | IDSN-423                                                                                                                 | 90018       | .500  | .1250 | .0469 |       |    |    |   |   |      |      |
|                                                                                                                         | IDSN-433                                                                                                                 | 90021       | .500  | .1875 | .0469 |       |    |    |   |   |      |      |
|                                                                                                                         | IDSN-533                                                                                                                 | 90024       | .625  | .1875 | .0469 |       |    |    |   |   |      |      |
|                                                                                                                         | IDSN-534                                                                                                                 | 90025       | .625  | .1875 | .0625 |       |    |    |   |   |      |      |
|                                                                                                                         | JD-432                                                                                                                   | 90113       | .500  | .1875 | .0312 |       |    |    |   |   |      |      |
|                                                                                                                         | Metric                                                                                                                   |             |       |       |       |       |    |    |   |   |      |      |
|                                                                                                                         | S5515N                                                                                                                   | 91360       | 11,8  | 3,18  | 1,2   |       | 10 |    |   |   |      |      |
|                                                                                                                         | <div>Negative 35° Diamond Seats</div>   | Description |       | UPC # |       | A     |    | T  |   | R |      | PKG. |
|                                                                                                                         |                                                                                                                          | 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>       |                                                                                                                          | Description |       | UPC # |       | A     |    | T  |   | R |      | PKG. |
|                                                                                                                         |                                                                                                                          | Inch        |       |       |       |       |    |    |   |   |      | 10   |
|                                                                                                                         |                                                                                                                          | ISSN-322    | 90050 | .375  | .1250 | .0312 |    |    |   |   |      |      |
|                                                                                                                         |                                                                                                                          | ISSN-323    | 90051 | .375  | .1250 | .0469 |    |    |   |   |      |      |
|                                                                                                                         |                                                                                                                          | ISSN-333    | 90054 | .375  | .1875 | .0469 |    |    |   |   |      |      |
|                                                                                                                         |                                                                                                                          | ISSN-423    | 90056 | .500  | .1250 | .0469 |    |    |   |   |      |      |
|                                                                                                                         |                                                                                                                          | ISSN-433    | 90059 | .500  | .1875 | .0469 |    |    |   |   |      |      |
|                                                                                                                         |                                                                                                                          | ISSN-533    | 90060 | .625  | .1875 | .0469 |    |    |   |   |      |      |
|                                                                                                                         |                                                                                                                          | ISSN-633    | 90062 | .750  | .1875 | .0469 |    |    |   |   |      |      |
|                                                                                                                         | ISSN-634                                                                                                                 | 90063       | .750  | .1875 | .0625 |       |    |    |   |   |      |      |
|                                                                                                                         | ISSN-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>      | Description                                                                                                              |             | UPC # |       | A     |       | T  |    | R |   | PKG. |      |
|                                                                                                                         | IRSN-32                                                                                                                  | 90030       | .375  | .1250 |       |       | 10 |    |   |   |      |      |
|                                                                                                                         | IRSN-43                                                                                                                  | 90031       | .500  | .1875 |       |       |    |    |   |   |      |      |
|                                                                                                                         | IRSN-53                                                                                                                  | 90032       | .625  | .1875 |       |       |    |    |   |   |      |      |
|                                                                                                                         | IRSN-63                                                                                                                  | 90033       | .750  | .1875 |       |       |    |    |   |   |      |      |
|                                                                                                                         | IRSN-84                                                                                                                  | 90034       | 1.00  | .2500 |       |       |    |    |   |   |      |      |
|                                                                                                                         | <div>Negative 80° Trigon Seats</div>  | Description |       | UPC # |       | A     |    | T  |   | R |      | PKG. |
|                                                                                                                         |                                                                                                                          | Inch        |       |       |       |       |    |    |   |   |      | 10   |
|                                                                                                                         |                                                                                                                          | IWSN-322    | 90070 | .375  | .1250 | .0312 |    |    |   |   |      |      |
|                                                                                                                         |                                                                                                                          | 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>   |                                                                                                                          | Description |       | UPC # |       | A     |    | T  |   | R |      | PKG. |
|                                                                                                                         |                                                                                                                          | Inch        |       |       |       |       |    |    |   |   |      | 10   |
|                                                                                                                         |                                                                                                                          | ITSN-322    | 90084 | .375  | .1250 | .0312 |    |    |   |   |      |      |
|                                                                                                                         |                                                                                                                          | 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 |       |    |    |   |   |      |      |
| JT-322                                                                                                                  | 90117                                                                                                                    | .375        | .1250 | .0312 |       |       |    |    |   |   |      |      |
| JT-433                                                                                                                  | 90116                                                                                                                    | .500        | .1875 | .0469 |       |       |    |    |   |   |      |      |
| Metric                                                                                                                  |                                                                                                                          |             |       |       |       |       |    |    |   |   |      |      |
| S6016P                                                                                                                  | 91363                                                                                                                    | 8,4         | 3,18  | 0,8   |       | 10    |    |    |   |   |      |      |

# Jet-Stream™

Changing the way metal is cut!



## DOUBLE-JET COOLANT SYSTEM Turning-Boring-Threading

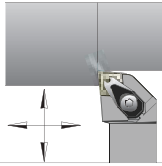


### On Target at the Cutting Edge

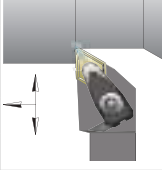
- Performance
- Quality
- Surface finish
- Insert life
- Chip control



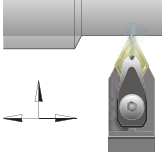
### ADCLN R/L Toolholder Style L - 5° end or side cutting lead angle for negative 80° diamond CNM\_ inserts

| Turning                                                                          | Description    | UPC #      |           | Shank  |        | CNM_<br>Gage Insert | Seat   | Seat<br>Screw | Dor-Lock<br>Clamp | Clamp<br>Screw | Bottom Port<br>Nozzle |
|----------------------------------------------------------------------------------|----------------|------------|-----------|--------|--------|---------------------|--------|---------------|-------------------|----------------|-----------------------|
|                                                                                  |                | Right Hand | Left Hand | Height | Length |                     |        |               |                   |                |                       |
|  | ADCLNR/L-12-4B | 53000      | 53001     | 0.75   | 4.50   | 432                 | JC-432 | SM-M4-6       | JSLC-HPCTW-4N     | JSCS-04        | JSBP-M4-039           |
|                                                                                  | ADCLNR/L-16-4D | 53002      | 53003     | 1.00   | 6.00   | 432                 | JC-432 | SM-M4-8       | JSLC-HPCTW-4N     | JSCS-04        | JSBP-M4-039           |
|                                                                                  | ADCLNR/L-20-4D | 53004      | 53005     | 1.25   | 6.00   | 432                 | JC-432 | SM-S4         | JSLC-HPCTW-4N     | JSCS-04        | JSBPE-M4-039          |
|                                                                                  | ADCLNR/L-20-5D | 53006      | 53007     | 1.25   | 6.00   | 543                 | JC-533 | SM-M6         | JSLC-HPC5         | JSCS-04        | JSBPE-M4-039          |
|                                                                                  | ADCLNR/L-20-6E | 53012      | -         | 1.25   | 7.00   | 643                 | JC-633 | SM-M6         | JSLC-HPC6         | JSCS-06        | JSBPE-M4-039          |
|                                                                                  | ADCLNR/L-24-4E | 53008      | 53009     | 1.50   | 7.00   | 432                 | JC-432 | SM-S4         | JSLC-HPCTW-4N     | JSCS-04        | JSBPE-M4-039          |
|                                                                                  | ADCLNR/L-24-5E | 53010      | 53011     | 1.50   | 7.00   | 543                 | JC-533 | SM-M6         | JSLC-HPC5         | JSCS-04        | JSBPE-M4-039          |
|                                                                                  | ADCLNR/L-24-6E | 53014      | 53015     | 1.50   | 7.00   | 643                 | JC-633 | SM-M6         | JSLC-HPC6         | JSCS-06        | JSBPE-M4-039          |

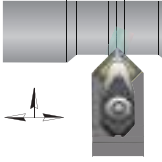
### ADDJN R/L Toolholder Style J - 3° side cutting lead angle for negative 55° diamond DNM\_ inserts

| Turning                                                                          | Description    | UPC #      |           | Shank  |        | DNM_<br>Gage Insert | Seat     | Seat<br>Screw | Dor-Lock<br>Clamp | Clamp<br>Screw | Bottom Port<br>Nozzle |
|----------------------------------------------------------------------------------|----------------|------------|-----------|--------|--------|---------------------|----------|---------------|-------------------|----------------|-----------------------|
|                                                                                  |                | Right Hand | Left Hand | Height | Length |                     |          |               |                   |                |                       |
|  | ADDJNR/L-12-3B | 53016      | 53017     | 0.75   | 4.50   | 332                 | IDSN-322 | SM-M4-245     | JSLC-HPD3         | JSCS-04        | JSBP-M4-039           |
|                                                                                  | ADDJNR/L-12-4B | 53018      | 53019     | 0.75   | 4.50   | 432                 | JD-432   | SM-M4-6       | JSLC-HPD4         | JSCS-04        | JSBP-M4-039           |
|                                                                                  | ADDJNR/L-16-4D | 53020      | 53021     | 1.00   | 6.00   | 432                 | JD-432   | SM-M4-8       | JSLC-HPD4         | JSCS-04        | JSBPE-M4-039          |
|                                                                                  | ADDJNR/L-20-4D | 53022      | 53023     | 1.25   | 6.00   | 432                 | JD-432   | SM-S4         | JSLC-HPD4         | JSCS-04        | JSBPE-M4-039          |
|                                                                                  | ADDJNR/L-24-4E | 53024      | 53025     | 1.50   | 7.00   | 432                 | JD-432   | SM-S4         | JSLC-HPD4         | JSCS-04        | JSBPE-M4-039          |
|                                                                                  |                |            |           |        |        |                     |          |               |                   |                |                       |

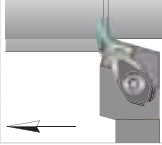
### ADDPNN Toolholder Style P - 27.5° side cutting lead angle for negative 55° diamond DNM\_ inserts

| Turning                                                                          | Description  | UPC #   |  | Shank  |        | DNM_<br>Gage Insert | Seat   | Seat<br>Screw | Dor-Lock<br>Clamp | Clamp<br>Screw | Bottom Port<br>Nozzle |
|----------------------------------------------------------------------------------|--------------|---------|--|--------|--------|---------------------|--------|---------------|-------------------|----------------|-----------------------|
|                                                                                  |              | Neutral |  | Height | Length |                     |        |               |                   |                |                       |
|  | ADDPNN-12-3B | 53030   |  | 0.75   | 4.50   | 332                 | S5511P | SM-M3         | JSLC-HPD3         | JSCS-04        | JSBP-M4-039           |
|                                                                                  | ADDPNN-12-4B | 53031   |  | 0.75   | 4.50   | 432                 | JD-432 | SM-M4         | JSLC-HPD4         | JSCS-04        | JSBP-M4-039           |
|                                                                                  | ADDPNN-16-3D | 53032   |  | 1.00   | 6.00   | 332                 | S5511P | SM-M3         | JSLC-HPD3         | JSCS-04        | JSBPE-M4-039          |
|                                                                                  | ADDPNN-16-4D | 53033   |  | 1.00   | 6.00   | 432                 | JD-432 | SM-M4         | JSLC-HPD4         | JSCS-04        | JSBPE-M4-039          |
|                                                                                  | ADDPNN-20-4D | 53034   |  | 1.25   | 6.00   | 432                 | JD-432 | SM-M4         | JSLC-HPD4         | JSCS-04        | JSBPE-M4-039          |
|                                                                                  | ADDPNN-24-4E | 53035   |  | 1.50   | 7.00   | 432                 | JD-432 | SM-M4         | JSLC-HPD4         | JSCS-04        | JSBPE-M4-039          |
|                                                                                  |              |         |  |        |        |                     |        |               |                   |                |                       |

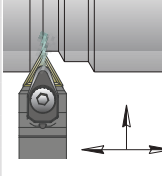
### ADSDNN Toolholder Style D - 45° side cutting lead angle for negative square SNM\_ inserts

| Turning                                                                            | Description  | UPC #   |  | Shank  |        | SNM_<br>Gage Insert | Seat   | Seat<br>Screw | Dor-Lock<br>Clamp | Clamp<br>Screw | Bottom Port<br>Nozzle |
|------------------------------------------------------------------------------------|--------------|---------|--|--------|--------|---------------------|--------|---------------|-------------------|----------------|-----------------------|
|                                                                                    |              | Neutral |  | Height | Length |                     |        |               |                   |                |                       |
|  | ADSDNN-12-4B | 53053   |  | 0.75   | 4.50   | 432                 | S9012P | SM-M4         | JSLC-HPCTW-4N     | JSCS-04        | JSBP-M4-039           |
|                                                                                    | ADSDNN-16-4D | 53054   |  | 1.00   | 6.00   | 432                 | S9012P | SM-M4         | JSLC-HPCTW-4N     | JSCS-04        | JSBPE-M4-039          |
|                                                                                    | ADSDNN-20-4D | 53055   |  | 1.25   | 6.00   | 432                 | S9012P | SM-M4         | JSLC-HPCTW-4N     | JSCS-04        | JSBPE-M4-039          |
|                                                                                    | ADSDNN-20-5D | 53056   |  | 1.25   | 6.00   | 543                 | JS-533 | SM-M6         | JSLC-HPC5         | JSCS-04        | JSBPE-M4-039          |
|                                                                                    | ADSDNN-24-5E | 53058   |  | 1.50   | 7.00   | 543                 | JS-533 | SM-M6         | JSLC-HPC5         | JSCS-04        | JSBPE-M4-039          |
|                                                                                    |              |         |  |        |        |                     |        |               |                   |                |                       |

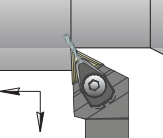
### ADSRN R/L Toolholder Style R - 15° side cutting lead angle for negative square SNM\_ inserts

| Turning                                                                            | Description    | UPC #      |           | Shank  |        | SNM_<br>Gage Insert | Seat   | Seat<br>Screw | Dor-Lock<br>Clamp | Clamp<br>Screw | Bottom Port<br>Nozzle |
|------------------------------------------------------------------------------------|----------------|------------|-----------|--------|--------|---------------------|--------|---------------|-------------------|----------------|-----------------------|
|                                                                                    |                | Right Hand | Left Hand | Height | Length |                     |        |               |                   |                |                       |
|  | ADSRNR/L-12-4B | 53040      | 53041     | 0.75   | 4.50   | 432                 | S9012P | SM-M4         | JSLC-HPCTW-4N     | JSCS-04        | JSBP-M4-039           |
|                                                                                    | ADSRNR/L-16-4D | 53043      | 53044     | 1.00   | 6.00   | 432                 | S9012P | SM-M4         | JSLC-HPCTW-4N     | JSCS-04        | JSBPE-M4-039          |
|                                                                                    | ADSRNR/L-20-5D | 53045      | 53046     | 1.25   | 6.00   | 543                 | JS533  | SM-M6         | JSLC-HPC5         | JSCS-04        | JSBPE-M4-039          |
|                                                                                    | ADSRNR/L-24-5E | 53047      | 53048     | 1.50   | 7.00   | 543                 | JS533  | SM-M6         | JSLC-HPC5         | JSCS-04        | JSBPE-M4-039          |

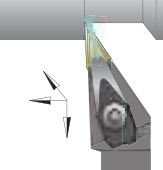
### ADTENN Toolholder Style E - 30° side cutting lead angle for negative triangle TNM\_ inserts

| Turning                                                                            | Description  | UPC #   |  | Shank  |        | TNM_<br>Gage Insert | Seat   | Seat<br>Screw | Dor-Lock<br>Clamp | Clamp<br>Screw | Bottom Port<br>Nozzle |
|------------------------------------------------------------------------------------|--------------|---------|--|--------|--------|---------------------|--------|---------------|-------------------|----------------|-----------------------|
|                                                                                    |              | Neutral |  | Height | Length |                     |        |               |                   |                |                       |
|  | ADTENN-12-3B | 53075   |  | 0.75   | 4.50   | 332                 | JT-322 | SM-M3-T       | JSLC-HPTW3N       | JSCS-04        | JSBP-M4-039           |
|                                                                                    | ADTENN-12-4B | 53076   |  | 0.75   | 4.50   | 432                 | JT-433 | SM-S4         | JSLC-HPCTW-4N     | JSCS-04        | JSBP-M4-039           |
|                                                                                    | ADTENN-16-3D | 53077   |  | 1.00   | 6.00   | 332                 | JT-322 | SM-M3-T       | JSLC-HPTW3N       | JSCS-04        | JSBP-M4-039           |
|                                                                                    | ADTENN-16-4D | 53078   |  | 1.00   | 6.00   | 432                 | JT-433 | SM-S4         | JSLC-HPCTW-4N     | JSCS-04        | JSBP-M4-039           |
|                                                                                    | ADTENN-20-4D | 53079   |  | 1.25   | 6.00   | 432                 | JT-433 | SM-S4         | JSLC-HPCTW-4N     | JSCS-04        | JSBPE-M4-039          |
|                                                                                    | ADTENN-24-4E | 53080   |  | 1.50   | 7.00   | 432                 | JT-433 | SM-S4         | JSLC-HPCTW-4N     | JSCS-04        | JSBPE-M4-039          |
|                                                                                    |              |         |  |        |        |                     |        |               |                   |                |                       |

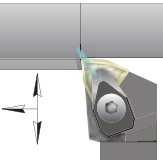
### ADTJN R/L Toolholder Style J - 3° side cutting lead angle for negative triangle TNM\_ inserts

| Turning                                                                           | Description    | UPC #      |           | Shank  |        | TNM_ Gage Insert | Seat   | Seat Screw | Dor-Lock Clamp | Clamp Screw | Bottom Port Nozzle |
|-----------------------------------------------------------------------------------|----------------|------------|-----------|--------|--------|------------------|--------|------------|----------------|-------------|--------------------|
|                                                                                   |                | Right Hand | Left Hand | Height | Length |                  |        |            |                |             |                    |
|  | ADTJNR/L-12-3B | 53063      | 53064     | 0.75   | 4.50   | 332              | JT-322 | SM-M3-T    | JSLC-HPTW3N    | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADTJNR/L-12-4B | 53065      | 53066     | 0.75   | 4.50   | 432              | JT-433 | SM-M4-8    | JSLC-HPCTW-4N  | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADTJNR/L-16-3D | 53067      | 53068     | 1.00   | 6.00   | 332              | JT-322 | SM-M3-T    | JSLC-HPTW3N    | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADTJNR/L-16-4D | 53069      | 53070     | 1.00   | 6.00   | 432              | JT-433 | SM-S4      | JSLC-HPCTW-4N  | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADTJNR/L-20-4D | 53071      | 53072     | 1.25   | 6.00   | 432              | JT-433 | SM-S4      | JSLC-HPCTW-4N  | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADTJNR/L-24-4E | 53073      | 53074     | 1.50   | 7.00   | 432              | JT-433 | SM-S4      | JSLC-HPCTW-4N  | JSCS-04     | JSBP-M4-039        |

### ADVJN R/L Toolholder Style J - Negative 3° side cutting lead angle for negative 35° diamond VNM\_ inserts

| Turning                                                                           | Description    | UPC #      |           | Shank  |        | VNM_ Gage Insert | Seat   | Seat Screw | Dor-Lock Clamp | Clamp Screw | Nozzle      |
|-----------------------------------------------------------------------------------|----------------|------------|-----------|--------|--------|------------------|--------|------------|----------------|-------------|-------------|
|                                                                                   |                | Right Hand | Left Hand | Height | Length |                  |        |            |                |             |             |
|  | ADVJNR/L-12-3B | 53081      | 53082     | 0.75   | 4.50   | 332              | JV-322 | SM-M3      | JSLC-HPV3      | JSCS-04     | JSBP-M4-039 |
|                                                                                   | ADVJNR/L-16-3D | 53083      | 53084     | 1.00   | 6.00   | 332              | JV-322 | SM-M3      | JSLC-HPV3      | JSCS-04     | JSBP-M4-039 |
|                                                                                   | ADVJNR/L-20-3D | 53085      | 53086     | 1.25   | 6.00   | 332              | JV-322 | SM-M3      | JSLC-HPV3      | JSCS-04     | JSBP-M4-039 |
|                                                                                   | ADVJNR/L-24-3E | 53087      | 53088     | 1.50   | 7.00   | 332              | JV-322 | SM-M3      | JSLC-HPV3      | JSCS-04     | JSBP-M4-039 |

### ADWLN R/L Toolholder Style L - Negative 5° end or side cutting lead angle for negative 80° trigon WNM\_ inserts

| Turning                                                                           | Description    | UPC #      |           | Shank  |        | WNM_ Gage Insert | Seat     | Seat Screw  | Dor-Lock Clamp | Clamp Screw | Bottom Port Nozzle |
|-----------------------------------------------------------------------------------|----------------|------------|-----------|--------|--------|------------------|----------|-------------|----------------|-------------|--------------------|
|                                                                                   |                | Right Hand | Left Hand | Height | Length |                  |          |             |                |             |                    |
|  | ADWLNR/L-12-3B | 53093      | 53094     | 0.75   | 4.50   | 332              | IWSN-322 | SM-M4-6-245 | JSLC-HPTW3R/L  | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADWLNR/L-12-4B | 53095      | 53096     | 0.75   | 4.50   | 432              | IWSN-423 | SM-M4-6     | JSLC-HPTW4R/L  | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADWLNR/L-16-3D | 53097      | 53098     | 1.00   | 6.00   | 332              | IWSN-322 | SM-M4-6-245 | JSLC-HPTW3R/L  | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADWLNR/L-16-4D | 53099      | 53100     | 1.00   | 6.00   | 432              | IWSN-433 | SM-M4-8     | JSLC-HPTW4R/L  | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADWLNR/L-20-4D | 53101      | 53102     | 1.25   | 6.00   | 432              | IWSN-423 | SM-M4-8     | JSLC-HPTW4R/L  | JSCS-04     | JSBP-M4-039        |
|                                                                                   | ADWLNR/L-24-4E | 53103      | 53104     | 1.50   | 7.00   | 432              | IWSN-423 | SM-M4-8     | JSLC-HPTW4R/L  | JSCS-04     | JSBP-M4-039        |

### AS-ADCLN R/L Boring Bar Style L - Negative 5° side & end cutting lead angle for negative 80° diamond CNM\_ inserts

| Boring                                                                              | Description       | UPC #      |           | Min. Bore B | Bar Size | CNM_ Gage Insert | Seat   | Seat Screw  | Dor-Lock Clamp | Clamp Screw | Chip Flush Plug |
|-------------------------------------------------------------------------------------|-------------------|------------|-----------|-------------|----------|------------------|--------|-------------|----------------|-------------|-----------------|
|                                                                                     |                   | Right Hand | Left Hand |             |          |                  |        |             |                |             |                 |
|  | AS-12R-ADCLNR/L-3 | 53120      | 53121     | 1.000       | 0.75     | 322              | N/A    | N/A         | JSLC-HPC3-B    | JSCS-03     | JSPN-M3         |
|                                                                                     | AS-16R-ADCLNR/L-4 | 53122      | 53123     | 1.280       | 1.00     | 432              | DC-432 | TS-5.8-10M1 | JSLC-HPCTW-4N  | JSCS-04     | JSPN-M6         |
|                                                                                     | AS-20S-ADCLNR/L-4 | 53124      | 53125     | 1.530       | 1.25     | 432              | DC-432 | TS-5.8-10M1 | JSLC-HPCTW-4N  | JSCS-04     | JSPN-M6         |
|                                                                                     | AS-24S-ADCLNR/L-4 | 53126      | 53127     | 1.780       | 1.50     | 432              | DC-432 | TS-5.8-10M1 | JSLC-HPCTW-4N  | JSCS-04     | JSPN-M6         |
|                                                                                     | AS-32T-ADCLNR/L-4 | 53128      | 53129     | 2.562       | 2.00     | 432              | DC-432 | TS-5.8-10M1 | JSLC-HPCTW-4N  | JSCS-04     | JSPN-M6         |
|                                                                                     | AS-32T-ADCLNR/L-5 | 53130      | 53131     | 2.562       | 2.00     | 543              | JC-533 | SM-M6       | JSLC-HPC5      | JSCS-04     | JSPN-M6         |

### AS-ADTUN R/L Boring Bar Style U - Negative 3° end cutting lead angle for negative triangle TNM\_ inserts

| Boring                                                                              | Description       | UPC #      |           | Min. Bore B | Bar Size | TNM_ Gage Insert | Seat   | Seat Screw | Dor-Lock Clamp  | Clamp Screw | Chip Flush Plug |
|-------------------------------------------------------------------------------------|-------------------|------------|-----------|-------------|----------|------------------|--------|------------|-----------------|-------------|-----------------|
|                                                                                     |                   | Right Hand | Left Hand |             |          |                  |        |            |                 |             |                 |
|  | AS-12R-ADTUNR/L-3 | 53172      | 53173     | 1.000       | 0.75     | 322              | N/A    | N/A        | JSLC-HPDT3-BR/L | JSCS-03     | JSPN-M3         |
|                                                                                     | AS-16R-ADTUNR/L-3 | 53174      | 53175     | 1.280       | 1.00     | 332              | JT-322 | SM-M3-T    | JSLC-HPDT3-BR/L | JSCS-03     | JSPN-M3         |
|                                                                                     | AS-20S-ADTUNR/L-4 | 53176      | 53177     | 1.530       | 1.25     | 432              | JT-433 | SM-S4      | JSLC-HPTW4R/L   | JSCS-04     | JSPN-M6         |
|                                                                                     | AS-24S-ADTUNR/L-4 | 53178      | 53179     | 2.060       | 1.50     | 432              | JT-433 | SM-S4      | JSLC-HPTW4R/L   | JSCS-04     | JSPN-M6         |
|                                                                                     | AS-32T-ADTUNR/L-4 | 53180      | 53181     | 2.562       | 2.00     | 432              | JT-433 | SM-S4      | JSLC-HPTW4R/L   | JSCS-04     | JSPN-M6         |

### AS-ADDUN R/L Boring Bar Style U - Negative 3° end cutting lead angle for negative 55° diamond DNM\_ inserts

| Boring                                                                              | Description       | UPC #      |           | Min. Bore B | Bar Size | DNM_ Gage Insert | Seat   | Seat Screw  | Dor-Lock Clamp  | Clamp Screw | Chip Flush Plug |
|-------------------------------------------------------------------------------------|-------------------|------------|-----------|-------------|----------|------------------|--------|-------------|-----------------|-------------|-----------------|
|                                                                                     |                   | Right Hand | Left Hand |             |          |                  |        |             |                 |             |                 |
|  | AS-16R-ADDUNR/L-3 | 53137      | 53138     | 1.300       | 1.00     | 332              | 5511P  | SM-M3       | JSLC-HPDT3-BR/L | JSCS-03     | JSPN-M3         |
|                                                                                     | AS-20S-ADDUNR/L-4 | 53139      | 53140     | 2.000       | 1.25     | 432              | DD-432 | TS-5.8-10M1 | JSLC-HPD4       | JSCS-04     | JSPN-M6         |
|                                                                                     | AS-24S-ADDUNR/L-4 | 53141      | 53142     | 2.250       | 1.50     | 432              | DD-432 | TS-5.8-10M1 | JSLC-HPD4       | JSCS-04     | JSPN-M6         |
|                                                                                     | AS-32T-ADDUNR/L-4 | 53143      | 53144     | 3.000       | 2.00     | 432              | DD-432 | TS-5.8-10M1 | JSLC-HPD4       | JSCS-04     | JSPN-M6         |

### AS-ADDPN R/L Boring Bar Style P- Negative 27.5 end cutting lead angle for negative 55° diamond DNM\_ inserts

| Boring                                                                              | Description       | UPC #      |           | Min. Bore B | Bar Size | DNM_ Gage Insert | Seat   | Seat Screw  | Dor-Lock Clamp | Clamp Screw | Chip Flush Plug |
|-------------------------------------------------------------------------------------|-------------------|------------|-----------|-------------|----------|------------------|--------|-------------|----------------|-------------|-----------------|
|                                                                                     |                   | Right Hand | Left Hand |             |          |                  |        |             |                |             |                 |
|  | AS-20S-ADDPNR/L-4 | 53150      | 53151     | 1.705       | 1.25     | 432              | DD-432 | TS-5.8-10M1 | JSLC-HPD4      | JSCS-04     | JSPN-M6         |
|                                                                                     | AS-24S-ADDPNR/L-4 | 53152      | 53153     | 2.000       | 1.50     | 432              | DD-432 | TS-5.8-10M1 | JSLC-HPD4      | JSCS-04     | JSPN-M6         |

### AS-ADSKN R/L Boring Bar Style K - 15° End cutting lead angle for negative square SNM\_ inserts

| Boring                                                                           | Description       | UPC #      |           | Min. Bore B | Bar Size | SNM_ Gage Insert | Seat   | Seat Screw | Dor-Lock Clamp | Clamp Screw | Chip Flush Plug |
|----------------------------------------------------------------------------------|-------------------|------------|-----------|-------------|----------|------------------|--------|------------|----------------|-------------|-----------------|
|                                                                                  |                   | Right Hand | Left Hand |             |          |                  |        |            |                |             |                 |
|  | AS-20S-ADSKNR/L-4 | 53159      | 53160     | 1.53        | 1.25     | 432              | S9012P | SM-S4      | JSLC-HPCTW-4N  | JSCS-04     | JSPN-M6         |
|                                                                                  | AS-24S-ADSKNR/L-4 | 53161      | 53162     | 1.76        | 1.50     | 432              | S9012P | SM-S4      | JSLC-HPCTW-4N  | JSCS-04     | JSPN-M6         |
|                                                                                  | AS-32T-ADSKNR/L-4 | 53163      | -         | 2.400       | 2.00     | 432              | S9012P | SM-S4      | JSLC-HPCTW-4N  | JSCS-04     | JSPN-M6         |
|                                                                                  | AS-32T-ADSKNR/L-5 | 53165      | 53166     | 2.400       | 2.00     | 543              | JS-533 | SM-M6      | JSLC-HPC5      | JSCS-04     | JSPN-M6         |

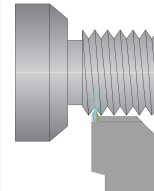
### AS-ADVUN R/L Boring Bar Style U - Negative 3° side cutting lead angle for negative 35° diamond VNM\_ inserts

| Boring                                                                           | Description       | UPC #      |           | Min. Bore B | Bar Size | VNM_ Gage Insert | Seat   | Seat Screw | Dor-Lock Clamp | Clamp Screw | Chip Flush Plug |
|----------------------------------------------------------------------------------|-------------------|------------|-----------|-------------|----------|------------------|--------|------------|----------------|-------------|-----------------|
|                                                                                  |                   | Right Hand | Left Hand |             |          |                  |        |            |                |             |                 |
|  | AS-20S-ADVUNR/L-3 | 53189      | 53190     | 2.250       | 1.25     | 332              | S3516P | SM-M3      | JSLC-HPV3      | JSCS-04     | JSPN-M6         |
|                                                                                  | AS-24S-ADVUNR/L-3 | 53191      | 53192     | 2.500       | 1.50     | 332              | S3516P | SM-M3      | JSLC-HPV3      | JSCS-04     | JSPN-M6         |

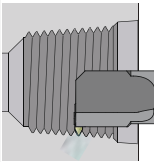
### AS-ADWLN R/L Boring Bar Style L - Negative 5° end & side cutting lead angle for negative 80° trigon WNM\_ inserts

| Boring                                                                           | Description      | UPC #      |           | Min. Bore B | Bar Size | WNM_ Gage Insert | Seat     | Seat Screw | Dor-Lock Clamp | Clamp Screw | Chip Flush Plug |
|----------------------------------------------------------------------------------|------------------|------------|-----------|-------------|----------|------------------|----------|------------|----------------|-------------|-----------------|
|                                                                                  |                  | Right Hand | Left Hand |             |          |                  |          |            |                |             |                 |
|  | AS-12R-ADWLNRL-3 | 53198      | 53199     | 1.000       | 0.75     | 332              | N/A      | N/A        | JSLC-HPW3-B    | JSCS-03     | JSPN-M3         |
|                                                                                  | AS-16R-ADWLNRL-4 | 53200      | 53201     | 1.550       | 1.00     | 432              | IWSN-423 | SM-S4      | JSLC-HPTW-4R/L | JSCS-04     | JSPN-M6         |
|                                                                                  | AS-20S-ADWLNRL-4 | 53202      | 53203     | 1.600       | 1.25     | 432              | IWSN-423 | SM-S4      | JSLC-HPTW-4R/L | JSCS-04     | JSPN-M6         |
|                                                                                  | AS-24S-ADWLNRL-4 | 53204      | 53205     | 1.780       | 1.50     | 432              | IWSN-423 | SM-S4      | JSLC-HPTW-4R/L | JSCS-04     | JSPN-M6         |
|                                                                                  | AS-32T-ADWLNRL-4 | 53206      | 53207     | 2.000       | 2.00     | 432              | IWSN-423 | SM-S4      | JSLC-HPTW-4R/L | JSCS-04     | JSPN-M6         |

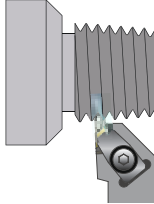
### ADTVO R Toolholder Style V - O.D. On Edge Threading and shallow grooving for triangle TNMC inserts

| Boring                                                                             | Description   | UPC #      |           | Shank  |        | TNMC Gage Insert | Insert Torx Screw | Torx Key |
|------------------------------------------------------------------------------------|---------------|------------|-----------|--------|--------|------------------|-------------------|----------|
|                                                                                    |               | Right Hand | Left Hand | Height | Length |                  |                   |          |
|  | ADTVOR12-3B   | 53400      | -         | 0.75   | 4.50   | 322              | GTS-1M            | T-10     |
|                                                                                    | ADTVOR16-3D   | 53402      | -         | 1.00   | 6.00   |                  |                   |          |
|                                                                                    | ADTVOR12-4B   | 53404      | -         | 0.75   | 4.50   | 432              | GTS-2             | T-20     |
|                                                                                    | ADTVOR16-4D   | 53406      | -         | 1.00   | 6.00   |                  |                   |          |
|                                                                                    | ADTVOR20-4D   | 53408      | -         | 1.25   | 6.00   |                  |                   |          |
|                                                                                    | ADTVOR/L20-5D | 53414      | -         | 1.50   | 7.00   | 543              | GTS-3             | T-20     |

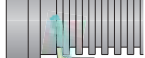
### AS-ADTHO R/L Threading Bar Style H - I.D. On Edge Threading and shallow grooving for triangle TNMC inserts

| Threading                                                                          | Description       | UPC #      |           | Min. Bore B | Bar Size | TNMC Gage Insert | Insert Torx Screw | Torx Key | Chip Flush Plug |
|------------------------------------------------------------------------------------|-------------------|------------|-----------|-------------|----------|------------------|-------------------|----------|-----------------|
|                                                                                    |                   | Right Hand | Left Hand |             |          |                  |                   |          |                 |
|  | AS-16R-ADTHOR/L-3 | 53436      | -         | 1.390       | 1.00     | 322              | GTS-1M            | T-10     | JSPN-M6         |
|                                                                                    | AS-20S-ADTHOR/L-4 | 53438      | -         | 1.812       | 1.25     | 432              | GTS-2             | T-20     | JSPN-M6         |
|                                                                                    | AS-32T-ADTHOR/L-4 | 53442      | 53443     | 3.000       | 2.00     |                  |                   |          |                 |

### ADNS R/L Toolholder Style S - External DorNotch toolholder for threading and grooving DorNotch inserts

| Threading                                                                          | Description  | UPC #      |           | Shank  |        | Gage Insert    | Seat   | Seat Screw | Dor-Lock Clamp         | Clamp Screw |
|------------------------------------------------------------------------------------|--------------|------------|-----------|--------|--------|----------------|--------|------------|------------------------|-------------|
|                                                                                    |              | Right Hand | Left Hand | Height | Length |                |        |            |                        |             |
|  | ADNSR/L12-3B | 53450      | 53451     | 0.75   | 4.50   | NG-3R<br>NG-3L | N/A    | N/A        | JSLC-HP72<br>JSLC-HP73 | JSCS-04     |
|                                                                                    | ADNSR/L16-3D | 53452      | 53453     | 1.00   | 6.00   |                |        |            |                        |             |
|                                                                                    | ADNSR/L20-3D | 53454      | 53455     | 1.25   | 6.00   |                |        |            |                        |             |
|                                                                                    | ADNSR/L16-4D | 53456      | -         | 1.00   | 6.00   | NG-4R<br>NG-4L | SM-420 | SL-344     | JSLC-HP76<br>JSLC-HP77 | JSCS-04     |
|                                                                                    | ADNSR/L20-4D | 53458      | 53459     | 1.25   | 6.00   |                |        |            |                        |             |
|                                                                                    | ADNSR/L24-4E | 53460      | 53461     | 1.50   | 7.00   |                |        |            |                        |             |

### ADNE R/L Toolholder Style E- Gang external DorNotch toolholder for threading and grooving DorNotch inserts

| Threading | UPC #                                                                             |              | Shank     |        | Gage Insert | Dor-Lock Clamp | Clamp Screw    |                        |         |
|-----------|-----------------------------------------------------------------------------------|--------------|-----------|--------|-------------|----------------|----------------|------------------------|---------|
|           | Description                                                                       | Right Hand   | Left Hand | Height |             |                |                | Length                 |         |
|           |  | ADNER/L12-3B | 53465     | 53466  | 0.75        | 4.50           | NG-3L<br>NG-3R | JSLC-HP73<br>JSLC-HP72 | JSCS-04 |
|           |  | 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 | JSLC-HP77<br>JSLC-HP76 | JSCS-04 |
|           |  | ADNER/L20-4D | 53473     | 53474  | 1.25        | 6.00           |                |                        |         |

### AS-ADNE R/L Threading Bar Style E- Internal DorNotch Bar for threading and grooving DorNotch inserts

| Threading | UPC #            |            | Shank     |        | Gage Insert | Dor-Lock Clamp | Clamp Screw            | Chip Flush Plug    |
|-----------|------------------|------------|-----------|--------|-------------|----------------|------------------------|--------------------|
|           | Description      | Right Hand | Left Hand | Height | Length      |                |                        |                    |
|           | AS-16R-ADNER/L-3 | 53490      | 53491     | 1.38   | 1.00        |                |                        |                    |
|           | AS-20S-ADNER/L-3 | 53492      | 53493     | 1.75   | 1.25        |                |                        |                    |
|           | AS-24S-ADNER/L-3 | 53494      | -         | 2.00   | 1.50        |                |                        |                    |
|           | AS-32T-ADNER/L-4 | 53496      | 53497     | 2.75   | 2.00        | NG-4L<br>NG-4R | JSLC-HP73<br>JSLC-HP72 | JSCS-08<br>JSPN-M6 |

### ADLE R/L Toolholder Style E- Laydown toolholder for Laydown inserts

| Threading | UPC #         |            | Shank     |        | Gage Insert | Seat   | Insert Screw | Dor-Lock Clamp | Clamp Screw                  | Nozzle                   |
|-----------|---------------|------------|-----------|--------|-------------|--------|--------------|----------------|------------------------------|--------------------------|
|           | Description   | Right Hand | Left Hand | Height | Length      |        |              |                |                              |                          |
|           | ADLER/L12-16C | 53510      | -         | 0.75   | 5.00        |        |              |                |                              |                          |
|           | ADLER/L16-16D | 53512      | 53513     | 1.00   | 6.00        | 16-G60 | GXE/I-16     | TS-35.6-14M1   | JSLC-HP16R-N<br>JSLC-HP16L-N | JSCS-03<br>JSBP-E-M4-039 |

### ADLE R/L Qualified Toolholder Style E - Offset head for Laydown inserts

| Threading | UPC #           |            | Shank     |        | Gage Insert | Seat   | Insert Screw | Dor-Lock Clamp | Clamp Screw | Nozzle                   |
|-----------|-----------------|------------|-----------|--------|-------------|--------|--------------|----------------|-------------|--------------------------|
|           | Description     | Right Hand | Left Hand | Height | Length      |        |              |                |             |                          |
|           | ADLER/L12-16Q-C | 53522      | -         | 0.75   | 5.00        |        |              |                |             |                          |
|           | ADLER/L16-16Q-D | 53524      | 53525     | 1.00   | 6.00        |        |              |                |             |                          |
|           | ADLER/L16-22Q-D | 53528      | -         | 1.00   | 6.00        |        |              |                |             |                          |
|           | ADLER/L20-22Q-E | 53530      | -         | 1.25   | 6.00        | 22-N60 | NXE/I-16     | TS-45.75-15M1  | JSLC-HP22N  | JSCS-04<br>JSBP-E-M4-039 |

### AS-ADLN R/L Threading Bar Style N - Internal Laydown bar for Laydown threading

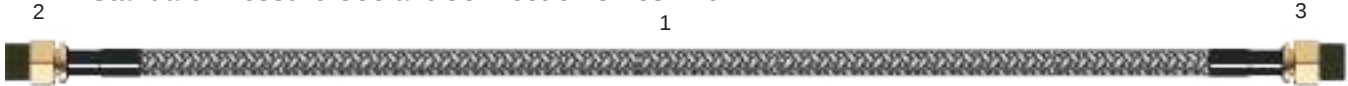
| Threading | UPC #             |            | Min. Bore |      | Gage Insert | Seat   | Insert Screw | Dor-Lock Clamp | Clamp Screw | Chip Flush Plug    |
|-----------|-------------------|------------|-----------|------|-------------|--------|--------------|----------------|-------------|--------------------|
|           | Description       | Right Hand | Left Hand | B    | Bar Size    |        |              |                |             |                    |
|           | AS-12R-ADLNR/L-16 | 53533      | 53534     | 1.12 | 0.75        |        |              |                |             |                    |
|           | 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        |        |              |                |             |                    |
|           | AS-32T-ADLNR/L-22 | 53545      | 53546     | 2.50 | 2.00        | 22-N60 | GXE/I-16     | TS-45.75-15M1  | JSLC-HP22N  | JSCS-04<br>JSPN-M6 |

### AS-ADLN R/L API Threading Bar Style N- Internal Laydown API Laydown toolholder for API Laydown inserts

| Threading | UPC #                |            | Min. Bore |      | Gage Insert | Seat   | Insert Screw | Dor-Lock Clamp | Clamp Screw | Chip Flush Plug    |
|-----------|----------------------|------------|-----------|------|-------------|--------|--------------|----------------|-------------|--------------------|
|           | Description          | Right Hand | Left Hand | B    | D           |        |              |                |             |                    |
|           | AS-32T-ADLNR/L-22API | 53559      | 53560     | 1.60 | 2.00        | 22-N60 | NXE/I-22     | TS-45.75-15M1  | JSLC-HP22N  | JSCS-04<br>JSPN-M6 |

## Standard Pressure Coolant Connection 3 Pcs. Kit

Working Pressure

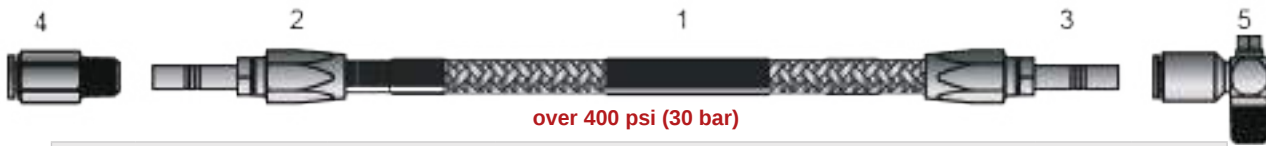


up to 400 psi (30 bar)

| Item | Part #          | UPC # | Description                                                        | Bar | PSI |
|------|-----------------|-------|--------------------------------------------------------------------|-----|-----|
| 1    | JSPLPCK-062-250 | 53303 | 1/16" NPT Standard Pressure Quick Release Coolant 3 pcs Kit        | 30  | 400 |
| 2    | JS-T250-1200    | 53349 | 1/4" OD, 30cm Long Standard Pressure Tubing                        |     |     |
| 3    | 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  |     |     |
| Item | JSPLPCK-125-250 | 53304 | 1/8" NPT Standard Pressure Quick Release Coolant 3 pcs Kit         | 30  | 400 |
| 1    | JS-T250-1200    | 53349 | 1/4" OD, 30cm 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  |     |     |
| Item | JSPLPCK-250-250 | 53305 | 1/4" NPT Standard Pressure Quick Release Coolant 3 pcs Kit         | 30  | 400 |
| 1    | JS-T250-1200    | 53349 | 1/4" OD, 30cm 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



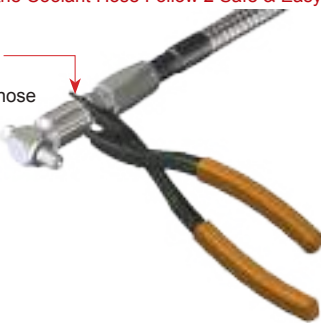
over 400 psi (30 bar)

| Item | Part #         | UPC # | Description                                              | Bar | PSI  |
|------|----------------|-------|----------------------------------------------------------|-----|------|
| 1    | DT-1/8 HP-QRCK | 60473 | 1/8" NPT High Pressure Quick Release Coolant 5 pcs Kit   | 200 | 2800 |
| 2    | DT-HPTU-8X4    | 60477 | 8mm High Pressure Coolant Tubing                         |     |      |
| 3    | DT-HPC0-6X8    | 60479 | High Pressure Quick Release Straight Intake              |     |      |
| 4    | DT-HP0SC-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 |     |      |
| Item | DT-1/4 HP-QRCK | 60474 | 1/4" NPT High Pressure Quick Release Coolant 5 pcs Kit   | 200 | 2800 |
| 1    | DT-HPTU-8X4    | 60477 | 8mm High Pressure Coolant Tubing                         |     |      |
| 2    | DT-HPC0-6X8    | 60479 | High Pressure Quick Release Straight Intake              |     |      |
| 3    | DT-HPC0-6X8    | 60479 | High Pressure Quick Release Straight Intake              |     |      |
| 4    | DT-HP0SC-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 |     |      |

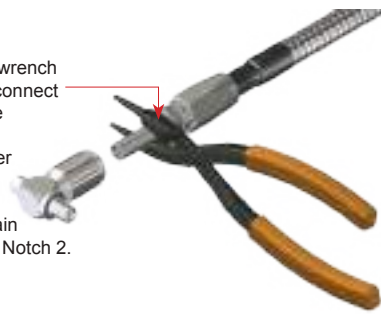
| Part #       | UPC # | Description                        |
|--------------|-------|------------------------------------|
| DT-HP-PLIERS | 60476 | High Pressure Disconnecting Pliers |

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 | 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 STYLES</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   | 90119 |
| <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 |
|----------------------------------------------------------------------------------------------------------------|--------------|-------|

# 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**

|                                                                                  | Bar Description    | UPC #      |           | Boring Ratio |       |           |        | DC__ Gage Insert |
|----------------------------------------------------------------------------------|--------------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                  |                    | Right Hand | Left Hand |              | Dia.  | Min. Bore | Length |                  |
|  | 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   | 1.20.60.2        |
|                                                                                  | E03.5H-SCLDR/L-1.2 | 59583      | 59584     |              | 0.218 | 0.245     | 4.00   |                  |
|                                                                                  | E04H-SCLDR/L-1.5   | 59587      | 59588     |              | 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**

|                                                                                  | Bar Description | UPC #      |           | Boring Ratio |       |           |        | CC__ Gage Insert |
|----------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                  |                 | Right Hand | Left Hand |              | Dia.  | Min. Bore | Length |                  |
|  | 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   | 32.52            |
|                                                                                  | E10S-SCLCR/L-2  | 59611      | 59612     |              | 0.625 | 0.740     | 10.00  |                  |
|                                                                                  | E08K-SCLCR/L-3  | 59615      | 59616     |              | 0.500 | 0.550     | 5.00   |                  |
|                                                                                  | E08R-SCLCR/L-3  | 59619      | 59620     |              | 0.500 | 0.550     | 8.00   | 32.52            |
|                                                                                  | 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  | 432              |
|                                                                                  | 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 R/L Thru Coolant Integral Carbide Boring Bar Style L - Negative 5° End & Side Cutting Edge Angle for 11° positive 80° diamond CP\_\_ inserts**

|                                                                                    | Bar Description  | UPC #      |           | Boring Ratio |       |           |        | CP__ Gage Insert |
|------------------------------------------------------------------------------------|------------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                    |                  | Right Hand | Left Hand |              | Dia.  | Min. Bore | Length |                  |
|  | 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   | 21.51            |
|                                                                                    | 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   | 32.52            |
|                                                                                    | E10S-SCLPR/L-2   | 59651      | 59652     |              | 0.625 | 0.740     | 10.00  |                  |
|                                                                                    | E08K-SCLPR/L-3   | 59655      | 59656     |              | 0.500 | 0.550     | 5.00   |                  |
|                                                                                    | E08R-SCLPR/L-3   | 59659      | 59660     |              | 0.500 | 0.550     | 8.00   | 32.52            |
|                                                                                    | 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\_SDNC R/L Thru Coolant Integral Carbide Boring Bar Style N - Negative 27.5° End & Side Cutting Edge Angle for 7° positive 55° diamond DC\_\_ inserts**

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

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

**E\_SDQC R/L Thru Coolant Integral Carbide Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for 7° positive 55° diamond DC\_\_ inserts**

|                                                                                    | Bar Description | UPC #      |           | Boring Ratio |       |           |        | DC__ Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                    |                 | Right Hand | Left Hand |              | Dia.  | Min. Bore | Length |                  |
|  | 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**

|                                                                                    | Bar Description | UPC #      |           | Boring Ratio |       |           |        | DC__ Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                    |                 | Right Hand | Left Hand |              | Dia.  | Min. Bore | Length |                  |
|  | 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     |              | 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  |                  |

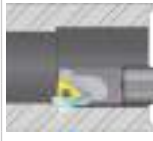
Inserts used: all DC\_\_ series (DCMT, DCGW, DCMT, DCGX, DCGT).

**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**

|                                                                                    | Bar Description | UPC #      |           | Boring Ratio |       |           |        | DC__ Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                    |                 | Right Hand | Left Hand |              | Dia.  | Min. Bore | Length |                  |
|  | 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   | 32.52            |
|                                                                                    | E10S-SDXCR/L-2  | 59747      | 59748     |              | 0.625 | 0.844     | 9.66   |                  |
|                                                                                    | E12Q-SDXCR/L-3  | 60007      | 60008     |              | 0.750 | 0.980     | 6.115  |                  |
|                                                                                    | E12S-SDXCR/L-3  | 60009      | 60010     |              | 0.750 | 0.980     | 9.115  | 32.52            |
|                                                                                    | 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  |                  |

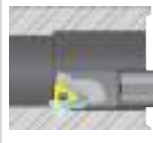
Inserts used: all DC\_\_ series (DCMT, DCGW, DCMT, DCGX, DCGT).

**E\_STUC R/L Thru Coolant Integral Carbide Boring Bar Style U - Negative 3° End Cutting Edge Angle for 7° positive triangle TC\_\_ inserts**

|                                                                                      | Bar Description  | UPC #      |           | Boring Ratio |       |           |        | TC__ Gage Insert |
|--------------------------------------------------------------------------------------|------------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                      |                  | Right Hand | Left Hand |              | Dia.  | Min. Bore | Length |                  |
|  | 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   | 21.51            |
|                                                                                      | E08K-STUCR/L-2   | 59767      | 59768     |              | 0.500 | 0.587     | 5.00   |                  |
|                                                                                      | E08R-STUCR/L-2   | 59771      | 59772     |              | 0.500 | 0.587     | 8.00   |                  |
|                                                                                      | E10M-STUCR/L-2   | 59775      | 59776     |              | 0.625 | 0.750     | 6.00   | 32.52            |
|                                                                                      | 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  | 32.52            |
|                                                                                      | E16R-STUCR/L-3   | 60031      | 60032     |              | 1.000 | 1.200     | 8.000  |                  |
|                                                                                      | 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**

|                                                                                      | Bar Description | UPC #      |           | Boring Ratio |       |           |        | TP__ Gage Insert |
|--------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                      |                 | Right Hand | Left Hand |              | Dia.  | Min. Bore | Length |                  |
|  | 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**

|                                                                                  | Bar Description | UPC #      |           | Boring Ratio | Dia.  | Min. Bore | Length | VC__ Gage Insert |
|----------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                  |                 | Right Hand | Left Hand |              |       |           |        |                  |
|  | E08K-SVMCR/L-2  | 59803      | 59804     | 6:1          | 0.500 | 0.587     | 5.23   | 221              |
|                                                                                  | E08R-SVMCR/L-2  | 59807      | 59808     |              | 0.500 | 0.587     | 8.23   |                  |
|                                                                                  | E10M-SVMCR/L-2  | 59811      | 59812     |              | 0.625 | 0.750     | 6.16   |                  |
|                                                                                  | E10S-SVMCR/L-2  | 59815      | 59816     |              | 0.625 | 0.750     | 10.16  |                  |

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

**E\_SVQC R/L Thru Coolant Integral Carbide Boring Bar Style Q - Negative 17.5° End Cutting Edge Angle for 7° positive 35° diamond VC\_\_ inserts**

|                                                                                  | Bar Description | UPC #      |           | Boring Ratio | Dia.  | Min. Bore | Length | VC__ Gage Insert |
|----------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                  |                 | Right Hand | Left Hand |              |       |           |        |                  |
|  | E10M-SVQCR/L-2  | 59819      | 59820     | 6:1          | 0.625 | 0.844     | 6.00   | 221              |
|                                                                                  | E10S-SVQCR/L-2  | 59823      | 59824     |              | 0.625 | 0.844     | 10.00  |                  |

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

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

|                                                                                  | Bar Description | UPC #      |           | Boring Ratio | Dia.  | Min. Bore | Length | VC__ Gage Insert |
|----------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                  |                 | Right Hand | Left Hand |              |       |           |        |                  |
|  | E10M-SVUCR/L-2  | 59827      | 59828     | 6:1          | 0.625 | 0.844     | 6.00   | 221              |
|                                                                                  | E10S-SVUCR/L-2  | 59831      | 59832     |              | 0.625 | 0.844     | 10.00  |                  |

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**

|                                                                                   | Bar Description | UPC #      |           | Boring Ratio | Dia.  | Min. Bore | Length | VC__ Gage Insert |
|-----------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                   |                 | Right Hand | Left Hand |              |       |           |        |                  |
|  | E10M-SVXCR/L-2  | 59835      | 59836     | 6:1          | 0.625 | 1.0       | 5.76   | 221              |
|                                                                                   | E10S-SVXCR/L-2  | 59839      | 59840     |              | 0.625 | 1.0       | 9.76   |                  |

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**

|                                                                                    | Bar Description | UPC #      |           | Boring Ratio | Dia.  | Min. Bore | Length | VP__ Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                    |                 | Right Hand | Left Hand |              |       |           |        |                  |
|  | E10M-SVQPR/L-2  | 59843      | 59844     | 6:1          | 0.625 | 0.844     | 6.00   | 221              |
|                                                                                    | E10S-SVQPR/L-2  | 59847      | 59848     |              | 0.625 | 0.844     | 10.00  |                  |

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**

|                                                                                    | Bar Description | UPC #      |           | Boring Ratio | Dia.  | Min. Bore | Length | VP__ Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                    |                 | Right Hand | Left Hand |              |       |           |        |                  |
|  | E10M-SVUPR/L-2  | 59851      | 59852     | 6:1          | 0.625 | 0.844     | 6.00   | 221              |
|                                                                                    | E10S-SVUPR/L-2  | 59855      | 59856     |              | 0.625 | 0.844     | 10.00  |                  |

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

**E\_SVXP R/L Thru Coolant Integral Carbide Boring Bar Style X - Negative 5° Back Boring Cutting Edge Angle for 11° positive 35° diamond VP\_\_ inserts**

|                                                                                    | Bar Description | UPC #      |           | Boring Ratio | Dia.  | Min. Bore | Length | VP__ Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                    |                 | Right Hand | Left Hand |              |       |           |        |                  |
|  | E10M-SVXPR/L-2  | 59859      | 59860     | 6:1          | 0.625 | 1.00      | 5.76   | 221              |
|                                                                                    | E10S-SVXPR/L-2  | 59863      | 59864     |              | 0.625 | 1.00      | 9.76   |                  |

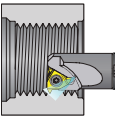
Inserts used: all VP\_\_ series (VPMT, VPGT).

**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**

|                                                                                   | Bar Description    | UPC #      |           | Boring Ratio | Dia.  | Min. Bore | Length | WC__ Gage Insert |
|-----------------------------------------------------------------------------------|--------------------|------------|-----------|--------------|-------|-----------|--------|------------------|
|                                                                                   |                    | Right Hand | Left Hand |              |       |           |        |                  |
|  | E03.0H-SWLCR/L-1.2 | 59867      | 59868     | 6:1          | 0.187 | 0.205     | 4.00   | 1.210.2          |
|                                                                                   | E03.5H-SWLCR/L-1.2 | 59871      | 59872     |              | 0.218 | 0.245     | 4.00   |                  |
|                                                                                   | E04H-SWLCR/L-1.2   | 59875      | 59876     |              | 0.250 | 0.270     | 4.00   |                  |
|                                                                                   | E05K-SWLCR/L-1.2   | 59879      | 59880     |              | 0.312 | 0.335     | 5.00   |                  |
|                                                                                   | E06M-SWLCR/L-2     | 59883      | 59884     |              | 0.375 | 0.396     | 6.00   | 21.51            |
|                                                                                   | E08K-SWLCR/L-2     | 59887      | 59888     |              | 0.500 | 0.550     | 5.00   |                  |
|                                                                                   | E08R-SWLCR/L-2     | 59891      | 59892     |              | 0.500 | 0.550     | 8.00   |                  |
|                                                                                   | E10M-SWLCR/L-2     | 59895      | 59896     |              | 0.625 | 0.740     | 6.00   |                  |
|                                                                                   | E10S-SWLCR/L-2     | 59899      | 59900     |              | 0.625 | 0.740     | 10.00  | 32.52            |
|                                                                                   | E08K-SWLCR/L-3     | 59903      | 59904     |              | 0.500 | 0.550     | 5.00   |                  |
|                                                                                   | E08R-SWLCR/L-3     | 59907      | 59908     |              | 0.500 | 0.550     | 8.00   |                  |
|                                                                                   | E10M-SWLCR/L-3     | 59911      | 59912     |              | 0.625 | 0.740     | 6.00   |                  |
|                                                                                   | E10S-SWLCR/L-3     | 59915      | 59916     |              | 0.625 | 0.740     | 10.00  |                  |
|                                                                                   | E12Q-SWLCR/L-3     | 60047      | 60048     |              | 0.750 | 0.930     | 7.000  |                  |
|                                                                                   | E12S-SWLCR/L-3     | 60049      | 60050     |              | 0.750 | 0.930     | 10.00  |                  |
|                                                                                   | E16R-SWLCR/L-3     | 60051      | 60052     |              | 1.000 | 1.200     | 8.000  |                  |
|                                                                                   | E16T-SWLCR/L-3     | 60053      | 60054     |              | 1.000 | 1.200     | 12.00  | 432              |
|                                                                                   | E20U-SWLCR/L-4     | 60055      | 60056     |              | 1.250 | 1.530     | 14.00  |                  |

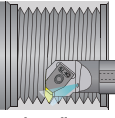
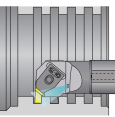
Inserts used: all WC\_\_ series (WCMT, WCGT).

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

|                                                                                   | Bar Description | UPC #      |           | Threading Ratio | Dia.  | Min. Bore | Length | Laydown Gage Insert |
|-----------------------------------------------------------------------------------|-----------------|------------|-----------|-----------------|-------|-----------|--------|---------------------|
|                                                                                   |                 | Right Hand | Left Hand |                 |       |           |        |                     |
|  | E03.5H-SNR/L-06 | 59919      | 59920     | 3:1             | 0.218 | 0.249     | 4.00   | 06-A60              |
|                                                                                   | E04H-SNR/L-06   | 59923      | 59924     |                 | 0.250 | 0.307     | 4.00   |                     |
|                                                                                   | E05K-SNR/L-08   | 59927      | 59928     |                 | 0.312 | 0.378     | 5.00   | 08-A60              |
|                                                                                   | E06M-SNR/L-H11  | 59931      | 59932     |                 | 0.375 | 0.500     | 6.00   |                     |
|                                                                                   | E08K-SNR/L-H11  | 59935      | 59936     |                 | 0.500 | 0.590     | 5.00   | 11-A60              |
|                                                                                   | E08R-SNR/L-H11  | 59939      | 59940     |                 | 0.500 | 0.590     | 8.00   |                     |
|                                                                                   | E10M-SNR/L-H16  | 59943      | 59944     |                 | 0.625 | 0.750     | 6.00   | 16-A60              |
|                                                                                   | E10S-SNR/L-H16  | 59947      | 59948     |                 | 0.625 | 0.750     | 10.00  |                     |

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

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

|                                                                                     | Bar Description | UPC #      |           | Threading Ratio | Dia.  | Min. Bore | Length | DorNotch Gage Insert |
|-------------------------------------------------------------------------------------|-----------------|------------|-----------|-----------------|-------|-----------|--------|----------------------|
|                                                                                     |                 | Right Hand | Left Hand |                 |       |           |        |                      |
|  | E08K-NER/L-2    | 59951      | 59952     | 3:1             | 0.500 | 0.830     | 5.12   | *NG-2L<br>**NG-2R    |
|                                                                                     | E08R-NER/L-2    | 59955      | 59956     |                 | 0.500 | 0.830     | 8.12   |                      |
|  | E10M-NER/L-2    | 59959      | 59960     |                 | 0.625 | 1.000     | 6.00   | *NG-2L<br>**NG-2R    |
|                                                                                     | E10S-NER/L-2    | 59963      | 59964     |                 | 0.625 | 1.000     | 10.00  |                      |
|                                                                                     | E12Q-NER/L-2    | 60169      | 60170     |                 | 0.750 | 1.125     | 7.000  | *NG-2L<br>**NG-2R    |
|                                                                                     | E12S-NER/L-2    | 60171      | 60172     |                 | 0.750 | 1.125     | 10.00  |                      |

\* 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**

|                                                                                  | Bar Description | UPC #      |           |              | Min. Bore Length |       |       | CN__ Gage Insert |
|----------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|------------------|-------|-------|------------------|
|                                                                                  |                 | Right Hand | Left Hand | Boring Ratio |                  |       |       |                  |
|  | E16R-ADCLNR/L-4 | 60067      | 60068     |              | 1.000            | 1.280 | 8.000 |                  |
|                                                                                  | E16T-ADCLNR/L-4 | 60069      | 60070     | 6:1          | 1.000            | 1.280 | 12.00 | 432              |
|                                                                                  | E20U-ADCLNR/L-4 | 60071      | 60072     |              | 1.250            | 1.530 | 14.00 |                  |

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

**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**

|                                                                                  | Bar Description | UPC #      |           |              | Min. Bore Length |       |       | DN__ Gage Insert |
|----------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|------------------|-------|-------|------------------|
|                                                                                  |                 | Right Hand | Left Hand | Boring Ratio |                  |       |       |                  |
|  | E16R-ADDUNR/L-3 | 60093      | 60094     |              | 1.000            | 1.300 | 8.000 |                  |
|                                                                                  | E16T-ADDUNR/L-3 | 60095      | 60096     | 6:1          | 1.000            | 1.300 | 12.00 | 332              |
|                                                                                  | E20U-ADDUNR/L-4 | 60097      | 60098     |              | 1.250            | 2.000 | 14.00 | 432              |

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

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

|                                                                                  | Bar Description  | UPC #      |           |              | Min. Bore Length |       |       | TN__ Gage Insert |
|----------------------------------------------------------------------------------|------------------|------------|-----------|--------------|------------------|-------|-------|------------------|
|                                                                                  |                  | Right Hand | Left Hand | Boring Ratio |                  |       |       |                  |
|  | E16R-ADTURNR/L-3 | 60079      | 60080     |              | 1.000            | 1.280 | 8.000 |                  |
|                                                                                  | E16T-ADTURNR/L-3 | 60081      | 60082     | 6:1          | 1.000            | 1.280 | 12.00 | 332              |
|                                                                                  | E20U-ADTURNR/L-3 | 60083      | 60084     |              | 1.250            | 1.530 | 14.00 |                  |

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

**E\_ADDPNR R/L Thru Coolant Jet-Stream™ Carbide Boring Bar Style P- Negative 27.5° end cutting lead angle for negative 55° diamond DN\_\_ inserts**

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

Inserts used: all DN\_\_ series (DNMG, DNMG, 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**

|                                                                                    | Bar Description | UPC #      |           |              | Min. Bore Length |       |       | VN__ Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|------------------|-------|-------|------------------|
|                                                                                    |                 | Right Hand | Left Hand | Boring Ratio |                  |       |       |                  |
|  | E20U-ADVUNR/L-3 | 60121      | 60122     | 6:1          | 1.250            | 2.250 | 14.00 | 332              |

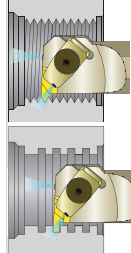
Inserts used: all VN\_\_ series (VNMG).

**E\_ADWLN R/L Thru Coolant Jet-Stream™ Carbide Boring Bar Style L - Negative 5° end & side cutting lead angle for negative 80° trigon WN\_\_ inserts**

|                                                                                    | Bar Description | UPC #      |           |              | Min. Bore Length |       |       | WN__ Gage Insert |
|------------------------------------------------------------------------------------|-----------------|------------|-----------|--------------|------------------|-------|-------|------------------|
|                                                                                    |                 | Right Hand | Left Hand | Boring Ratio |                  |       |       |                  |
|  | E16R-ADWLN/L-4  | 60125      | 60126     |              | 1.000            | 1.450 | 8.000 |                  |
|                                                                                    | E16T-ADWLN/L-4  | 60127      | 60128     | 6:1          | 1.000            | 1.450 | 12.00 | 432              |
|                                                                                    | E20U-ADWLN/L-4  | 60129      | 60130     |              | 1.250            | 1.530 | 14.00 |                  |

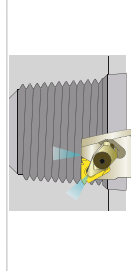
Inserts used: all WN\_\_ series (WNMG, WNMA).

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

|                                                                                   | Bar Description | UPC #      |           |                 | Min. Bore Length |       |        | DorNotch Gage Insert |
|-----------------------------------------------------------------------------------|-----------------|------------|-----------|-----------------|------------------|-------|--------|----------------------|
|                                                                                   |                 | Right Hand | Left Hand | Threading Ratio |                  |       |        |                      |
|  | E16R-ADNER/L-3  | 60173      | 60174     |                 | 1.000            | 1.380 | 8.000  |                      |
|                                                                                   | E16T-ADNER/L-3  | 60175      | 60176     | 3:1             | 1.000            | 1.380 | 12.000 | NG-3L* NG-3R**       |
|                                                                                   | E20U-ADNER/L-3  | 60177      | 60178     |                 | 1.250            | 1.750 | 14.000 |                      |

\* For right hand holder \*\* For left hand holder

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

|                                                                                   | Bar Description | UPC #      |           |                 | Min. Bore Length |       |       | LayDown Gage Insert |
|-----------------------------------------------------------------------------------|-----------------|------------|-----------|-----------------|------------------|-------|-------|---------------------|
|                                                                                   |                 | Right Hand | Left Hand | Threading Ratio |                  |       |       |                     |
|  | E12Q-ADLNR/L-16 | 60145      | 60146     |                 | 0.750            | 1.120 | 7.000 |                     |
|                                                                                   | E12S-ADLNR/L-16 | 60147      | 60148     |                 | 0.750            | 1.120 | 10.00 |                     |
|                                                                                   | E16R-ADLNR/L-16 | 60149      | 60150     | 3:1             | 1.000            | 1.375 | 8.000 | 16-G60              |
|                                                                                   | 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

**High Performance Quick Change Carbide Boring Bars Body & Boring Heads**  
for Multi Boring and Threading Operation

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



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



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



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



9 Interchangeable Heads

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



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



One Quick Change Carbide Body

**Note:** Quick Change Boring Heads will fit the Quick Change Carbide Boring Bar Body, and the Solution Tool Quick Change Boring Bar Body.

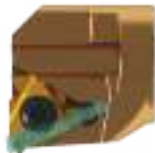
7 SVUC R/L  
Quick Change  
Boring Bar Head  
With Thru Coolant



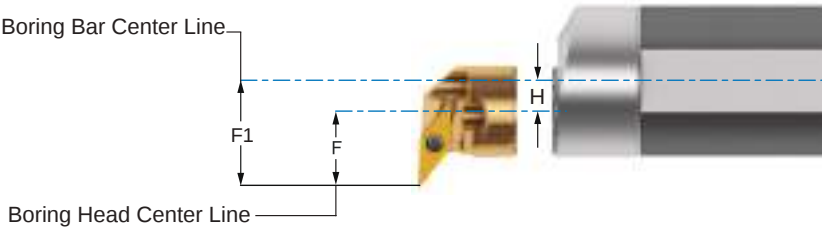
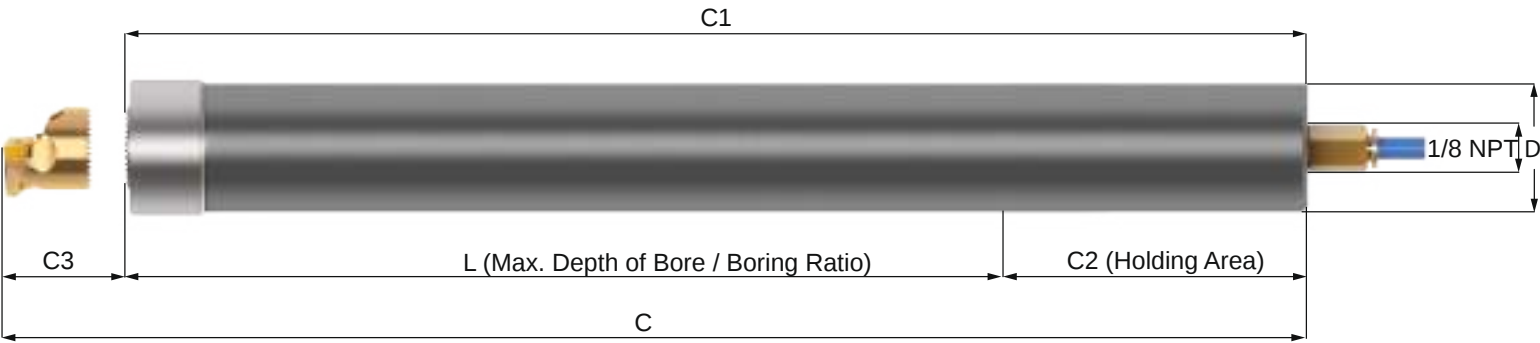
8 SWLC R/L  
Quick Change  
Boring Bar Head  
With Thru Coolant



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



# Thru Coolant Quick Change Carbide Boring Bar Body



| Bar Description | UPC #<br>Neutral | Boring<br>Ratio | Construction | Bar<br>Dia. | Actual<br>Min. Bore<br>B                                    | F1     | H     | L    | C      | C1     | C2   | C3    | Modular Head<br>CBBB |
|-----------------|------------------|-----------------|--------------|-------------|-------------------------------------------------------------|--------|-------|------|--------|--------|------|-------|----------------------|
| AE12I-Q-QCCBB   | 60195            | 4 x Dia.        | Carbide Body | 0.750       | F + H +<br>(1/2 Bar Dia)                                    | F1=F+H | 0     | 4.00 | 7.000  | 6.200  | 3.00 | 0.800 | DBOMH-12/20M         |
| AE16I-R-QCCBB   | 60197            |                 |              | 1.000       |                                                             |        | 0.125 | 4.00 | 8.000  | 7.200  | 4.00 | 0.800 |                      |
| AE12I-S-QCCBB   | 60196            | 6 x Dia.        | Carbide Body | 0.750       | <b>Note:</b><br>Leave enough<br>room for chip<br>evacuation |        | 0     | 7.00 | 10.000 | 9.200  | 3.00 | 0.800 | DBOMH-12/20M         |
| AE16I-T-QCCBB   | 60198            |                 |              | 1.000       |                                                             |        | 0.125 | 8.00 | 12.00  | 11.200 | 4.00 | 0.800 |                      |
| AE20I-U-QCCBB   | 60199            |                 |              | 1.250       |                                                             |        | 0.250 | 8.00 | 12.80  | 13.000 | 5.00 | 0.800 |                      |

8 x Dia. Boring Ratio can be achieved under favorable conditions.  
For Quick Change Heads, see pages 53 and 54



# Solution Tool!™

THE NO! VIBRATION RE-TUNABLE BORING BAR

**Makes Deep Hole Boring  
Simple!**



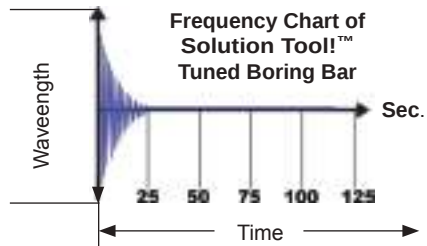
# Solution Tool!™ The No! Vibration Re-Tunable Threading & Boring Bar OUTPERFORMS THE BEST



To maximize performance in deep boring operations, Solution Tool!™ is offered in 2 versions:

**Steel Body:** The steel body for boring depth up to 12 x Boring Bar Diameter

**Carbide Body:** The carbide body rigidity and stability, allows to bore at higher cutting rate and material removal, and longer depth of cut up to 14xD.



**Boring Bar**  
**TUNED - TESTED - CERTIFIED**  
**Ready to Operate**



**Re-tunable Key**



**When to Re-tune the Bar?**  
**Re-tune to optimize the Bar performance**

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

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

**Re-Tuning The Solution Tool!™** Can be re-tuned on the machine to optimize the boring bar performance when:

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

## Solution Tool!™ The No! Vibration Re-Tunable Boring Bar

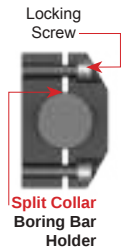
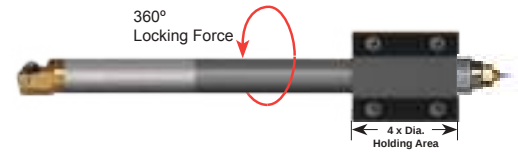
### BEST

#### 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!



Split Collar  
Boring Bar  
Holder

### GOOD

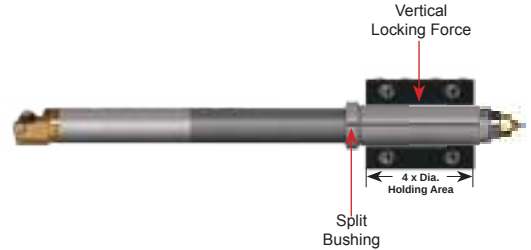
#### Split Bushing Holding System

#### **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!



Split Bushing  
Solid Boring  
Bar Holder

### DO NOT USE IT

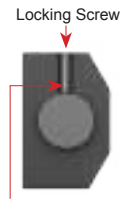
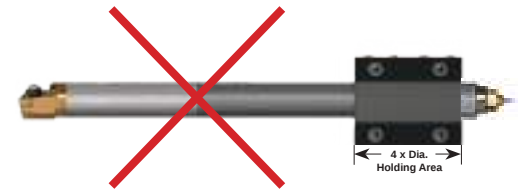
#### Set Screw Lock Holding System

#### **Solid boring bar holder**

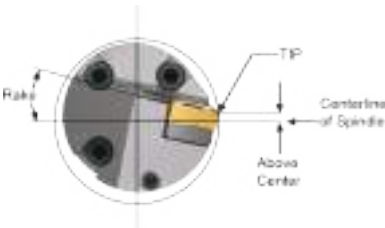
#### **Without bushing**

*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



Set Screw Lock  
Solid Boring  
Bar Holder



#### **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.

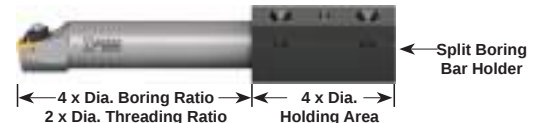
## Maximum Boring & Threading Ratio for Steel, Carbide and Solution Tool! Boring Bars

### Steel Bars

#### **4 x Dia. Boring Ratio**

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

- General boring bar applications
- Roughing to Finishing



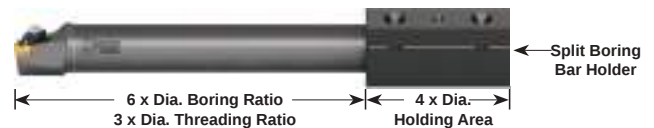
Split Boring  
Bar Holder

### 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.



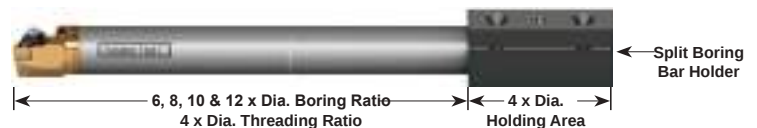
Split Boring  
Bar Holder

### Solution Tool!™ (Steel Body)

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

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

- For deep hole boring applications



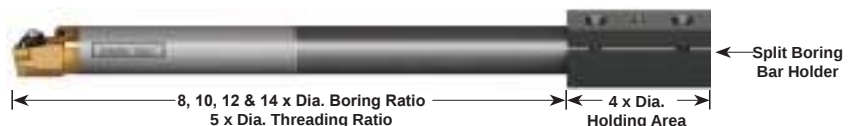
Split Boring  
Bar Holder

### Solution Tool!™ (Carbide Body)

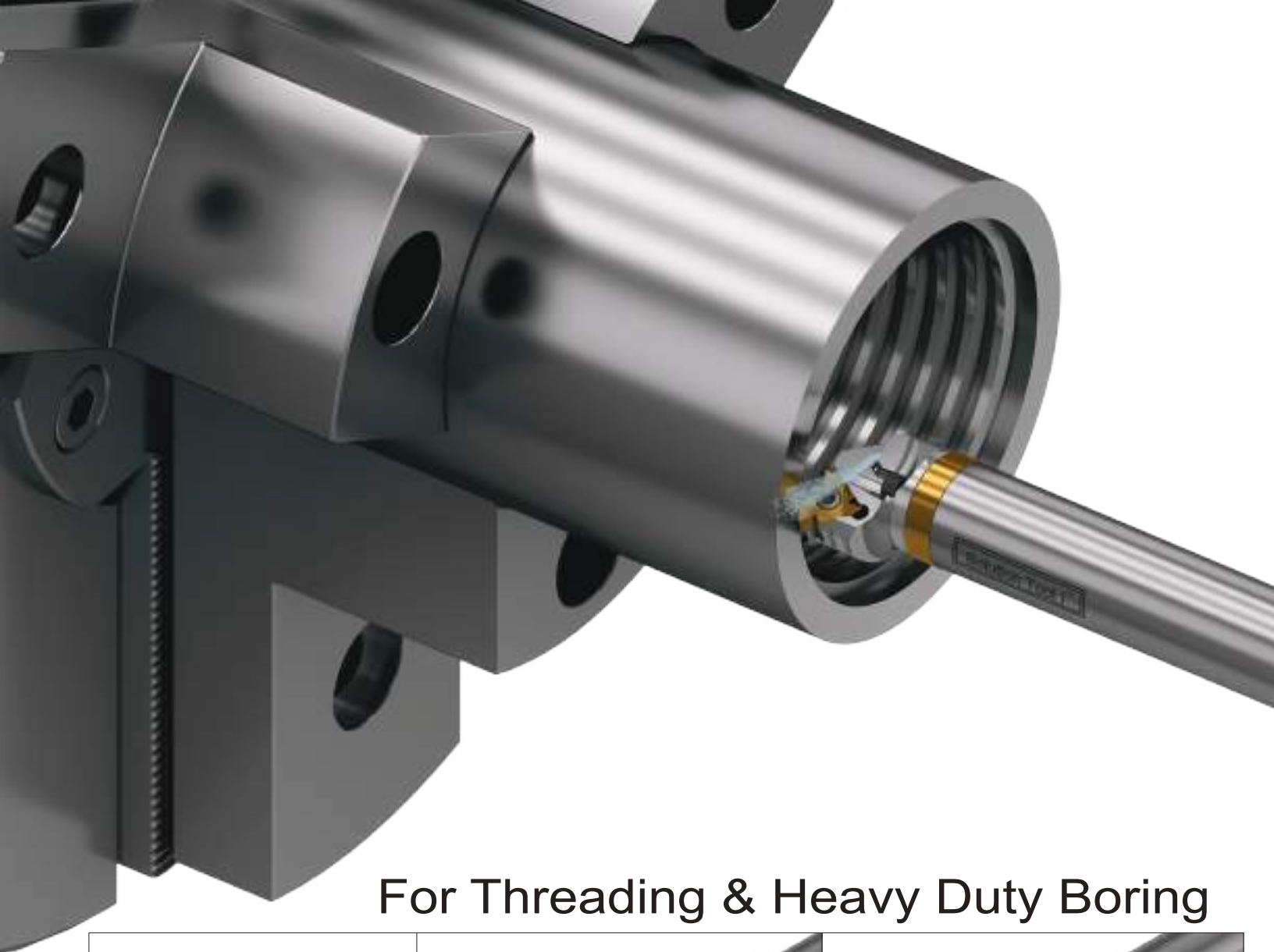
#### **8 x Dia., 10 x Dia., 12 x Dia., 14 x Dia. Boring Ratio**

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

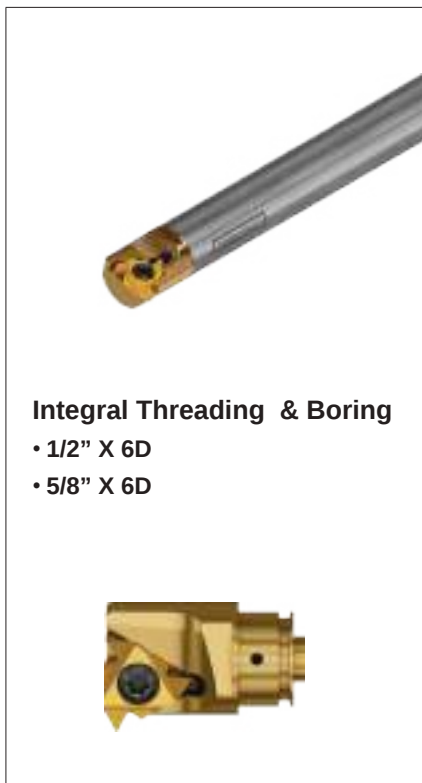
- High performance deep hole boring applications for higher material removal rate.



Split Boring  
Bar Holder



## For Threading & Heavy Duty Boring

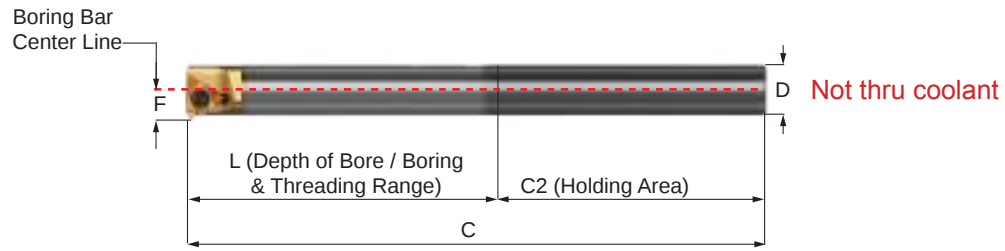


Will fit all the Quick Change Boring Heads on page 53-54

Will fit all the Modular Boring Heads on page 56-58

## Solution Tool!™ The No! Vibration Re-Tunable Integral Threading & Heavy Duty Boring Bar

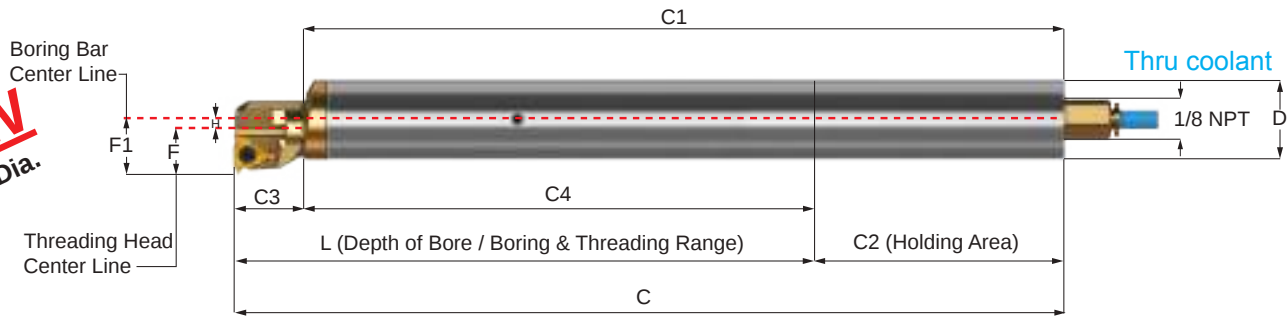
**NEW**  
4 - 6 x Dia.



| Bar Description            | UPC #<br>R.H. L.H. | Boring & Threading Ratio | Holding Ratio | Construction | Bar Dia. D | Actual Min. Bore B | F    | L     | C     | C1    | C2    | C3    | C4    | Gage Insert | Insert Screw |
|----------------------------|--------------------|--------------------------|---------------|--------------|------------|--------------------|------|-------|-------|-------|-------|-------|-------|-------------|--------------|
| STI08X-06-ITBNR/L06-11-CB  | 60376 60375        | 4-6 x Dia.               | 2-4           | Carbide Body | .500       | .565               | .315 | 3.000 | 5.00  | 4.375 | 2.000 | 0.625 | 2.375 | 11-A60      | TS-25.4-6M2  |
| STI10X-06-ITBNR/L-07-16-CB | 60378 60377        |                          |               |              | .625       | .720               | .406 | 3.750 | 6.250 | 5.500 | 2.500 | 0.750 | 3.000 | 16-G60      | TS-35.6-9M1  |

## Solution Tool!™ The No! Vibration Re-Tunable Quick Change Threading & Heavy Duty Boring Bar

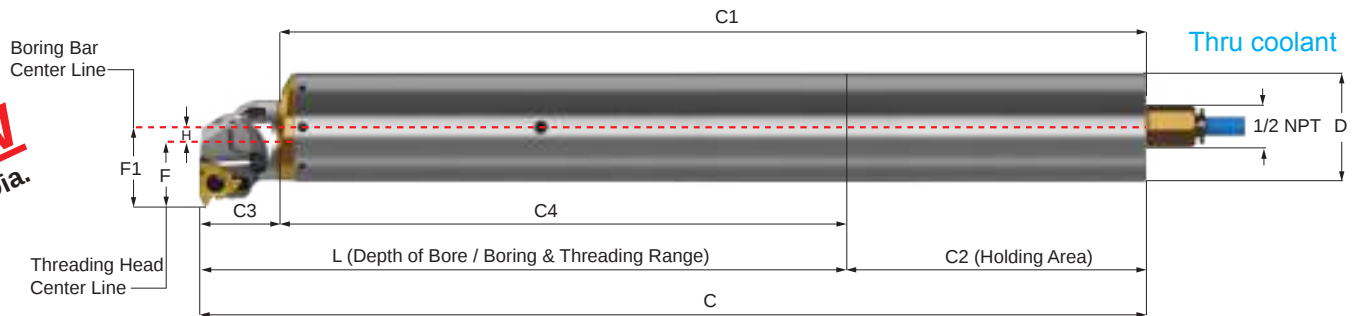
**NEW**  
4 - 6 x Dia.



| Bar Description    | UPC #<br>R.H. L.H. | Boring & Threading Ratio | Holding Ratio | Construction | Bar Dia. D | Actual Min. Bore B                          | F1     | H     | L     | C      | C1    | C2    | C3    | C4    | Threading Head        |
|--------------------|--------------------|--------------------------|---------------|--------------|------------|---------------------------------------------|--------|-------|-------|--------|-------|-------|-------|-------|-----------------------|
| STI12X-06-QTB08-SB | 60383 -            | 4-6 x Dia.               | 2-4           | Steel Body   | 0.750      | F + H + (1/2 Bar Dia)                       | F1=F+H | 0     | 4.500 | 6.000  | 5.200 | 1.500 | 0.800 | 3.700 | DBOMH-12/20M-SNR/L-16 |
| STI16X-06-QTB10-SB | 60384 -            |                          |               |              | 1.000      | Note: Leave enough room for chip evacuation |        | 0.125 | 6.000 | 8.000  | 7.200 | 2.000 | 0.800 | 5.200 |                       |
| STI20X-06-QTB13-SB | 60385 -            |                          |               |              | 1.250      |                                             |        | 0.250 | 7.500 | 10.000 | 9.200 | 2.500 | 0.800 | 6.700 |                       |

## Solution Tool!™ The No! Vibration Re-Tunable Modular Jet-Stream Threading & Heavy Duty Boring Bar

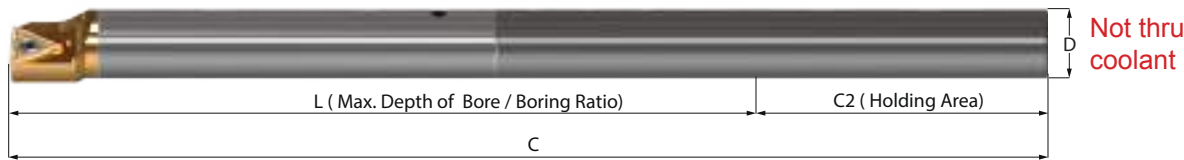
**NEW**  
4 - 6 x Dia.



| Bar Description    | UPC #<br>R.H. L.H. | Boring & Threading Ratio | Holding Ratio | Construction | Bar Dia. D | Actual Min. Bore B                          | F1     | H     | L      | C      | C1     | C2    | C3    | C4     | Threading Head          |
|--------------------|--------------------|--------------------------|---------------|--------------|------------|---------------------------------------------|--------|-------|--------|--------|--------|-------|-------|--------|-------------------------|
| STI24X-06-MTB12-SB | 60389              | 4-6 x Dia.               | 2-4           | Steel Body   | 1.500      | B = F + H + (1/2 Bar Dia)                   | F1=F+H | 0     | 9.000  | 12.000 | 10.425 | 3.000 | 1.575 | 7.425  | DBOMH-24/40M-ADLNR/L-16 |
| STI32X-06-MTB16-SB | 60391              |                          |               |              | 2.000      | Note: Leave enough room for chip evacuation |        | 0.250 | 12.000 | 16.000 | 14.425 | 4.000 | 1.575 | 10.425 | DBOMH-24/40M-ADLNR/L-22 |
| STI40X-06-MTB20-SB | 60392              |                          |               |              | 2.500      |                                             |        | 0.500 | 15.000 | 20.000 | 18.425 | 5.000 | 1.575 | 13.425 | DBOMH-24/40M-ADLNR/L-27 |
| STI48X-06-MTB24-SB | 60393              |                          |               |              | 3.000      |                                             |        | 0.750 | 18.000 | 24.000 | 22.425 | 6.000 | 1.575 | 16.425 | DBOMH-24/40M-ADNER/L-3  |
| STI64X-06-MTB32-SB | 60394              |                          |               |              | 4.000      |                                             |        | 1.250 | 24.000 | 32.000 | 30.425 | 8.000 | 1.575 | 22.425 | DBOMH-24/40M-ADTHOR/L-4 |

# Solution Tool!™ The No! Vibration Re-Tunable Integral Boring Bar

Small Diameters 1/2" and 5/8"

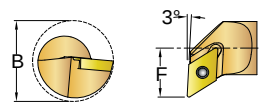


- Deep hole boring made simple
- 8xD, 10xD, 12xD and 14xD boring (overhang) ratios
- For high material removal rate, high surface finish and tight tolerances
- Bars are pre-tuned at the factory to the specific boring ratio
- Bars can be Re-tuned on the machine to optimize boring performance in challenging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

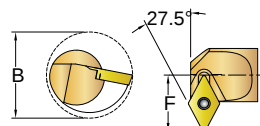
Min Bore (B) in the charts below includes chip clearance.  
Actual minimum bore = F + (1/2 Bar Dia.)  
Always allow enough room for chip evacuation.



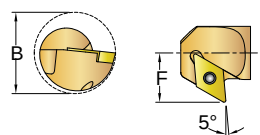
| Bar Description        | UPC #      |           | Boring Ratio | Construction | Min. Bore |      |       |      |      | Gage Insert |       |              |
|------------------------|------------|-----------|--------------|--------------|-----------|------|-------|------|------|-------------|-------|--------------|
|                        | Right Hand | Left Hand |              |              | Dia.      | B    | C     | L    | C2   | F           | CC_   | Insert Screw |
| DVI06X-08-SCLCR-2-CB   | 59026      | -         | 8 x Dia.     | Carbide Body | 0.375     | .470 | 5.63  | 3.00 | 2.63 | .220        | 21.51 | TS-25.45-6M2 |
| DVI08X-08-SCLCR/L-2-CB | 59400      | 59401     |              |              | 0.500     | .625 | 7.00  | 4.00 | 3.00 | .275        |       |              |
| DVI10X-08-SCLCR/L-3-CB | 59404      | 59405     |              |              | 0.625     | .781 | 8.13  | 5.00 | 3.13 | .395        | 32.51 | TS-4.7-8M1   |
| DVI06X-10-SCLCR-2-CB   | 59028      | -         | 10 x Dia.    |              | 0.375     | .470 | 6.38  | 3.75 | 2.63 | .220        | 21.51 | TS-25.45-6M2 |
| DVI08X-10-SCLCR/L-2-CB | 59034      | 59035     |              |              | 0.500     | .625 | 8.00  | 5.00 | 3.00 | .275        |       |              |
| DVI10X-10-SCLCR/L-3-CB | 59046      | 59047     |              |              | 0.625     | .781 | 9.38  | 6.25 | 3.13 | .395        | 32.51 | TS-4.7-8M1   |
| DVI06X-12-SCLCR-2-CB   | 59030      | -         | 12 x Dia.    |              | 0.375     | .470 | 7.13  | 4.50 | 2.63 | .220        | 21.51 | TS-25.45-6M2 |
| DVI08X-12-SCLCR/L-2-CB | 59036      | 59037     |              |              | 0.500     | .625 | 9.00  | 6.00 | 3.00 | .275        |       |              |
| DVI10X-12-SCLCR/L-3-CB | 59048      | 59049     |              |              | 0.625     | .781 | 10.63 | 7.50 | 3.13 | .395        | 32.51 | TS-4.7-8M1   |
| DVI06X-14-SCLCR-2-CB   | 59032      | -         | 14 x Dia.    |              | 0.375     | .470 | 7.88  | 5.25 | 2.63 | .220        | 21.51 | TS-25.45-6M2 |
| DVI08X-14-SCLCR/L-2-CB | 59038      | 59039     |              |              | 0.500     | .625 | 10.00 | 7.00 | 3.00 | .275        |       |              |
| DVI10X-14-SCLCR/L-3-CB | 59050      | 59051     |              |              | 0.625     | .781 | 11.88 | 8.75 | 3.13 | .395        | 32.51 | TS-4.7-8M1   |



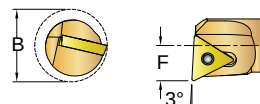
| Bar Description        | Right Hand | Left Hand | Boring Ratio | Construction | Min. Bore |      |       |      |      | Gage Insert |       |              |
|------------------------|------------|-----------|--------------|--------------|-----------|------|-------|------|------|-------------|-------|--------------|
|                        |            |           |              |              | Dia.      | B    | C     | L    | C2   | F           | DC__  | Insert Screw |
| DVI06X-08-SDUCR-2-CB   | 59142      | -         | 8 x Dia.     | Carbide Body | 0.375     | .625 | 5.63  | 3.00 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-08-SDUCR/L-2-CB | 59406      | 59407     |              |              | 0.500     | .750 | 7.00  | 4.00 | 3.00 | .437        |       |              |
| DVI10X-08-SDUCR/L-2-CB | 59408      | 59409     |              |              | 0.625     | .875 | 8.13  | 5.00 | 3.13 | .500        |       |              |
| DVI06X-10-SDUCR-2-CB   | 59144      | -         | 10 x Dia.    |              | 0.375     | .625 | 6.38  | 3.75 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-10-SDUCR/L-2-CB | 59150      | 59151     |              |              | 0.500     | .750 | 8.00  | 5.00 | 3.00 | .437        |       |              |
| DVI10X-10-SDUCR/L-2-CB | 60297      | 60298     |              |              | 0.625     | .875 | 9.38  | 6.25 | 3.13 | .500        |       |              |
| DVI06X-12-SDUCR-2-CB   | 59146      | -         | 12 x Dia.    |              | 0.375     | .625 | 7.13  | 4.50 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-12-SDUCR/L-2-CB | 59152      | 59153     |              |              | 0.500     | .750 | 9.00  | 6.00 | 3.00 | .437        |       |              |
| DVI10X-12-SDUCR/L-2-CB | 59158      | 59159     |              |              | 0.625     | .875 | 10.63 | 7.50 | 3.13 | .500        |       |              |
| DVI06X-14-SDUCR-2-CB   | 59148      | -         | 14 x Dia.    |              | 0.375     | .625 | 7.88  | 5.25 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-14-SDUCR/L-2-CB | 59154      | 59155     |              |              | 0.500     | .750 | 10.00 | 7.00 | 3.00 | .437        |       |              |
| DVI10X-14-SDUCR/L-2-CB | 59160      | 59161     |              |              | 0.625     | .875 | 11.88 | 8.75 | 3.13 | .500        |       |              |



| Bar Description        | Right Hand | Boring Ratio | Construction | Min. Bore |       |       |      |      | Gage Insert |       |              |
|------------------------|------------|--------------|--------------|-----------|-------|-------|------|------|-------------|-------|--------------|
|                        |            |              |              | Dia.      | B     | C     | L    | C2   | F           | DC __ | Insert Screw |
| DVI06X-08-SDNCR-2-CB   | 59094      | 8 x Dia.     | Carbide Body | 0.375     | 0.581 | 5.63  | 3.00 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-08-SDNCR-2-CB   | 59102      |              |              | 0.500     | 0.813 | 7.00  | 4.00 | 3.00 | .500        |       |              |
| DVI10X-08-SDNCR-2-CB   | 59110      |              |              | 0.625     | 0.938 | 8.13  | 5.00 | 3.13 | .562        |       |              |
| DVI06X-10-SDNCR-2-CB   | 59096      | 10 x Dia.    |              | 0.375     | 0.581 | 6.38  | 3.75 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-10-SDNCR-2-CB   | 59104      |              |              | 0.500     | 0.813 | 8.00  | 5.00 | 3.00 | .500        |       |              |
| DVI10X-10-SDNCR-2-CB   | 59112      |              |              | 0.625     | 0.938 | 9.38  | 6.25 | 3.13 | .562        |       |              |
| DVI06X-12-SDNCR-2-CB   | 59098      | 12 x Dia.    |              | 0.375     | 0.581 | 7.13  | 4.50 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-12-SDNCR-2-CB   | 59106      |              |              | 0.500     | 0.813 | 9.00  | 6.00 | 3.00 | .500        |       |              |
| DVI10X-12-SDNCR-2-CB   | 59114      |              |              | 0.625     | 0.938 | 10.63 | 7.50 | 3.13 | .562        |       |              |
| DVI06X-14-SDNCR/L-2-CB | 59100      | 14 x Dia.    |              | 0.375     | 0.581 | 7.88  | 5.25 | 2.63 | 0.375       | 21.51 | TS-25.45-6M2 |
| DVI08X-14-SDNCR-2-CB   | 59108      |              |              | 0.500     | 0.813 | 10.00 | 7.00 | 3.00 | .500        |       |              |
| DVI10X-14-SDNCR-2-CB   | 59116      |              |              | 0.625     | 0.938 | 11.88 | 8.75 | 3.13 | .562        |       |              |



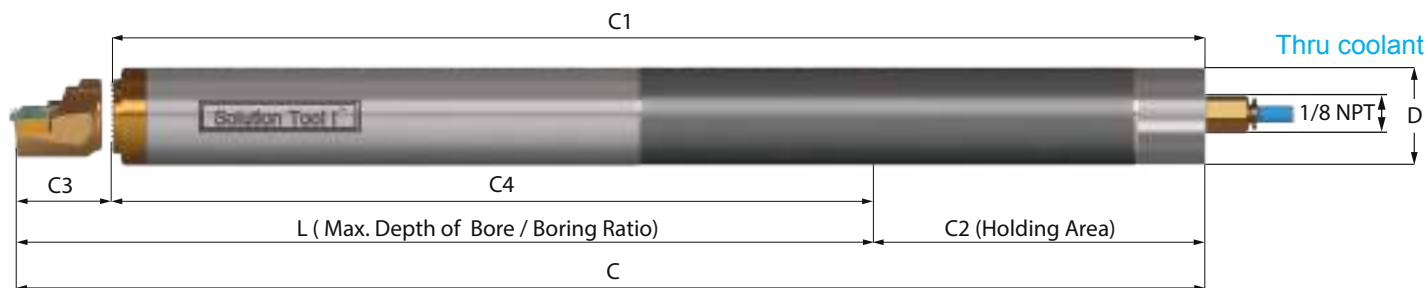
| Bar Description      | Right Hand | Boring Ratio | Construction | Min. Bore |       |       |      |      | Gage Insert |       |              |
|----------------------|------------|--------------|--------------|-----------|-------|-------|------|------|-------------|-------|--------------|
|                      |            |              |              | Dia.      | B     | C     | L    | C2   | F           | DC__  | Insert Screw |
| DVI06X-08-SDXCR-2-CB | 59182      | 8 x Dia.     | Carbide Body | 0.375     | 0.625 | 5.63  | 3.00 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-08-SDXCR-2-CB | 59190      |              |              | 0.500     | 0.750 | 7.00  | 4.00 | 3.00 | .437        |       |              |
| DVI10X-08-SDXCR/2-CB | 59198      |              |              | 0.625     | 0.875 | 8.13  | 5.00 | 3.13 | .500        |       |              |
| DVI06X-10-SDXCR-2-CB | 59184      | 10 x Dia.    |              | 0.375     | 0.625 | 6.38  | 3.75 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-10-SDXCR-2-CB | 59192      |              |              | 0.500     | 0.750 | 8.00  | 5.00 | 3.00 | .437        |       |              |
| DVI10X-10-SDXCR-2-CB | 59200      |              |              | 0.625     | 0.875 | 9.38  | 6.25 | 3.13 | .500        |       |              |
| DVI06X-12-SDXCR-2-CB | 59186      | 12 x Dia.    |              | 0.375     | 0.625 | 7.13  | 4.50 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-12-SDXCR-2-CB | 59194      |              |              | 0.500     | 0.750 | 9.00  | 6.00 | 3.00 | .437        |       |              |
| DVI10X-12-SDXCR-2-CB | 59202      |              |              | 0.625     | 0.875 | 10.63 | 7.50 | 3.13 | .500        |       |              |
| DVI06X-14-SDXCR-2-CB | 59188      | 14 x Dia.    |              | 0.375     | 0.625 | 7.88  | 5.25 | 2.63 | .375        | 21.51 | TS-25.45-6M2 |
| DVI08X-14-SDXCR-2-CB | 59196      |              |              | 0.500     | 0.750 | 10.00 | 7.00 | 3.00 | .437        |       |              |
| DVI10X-14-SDXCR-2-CB | 59204      |              |              | 0.625     | 0.875 | 11.88 | 8.75 | 3.13 | .500        |       |              |



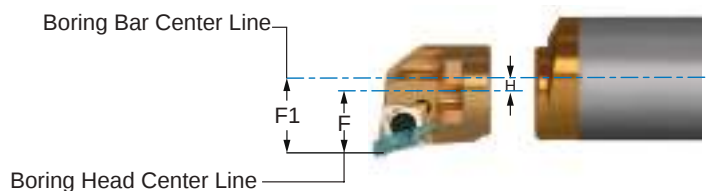
|                        |            |       | Boring    | Min. Bore    |       |       |       |      |      | Gage Insert |       |              |
|------------------------|------------|-------|-----------|--------------|-------|-------|-------|------|------|-------------|-------|--------------|
| Bar Description        | Right Hand |       | Ratio     | Construction | Dia.  | B     | C     | L    | C2   | F           | TC    | Insert Screw |
| DVI06X-08-STUCR-2-CB   | 59246      |       | 8 x Dia.  | Carbide Body | 0.375 | 0.447 | 5.63  | 3.00 | 2.63 | .220        | 21.51 | TS-25.45-6M2 |
| DVI08X-08-STUCR/L-2-CB | 59410      | 59411 |           |              | 0.500 | 0.625 | 7.00  | 4.00 | 3.00 | .312        |       |              |
| DVI10X-08-STUCR/L-2-CB | 59412      | 59413 |           |              | 0.625 | 0.781 | 8.13  | 5.00 | 3.13 | .406        |       |              |
| DVM10X-10-STUCR-11-CB  | 59248      | -     | 10 x Dia. |              | 0.375 | 0.447 | 6.38  | 3.75 | 2.63 | .220        | 21.51 | TS-25.45-6M2 |
| DVI08X-10-STUCR/L-2-CB | 59262      | 59263 |           |              | 0.500 | 0.625 | 8.00  | 5.00 | 3.00 | .312        |       |              |
| DVI10X-10-STUCR/L-2-CB | 59268      | 59269 |           |              | 0.625 | 0.781 | 9.38  | 6.25 | 3.13 | .406        |       |              |
| DVI06X-10-STUCR-2-CB   | 59250      | -     | 12 x Dia. |              | 0.375 | 0.447 | 7.13  | 4.50 | 2.63 | .220        | 21.51 | TS-25.45-6M2 |
| DVI08X-12-STUCR/L-2-CB | 59264      | 59265 |           |              | 0.500 | 0.625 | 9.00  | 6.00 | 3.00 | .312        |       |              |
| DVI10X-12-STUCR/L-2-CB | 59270      | 59271 |           |              | 0.625 | 0.781 | 10.63 | 7.50 | 3.13 | .406        |       |              |
| DVI06X-14-STUCR-2-CB   | 59252      | -     | 14 x Dia. |              | 0.375 | 0.447 | 7.88  | 5.25 | 2.63 | .220        | 21.51 | TS-25.45-6M2 |
| DVI08X-14-STUCR/L-2-CB | 59266      | 59267 |           |              | 0.500 | 0.625 | 10.00 | 7.00 | 3.00 | .312        |       |              |
| DVI10X-14-STUCR/L-2-CB | 59272      | 59273 |           |              | 0.625 | 0.781 | 11.78 | 8.75 | 3.13 | .406        |       |              |

# Solution Tool!™ The No! Vibration Re-Tunable Quick Change Boring 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 pre-tuned at the factory to the specific boring ratio
- Bars can be Re-tuned on the machine to optimize boring performance in challenging application



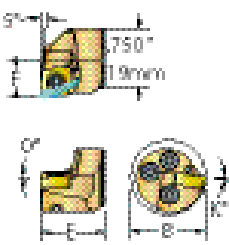
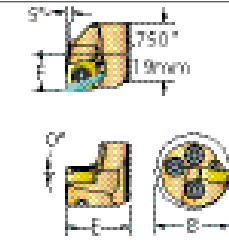
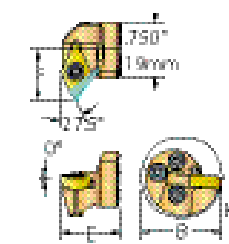
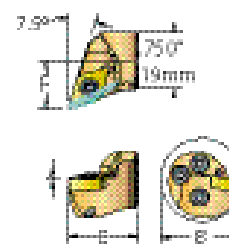
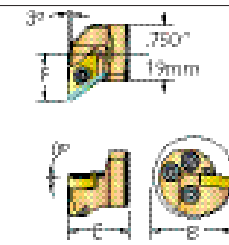
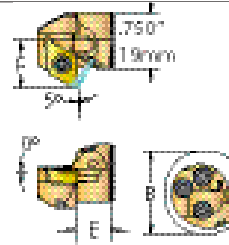
| Bar Description       | UPC # Neutral | Boring Ratio | Holding Ratio | Construction | Bar Dia. D | Actual Min. Bore B                                                                    | F1     | H     | L     | C     | C1    | C2   | C3  | C4  | Quick Change Head | Coolant Attachment Thread |
|-----------------------|---------------|--------------|---------------|--------------|------------|---------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|------|-----|-----|-------------------|---------------------------|
| DVI12X-08-MQBNN-9-SB  | 59428         | 8 x Dia.     | 4             | Steel Body   | 0.750      | B= F + H + (1/2 Bar Dia)<br><br><b>Note:</b><br>Leave enough room for chip evacuation | F1=F+H | 0     | 6.00  | 9.00  | 8.20  | 3.00 | 0.8 | 5.2 | DBOMH-12/20M      | 1/8"-27 NPT               |
| DVI12X-08-MQBNN-9-CB  | 60360         |              |               | Carbide Body | 0.750      |                                                                                       |        | 0     | 6.00  | 9.00  | 8.20  | 3.00 | 0.8 | 5.2 |                   |                           |
| DVI16X-08-MQBNN-12-SB | 59340         |              |               | Steel Body   | 1.000      |                                                                                       |        | 0.125 | 8.00  | 12.00 | 11.20 | 4.00 | 0.8 | 7.2 |                   |                           |
| DVI16X-08-MQBNN-12-CB | 60362         |              |               | Carbide Body | 1.000      |                                                                                       |        | 0.125 | 8.00  | 12.00 | 11.20 | 4.00 | 0.8 | 7.2 |                   |                           |
| DVI20X-08-MQBNN-15-SB | 59341         |              |               | Steel Body   | 1.250      |                                                                                       |        | 0.250 | 10.00 | 15.00 | 14.20 | 5.00 | 0.8 | 9.2 |                   |                           |
| DVI20X-08-MQBNN-15-CB | 60364         |              |               | Carbide Body | 1.250      |                                                                                       |        | 0.250 | 10.00 | 15.00 | 14.20 | 5.00 | 0.8 | 9.2 |                   |                           |

|                       |       |           |   |              |       |                                                                                       |        |       |       |       |       |      |     |      |              |             |
|-----------------------|-------|-----------|---|--------------|-------|---------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|------|-----|------|--------------|-------------|
| DVI12X-10-MQBNN-11-SB | 59342 | 10 x Dia. | 4 | Steel Body   | 0.750 | B= F + H + (1/2 Bar Dia)<br><br><b>Note:</b><br>Leave enough room for chip evacuation | F1=F+H | 0     | 7.50  | 10.50 | 9.70  | 3.00 | 0.8 | 6.7  | DBOMH-12/20M | 1/8"-27 NPT |
| DVI12X-10-MQBNN-11-CB | 60361 |           |   | Carbide Body | 0.750 |                                                                                       |        | 0     | 7.50  | 10.50 | 9.70  | 3.00 | 0.8 | 6.7  |              |             |
| DVI16X-10-MQBNN-14-SB | 59429 |           |   | Steel Body   | 1.000 |                                                                                       |        | 0.125 | 10.00 | 14.00 | 13.20 | 4.00 | 0.8 | 9.2  |              |             |
| DVI16X-10-MQBNN-14-CB | 60363 |           |   | Carbide Body | 1.000 |                                                                                       |        | 0.125 | 10.00 | 14.00 | 13.20 | 4.00 | 0.8 | 9.2  |              |             |
| DVI20X-10-MQBNN-18-SB | 59471 |           |   | Steel Body   | 1.250 |                                                                                       |        | 0.250 | 12.50 | 17.50 | 16.70 | 5.00 | 0.8 | 11.7 |              |             |
| DVI20X-10-MQBNN-18-CB | 60365 |           |   | Carbide Body | 1.250 |                                                                                       |        | 0.250 | 12.50 | 17.50 | 16.70 | 5.00 | 0.8 | 11.7 |              |             |

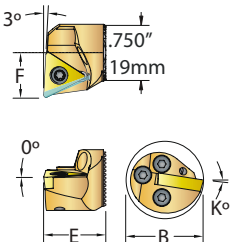
|                       |       |           |   |              |       |                                                                                       |        |       |       |       |       |      |     |      |              |             |
|-----------------------|-------|-----------|---|--------------|-------|---------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|------|-----|------|--------------|-------------|
| DVI12X-12-MQBNN-12-SB | 59360 | 12 x Dia. | 4 | Steel Body   | 0.750 | B= F + H + (1/2 Bar Dia)<br><br><b>Note:</b><br>Leave enough room for chip evacuation | F1=F+H | 0     | 9.00  | 12.00 | 11.20 | 3.00 | 0.8 | 8.2  | DBOMH-12/20M | 1/8"-27 NPT |
| DVI12X-12-MQBNN-12-CB | 59343 |           |   | Carbide Body | 0.750 |                                                                                       |        | 0     | 9.00  | 12.00 | 11.20 | 3.00 | 0.8 | 8.2  |              |             |
| DVI16X-12-MQBNN-16-SB | 59361 |           |   | Steel Body   | 1.000 |                                                                                       |        | 0.125 | 12.00 | 16.00 | 15.20 | 4.00 | 0.8 | 11.2 |              |             |
| DVI16X-12-MQBNN-16-CB | 59391 |           |   | Carbide Body | 1.000 |                                                                                       |        | 0.125 | 12.00 | 16.00 | 15.20 | 4.00 | 0.8 | 11.2 |              |             |
| DVI20X-12-MQBNN-20-SB | 59362 |           |   | Steel Body   | 1.250 |                                                                                       |        | 0.250 | 15.00 | 20.00 | 19.20 | 5.00 | 0.8 | 14.2 |              |             |
| DVI20X-12-MQBNN-20-CB | 59393 |           |   | Carbide Body | 1.250 |                                                                                       |        | 0.250 | 15.00 | 20.00 | 19.20 | 5.00 | 0.8 | 14.2 |              |             |

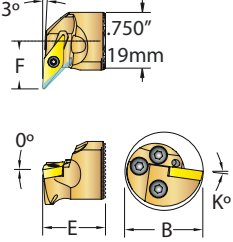
|                       |       |           |   |              |       |                                                                                       |        |       |       |       |       |      |     |      |              |             |
|-----------------------|-------|-----------|---|--------------|-------|---------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|------|-----|------|--------------|-------------|
| DVI12X-14-MQBNN-14-CB | 59344 | 14 x Dia. | 4 | Carbide Body | 0.750 | B= F + H + (1/2 Bar Dia)<br><br><b>Note:</b><br>Leave enough room for chip evacuation | F1=F+H | 0     | 10.50 | 13.50 | 12.70 | 3.00 | 0.8 | 9.7  | DBOMH-12/20M | 1/8"-27 NPT |
| DVI16X-14-MQBNN-18-CB | 59392 |           |   | Carbide Body | 1.000 |                                                                                       |        | 0.125 | 14.00 | 18.00 | 17.20 | 4.00 | 0.8 | 13.2 |              |             |
| DVI20X-14-MQBNN-23-CB | 59394 |           |   | Carbide Body | 1.250 |                                                                                       |        | 0.250 | 17.50 | 22.50 | 21.70 | 5.00 | 0.8 | 16.7 |              |             |

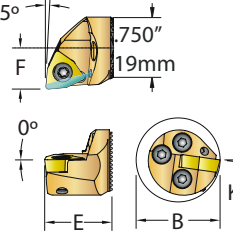
# Boring Heads for Solution Tool!™ Quick Change Boring Bar 3/4" to 1/4"

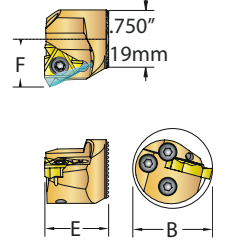
| Positive Boring Head Specification                                                                                                                     | Head Description       | UPC # |       | Reference Bar Dia. | B     | E     | F     | K° | Gage Insert   | Insert Torx  | Torx Key | Locking Head Screw |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|-------|--------------------|-------|-------|-------|----|---------------|--------------|----------|--------------------|
|                                                                                                                                                        |                        | R.H.  | L.H.  |                    |       |       |       |    |               |              |          |                    |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p>   | DBOMH-12/20M-SCLCR/L-3 | 60225 | 60226 | 0.750              | 1.000 | 0.820 | 0.500 | 8° | CC__<br>32.52 | TS-4.7-10M1  | T-15     | QCHLS-3MCS         |
|                                                                                                                                                        |                        |       |       | 1.000              | 1.250 | 0.820 | 0.500 | 8° |               |              |          |                    |
|                                                                                                                                                        |                        |       |       | 1.250              | 1.500 | 0.820 | 0.500 | 8° |               |              |          |                    |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p>   | DBOMH-12/20M-SCLPR-3   | 60259 | -     | 0.750              | 1.000 | 0.820 | 0.600 | 8° | CP__<br>32.52 | TS-4.7-10M1  | T-15     | QCHLS-3MCS         |
|                                                                                                                                                        |                        |       |       | 1.000              | 1.250 | 0.820 | 0.600 | 8° |               |              |          |                    |
|                                                                                                                                                        |                        |       |       | 1.250              | 1.500 | 0.820 | 0.600 | 8° |               |              |          |                    |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p>  | DBOMH-12/20M-SDNCR/L-3 | 60229 | 60230 | 0.750              | 1.160 | 0.820 | 0.660 | 5° | DC__<br>32.52 | TS-4.7-10M1  | T-15     | QCHLS-3MCS         |
|                                                                                                                                                        |                        |       |       | 1.000              | 1.410 | 0.820 | 0.660 | 5° |               |              |          |                    |
|                                                                                                                                                        |                        |       |       | 1.250              | 1.660 | 0.820 | 0.660 | 5° |               |              |          |                    |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-12/20M-SDQCR/L-2 | 60251 | 60252 | 0.750              | 1.125 | 0.820 | .500  | 7° | DC__<br>21.51 | TS-25.45-6M2 | T-8      | QCHLS-3MCS         |
|                                                                                                                                                        |                        |       |       | 1.000              | 1.375 | 0.820 | .500  | 7° |               |              |          |                    |
|                                                                                                                                                        |                        |       |       | 1.250              | 1.625 | 0.820 | .500  | 7° |               |              |          |                    |
|                                                                                                                                                        | DBOMH-12/20M-SDQCR/L-3 | 60231 | 60232 | 0.750              | 1.125 | 0.820 | 0.625 | 7° | DC__<br>32.52 | TS-4.7-10M1  | T-15     | QCHLS-3MCS         |
|                                                                                                                                                        |                        |       |       | 1.000              | 1.375 | 0.820 | 0.625 | 7° |               |              |          |                    |
|                                                                                                                                                        |                        |       |       | 1.250              | 1.625 | 0.820 | 0.625 | 7° |               |              |          |                    |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-12/20M-SDUCR/L-2 | 60247 | 60248 | 0.750              | 1.025 | 0.820 | 0.525 | 6° | DC__<br>21.51 | TS-25.45-6M2 | T-8      | QCHLS-3MCS         |
|                                                                                                                                                        |                        |       |       | 1.000              | 1.275 | 0.820 | 0.525 | 6° |               |              |          |                    |
|                                                                                                                                                        |                        |       |       | 1.250              | 1.525 | 0.820 | 0.525 | 6° |               |              |          |                    |
|                                                                                                                                                        | DBOMH-12/20M-SDUCR/L-3 | 60227 | 60228 | 0.750              | 1.038 | 0.820 | 0.625 | 6° | DC__<br>32.52 | TS-4.7-10M1  | T-15     | QCHLS-3MCS         |
|                                                                                                                                                        |                        |       |       | 1.000              | 1.278 | 0.820 | 0.625 | 6° |               |              |          |                    |
|                                                                                                                                                        |                        |       |       | 1.250              | 1.538 | 0.820 | 0.625 | 6° |               |              |          |                    |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-12/20M-SDXCR/L-3 | 60233 | 60234 | 0.750              | 1.125 | 0.468 | 0.625 | 5° | DC__<br>32.52 | TS-4.7-10M1  | T-15     | QCHLS-3MCS         |
|                                                                                                                                                        |                        |       |       | 1.000              | 1.375 | 0.468 | 0.625 | 5° |               |              |          |                    |
|                                                                                                                                                        |                        |       |       | 1.250              | 1.625 | 0.468 | 0.625 | 5° |               |              |          |                    |

# Boring Heads for Solution Tool!™ Quick Change Boring Bar 3/4", to 1 1/4".

| Positive Boring Head Specification                                                                                                                  | Head Description       | UPC # |       | Reference Bar Dia. | B     | E     | F     | K° | Gage Insert         | Insert Torx  | Torx Key | Locking Head Screw |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|-------|--------------------|-------|-------|-------|----|---------------------|--------------|----------|--------------------|
|                                                                                                                                                     |                        | R.H.  | L.H.  |                    |       |       |       |    |                     |              |          |                    |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-12/20M-STUCR/L-2 | 60255 | 60256 | 0.750              | 1.000 | 0.820 | 0.500 | 6° | TC <sub>21.51</sub> | TS-25.45-6M2 | T-8      | QCHLS-3MCS         |
|                                                                                                                                                     |                        |       |       | 1.000              | 1.250 | 0.820 | 0.500 | 6° |                     |              |          |                    |
|                                                                                                                                                     |                        |       |       | 1.250              | 1.500 | 0.820 | 0.500 | 6° |                     |              |          |                    |
|                                                                                                                                                     | DBOMH-12/20M-STUCR/L-3 | 60235 | 60236 | 0.750              | 1.090 | 0.820 | 0.590 | 9° | TC <sub>32.52</sub> | TS-4.7-10M1  | T-15     | QCHLS-3MCS         |
|                                                                                                                                                     |                        |       |       | 1.000              | 1.340 | 0.820 | 0.590 | 9° |                     |              |          |                    |
|                                                                                                                                                     |                        |       |       | 1.250              | 1.590 | 0.820 | 0.590 | 9° |                     |              |          |                    |

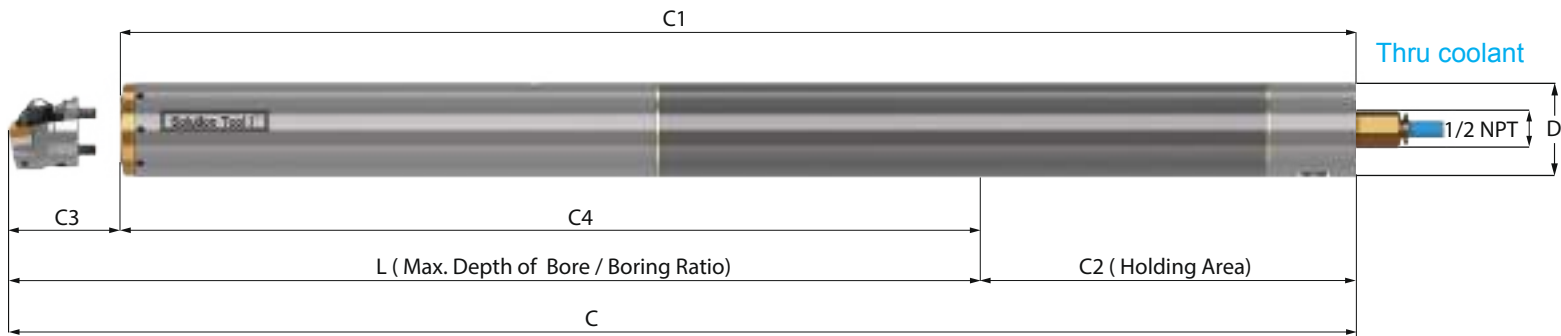
|                                                                                                                                                     |                        |       |       |       |       |       |       |    |                   |              |     |            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|-------|-------|-------|-------|-------|----|-------------------|--------------|-----|------------|
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-12/20M-SVUCR/L-2 | 60237 | 60238 | 0.750 | 1.125 | 0.820 | 0.625 | 8° | VC <sub>221</sub> | TS-25.45-8M2 | T-8 | QCHLS-3MCS |
|                                                                                                                                                     |                        |       |       | 1.000 | 1.375 | 0.820 | 0.625 | 8° |                   |              |     |            |
|                                                                                                                                                     |                        |       |       | 1.250 | 1.625 | 0.820 | 0.625 | 8° |                   |              |     |            |

|                                                                                                                                                      |                        |       |       |       |       |       |       |    |                     |             |      |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|-------|-------|-------|-------|-------|----|---------------------|-------------|------|------------|
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-12/20M-SWLCR/L-3 | 60241 | 60242 | 0.750 | 1.000 | 0.820 | 0.500 | 8° | WC <sub>32.52</sub> | TS-4.7-10M1 | T-15 | QCHLS-3MCS |
|                                                                                                                                                      |                        |       |       | 1.000 | 1.250 | 0.820 | 0.500 | 8° |                     |             |      |            |
|                                                                                                                                                      |                        |       |       | 1.250 | 1.500 | 0.820 | 0.500 | 8° |                     |             |      |            |

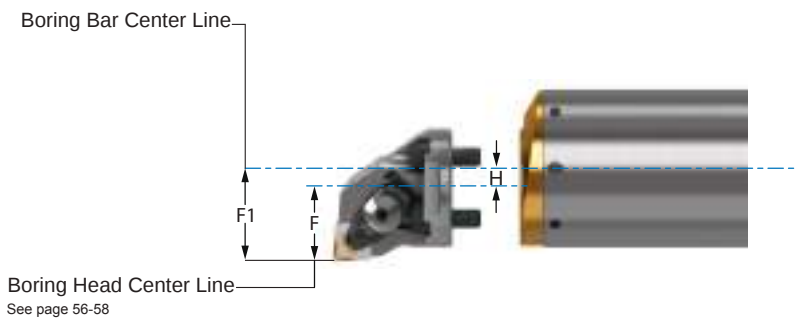
| Threading Head Specification                                                                                                                          | Head Description      | UPC # |       | Reference Bar Dia. | B     | E     | F     | Gage Insert    | Insert Torx | Torx Key | Locking Head Screw |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------|-------|--------------------|-------|-------|-------|----------------|-------------|----------|--------------------|
|                                                                                                                                                       |                       | R.H.  | L.H.  |                    |       |       |       |                |             |          |                    |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-12/20M-SNR/L-16 | 60243 | 60244 | 0.750              | 1.125 | 0.820 | 0.613 | Laydown 16-A60 | TS-35.6-9M1 | T-15     | QCHLS-3MCS         |
|                                                                                                                                                       |                       |       |       | 1.000              | 1.375 | 0.820 | 0.613 |                |             |          |                    |
|                                                                                                                                                       |                       |       |       | 1.250              | 1.625 | 0.820 | 0.613 |                |             |          |                    |

# Solution Tool!™ The No! Vibration Re-Tunable Modular Jet-Stream™ Boring Bar

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

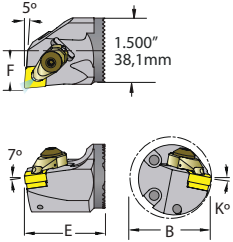
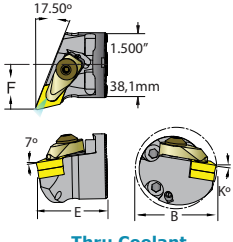
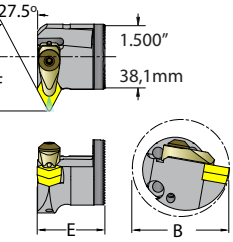
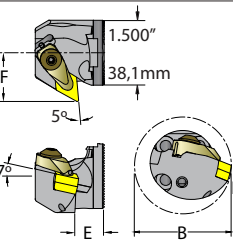
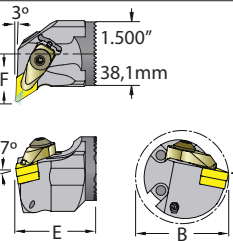
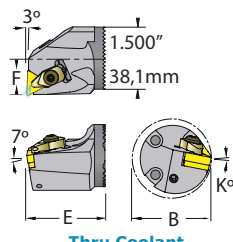


- Deep hole boring made simple
- 8xD, 10xD and 12xD boring (overhang) ratios
- For high material removal rate, high surface finish and tight tolerances
- Bars are pre-tuned at the factory to the specific boring ratio
- Bars can be Re-tuned on the machine to optimize boring performance in challenging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

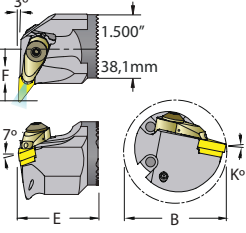


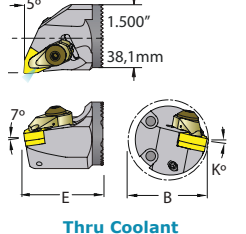
| Bar Description          | UPC # Neutral | Boring Ratio | Holding Ratio | Construction | Bar Dia. D | Actual Min. Bore B                                                          | F1     | H     | L      | C      | C1     | C2     | C3    | C4     | Modular Head     | Coolant Attachment Thread |
|--------------------------|---------------|--------------|---------------|--------------|------------|-----------------------------------------------------------------------------|--------|-------|--------|--------|--------|--------|-------|--------|------------------|---------------------------|
| ASI24X-8-DVI-MBBB-18-SB  | 59321         | 8 x Dia.     | 4             | Steel Body   | 1.500      | B= F + H + (1/2 Bar Dia)<br><br>Note: Leave enough room for chip evacuation | F1=F+H | 0     | 12.000 | 18.000 | 16.500 | 6.000  | 1.500 | 10.500 | DBOMH24/40_A_R/L | 1/4"-18 NPT               |
| ASI32X-8-DVI-MBBB-24-SB  | 59323         |              |               | Steel Body   | 2.000      |                                                                             |        | 0.250 | 16.000 | 24.000 | 22.500 | 8.000  | 1.500 | 14.500 |                  |                           |
| ASI40X-8-DVI-MBBB-30-SB  | 59324         |              |               | Steel Body   | 2.500      |                                                                             |        | 0.500 | 20.000 | 30.000 | 28.500 | 10.000 | 1.500 | 18.500 |                  |                           |
| ASI48X-8-DVI-MBBB-36-SB  | 59325         |              |               | Steel Body   | 3.000      |                                                                             |        | 0.750 | 24.000 | 36.000 | 34.500 | 12.000 | 1.500 | 22.500 |                  |                           |
| ASI64X-8-DVI-MBBB-48-SB  | 59326         |              |               | Steel Body   | 4.000      |                                                                             |        | 1.250 | 32.000 | 48.000 | 46.500 | 16.000 | 1.500 | 30.500 |                  |                           |
| ASI24X-10-DVI-MBBB-21-SB | 59433         | 10 x Dia.    | 4             | Steel Body   | 1.500      | B= F + H + (1/2 Bar Dia)<br><br>Note: Leave enough room for chip evacuation | F1=F+H | 0     | 15.000 | 21.000 | 19.500 | 6.000  | 1.500 | 13.500 | DBOMH24/40_A_R/L | 1/4"-18 NPT               |
| ASI32X-10-DVI-MBBB-28-SB | 59435         |              |               | Steel Body   | 2.000      |                                                                             |        | 0.250 | 20.000 | 28.000 | 26.500 | 8.000  | 1.500 | 18.500 |                  |                           |
| ASI40X-10-DVI-MBBB-35-SB | 59436         |              |               | Steel Body   | 2.500      |                                                                             |        | 0.500 | 25.000 | 35.000 | 33.500 | 10.000 | 1.500 | 23.500 |                  |                           |
| ASI48X-10-DVI-MBBB-42-SB | 59437         |              |               | Steel Body   | 3.000      |                                                                             |        | 0.750 | 30.000 | 42.000 | 40.500 | 12.000 | 1.500 | 28.500 |                  |                           |
| ASI64X-10-DVI-MBBB-56-SB | 59438         |              |               | Steel Body   | 4.000      |                                                                             |        | 1.250 | 40.000 | 56.000 | 54.500 | 16.000 | 1.500 | 38.500 |                  |                           |
| ASI24X-12-DVI-MBBB-24-SB | 59446         | 12 x Dia.    | 4             | Steel Body   | 1.500      | B= F + H + (1/2 Bar Dia)<br><br>Note: Leave enough room for chip evacuation | F1=F+H | 0     | 18.000 | 24.000 | 22.500 | 6.000  | 1.500 | 16.500 | DBOMH24/40_A_R/L | 1/4"-18 NPT               |
| ASI32X-12-DVI-MBBB-32-SB | 59448         |              |               | Steel Body   | 2.000      |                                                                             |        | 0.250 | 24.000 | 32.000 | 30.500 | 8.000  | 1.500 | 22.500 |                  |                           |
| ASI40X-12-DVI-MBBB-40-SB | 59449         |              |               | Steel Body   | 2.500      |                                                                             |        | 0.500 | 30.000 | 40.000 | 38.500 | 10.000 | 1.500 | 28.500 |                  |                           |
| ASI48X-12-DVI-MBBB-48-SB | 59450         |              |               | Steel Body   | 3.000      |                                                                             |        | 0.750 | 36.000 | 48.000 | 46.500 | 12.000 | 1.500 | 34.500 |                  |                           |
| ASI64X-12-DVI-MBBB-64-SB | 59451         |              |               | Steel Body   | 4.000      |                                                                             |        | 1.250 | 48.000 | 64.000 | 62.500 | 16.000 | 1.500 | 46.500 |                  |                           |
| ASI24X-14-DVI-MBBB-27-CB | 59459         | 14 x Dia     | 4             | Carbide Body | 1.500      | B= F + H + (1/2 Bar Dia)<br><br>Note: Leave enough room for chip evacuation | F1=F+H | 0     | 21.000 | 27.000 | 25.500 | 6.000  | 1.500 | 19.500 | DBOMH24/40_A_R/L | 1/4"-18 NPT               |
| ASI32X-14-DVI-MBBB-36-CB | 59461         |              |               | Carbide Body | 2.000      |                                                                             |        | 0.250 | 28.000 | 36.000 | 34.500 | 8.000  | 1.500 | 26.500 |                  |                           |
| ASI40X-14-DVI-MBBB-45-CB | 59462         |              |               | Carbide Body | 2.500      |                                                                             |        | 0.500 | 35.000 | 45.000 | 43.500 | 10.000 | 1.500 | 33.500 |                  |                           |
| ASI48X-14-DVI-MBBB-54-CB | 59463         |              |               | Carbide Body | 3.000      |                                                                             |        | 0.750 | 42.000 | 54.000 | 52.500 | 12.000 | 1.500 | 40.500 |                  |                           |
| ASI64X-14-DVI-MBBB-72-CB | 59464         |              |               | Carbide Body | 4.000      |                                                                             |        | 1.250 | 56.000 | 72.000 | 70.500 | 16.000 | 1.500 | 54.500 |                  |                           |

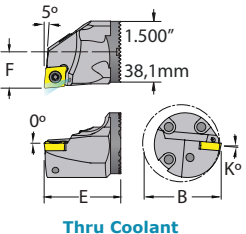
# Boring Heads for Solution Tool!™ Modular Jet-Stream™ Boring Bar 1/2" to 4" Dia.

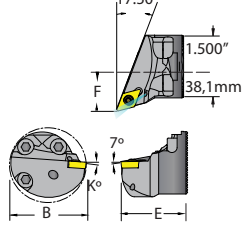
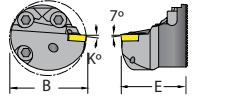
| Negative Boring Head Specification                                                                                                                       | Head Description           | UPC # |       | Reference Bar Dia. | B     | E     | F     | K°  | Gage Insert       | Seat   | Seat Screw  | Jet-Stream™ Clamp | Clamp Screw | Locking Head Screw for |                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------|-------|--------------------|-------|-------|-------|-----|-------------------|--------|-------------|-------------------|-------------|------------------------|-------------------------|
|                                                                                                                                                          |                            | R.H.  | L.H.  |                    |       |       |       |     |                   |        |             |                   |             | 1.5" Boring Bar        | 2.0" to 4.0" Boring Bar |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p>   | DBOMH-24/40M-ADCLNR/L-4    | 59507 | 59508 | 1.5"/4.0"          | 1.780 | 1.515 | .940  | 11° | CN <sub>432</sub> | DC-432 | TS-5.8-10M1 | JSLC-HPCTW-4N     | JSCS-04     | MHLS-5MCS              | MHLS-6MCS               |
|                                                                                                                                                          | DBOMH-24/40M-ADCLNR/L-5    | 59509 | 59510 | 1.5"/4.0"          | 2.250 | 1.715 | 1.125 | 11° | CN <sub>543</sub> | DC-533 | TS-5.8-10M1 | JSLC-HPC5         | JSCS-04     |                        |                         |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p>   | DBOMH-24/40M-ADDQNR/L-4    | 59476 | 59477 | 1.5"/4.0"          | 1.88  | 1.625 | 1.125 | 11° | DN <sub>432</sub> | DD-432 | TS-5.8-10M1 | JSLC-HPD4         | JSCS-04     | MHLS-5MCS              | MHLS-6MCS               |
|                                                                                                                                                          | DBOMH-24/40M-ADDNNR-4-1250 | 59565 | -     | 1.5"/4.0"          | 2.250 | 1.750 | 1.250 | 10° | DN <sub>432</sub> | DD-432 | TS-5.8-10M1 | JSLC-HPD4         | JSCS-04     | MHLS-5MCS              | MHLS-6MCS               |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p>  | DBOMH-24/40M-ADDNNR-4-1750 | 59566 | -     | 1.5"/4.0"          | 2.750 | 1.750 | 1.750 |     |                   |        |             |                   |             |                        |                         |
|                                                                                                                                                          | DBOMH-24/40M-ADDNNR-4-2250 | 59567 | -     | 1.5"/4.0"          | 3.250 | 1.750 | 2.250 |     |                   |        |             |                   |             |                        |                         |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ADDXNR-4-1250 | 59571 | -     | 1.5"/4.0"          | 2.250 | .690  | 1.250 | 10° | DN <sub>432</sub> | DD-432 | TS-5.8-10M1 | JSLC-HPD4         | JSCS-04     | MHLS-5MCS              | MHLS-6MCS               |
|                                                                                                                                                          | DBOMH-24/40M-ADDXNR-4-1750 | 59572 | -     | 1.5"/4.0"          | 2.750 | .690  | 1.750 |     |                   |        |             |                   |             |                        |                         |
|                                                                                                                                                          | DBOMH-24/40M-ADDXNR-4-2250 | 59573 | -     | 1.5"/4.0"          | 3.250 | .690  | 2.250 |     |                   |        |             |                   |             |                        |                         |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ADDUNR/L-4    | 59387 | 59388 | 1.5"/4.0"          | 2.25  | 1.575 | 1.125 | 11° | DN <sub>432</sub> | DD-432 | TS-5.8-10M1 | JSLC-HPD4         | JSCS-04     | MHLS-5MCS              | MHLS-6MCS               |
|                                                                                                                                                          | DBOMH-24/40M-ADTUNR/L-3    | 59515 | 59516 | 1.5"/4.0"          | 2.060 | 1.575 | .890  | 11° | TN <sub>332</sub> | DT-322 | TS-4.7-10M1 | JSLC-HPDT3-BRL    | JSCS-03     | MHLS-5MCS              | MHLS-6MCS               |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ADTUNR/L-4    | 59517 | 59518 | 1.5"/4.0"          | 2.060 | 1.575 | 1.125 | 11° | TN <sub>432</sub> | DT-432 | TS-5.8-10M1 | JSLC-HPTW-4R/L    | JSCS-04     |                        |                         |

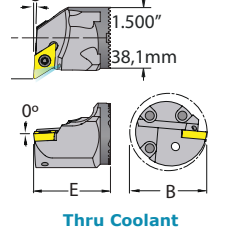
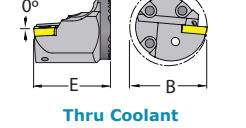
# Boring Heads for Solution Tool!™ Modular Jet-Stream™ Boring Bar 1/2" to 4" Dia.

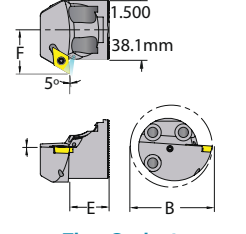
| Negative Boring Head Specification                                                                                                                  | Head Description        | UPC # |       | Reference Bar Dia. | B     | E     | F     | K°  | Gage Insert | Seat   | Seat Screw  | Jet-Stream™ Clamp | Clamp Screw | Locking Head Screw for |                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|--------------------|-------|-------|-------|-----|-------------|--------|-------------|-------------------|-------------|------------------------|-------------------------|
|                                                                                                                                                     |                         | R.H.  | L.H.  |                    |       |       |       |     |             |        |             |                   |             | 1.5" Boring Bar        | 2.0" to 4.0" Boring Bar |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ADVUNR/L-3 | 59521 | 59522 | 1.5"/4.0"          | 2.500 | 1.575 | 1.312 | 11° | VN_332      | DV-322 | TS-4.7-10M1 | JSLC-HPV3         | JSCS-04     | MHLS-5MCS              | MHLS-6MCS               |

|                                                                                                                                                     |                        |       |       |           |       |       |      |     |        |        |             |                |         |           |           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|-------|-----------|-------|-------|------|-----|--------|--------|-------------|----------------|---------|-----------|-----------|
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ADWLNRL-4 | 59525 | 59526 | 1.5"/4.0" | 1.900 | 1.575 | .940 | 11° | WN_432 | DW-432 | TS-5.8-10M1 | JSLC-HPTW-4R/L | JSCS-04 | MHLS-5MCS | MHLS-6MCS |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|-------|-----------|-------|-------|------|-----|--------|--------|-------------|----------------|---------|-----------|-----------|

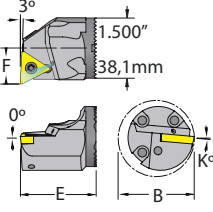
| Positive Boring Head Specification                                                                                                                   | Head Description        | UPC # |       | Reference Bar Dia. | B     | E     | F    | K° | Gage Insert | Insert Screw | Torx Key | Locking Head Screw for |                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|--------------------|-------|-------|------|----|-------------|--------------|----------|------------------------|-------------------------|
|                                                                                                                                                      |                         | R.H.  | L.H.  |                    |       |       |      |    |             |              |          | 1.5" Boring Bar        | 2.0" to 4.0" Boring Bar |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ASCLCR/L-4 | 59529 | 59530 | 1.5"/4.0"          | 1.780 | 1.575 | .920 | 5° | CC_432      | TS-5.8-10M1  | T-20     | MHLS-5MCS              | MHLS-6MCS               |

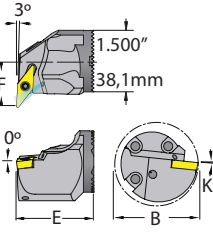
|                                                                                                                                                       |                         |       |       |           |       |       |      |    |          |             |      |           |           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|-----------|-------|-------|------|----|----------|-------------|------|-----------|-----------|
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ASDQCR/L-3 | 59474 | 59475 | 1.5"/4.0" | 2.125 | 1.595 | 1.06 | 4° | DC_32.52 | TS-4.7-10M1 | T-15 | MHLS-5MCS | MHLS-6MCS |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ADSQCR/L-4 | 59389 | 59390 | 1.5"/4.0" | 2.125 | 1.595 | 1.06 | 4° | DC_432   | TS-5.8-10M1 | T-20 |           |           |

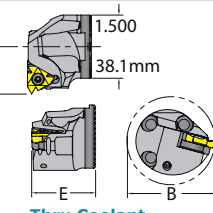
|                                                                                                                                                       |                         |       |       |           |       |       |       |    |          |             |      |           |           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|-----------|-------|-------|-------|----|----------|-------------|------|-----------|-----------|
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ASDUCR/L-3 | 59533 | 59534 | 1.5"/4.0" | 2.250 | 1.575 | 1.125 | 4° | DC_32.52 | TS-4.7-8M1  | T-15 | MHLS-5MCS | MHLS-6MCS |
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ASDUCR/L-4 | 59535 | 59536 | 1.5"/4.0" | 2.250 | 1.575 | 1.125 | 4° | DC_432   | TS-5.8-10M1 | T-20 |           |           |

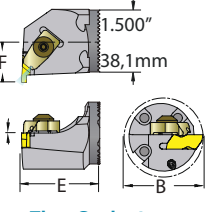
|                                                                                                                                                       |                         |       |       |           |       |       |       |    |          |             |      |           |           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|-----------|-------|-------|-------|----|----------|-------------|------|-----------|-----------|
|  <p><b>Thru Coolant</b><br/>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ASDXCR/L-3 | 59538 | 59537 | 1.5"/4.0" | 2.250 | 1.000 | 1.125 | 4° | DC_32.52 | TS-4.7-10M1 | T-15 | MHLS-5MCS | MHLS-6MCS |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|-----------|-------|-------|-------|----|----------|-------------|------|-----------|-----------|

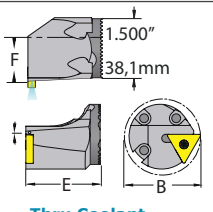
# Boring Heads for Solution Tool!™ Modular Jet-Stream™ Boring Bar 1/2" to 4" Dia.

| Positive Boring Head Specification                                                                                                                     | Head Description        | UPC # |       | Reference Bar Dia. | B     | E     | F    | K° | Gage Insert   | Insert Screw | Torx Key | Locking Head Screw for |                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|--------------------|-------|-------|------|----|---------------|--------------|----------|------------------------|-------------------------|
|                                                                                                                                                        |                         | R.H.  | L.H.  |                    |       |       |      |    |               |              |          | 1.5" Boring Bar        | 2.0" to 4.0" Boring Bar |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ASTUCR/L-3 | 59539 | 59540 | 1.5"/4.0"          | 1.780 | 1.575 | .890 | 5° | TC__<br>32.52 | TS-4.7-8M1   | T-15     | MHLS-5MCS              | MHLS-6MCS               |
|                                                                                                                                                        | DBOMH-24/40M-ASTUCR/L-4 | 59541 | 59542 | 1.5"/4.0"          | 1.780 | 1.575 | .890 | 5° | TC__<br>432   | TS-5.8-10M1  | T-20     |                        |                         |

|                                                                                                                                                        |                         |       |       |           |       |       |       |    |             |            |      |           |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|-----------|-------|-------|-------|----|-------------|------------|------|-----------|-----------|
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ASVUCR/L-3 | 59545 | 59546 | 1.5"/4.0" | 2.500 | 1.575 | 1.200 | 6° | VC__<br>332 | TS-4.7-8M1 | T-15 | MHLS-5MCS | MHLS-6MCS |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|-----------|-------|-------|-------|----|-------------|------------|------|-----------|-----------|

| Laydown Threading Head Specification                                                                                                                    | Head Description        | UPC # |       | Reference Bar Dia. | B     | E     | F     | Gage Insert    | Seat     | Seat Screw    | Chip Flush Nozzle | Locking Head Screw for |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|--------------------|-------|-------|-------|----------------|----------|---------------|-------------------|------------------------|-------------------------|
|                                                                                                                                                         |                         | R.H.  | L.H.  |                    |       |       |       |                |          |               |                   | 1.5" Boring Bar        | 2.0" to 4.0" Boring Bar |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ADLNR/L-16 | 59549 | 59550 | 1.5"/4.0"          | 1.870 | 1.575 | .900  | Laydown 16-A60 | GXE/I-16 | TS-35.6-14M1  | JSPN-M6           | MHLS-5MCS              | MHLS-6MCS               |
|                                                                                                                                                         | DBOMH-24/40M-ADLNR/L-22 | 59553 | 59554 | 1.5"/4.0"          | 2.000 | 1.575 | .922  | Laydown 22-N60 | NXE/I-22 | TS-45.75-15M1 | JSPN-M6           |                        |                         |
|                                                                                                                                                         | DBOMH-24/40M-ADLNR/L-27 | 59551 | 59552 | 1.5"/4.0"          | 2.519 | 1.575 | 1.575 | Laydown 27-Q60 | VXE/I-27 | TS-5.8-22M1   | JSPN-M6           | MHLS-5MCS              | MHLS-6MCS               |

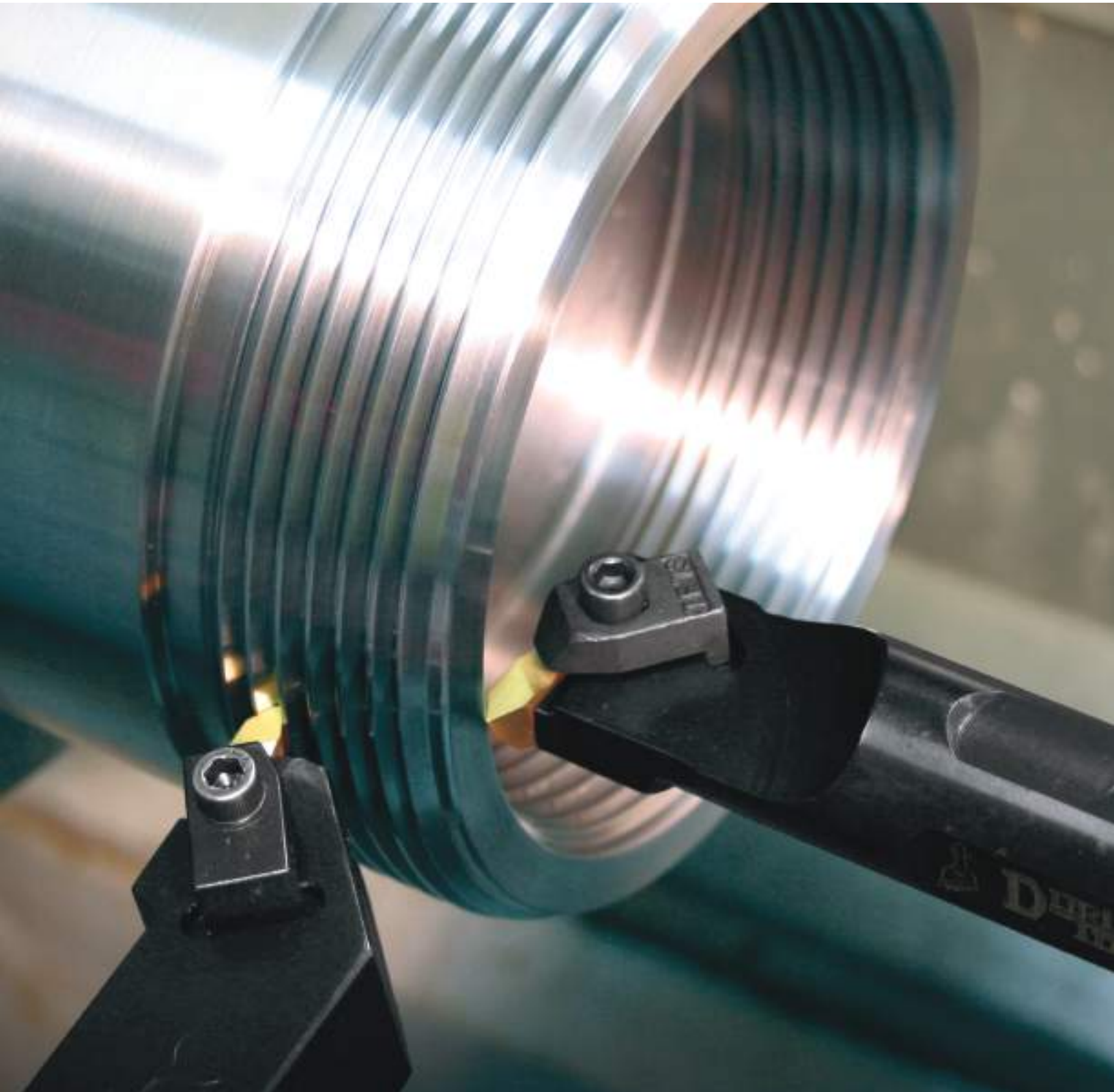
| DorNotch Threading Head Specification                                                                                                                    | Head Description       | UPC # |       | Reference Bar Dia. | B     | E     | F     | Gage Insert          | Jet-Stream™ Clamp   | Clamp Screw | Chip Flush Nozzle | Locking Head Screw for |                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|-------|--------------------|-------|-------|-------|----------------------|---------------------|-------------|-------------------|------------------------|-------------------------|
|                                                                                                                                                          |                        | R.H.  | L.H.  |                    |       |       |       |                      |                     |             |                   | 1.5" Boring Bar        | 2.0" to 4.0" Boring Bar |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ADNER/L-3 | 59557 | 59558 | 1.5"/4.0"          | 2.000 | 1.575 | 1.000 | DorNotch NG-3L NG-3R | JSLC-HP73 JSLC-HP72 | JSCS-04     | JSPN-M6           | MHLS-5MCS              | MHLS-6MCS               |

| On edge Threading Head Specification                                                                                                                     | Head Description        | UPC # |       | Reference Bar Dia. | B     | E     | F     | Gage Insert | Jet-Stream™ Clamp | Clamp Screw | Chip Flush Nozzle | Locking Head Screw for |                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-------|--------------------|-------|-------|-------|-------------|-------------------|-------------|-------------------|------------------------|-------------------------|
|                                                                                                                                                          |                         | R.H.  | L.H.  |                    |       |       |       |             |                   |             |                   | 1.5" Boring Bar        | 2.0" to 4.0" Boring Bar |
|  <p><b>Thru Coolant</b></p> <p>Right Hand Shown Left Hand Opposite</p> | DBOMH-24/40M-ADTHOR/L-4 | 59561 | 59562 | 1.5"/4.0"          | 2.250 | 1.575 | 1.125 | TN__<br>432 | GTS-2             | T-20        | JSPN-M6           | MHLS-5MCS              | MHLS-6MCS               |

# THREADING

On Edge - Laydown - DorNotch

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## DVK10

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.

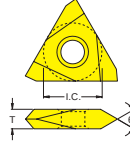
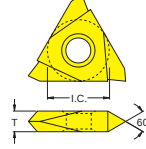
## DVP656

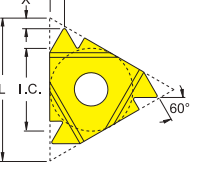
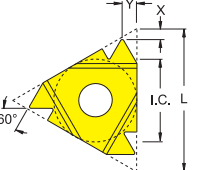
Tough, wear resistant C6 substrate with PVD TiN Coating. Honed edge for edge-security.  
First choice for carbon and alloy steels.

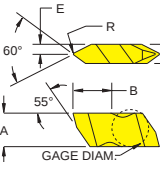
## DASK25B

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.

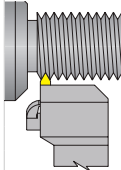
|                                                                                     |                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>On Edge Threading System:</b><br>3 cutting edges. The most economical and popular system. Same insert can be used for external and internal threading, in either right and left hand cutting direction. |
|  | <b>Laydown Threading System:</b><br>3 cutting edges. The most compact system. Ideal for ID threading.                                                                                                      |
|  | <b>DorNotch Threading System:</b><br>2 cutting edges. Most rigid clamping system for high performance threading.                                                                                           |

| 60° On Edge Threading                                                              | ANSI Description |                  | DVK10 Grade |       | DVP656 Grade |       | DASK25B Grade |       | Insert Dimensions |       |           |              |      |
|------------------------------------------------------------------------------------|------------------|------------------|-------------|-------|--------------|-------|---------------|-------|-------------------|-------|-----------|--------------|------|
| Negative Rake TNMA & TNMC                                                          | 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  |
|  | 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 |

| Laydown<br>60° Partial Profile                                                      | 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  |
| Internal                                                                            | 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  |

| DorNotch<br>60° Partial Profile                                                     | 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       |

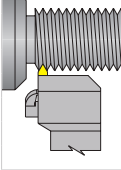
**MTVO-A R/L Threading Toolholder- Style V - O.D. Threading and Shallow Grooving for triangle TNMA inserts**

|                                                                                   | 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      | -         | 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            | 432              |
|                                                                                   | MTVOR/L12-4B-A  | 58142      | -         | 0.750  | 4.500  | 0.230            |                  |
|                                                                                   | 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            | 543              |
|                                                                                   | MTVOR/L16-5D-A  | 58158      | 58159     | 1.000  | 6.000  | 0.292            |                  |
|                                                                                   | MTVOR/L20-5D-A  | 58162      | 58163     | 1.250  | 6.000  | 0.292            |                  |
|                                                                                   | MTVOR/L20-64D-A | 58166      | -         | 1.250  | 6.000  | 0.360            |                  |
|                                                                                   | MTVOR/L20-66D-A | 58170      | 58171     | 1.250  | 6.000  | 0.360            | 663              |

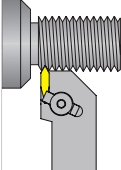
**MTHO-A R/L Threading Toolholder- Style H - Gang Toolholder for Shallow Grooving or I.D. Threading for triangle TNMA inserts**

|  |              | UPC #      |           | Shank  |        | Min. Bore | Max. GRV Depth V |      | TNMA Gage |
|-----------------------------------------------------------------------------------|--------------|------------|-----------|--------|--------|-----------|------------------|------|-----------|
|                                                                                   | Description  | Right Hand | Left Hand | Height | Length | M         | Min. I.D.        | O.D. | Insert    |
|                                                                                   | 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 |           |
|                                                                                   | MTHOR/L16-4D | 58182      | -         | 1.000  | 6.000  |           |                  |      |           |
|                                                                                   | MTHOR/L16-5D | 58186      | -         | 1.000  | 6.000  | 3.0       | .170             | .242 |           |
|                                                                                   | MTHOR/L20-5D | 58188      | 58189     | 1.250  | 6.000  |           |                  |      |           |

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

|                                                                                    | 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      | -         | 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            |                  |

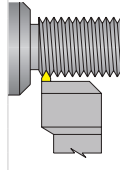
**MTVO-CN R/L Threading Toolholder- Style V - O.D. Threading and Shallow Grooving for triangle TNMC inserts**

|                                                                                     | 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            | 432              |
|                                                                                     | MTVOR/L12-4B-CN | 58032      | 58033     | 0.750  | 4.500  | 0.230            |                  |
|                                                                                     | 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            | 543              |
|                                                                                     | MTVOR/L16-5D-CN | 58048      | 58049     | 1.000  | 6.000  | 0.292            |                  |
|                                                                                     | MTVOR/L20-5D-CN | 58052      | 58053     | 1.250  | 6.000  | 0.292            |                  |

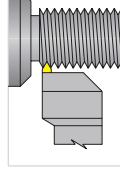
**STHO R/L Threading Toolholder- Style H - Gang Toolholder for Shallow Grooving for I.D. Threading for triangle TNMC inserts**

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

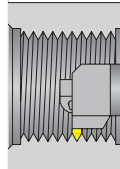
**STVO R/L Threading Toolholder- Style V - O.D. Threading and Shallow Grooving for triangle TNMC inserts**

|                                                                                    | 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            |                  |
|                                                                                    | STVOR/L20-66D | 58114      | 58115     | 1.250  | 6.000  | 0.360            |                  |

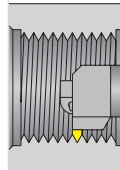
**STZOR R/L Threading Toolholder-Style Z - Reverse Hand Threading for triangle TNMC inserts**

|                                                                                    | 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            |                  |
|                                                                                    | STZOR/L16-5D | 58246      | -         | 1.000  | 6.000  | 0.292            |                  |

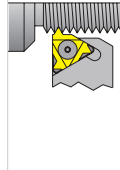
**S-MTHO-A R/L Threading Bar- Style H - I.D. Threading and Shallow Grooving for triangle TNMA inserts**

|                                                                                     | Description       | UPC #      |           | Min Bore | Length | Dia.  | Max. GRV Depth V | TNMA Gage Insert |
|-------------------------------------------------------------------------------------|-------------------|------------|-----------|----------|--------|-------|------------------|------------------|
|                                                                                     |                   | Right Hand | Left Hand |          |        |       |                  |                  |
|  | S16T-MTHOR/L-3-A  | 58346      | -         | 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            |                  |
|                                                                                     | 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            | 432              |
|                                                                                     | 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            |                  |
|                                                                                     | S40V-MTHOR/L-66-A | 58378      | 58379     | 4.000    | 16.00  | 2.500 | 0.312            | 663              |
|                                                                                     | S48Y-MTHOR/L-66-A | -          | 58383     | 4.500    | 18.00  | 3.000 | 0.312            |                  |

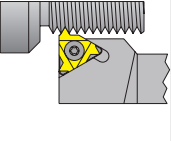
**S-MTHO-C R/L Threading Bar- Style H - I.D. Threading and Shallow Grooving for triangle TNMC inserts**

|                                                                                      | 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            |                  |
|                                                                                      | 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            | 432              |
|                                                                                      | 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            |                  |

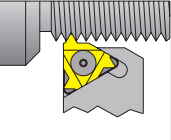
**SE R/L Threading Toolholder- Style E- Laydown for LAYDOWN inserts**

|                                                                                      | 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 | -          | 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 | -          | 58449     | 1.000  | 6.000  |                     |
|                                                                                      | SER/L125-6-27 | 58452      | 58453     | 1.250  | 6.000  |                     |

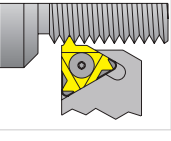
**SE Gang R/L Threading Toolholder- Style EG - Gang Toolholder for Gang Toolposts for LAYDOWN inserts**

|                                                                                  | 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  |                     |

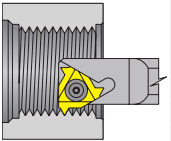
**SE R/L Qualified Threading Toolholder- Style - Laydown Offset Head for LAYDOWN inserts**

|                                                                                  | 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 | -          | 58505     | 1.000  | 6.000  | 22-N60              |
|                                                                                  | SER/L125-6-22Q | 58508      | -         | 1.250  | 6.000  | 27-Q60              |
|                                                                                  | SER/L125-6-27Q | 58511      | 58512     | 1.250  | 6.000  |                     |

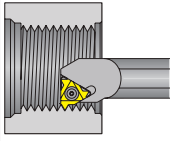
**SE R/L Qualified Threading Toolholder- Style - Drop Head for LAYDOWN inserts**

|                                                                                  | 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  |                     |

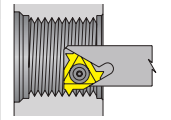
**SN R/L Threading Bar- Style - Internal Small Shank Laydown Bar for LAYDOWN inserts**

|                                                                                   | 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      | -         | 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 |                     |

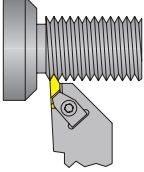
**SN R/L Threading Bar- Style - Internal Laydown Bar for LAYDOWN inserts**

|                                                                                    | 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/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 | 27-Q60              |
|                                                                                    | SNR/L250-16-22 | 58680      | 58681     | 2.800    | 16.00  | 2.500 |                     |
|                                                                                    | SNR/L150-12-27 | 58684      | -         | 1.900    | 12.00  | 1.500 |                     |
|                                                                                    | SNR/L250-16-27 | 58692      | -         | 2.900    | 16.00  | 2.500 |                     |

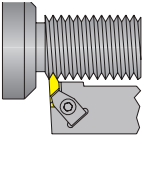
**SN R/L Threading Bar- Style - Internal Laydown Miniature Threading Bar for LAYDOWN inserts**

|                                                                                    | 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              |

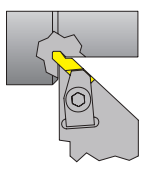
**NS R/L Threading & Grooving Toolholder- Style - External DorNotch Toolholder for threading and grooving DorNotch inserts**

|                                                                                   | 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      | -         | 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  |                      |

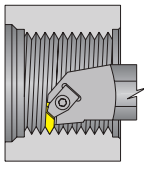
**NE R/L Threading & Grooving Toolholder- Style - Gang External DorNotch Toolholder for threading and grooving DorNotch inserts**

|                                                                                   | 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      | -         | 0.750  | 4.500  | NG-3L<br>NG-3R       |
|                                                                                   | NER/L12-3B  | 58916      | -         | 0.750  | 4.500  |                      |
|                                                                                   | NER/L16-3D  | 58920      | 58921     | 1.000  | 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**

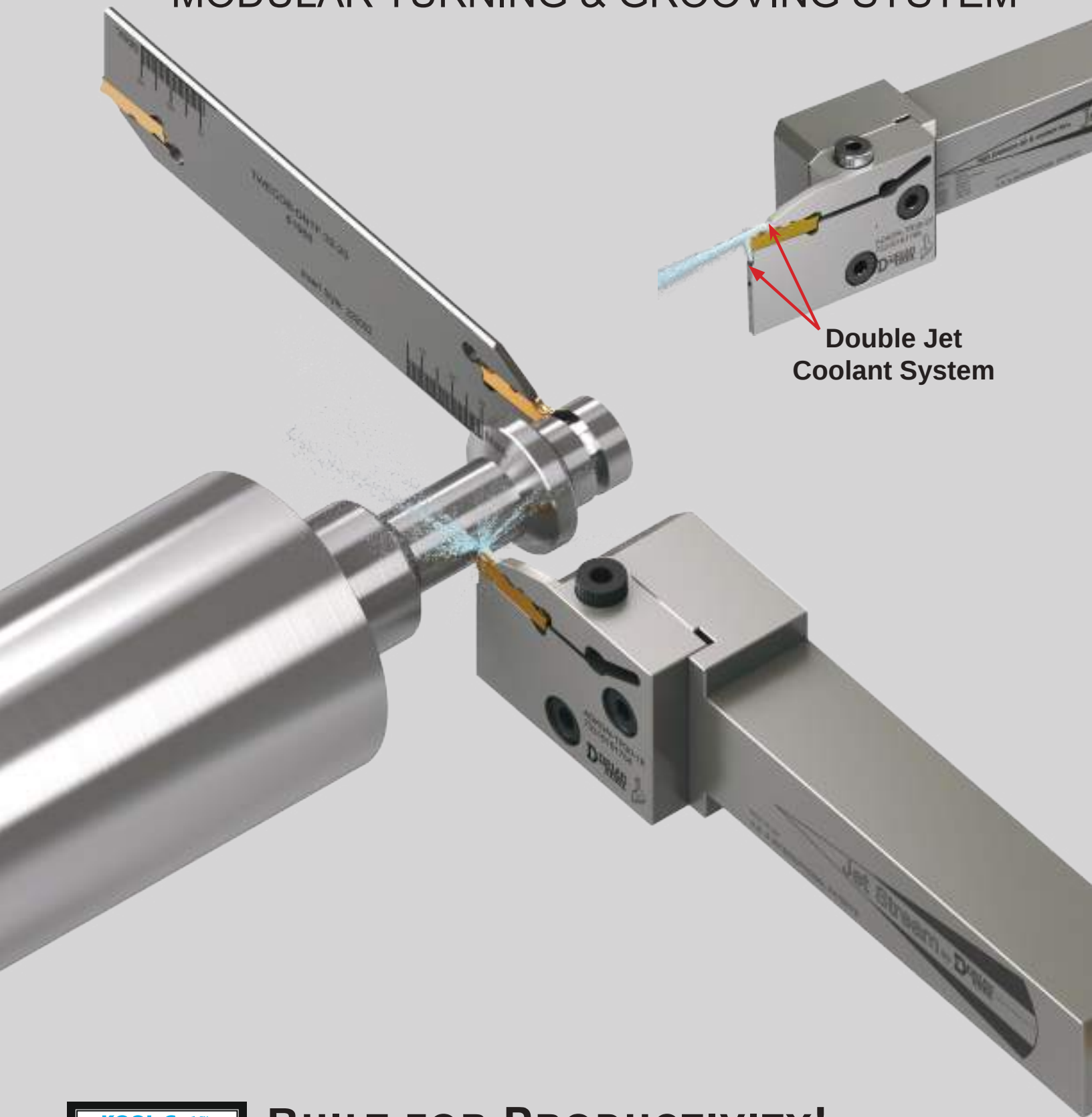
|                                                                                     | Description | UPC #      |           | Shank  |        | DorNotch Gage Insert |
|-------------------------------------------------------------------------------------|-------------|------------|-----------|--------|--------|----------------------|
|                                                                                     |             | 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**

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

# KOOL CUT™

## MODULAR TURNING & GROOVING SYSTEM



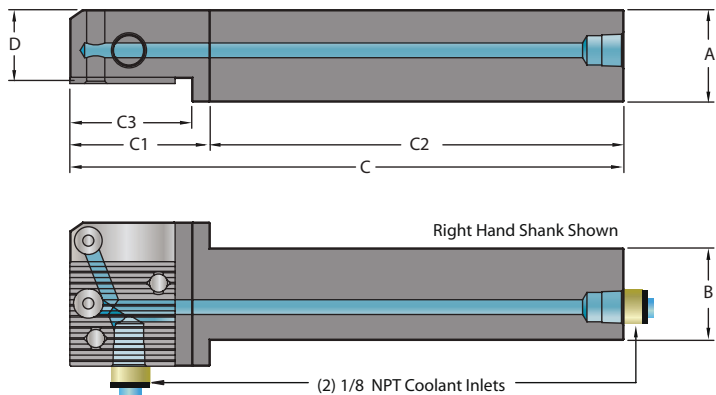
**Double Jet  
Coolant System**



## **BUILT FOR PRODUCTIVITY!**

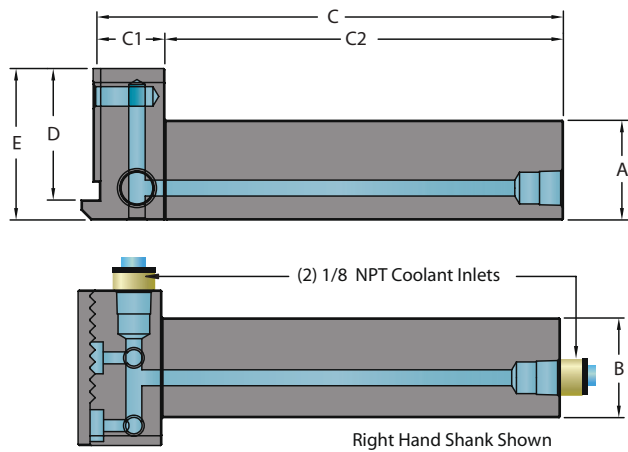
**Interchangeable Shanks & Cartridges Technology**

## Right Hand KOOL Cut™ Modular Turning and Grooving Straight Toolholders



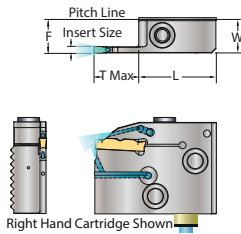
| Shank Description | UPC # | Shank Size | A     | B     | D    | C    | C1   | C2   | C3   |
|-------------------|-------|------------|-------|-------|------|------|------|------|------|
| ADDN-MTR-12-C     | 61987 | 3/4"       | 0.750 | 0.750 | 0.59 | 5.00 | 1.50 | 3.50 | 1.30 |
| ADDN-MTR-16-D     | 61988 | 1"         | 1.000 | 1.000 | 0.79 | 5.50 | 1.50 | 4.00 | 1.30 |
| ADDN-MTR-20-E     | 61989 | 1 1/4"     | 1.250 | 1.250 | 1.06 | 6.00 | 1.50 | 4.50 | 1.30 |

## Right Hand KOOL Cut™ Modular Turning and Grooving 90° Gang Toolholders



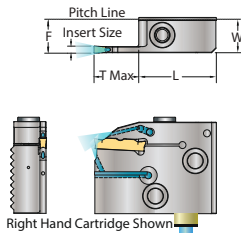
| Shank Description | UPC # | Shank Size | A     | B     | D    | E    | C    | C1   | C2   |
|-------------------|-------|------------|-------|-------|------|------|------|------|------|
| ADDN-MGR-12-C     | 61996 | 3/4"       | 0.750 | 0.750 | 1.30 | 1.50 | 4.21 | 0.71 | 3.50 |
| ADDN-MGR-16-D     | 61997 | 1"         | 1.000 | 1.000 | 1.30 | 1.50 | 4.71 | 0.71 | 4.00 |
| ADDN-MGR-20-E     | 61998 | 1 1/4"     | 1.250 | 1.250 | 1.30 | 1.50 | 5.21 | 0.71 | 4.50 |

## Right Hand Cartridges for Right Hand Toolholders



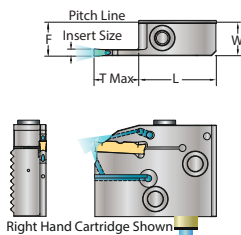
### .079" Insert Size Right Hand Cartridge KOOL Cut™ Modular Turning and Grooving

| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                             | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TR20-06 | 61750 | 0.236       | 1.299  | 0.598  | 0.591  | .079"        | DNTQ-22 2002-3EU-N<br>DNPG-22 2002-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TR20-12 | 61751 | 0.472       | 1.299  | 0.598  | 0.591  | .079"        |                                          |                   |                      |         |              |
| ADKDN-TR20-18 | 61752 | 0.709       | 1.299  | 0.598  | 0.591  | .079"        |                                          |                   |                      |         |              |



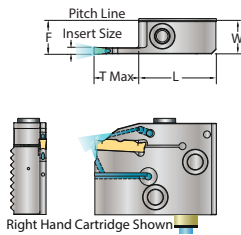
### .118" Insert Size Right Hand Cartridge KOOL Cut™ Modular Turning & Grooving

| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                                                   | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|----------------------------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TR30-09 | 61753 | 0.354       | 1.299  | 0.606  | 0.591  | .118"        | DNTQ-22 3003-3EU-N<br>DNTR-22 3015-3EU-N<br>DNPG-22 3002-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TR30-18 | 61754 | 0.709       | 1.299  | 0.606  | 0.591  | .118"        |                                                                |                   |                      |         |              |
| ADKDN-TR30-27 | 61755 | 1.063       | 1.299  | 0.606  | 0.591  | .118"        |                                                                |                   |                      |         |              |



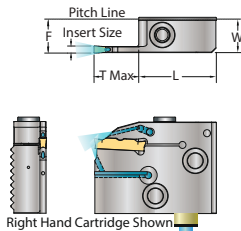
### .157" Insert Size Right Hand Cartridge KOOL Cut™ Modular Turning and Grooving

| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                                                   | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|----------------------------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TR40-12 | 61756 | 0.472       | 1.299  | 0.606  | 0.591  | .157"        | DNTQ-25 4004-3EU-N<br>DNTR-25 4020-3EU-N<br>DNPG-25 4003-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TR40-18 | 61757 | 0.709       | 1.299  | 0.606  | 0.591  | .157"        |                                                                |                   |                      |         |              |
| ADKDN-TR40-24 | 61758 | 0.945       | 1.299  | 0.606  | 0.591  | .157"        |                                                                |                   |                      |         |              |
| ADKDN-TR40-30 | 61759 | 1.181       | 1.299  | 0.606  | 0.591  | .157"        |                                                                |                   |                      |         |              |



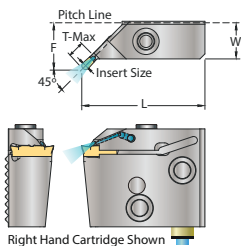
### .197" Insert Size Right Hand Cartridge KOOL Cut™ Modular Turning and Grooving

| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                                                   | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|----------------------------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TR50-10 | 61760 | 0.394       | 1.299  | 0.610  | 0.591  | .197"        | DNTQ-25 5004-3EU-N<br>DNTR-25 5025-3EU-N<br>DNPG-25 5004-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TR50-15 | 61761 | 0.591       | 1.299  | 0.610  | 0.591  | .197"        |                                                                |                   |                      |         |              |
| ADKDN-TR50-25 | 61762 | 0.984       | 1.299  | 0.610  | 0.591  | .197"        |                                                                |                   |                      |         |              |
| ADKDN-TR50-40 | 61763 | 1.575       | 1.299  | 0.610  | 0.591  | .197"        |                                                                |                   |                      |         |              |



### .236" Insert Size Right Hand Cartridge KOOL Cut™ Modular Turning and Grooving

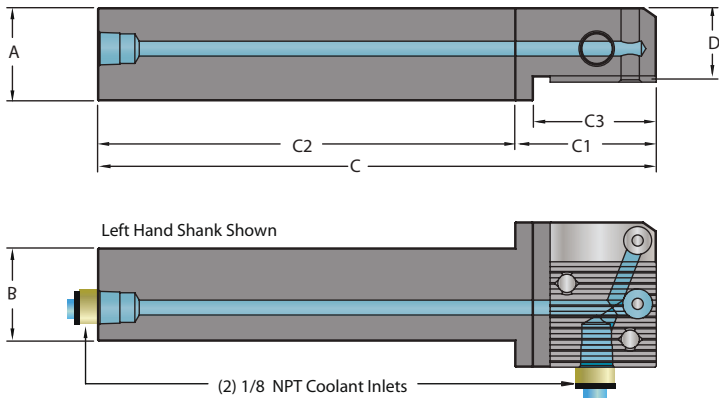
| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                             | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TR60-12 | 61764 | 0.472       | 1.299  | 0.610  | 0.591  | .236"        | DNTQ-25 6004-3EU-N<br>DNPG-25 6004-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TR60-18 | 61765 | 0.709       | 1.299  | 0.610  | 0.591  | .236"        |                                          |                   |                      |         |              |
| ADKDN-TR60-30 | 61766 | 1.181       | 1.299  | 0.610  | 0.591  | .236"        |                                          |                   |                      |         |              |
| ADKDN-TR60-48 | 61767 | 1.890       | 1.299  | 0.610  | 0.591  | .236"        |                                          |                   |                      |         |              |



### .079" Insert Size Right Hand Cartridge KOOL Cut™ Modular 45° Grooving

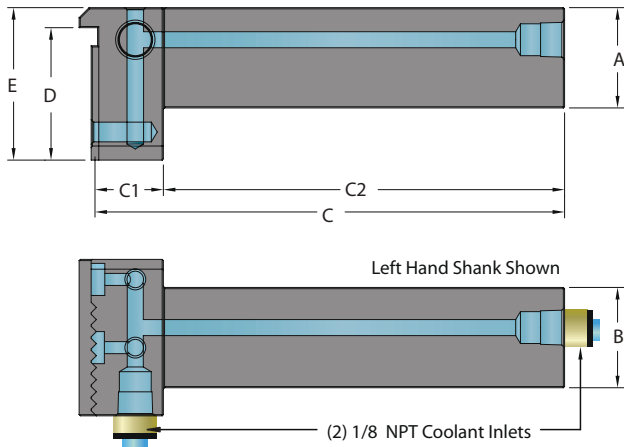
| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|--------------|-------------------|----------------------|---------|--------------|
| ADKDN-UR30-06 | 61911 | 0.236       | 1.299  | 0.945  | 0.591  | .118"        | DNTR-223015  | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-UR40-08 | 61912 | 0.315       | 1.299  | 1.024  | 0.591  | .157"        | DNTR-254020  |                   |                      |         |              |
| ADKDN-UR50-10 | 61913 | 0.394       | 1.299  | 1.063  | 0.591  | .197"        | DNTR-255025  |                   |                      |         |              |

Left Hand KOOL Cut™ Modular Turning and Grooving Straight Toolholders



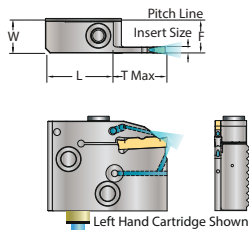
| Shank Description | UPC # | Shank Size | A     | B     | D    | C    | C1   | C2   | C3   |
|-------------------|-------|------------|-------|-------|------|------|------|------|------|
| ADDN-MTL-12-C     | 61990 | 3/4"       | 0.750 | 0.750 | 0.59 | 5.00 | 1.50 | 3.50 | 1.30 |
| ADDN-MTL-16-D     | 61991 | 1"         | 1.000 | 1.000 | 0.79 | 5.50 | 1.50 | 4.00 | 1.30 |
| ADDN-MTL-20-E     | 61992 | 1 1/4"     | 1.250 | 1.250 | 1.06 | 6.00 | 1.50 | 4.50 | 1.30 |

Left Hand KOOL Cut™ Modular Turning and Grooving 90° Gang Toolholders



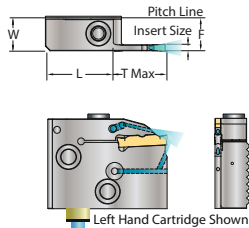
| Shank Description | UPC # | Shank Size | A     | B     | D    | C    | C1   | C2   |
|-------------------|-------|------------|-------|-------|------|------|------|------|
| ADDN-MGL-12-C     | 61993 | 3/4"       | 0.750 | 0.750 | 1.30 | 4.21 | 0.71 | 3.50 |
| ADDN-MGL-16-D     | 61994 | 1"         | 1.000 | 1.000 | 1.30 | 4.71 | 0.71 | 4.00 |
| ADDN-MGL-20-E     | 61995 | 1 1/4"     | 1.250 | 1.250 | 1.30 | 5.21 | 0.71 | 4.50 |

## Left Hand Cartridges for Left Hand Toolholders



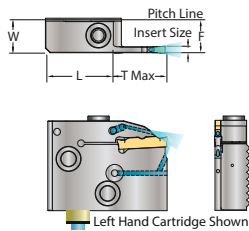
### .079" Insert Size Left Hand Cartridge KOOL Cut™ Modular Turning and Grooving

| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                             | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TL20-06 | 61768 | 0.236       | 1.299  | 0.598  | 0.591  | .079"        | DNTQ-22 2002-3EU-N<br>DNPG-22 2002-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TL20-12 | 61769 | 0.472       | 1.299  | 0.598  | 0.591  | .079"        |                                          |                   |                      |         |              |
| ADKDN-TL20-18 | 61770 | 0.709       | 1.299  | 0.598  | 0.591  | .079"        |                                          |                   |                      |         |              |



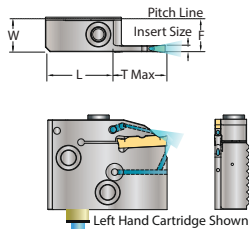
### .118" Insert Size Left Hand Cartridge KOOL Cut™ Modular Turning and Grooving

| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                                                   | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|----------------------------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TL30-09 | 61771 | 0.354       | 1.299  | 0.602  | 0.591  | .118"        | DNTQ-22 3003-3EU-N<br>DNTR-22 3015-3EU-N<br>DNPG-22 3002-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TL30-18 | 61772 | 0.709       | 1.299  | 0.602  | 0.591  | .118"        |                                                                |                   |                      |         |              |
| ADKDN-TL30-27 | 61773 | 1.063       | 1.299  | 0.602  | 0.591  | .118"        |                                                                |                   |                      |         |              |



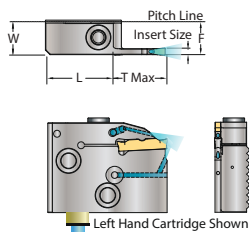
### .157" Insert Size Left Hand Cartridge KOOL Cut™ Modular Turning and Grooving

| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                                                   | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|----------------------------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TL40-12 | 61774 | 0.472       | 1.299  | 0.606  | 0.591  | .157"        | DNTQ-25 4004-3EU-N<br>DNTR-25 4020-3EU-N<br>DNPG-25 4003-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TL40-18 | 61775 | 0.709       | 1.299  | 0.606  | 0.591  | .157"        |                                                                |                   |                      |         |              |
| ADKDN-TL40-24 | 61776 | 0.945       | 1.299  | 0.606  | 0.591  | .157"        |                                                                |                   |                      |         |              |
| ADKDN-TL40-30 | 61777 | 1.181       | 1.299  | 0.606  | 0.591  | .157"        |                                                                |                   |                      |         |              |



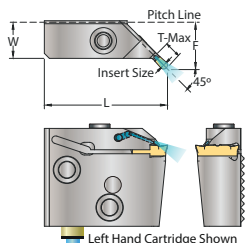
### .197" Insert Size Left Hand Cartridge KOOL Cut™ Modular Turning and Grooving

| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                                                   | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|----------------------------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TL50-10 | 61778 | 0.394       | 1.299  | 0.610  | 0.591  | .197"        | DNTQ-25 5004-3EU-N<br>DNTR-25 5025-3EU-N<br>DNPG-25 5004-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TL50-15 | 61779 | 0.591       | 1.299  | 0.610  | 0.591  | .197"        |                                                                |                   |                      |         |              |
| ADKDN-TL50-25 | 61780 | 0.984       | 1.299  | 0.610  | 0.591  | .197"        |                                                                |                   |                      |         |              |
| ADKDN-TL50-40 | 61781 | 1.575       | 1.299  | 0.610  | 0.591  | .197"        |                                                                |                   |                      |         |              |



### .236" Insert Size Left Hand Cartridge KOOL Cut™ Modular Turning and Grooving

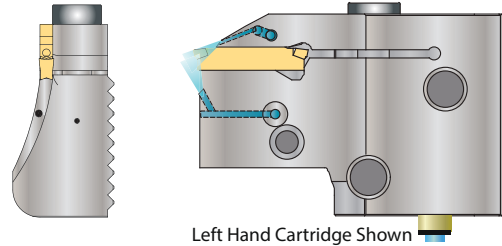
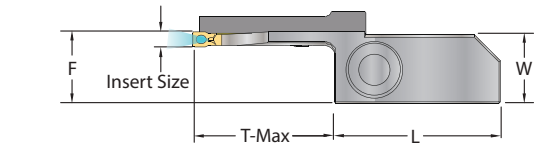
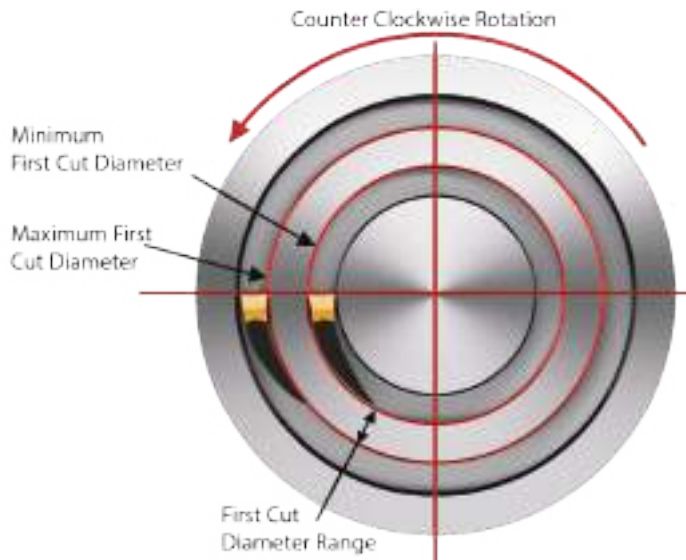
| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style                             | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|------------------------------------------|-------------------|----------------------|---------|--------------|
| ADKDN-TL60-12 | 61782 | 0.472       | 1.299  | 0.610  | 0.591  | .236"        | DNTQ-25 6004-3EU-N<br>DNPG-25 6004-1SR-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-TL60-18 | 61783 | 0.709       | 1.299  | 0.610  | 0.591  | .236"        |                                          |                   |                      |         |              |
| ADKDN-TL60-30 | 61784 | 1.181       | 1.299  | 0.610  | 0.591  | .236"        |                                          |                   |                      |         |              |
| ADKDN-TL60-48 | 61785 | 1.890       | 1.299  | 0.610  | 0.591  | .236"        |                                          |                   |                      |         |              |



### .079" Insert Size Left Hand Cartridge KOOL Cut™ Modular 45° Grooving

| Description   | UPC # | T. Max (in) | L (in) | F (in) | W (in) | Insert Width | Insert Style       | Insert Lock Screw | Cartridge Lock Screw | Hex Key | Coolant Seal |
|---------------|-------|-------------|--------|--------|--------|--------------|--------------------|-------------------|----------------------|---------|--------------|
| ADKDN-UL30-06 | 61916 | 0.236       | 1.299  | 0.945  | 0.591  | .118"        | DNTR-22 3015-3EU-N | CS-M0616          | CS-M0620             | HAHK-50 | CS08-04      |
| ADKDN-UL40-08 | 61917 | 0.315       | 1.299  | 1.024  | 0.591  | .157"        | DNTR-25 4020-3EU-N |                   |                      |         |              |
| ADKDN-UL50-10 | 61918 | 0.394       | 1.299  | 1.063  | 0.591  | .197"        | DNTR-25 5025-3EU-N |                   |                      |         |              |

## Left Hand Face Grooving Cartridges for Left Hand Toolholders (.118" Insert Size)



### T-Max 0.472"

| Description          | UPC # | First Cut Diameter<br>Min. (in) | First Cut Diameter<br>Max. (in) | T. Max<br>(in) | L (in) | F (in) | W (in) | Insert<br>Width | Insert<br>Style                                                | Insert<br>Lock Screw | Cartridge<br>Lock Screw | Hex<br>Key | Coolant<br>Seal |
|----------------------|-------|---------------------------------|---------------------------------|----------------|--------|--------|--------|-----------------|----------------------------------------------------------------|----------------------|-------------------------|------------|-----------------|
| ADCDN-FL30-022030-12 | 62208 | 0.866                           | 1.181                           | 0.472          | 1.299  | 0.630  | 0.591  | .118"           | DNTQ-22 3003-3EU-N<br>DNTR-22 3015-3EU-N<br>DNPG-22 3002-1SR-N | CS-M0616             | CS-M0620                | HAHK-50    | CS08-04         |
| ADCDN-FL30-030038-12 | 62209 | 1.181                           | 1.496                           | 0.472          | 1.299  | 0.630  | 0.591  | .118"           |                                                                |                      |                         |            |                 |
| ADCDN-FL30-038048-12 | 62210 | 1.496                           | 1.890                           | 0.472          | 1.299  | 0.630  | 0.591  | .118"           |                                                                |                      |                         |            |                 |
| ADCDN-FL30-048060-12 | 62211 | 1.890                           | 2.362                           | 0.472          | 1.299  | 0.630  | 0.591  | .118"           |                                                                |                      |                         |            |                 |
| ADCDN-FL30-060075-12 | 62212 | 2.362                           | 2.953                           | 0.472          | 1.299  | 0.630  | 0.591  | .118"           |                                                                |                      |                         |            |                 |
| ADCDN-FL30-075100-12 | 62213 | 2.953                           | 3.937                           | 0.472          | 1.299  | 0.630  | 0.591  | .118"           |                                                                |                      |                         |            |                 |
| ADCDN-FL30-100200-12 | 62214 | 3.937                           | 7.874                           | 0.472          | 1.299  | 0.630  | 0.591  | .118"           |                                                                |                      |                         |            |                 |
| ADCDN-FL30-200300-12 | 62215 | 7.874                           | 11.811                          | 0.472          | 1.299  | 0.630  | 0.591  | .118"           |                                                                |                      |                         |            |                 |
| ADCDN-FL30-300->-12  | 62216 | 11.811                          | >                               | 0.472          | 1.299  | 0.630  | 0.591  | .118"           |                                                                |                      |                         |            |                 |

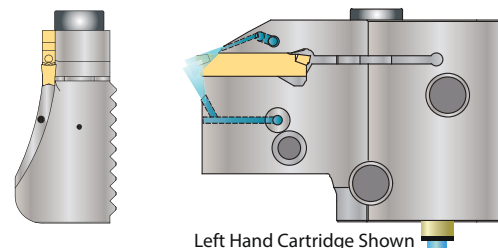
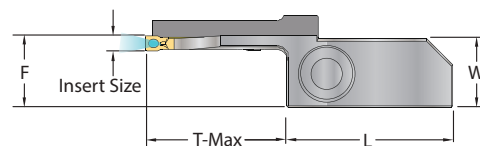
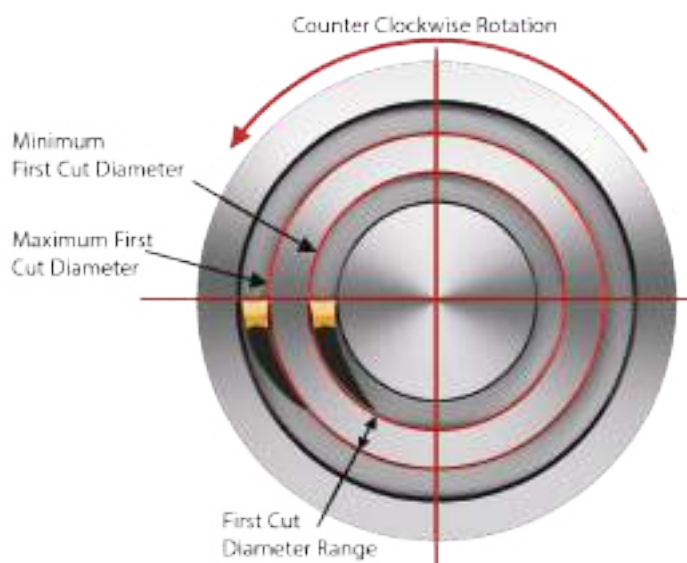
### T. Max 0.709"

|                      |       |        |        |       |       |       |       |       |                                                                |          |          |         |         |
|----------------------|-------|--------|--------|-------|-------|-------|-------|-------|----------------------------------------------------------------|----------|----------|---------|---------|
| ADCDN-FL30-060075-18 | 62217 | 2.362  | 2.953  | 0.709 | 1.299 | 0.630 | 0.591 | .118" | DNTQ-22 3003-3EU-N<br>DNTR-22 3015-3EU-N<br>DNPG-22 3002-1SR-N | CS-M0616 | CS-M0620 | HAHK-50 | CS08-04 |
| ADCDN-FL30-075100-18 | 62218 | 2.953  | 3.937  | 0.709 | 1.299 | 0.630 | 0.591 | .118" |                                                                |          |          |         |         |
| ADCDN-FL30-100200-18 | 62219 | 3.937  | 7.874  | 0.709 | 1.299 | 0.630 | 0.591 | .118" |                                                                |          |          |         |         |
| ADCDN-FL30-200300-18 | 62220 | 7.874  | 11.811 | 0.709 | 1.299 | 0.630 | 0.591 | .118" |                                                                |          |          |         |         |
| ADCDN-FL30-300->-18  | 62221 | 11.811 | >      | 0.709 | 1.299 | 0.630 | 0.591 | .118" |                                                                |          |          |         |         |

### T. Max 0.945"

|                      |       |        |        |       |       |       |       |       |                                                                |          |          |         |         |
|----------------------|-------|--------|--------|-------|-------|-------|-------|-------|----------------------------------------------------------------|----------|----------|---------|---------|
| ADCDN-FL30-100200-24 | 62222 | 3.937  | 7.874  | 0.945 | 1.299 | 0.630 | 0.591 | .118" | DNTQ-22 3003-3EU-N<br>DNTR-22 3015-3EU-N<br>DNPG-22 3002-1SR-N | CS-M0616 | CS-M0620 | HAHK-50 | CS08-04 |
| ADCDN-FL30-200300-24 | 62223 | 7.874  | 11.811 | 0.945 | 1.299 | 0.630 | 0.591 | .118" |                                                                |          |          |         |         |
| ADCDN-FL30-300->-24  | 62224 | 11.811 | >      | 0.945 | 1.299 | 0.630 | 0.591 | .118" |                                                                |          |          |         |         |

## Left Hand Face Grooving Cartridges for Left Hand Toolholders (.236" Insert Size)



Left Hand Cartridge Shown



### T-Max 0.512"

| Description          | UPC # | First Cut Diameter<br>Min. (in) Max. (in) |        | T. Max<br>(in) | L (in) | F (in) | W (in) | Insert<br>Width | Insert<br>Style                        | Insert<br>Lock Screw | Cartridge<br>Lock Screw | Hex<br>Key | Coolant<br>Seal |
|----------------------|-------|-------------------------------------------|--------|----------------|--------|--------|--------|-----------------|----------------------------------------|----------------------|-------------------------|------------|-----------------|
| ADCDN-FL60-050075-13 | 62253 | 1.969                                     | 2.953  | 0.512          | 1.299  | 0.630  | 0.591  | .236"           | DNTQ-256004-3EU-N<br>DNTR-256030-3EU-N | CS-M0616             | CS-M0620                | HAHK-50    | CS08-04         |
| ADCDN-FL60-075130-13 | 62254 | 2.953                                     | 5.118  | 0.512          | 1.299  | 0.630  | 0.591  | .236"           |                                        |                      |                         |            |                 |
| ADCDN-FL60-130300-13 | 62255 | 5.118                                     | 11.811 | 0.512          | 1.299  | 0.630  | 0.591  | .236"           |                                        |                      |                         |            |                 |
| ADCDN-FL60-300500-13 | 62256 | 11.811                                    | 19.685 | 0.512          | 1.299  | 0.630  | 0.591  | .236"           |                                        |                      |                         |            |                 |
| ADCDN-FL60-500>-13   | 62257 | 19.685                                    | >      | 0.512          | 1.299  | 0.630  | 0.591  | .236"           |                                        |                      |                         |            |                 |

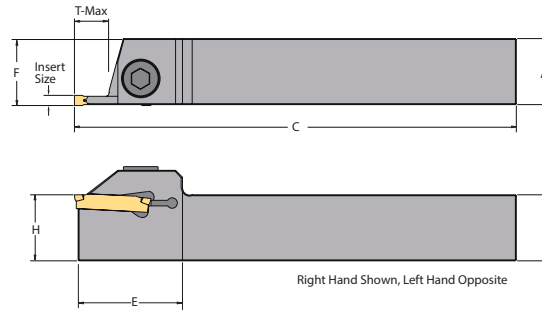
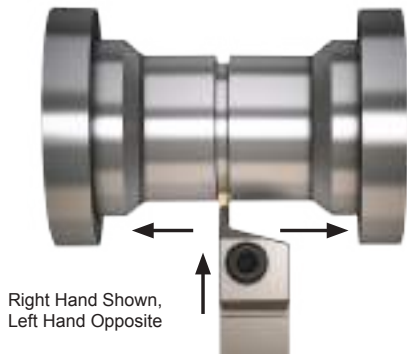
### T-Max 1.024"

|                      |       |        |        |       |       |       |       |       |                                        |          |          |         |         |
|----------------------|-------|--------|--------|-------|-------|-------|-------|-------|----------------------------------------|----------|----------|---------|---------|
| ADCDN-FL60-075130-26 | 62258 | 2.953  | 5.118  | 1.024 | 1.299 | 0.630 | 0.591 | .236" | DNTQ-256004-3EU-N<br>DNTR-256030-3EU-N | CS-M0616 | CS-M0620 | HAHK-50 | CS08-04 |
| ADCDN-FL60-130300-26 | 62259 | 5.118  | 11.811 | 1.024 | 1.299 | 0.630 | 0.591 | .236" |                                        |          |          |         |         |
| ADCDN-FL60-300500-26 | 62260 | 11.811 | 19.685 | 1.024 | 1.299 | 0.630 | 0.591 | .236" |                                        |          |          |         |         |
| ADCDN-FL60-500>-26   | 62261 | 19.685 | >      | 1.024 | 1.299 | 0.630 | 0.591 | .236" |                                        |          |          |         |         |

### T-Max 1.535"

|                      |       |        |        |       |       |       |       |       |                                        |          |          |         |         |
|----------------------|-------|--------|--------|-------|-------|-------|-------|-------|----------------------------------------|----------|----------|---------|---------|
| ADCDN-FL60-075130-39 | 62262 | 2.953  | 5.118  | 1.535 | 1.299 | 0.630 | 0.591 | .236" | DNTQ-256004-3EU-N<br>DNTR-256030-3EU-N | CS-M0616 | CS-M0620 | HAHK-50 | CS08-04 |
| ADCDN-FL60-130300-39 | 62263 | 5.118  | 11.811 | 1.535 | 0.000 | 0.000 | 0.591 | .236" |                                        |          |          |         |         |
| ADCDN-FL60-300500-39 | 62264 | 11.811 | 19.685 | 1.535 | 1.299 | 0.630 | 0.591 | .236" |                                        |          |          |         |         |
| ADCDN-FL60-500>-39   | 62265 | 19.685 | >      | 1.535 | 1.299 | 0.630 | 0.591 | .236" |                                        |          |          |         |         |

## Turning & Grooving Right Hand & Left Hand Toolholder



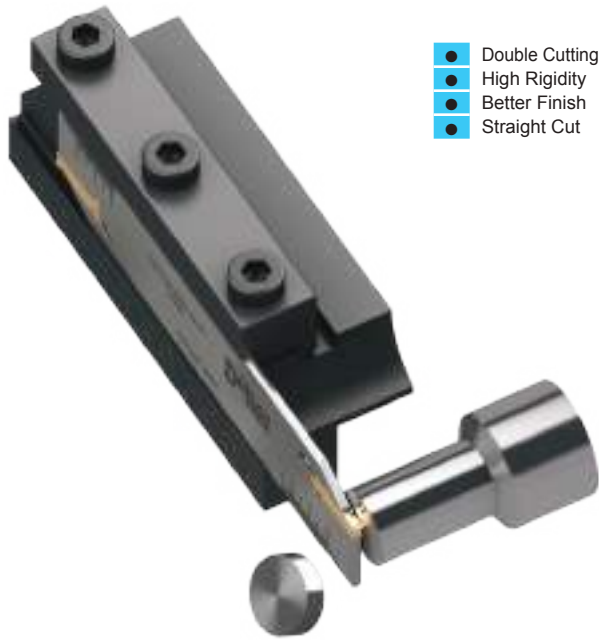
### Right Hand Toolholder

| Description       | UPC # | Insert Size    | Insert Style                                                | A      | B      | C     | H      | F      | T-Max                      | Insert Locking Screw | Hex Key |
|-------------------|-------|----------------|-------------------------------------------------------------|--------|--------|-------|--------|--------|----------------------------|----------------------|---------|
| DETGFR12-030C-S09 | 63606 | .118"<br>(3mm) | DNTQ-223003-3EU-N<br>DNTR-223015-3EU-N<br>DNPG-223002-1SR-N | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.354"<br>0.551"<br>0.787" | CS-M0616             | HAHK-50 |
| DETGFR12-030C-M14 | 63636 |                |                                                             | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFR12-030C-L20 | 63666 |                |                                                             | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFR16-030D-S09 | 63614 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFR16-030D-M14 | 63644 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFR85-030D-S09 | 63622 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFR85-030D-M14 | 63652 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFR85-030D-L20 | 63682 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFR12-040C-S12 | 63608 | .157"<br>(4mm) | DNTQ-254004-3EU-N<br>DNTR-254020-3EU-N<br>DNPG-254003-1SR-N | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFR12-040C-M18 | 63638 |                |                                                             | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFR12-040C-L24 | 63668 |                |                                                             | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFR16-040D-S12 | 63616 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFR16-040D-M18 | 63646 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFR16-040D-L24 | 63676 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFR85-040D-S12 | 63624 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFR85-040D-M18 | 63654 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFR85-040D-L24 | 63684 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |

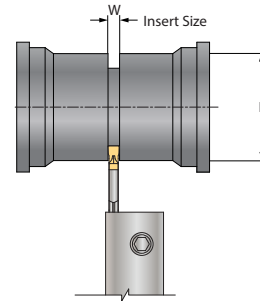
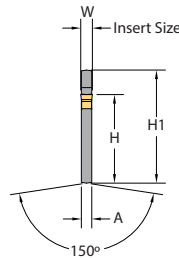
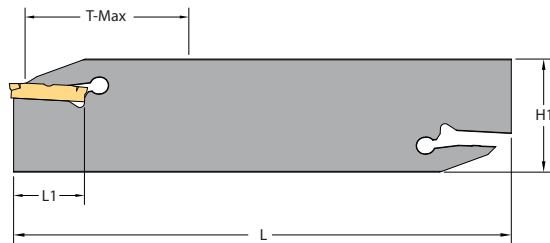
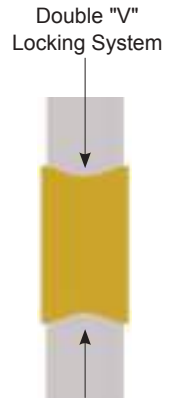
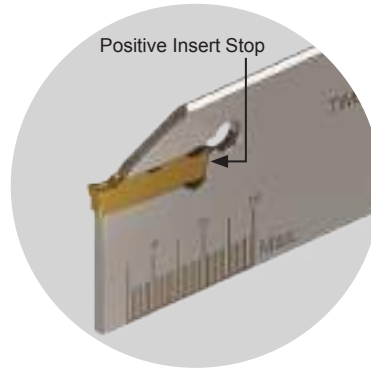
### Left Hand Toolholder

| Description       | UPC # | Insert Size    | Insert Style                                                | A      | B      | C     | H      | F      | T-Max                      | Insert Locking Screw | Hex Key |
|-------------------|-------|----------------|-------------------------------------------------------------|--------|--------|-------|--------|--------|----------------------------|----------------------|---------|
| DETGFL12-030C-S09 | 63607 | .118"<br>(3mm) | DNTQ-223003-3EU-N<br>DNTR-223015-3EU-N<br>DNPG-223002-1SR-N | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.354"<br>0.551"<br>0.787" | CS-M0616             | HAHK-50 |
| DETGFL12-030C-M14 | 63637 |                |                                                             | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFL16-030D-S09 | 63615 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFL16-030D-M14 | 63645 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFL85-030D-S09 | 63623 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFL85-030D-M14 | 63653 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFL85-030D-L20 | 63683 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.354"<br>0.551"<br>0.787" |                      |         |
| DETGFL12-040C-S12 | 63609 | .157"<br>(4mm) | DNTQ-254004-3EU-N<br>DNTR-254020-3EU-N<br>DNPG-254003-1SR-N | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFL12-040C-M18 | 63639 |                |                                                             | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFL12-040C-L24 | 63669 |                |                                                             | 0.750" | 0.750" | 5.00" | 0.750" | 0.762" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFL16-040D-S12 | 63617 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFL16-040D-M18 | 63647 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFL16-040D-L24 | 63677 |                |                                                             | 1.000" | 1.000" | 6.00" | 1.000" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFL85-040D-S12 | 63625 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFL85-040D-M18 | 63655 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |
| DETGFL85-040D-L24 | 63685 |                |                                                             | 1.000" | 1.250" | 7.00" | 1.250" | 1.012" | 0.472"<br>0.709"<br>0.945" |                      |         |

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



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



Insert Extraction Key  
Sold Separately

### 19mm (3/4") Twin Edge Blades

| Blades Description | UPC # | T. Max | A     | D     | L     | L1    | H     | H1    | Insert Description                       | Insert Width | Insert Extraction Key Description | UPC # |
|--------------------|-------|--------|-------|-------|-------|-------|-------|-------|------------------------------------------|--------------|-----------------------------------|-------|
| TWECOB-DNTF-19-20  | 61973 | .785   | 0.063 | 1.570 | 3.380 | 0.866 | 0.618 | 0.750 | DNTQ-22 2002-3EU-N<br>DNPG-22 2002-1SR-N | 0.079        | KCIK-DN                           | 61204 |

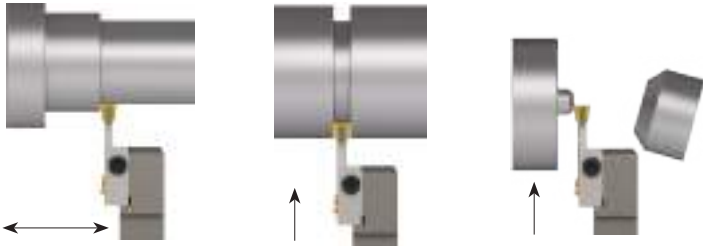
### 26mm (1") Twin Edge Blades

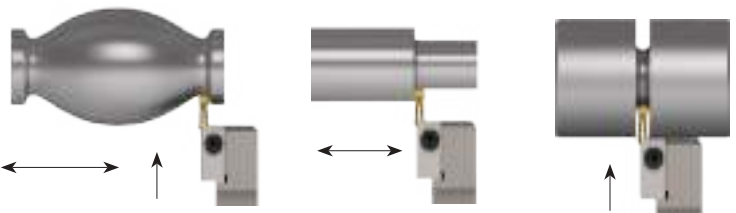
| Blades Description | UPC # | T. Max | A     | D     | L     | L1    | H     | H1    | Insert Description                                             | Insert Width | Insert Extraction Key Description | UPC # |
|--------------------|-------|--------|-------|-------|-------|-------|-------|-------|----------------------------------------------------------------|--------------|-----------------------------------|-------|
| TWECOB-DNTF-26-20  | 61965 | 1.000  | 0.063 | 2.000 | 4.331 | 0.866 | 0.842 | 1.024 | DNTQ-22 2002-3EU-N<br>DNPG-22 2002-1SR-N                       | 0.079        | KCIK-DN                           | 61204 |
| TWECOB-DNTF-26-30  | 61966 | 1.550  | 0.094 | 3.100 | 4.331 | 0.866 | 0.842 | 1.024 | DNTQ-22 3003-3EU-N<br>DNTR-22 3015-3EU-N<br>DNPG-22 3002-1SR-N | 0.118        |                                   |       |
| TWECOB-DNTF-26-40  | 61967 | 1.650  | 0.125 | 3.300 | 4.331 | 0.866 | 0.842 | 1.024 | DNTQ-25 4004-3EU-N<br>DNTR-25 4020-3EU-N<br>DNPG-25 4003-1SR-N | 0.157        |                                   |       |

### 32mm (1 1/4") Twin Edge Blades

| Blades Description | UPC # | T. Max | A     | D     | L     | L1    | H     | H1    | Insert Description                                             | Insert Width | Insert Extraction Key Description | UPC # |
|--------------------|-------|--------|-------|-------|-------|-------|-------|-------|----------------------------------------------------------------|--------------|-----------------------------------|-------|
| TWECOB-DNTF-32-20  | 61968 | 1.150  | 0.063 | 2.300 | 5.906 | 0.866 | 0.984 | 1.260 | DNTQ-22 2002-3EU-N<br>DNPG-22 2002-1SR-N                       | 0.079        | KCIK-DN                           | 61204 |
| TWECOB-DNTF-32-30  | 61969 | 1.750  | 0.094 | 3.500 | 5.906 | 0.866 | 0.984 | 1.260 | DNTQ-22 3003-3EU-N<br>DNTR-22 3015-3EU-N<br>DNPG-22 3002-1SR-N | 0.118        |                                   |       |
| TWECOB-DNTF-32-40  | 61970 | 1.950  | 0.125 | 3.900 | 5.906 | 0.984 | 0.984 | 1.260 | DNTQ-25 4004-3EU-N<br>DNTR-25 4020-3EU-N<br>DNPG-25 4003-1SR-N | 0.157        |                                   |       |
| TWECOB-DNTF-32-50  | 61971 | 2.350  | 0.157 | 4.700 | 5.906 | 0.984 | 0.984 | 1.260 | DNTQ-25 5004-3EU-N<br>DNTR-25 5025-3EU-N<br>DNPG-25 5004-1SR-N | 0.197        |                                   |       |
| TWECOB-DNTF-32-60  | 61972 | 2.750  | 0.203 | 5.500 | 5.906 | 0.984 | 0.984 | 1.260 | DNTQ-25 6004-3EU-N<br>DNPG-25 6004-1SR-N                       | 0.236        |                                   |       |

## Turning & Grooving Insert Grades

| Insert Specification                                                                                                                                                                                                               |        |                 |                                              |                                                                        | Insert Application                                                                                                       |              |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------|----------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------|--|--|--|
| <div>Double-End Cutting Edge<br/>DNTQ-N- DUP35UG</div> <div>Neutral Straight Nose<br/>Multi-Cutting Direction<br/>Right Hand and Left Hand</div>  |        |                 |                                              |                                                                        | <div>TurningGroovingParting-Off</div>  |              |  |  |  |
| Cutting Data                                                                                                                                                                                                                       |        |                 |                                              |                                                                        |                                                                                                                          |              |  |  |  |
| Insert Dimension                                                                                                                                                                                                                   |        |                 | Maximum $a_p$<br>Depth of Cut<br>for Turning | Maximum $f_r$<br>Feed Rate for<br>Turning, Grooving<br>and Parting-off |                                                                                                                          |              |  |  |  |
| Width                                                                                                                                                                                                                              | Length | Corner Radius   | inch                                         | in/rev.                                                                |                                                                                                                          |              |  |  |  |
| .079" (2mm)                                                                                                                                                                                                                        | .866"  | .008"           | .039"                                        | .006 in/rev                                                            |                                                                                                                          |              |  |  |  |
| .118" (3mm)                                                                                                                                                                                                                        | .866"  | .012"           | .059"                                        | .008 in/rev                                                            |                                                                                                                          |              |  |  |  |
| .157" (4mm)                                                                                                                                                                                                                        | .984"  | .016"           | .079"                                        | .009 in/rev                                                            |                                                                                                                          |              |  |  |  |
| .197" (5mm)                                                                                                                                                                                                                        | .984"  | .016"           | .098"                                        | .010 in/rev                                                            |                                                                                                                          |              |  |  |  |
| .236" (6mm)                                                                                                                                                                                                                        | .984"  | .016"           | .118"                                        | .012 in/rev                                                            |                                                                                                                          |              |  |  |  |
| Insert Geometry, Material Application                                                                                                                                                                                              |        |                 |                                              |                                                                        |                                                                                                                          |              |  |  |  |
| Steel                                                                                                                                                                                                                              |        | Stainless Steel |                                              | Cast Iron                                                              | Non Ferrous                                                                                                              | Super Alloys |  |  |  |
| ●                                                                                                                                                                                                                                  |        | ●               |                                              | ●                                                                      | ○                                                                                                                        | ○            |  |  |  |
| ● First Choice Grade                                                                                                                                                                                                               |        |                 |                                              |                                                                        | ○ Second Best                                                                                                            |              |  |  |  |

| <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                                                                                                                                                                                                                                                                                                                |                 |               |             |              |                                                                                                                                                        |        |        |       |                 |             |             |               |       |             |             |       |               |       |             |             |       |               |       |             |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|-------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|-------|-----------------|-------------|-------------|---------------|-------|-------------|-------------|-------|---------------|-------|-------------|-------------|-------|---------------|-------|-------------|--|--|--|
| <b>Cutting Data</b><br><br>Insert Dimension <table> <tr> <th>Width</th><th>Length</th><th>Radius</th><th>inch</th><th>in/rev.</th></tr> <tr> <td>.118" (3mm)</td><td>.866"</td><td>.059" (1.5mm)</td><td>.059"</td><td>.012 in/rev</td></tr> <tr> <td>.157" (4mm)</td><td>.984"</td><td>.079" (2.0mm)</td><td>.079"</td><td>.014 in/rev</td></tr> <tr> <td>.197" (5mm)</td><td>.984"</td><td>.098" (2.5mm)</td><td>.098"</td><td>.016 in/rev</td></tr> </table> |                 |               |             |              | Width                                                                                                                                                                                                                                     | Length | Radius | inch  | in/rev.         | .118" (3mm) | .866"       | .059" (1.5mm) | .059" | .012 in/rev | .157" (4mm) | .984" | .079" (2.0mm) | .079" | .014 in/rev | .197" (5mm) | .984" | .098" (2.5mm) | .098" | .016 in/rev |  |  |  |
| Width                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Length          | Radius        | inch        | in/rev.      |                                                                                                                                                                                                                                           |        |        |       |                 |             |             |               |       |             |             |       |               |       |             |             |       |               |       |             |  |  |  |
| .118" (3mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                     | .866"           | .059" (1.5mm) | .059"       | .012 in/rev  |                                                                                                                                                                                                                                           |        |        |       |                 |             |             |               |       |             |             |       |               |       |             |             |       |               |       |             |  |  |  |
| .157" (4mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                     | .984"           | .079" (2.0mm) | .079"       | .014 in/rev  |                                                                                                                                                                                                                                           |        |        |       |                 |             |             |               |       |             |             |       |               |       |             |             |       |               |       |             |  |  |  |
| .197" (5mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                     | .984"           | .098" (2.5mm) | .098"       | .016 in/rev  |                                                                                                                                                                                                                                           |        |        |       |                 |             |             |               |       |             |             |       |               |       |             |             |       |               |       |             |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |               |             |              | <b>Insert Geometry, Material Application</b><br><table> <tr> <td>Steel</td><td>Stainless Steel</td><td>Cast Iron</td><td>Non Ferrous</td><td>Super Alloys</td></tr> <tr> <td>●</td><td>●</td><td>●</td><td>○</td><td>○</td></tr> </table> |        |        | Steel | Stainless Steel | Cast Iron   | Non Ferrous | Super Alloys  | ●     | ●           | ●           | ○     | ○             |       |             |             |       |               |       |             |  |  |  |
| Steel                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Stainless Steel | Cast Iron     | Non Ferrous | Super Alloys |                                                                                                                                                                                                                                           |        |        |       |                 |             |             |               |       |             |             |       |               |       |             |             |       |               |       |             |  |  |  |
| ●                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ●               | ●             | ○           | ○            |                                                                                                                                                                                                                                           |        |        |       |                 |             |             |               |       |             |             |       |               |       |             |             |       |               |       |             |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |               |             |              | ● First Choice Grade      ○ Second Best                                                                                                                                                                                                   |        |        |       |                 |             |             |               |       |             |             |       |               |       |             |             |       |               |       |             |  |  |  |

## Turning & Grooving Insert Grades

| DUP35UG  |                     |                      |      |        |     |
|----------|---------------------|----------------------|------|--------|-----|
| Material |                     | V <sub>c</sub> (SFM) |      |        |     |
| Steel    |                     | F/min.               |      | m/min. |     |
| P        | Carbon Steel        | 363                  | 627  | 110    | 190 |
|          | Low Alloy Steel     | 363                  | 594  | 110    | 180 |
|          | High Temp Alloys    | 231                  | 528  | 70     | 160 |
| M        | Ferritic            | 396                  | 660  | 120    | 200 |
|          | Austenitic          | 330                  | 561  | 100    | 170 |
|          | Duplex              | 231                  | 363  | 70     | 110 |
|          | Martensitic         | 198                  | 297  | 60     | 90  |
| K        | Gray Cast Iron      | 330                  | 660  | 100    | 200 |
|          | Modular Cast Iron   | 330                  | 594  | 100    | 180 |
|          | Malleable Cast Iron | 264                  | 528  | 80     | 160 |
| N        | Unleaded Copper     | 373                  | 825  | 113    | 250 |
|          | Brass               | 663                  | 1472 | 201    | 446 |
|          | Unleaded Bronze     | 287                  | 495  | 87     | 150 |
| S        | Iron Base           | 86                   | 172  | 26     | 52  |
|          | Nickel Base         | 53                   | 116  | 16     | 35  |
|          | Titanium            | 198                  | 429  | 60     | 130 |

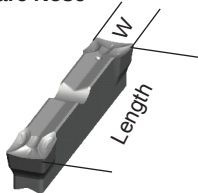
| DPP40SG  |                     |                      |     |        |     |
|----------|---------------------|----------------------|-----|--------|-----|
| Material |                     | V <sub>c</sub> (SFM) |     |        |     |
| Steel    |                     | F/min.               |     | m/min. |     |
| P        | Carbon Steel        | 264                  | 495 | 80     | 150 |
|          | Low Alloy Steel     | 231                  | 396 | 70     | 120 |
|          | High Temp Alloys    | 198                  | 330 | 60     | 100 |
| M        | Ferritic            | 330                  | 594 | 100    | 180 |
|          | Austenitic          | 264                  | 495 | 80     | 150 |
|          | Duplex              | 231                  | 363 | 70     | 110 |
|          | Martensitic         | 198                  | 297 | 60     | 90  |
| K        | Gray Cast Iron      | 264                  | 561 | 80     | 170 |
|          | Modular Cast Iron   | 297                  | 495 | 90     | 150 |
|          | Malleable Cast Iron | 231                  | 462 | 70     | 140 |
| N        | Unleaded Copper     |                      |     |        |     |
|          | Brass               |                      |     |        |     |
|          | Unleaded Bronze     |                      |     |        |     |
| S        | Iron Base           |                      |     |        |     |
|          | Nickel Base         |                      |     |        |     |
|          | Titanium            |                      |     |        |     |

|                                 |                                                                                                                                                               |        |               |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------|
| <b>DUP35UG</b>                  | HC-P25/M25 K30 N30 S30                                                                                                                                        | Coated | PVD-TiAlN 4μm |
| <b>Insert Characteristics</b>   | Hard, Wear, Abrasive and Impact Resistant                                                                                                                     |        |               |
| <b>First Choice Application</b> | Universal Multi Purpose Turning and Grooving Application; for carbon steel, alloy steel, stainless steel, cast iron, high-temp alloys & non-ferrous materials |        |               |
| <b>Cutting Speed SFM (Vc)</b>   | High Cutting Speed in stable turning and grooving conditions, light interrupted cut                                                                           |        |               |
| <b>Cutting Condition</b>        | Wet                                                                                                                                                           |        |               |

|                                 |                                                                                                                                                    |              |               |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|
| <b>DPP40SG</b>                  | HC-P45/M45                                                                                                                                         | Multi Coated | PVD-TiAlN 7μm |
| <b>Insert Characteristics</b>   | Extremely Tough and Impact Resistant Substrate                                                                                                     |              |               |
| <b>First Choice Application</b> | For Heavy or Interrupted Part Off and Grooving Applications; for Forgings and Castings of Carbon Steel, Alloy Steel, Stainless Steel and Cast Iron |              |               |
| <b>Cutting Speed SFM (Vc)</b>   | Low to Medium Cutting Speed in unstable conditions and heavy interrupted cut                                                                       |              |               |
| <b>Cutting Condition</b>        | Wet                                                                                                                                                |              |               |

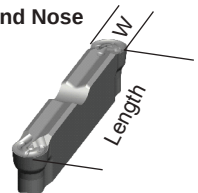
## Insert Specifications

"T" Square Nose



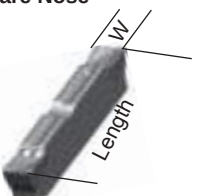
|       |                              |                            |                   |                    |               | Grade   |
|-------|------------------------------|----------------------------|-------------------|--------------------|---------------|---------|
| UPC # | Application                  | Part Number                | Insert Size Width | Insert Size Length | Corner Radius | DUP35UG |
| 82440 | Turning Grooving Parting-Off | DNTQ-22 2002-3EU-N DUP35UG | .079" (2mm)       | .866"              | .008"         | •       |
| 82442 |                              | DNTQ-22 3003-3EU-N DUP35UG | .118" (3mm)       | .866"              | .012"         | •       |
| 82443 |                              | DNTQ-25 4004-3EU-N DUP35UG | .157" (4mm)       | .984"              | .016"         | •       |
| 82444 |                              | DNTQ-25 5004-3EU-N DUP35UG | .197" (5mm)       | .984"              | .016"         | •       |
| 82445 |                              | DNTQ-25 6004-3EU-N DUP35UG | .236" (6mm)       | .984"              | .016"         | •       |

"R" Round Nose



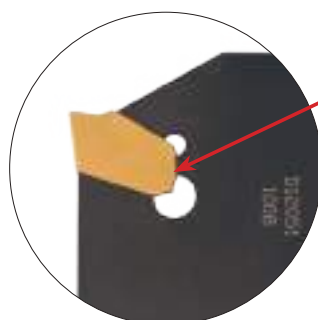
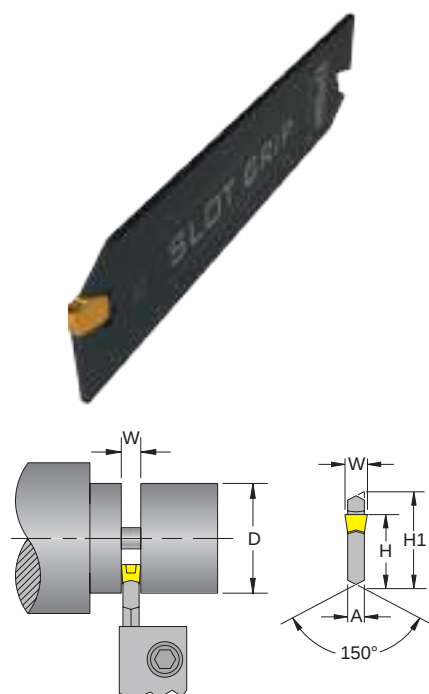
|       |                            |                            |                   |                    |               | Grade   |
|-------|----------------------------|----------------------------|-------------------|--------------------|---------------|---------|
| UPC # | Application                | Part Number                | Insert Size Width | Insert Size Length | Radius        | DUP35UG |
| 82459 | Profiling Turning Grooving | DNTR-22 3015-3EU-N DUP35UG | .118" (3mm)       | .866"              | .059" (1.5mm) | •       |
| 82460 |                            | DNTR-25 4020-3EU-N DUP35UG | .157" (4mm)       | .984"              | .079" (2.0mm) | •       |
| 82461 |                            | DNTR-25 5025-3EU-N DUP35UG | .197" (5mm)       | .984"              | .098" (2.5mm) | •       |

"G" Square Nose



|       |                      |                            |                   |                    |               | Grade   |
|-------|----------------------|----------------------------|-------------------|--------------------|---------------|---------|
| UPC # | Application          | Part Number                | Insert Size Width | Insert Size Length | Corner Radius | DPP40SG |
| 82475 | Grooving Parting-Off | DNPG-22 2002-1SR-N DPP40SG | .079" (2mm)       | .866"              | .008"         | •       |
| 82476 |                      | DNPG-22 3002-1SR-N DPP40SG | .118" (3mm)       | .866"              | .008"         | •       |
| 82477 |                      | DNPG-25 4003-1SR-N DPP40SG | .157" (4mm)       | .984"              | .012"         | •       |
| 82478 |                      | DNPG-25 5004-1SR-N DPP40SG | .197" (5mm)       | .984"              | .016"         | •       |
| 82479 |                      | DNPG-25 6004-1SR-N DPP40SG | .236" (6mm)       | .984"              | .016"         | •       |

## 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.

### 19mm (3/4") Slot Grip Blades

| Blades Description | UPC # | T. Max | A     | D     | L     | H     | H1    | Insert Description | Insert Width |
|--------------------|-------|--------|-------|-------|-------|-------|-------|--------------------|--------------|
| SGIH19-2           | 62950 | 0.785  | 0.063 | 1.570 | 3.380 | 0.618 | 0.750 | SGT(N/R/L)-2       | .079"        |

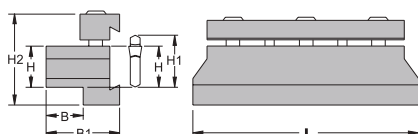
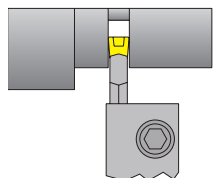
### 26mm (1") Slot Grip Blades

|          |       |       |       |       |       |       |       |              |       |
|----------|-------|-------|-------|-------|-------|-------|-------|--------------|-------|
| SGIH26-2 | 62951 | 1.000 | 0.063 | 2.000 | 4.330 | 0.842 | 1.020 | SGT(N/R/L)-2 | .079" |
| SGIH26-3 | 62952 | 1.500 | 0.094 | 3.000 |       |       |       | SGT(N/R/L)-3 | .118" |
| SGIH26-4 | 62953 | 1.575 | 0.125 | 3.150 |       |       |       | SGT(N/R/L)-4 | .157" |

### 32mm (1 1/4") Slot Grip Blades

|          |       |       |       |       |       |       |       |              |       |
|----------|-------|-------|-------|-------|-------|-------|-------|--------------|-------|
| SGIH32-3 | 62956 | 1.970 | 0.094 | 3.940 | 5.900 | 0.984 | 1.250 | SGT(N/R/L)-3 | .118" |
| SGIH32-4 | 62957 | 1.970 | 0.125 | 3.940 |       |       |       | SGT(N/R/L)-4 | .157" |
| SGIH32-5 | 62958 | 2.355 | 0.156 | 4.710 |       |       |       | SGT(N/R/L)-5 | .197" |
| SGIH32-6 | 62959 | 2.355 | 0.203 | 4.710 |       |       |       | SGT(N/R/L)-6 | .236" |
| SGIH32-8 | 62960 | 2.755 | 0.268 | 5.510 |       |       |       | SGT(N/R/L)-8 | .315" |
| SGIH32-9 | 62961 | 2.755 | 0.312 | 5.510 |       |       |       | SGT(N/R/L)-9 | .354" |

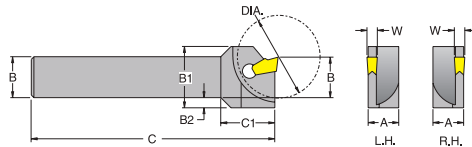
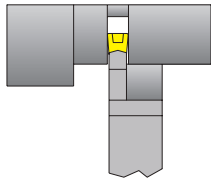
### SGTBN Neutral Hand Cut-Off Toolholder for Cut-Off SGIH blades



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, Kool-Cut, and competitive blade systems. SGTBN toolholders come in a broad selection of shank sizes.

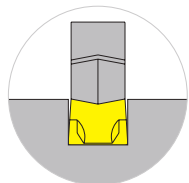
| Description | UPC # Neutral | H     | H1    | H2    | B     | B1    | L    | Blade Used                   | Screw used             |
|-------------|---------------|-------|-------|-------|-------|-------|------|------------------------------|------------------------|
| SGTBN12,7-2 | 62970         | 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 |                              |                        |
| SGTBN19-5   | 62973         | 0.750 | 1.020 | 2.000 | 0.750 | 1.375 | 3.50 | SGIH26-2 Thru<br>SGIH26-6    | ASHCSFP-060-100-030-MA |
| SGTBN19-6   | 62974         | 0.750 | 1.250 | 2.000 | 0.750 | 1.375 | 4.50 |                              |                        |
| SGTBN25,4-6 | 62975         | 1.000 | 1.250 | 2.125 | 0.875 | 1.500 | 4.50 | SGIH32-3<br>Thru<br>SGIH32-9 | ASHCSFP-060-100-030-MA |
| 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 |                              |                        |

## 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.

| UPC #          |       |       |       |       |       |       |       |       |          |               | Insert used    |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|----------|---------------|----------------|
| Description    | R.H.  | L.H.  | A     | B     | B1    | B2    | C     | C1    | Max. Dia | W             |                |
| SGTHR/L-9,5-2  | 63000 | 63001 | 0.375 | 0.375 | 0.750 | 0.187 | 3.375 | 0.703 | 1.109    | 0.087 & 0.930 | SGTN/R/L-2-2,4 |
| SGTHR/L-12,7-2 | 63002 | 63003 | 0.391 | 0.500 | 0.828 | 0.156 | 4.328 | 0.703 | 1.172    | 0.087 & 0.930 |                |
| SGTHR/L-16-2   | -     | 63005 | 0.391 | 0.625 | 0.750 | -     | 4.328 | 0.703 | 1.172    | 0.087 & 0.930 |                |
| SGTHR/L-19-2   | 63006 | 63007 | 0.469 | 0.750 | 0.937 | -     | 4.328 | 0.781 | 1.266    | 0.087 & 0.930 | SGTN/R/L-3     |
| SGTHR/L-19,5-3 | 63008 | 63009 | 0.375 | 0.375 | 0.750 | 0.187 | 3.375 | 0.703 | 1.109    | 0.120         |                |
| SGTHR/L-12,7-3 | 63010 | 63011 | 0.391 | 0.500 | 0.828 | 0.237 | 4.328 | 0.828 | 1.266    | 0.120         |                |
| SGTHR/L-16-3   | 63012 | 63013 | 0.469 | 0.625 | 0.937 | 0.156 | 4.328 | 0.828 | 1.266    | 0.120         |                |
| SGTHR/L-19-3   | 63014 | 63015 | 0.469 | 0.750 | 0.937 | -     | 4.328 | 0.828 | 1.406    | 0.120         |                |
| SGTHR/L-25,4-3 | 63016 | -     | 0.984 | 1.000 | 1.187 | -     | 5.875 | 0.984 | 2.062    | 0.120         | SGTN/R/L-4     |
| SGTHR/L-16-4   | 63018 | 63019 | 0.469 | 0.625 | 0.937 | 0.156 | 4.328 | 0.828 | 1.328    | 0.160         |                |
| SGTHR/L-19-4   | 63020 | 63021 | 0.469 | 0.750 | 0.937 | -     | 4.328 | 0.906 | 1.531    | 0.160         |                |
| SGTHR/L-25,4-4 | 63022 | 63023 | 0.984 | 1.000 | 1.187 | -     | 5.875 | 1.187 | 2.500    | 0.160         | SGTN/R/L-4,8-5 |
| SGTHR/L-19-5   | 63024 | 63025 | 0.469 | 0.750 | 0.937 | -     | 4.328 | 0.906 | 1.531    | 0.187 & 0.200 |                |
| SGTHR/L-25,4-5 | 63026 | -     | 0.984 | 1.000 | 1.187 | -     | 5.875 | 1.600 | 3.000    | 0.187 & 0.200 |                |



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.

### Chip breaker Geometry

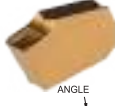
- Reduced machining force
- Controlled, coiled chip flow
- Higher material removal rate

### Application

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

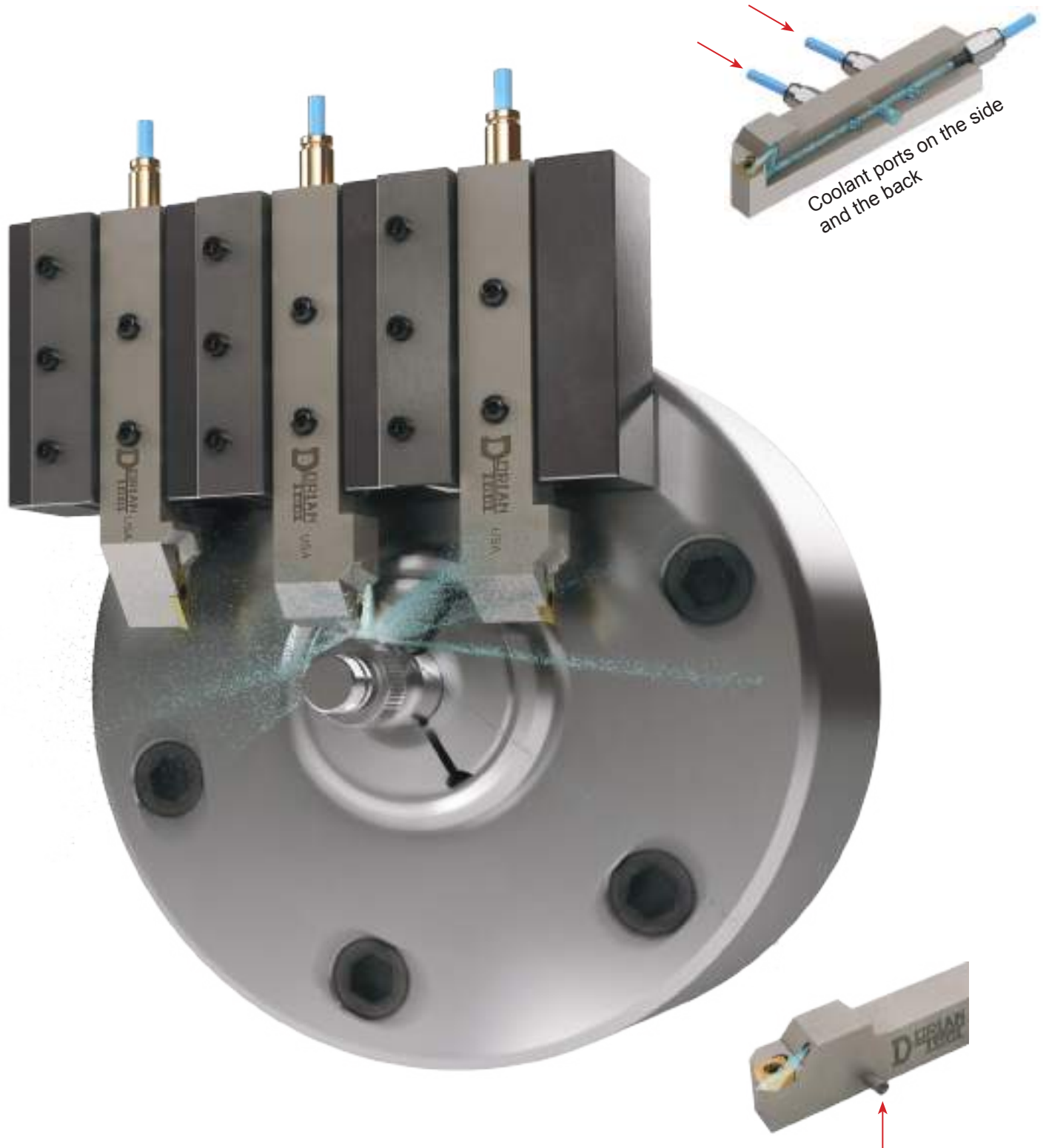
Material

|                      |                                           |                      |                                  |                         |                                  |                  |                      |
|----------------------|-------------------------------------------|----------------------|----------------------------------|-------------------------|----------------------------------|------------------|----------------------|
| Carbon & Alloy Steel | Aluminum & Non-Ferrous Metals & Materials | Carbon & Alloy Steel | 300 & 400 Series Stainless Steel | Cast Iron, Copper/Brass | Aluminum & Non-Ferrous Materials | High Temp Alloys | Hard Steel to 58 HRC |
|----------------------|-------------------------------------------|----------------------|----------------------------------|-------------------------|----------------------------------|------------------|----------------------|

| Insert Grade                                                                                                     |            | Insert Coating |            | CVD TiN Coated |     | Uncoated |       | PVD TiAlN Coated |  |
|------------------------------------------------------------------------------------------------------------------|------------|----------------|------------|----------------|-----|----------|-------|------------------|--|
| Insert Grade                                                                                                     |            | Dimensions     |            | DC656          |     | DK25     |       | DASK25B          |  |
| Description                                                                                                      | ANSI       | Insert Size mm | Lead Angle | Width + 0,05   |     | UPC #    | UPC # | UPC #            |  |
|                                                                                                                  |            |                |            | inch           | mm  |          |       |                  |  |
| <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    | -     | -                |  |
| <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    | -     | -                |  |
|                                                                                                                  | SGTR-9-8   | 9              | 8°         | .378           | 9   | 82274    | -     | -                |  |
| <b>SGTL</b><br>Left Hand<br>  | SGTL-2-8   | 2              | 8°         | .087           | 2   | 82278    | 82276 | 82279            |  |
|                                                                                                                  | SGTL-4-8   | 4              | 8°         | .161           | 4   | -        | 82284 | 82287            |  |
|                                                                                                                  | SGTL-5-8   | 5              | 8°         | .201           | 5   | 82290    | -     | -                |  |

# SWISS SCREW MACHINE TOOLS

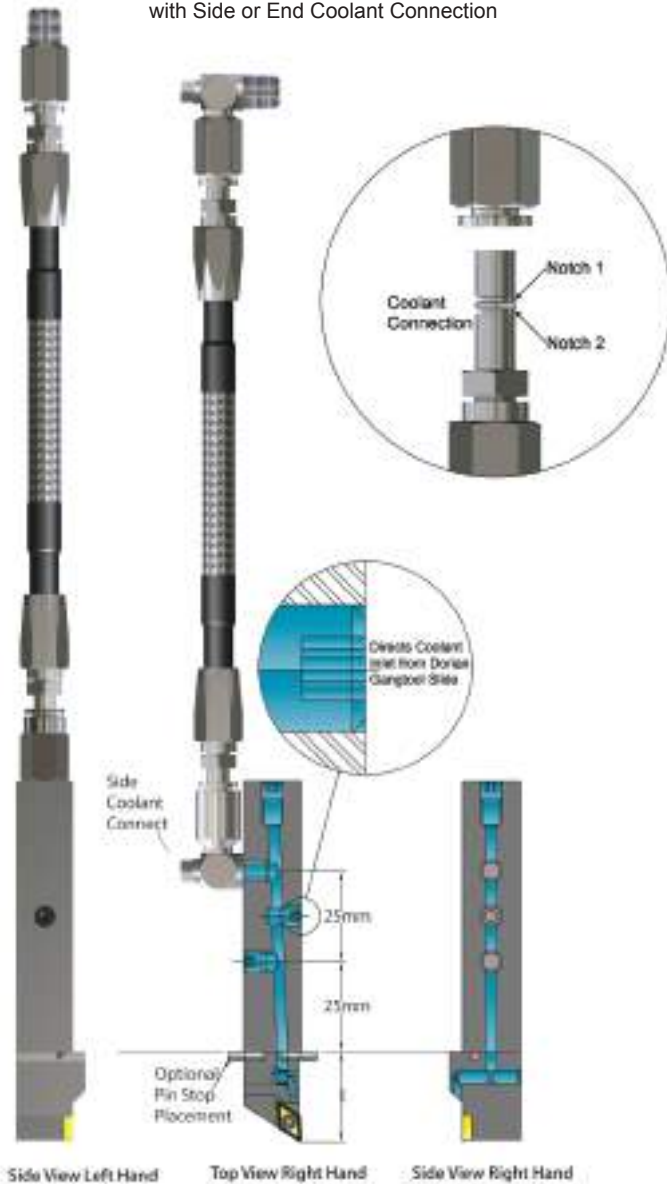
with Advanced Thru Coolant Jet-Stream™ System



Positive Qualified stop for  
tool holder after insert change

## 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**.

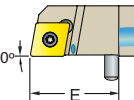


**New Hydraulic Coolant Hose For Safe & Easy Disconnection**

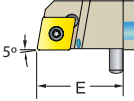
**Swiss Tool holders-High Pressure Coolant Connection 7 Pcs. Kit** Working Pressure

| Item | Part Number     | UPC # | Description                                              | Bar | PSI  |
|------|-----------------|-------|----------------------------------------------------------|-----|------|
| 1    | DT-HPTU-8X4     | 60477 | 8mm High Pressure 8mm Coolant Tubing Only                | 200 | 2800 |
| 2    | DT-HP90C-8/6    | 60479 | High Pressure Quick Release Straight Intec               |     |      |
| 3    | DT-HP90C-8/6    | 60479 | High Pressure Quick Release Straight Intec               |     |      |
| 4    | DT-HP0SC-1/8X6  | 60490 | 1/8" NPT Straight High Pressure Quick Release Connector  |     |      |
| 5    | DT-HP90CE-1/8X6 | 60489 | 1/8" NPT 90° Elbow High Pressure Quick Release Connector |     |      |
| 6    | DT-HP0SC-6X6    | 60487 | 6mm Straight High Pressure Quick Release Connector       |     |      |
| 7    | DT-HP90C-6X6    | 60486 | 6mm 90° Elbow High Pressure Quick Release Connector      |     |      |

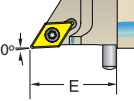
### ASCAC Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side Cutting Edge Angle for 7° positive 80° diamond CC\_W inserts

| Coolant Outlet                                                                   | METRIC Description | UPC #      |           | Sys-tem | 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       |

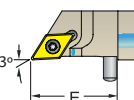
### ASCNC Jet-Stream™ Thru Coolant R/L Toolholder Style N - Negative 5° End or Side Cutting Edge Angle for 7° positive 80° diamond CC\_W inserts

| Coolant Outlet                                                                   | METRIC Description | UPC #      |           | Sys-tem | 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       |

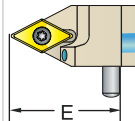
### ASDAC Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side Cutting Edge Angle for 7° positive 55° diamond DC\_W inserts

| Coolant Outlet                                                                     | METRIC Description | UPC #      |           | Sys-tem | 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       |

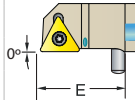
### ASDNC Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side Cutting Edge Angle for 7° positive 55° diamond DC\_W inserts

| Coolant Outlet                                                                     | METRIC Description | UPC #      |           | Sys-tem | 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       |

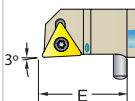
### ASDPC Jet-Stream™ Thru Coolant Neutral Toolholder Style P - 27.5° Side Cutting Edge Angle for 7° positive 55° diamond DC\_W inserts

| Coolant Outlet                                                                    | METRIC Description | UPC #   |  | Sys-tem | Shank  |        | E (Tool Stop) | DC_W Gage Insert |
|-----------------------------------------------------------------------------------|--------------------|---------|--|---------|--------|--------|---------------|------------------|
|                                                                                   |                    | Neutral |  |         | 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       |

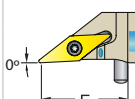
### ASTAC Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side Cutting Edge Angle for 7° positive triangle TC\_W inserts

| Coolant Outlet                                                                    | METRIC Description | UPC #      |           | Sys-tem | 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  |

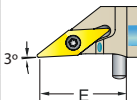
### ASTNC Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side Cutting Edge Angle for 7° positive triangle TC\_W inserts

| Coolant Outlet                                                                     | METRIC Description | UPC #      |           | Sys-tem | 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       |

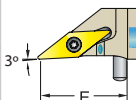
### ASVAB Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side Cutting Edge Angle for 5° positive 35° diamond VB\_W inserts

| Coolant Outlet                                                                      | METRIC Description | UPC #      |           | Sys-tem | 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         |

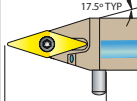
**ASVNB Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side Cutting Edge Angle for 5° positive 35° diamond VB\_W inserts**

| Coolant Outlet                                                                    | METRIC Description | UPC #      |           | Sys-tem | 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         |

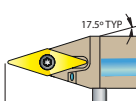
**ASVNP Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side Cutting Edge Angle for 11° positive 35° diamond VP\_W inserts**

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

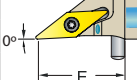
**ASVVB Jet-Stream™ Thru Coolant Neutral Toolholder Style V - 17.5° Side Cutting Edge Angle for 5° positive 35° diamond VB\_W inserts**

| Coolant Outlet                                                                    | METRIC Description | UPC #   |         | Sys-tem | Shank  |        | E (Tool Stop) | VB_W Gage Insert |
|-----------------------------------------------------------------------------------|--------------------|---------|---------|---------|--------|--------|---------------|------------------|
|                                                                                   |                    | Neutral | Neutral |         | Height | Length |               |                  |
|  | ASVVB 1010-H11     | 60893   |         | mm      | 10     | 100    | 25            | VBGW-110304      |
|                                                                                   | ASVVB 1212-H11     | 60894   |         | mm      | 12     | 100    | 25            | VBGW-110304      |
|                                                                                   | ASVVB 1212-K16     | 60895   |         | mm      | 12     | 107    | 32            | VBGW-160408      |
|                                                                                   | ASVVB 1616-K16     | 60896   |         | mm      | 16     | 107    | 32            | VBGW-160408      |

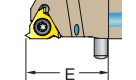
**ASVVP Jet-Stream™ Thru Coolant Neutral Toolholder Style V - 17.5° Side Cutting Edge Angle for 11° positive 35° diamond VP\_W inserts**

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

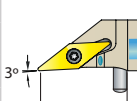
**ASVAC Jet-Stream™ Thru Coolant R/L Toolholder Style A - 0° Side Cutting Edge Angle for 7° positive 35° diamond VC\_W inserts**

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

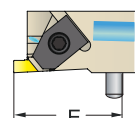
**ASE Jet-Stream™ Thru Coolant Threading Toolholder - Right and Left Hand for LayDown Insert**

| Coolant Outlet                                                                      | METRIC Description | UPC #      |           | Sys-tem | 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      |
|                                                                                     | Inch               |            |           |         |        |        |               |             |

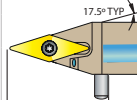
**ASVNC Jet-Stream™ Thru Coolant R/L Toolholder Style N - 3° Side Cutting Edge Angle for 7° positive 35° diamond VC\_W inserts**

| Coolant Outlet                                                                      | METRIC Description | UPC #      |           | Sys-tem | 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      |
|                                                                                     | ASVNCRL 2020-K16   | 60924      | 60925     | mm      | 20     | 132    | 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         |

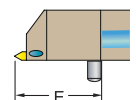
**ANS Jet-Stream™ Thru Coolant Threading Toolholder - Right and Left Hand for DorNotch V Thread Inserts**

| Coolant Outlet                                                                       | METRIC Description | UPC #      |           | Sys-tem | 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 |

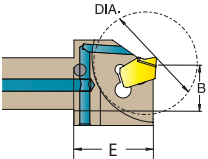
**ASVVC Jet-Stream™ Thru Coolant Neutral Toolholder Style V - 17.5° Side Cutting Edge Angle for 7° positive 35° diamond VC\_W inserts**

| Coolant Outlet                                                                      | METRIC Description | UPC #   |         | Sys-tem | Shank  |        | E (Tool Stop) | VC_W Gage Insert |
|-------------------------------------------------------------------------------------|--------------------|---------|---------|---------|--------|--------|---------------|------------------|
|                                                                                     |                    | Neutral | Neutral |         | Height | Length |               |                  |
|  | ASVVC 1010-H11     | 60927   |         | mm      | 10     | 100    | 25            | VCGW-110304      |
|                                                                                     | ASVVC 1212-H11     | 60928   |         | mm      | 12     | 100    | 25            | VCGW-110304      |
|                                                                                     | ASVVC 1212-K16     | 60929   |         | mm      | 12     | 107    | 32            | VCGW-160408      |
|                                                                                     | ASVVC 2020-K16     | 60931   |         | mm      | 20     | 132    | 32            | VCGW-160408      |

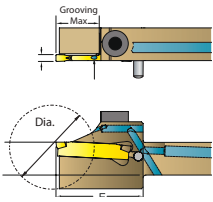
**ASTVO Jet-Stream™ Thru Coolant Threading Toolholder- Right and Left Hand for On Edge TNMC Inserts**

| Coolant Outlet                                                                       | METRIC Description | UPC #      |           | Sys-tem | 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    |

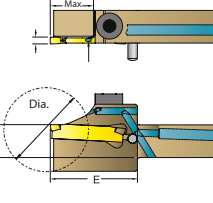
# ASGTH Jet-Stream™ Thru Coolant Cut-Off Toolholder - Right and Left Hand for SGTN Cut-Off Inserts for Swiss Screw Machines

| <div>Coolant Outlet</div>  | METRIC Description | UPC #      |           | System | Insert Size |       | Shank  |        | E (Tool Stop) | Max. Dia. | Gage Insert |
|------------------------------------------------------------------------------------------------------------|--------------------|------------|-----------|--------|-------------|-------|--------|--------|---------------|-----------|-------------|
|                                                                                                            |                    | Right Hand | Left Hand |        |             |       | 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         |           |             |

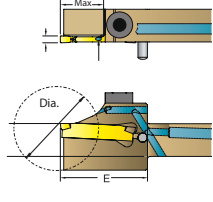
# ADDN Jet-Stream™ Thru Coolant External Turning, Grooving & Cut-off Toolholders

| <div> Coolant Outlet  </div> | 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

| <div> Coolant Outlet  </div> | 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

| <div> Coolant Outlet  </div> | 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- |

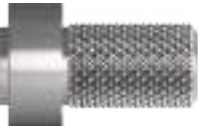
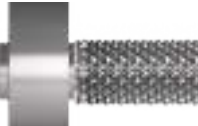
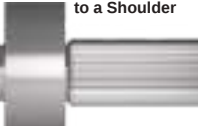
# KNURLING TOOLS

From the Knurling Tool Specialists for CNC & Manual Lathes



# Knurling Tool Applications Form for Manual & CNC Machines

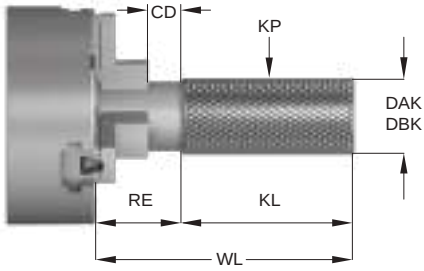
If your knurling application is not in the chart, please supply prints and information.

| Knurling Application                                                                                                                                                                                                                                                                         |                                                                    | Knurling Tool Recommendation                        |                                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------|--|
| <div>Diamond Shoulderless</div> <div></div>                                                                                                                                                                  | <b>BEST</b>                                                        | <b>BETTER</b>                                       | <b>GOOD</b>                          |  |
|                                                                                                                                                                                                                                                                                              | SCNC-_-1-2<br>CNC-_-1-2<br>CNC-_-2-R<br>CNC-_-3-M<br><br>3WKT-_-M  | SCNC-_-7-D<br>CNC-_-7-R<br>KTM109-_-M<br>KTO109-_-O | SCKN-_-DW-_<br>3SHKT-_-<br>CNC-_-4-M |  |
| <div>Diamond to a Shoulder</div> <div></div>                                                                                                                                                                 | <b>BEST</b>                                                        | <b>BETTER</b>                                       | <b>GOOD</b>                          |  |
|                                                                                                                                                                                                                                                                                              | 3WKT-_-2<br>KTW109-_-4<br>CNC109-_-4                               | SSCK-_-DW<br>SCNC-_-6-2<br>CNC-_-6-4                | SFKT                                 |  |
| <div>Diamond Band</div> <div></div> <div>Straight Band</div> <div></div>                                                     | <b>BEST</b>                                                        | <b>BETTER</b>                                       | <b>GOOD</b>                          |  |
|                                                                                                                                                                                                                                                                                              | SCNC-_-7-D-<br>CNC-_-7-R<br>KTM109-_-M<br>KTO109-_-O<br>CNC109-_-M | SCKN-_-DW-_<br>3SHKT-_-<br>CNC-_-4-M<br>CNC-_-5-O   | FKT-_-_<br>SWFKT-_-_<br><br>         |  |
| <div>Small Diameter Diamond to a Shoulder</div> <div></div> <div>Small Diameter Straight to a Shoulder</div> <div></div> | <b>BEST</b>                                                        | <b>BETTER</b>                                       | <b>GOOD</b>                          |  |
|                                                                                                                                                                                                                                                                                              | 3WKT-_-2                                                           |                                                     |                                      |  |
| <div>Diamond Crest</div> <div></div> <div>Straight Crest</div> <div></div>                                               | <b>BEST</b>                                                        | <b>BETTER</b>                                       | <b>GOOD</b>                          |  |
|                                                                                                                                                                                                                                                                                              | SCNC-_-7-D<br>CNC-_-7-R<br>KTM109-_-M<br>KTO109-_-O<br>CNC109-_-M  | SCKN-_-DW-_<br>3SHKT-_-<br>CNC-_-4-M<br>CNC-_-5-O   | FKT-_-_<br>SWFKT-_-_<br><br>         |  |
| <div>Radio Face</div> <div></div>                                                                                                                                                                          | <b>BEST</b>                                                        | <b>BETTER</b>                                       | <b>GOOD</b>                          |  |
|                                                                                                                                                                                                                                                                                              | Special                                                            |                                                     |                                      |  |

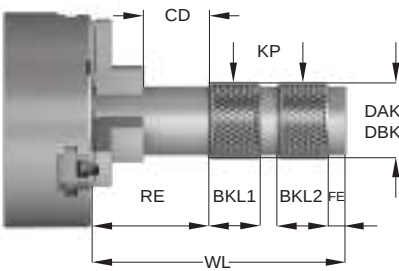
| Knurling Application                                                                                                                                                                                                                                                                       |                                                                               | Knurling Tool Recommendation                                            |                              |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------|--|
| <div>Straight Shoulderless</div> <div></div>                                                                                                                                                             | <b>BEST</b>                                                                   | <b>BETTER</b>                                                           | <b>GOOD</b>                  |  |
|                                                                                                                                                                                                                                                                                            | SCNC-_-7-D<br>CNC-_-7-R<br>KTM109-_-M<br>KTO109-_-O<br>3WKT-_-_<br>CNC109-_-M | 107ST-_<br>107ST-_<br>CNC-_-4-M<br>SCKN-_-DW-_<br>3SHKT-_-<br>CNC-_-5-O | FKT-_-_<br>SWFKT-_-_<br><br> |  |
| <div>Straight to a Shoulder</div> <div></div>                                                                                                                                                            | <b>BEST</b>                                                                   | <b>BETTER</b>                                                           | <b>GOOD</b>                  |  |
|                                                                                                                                                                                                                                                                                            | KTW109-_-4<br>3WKT-_-_<br>CNC109-_-4                                          | SCNC-_-6-2<br>CNC-_-6-4<br>SSCK                                         | SFKT-_-_<br>SSWFKT           |  |
| <div>Small Diameter Diamond Shoulderless</div> <div></div> <div>Small Diameter Straight Shoulderless</div> <div></div> | <b>BEST</b>                                                                   | <b>BETTER</b>                                                           | <b>GOOD</b>                  |  |
|                                                                                                                                                                                                                                                                                            | 3WKT-_-_<br><br>                                                              | SCNC-_-7-D<br>CNC-_-7-R                                                 |                              |  |
| <div>Taper Diamond</div> <div></div> <div>Taper Straight</div> <div></div>                                         | <b>BEST</b>                                                                   | <b>BETTER</b>                                                           | <b>GOOD</b>                  |  |
|                                                                                                                                                                                                                                                                                            | Special                                                                       |                                                                         |                              |  |
| <div>Internal Diamond</div> <div></div> <div>Internal Straight</div> <div></div>                                   | <b>BEST</b>                                                                   | <b>BETTER</b>                                                           | <b>GOOD</b>                  |  |
|                                                                                                                                                                                                                                                                                            | TIKT-_-<br>SIKT-_-                                                            |                                                                         |                              |  |
| <div>Milling Diamond</div> <div></div> <div>Milling Straight</div> <div></div>                                     | <b>BEST</b>                                                                   | <b>BETTER</b>                                                           | <b>GOOD</b>                  |  |
|                                                                                                                                                                                                                                                                                            | MMKT-_-_<br><br>                                                              |                                                                         |                              |  |

# Knurling Tool Applications Form for Manual & CNC Machines

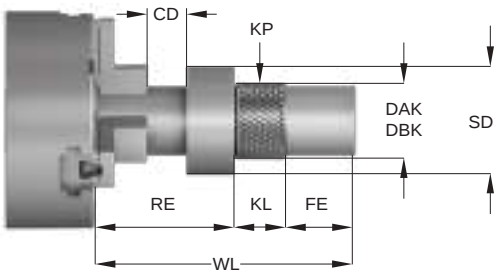
**Figure 1 - Full Knurling**



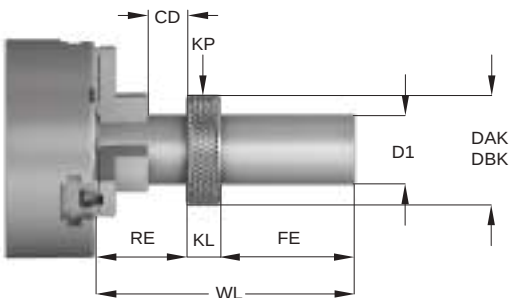
**Figure 2 - Band Knurling**



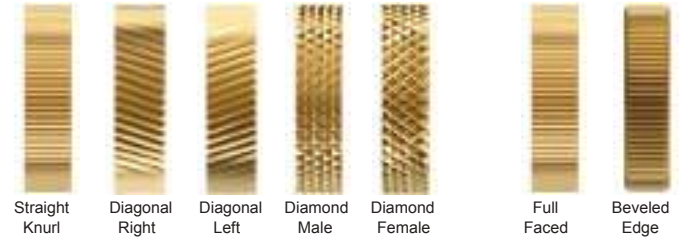
**Figure 3 - Shoulder Knurling**



**Figure 4 - Crest Knurling**



## Knurl Wheel Identification



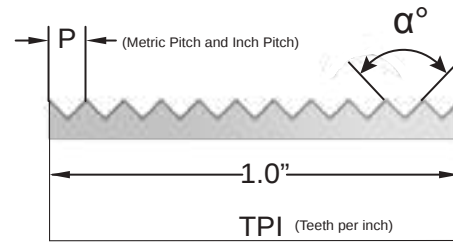
## Edge Prep

## Knurl Pitch

**TPI** Is the number of teeth per inch

**Circular Pitch** Is the distance between tooth to tooth

**Diametral Pitch** Is the number of teeth per inch of diameter



## Knurling Specification

Fill out as applicable

SKP Straight Knurl ☐ DKPM Diamond Knurl Male ☐  
 DKPR Diagonal Knurl Right ☐ DKPF Diamond Knurl Female ☐  
 DKPL Diagonal Knurl Left ☐

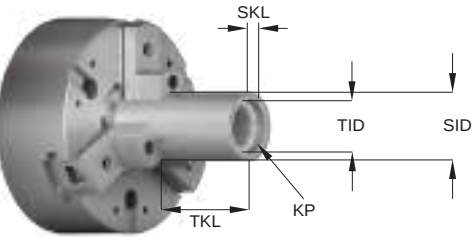
## Fill Knurling Dimension

KP Knurl Pitch ☐ Inch ☐ TPI ☐ AP % of Knurl Depth ☐  
☐ DP ☐  
☐ Metric ☐ P-mm ☐

DBK Diameter (Blank) Before Knurling ☐ FE Front End Distance ☐  
 DAK Diameter After Knurling ☐ RE Rear End Distance ☐  
 KL Knurling Length ☐ CD Chuck Distance ☐  
 BKL1 Band Knurling Length 1 ☐ SD Shoulder Diameter ☐  
 BKL2 Band Knurling Length 2 ☐ D1 Shoulder Diameter ☐  
 WL Workpiece Length ☐

# Knurling Tool Applications Form for Manual & CNC Machines

Figure 5 - ID Internal Knurling

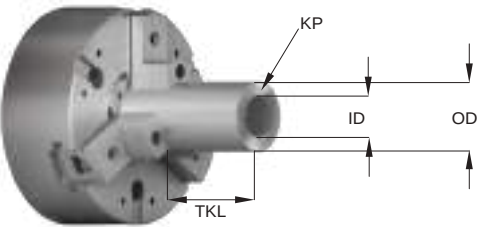


Knurling Specification

Fill out as applicable

|     |                            |                      |     |                                                                            |                      |
|-----|----------------------------|----------------------|-----|----------------------------------------------------------------------------|----------------------|
| TID | True Internal Diameter     | <input type="text"/> | SKL | Shoulder Knurling Length                                                   | <input type="text"/> |
| SID | Shoulder Internal Diameter | <input type="text"/> | KP  | Knurl Pattern                                                              | <input type="text"/> |
| TKL | True Knurling Length       | <input type="text"/> | PI  | Knurl Pitch                                                                | <input type="text"/> |
|     |                            |                      |     | <input type="text"/> Inch <input type="text"/> TPI <input type="text"/>    |                      |
|     |                            |                      |     | <input type="text"/> DP <input type="text"/>                               |                      |
|     |                            |                      |     | <input type="text"/> Metric <input type="text"/> P-mm <input type="text"/> |                      |

Figure 6 - Face Knurling

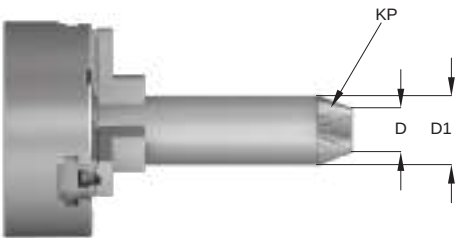


Knurling Specification

Fill out as applicable

|    |                  |                      |    |                                                                            |                      |
|----|------------------|----------------------|----|----------------------------------------------------------------------------|----------------------|
| ID | Inside Diameter  | <input type="text"/> | KP | Knurl Pattern                                                              | <input type="text"/> |
| OD | Outside Diameter | <input type="text"/> | PI | Knurl Pitch                                                                | <input type="text"/> |
|    |                  |                      |    | <input type="text"/> Inch <input type="text"/> TPI <input type="text"/>    |                      |
|    |                  |                      |    | <input type="text"/> DP <input type="text"/>                               |                      |
|    |                  |                      |    | <input type="text"/> Metric <input type="text"/> P-mm <input type="text"/> |                      |

Figure 7 - Taper Knurling

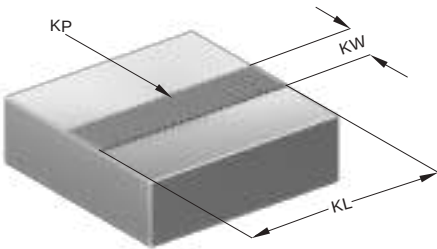


Knurling Specification

Fill out as applicable

|    |                |                      |    |                                                                            |                      |
|----|----------------|----------------------|----|----------------------------------------------------------------------------|----------------------|
| D  | Small Diameter | <input type="text"/> | KP | Knurl Pattern                                                              | <input type="text"/> |
| D1 | Large Diameter | <input type="text"/> | PI | Knurl Pitch                                                                | <input type="text"/> |
|    |                |                      |    | <input type="text"/> Inch <input type="text"/> TPI <input type="text"/>    |                      |
|    |                |                      |    | <input type="text"/> DP <input type="text"/>                               |                      |
|    |                |                      |    | <input type="text"/> Metric <input type="text"/> P-mm <input type="text"/> |                      |

Figure 8 - Milling Knurling



Knurling Specification

Fill out as applicable

|    |                 |                      |    |                                                                            |                      |
|----|-----------------|----------------------|----|----------------------------------------------------------------------------|----------------------|
| KW | Knurling Width  | <input type="text"/> | KP | Knurl Pattern                                                              | <input type="text"/> |
| KL | Knurling Length | <input type="text"/> | PI | Knurl Pitch                                                                | <input type="text"/> |
|    |                 |                      |    | <input type="text"/> Inch <input type="text"/> TPI <input type="text"/>    |                      |
|    |                 |                      |    | <input type="text"/> DP <input type="text"/>                               |                      |
|    |                 |                      |    | <input type="text"/> Metric <input type="text"/> P-mm <input type="text"/> |                      |

Knurling Production Information

|                   |                             |                            |                            |                            |                      |
|-------------------|-----------------------------|----------------------------|----------------------------|----------------------------|----------------------|
| Material          | <input type="text"/>        | Annealed                   | <input type="text"/>       | Heat Treated               | <input type="text"/> |
| Quantity          | <input type="text"/>        | Hardness                   | <input type="text"/>       |                            |                      |
| Machine           | Manual <input type="text"/> | CNC <input type="text"/>   | Swiss <input type="text"/> | Other <input type="text"/> |                      |
| Tool holder Style | Left <input type="text"/>   | Right <input type="text"/> | Tool holder Size           | <input type="text"/>       |                      |

Knurling Tool Recommendation

|                      |                             |                            |     |       |          |
|----------------------|-----------------------------|----------------------------|-----|-------|----------|
| Customer Information | Figure <input type="text"/> | Dorian Tool Recommendation |     |       |          |
| Date                 | <input type="text"/>        | Item                       | UPC | Price | Delivery |
| Company              | <input type="text"/>        | Knurling Tool              |     |       |          |
| Contact              | <input type="text"/>        | Knurling Head              |     |       |          |
| E-mail               | <input type="text"/>        | Knurling Wheel             |     |       |          |
| Telephone            | <input type="text"/>        | Knurling Pin               |     |       |          |

## For Best Knurling Results

1. Diameter of part being knurled should be turned to size and concentric to achieve a good knurling quality.
2. Knurl wheels must be exactly in center line with the work piece for an even knurl pattern.
3. Knurl wheels are to run freely and the knurl pin must be secured on the tool holder (the use of a carbide pin is recommended).
4. Use heavy flow of coolant to keep the knurl wheels cool and clean.
5. There are formulas to calculate depth of cut, tracking pitch and cutting parameter. Because of different material hardness, before starting production follow the instructions and with trial error the best result will be achieved.

## Speed and Feeds

For in-feed knurling, the knurl should be fed toward the work gradually until contact is made with the blank. This can be completed within 5 to 25 work revolutions of the working piece.

For end-feed knurling, the feeds used with the turret vary considerably and are dependent on the pitch of the knurl, the material, the diameter of the work blank, and the hardness being knurled.

Knurling is ordinarily performed at the same speeds used as cutting operations. Use the same SFM used for high speed and cobalt tool bits to calculate speeds and feeds. However, where spindle speeds can be reduced without loss of production, it is recommended that spindle speeds be lowered as much as possible to increase knurl life.

## For Best Knurling Performance

### Before beginning Knurling process check:

- Diameter before knurl
- Diameter after knurl
- Knurl pitch
- Workpiece to be concentric
- Set wheels on center line of workpiece
- Use beveled edge wheels when form knurling
- Use full faced wheels when cut knurling
- Always use coolant when knurling
- The standard knurling depth is 35% of knurl circular pitch.

### Example: Knurling Depth of 20 TPI Knurl

Circular Pitch of 20TPI is:  $1.000/20 = .050"$

Knurling Depth is:  $.050" \times .035\% = .0175"$  per side

- If the knurl double tracks, the knurl wheel is not deep enough in to workpiece, increase knurling depth
- If the knurl crest rolls over, the knurl wheel is too deep in to the workpiece, decrease knurling depth
- If the knurl is not tracking, the workpiece diameter is not correct for full number of teeth, diameter must adjusted up or down by using a tracking formula.

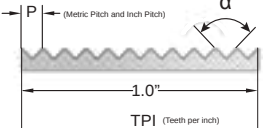
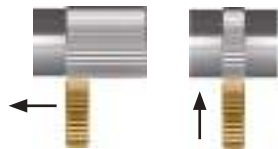
### In-Feed Knurling, when the knurl wheel enter into the workpiece radially.

Once the knurl wheel has reached the depth, will take from **5 to 20** revolutions to complete the knurling operation. The revolution changes for the same size with the workpiece material hardness and knurl pitch.

### End-Feed Knurling, when the knurl wheel enter into the workpiece axially.

The depth of the knurl wheel must be set before the wheel get in contact with the workpiece, the depth and pressure changes for the same size with the workpiece material hardness and knurl pitch.

## Knurling Speeds and Feeds

| Material and Knurl Pitch                                                                                                          |                        |       |              | Knurl Forming                                                                       |                                                      |                              | Knurl Cutting                                                                        |                   |
|-----------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|--------------|-------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------|--------------------------------------------------------------------------------------|-------------------|
|  |                        |       |              |  |                                                      |                              |  |                   |
| Material Description                                                                                                              | Material Specs         | TPI   | Metric Pitch | Forming Speed (SFM and V <sub>c</sub> )<br>Smaller < Wheel dia. > Larger            | Feed rate (f <sub>n</sub> )<br>End Feed      In Feed |                              | Cutting Speed<br>Smaller < Wheel dia. > Larger                                       | End Feed          |
| Low carbon steel                                                                                                                  | 1018<br>1117<br>1215   | >14   | >1,8         | 50-210 SFM<br>[15-63 V <sub>c</sub> m/min]                                          | 0.006"<br>[0,15mm]                                   | .001-.003"<br>[.025-.075mm]  | 100-350 SFM<br>[30-106 m/min]                                                        | 0.009"<br>[.23mm] |
|                                                                                                                                   |                        | 16-20 | 1,6-1,2      |                                                                                     | 0.008"<br>[0,20mm]                                   | .002-.004"<br>[0,050-.100mm] |                                                                                      | 0.011"<br>[.28mm] |
|                                                                                                                                   |                        | 25-35 | 1,0-0,7      |                                                                                     | 0.010"<br>[.25mm]                                    | .002-.004"<br>[.050-.100mm]  |                                                                                      | 0.013"<br>[.33mm] |
|                                                                                                                                   |                        | 40>   | 0,6>         |                                                                                     | 0.012"<br>[.30mm]                                    | .002-.004"<br>[.050-.100mm]  |                                                                                      | 0.015"<br>[.38mm] |
| Alloy Steel<br>Tool steels                                                                                                        | 4130<br>4140<br>D2     | >14   | >1,8         | 35-150 SFM<br>[10-45 m/min]                                                         | 0.004"<br>[.10mm]                                    | .001-.002"<br>[.025-.050mm]  | 70-250 SFM<br>[21-75 m/min]                                                          | 0.007"<br>[.18mm] |
|                                                                                                                                   |                        | 16-20 | 1,6-1,2      |                                                                                     | 0.005"<br>[.13mm]                                    | .001-.003"<br>[.025-.075mm]  |                                                                                      | 0.008"<br>[.20mm] |
|                                                                                                                                   |                        | 25-35 | 1,0-0,7      |                                                                                     | 0.007"<br>[.18mm]                                    | .001-.003"<br>[.025-.075mm]  |                                                                                      | 0.010"<br>[.25mm] |
|                                                                                                                                   |                        | 40>   | 0,6>         |                                                                                     | 0.009"<br>[.23mm]                                    | .001-.003"<br>[.025-.075mm]  |                                                                                      | 0.012"<br>[.30mm] |
| Stainless Steel                                                                                                                   | 304<br>17-4            | >14   | >1,8         | 35-150 SFM<br>[10-45 m/min]                                                         | 0.004"<br>[.10mm]                                    | .001-.002"<br>[.025-.050mm]  | 70-250 SFM<br>[21-75 m/min]                                                          | 0.007"<br>[.18mm] |
|                                                                                                                                   |                        | 16-20 | 1,6-1,2      |                                                                                     | 0.005"<br>[.13mm]                                    | .001-.003"<br>[.025-.075mm]  |                                                                                      | 0.008"<br>[.20mm] |
|                                                                                                                                   |                        | 25-35 | 1,0-0,7      |                                                                                     | 0.007"<br>[.18mm]                                    | .001-.003"<br>[.025-.075mm]  |                                                                                      | 0.010"<br>[.25mm] |
|                                                                                                                                   |                        | 40>   | 0,6>         |                                                                                     | 0.009"<br>[.23mm]                                    | .001-.003"<br>[.025-.075mm]  |                                                                                      | 0.012"<br>[.30mm] |
| Aluminum<br>Brass<br>Plastic                                                                                                      | 6061<br>C360<br>Delrin | >14   | >1,8         | 90-390 SFM<br>[27-118 m/min]                                                        | 0.008"<br>[.20mm]                                    | .002-.004"<br>[.050-.100mm]  | 110-420 SFM<br>[33-127 m/min]                                                        | 0.011"<br>[.28mm] |
|                                                                                                                                   |                        | 16-20 | 1,6-1,2      |                                                                                     | 0.010"<br>[.25mm]                                    | .003-.005"<br>[.075-.125mm]  |                                                                                      | 0.013"<br>[.33mm] |
|                                                                                                                                   |                        | 25-35 | 1,0-0,7      |                                                                                     | 0.013"<br>[.33mm]                                    | .003-.005"<br>[.075-.125mm]  |                                                                                      | 0.016"<br>[.40mm] |
|                                                                                                                                   |                        | 40>   | 0,6>         |                                                                                     | 0.017"<br>[.43mm]                                    | .003-.005"<br>[.075-.125mm]  |                                                                                      | 0.020"<br>[.50mm] |

**Note:** When knurling, start with low Cutting speed, to evaluate the wheel performance, (to avoid the premature life of the wheel) increase until optimum cutting speed and feed is achieved

## Forming Knurling Versus Cutting Knurl

- In Forming Knurl, the knurl wheel's axis is set parallel to the workpiece axis, and forced against workpiece displacing the material to form the knurl pattern
- A large amount of pressure is required to displace the material that forms the knurl pattern, and pressure increases with workpiece diameter, pitch size and hardness
- In a large workpiece diameter, large knurl pitch, and hard material, a multi knurling pass may be required to achieve the correct knurl pattern
- For best performance and quality in Forming Knurl, when possible, a Straddle Knurling Tool is to be used, the pressure is divided within the knurl wheels over the workpiece, and pressure against the spindle of the machine is totally neutralized.
- Use beveled edge wheel when knurl forming to protect the edge from chipping and for smooth knurling surface.
- Use full face Knurled wheel when knurl cutting, the knurl wheels axis are set on negative angle, the sharp edge will cut the knurl pattern into the workpiece
- In cutting knurl, less pressure is required for the operation, higher speed and feed can be used, (use the same cutting date of High Speed or Cobalt turning tools)
- Use full faced knurl wheel when knurl cutting.

| Use Forming Knurl Tool for:          | Use Cutting Knurl Tool for:                   |
|--------------------------------------|-----------------------------------------------|
| - Small to medium workpiece diameter | - Medium to large workpiece diameter          |
| - To the shoulder knurling           | - For shoulderless diameter knurling          |
| - For centerless workpiece           | - For hard workpiece materials                |
| - For band knurling application      | - For long knurl application with live center |
| - When high surface finish required  | - For higher productivity                     |

## Two Ways to Achieve Knurling

### (1) Forming

Knurl forming is achieved by pushing the knurl wheels against the blank while rotating. This will cause the material to be displaced in cold form, reproducing the same wheel pattern on the blank circumference. The blank is increased accordingly to the Knurl Pitch. The force applied through forming is increased in larger diameters making knurling difficult and slow.



Use beveled edge wheel when knurl forming to protect the edge from chipping and for smooth knurl surface.

### (2) Cutting

Knurl cutting is achieved by using knurl wheels to actually cut instead of forming the blank. The knurl wheels are set at an angle, making the knurling edges of the knurl wheels cut into the blank. Pressure is minimized while speed and feed are increased.

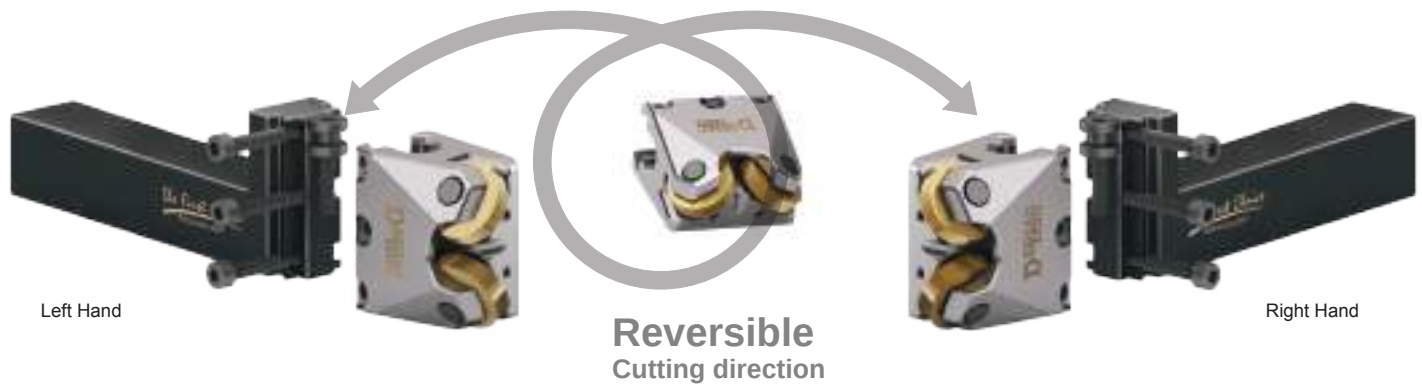


Use full face Knurled wheel when knurl cutting, the knurl wheels axis are set on negative angle, the sharp edge will cut the knurl pattern into the workpiece

| Common Knurling Problems            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Problem                             | Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Knurling double tracking</b>     | <ol style="list-style-type: none"> <li>1) Knurl wheel not deep enough into the workpiece</li> <li>2) The circumference of the workpiece blank is not a full multiple of the knurl pitch</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ol style="list-style-type: none"> <li>1) Increase the depth of the knurl wheel into the workpiece</li> <li>2) Change the blank diameter +/- .005" (.127mm) or use the tracking formula</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Knurling flaking or slivered</b> | <ol style="list-style-type: none"> <li>1) Knurling a workpiece material with scaling or rough surface</li> <li>2) Over-rolling the knurl wheel into the workpiece when in-feed knurling</li> <li>3) Knurl Wheel too deep into the workpiece when end-feeding</li> <li>4) Using 1:1 knurl to workpiece ratio</li> </ol>                                                                                                                                                                                                                                                                                                                       | <ol style="list-style-type: none"> <li>1) Turn the scaling or the rough surface of workpiece into a smooth surface</li> <li>2) When in-feed knurling, reduce the depth of the knurl wheel, or reduce the number of revolutions after the knurl wheel has reached knurling depth</li> <li>3) When end-feeding, reduce the depth of the knurl wheel</li> <li>4) Use larger or smaller diameter wheel</li> </ol>                                                                                                                                                                                                                                                                                                                                          |
| <b>Knurl destruction</b>            | <ol style="list-style-type: none"> <li>1) Knurling a workpiece material with scaling or rough surface</li> <li>2) Over-rolling the knurl wheel into the workpiece when in-feed knurling</li> <li>3) Knurl Wheel too deep into the workpiece</li> <li>4) Use of sharp full faced knurl wheel when knurl forming</li> </ol>                                                                                                                                                                                                                                                                                                                    | <ol style="list-style-type: none"> <li>1) Reduce the depth of the knurl wheel</li> <li>2) Reduce the number of revolutions after the knurl wheel has reached knurling depth</li> <li>3) Reduce feed and speed and improve coolant flow</li> <li>4) Use beveled edge when form knurling</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Knurl wheel poor life</b>        | <ol style="list-style-type: none"> <li>1) Knurling a workpiece material with scaling or rough surface</li> <li>2) Over-rolling the knurl wheel into the workpiece when in-feed knurling</li> <li>3) Knurl Wheel too deep into the workpiece when end-feeding</li> <li>4) Workpiece material too hard, or difficult to knurl (stainless steels and high temp alloys)</li> <li>5) Workpiece not running concentric</li> <li>6) Workpiece too hard</li> <li>7) Knurl wheel not properly hardened</li> <li>8) Poor lubrication</li> <li>9) Not using the correct knurl wheel for the application</li> <li>10) Knurl wheel not beveled</li> </ol> | <ol style="list-style-type: none"> <li>1) Turn the scaling or the rough surface of workpiece into a smooth surface</li> <li>2) When in-feed knurling, reduce the depth of the knurl wheel, or reduce the number of revolutions after the knurl wheel has reached knurling depth</li> <li>3) When end-feeding, reduce the depth of the knurl wheel</li> <li>4) Reduce feed and speed and improve coolant flow</li> <li>5) Turn workpiece concentric and into a smooth surface</li> <li>6) Reduce workpiece speed</li> <li>7) Change the knurl wheel</li> <li>8) Improve coolant flow</li> <li>9) Use beveled knurl wheel(s) when forming knurling; use full faced knurl wheel(s) for cutting knurling</li> <li>10) Use a beveled knurl wheel</li> </ol> |
| <b>Uneven depth of knurl</b>        | <ol style="list-style-type: none"> <li>1) Knurling a workpiece material with scaling or rough surface</li> <li>2) Workpiece not running concentric</li> <li>3) Using 1:1 knurl to workpiece ratio</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                 | <ol style="list-style-type: none"> <li>1) Turn the scaling or the rough surface of workpiece into a smooth surface</li> <li>2) Turn workpiece concentric and into a smooth surface</li> <li>3) Use larger or smaller diameter wheel</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Twisted knurl pattern</b>        | <ol style="list-style-type: none"> <li>1) Knurl wheel not deep enough into the workpiece</li> <li>2) The circumference of the workpiece blank is not a full multiple of the knurl pitch</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ol style="list-style-type: none"> <li>1) Increase the depth of the knurl wheel</li> <li>2) Change the blank diameter +/- .005" (.127mm) or use the tracking formula</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Uneven Knurl Pattern</b>         | <ol style="list-style-type: none"> <li>1) Knurl wheels are not in centerline of the workpiece</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <ol style="list-style-type: none"> <li>1) For a symmetric and even knurl pattern on the workpiece, the knurl wheels must to be set on centerline properly</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

# CNC Modular Knurling Tools

## With the Flexibility of Multiple Knurling Applications!



### Versatility

- **Multi diameter** diamond knurling cutting style
- **Reversible** Head for Right or Left knurling.
- **Heavy duty** knurl cutting and knurl forming
- **Double Wheel** forming knurling head
- **Straddle** forming knurling head
- **Shoulder** forming knurling head
- **Wide diameter** range for small diameter to large diameter parts

### Modular

Three shank sizes interchangeable with seven knurling heads.



### Adjustable

Dovetail knurling head locking system.  
Quick and precise center line setting.  
Knurling wheel angle stationary for diamond cutting

### Two Ways to Knurl

#### Forming (four 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 knurling tool. It is engineered to knurl any material, including thin wall tubing, with minimum stress to the spindle and work piece. Knurl cutting action speeds up knurling enough to become applicable for CNC use.



CNC-100-3-M used for examples.

## Knurling Tools Cutting Operation



### Mounting to the Machine

Clamp the shank at right angles to the axial center line of the machine. The knurl wheels of the knurling tool head should be set exactly on center.

### To adjust center-height:

1. Loosen the lock screws.
2. Turning the adjustment screw adjusts the head up or down.
3. Turn adjustment screw until the center height is aligned.
4. Lock head back in place by tightening the lock screws.

### Knurling Adjustment Set Up

With the machine spindle rotating slowly, in-feed (Plunge) the tool to make a slight impression for the full width of the cutter.

This impression should be equal on both wheels when using Diamond Knurling Head. Misaligned patterns can be corrected by turning the fine adjustment screw in opposite directions.

### Starting Cutting Knurl



- 1) Touch the workpiece diameter with the knurl wheels.



- 2) Move the knurling wheel to the end of the workpiece

Set the cutting depth of the wheel (35% of the circular pitch)

Start knurl



- 3) Use recommended cutting parameters

Use coolant

### Knurling head center line adjustments



R.H. Spiral

- Knurling tool is too low from center line.
- Top wheel is cutting a deeper R.H. Diagonal Knurl.
- Turn the Fine Center Adjustment Screw until both wheels are on center and touching simultaneously.



L.H. Spiral

- Knurling tool is too high from center line.
- Bottom wheel is cutting a deeper L.H. Diagonal Knurl.
- Turn Fine Center Adjustment Screw until both wheels are on center and touching simultaneously.



Diamond Knurl

- Tool is on center line.
- Both wheels are touching simultaneously, cutting a perfect diamond knurl.

### Full Faced Cutting Knurl Wheel

When cut knurling, a full faced knurl wheel must be used. The edge of the knurl wheel will be cut into the material to be knurled. A sharp edge must be kept to cut a clean and smooth knurl pattern. The knurl wheel can be reground once the edge is dull or chipped.

### Edge Prep

Full Faced

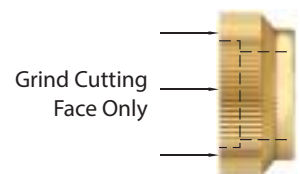


### Wheel Grinding

When the cutting edges of the knurl wheel become dull, sharpen them by grinding the cutting face of both wheels evenly. You can also grind forming wheels to desired width, but bevel afterwards.



R & M SERIES KNURL WHEEL



SW SERIES KNURL WHEEL

## Easy to set up Simple to operate.

To minimize set up time of knurling application, and simplify the knurling operation, the CNC Modular Knurling Tool has been engineered to create a diamond knurling pattern, without the need of resetting the knurl wheels every time the workpiece diameter changes.

To cover the full range of diameter three modular cutting knurling head have been developed.

- 1) **Small diameter modular head**
- 2) **Medium diameter modular head**
- 3) **Large diameter modular head**

### Small Diameter Head



### Cutting Range

**Small Diameter Cutting Range from 1/2" to 1-1/2"**

End feed range: .004" to .012"

- Knurl cutting action
- Twin straight SW series knurl wheels for male diamond pattern
- Supplied with Full Faced SW2S-30-HS knurl wheels - TiN coated

### Medium Diameter Head



**Medium Diameter Cutting Range from 1" to 5"**

End feed range: .004" to .016"

- Knurl cutting action
- Two straight R series knurl wheels for male diamond pattern
- Supplied with Full Faced RS-25-HS knurl wheels - TiN coated

### Large Diameter Head



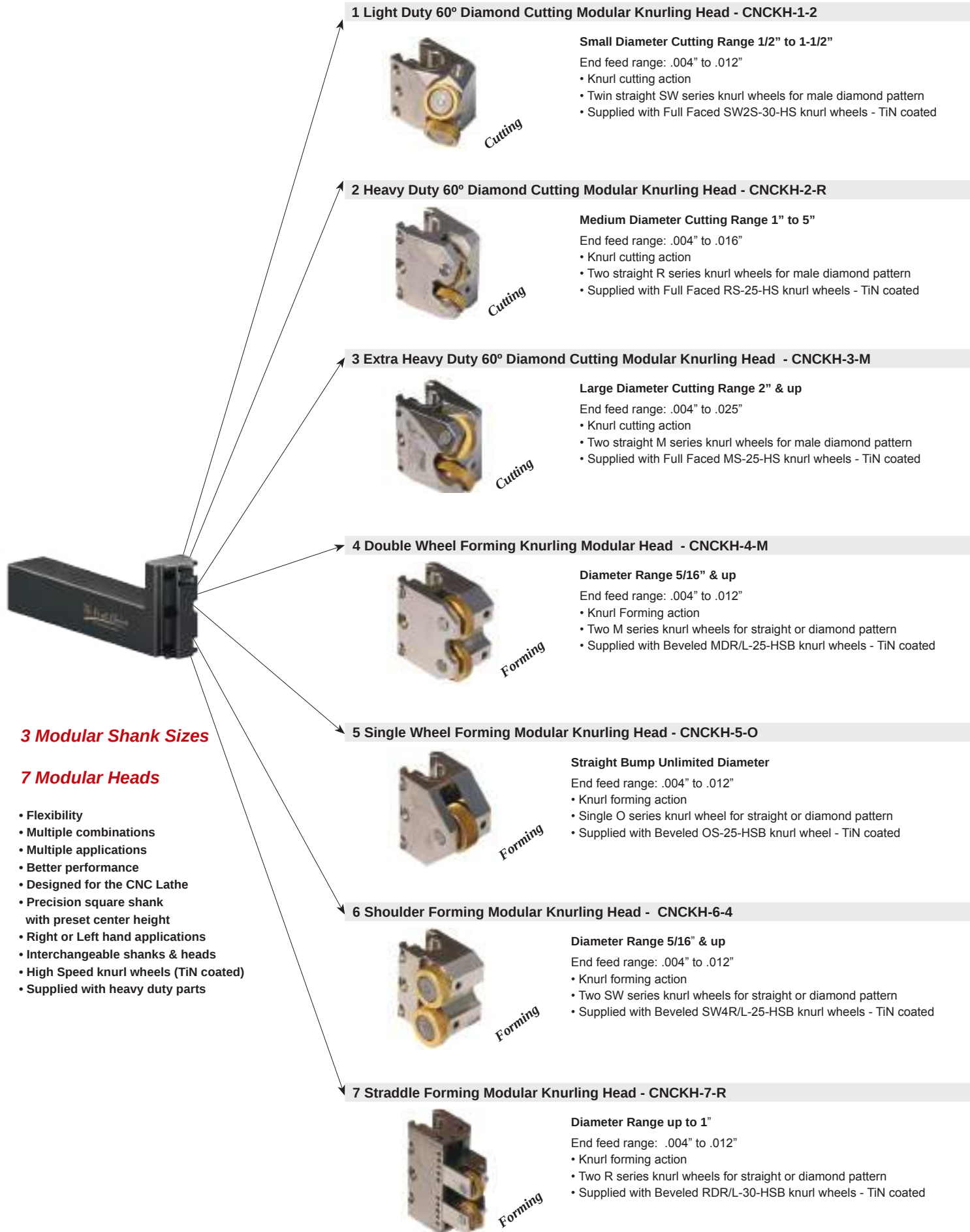
**Large Diameter Cutting Range from 2" & up**

End feed range: .004" to .025"

- Knurl cutting action
- Two straight M series knurl wheels for male diamond pattern
- Supplied with Full Faced MS-25-HS knurl wheels - TiN coated

How the diamond CNC Modular Knurling tool works.

- 1) Choose the cutting diameter range of the knurl head
- 2) Set the knurling wheel on centerline of the workpiece
- 3) Touch the workpiece diameter with the knurl wheels.
- 4) Set the depth of cut (35% of the circle pitch)
- 6) Start to cut according to recommended cutting parameters



### 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   | UPC # |              |
| CNC-75-1-2  | 20410 | .750"      | 6 7/8"      | Series SW2  | SW2.0P-2S     | 29055 | CNCKH-1-2    |
| CNC-100-1-2 | 20420 | 1.000"     | 6 7/8"      |             |               |       |              |
| CNC-125-1-2 | 20430 | 1.250"     | 7 3/8"      |             |               |       |              |

Supplied with a set of Full Faced straight high speed TiN coated knurl wheels, 30 TPI (.8mm) for a male diamond pattern.

### 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   | UPC # |              |
| CNC-75-2-R  | 20510 | .750"      | 6 7/8"      | Series R    | KPS-25- 87-C  | 28925 | CNCKH-2-R    |
| CNC-100-2-R | 20520 | 1.000"     | 6 7/8"      |             |               |       |              |
| CNC-125-2-R | 20530 | 1.250"     | 7 3/8"      |             |               |       |              |

Supplied with a set of Full Faced straight high speed knurl wheels, 25 TPI (1mm) for a male diamond pattern.

### 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   | UPC # |              |
| CNC-75-3-M  | 20610 | .750"      | 7"          | Series M    | KPS-31-100-C  | 28945 | CNCKH-3-M    |
| CNC-100-3-M | 20620 | 1.000"     | 7"          |             |               |       |              |
| 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 (1mm) for a male diamond pattern

### 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   | UPC # |              |
| CNC-75-4-M  | 20646 | .750"      | 7"          | Series M    | KPS-31-125-C  | 28950 | CNCKH-4-M    |
| CNC-100-4-M | 20648 | 1.000"     | 7"          |             |               |       |              |
| 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 (1mm) for a male diamond pattern.

### 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   | UPC # |              |
| CNC-75-5-O  | 20710 | .750"      | 6 3/4"      | Series O    | KPS-31-125-C  | 28950 | CNCKH-5-O    |
| CNC-100-5-O | 20720 | 1.000"     | 6 3/4"      |             |               |       |              |
| CNC-125-5-O | 20730 | 1.250"     | 7 1/4"      |             |               |       |              |

Supplied with one Beveled straight high speed beveled TiN coated knurl wheel, 25 TPI (1mm) for a straight pattern

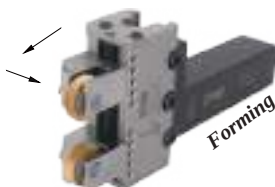
### 6 Shoulder Forming Modular Knurling Head + CNC Modular Knurling Tool Shank



| Description | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head |
|-------------|-------|------------|-------------|-------------|---------------|-------|--------------|
|             |       |            |             |             | Description   | UPC # |              |
| CNC-75-6-4  | 20780 | .750"      | 6 3/4"      | Series SW4  | SW4.0P-2S     | 29085 | CNCKH-6-4    |
| CNC-100-6-4 | 20790 | 1.000"     | 6 3/4"      |             |               |       |              |
| 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 (1mm) for a male diamond pattern.

### 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   | UPC # |              |
| CNC-75-7-R  | 20910 | .750"      | 7 3/8"      | Series R    | KPS-25-75-C   | 28915 | CNCKH-7-R    |
| CNC-100-7-R | 20920 | 1.000"     | 7 3/8"      |             |               |       |              |
| 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 (.8mm) for a male diamond pattern.

### 1 SMALL Light Duty 60° Diamond Cutting Modular Knurling Head - SCNCKH-1-2



#### Small Cutting Range 1/2" to 1-1/2"

End feed range: .004" to .012"

- Knurl cutting action
- Twin straight SW series knurl wheels for male diamond pattern
- Supplied with full faced SW2S-30-HS knurl wheels - TiN coated

### 3 Modular Shank Sizes

### 3 Modular Heads

- Flexibility
- Multiple combinations
- Multiple applications
- Better performance
- Designed for the CNC Lathe
- Precision square shank with preset center height
- Right or Left hand applications
- Interchangeable shanks & heads
- High Speed knurl wheels (TiN coated)
- Supplied with heavy duty parts



### 6 SMALL Shoulder Forming Modular Knurling Head - SCNCKH-6-2



#### Diameter Range 1/4" & up

End feed range: .004" to .012"

- Knurl forming action
- Twin SW series knurl wheels for straight or diamond pattern
- Supplied with beveled SW2R/L-25-HSB knurl wheels - TiN coated

### 7-R SMALL Straddle Forming Modular Knurling Head - SCNCKH-7-D



#### Diameter Range up to 5/8"

End feed range: .004" to .012"

- Knurl forming action
- Twin D series knurl wheels for straight or diamond pattern
- Supplied with beveled DR/L-30-HSB knurl wheels - TiN coated

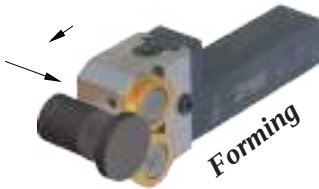
### 1 SMALL Light Duty 60° Diamond Cutting Modular Knurling Head + SMALL CNC Modular Knurling Tool Shank



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

Supplied with a set of Full Faced straight high speed TiN coated knurl wheels, 30 TPI (.8mm) for a male diamond pattern

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



| Description  | UPC # | Shank Size | Tool Length | Knurl Wheel | Knurl Pin Set |       | Modular Head Description |
|--------------|-------|------------|-------------|-------------|---------------|-------|--------------------------|
|              |       |            |             |             | Description   | UPC # |                          |
| SCNC-37-6-2  | 20110 | 3/8"       | 4"          |             |               |       |                          |
| SCNC-50-6-2  | 20120 | 1/2"       | 4-1/4"      | Series SW4  | SW2.0P-2S     | 29055 | SCNCKH-6-2               |
| SCNC-162-6-2 | 20125 | 5/8"       | 4-1/4"      |             |               |       |                          |

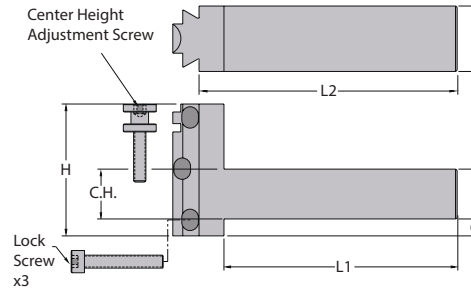
Supplied with a set of Beveled diagonal high speed TiN coated knurl wheels, 25 TPI (1mm) for a male diamond pattern

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



| 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"      |             |               |       |                          |
| SCNC-50-7-D  | 20220 | 1/2"       | 4-3/4"      | Series D    | KPS-18-50-C   | 28905 | SCNCKH-7-D               |
| 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 (.8mm) for a male diamond pattern

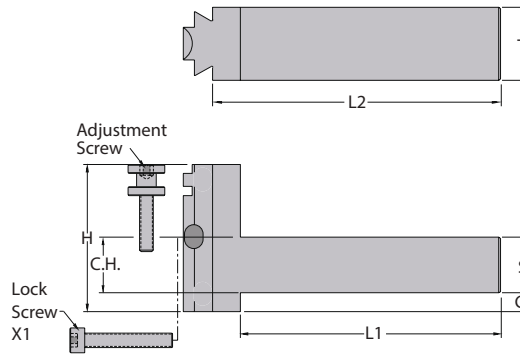


### CNC Modular Knurling Tool Shank

| Description | UPC # | C.H. & S | G     | H     | L1    | L2    | T     | Adjustment Screw |       | Lock Screw Set of 3 |       |
|-------------|-------|----------|-------|-------|-------|-------|-------|------------------|-------|---------------------|-------|
|             |       |          |       |       |       |       |       | Description      | UPC # | Description         | UPC # |
| CNC-75*     | 21010 | 0.750"   | 0.250 | 2.000 | 4.500 | 4.875 | 1.000 |                  |       |                     |       |
| CNC-100*    | 21020 | 1.000"   | 0.000 | 2.000 | 4.500 | 4.875 | 1.000 | CNC-1175         | 28505 | CNC-1024**          | 28515 |
| CNC-125*    | 21030 | 1.250"   | 0.000 | 2.250 | 5.000 | 5.375 | 1.000 |                  |       |                     |       |

\* Supplied with lock screw set and adjustment screw

\*\* One (1) set includes three (3) lock screws



- Easy set-up
- High productivity
- Best knurl quality
- Long knurl wheel life
- Low production cost
- Specifically designed for the CNC Lathe
- Precision square shank with preset center height
- Right or Left hand applications
- Shanks and heads are all interchangeable
- High Speed knurl wheels (TiN coated)
- Carbide knurl pin
- Center height adjustment

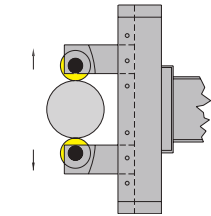
### CNC Small Modular Knurling Tool Shank

| Description | UPC # | C.H. & S | G     | H     | L1    | L2    | T     | Adjustment Screw |       | Lock Screw  |       |
|-------------|-------|----------|-------|-------|-------|-------|-------|------------------|-------|-------------|-------|
|             |       |          |       |       |       |       |       | Description      | UPC # | Description | UPC # |
| SCNC-37*    | 20310 | 0.375"   | 0.115 | 1.000 | 2.500 | 2.685 | 0.750 |                  |       |             |       |
| SCNC-50*    | 20320 | 0.500"   | 0.000 | 1.000 | 2.750 | 2.935 | 0.750 | SCNC-875         | 28510 | SCNC-832    | 28520 |
| SCNC-162*   | 20325 | 0.625"   | 0.000 | 1.125 | 2.750 | 2.935 | 0.750 |                  |       |             |       |

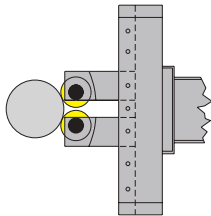
\* Modular shank supplied with adjustment screw and screw lock

**Straddle Style Forming Knurling Tools** A diametral adjustment screw regulates the depth of the knurl pattern and the diameter size. The floating head will allow the knurl wheel to self adjust on the work piece - even when the work piece is not perfectly concentric. The tool can be used for twin wheel applications or single wheel knurling applications. This tool comes with a square shank to be used on open slot tool holders, or on a turret, with a preset center height adjustment which will meet the fixed center height of the CNC and the turret lathe. Body and shank are made of heat-treated, precision ground alloy steel. The dovetail guide ensures the most precise accuracy and rigidity for infinite diameter settings.

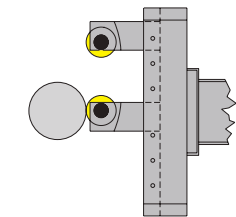
# Heavy Duty Style Forming Knurling Tool



**Straddle application** is best when pressure and deflection are a problem. The knurling arms are able to "float" somewhat and center on the workpiece, compensating for any off-centering. It has been developed to make a perfect knurling pattern without putting any pressure on the spindle or on the lathe compound.



**Bump application** is best for narrow knurling applications. The knurling arms are moved closer together so that the tool can "bump" against the side of the working part with two wheels touching the part.



**Single wheel application** is best for narrow and quick knurling setup. The knurling arms are moved up so that the bottom knurling wheel is locked on center and can "bump" against the side of the working part. With one wheel touching the part, this configuration allows for a quicker setup and knurling of narrow knurling applications.

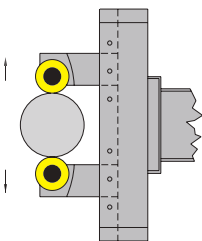
Uses 2 straight wheels for straight pattern

Uses 2 wheels for 60° diamond pattern  
1 Diagonal left  
1 Diagonal right



Knurl wheels are supported in a flanged nest to offer best rigidity to handle heavy duty knurling. The knurl wheels are mounted between thrust washers to insure a smooth and even rotation while knurling is performed.

# Shoulder Style Forming Knurling Tool



**Straddle application** is best when pressure and deflection are a problem. The knurling arms are able to "float" somewhat and center on the workpiece, compensating for any off-centering. It has been developed to make a perfect knurling pattern without putting any pressure on the spindle or on the lathe compound.

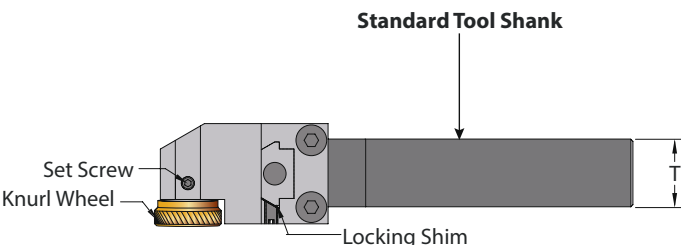
Designed to knurl against a square shoulder. The knurl wheels are mounted on a thrust washer to insure a smooth and even rotation while knurling is performed. The wheels are held at slight pitch to the work part for better end feeding (feeding across the part towards the chuck).

Uses 2 straight wheels for straight pattern

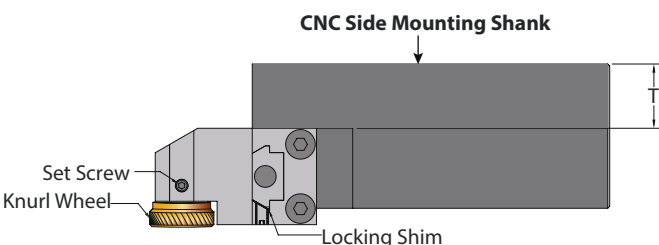
Uses 2 wheels for 60° diamond pattern  
1 Diagonal left  
1 Diagonal right



# Knurling Tool Shank Mounting



For Standard to Mounting



For restricted indexing clearance of the CNC Turret



### KTM109 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      |
| KTM109-125-15-M | 22818 |                   | M*          | W109-3-25-M   | W109-3-25-4 | 1.250      |
| KTM109-75-25-M  | 22823 | .125 - 2.50" ***  | M*          | W109-3-25-M   | W109-3-25-4 | 0.750      |
| KTM109-100-25-M | 22824 |                   | 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 | .125 - 2.50" ***  | SW4*        | W109-3-25-M   | W109-3-25-4 | 0.750      |
| KTW109-100-25-4 | 22842 |                   | 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 | .63 - 4.00"***    | 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 | .63 - 4.00"***    | 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 | .125 - 2.50" ***  | M*          | W109-3-25-M   | W109-3-25-4 | 0.750      |
| CNC109-100-25-M-R/L | 21462 21465 |                   | 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 | .125 - 2.50" ***  | SW4*        | W109-3-25-4   | W109-3-25-M | 0.750      |
| CNC109-100-25-4-R/L | 21486 21489 |                   | 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





### SCKN - Self-Centering Knurling Tool HDSCKN Heavy Duty Self-Centering Knurling Tool *Reversible Direction*

| Description    | UPC # | Diameter Range*** | Knurl Wheel | Description  | UPC # | Shank Size |
|----------------|-------|-------------------|-------------|--------------|-------|------------|
| SCKN-38-DW-D   | 22151 | 1/4" & up***      | 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 | 5/16" & up***     | 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      |
| HDSCK-75-DW-O  | 22410 | 3/4" & up***      | O **        | KPS-31-125-C | 28950 | 0.750      |
| HDSCK-100-DW-O | 22420 |                   | O **        | KPS-31-125-C | 28950 | 1.000      |
| HDSCK-100-DW-P | 22430 |                   | P **        | KPS-50-125-C | 28955 | 1.000      |
| HDSCK-125-DW-P | 22440 | 1.0" & up ***     | 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



### SSCK - Shoulder Self-Centering Knurling Tool *Reversible Direction*

| Description   | UPC # | Diameter Range*** | Knurl Wheel | Description | UPC # | Shank Size |
|---------------|-------|-------------------|-------------|-------------|-------|------------|
| SSCK-38-DW-2  | 22210 | 1/4" & up***      | 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 | 5/16" & up***     | 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



### 3SHKT - Three Swivel Head Knurling Tool *Reversible Direction*

| Description | UPC # | Diameter Range*** | Knurl Wheel | Description | UPC # | Shank Size |
|-------------|-------|-------------------|-------------|-------------|-------|------------|
| 3SHKT-50-D  | 21510 | 1/4" & up***      | D *         | KPS-18-62   | 28810 | 0.500      |
| 3SHKT-162-D | 21515 |                   | D *         | KPS-18-62   | 28810 | 0.625      |
| 3SHKT-75-M  | 21530 | 5/16" & up ***    | 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



### FKT - Fixed Forming Knurling Tool

| Description | UPC # | Diameter Range*** | Knurl Wheel | Description | UPC # | Shank Size |
|-------------|-------|-------------------|-------------|-------------|-------|------------|
| FKT-38-D    | 21910 | 1/4" & up***      | 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 | 5/16" & up***     | 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



### SFKT - Shoulder Fixed Forming Knurling Tool

| Description | UPC # | Diameter Range*** | Knurl Wheel | Description | UPC # | Shank Size |
|-------------|-------|-------------------|-------------|-------------|-------|------------|
| SFKT-38-2   | 22010 | 1/4" & up***      | 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 | 5/16" & up***     | 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



### SWFKT - Single Wheel Fixed Forming Knurling Tool HDSWFKT - Heavy Duty Single Wheel Fixed Forming Knurling Tool

| Description   | UPC # | Diameter Range*** | Knurl Wheel | Description  | UPC # | Shank Size |
|---------------|-------|-------------------|-------------|--------------|-------|------------|
| SWFKT-831-B   | 21705 | Unlimited***      | 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 # | Diameter Range*** | Knurl Wheel | Knurl Pin Set Description | UPC # | Shank Size |  |
|--------------|-------|-------------------|-------------|---------------------------|-------|------------|--|
| SSWFKT-38-2  | 21777 | Unlimited***      | 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 # R.H. LH. | Diameter Range*** | Knurl Wheel | Knurl Pin Set Description | UPC # | Shank Size |  |
|-------------------|----------------|-------------------|-------------|---------------------------|-------|------------|--|
| 107ST-50-R-RH/LH  | 21110 21210    | Unlimited***      | 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 # R.H. LH. | Diameter Range*** | Knurl Wheel | Knurl Pin Set Description | UPC # | Shank Size |  |
|-------------------|----------------|-------------------|-------------|---------------------------|-------|------------|--|
| 107ST-50-2-RH/LH  | 21111 21211    | Unlimited***      | 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 # | Diameter Range*** | Knurl Wheel | Knurl Pin Set Description | UPC # | Shank Size |  |
|--------------|-------|-------------------|-------------|---------------------------|-------|------------|--|
| FACEKT-75-2  | 21620 | Unlimited***      | 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 # | Min. Diameter | Knurl Wheel | Knurl Pin Set Description | UPC # | Shank Size |  |
|-------------|-------|---------------|-------------|---------------------------|-------|------------|--|
| TIKT-50-B   | 22611 | 0.562"        | B *         | KPS-12-38                 | 28800 | 0.500      |  |
| TIKT-75-D   | 22621 | 1.000"        | D *         | KPS-18-50                 | 28805 | 0.750      |  |
| TIKT-100-R  | 22631 | 1.190"        | R **        | KPS-25-75                 | 28820 | 1.000      |  |
| TIKT-125-M  | 22641 | 1.500"        | 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 # | Min. Diameter | Knurl Wheel | Knurl Pin Set Description | UPC # | Shank Size |  |
|-------------|-------|---------------|-------------|---------------------------|-------|------------|--|
| SIKT-50-2   | 22610 | 0.562"        | SW2 *       | SW2.0P-1S                 | 29050 | 0.500      |  |
| SIKT-75-4   | 22620 | 1.125"        | SW4 **      | SW4.0P-1S                 | 29080 | 0.750      |  |
| SIKT-100-4  | 22630 | 1.125"        | SW4 **      | SW4.0P-1S                 | 29080 | 1.000      |  |
| SIKT-125-4  | 22640 | 1.375"        | 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

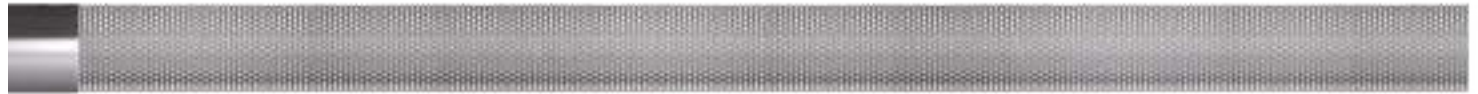
| Description | UPC # | Knurl Wheel | Knurl Pin Set Description | UPC # | Shank Size |  |
|-------------|-------|-------------|---------------------------|-------|------------|--|
| MMKT-38-D   | 22510 | D *         | KPS-18-62                 | 28810 | 0.375      |  |
| MMKT-50-R   | 22520 | R **        | 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)

# 3 WHEEL KNURLING TOOL

## FOR CUTTING & FORMING

Infinite Lengths with Diameters Small as .085" to 1.500"



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.

### Three wheel knurling tool Features:

- Minimum diameter .085"
- Maximum diameter 1.500"
- 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)

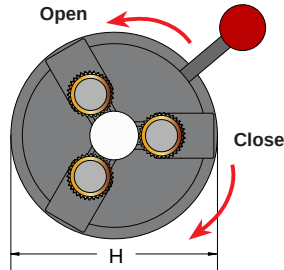


### Recommended Use:

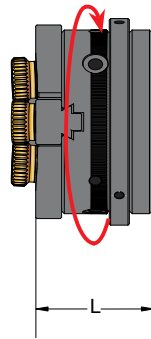
For best results, use beveled knurl wheels. End-feed the knurling tool into the blank until the desired length of the knurl is done.

The Three Wheel Knurling Tool can knurl up to a shoulder, minimum diameter of 2,16mm up to 38,1mm diameter, and infinite lengths. The Heavy Duty Three Wheel Knurling Tool is recommended for shoulderless applications for improved wheel life.

## 3 Wheel Knurling Tool Head to the Shoulder

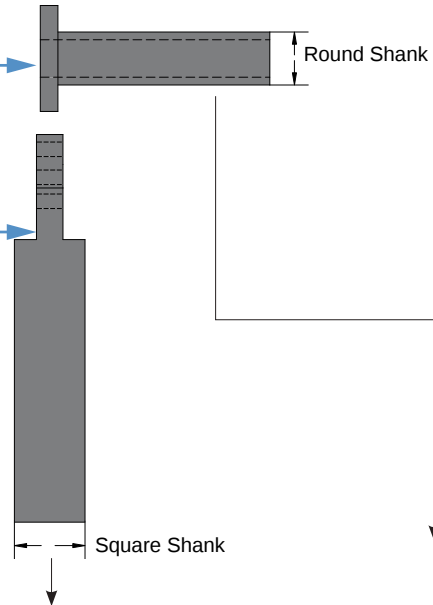


Knurling diameter setting



Use to Adjust the knurl Diameter

Shank Mounting



### Specifications

| Description | UPC # | Max. Capacity    | H Body | L Width | Knurl Wheel Style | Knurl Pin Set*** | UPC # |
|-------------|-------|------------------|--------|---------|-------------------|------------------|-------|
| 3WKT-06-2   | 23004 | .085" to 0.250"  | 1.750" | 1.575"  | SW2 *             | SW2.0P-3S        | 29060 |
| 3WKT-12-2   | 23009 | .085" to 0.500"  | 2.250" | 1.575"  | SW2 *             | SW2.0P-3S        | 29060 |
| 3WKT-25-2   | 23024 | 0.125" to 1.000" | 3.000" | 1.575"  | SW2 *             | SW2.0P-3S        | 29060 |
| 3WKT-40-2   | 23034 | .187" to 1.500"  | 4.250" | 2.440"  | SW2 *             | SW2.0P-3S        | 29060 |

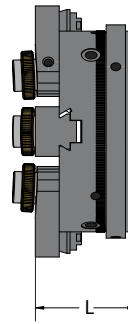
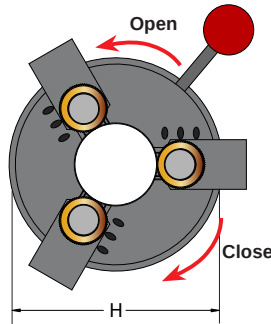
### Optional Square Shank

| 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"  |

## 3-Wheel Knurling Tool Heavy Duty Shoulder-less



### 3 Wheels Knurling Tool Head Specification

| Description | UPC # | Capacity        | H      | L      | Knurl Wheel Series | Knurl Pin Set | UPC # |
|-------------|-------|-----------------|--------|--------|--------------------|---------------|-------|
| 3WKT-40-M   | 23033 | .187" to 1.500" | 4.250" | 2.645" | M**                | SM4.0P-3S     | 29092 |

### Optional Square Shank

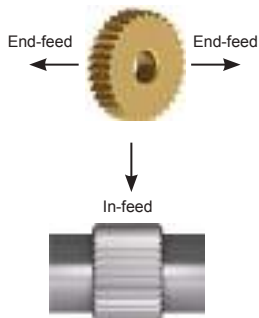
| Description  | UPC # | Shank Size |        |
|--------------|-------|------------|--------|
|              |       | Square     | Length |
| 3WSKT-40-100 | 23081 | 1.00"      | 5.00"  |

### Optional Round Shank

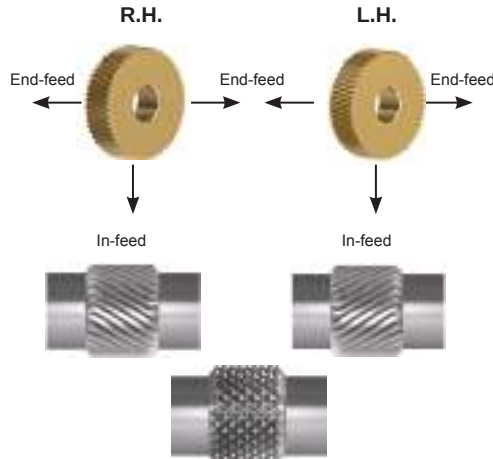
| Description  | UPC # | Shank Size |        |
|--------------|-------|------------|--------|
|              |       | Square     | Length |
| 3WRKT-40-100 | 23140 | 1.00"      | 5.00"  |

# Knurling Wheel Tooth Pattern & Workpiece Knurl Pattern

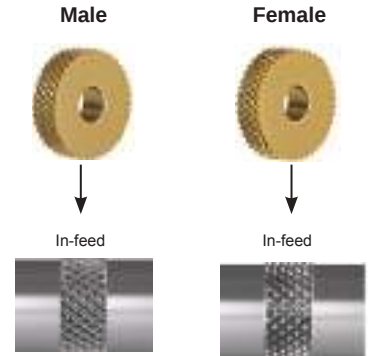
## Straight Tooth



## 30° Diagonal Helix Angle



## 60° Diamond Angle



## Edge Prep



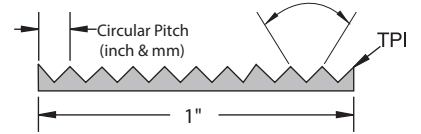
**Full Faced:** Sharp leading edge for Cutting Type knurling tools only.

**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) | Pitch | 30 (TPI) | 35 (TPI) | 40 (TPI) | 50 (TPI) | 80 (TPI) |
|--------------------|-------------|----------------|------------|----------------|----------|----------|----------|----------|----------|-------|----------|----------|----------|----------|----------|
| A                  | AS-TPI-HS   | Straight       | High Speed | Sharp Corner   | 23502    | 23504    | 23506    | 23508    | 23510    | 23512 | 23514    | 23516    | 23518    | 23520    | -        |
|                    | AS-TPI-HSB  |                | TiN Coated | Beveled Corner | -        | 23537    | -        | 23541    | 23543    | -     | -        | -        | -        | -        | -        |
|                    | AS-TPI-C    |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | 23576    | 23578 | 23580    | 23582    | -        | -        | -        |
|                    | AS-TPI-CB   |                | TiN Coated | Beveled Corner | -        | 23603    | -        | 23607    | -        | 23611 | 23613    | 23615    | 23617    | 23619    | -        |
|                    | ADR-TPI-HS  | Diagonal Right | High Speed | Sharp Corner   | 23634    | 23636    | 23638    | 23640    | 23642    | 23644 | 23646    | -        | 23650    | 23652    | -        |
|                    | ADR-TPI-HSB |                | TiN Coated | Beveled Corner | 23667    | 23669    | -        | -        | 23675    | 23677 | -        | -        | 23683    | -        | -        |
|                    | ADR-TPI-C   |                | Cobalt     | Sharp Corner   | 23700    | 23702    | -        | 23706    | 23708    | 23710 | -        | -        | -        | -        | -        |
|                    | ADR-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | 23737    | -        | -        | 23743 | -        | 23747    | -        | -        | -        |
|                    | ADL-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | 23766    | 23768    | 23770    | 23772    | 23774    | 23776 | 23778    | -        | 23782    | 23784    | -        |
|                    | ADL-TPI-HSB |                | TiN Coated | Beveled Corner | 23799    | 23801    | 23803    | -        | 23807    | 23809 | -        | -        | 23815    | -        | -        |
|                    | ADL-TPI-C   |                | Cobalt     | Sharp Corner   | 23832    | 23834    | -        | 23838    | 23840    | 23842 | -        | -        | -        | -        | -        |
|                    | ADL-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | 23869    | -        | -        | 23875 | 23877    | 23879    | -        | -        | -        |
|                    | AM-TPI-HS   | Male Diamond   | High Speed | Sharp Corner   | -        | -        | -        | -        | 23906    | 23908 | -        | -        | 23914    | 23916    | -        |
|                    | AM-TPI-HSB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | 23939    | -     | -        | -        | -        | -        | -        |
|                    | AF-TPI-HS   | Female Diamond | High Speed | Sharp Corner   | -        | -        | -        | 23970    | -        | -     | -        | -        | -        | -        | -        |
|                    | AF-TPI-HSB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | -        | -        | -        | -        | -        |
| B                  | BS-TPI-HS   | Straight       | High Speed | Sharp Corner   | -        | -        | -        | -        | -        | -     | -        | -        | 24110    | -        | -        |
|                    | BS-TPI-HSB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | 24129    | -        | -        | -        | 24137    |
|                    | BS-TPI-C    |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | -        | -     | 24152    | 24154    | 24156    | 24158    | -        |
|                    | BS-TPI-CB   |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | -        | -        | -        | -        | -        |
|                    | BDR-TPI-HS  | Diagonal Right | High Speed | Sharp Corner   | -        | -        | -        | -        | -        | -     | -        | 24200    | 24202    | -        | -        |
|                    | BDR-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | 24221    | -        | -        | -        | -        |
|                    | BDR-TPI-C   |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | -        | -     | -        | -        | 24248    | -        | -        |
|                    | BDR-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | 24267    | -        | -        | -        | -        |
|                    | BDL-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | -        | -        | -        | -        | -        | -     | -        | 24292    | 24294    | -        | -        |
|                    | BDL-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | 24313    | -        | -        | -        | -        |
|                    | BDL-TPI-C   |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | -        | -     | -        | -        | 24340    | -        | -        |
|                    | BDL-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | 24359    | -        | -        | -        | -        |
| C                  | CS-TPI-HS   | Straight       | High Speed | Sharp Corner   | -        | -        | -        | 24502    | 24504    | 24506 | 24508    | 24510    | 24512    | 24514    | 24516    |
|                    | CS-TPI-HSB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | -        | -        | -        | -        | -        |
|                    | CS-TPI-C    |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | -        | -     | 24562    | -        | 24566    | 24568    | 24570    |
|                    | CS-TPI-CB   |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | -        | -        | -        | -        | 24597    |
|                    | CDR-TPI-HS  | Diagonal Right | High Speed | Sharp Corner   | -        | -        | -        | 24610    | -        | 24614 | 24616    | -        | -        | -        | 24624    |
|                    | CDR-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | 24641 | -        | -        | -        | -        | -        |
|                    | CDR-TPI-C   |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | -        | 24668 | 24670    | -        | 24674    | -        | 24678    |
|                    | CDR-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | -        | -        | -        | -        | -        |
|                    | CDL-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | -        | -        | -        | 24718    | 24720    | 24722 | 24724    | -        | -        | -        | 24732    |
|                    | CDL-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | 24749 | -        | -        | -        | -        | -        |
|                    | CDL-TPI-C   |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | -        | 24776 | 24778    | -        | 24782    | -        | 24786    |
|                    | CDL-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | -        | -        | -        | -        | -        |
|                    | CM-TPI-HS   | Male Diamond   | High Speed | Sharp Corner   | -        | -        | -        | -        | -        | -     | -        | -        | 24836    | -        | -        |
|                    | CM-TPI-HSB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -     | -        | -        | -        | -        | -        |
|                    | CF-TPI-HS   | Female Diamond | High Speed | Sharp Corner   | -        | -        | -        | -        | -        | 24884 | -        | -        | -        | 24892    | -        |
|                    | CF-TPI-HSB  |                | TiN Coated | 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.

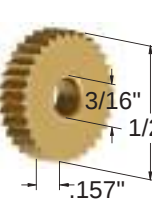
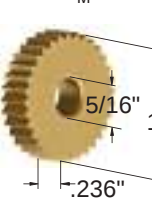
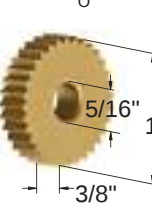
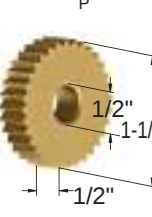
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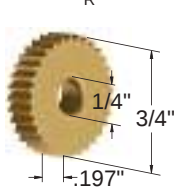
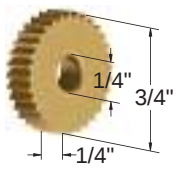
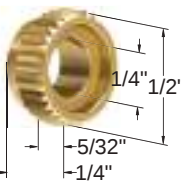
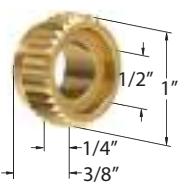
E-mail: [sales@doriantool.com](mailto:sales@doriantool.com)



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| Knurl Wheel Series                                                                 | Description    | Pattern        | Grade          | Edge Prep      | Pitch    |          |          |          |          |          |          |          |          |          |          |
|------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                                                                                    |                |                |                |                | 10 (TPI) | 12 (TPI) | 14 (TPI) | 16 (TPI) | 20 (TPI) | 25 (TPI) | 30 (TPI) | 35 (TPI) | 40 (TPI) | 50 (TPI) | 80 (TPI) |
|    | DS-TPI-HS      | Straight       | High Speed     | Sharp Corner   | -        | -        | -        | 25001    | 25003    | 25005    | 25007    | 25009    | -        | 25013    | 25015    |
|                                                                                    | DS-TPI-HSB     |                | TiN Coated     | Beveled Corner | -        | -        | -        | -        | 25030    | 25032    | 25034    | 25036    | 25038    | 25040    | -        |
|                                                                                    | DS-TPI-C       |                | Cobalt         | Sharp Corner   | -        | -        | -        | -        | 25004    | 25006    | 25008    | 25010    | -        | -        | 25016    |
|                                                                                    | DS-TPI-CB      | Diagonal Right | TiN Coated     | Beveled Corner | -        | -        | -        | -        | 25031    | 25033    | 25035    | -        | 25039    | 25041    | 25043    |
|                                                                                    | DDR-TPI-HS     |                | 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      | Diagonal Left  | Cobalt         | Sharp Corner   | -        | -        | -        | 25056    | 25058    | -        | 25062    | -        | -        | -        | -        |
|                                                                                    | DDR-TPI-CB     |                | TiN Coated     | Beveled Corner | -        | -        | -        | 25083    | 25085    | 25087    | 25089    | -        | 25093    | -        | 25097    |
|                                                                                    | DDL-TPI-HS     |                | High Speed     | Sharp Corner   | -        | -        | -        | 25109    | 25111    | 25113    | 25115    | 25117    | 25119    | 25121    | 25123    |
|                                                                                    | DDL-TPI-HSB    | Female Diamond | TiN Coated     | Beveled Corner | -        | -        | -        | 25136    | 25138    | 25140    | 25142    | 25144    | 25146    | 25148    | -        |
|                                                                                    | DDL-TPI-C      |                | Cobalt         | Sharp Corner   | -        | -        | -        | 25110    | 25112    | -        | 25116    | -        | -        | -        | -        |
|                                                                                    | DDL-TPI-CB     |                | TiN Coated     | Beveled Corner | -        | -        | -        | 25137    | 25139    | 25141    | 25143    | -        | 25147    | -        | 25151    |
|                                                                                    | DF-TPI-HS      | Female Diamond | High Speed     | Sharp Corner   | -        | -        | -        | -        | -        | -        | 25169    | -        | -        | -        | -        |
|                                                                                    | DF-TPI-HSB     |                | TiN Coated     | Beveled Corner | -        | -        | -        | -        | 25192    | -        | -        | -        | -        | -        | -        |
| DF-TPI-C                                                                           | Female Diamond | Cobalt         | Sharp Corner   | -              | -        | -        | -        | -        | -        | 25170    | -        | 25174    | -        | -        |          |
| DF-TPI-CB                                                                          |                | TiN Coated     | Beveled Corner | -              | -        | -        | -        | -        | -        | -        | -        | -        | -        | 25205    |          |
|    | MS-TPI-HS      | Straight       | High Speed     | Sharp Corner   | 25303    | 25305    | 25307    | 25309    | 25311    | 25313    | 25315    | 25317    | -        | 25321    | -        |
|                                                                                    | MS-TPI-HSB     |                | TiN Coated     | Beveled Corner | 25336    | 25338    | 25340    | 25342    | 25344    | 25346    | 25348    | 25350    | -        | -        | -        |
|                                                                                    | MS-TPI-C       |                | Cobalt         | Sharp Corner   | 25304    | 25306    | 25308    | 25310    | 25312    | 25314    | 25316    | 25318    | -        | 25322    | -        |
|                                                                                    | MS-TPI-CB      | Diagonal Right | TiN Coated     | Beveled Corner | 25337    | 25339    | 25341    | 25343    | 25345    | 25347    | 25349    | -        | -        | -        | -        |
|                                                                                    | MDR-TPI-HS     |                | High Speed     | Sharp Corner   | 25369    | 25371    | 25373    | 25375    | 25377    | 25379    | -        | 25383    | -        | -        | -        |
|                                                                                    | MDR-TPI-HSB    |                | TiN Coated     | Beveled Corner | 25402    | 25404    | 25406    | 25408    | 25410    | 25412    | 25414    | 25416    | -        | -        | -        |
|                                                                                    | MDR-TPI-C      | Diagonal Left  | Cobalt         | Sharp Corner   | -        | 25372    | 25374    | 25376    | 25378    | 25380    | 25382    | -        | 25386    | -        | -        |
|                                                                                    | MDR-TPI-CB     |                | TiN Coated     | Beveled Corner | -        | 25405    | 25407    | 25409    | 25411    | 25413    | 25415    | -        | -        | -        | -        |
|                                                                                    | MDL-TPI-HS     |                | High Speed     | Sharp Corner   | 25435    | 25437    | 25439    | 25441    | 25443    | 25445    | 25447    | 25449    | -        | -        | -        |
|                                                                                    | MDL-TPI-HSB    | Female Diamond | TiN Coated     | Beveled Corner | 25468    | 25470    | 25472    | 25474    | 25476    | 25478    | 25480    | 25482    | -        | -        | -        |
|                                                                                    | MDL-TPI-C      |                | Cobalt         | Sharp Corner   | -        | 25438    | 25440    | 25442    | 25444    | 25446    | 25448    | -        | 25452    | -        | -        |
|                                                                                    | MDL-TPI-CB     |                | TiN Coated     | Beveled Corner | -        | 25471    | 25473    | 25475    | 25477    | 25479    | 25481    | -        | -        | -        | -        |
|                                                                                    | MF-TPI-HS      | Female Diamond | High Speed     | Sharp Corner   | -        | -        | -        | -        | -        | -        | 25513    | -        | -        | -        | -        |
|                                                                                    | 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    | -        | -        | -        | -        |          |
|   | OS-TPI-HS      | Straight       | High Speed     | Sharp Corner   | 25604    | 25606    | 25608    | 25610    | 25612    | 25614    | 25616    | 25618    | -        | -        | -        |
|                                                                                    | OS-TPI-HSB     |                | TiN Coated     | Beveled Corner | -        | -        | 25641    | 25643    | 25645    | 25647    | 25649    | -        | -        | -        | -        |
|                                                                                    | OS-TPI-C       |                | Cobalt         | Sharp Corner   | -        | -        | 25674    | 25676    | 25678    | 25680    | 25682    | 25684    | -        | -        | -        |
|                                                                                    | OS-TPI-CB      | Diagonal Right | TiN Coated     | Beveled Corner | -        | -        | 25707    | 25709    | 25711    | 25713    | -        | -        | -        | -        | -        |
|                                                                                    | ODR-TPI-HS     |                | High Speed     | Sharp Corner   | 25736    | -        | -        | 25742    | -        | -        | -        | -        | -        | -        | -        |
|                                                                                    | ODR-TPI-HSB    |                | TiN Coated     | Beveled Corner | -        | 25771    | -        | -        | 25777    | 25779    | -        | -        | -        | -        | -        |
|                                                                                    | ODR-TPI-C      | Diagonal Left  | Cobalt         | Sharp Corner   | -        | -        | -        | -        | -        | 25812    | -        | -        | -        | -        | -        |
|                                                                                    | ODR-TPI-CB     |                | TiN Coated     | Beveled Corner | -        | -        | 25839    | -        | -        | 25845    | -        | -        | -        | -        | -        |
|                                                                                    | ODL-TPI-HS     |                | High Speed     | Sharp Corner   | 25868    | 25870    | -        | 25874    | -        | -        | -        | -        | -        | -        | -        |
|                                                                                    | ODL-TPI-HSB    | Male Diamond   | 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      | Female 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    | -        | -        | -        | -        |          |
|  | 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    | -        | -        | -        | -        | -        |
|                                                                                    | PS-TPI-CB      | Diagonal Right | TiN Coated     | Beveled Corner | -        | -        | -        | -        | 26257    | 26259    | 26261    | -        | -        | -        | -        |
|                                                                                    | PDR-TPI-HS     |                | High Speed     | Sharp Corner   | -        | 26268    | -        | -        | 26274    | -        | 26278    | -        | -        | -        | -        |
|                                                                                    | PDR-TPI-HSB    |                | TiN Coated     | Beveled Corner | -        | 26285    | -        | -        | -        | 26293    | -        | -        | -        | -        | -        |
|                                                                                    | PDR-TPI-C      | Diagonal Left  | Cobalt         | Sharp Corner   | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
|                                                                                    | PDR-TPI-CB     |                | TiN Coated     | Beveled Corner | -        | -        | -        | 26323    | -        | -        | -        | -        | -        | -        | -        |
|                                                                                    | PDL-TPI-HS     |                | High Speed     | Sharp Corner   | -        | 26336    | -        | -        | 26342    | -        | 26346    | -        | -        | -        | -        |
|                                                                                    | PDL-TPI-HSB    | Male Diamond   | TiN Coated     | Beveled Corner | -        | 26353    | -        | -        | -        | 26361    | -        | -        | -        | -        | -        |
|                                                                                    | PDL-TPI-C      |                | Cobalt         | Sharp Corner   | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
|                                                                                    | PDL-TPI-CB     |                | TiN Coated     | Beveled Corner | -        | -        | -        | 26391    | -        | -        | -        | -        | -        | -        | -        |
|                                                                                    | PM-TPI-HS      | Female Diamond | High Speed     | Sharp Corner   | -        | 26404    | -        | 26408    | 26410    | -        | -        | -        | -        | -        | -        |
|                                                                                    | PM-TPI-HSB     |                | TiN Coated     | Beveled Corner | -        | -        | -        | -        | 26427    | 26429    | -        | -        | -        | -        | -        |
|                                                                                    | PF-TPI-C       | Straight       | 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      | Pitch    |          |          |          |          |          |          |          |          |          |          |
|-----------------------------------------------------------------------------------------------|--------------|----------------|------------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                                                                                               |              |                |            |                | 10 (TPI) | 12 (TPI) | 14 (TPI) | 16 (TPI) | 20 (TPI) | 25 (TPI) | 30 (TPI) | 35 (TPI) | 40 (TPI) | 50 (TPI) | 80 (TPI) |
|  <p>R</p>     | RS-TPI-HS    | Straight       | High Speed | Sharp Corner   | 26501    | 26503    | 26505    | 26507    | 26509    | 26511    | 26513    | 26515    | 26517    | 26519    | -        |
|                                                                                               | RS-TPI-HSB   |                | TiN Coated | Beveled Corner | 26532    | -        | 26536    | 26538    | 26540    | 26542    | 26544    | -        | 26548    | -        | -        |
|                                                                                               | RS-TPI-C     |                | Cobalt     | Sharp Corner   | 26502    | 26504    | 26506    | 26508    | 26510    | 26512    | 26514    | 26516    | 26518    | 26520    | -        |
|                                                                                               | RS-TPI-CB    |                | TiN Coated | Beveled Corner | -        | 26535    | 26537    | 26539    | 26541    | 26543    | 26545    | 26547    | -        | -        | -        |
|                                                                                               | RDR-TPI-HS   | Diagonal Right | High Speed | Sharp Corner   | 26563    | -        | 26567    | 26569    | 26571    | 26573    | 26575    | -        | 26579    | -        | -        |
|                                                                                               | 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    | -        |
|                                                                                               | RDR-TPI-CB   |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | 26603    | -        | 26607    | -        | 26611    | -        | -        |
|                                                                                               | RDL-TPI-HS   | Diagonal Left  | High Speed | Sharp Corner   | 26625    | -        | 26629    | -        | 26633    | 26635    | 26637    | -        | 26641    | -        | -        |
|                                                                                               | 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    | -        |
|                                                                                               | RDL-TPI-CB   |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | 26665    | -        | 26669    | -        | -        | -        | -        |
|                                                                                               | RF-TPI-HS    | Female Diamond | High Speed | Sharp Corner   | -        | -        | -        | -        | -        | 26697    | -        | -        | -        | -        | -        |
|                                                                                               | RF-TPI-HSB   |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
|                                                                                               | RF-TPI-C     | Female Diamond | Cobalt     | Sharp Corner   | -        | -        | -        | -        | -        | -        | -        | -        | -        | 26706    | -        |
|                                                                                               | RF-TPI-CB    |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -        | 26731    | -        | -        | -        | -        |
|  <p>S</p>     | SS-TPI-HS    | Straight       | High Speed | Sharp Corner   | -        | 26804    | 26806    | 26808    | 26810    | 26812    | 26814    | 26816    | 26818    | -        | -        |
|                                                                                               | SS-TPI-HSB   |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | 26841    | 26843    | 26845    | -        | -        | -        | -        |
|                                                                                               | SS-TPI-C     |                | Cobalt     | Sharp Corner   | 26862    | 26864    | -        | 26868    | 26870    | 26872    | 26874    | -        | -        | -        | -        |
|                                                                                               | 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    | -        | -        | -        | -        |
|                                                                                               | SDR-TPI-C    |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | 26994    | -        | 26998    | 27000    | -        | 27004    | -        |
|                                                                                               | 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    | -        |
|                                                                                               | SDL-TPI-CB   |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -        | -        | 27157    | -        | -        | -        |
|                                                                                               | SM-TPI-HS    | Male Diamond   | High Speed | Sharp Corner   | -        | -        | -        | 27178    | -        | 27182    | -        | -        | -        | -        | -        |
|                                                                                               | SM-TPI-HSB   |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
|                                                                                               | SF-TPI-HS    | Female Diamond | High Speed | Sharp Corner   | -        | -        | -        | -        | -        | -        | -        | -        | 27250    | 27252    | -        |
|                                                                                               | SF-TPI-HSB   |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
|  <p>SW2</p> | SW2S-TPI-HS  | Straight       | High Speed | Sharp Corner   | -        | -        | -        | 27401    | 27403    | 27405    | 27407    | -        | 27411    | -        | -        |
|                                                                                               | SW2S-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | 27428    | 27430    | 27432    | -        | -        | -        | -        |
|                                                                                               | 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    | -        | -        | -        |
|                                                                                               | SW2R-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | 27478    | 27480    | 27482    | -        | -        | -        | -        |
|                                                                                               | SW2R-TPI-C   |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | 27454    | 27456    | 27458    | -        | -        | -        | -        |
|                                                                                               | SW2R-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | 27479    | 27481    | 27483    | -        | -        | -        | -        |
|                                                                                               | SW2L-TPI-HS  | Diagonal Left  | High Speed | Sharp Corner   | -        | -        | -        | 27501    | 27503    | 27505    | 27507    | 27509    | -        | -        | -        |
|                                                                                               | SW2L-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | -        | 27526    | 27528    | 27530    | 27532    | -        | -        | -        | -        |
|                                                                                               | SW2L-TPI-C   |                | Cobalt     | Sharp Corner   | -        | -        | -        | -        | 27504    | 27506    | 27508    | -        | -        | -        | -        |
|                                                                                               | SW2L-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | -        | 27529    | 27531    | 27533    | -        | -        | -        | -        | -        |
|                                                                                               | SW2F-TPI-HS  | Female Diamond | High Speed | Sharp Corner   | -        | -        | -        | 27551    | -        | 27555    | 27557    | -        | 27561    | 27563    | -        |
|                                                                                               | SW2F-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
|                                                                                               | SW2F-TPI-C   | Female Diamond | Cobalt     | Sharp Corner   | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
|                                                                                               | SW2F-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
|  <p>SW4</p> | SW4S-TPI-HS  | Straight       | High Speed | Sharp Corner   | -        | -        | 28001    | 28003    | 28005    | 28007    | 28009    | -        | 28013    | -        | -        |
|                                                                                               | SW4S-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | 28028    | 28030    | 28032    | 28034    | 28036    | -        | 28040    | -        | -        |
|                                                                                               | SW4S-TPI-C   |                | Cobalt     | Sharp Corner   | -        | -        | 28002    | 28004    | 28006    | 28008    | 28010    | 28012    | 28014    | -        | -        |
|                                                                                               | SW4S-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | 28029    | 28031    | 28033    | 28035    | 28037    | -        | 28041    | 28043    | -        |
|                                                                                               | 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    | -        |
|                                                                                               | SW4R-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | 28083    | 28085    | 28087    | 28089    | 28091    | 28093    | -        | -        | -        |
|                                                                                               | 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    | -        |
|                                                                                               | SW4L-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | 28137    | 28139    | 28141    | 28143    | 28145    | 28147    | -        | -        | -        |
|                                                                                               | SW4F-TPI-HS  | Female Diamond | High Speed | Sharp Corner   | -        | -        | 28163    | 28165    | 28167    | -        | -        | -        | -        | -        | -        |
|                                                                                               | SW4F-TPI-HSB |                | TiN Coated | Beveled Corner | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
|                                                                                               | SW4F-TPI-C   | Female Diamond | Cobalt     | Sharp Corner   | -        | -        | -        | 28166    | 28168    | -        | -        | -        | -        | -        | -        |
|                                                                                               | SW4F-TPI-CB  |                | TiN Coated | Beveled Corner | -        | -        | -        | 28193    | 28195    | -        | -        | -        | -        | -        | -        |

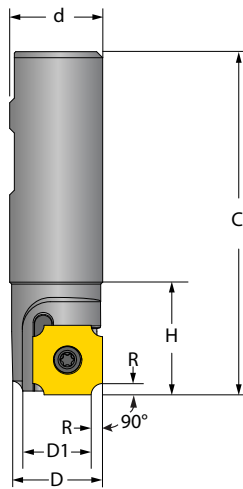
NOTE: For forming-type knurling tools, beveled wheels are recommended for longer tool life. For cutting-type tools, full-face (sharp corner) wheels are the only choice.  
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# MILLING CUTTERS & INSERTS

- FACE MILLING • CORNER ROUNDING • CHAMFERFING
- DOVETAIL • T-SLOT • WOODRUFF KEY SEAT
- SLOT MILLING • SHOULDER MILLING

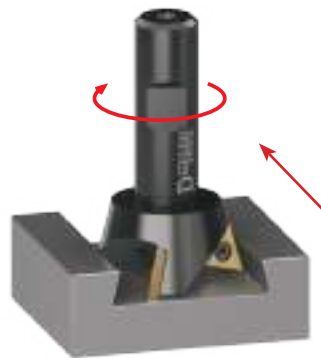
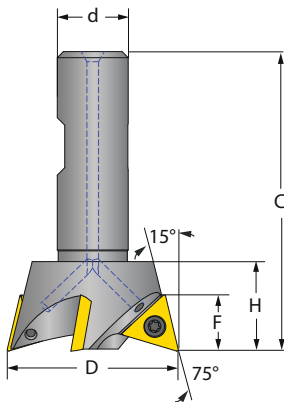


### Convex Radius Cutter - Cutting Rake - 15° for 15° positive square SDGX inserts



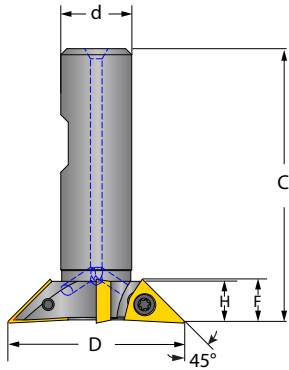
| Description     | UPC # | C     | D     | D1    | d     | R-Range |       | H     | Insert Qty. | SDGX Gage Insert | Torx Key |
|-----------------|-------|-------|-------|-------|-------|---------|-------|-------|-------------|------------------|----------|
|                 |       |       |       |       |       | Min.    | Max.  |       |             |                  |          |
| QV-062-S304-062 | 65103 | 3.250 | 0.625 | 0.503 | 0.625 | .0156   | .0625 | 1.000 | 1           | 09C_             | T-15     |
| QV-100-S608-075 | 65118 | 3.500 | 1.000 | 0.754 | 0.750 | .0781   | .1250 | 1.000 | 1           | 19C_             | T-20     |
| QV-100-S608-100 | 65120 | 3.625 | 1.000 | 0.754 | 1.000 | .0781   | .1250 | 1.125 | 1           |                  |          |
| QV-200-S608-100 | 65122 | 3.750 | 2.000 | 1.750 | 1.000 | .0781   | .1250 | 1.250 | 3           |                  |          |
| QV-100-S616-075 | 65130 | 3.500 | 1.000 | 0.510 | 0.750 | .2031   | .2500 | 1.000 | 1           |                  |          |
| QV-100-S616-100 | 65132 | 3.750 | 2.000 | 1.500 | 1.000 | .2031   | .2500 | 1.250 | 3           |                  |          |

### 15° Dovetail Cutter - Cutting Rake - 15° for 15° positive TDEX inserts.



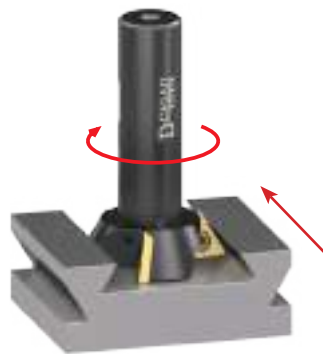
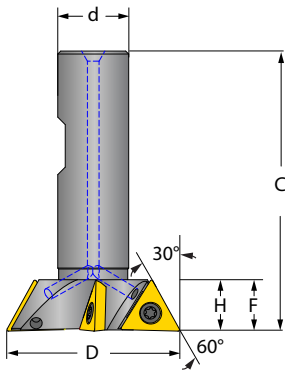
| Description       | UPC # | C     | D     | d     | F     | H     | Insert Qty. | TDEX Gage Insert | Insert Torx Screw | Torx Key |
|-------------------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| D15X-050-TD11-037 | 65225 | 2.420 | 0.500 | 0.375 | 0.359 | 0.420 | 1           | 110204           | TS-25.45-6M1      | T-7      |
| D15X-100-TD11-050 | 65226 | 2.420 | 1.000 | 0.500 | 0.359 | 0.420 | 3           |                  |                   |          |
| D15X-187-TD16-075 | 65227 | 3.200 | 1.875 | 0.750 | 0.550 | 0.750 | 3           | 160308           | TS-4.7-10M1       | T-15     |
| D15X-250-TD22-100 | 65228 | 3.750 | 2.500 | 1.000 | 0.750 | 1.000 | 3           | 220408           | TS-5.8-10M1       | T-20     |

**45° Dovetail Cutter- Cutting Rake - 11° for 11° positive TDEX inserts.**



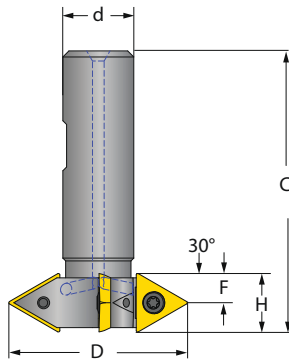
| Description       | UPC # | C     | D     | d     | F     | H     | Insert Qty. | TDEX Gage Insert | Insert Torx Screw | Torx Key |
|-------------------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| D45X-050-TD09-037 | 65233 | 2.390 | 0.500 | 0.375 | 0.247 | 0.125 | 1           | 090202           | TS-25.45-6M1      | T-7      |
| D45X-075-TD09-037 | 65234 | 2.390 | 0.750 | 0.375 | 0.247 | 0.214 | 2           |                  |                   |          |
| D45X-100-TD09-050 | 65235 | 2.390 | 1.000 | 0.500 | 0.250 | 0.244 | 3           |                  |                   |          |
| D45X-137-TD17-062 | 65236 | 2.940 | 1.375 | 0.625 | 0.375 | 0.320 | 2           | 17T304           | TS-4.7-8M1        | T-15     |
| D45X-187-TD17-075 | 65237 | 2.940 | 1.875 | 0.750 | 0.468 | 0.444 | 3           |                  |                   |          |
| D45X-225-TD25-100 | 65238 | 3.500 | 2.250 | 1.000 | 0.700 | 0.696 | 2           | 250404           | TS-5.8-10M1       | T-20     |
| D45X-250-TD25-100 | 65239 | 3.500 | 2.500 | 1.000 | 0.700 | 0.700 | 3           |                  |                   |          |

**60° Dovetail Cutter - Cutting Rake - 15° for 15° positive triangle TDEX inserts.**



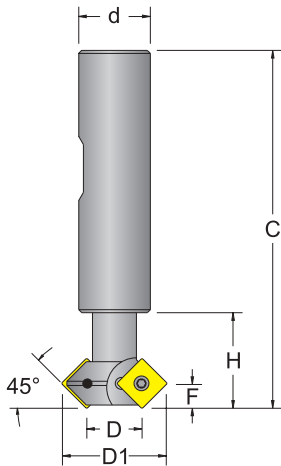
| Description       | UPC # | C     | D     | d     | F     | H     | Insert Qty. | TDEX Gage Insert | Insert Torx Screw | Torx Key |
|-------------------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| D60X-050-TD11-037 | 65244 | 2.390 | 0.500 | 0.375 | 0.325 | 0.142 | 1           | 110204           | TS-25.45-6M1      | T-7      |
| D60X-075-TD11-037 | 65245 | 2.390 | 0.750 | 0.375 | 0.325 | 0.282 | 2           |                  |                   |          |
| D60X-100-TD11-050 | 65246 | 2.390 | 1.000 | 0.500 | 0.325 | 0.375 | 3           |                  |                   |          |
| D60X-137-TD16-062 | 65247 | 2.862 | 1.375 | 0.625 | 0.510 | 0.550 | 3           | 160308           | TS-4.7-8M1        | T-15     |
| D60X-187-TD16-075 | 65248 | 3.000 | 1.875 | 0.750 | 0.510 | 0.550 | 3           |                  | TS-4.7-10M1       | T-15     |
| D60X-225-TD22-100 | 65249 | 3.500 | 2.250 | 1.000 | 0.700 | 0.750 | 3           | 220408           | TS-5.8-10M1       | T-20     |
| D60X-250-TD22-100 | 65250 | 3.500 | 2.500 | 1.000 | 0.700 | 0.750 | 3           |                  |                   |          |

### Double 30° Chamfer Mill - Cutting Rake - 15° for 15° positive triangle TDEX inserts



| Description      | UPC # | C     | D     | d     | F     | H     | Insert Qty. | TDEX Gage Insert | Insert Torx Screw | Torx Key |
|------------------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| C60-075-TD11-037 | 65252 | 2.390 | 0.750 | 0.375 | 0.205 | 0.410 | 1           | 110204           | TS-25.45-6M1      | T-7      |
| C60-100-TD11-050 | 65253 | 2.390 | 1.000 | 0.500 | 0.205 | 0.410 | 3           |                  |                   |          |
| C60-150-TD16-062 | 65255 | 3.000 | 1.500 | 0.625 | 0.313 | 0.627 | 3           | 160308           | TS-4.7-8M1        | T-15     |
| C60-250-TD22-100 | 65258 | 3.500 | 2.500 | 1.000 | 0.422 | 0.844 | 3           | 220408           | TS-5.8-10M1       | T-20     |

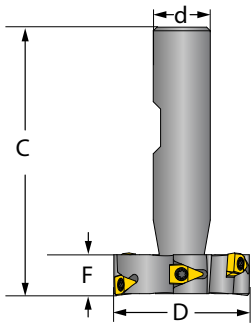
### Double 45° Chamfer Mill - Cutting Rake - 15° for 15° positive square SDHW & SPMT inserts



| Description        | UPC # | C     | D     | D1    | d     | F     | H     | Insert Qty. | SDHW Gage Insert | Insert Torx Screw | Torx Key |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| C45-112-SD09-075   | 65414 | 3.375 | 0.625 | 1.125 | 0.750 | 0.230 | 0.750 | 2           | 090308           | TS-4.7-8M1        | T-15     |
| C45-125-SD09-075   | 65416 | 3.375 | 0.772 | 1.250 | 0.750 | 0.230 | 0.750 | 2           |                  |                   |          |
| C45-150-SD09-100   | 65418 | 3.500 | 1.040 | 1.500 | 1.000 | 0.230 | 1.000 | 3           |                  |                   |          |
| C45XL-112-SD09-075 | 65420 | 7.750 | 0.625 | 1.125 | 0.750 | 0.230 | 0.750 | 2           |                  |                   |          |
| C45XL-150-SD09-100 | 65421 | 7.750 | 1.040 | 1.500 | 1.000 | 0.230 | 1.000 | 3           |                  |                   |          |

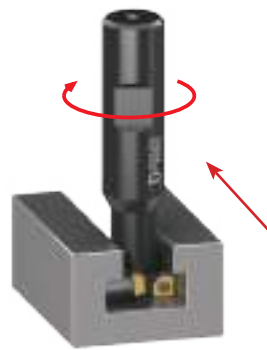
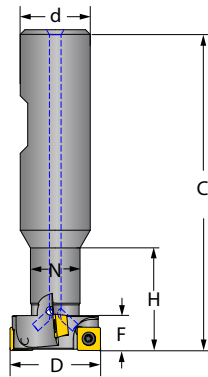
| Description      | UPC # | C     | D     | D1    | d     | F     | H     | Insert Qty. | SPMT Gage Insert | Insert Torx Screw | Torx Key |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| C45-062-SP06-062 | 65410 | 3.000 | 0.325 | 0.625 | 0.625 | 0.159 | 0.750 | 1           | 060304           | TS-25-45-6M1      | T-7      |
| C45-075-SP06-062 | 65411 | 3.000 | 0.448 | 0.750 | 0.625 | 0.159 | 0.750 | 2           |                  |                   |          |

## WOODRUFF KEY SEAT CUTTER Cutting Rake - 20° for positive TEHW inserts



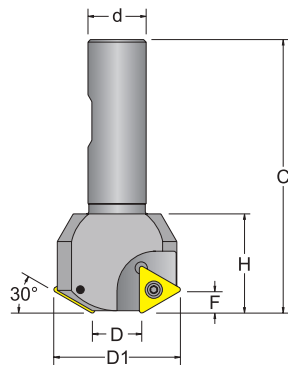
| Description        | UPC # | C     | D     | d     | F     | Insert Qty. | TEHW Gage Insert | Insert Torx Screw | Torx Key |
|--------------------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| DWKC-806-TEO6-050  | 65141 | 2.250 | 0.750 | 0.500 | 0.250 | 2           | 0602             | TS-06             | T-6      |
| DWKC-607-TEO6-050  | 65142 | 2.188 | 0.875 | 0.500 | 0.188 | 2           |                  |                   |          |
| DWKC-707-TEO6-050  | 65143 | 2.219 | 0.875 | 0.500 | 0.219 | 2           |                  |                   |          |
| DWKC-807-TEO6-050  | 65144 | 2.250 | 0.875 | 0.500 | 0.250 | 2           |                  |                   |          |
| DWKC-608-TEO6-050  | 65145 | 2.188 | 1.000 | 0.500 | 0.188 | 3           |                  |                   |          |
| DWKC-708-TEO6-050  | 65146 | 2.219 | 1.000 | 0.500 | 0.219 | 3           |                  |                   |          |
| DWKC-808-TEO6-050  | 65147 | 2.250 | 1.000 | 0.500 | 0.250 | 3           |                  |                   |          |
| DWKC-1008-TEO6-050 | 65148 | 2.313 | 1.000 | 0.500 | 0.313 | 3           |                  |                   |          |
| DWKC-609-TEO6-050  | 65150 | 2.188 | 1.125 | 0.500 | 0.188 | 4           |                  |                   |          |
| DWKC-709-TEO6-050  | 65151 | 2.219 | 1.125 | 0.500 | 0.219 | 4           |                  |                   |          |
| DWKC-809-TEO6-050  | 65152 | 2.250 | 1.125 | 0.500 | 0.250 | 4           |                  |                   |          |
| DWKC-1009-TEO6-050 | 65153 | 2.313 | 1.125 | 0.500 | 0.313 | 4           |                  |                   |          |
| DWKC-710-TEO6-050  | 65155 | 2.219 | 1.250 | 0.500 | 0.219 | 6           |                  |                   |          |
| DWKC-1210-TEO6-050 | 65158 | 2.375 | 1.250 | 0.500 | 0.375 | 6           |                  |                   |          |
| DWKC-811-TEO6-050  | 65159 | 2.250 | 1.375 | 0.500 | 0.250 | 6           |                  |                   |          |
| DWKC-1011-TEO6-050 | 65160 | 2.313 | 1.375 | 0.500 | 0.313 | 6           |                  |                   |          |
| DWKC-1211-TEO6-050 | 65161 | 2.375 | 1.375 | 0.500 | 0.375 | 6           |                  |                   |          |
| DWKC-1012-TEO6-050 | 65163 | 2.313 | 1.500 | 0.500 | 0.313 | 6           |                  |                   |          |
| DWKC-1212-TEO6-050 | 65164 | 2.375 | 1.500 | 0.500 | 0.375 | 6           |                  |                   |          |

## T-SLOT CUTTER Cutting Rake - 20° for SPMT and SDHW positive inserts



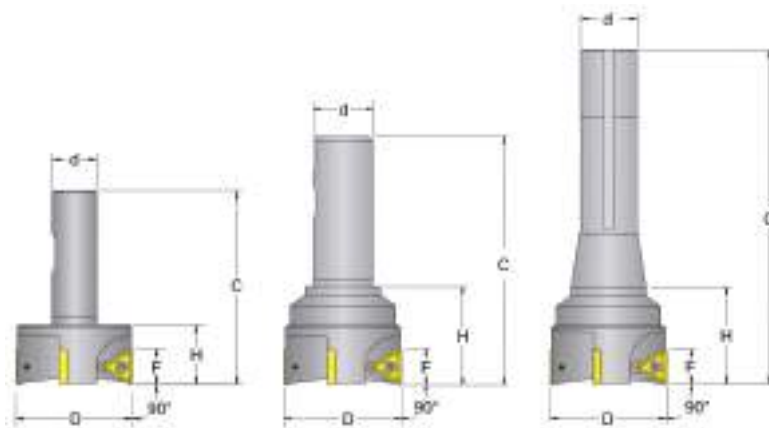
| Description       | UPC # | C     | D     | d     | F     | H     | N     | No. Inserts | No. Flutes | Gage Insert | Insert Torx Screw | Torx Key |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------------|------------|-------------|-------------------|----------|
| SLOT-078-SP06-075 | 65183 | 3.250 | 0.781 | 0.750 | 0.328 | 0.928 | 0.406 | 2           | 1          | SPMT-060304 | TS-25.45-6M2      | T-8      |
| SLOT-097-SP06-075 | 65184 | 3.438 | 0.969 | 0.750 | 0.390 | 1.100 | 0.531 | 4           | 2          |             |                   |          |
| SLOT-125-SP06-100 | 65185 | 3.938 | 1.250 | 1.000 | 0.484 | 1.375 | 0.656 | 3           | 1          |             |                   |          |
| SLOT-147-SD09-100 | 65186 | 4.438 | 1.469 | 1.000 | 0.625 | 1.757 | 0.781 | 4           | 2          | SDHW-090308 | TS-35.6-9M1       | T-15     |
| SLOT-184-SD09-125 | 65187 | 4.813 | 1.844 | 1.250 | 0.828 | 2.108 | 1.031 | 5           | 2          |             |                   |          |
| SLOT-222-SD09-125 | 65188 | 5.375 | 2.219 | 1.250 | 1.094 | 2.714 | 1.281 | 6           | 2          |             |                   |          |

### 30°, 45° and 60° Chamfer Mill - Cutting Rake - 11° for 11° positive triangle TPHT inserts



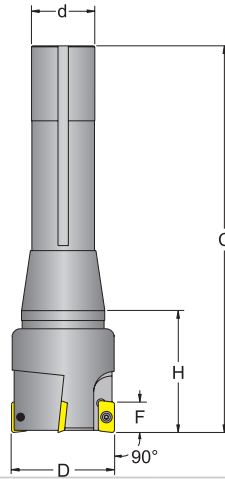
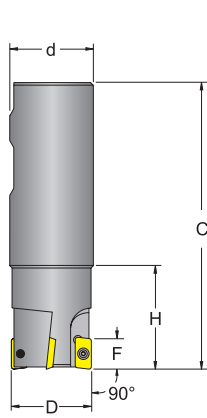
|     | Description     | UPC # | C     | D     | D1    | d     | F     | H     | Insert Qty. | TPHT<br>Gage Insert | Insert Torx | Screw | Torx Key |
|-----|-----------------|-------|-------|-------|-------|-------|-------|-------|-------------|---------------------|-------------|-------|----------|
| 30° | C30-062-TP3-075 | 65400 | 3.500 | 1.600 | 0.750 | 0.625 | 0.275 | 1.250 | 2           | 32.52               | TS-4.7-8M1  |       | T-15     |
| 45° | C45-075-TP3-075 | 65402 |       | 1.517 |       | 0.750 | 0.392 |       |             |                     |             |       |          |
| 60° | C60-100-TP3-075 | 65404 |       | 1.560 |       | 1.000 | 0.484 |       |             |                     |             |       |          |

### 2" 90° End Mill - Cutting Rake - 20° for 7° positive triangle TC\_T inserts



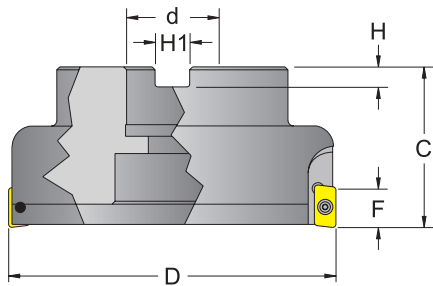
|                 | Description | UPC # | C     | D     | d     | F     | H     | Insert Qty. | TC_T<br>Gage Insert | Insert Torx | Screw | Torx Key |
|-----------------|-------------|-------|-------|-------|-------|-------|-------|-------------|---------------------|-------------|-------|----------|
| E90-200-TC3-075 |             | 65800 | 3.250 | 2.000 | 0.750 | 0.625 | 1.000 | 3           | 32.52               | TS-4.7-8M1  |       | T-15     |
| E90-200-TC3-100 |             | 65802 | 4.000 |       | 1.000 |       | 1.500 |             | 32.52               |             |       |          |
| E90-200-TC3-R8  |             | 65804 | 5.625 |       | R8    |       | 1.500 |             | 32.52               |             |       |          |

## High Positive 90° Milling Cutter- Cutting Rake - 20° for 11° positive 85° parallelogram AP\_ inserts



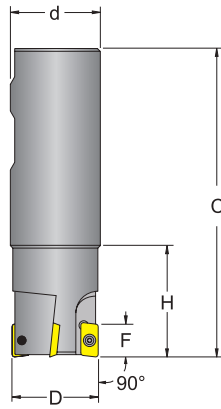
| End Mill Description | UPC # | C     | D     | d     | F     | H     | Insert Qty. | APKT Gage Insert | Insert Torx  | Screw | Torx Key |
|----------------------|-------|-------|-------|-------|-------|-------|-------------|------------------|--------------|-------|----------|
| E90-038-AP10-050     | 65600 | 3.000 | 0.375 | 0.500 | 0.390 | 1.000 | 1           | 1003             | TS-25.45-6M1 |       | T-7      |
| E90-044-AP10-062     | 65601 | 3.250 | 0.437 | 0.625 | 0.390 | 1.062 | 1           |                  |              |       |          |
| E90-050-AP10-062     | 65602 | 3.250 | 0.500 | 0.625 | 0.390 | 1.062 | 1           |                  |              |       |          |
| E90-062-AP10-062     | 65604 | 3.250 | 0.625 | 0.625 | 0.390 | 1.062 | 2           |                  |              |       |          |
| E90-075-AP10-075     | 65606 | 3.375 | 0.750 | 0.750 | 0.390 | 1.125 | 2           |                  |              |       |          |
| E90-087-AP10-075     | 65608 | 3.375 | 0.875 | 0.750 | 0.390 | 1.125 | 3           |                  |              |       |          |
| E90-100-AP10-075     | 65610 | 3.500 | 1.000 | 0.750 | 0.390 | 1.125 | 3           |                  |              |       |          |
| E90-100-AP10-100     | 65612 | 4.000 | 1.000 | 1.000 | 0.390 | 1.250 | 3           |                  |              |       |          |
| E90-125-AP10-100     | 65614 | 4.000 | 1.250 | 1.000 | 0.390 | 1.250 | 4           |                  |              |       |          |
| E90-150-AP10-100     | 65616 | 4.000 | 1.500 | 1.000 | 0.390 | 1.250 | 5           |                  |              |       |          |
| E90-200-AP10-100     | 65618 | 4.000 | 2.000 | 1.000 | 0.390 | 1.250 | 6           |                  |              |       |          |
| E90-200-AP10-R8      | 65619 | 5.625 | 2.000 | R8    | 0.390 | 1.640 | 6           |                  |              |       |          |

## High Positive 90° Milling Cutter- Cutting Rake - 20° for 11° positive 85° parallelogram AP\_ inserts



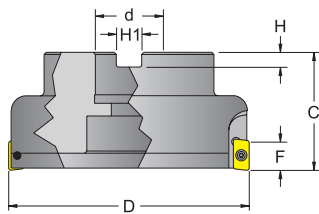
| Face Mill Description | UPC # | C     | D     | d     | F     | H     | H1    | Insert Qty. | APKT Gage Insert | Insert Torx  | Screw | Torx Key |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------------|------------------|--------------|-------|----------|
| E90A-200-AP10-075     | 65632 | 1.570 | 2.000 | 0.750 | 0.390 | 0.187 | 0.312 | 6           | 1003             | TS-25.45-6M1 |       | T-7      |
| E90A-250-AP10-100     | 65634 | 1.750 | 2.500 | 1.000 | 0.390 | 0.219 | 0.375 | 8           |                  |              |       |          |

## High Positive 90° Milling Cutter- Cutting Rake - 20° for 11° positive 85° parallelogram AP\_ inserts



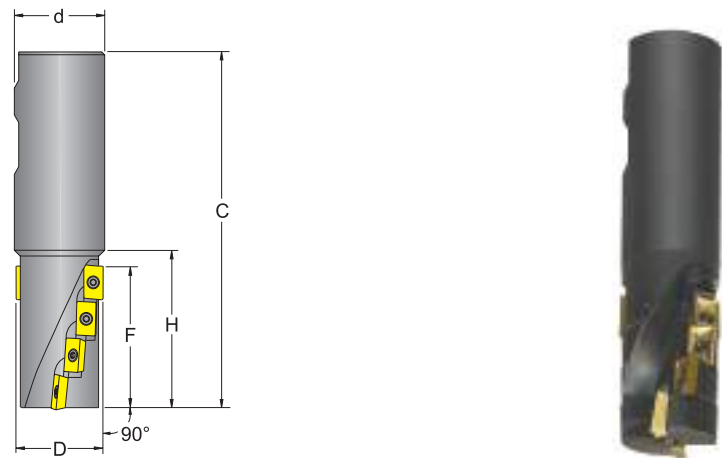
| End Mill Description | UPC # | C     | D     | d     | F     | H     | Insert Qty. | APKT Gage Insert | Insert Torx Screw | Torx Key |
|----------------------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| E90-100-AP16-075     | 65646 | 4.000 | 1.000 | 0.750 | 0.618 | 1.625 | 2           | 1604             | TS-4.7-8M1        | T-15     |
| E90-100-AP16-100     | 65648 | 4.500 | 1.000 | 1.000 | 0.618 | 1.750 | 2           |                  |                   |          |
| E90-125-AP16-100     | 65650 | 4.500 | 1.250 | 1.000 | 0.618 | 1.625 | 3           |                  |                   |          |
| E90-150-AP16-100     | 65652 | 4.500 | 1.500 | 1.000 | 0.618 | 1.625 | 3           |                  |                   |          |
| E90-150-AP16-125     | 65654 | 4.500 | 1.500 | 1.250 | 0.618 | 1.625 | 3           |                  |                   |          |

## High Positive 90° Milling Cutter- Cutting Rake - 20° for 11° positive 85° parallelogram AP\_ inserts



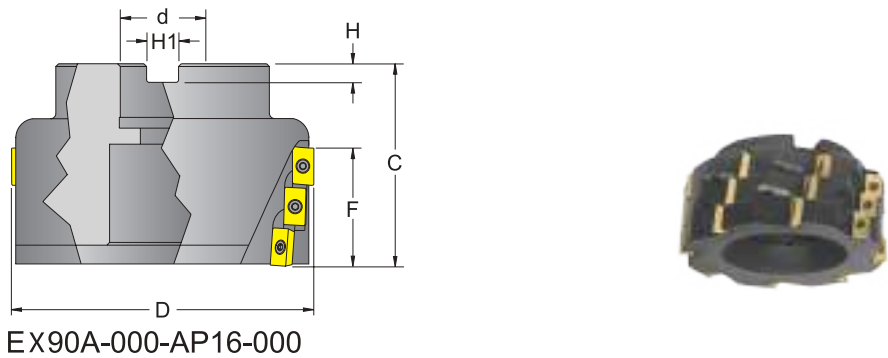
| Face Mill Description | UPC # | C     | D     | d     | F     | H     | H1    | Insert Qty. | APKT Gage Insert | Insert Torx Screw | Torx Key |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| E90A-200-AP16-075     | 65662 | 1.570 | 2.000 | 0.750 | 0.618 | 0.187 | 0.312 | 5           | 1604             | TS-4.7-10M1       | T-15     |
| E90A-250-AP16-100     | 65664 | 1.750 | 2.500 | 1.000 | 0.618 | 0.219 | 0.375 | 5           |                  |                   |          |
| E90A-300-AP16-100     | 65666 | 1.750 | 3.000 | 1.000 | 0.618 | 0.219 | 0.375 | 5           |                  |                   |          |
| E90A-400-AP16-150     | 65668 | 2.000 | 4.000 | 1.500 | 0.618 | 0.375 | 0.625 | 8           |                  |                   |          |
| E90A-500-AP16-150     | 65670 | 2.380 | 5.000 | 1.500 | 0.618 | 0.375 | 0.625 | 10          |                  |                   |          |

Extended 90° Milling Cutter - Cutting Rake - 20° for 11° positive 85° parallelogram AP\_ inserts



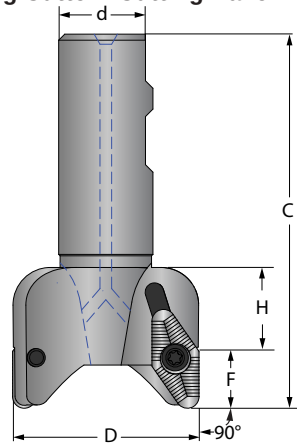
| End Mill Description | UPC # | C     | D     | Shank Size | F     | H     | Insert Qty. | Flutes Qty. | APKT Gage Insert | Insert Torx  | Screw | Torx Key |
|----------------------|-------|-------|-------|------------|-------|-------|-------------|-------------|------------------|--------------|-------|----------|
| EX90-075-AP10-075    | 65680 | 3.500 | 0.750 | 0.750      | 1.125 | 1.500 | 4           | 1           | 1003             | TS-25.45-6M1 |       | T-7      |
| EX90-100-AP10-100    | 65682 | 4.250 | 1.000 | 1.000      | 1.500 | 1.875 | 8           | 2           |                  |              |       |          |
| EX90-125-AP10-125    | 65684 | 4.500 | 1.250 | 1.250      | 1.875 | 2.125 | 12          | 4           |                  |              |       |          |

Extended 90° Milling Cutter - Cutting Rake - 20° for 11° positive 85° parallelogram AP\_ inserts



| Face Mill Description | UPC # | C     | D     | d     | F     | H     | H1    | Insert Qty. | Flutes Qty. | APKT Gage Insert | Insert Torx | Screw | Torx Key |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------------|-------------|------------------|-------------|-------|----------|
| EX90A-200-AP16-100    | 65690 | 2.000 | 2.000 | 1.000 | 1.000 | 0.219 | 0.375 | 6           | 3           | 1604             | TS-4.7-8M1  |       | T-15     |
| EX90A-250-AP16-100    | 65692 | 2.500 | 2.500 | 1.000 | 1.750 | 0.219 | 0.375 | 12          | 4           |                  |             |       |          |
| EX90A-300-AP16-125    | 65694 | 2.500 | 3.000 | 1.250 | 1.750 | 0.281 | 0.500 | 15          | 5           |                  |             |       |          |
| EX90A-500-AP16-150    | 65698 | 2.500 | 5.000 | 1.500 | 1.750 | 0.375 | 0.625 | 24          | 8           |                  |             |       |          |

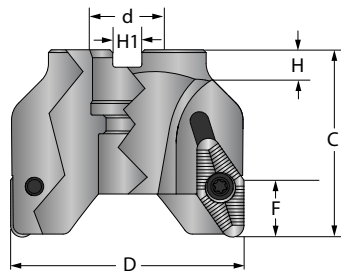
### 90° Aluminum Milling Cutter - Cutting Rake - 7° for 7° positive 35° diamond VCGT inserts



End Mill

| Description      | UPC # | C     | D     | d     | F     | H     | Insert Qty. | VCGT Gage Insert | Insert Torx Screw | Torx Key |
|------------------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| E90-200-VC22-075 | 65504 | 3.750 | 2.000 | 0.750 | 0.610 | 1.500 | 2           | 448              | TS-5.8-10M1       | T-20     |
| E90-200-VC22-100 | 65505 | 4.000 | 2.000 | 1.000 | 0.610 | 1.500 | 2           |                  |                   |          |

### 90° Aluminum Milling Cutter - Cutting Rake - 7° for 7° positive 35° diamond VCGT inserts

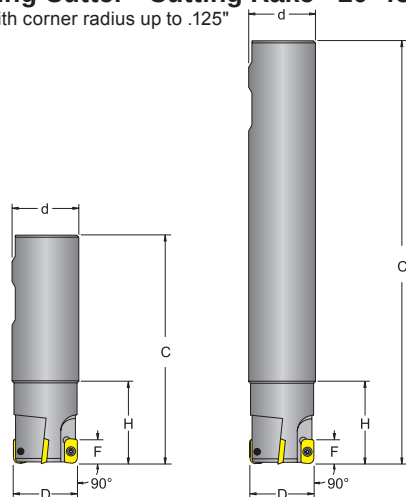


Face Mill

| Description       | UPC # | C     | D     | d     | F     | H     | H1    | Insert Qty. | VCGT Gage Insert | Insert Torx Screw | Torx Key |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| E90A-200-VC16-075 | 65509 | 2.000 | 2.000 | 0.750 | 0.552 | 0.187 | 0.312 | 2           | 160412           | TS-4.7-8M1        | T-15     |
| E90A-250-VC22-075 | 65510 | 2.000 | 2.500 | 0.750 | 0.610 | 0.187 | 0.312 | 2           | 220432           | TS-5.8-10M1       | T-20     |
| E90A-300-VC22-100 | 65511 | 2.000 | 3.000 | 1.000 | 0.610 | 0.219 | 0.375 | 3           |                  |                   |          |
| E90A-400-VC22-150 | 65512 | 2.000 | 4.000 | 1.500 | 0.610 | 0.375 | 0.625 | 3           |                  |                   |          |
| E90A-500-VC22-150 | 65513 | 2.000 | 5.000 | 1.500 | 0.610 | 0.375 | 0.625 | 3           |                  |                   |          |
| E90A-600VC22-150  | 65514 | 2.000 | 6.000 | 1.500 | 0.610 | 0.375 | 0.625 | 6           |                  |                   |          |

### Concave 90° Milling Cutter - Cutting Rake - 20° for 11° positive 85° parallelogram APKT inserts

For APKT-1604 inserts with corner radius up to .125"



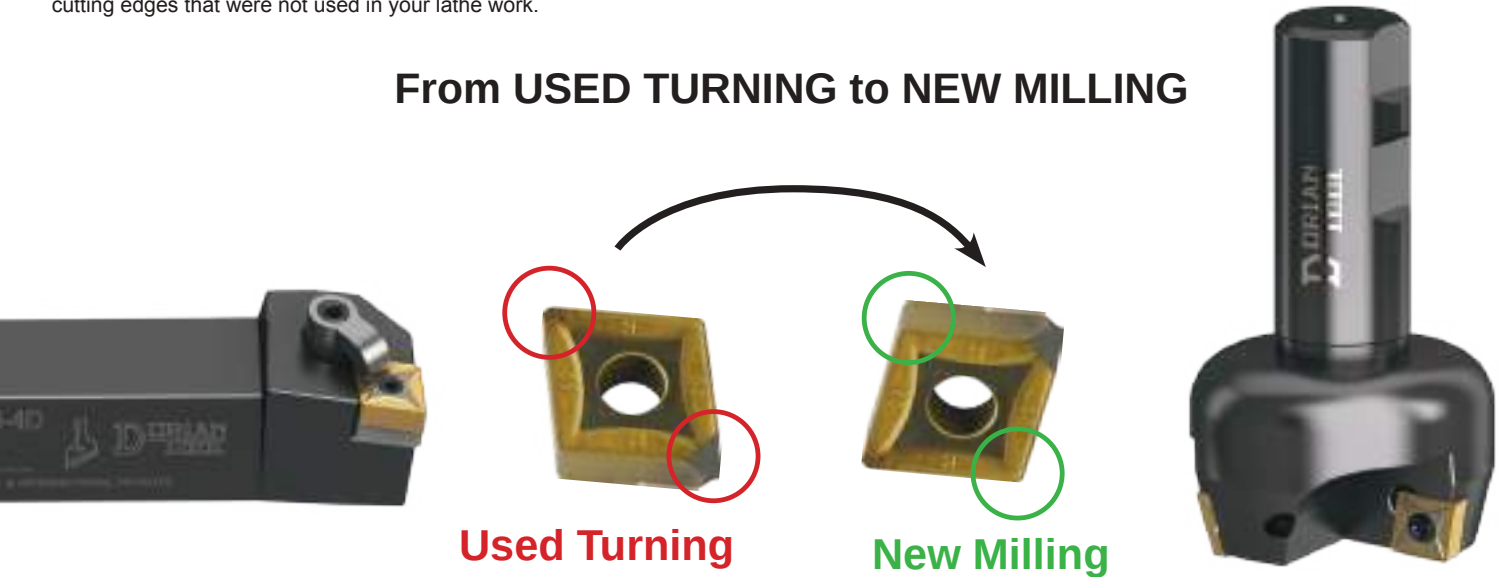
| Description       | UPC # | C     | D     | d     | F     | H     | Insert Qty. | APKT Gage Insert           | Insert Torx Screw | Torx Key |
|-------------------|-------|-------|-------|-------|-------|-------|-------------|----------------------------|-------------------|----------|
| E90-100-AP16R-075 | 65674 | 4.000 | 1.000 | 0.750 | 0.618 | 1.625 | 2           | 160416<br>160424<br>160432 | TS-4.7-8M1        | T-15     |
| E90-125-AP16R-100 | 65675 | 4.500 | 1.250 | 1.000 | 0.618 | 1.625 | 3           |                            |                   |          |
| E90-100-AP16R-100 | 65676 | 7.875 | 1.000 | 0.750 | 0.618 | 1.625 | 3           |                            |                   |          |
| E90-125-AP16R-100 | 65677 | 8.625 | 1.250 | 1.000 | 0.618 | 1.625 | 3           |                            |                   |          |

# Recycle CNMG-432

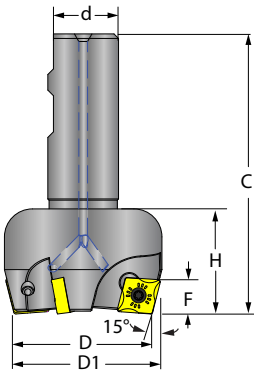
## 4 Turning Edges + 4 Milling Edges

After the cutting edges are used on your turning tool holder, **do not throw the insert away, it can be used in this milling cutter** to utilize four more cutting edges that were not used in your lathe work.

### From USED TURNING to NEW MILLING



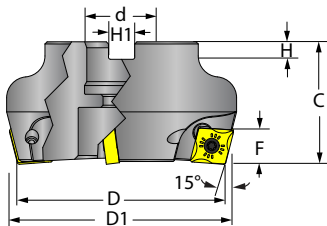
15° CNMG Recycle Milling Cutter - Cutting Rake - Negative 7° for Negative 80° diamond CNMG inserts



End Mill



| Description       | UPC # | C     | D     | D1    | d     | F     | H     | Insert Qty. | CNMG Gage Insert | Insert Torx Screw | Torx Key |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| REC15-200-CN4-075 | 65850 | 3.750 | 2.000 | 2.250 | 0.750 | 0.450 | 1.500 | 3           | 432              | TS-1032-5M1       | T-20     |
| REC15-200-CN4-100 | 65852 | 4.000 | 2.000 | 2.250 | 1.000 | 0.450 | 1.500 | 3           |                  |                   |          |
| REC15-200-CN4-R8  | 65854 | 5.625 | 2.000 | 2.250 | R8    | 0.450 | 1.750 | 3           |                  |                   |          |



Face Mill



| Description        | UPC # | C     | D     | D1    | d     | F     | H     | H1    | Insert Qty. | CNMG Gage Insert | Insert Torx Screw | Torx Key |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|------------------|-------------------|----------|
| REC15A-300-CN4-100 | 65856 | 1.750 | 3.000 | 3.230 | 1.000 | 0.450 | 0.250 | 0.375 | 4           | 432              | TS-1032-5M1       | T-20     |
| REC15A-400-CN4-150 | 65858 | 2.000 | 4.000 | 4.230 | 1.500 | 0.450 | 0.375 | 0.625 | 5           |                  |                   |          |

| 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  | 0.016" | -       | 95299   |
|                                                                                                                                        | SDGX-09C03-E  | 0.047" | 95305   | 95307   |
|                                                                                                                                        | SDGX-09C04-E  | 0.062" | 95309   | 95311   |
| <b>SDGX-UEN</b><br>3/4" Square<br>Convex Radius<br> | SDGX-19C05-E  | 0.078" |         | 95250   |
|                                                                                                                                        | SDGX-19C06-E  | 0.094" | 95253   | 95254   |
|                                                                                                                                        | SDGX-19C07-E  | 0.109" | 95257   | 95258   |
|                                                                                                                                        | SDGX-19C08-E  | 0.125  | 95261   | 95262   |
|                                                                                                                                        | SDGX-19C09-E  | 0.141" |         | 95266   |
|                                                                                                                                        | SDGX-19C10-E  | 0.156" | 95269   | 95270   |
|                                                                                                                                        | SDGX-19C11-E  | 0.178" |         | 95274   |
|                                                                                                                                        | SDGX-19C12-E  | 0.188" | 95277   | 95278   |
|                                                                                                                                        | SDGX-19C13-E  | 0.203" |         | 95282   |
|                                                                                                                                        | SDGX-19C14-E  | 0.219" | 95285   | 95286   |
|                                                                                                                                        | SDGX-19C15-E* | 0.234" | 95289   | 95290   |
|                                                                                                                                        | SDGX-19C16-E* | 0.250" | 95293   | 95294   |

\*All SDGX inserts have 4 cutting edges, except 5,943mm & 6,35mm radius inserts that have 2 cutting edges.

| Description                                                                                                                          | ISO           | Grade<br>DNU10GT | Grade<br>DNX10UT |
|--------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|------------------|
| <b>VC GT-NFU</b><br>35° Triangle<br>Universal<br> | VC GT-448-NFU | 80123            | 80124            |
|                                                                                                                                      |               |                  |                  |

| Description                                                                                                                         | ISO            | Grade<br>DMC30UT |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|
| <b>TCMT-MEM</b><br>60° Triangle<br>Universal<br> | TCMT-32.51-MEM | 70778            |
|                                                                                                                                     | TCMT-32.52-MEM | 70779            |

| Insert                                                                                                | Description    | DNU25GT | DNP25GT | DPP30GT |
|-------------------------------------------------------------------------------------------------------|----------------|---------|---------|---------|
| <b>TPHT-UEN</b><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.t

#### 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.

#### DNU10GT

For general milling applications at a high SFM ( $V_C$ ). Hard, abrasive and wear resistant micro-grained uncoated substrate, for a hard and sharp cutting edge (not for interrupted cuts). Best for Aluminum, Plastics and all Non Ferrous metals and materials.

#### DNX10UT

For universal milling at a very high SFM ( $V_C$ ). Hard, abrasive and high resistant substrate with a microplus® plasma TiAlN coating to improve cutting edge hardness, wear and heat resistant, and better chip flow. Best for Aluminum, Plastics and low Silicone Aerospace Aluminum.

#### DMC30UT

M30 Substrate with CVD TiN/TiCN/TiN Coating. Universal grade for Steels and Stainless Steels.

| 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.

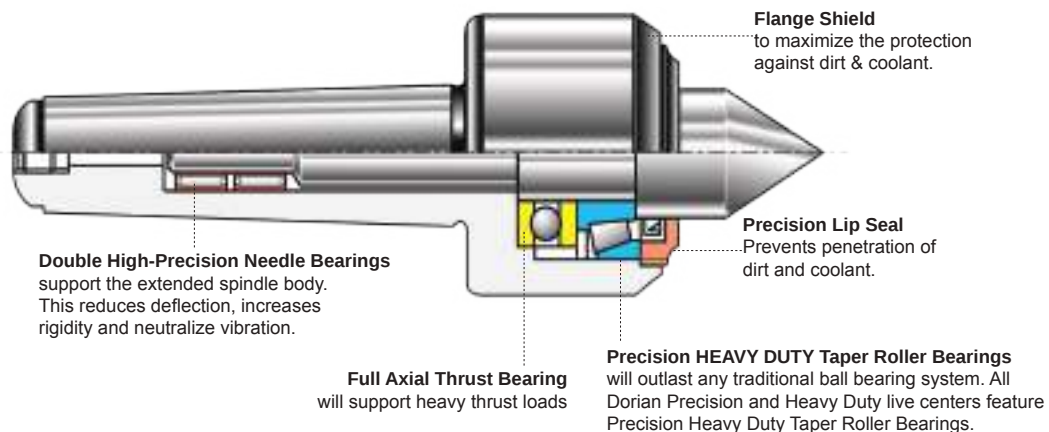
**DK10M:**

Uncoated grade for Aluminum and Non Ferrous materials.

| Spare Parts Milling Insert Torx Screw |  | Description                                             | UPC #                            | PKG. |
|---------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------|------|
|                                       |                                                                                   | TS-06<br>TS-25.45-6M2<br>TS-4.7-6M1                     | 91306<br>90972<br>90975          | 10   |
|                                       |                                                                                   | TS-4.7-8M1<br>TS-4.7-10M1<br>TS-1032-5M1<br>TS-5.8-10M1 | 90976<br>90982<br>90960<br>90986 | 10   |

# HIGH PERFORMANCE LIVE CENTERS

PERFORMANCE, TECHNOLOGY & QUALITY





**Precision General Purpose**  
Precision **TAPER ROLLER** 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                  |



**Precision General Purpose**  
Precision **TAPER ROLLER** 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                  |



**Precision General Purpose**  
Precision **TAPER ROLLER** 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                  |



**Heavy Duty**  
Precision **HEAVY DUTY TAPER ROLLER** Bearings

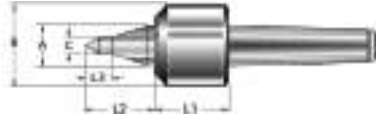


#### Live Center with 60° Standard Steel Point

| 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                 |



**Heavy Duty**  
Precision **HEAVY DUTY TAPER ROLLER** Bearings

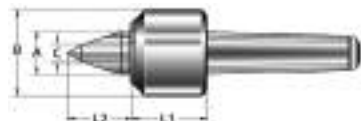


#### Live Center with 60° Extended Medium Slim Steel Point

| 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                  |



**Heavy Duty**  
Precision **HEAVY DUTY TAPER ROLLER** 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                  |
| 48280 | PLC-HDA-ELSP-MT6 | 1.65 | 4.26 | 0.63 | 3.47 | 2.76 | MT6         | 22.0        | 2000     | 10560                      | 3300                  |



**CNC High Speed**

#### 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                  |



**CNC High Speed**

#### 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                  |



**CNC High Speed**

#### 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                  |



**CNC High Speed**

#### 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                  |



**CNC High Speed**

#### 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



CNC High Speed

| 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



CNC High Speed

| 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



CNC High Speed

| 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                  |

### CNC High Speed Heavy Duty Live Center with 60° Extended Large Steel Point



CNC High Speed

| 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                  |

### CNC High Speed Heavy Duty Live Center with 60° Extended Large Carbide Point



CNC High Speed

| 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                  |



**Heavy Duty**  
Precision **HEAVY DUTY TAPER ROLLER** Bearings



### Heavy Duty Live Center for Interchangeable Points (Includes one 60° Intchangeable Steel Point)

| UPC # | Description     | A    | B    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|-------|-----------------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| 48214 | PLC-HDA-INT-MT2 | 0.99 | 2.01 | 1.69 | 1.38 | MT2         | 1.98        | 7500     | 506                        | 1012                  |
| 48215 | PLC-HDA-INT-MT3 | 0.99 | 2.17 | 1.69 | 1.42 | MT3         | 2.20        | 6000     | 2090                       | 1144                  |
| 48216 | PLC-HDA-INT-MT4 | 1.14 | 2.40 | 2.01 | 1.58 | MT4         | 3.53        | 4500     | 3300                       | 1320                  |
| 48217 | PLC-HDA-INT-MT5 | 1.38 | 3.15 | 2.32 | 1.89 | MT5         | 7.70        | 2800     | 4400                       | 2640                  |
| 48218 | PLC-HDA-INT-MT6 | 1.65 | 4.26 | 3.47 | 2.17 | MT6         | 22.0        | 2000     | 10560                      | 3300                  |



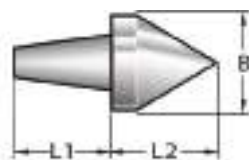
**CNC High Speed**



### CNC High Speed Live Center for Interchangeable Points (Includes one 60° Intchangeable Steel Point)

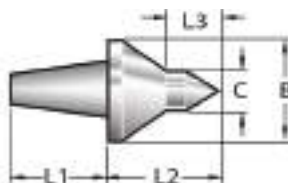
| UPC # | Description     | A    | B    | L1   | L2   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|-------|-----------------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| 48228 | PLC-CNC-INT-MT3 | 0.99 | 2.17 | 1.85 | 1.46 | MT3         | 2.20        | 7000     | 1386                       | 1144                  |
| 48229 | PLC-CNC-INT-MT4 | 1.14 | 2.40 | 2.17 | 1.60 | MT4         | 3.63        | 5500     | 1883                       | 1438                  |
| 48230 | PLC-CNC-INT-MT5 | 1.38 | 3.15 | 2.48 | 1.81 | MT5         | 7.81        | 4500     | 2860                       | 2486                  |
| 48231 | PLC-CNC-INT-MT6 | 1.65 | 3.66 | 2.88 | 2.17 | MT6         | 18.7        | 3200     | 3740                       | 2508                  |

### INP Standard Interchangeable Steel Point



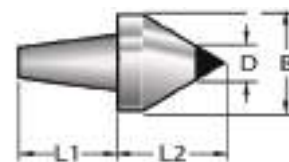
| UPC # | Description   | Body Size | B    | L1   | L2   |
|-------|---------------|-----------|------|------|------|
| 48305 | PLCIP-INP-2-3 | 2&3       | 1.06 | 1.06 | 1.18 |
| 48306 | PLCIP-INP-4   | 4         | 1.14 | 1.14 | 1.22 |
| 48307 | PLCIP-INP-5   | 5         | 1.38 | 1.18 | 1.42 |
| 48308 | PLCIP-INP-6   | 6         | 1.65 | 1.30 | 1.77 |

### USP Undersized Interchangeable Steel Point



| UPC # | Description   | Body Size | B    | C    | L1   | L2   | L3   |
|-------|---------------|-----------|------|------|------|------|------|
| 48313 | PLCIP-USP-2-3 | 2&3       | 0.98 | 0.47 | 1.06 | 1.34 | 0.63 |
| 48314 | PLCIP-USP-4   | 4         | 1.14 | 0.47 | 1.14 | 1.46 | 0.63 |
| 48315 | PLCIP-USP-5   | 5         | 1.38 | 0.59 | 1.18 | 1.65 | 0.75 |
| 48316 | PLCIP-USP-6   | 6         | 1.65 | 0.79 | 1.30 | 2.13 | 0.98 |

### INCP Standard Interchangeable Steel Point with Carbide



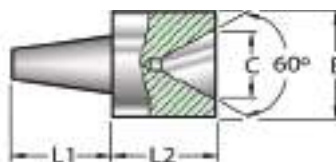
| UPC # | Description    | Body Size | B    | D    | L1   | L2   |
|-------|----------------|-----------|------|------|------|------|
| 48309 | PLCIP-INCP-2-3 | 2 & 3     | 1.06 | 0.39 | 1.06 | 1.18 |
| 48310 | PLCIP-INCP-4   | 4         | 1.14 | 0.47 | 1.14 | 1.22 |
| 48311 | PLCIP-INCP-5   | 5         | 1.38 | 0.55 | 1.18 | 1.42 |
| 48312 | PLCIP-INCP-6   | 6         | 1.65 | 0.55 | 1.30 | 1.77 |

### EXP Extended Interchangeable Steel Point



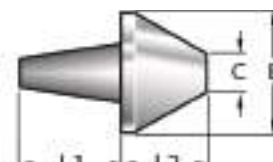
| UPC # | Description   | Body Size | B    | C    | L1   | L2   |
|-------|---------------|-----------|------|------|------|------|
| 48325 | PLCIP-EXP-2-3 | 2&3       | 0.98 | 0.32 | 1.06 | 1.77 |
| 48326 | PLCIP-EXP-4   | 4         | 1.14 | 0.39 | 1.14 | 1.97 |
| 48327 | PLCIP-EXP-5   | 5         | 1.38 | 0.47 | 1.18 | 2.32 |
| 48328 | PLCIP-EXP-6   | 6         | 1.65 | 0.47 | 1.30 | 2.95 |

### FCUP Female Cup Interchangeable Steel Point



| UPC # | Description    | Body Size | B    | C    | L1   | L2   |
|-------|----------------|-----------|------|------|------|------|
| 48329 | PLCIP-FCUP-2-3 | 2&3       | 1.14 | 0.91 | 1.06 | 1.18 |
| 48330 | PLCIP-FCUP-4   | 4         | 1.14 | 0.91 | 1.14 | 1.18 |
| 48331 | PLCIP-FCUP-5   | 5         | 1.38 | 1.06 | 1.18 | 1.38 |
| 48332 | PLCIP-FCUP-6   | 6         | 1.46 | 1.06 | 1.30 | 1.38 |

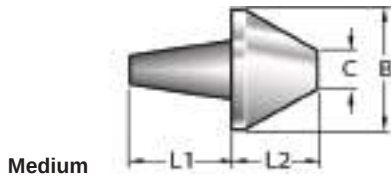
### SBNP Bull Nose Interchangeable Steel Point



Small

| UPC # | Description    | Body Size | B    | C    | L1   | L2   |
|-------|----------------|-----------|------|------|------|------|
| 48333 | PLCIP-SBNP-2-3 | 2&3       | 2.32 | 1.02 | 1.06 | 1.38 |
| 48334 | PLCIP-SBNP-4   | 4         | 2.32 | 1.02 | 1.14 | 1.38 |
| 48335 | PLCIP-SBNP-5   | 5         | 2.32 | 1.02 | 1.18 | 1.38 |
| 48336 | PLCIP-SBNP-6   | 6         | 2.32 | 1.02 | 1.30 | 1.38 |

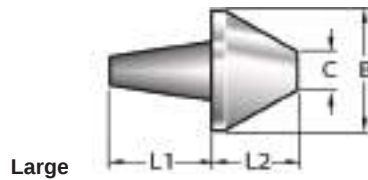
### MBNP Bull Nose Interchangeable Steel Point



Medium

| UPC # | Description    | Body Size | B    | C    | L1   | L2   |
|-------|----------------|-----------|------|------|------|------|
| 48337 | PLCIP-MBNP-2-3 | 2&3       | 3.07 | 1.81 | 1.06 | 1.38 |
| 48338 | PLCIP-MBNP-4   | 4         | 3.07 | 1.81 | 1.14 | 1.38 |
| 48339 | PLCIP-MBNP-5   | 5         | 3.07 | 1.81 | 1.18 | 1.38 |
| 48340 | PLCIP-MBNP-6   | 6         | 3.07 | 1.81 | 1.30 | 1.38 |

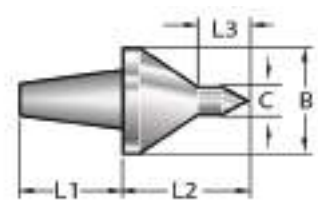
### LBNP Bull Nose Interchangeable Steel Point



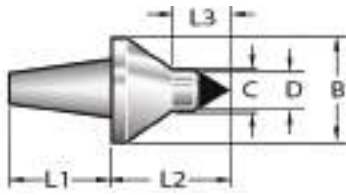
Large

| UPC # | Description    | Body Size | B    | C    | L1   | L2   |
|-------|----------------|-----------|------|------|------|------|
| 48341 | PLCIP-LBNP-2-3 | 2&3       | 3.86 | 2.60 | 1.06 | 1.38 |
| 48342 | PLCIP-LBNP-4   | 4         | 3.86 | 2.60 | 1.14 | 1.38 |
| 48343 | PLCIP-LBNP-5   | 5         | 3.86 | 2.60 | 1.18 | 1.38 |
| 48344 | PLCIP-LBNP-6   | 6         | 3.86 | 2.60 | 1.30 | 1.38 |

### MSP Mini Sized Steel Point



### USCP Undersized Interchangeable Steel Point with Carbide



| UPC # | Description    | Body Size | B    | C    | D    | L1   | L2   | L3   |
|-------|----------------|-----------|------|------|------|------|------|------|
| 48321 | PLCIP-USCP-2-3 | 2 & 3     | 0.98 | 0.47 | 0.28 | 1.06 | 1.34 | 0.63 |
| 48322 | PLCIP-USCP-4   | 4         | 1.14 | 0.47 | 0.31 | 1.14 | 1.46 | 0.63 |
| 48323 | PLCIP-USCP-5   | 5         | 1.38 | 0.59 | 0.47 | 1.18 | 1.65 | 0.75 |
| 48324 | PLCIP-USCP-6   | 6         | 1.65 | 0.79 | 0.47 | 1.30 | 2.13 | 0.98 |



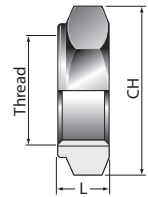
Center Point Extraction Tool

| UPC # | Center Point Extraction Tool Description | Body Size |
|-------|------------------------------------------|-----------|
| 48345 | PLCIP-CPEW-2-3                           | MT2-3     |
| 48346 | PLCIP-CPEW-4                             | MT4       |
| 48347 | PLCIP-CPEW-5                             | MT5       |
| 48348 | PLCIP-CPEW-6                             | MT6       |



CNC Lock Nut Wrench

| UPC # | CNC Lock Nut Wrench Description | Body Size |
|-------|---------------------------------|-----------|
| 48349 | PLCIP-LNW-30SP                  | MT2-3     |
| 48350 | PLCIP-LNW-40SP                  | MT4       |
| 48351 | PLCIP-LNW-50SP                  | MT5       |



Extractor Nut for Threaded Dead Centers

| UPC # | Description     | Thread    |
|-------|-----------------|-----------|
| 48449 | PLC-CNC-DCEN-36 | M36 x 1.5 |
| 48450 | PLC-CNC-DCEN-41 | M48 x 1.5 |
| 48451 | PLC-CNC-DCEN-48 | M48 x 1.5 |
| 48452 | PLC-CNC-DCEN-68 | M68 x 1.5 |



Spring Loaded



### Precision Spring Loaded Live Center for Interchangeable Points (Includes one 60° Interchangeable Steel Point)

| UPC # | Description        | A    | B    | L1   | L2   | L3   | D           | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|-------|--------------------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| 48475 | PLC-CNC-INT-DIA-30 | 1.14 | 2.40 | 3.11 | 1.61 | 2.17 | 1.18 (30mm) | 4.63        | 5500     | 1883                       | 1438                  |
| 48476 | PLC-CNC-INT-DIA-40 | 1.37 | 3.15 | 3.35 | 1.85 | 2.48 | 1.57 (40mm) | 8.38        | 4500     | 2860                       | 2486                  |

### CNC High Speed Live Center with Extended Steel Point



| UPC # | Description         | A    | B    | C    | L1   | L2   | L3   | D           | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|-------|---------------------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| 48477 | PLC-CNC-ELSP-DIA-30 | 1.14 | 2.40 | 0.31 | 3.11 | 2.01 | 2.17 | 1.18 (30mm) | 4.63        | 5500     | 1883                       | 1438                  |
| 48478 | PLC-CNC-ELSP-DIA-40 | 1.50 | 3.15 | 0.47 | 3.35 | 2.21 | 2.48 | 1.57 (40mm) | 8.38        | 4500     | 2860                       | 2486                  |



### CNC Super High Speed Heavy Duty Live Center with 60° Standard Steel Point

| UPC # | Description     | A    | B    | D    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|-------|-----------------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| 48240 | PLC-SPA-S60-MT3 | 1.18 | 2.44 | 2.89 | 2.72 | 1.28 | 0.95 | MT3         | 4.62        | 12000    | 3300                       | 2860                  |
| 48241 | PLC-SPA-S60-MT4 | 1.38 | 3.07 | 3.52 | 3.14 | 1.45 | 0.95 | MT4         | 10.69       | 9000     | 5060                       | 4180                  |
| 48242 | PLC-SPA-S60-MT5 | 1.65 | 3.66 | 4.09 | 3.35 | 1.83 | 1.06 | MT5         | 14.30       | 8000     | 8140                       | 5280                  |



### CNC Super High Speed Heavy Duty Live Center with 60° Standard Carbide Point

| UPC # | Description     | A    | B    | C    | D    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|-------|-----------------|------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| 48290 | PLC-SPA-C60-MT3 | 1.18 | 2.44 | 0.39 | 2.89 | 2.72 | 1.28 | 0.95 | MT3         | 4.62        | 12000    | 3300                       | 2860                  |
| 48291 | PLC-SPA-C60-MT4 | 1.38 | 3.07 | 0.47 | 3.52 | 3.14 | 1.45 | 0.95 | MT4         | 10.69       | 9000     | 5060                       | 4180                  |
| 48292 | PLC-SPA-C60-MT5 | 1.65 | 3.66 | 0.70 | 4.09 | 3.35 | 1.83 | 1.06 | MT5         | 14.30       | 8000     | 8140                       | 5280                  |



### CNC Super High Speed Heavy Duty Live Center with 60° Extended Large Steel Point

| UPC # | Description      | A    | B    | C    | D    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|-------|------------------|------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| 48246 | PLC-SPA-ELSP-MT3 | 1.18 | 2.44 | 0.47 | 2.89 | 2.72 | 1.58 | 0.95 | MT3         | 4.62        | 12000    | 3300                       | 2860                  |
| 48247 | PLC-SPA-ELSP-MT4 | 1.38 | 3.07 | 0.62 | 3.52 | 3.14 | 1.73 | 0.95 | MT4         | 10.69       | 9000     | 5060                       | 4180                  |
| 48248 | PLC-SPA-ELSP-MT5 | 1.65 | 3.66 | 0.79 | 4.09 | 3.35 | 2.34 | 1.06 | MT5         | 14.30       | 8000     | 8140                       | 5280                  |



### CNC Super High Speed Heavy Duty Live Center with 60° Extended Large Steel Point

| UPC # | Description      | A    | B    | C    | D    | L1   | L2   | L3   | Morse Taper | Weight (lb) | Max. RPM | Max. workpiece Weight (lb) | Max. Thrust load (lb) |
|-------|------------------|------|------|------|------|------|------|------|-------------|-------------|----------|----------------------------|-----------------------|
| 48249 | PLC-SPA-ELCP-MT3 | 1.18 | 2.44 | 0.39 | 2.89 | 2.72 | 1.58 | 0.95 | MT3         | 4.62        | 12000    | 3300                       | 2860                  |
| 48250 | PLC-SPA-ELCP-MT4 | 1.38 | 3.07 | 0.55 | 3.52 | 3.14 | 1.73 | 0.95 | MT4         | 10.69       | 9000     | 5060                       | 4180                  |
| 48251 | PLC-SPA-ELCP-MT5 | 1.65 | 3.66 | 0.70 | 4.09 | 3.35 | 2.34 | 1.06 | MT5         | 14.30       | 8000     | 8140                       | 5280                  |

# FACE DRIVERS

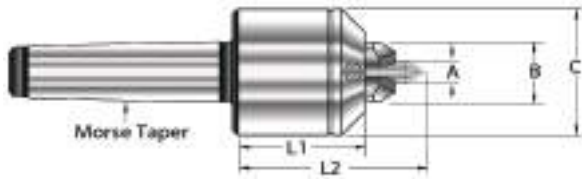
*The Mechanical and Compact Design of the Dorian Face Driver is*  
**Accurate Powerful Simple Reliable**  
*Engineered for Proven Performance!*

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.



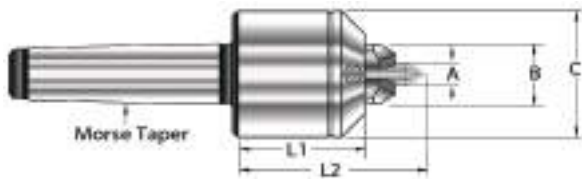
## 12mm (.472") Minimum Diameter



| UPC # | Description    | Capacity |      | A    | B    | C    | L1   | L2   | Shank         |
|-------|----------------|----------|------|------|------|------|------|------|---------------|
|       |                | Min.     | Max. |      |      |      |      |      |               |
| 48353 | PLC-FD-12-SS30 | 0.47     | 1.00 | 0.32 | 0.79 | 1.90 | 2.05 | 2.64 | 30mm Straight |
| 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         |
|       |                               |       |                         |       |                         |       |                          |

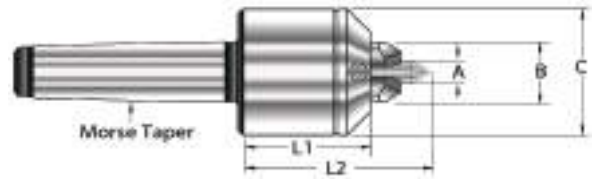
## 42mm (1.654") Minimum Diameter



| 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         |
|       |                               |       |                         |       |                         |       |                          |

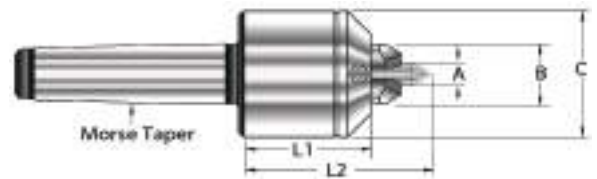
## 22mm (.866") Minimum Diameter



| UPC # | Description    | Capacity |      | A    | B    | C    | L1   | L2   | Shank         |
|-------|----------------|----------|------|------|------|------|------|------|---------------|
|       |                | Min.     | Max. |      |      |      |      |      |               |
| 48356 | PLC-FD-22-SS30 | 1.18     | 1.85 | 0.47 | 1.18 | 2.44 | 2.52 | 3.39 | 30mm Straight |
| 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         |
|       |                               |       |                         |       |                         |       |                          |

## 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         |

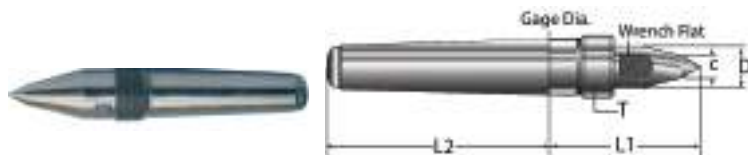
| UPC # | Driving Pin Description       | UPC # | Driving Pin Description | UPC # | Driving Pin Description | UPC # | Center Point Description |
|-------|-------------------------------|-------|-------------------------|-------|-------------------------|-------|--------------------------|
| 48380 | PLC-FDP-65-N                  | 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



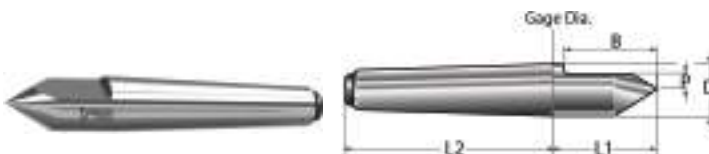
| UPC # | Description   | D    | Gage Dia. | L1   | L2   | Morse Taper |
|-------|---------------|------|-----------|------|------|-------------|
| 48453 | PLC-MTDC-SMT1 | 0.48 | 0.475     | 1.03 | 2.12 | MT1         |
| 48454 | PLC-MTDC-SMT2 | 0.71 | 0.700     | 1.38 | 2.56 | MT2         |
| 48455 | 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         |

### Precision CNC Steel Dead Center with Large 60° Carbide Point (Includes one 60° Interchangeable Steel Point)



| UPC # | Description   | D    | Gage Dia. | L1   | L2   | Morse Taper |
|-------|---------------|------|-----------|------|------|-------------|
| 48557 | PLC-LPDC-CMT2 | 0.71 | 0.7       | 1.38 | 2.56 | MT2         |
| 48558 | PLC-LPDC-CMT3 | 0.95 | 0.938     | 1.73 | 3.19 | MT3         |
| 48559 | PLC-LPDC-CMT4 | 1.24 | 1.231     | 2.24 | 4.06 | MT4         |
| 48560 | PLC-LPDC-CMT5 | 1.76 | 1.748     | 2.68 | 5.19 | MT5         |
| 48561 | PLC-LPDC-CMT6 | 2.51 | 2.494     | 3.38 | 7.25 | MT6         |

### CNC Steel Threaded Dead Center for Interchangeable Point (Includes one 60° Interchangeable Steel Point)



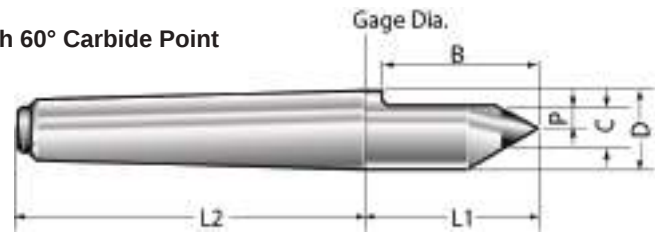
| UPC # | Description      | D     | Gage Dia. | L1    | L2   | T Thread  | Morse Taper |
|-------|------------------|-------|-----------|-------|------|-----------|-------------|
| 48446 | PLC-CNC-ITDC-MT3 | 1.102 | 0.938     | 2.760 | 3.27 | M36 x 1.5 | MT3         |
| 48447 | PLC-CNC-ITDC-MT4 | 1.260 | 1.231     | 2.93  | 4.11 | M36 x 1.5 | MT4         |
| 48448 | PLC-CNC-ITDC-MT5 | 1.498 | 1.500     | 3.130 | 5.57 | M48 x 1.5 | MT5         |

## High Speed Steel Morse Taper Extended Dead Center with 60° Carbide Point



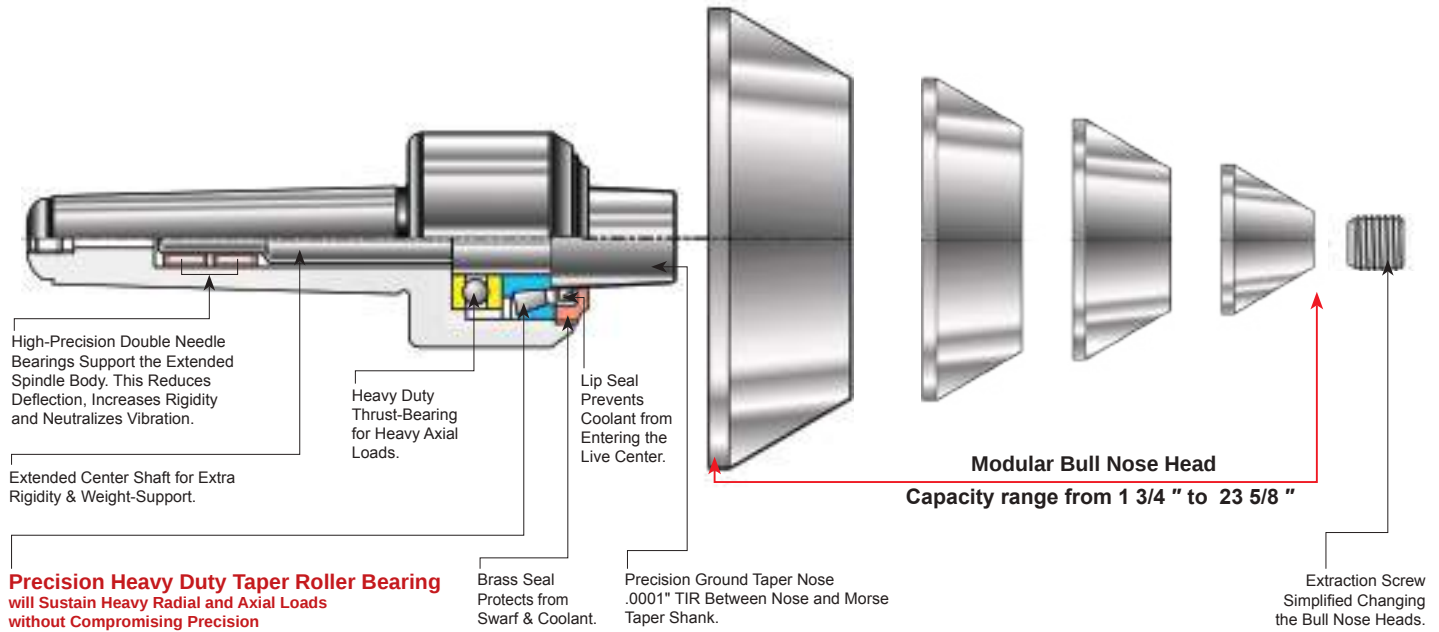
| UPC # | Description       | D    | C    | Gage Dia. | L1   | L2   | Morse Taper | Weight (lb) |
|-------|-------------------|------|------|-----------|------|------|-------------|-------------|
| 48156 | PLC-XMTDC-C10-MT2 | 0.71 | 0.39 | 0.700     | 2.16 | 2.56 | MT2         | 0.44        |
| 48157 | PLC-XMTDC-C14-MT2 | 0.71 | 0.55 | 0.700     | 2.16 | 2.56 | MT2         | 0.44        |
| 48158 | PLC-XMTDC-C18-MT2 | 0.87 | 0.71 | 0.700     | 2.16 | 2.56 | MT2         | 0.44        |
| 48159 | PLC-XMTDC-C10-MT3 | 0.95 | 0.39 | 0.938     | 2.24 | 4.06 | MT3         | 1.10        |
| 48160 | PLC-XMTDC-C14-MT3 | 0.95 | 0.55 | 0.938     | 2.24 | 4.06 | MT3         | 1.10        |
| 48161 | PLC-XMTDC-C18-MT3 | 0.95 | 0.71 | 0.938     | 2.27 | 4.06 | MT3         | 1.10        |
| 48162 | PLC-XMTDC-C22-MT3 | 0.95 | 0.87 | 0.938     | 2.24 | 4.06 | MT3         | 1.10        |
| 48163 | PLC-XMTDC-C10-MT4 | 1.24 | 0.39 | 1.231     | 4.68 | 3.19 | MT4         | 2.20        |
| 48164 | PLC-XMTDC-C14-MT4 | 1.24 | 0.55 | 1.231     | 5.31 | 2.56 | MT4         | 2.20        |
| 48165 | PLC-XMTDC-C18-MT4 | 1.24 | 0.71 | 1.231     | 4.68 | 3.19 | MT4         | 2.20        |
| 48166 | PLC-XMTDC-C22-MT4 | 1.24 | 0.87 | 1.231     | 4.68 | 3.19 | MT4         | 2.20        |
| 48167 | PLC-XMTDC-C26-MT4 | 1.24 | 1.02 | 1.231     | 3.81 | 4.06 | MT4         | 2.20        |
| 48168 | PLC-XMTDC-C14-MT5 | 1.76 | 0.55 | 1.748     | 6.26 | 3.19 | MT5         | 5.28        |
| 48169 | PLC-XMTDC-C18-MT5 | 1.76 | 0.71 | 1.748     | 6.89 | 2.56 | MT5         | 5.28        |
| 48170 | PLC-XMTDC-C22-MT5 | 1.76 | 0.87 | 1.748     | 6.26 | 3.19 | MT5         | 5.28        |
| 48171 | PLC-XMTDC-C26-MT5 | 1.76 | 1.02 | 1.748     | 6.26 | 3.19 | MT5         | 5.50        |
| 48172 | PLC-XMTDC-C30-MT5 | 1.76 | 1.18 | 1.748     | 5.39 | 4.06 | MT5         | 5.50        |
| 48173 | PLC-XMTDC-C14-MT6 | 2.51 | 0.55 | 2.494     | 8.62 | 3.19 | MT6         | 11.88       |
| 48174 | PLC-XMTDC-C18-MT6 | 2.51 | 0.71 | 2.494     | 9.25 | 2.56 | MT6         | 12.76       |
| 48175 | PLC-XMTDC-C22-MT6 | 2.51 | 0.87 | 2.494     | 8.62 | 3.19 | MT6         | 12.76       |
| 48176 | PLC-XMTDC-C26-MT6 | 2.51 | 1.02 | 2.494     | 8.62 | 3.19 | MT6         | 12.76       |
| 48177 | PLC-XMTDC-C30-MT6 | 2.51 | 1.18 | 2.494     | 7.75 | 4.06 | MT6         | 13.20       |

## High Speed Steel Morse Taper Extended Half Moon Dead Center with 60° Carbide Point



| UPC # | Description        | D    | Gage Dia. | L1   | L2   | Morse Taper | B    | C    | P    | Weight (lb) |
|-------|--------------------|------|-----------|------|------|-------------|------|------|------|-------------|
| 48178 | PLC-XMTDC-HC10-MT2 | 0.71 | 0.700     | 2.16 | 2.56 | MT2         | 0.24 | 0.39 | 1.97 | 0.44        |
| 48179 | PLC-XMTDC-HC14-MT2 | 0.71 | 0.700     | 2.16 | 2.56 | MT2         | 0.31 | 0.55 | 1.97 | 0.44        |
| 48180 | PLC-XMTDC-HC18-MT2 | 0.87 | 0.700     | 2.16 | 2.56 | MT2         | 0.39 | 0.71 | 1.97 | 0.44        |
| 48181 | PLC-XMTDC-HC10-MT3 | 0.95 | 0.938     | 3.11 | 3.19 | MT3         | 0.24 | 0.39 | 2.76 | 1.10        |
| 48182 | PLC-XMTDC-HC14-MT3 | 0.71 | 0.938     | 3.74 | 2.56 | MT3         | 0.31 | 0.55 | 2.76 | 1.10        |
| 48183 | PLC-XMTDC-HC18-MT3 | 0.95 | 0.938     | 3.11 | 3.19 | MT3         | 0.39 | 0.71 | 2.76 | 1.10        |
| 48184 | PLC-XMTDC-HC22-MT3 | 1.24 | 0.938     | 2.24 | 4.06 | MT3         | 0.47 | 0.87 | 2.76 | 1.10        |
| 48185 | PLC-XMTDC-HC10-MT4 | 1.24 | 1.231     | 4.68 | 3.19 | MT4         | 0.24 | 0.39 | 3.54 | 2.20        |
| 48186 | PLC-XMTDC-HC14-MT4 | 1.24 | 1.231     | 5.31 | 2.56 | MT4         | 0.31 | 0.55 | 3.54 | 2.20        |
| 48187 | PLC-XMTDC-HC18-MT4 | 1.24 | 1.231     | 4.68 | 3.19 | MT4         | 0.39 | 0.71 | 3.54 | 2.20        |
| 48188 | PLC-XMTDC-HC22-MT4 | 1.24 | 1.231     | 4.68 | 3.19 | MT4         | 0.47 | 0.87 | 3.54 | 2.20        |
| 48189 | PLC-XMTDC-HC26-MT4 | 1.24 | 1.231     | 3.81 | 4.06 | MT4         | 0.55 | 1.02 | 3.54 | 2.20        |
| 48190 | PLC-XMTDC-HC14-MT5 | 1.76 | 1.748     | 6.26 | 3.19 | MT5         | 0.31 | 0.55 | 3.54 | 5.28        |
| 48191 | PLC-XMTDC-HC18-MT5 | 1.76 | 1.748     | 6.89 | 2.56 | MT5         | 0.39 | 0.71 | 3.54 | 5.28        |
| 48192 | PLC-XMTDC-HC22-MT5 | 1.76 | 1.748     | 6.26 | 3.19 | MT5         | 0.47 | 0.87 | 3.54 | 5.28        |
| 48193 | PLC-XMTDC-HC26-MT5 | 1.76 | 1.748     | 6.26 | 3.19 | MT5         | 0.55 | 1.02 | 3.54 | 5.50        |
| 48194 | PLC-XMTDC-HC30-MT5 | 1.76 | 1.748     | 5.39 | 4.06 | MT5         | 0.63 | 1.18 | 3.54 | 5.50        |
| 48195 | PLC-XMTDC-HC14-MT6 | 2.51 | 2.494     | 8.62 | 3.19 | MT6         | 0.31 | 0.55 | 3.94 | 5.28        |
| 48196 | PLC-XMTDC-HC18-MT6 | 2.51 | 2.494     | 9.25 | 2.56 | MT6         | 0.39 | 0.71 | 3.94 | 5.28        |
| 48197 | PLC-XMTDC-HC22-MT6 | 2.51 | 2.494     | 8.62 | 3.19 | MT6         | 0.47 | 0.87 | 3.94 | 5.28        |
| 48198 | PLC-XMTDC-HC26-MT6 | 2.51 | 2.494     | 8.62 | 3.19 | MT6         | 0.55 | 1.02 | 3.94 | 5.28        |
| 48199 | PLC-XMTDC-HC30-MT6 | 2.51 | 2.494     | 7.75 | 4.06 | MT6         | 0.63 | 1.18 | 3.94 | 5.28        |

# MODULAR BULL NOSE SYSTEM FOR PIPES



## Extra Heavy Duty Modular Bull Nose Live Center

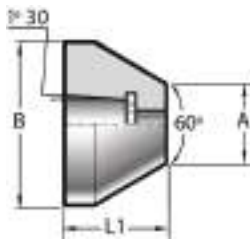


| UPC # | Description     | Morse Taper | Max. RPM | Max. workpiece weight (lb) | Thrust load (lb) |
|-------|-----------------|-------------|----------|----------------------------|------------------|
| 48400 | PLC-HDA-BN-MT3  | 3           | 6000     | 2090                       | 1144             |
| 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



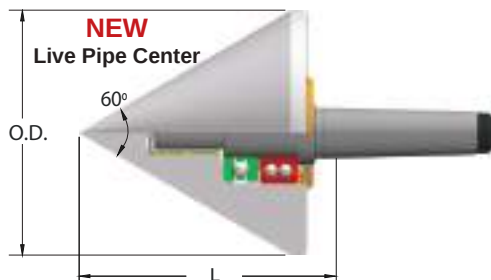
| UPC # | Description      | Morse Taper | Extractor Nut (sold separately) |
|-------|------------------|-------------|---------------------------------|
| 48406 | PLC-CNC-BNDC-MT3 | 3           | 48449                           |
| 48407 | PLC-CNC-BNDC-MT4 | 4           | 48450                           |
| 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°                |

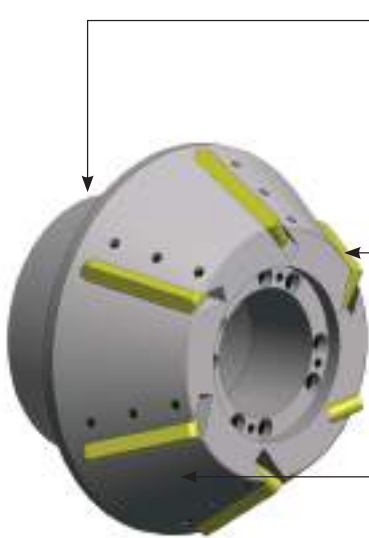
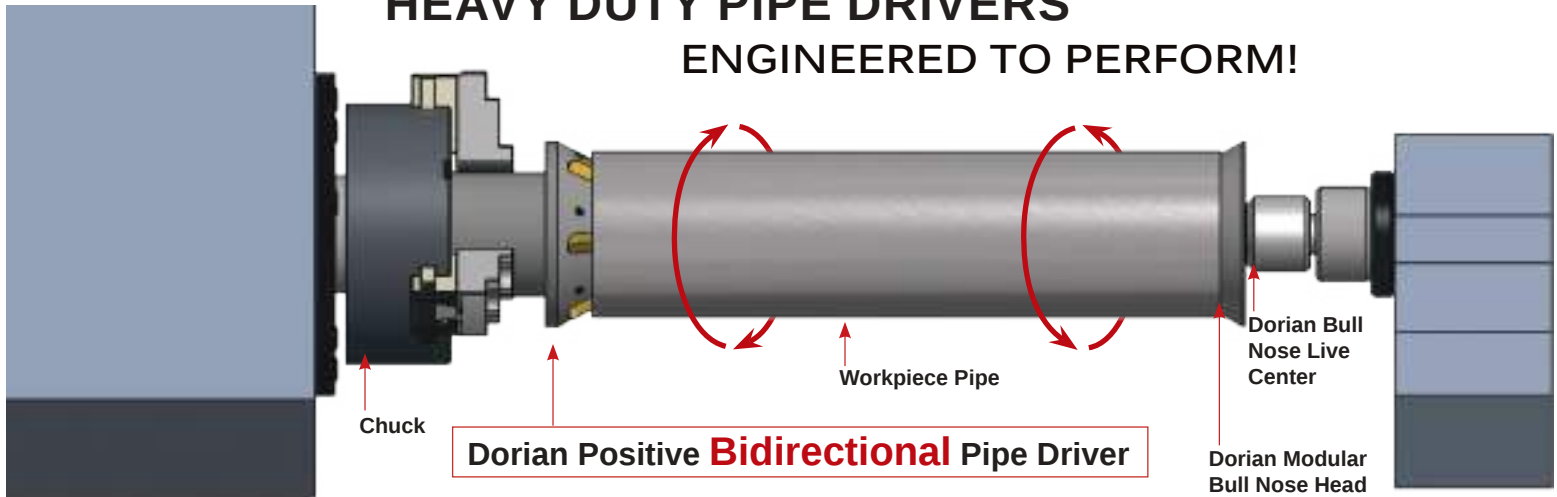
## INTEGRAL LIVE PIPE CENTERS



## 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

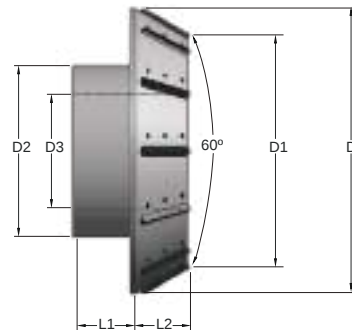
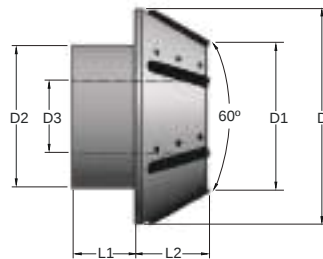
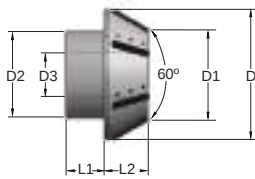
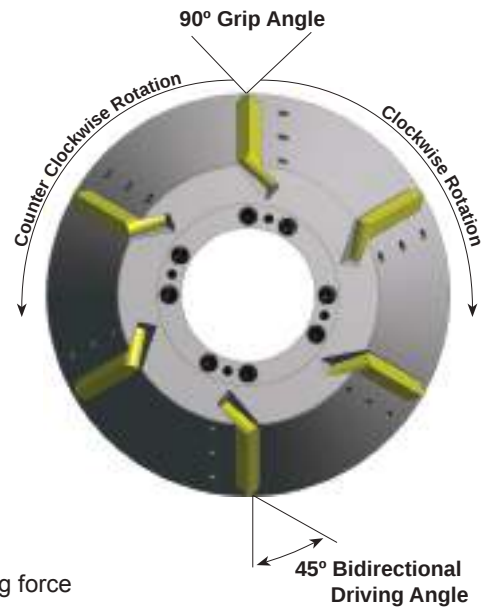
- Can be chucked on O.D. or I.D.
- Regrindable & Replaceable if damaged or scarred without needing to replace the pipe driver body
- Heat treated alloy steel

## 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 TOOL POST

Rigidity, Repeatability & Quality

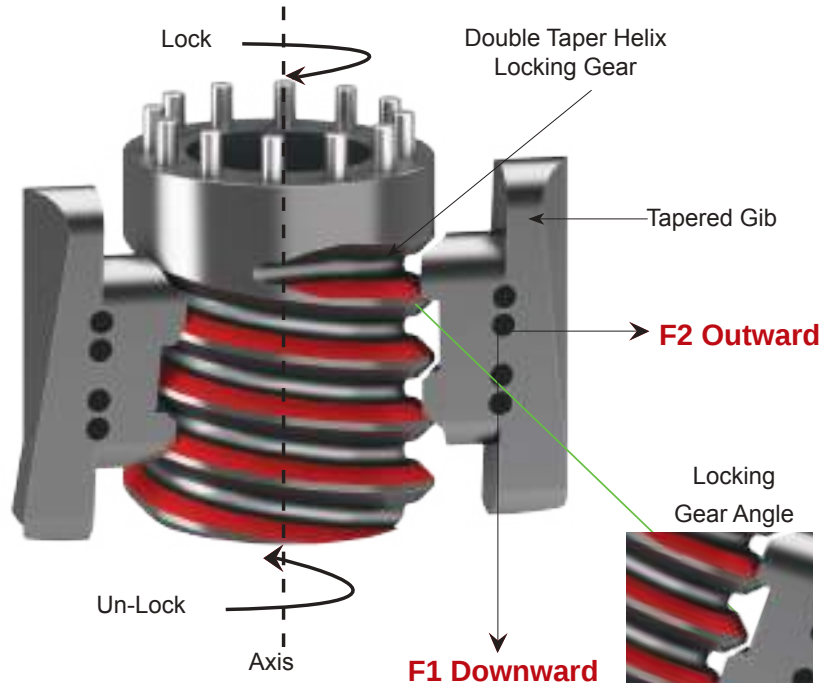


## The Triple Action Wedge-Locking System

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.



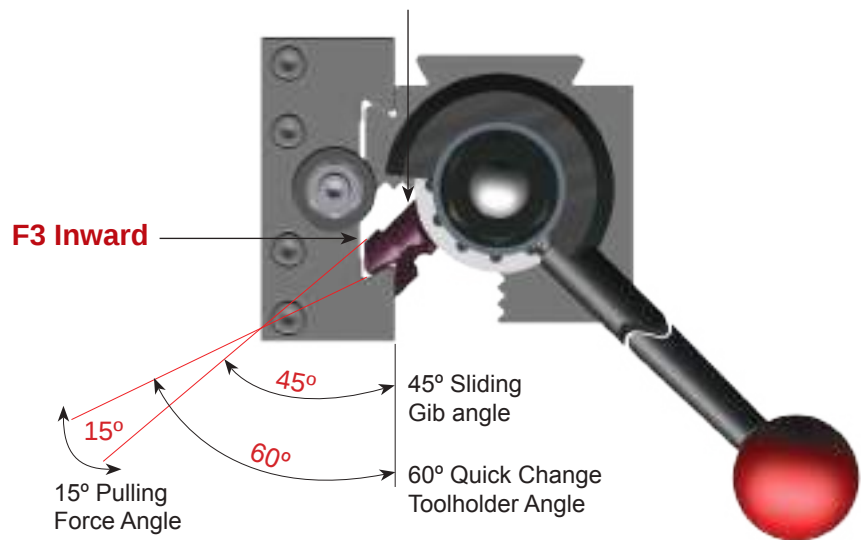
### 2. F2 Outward Force:

(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:

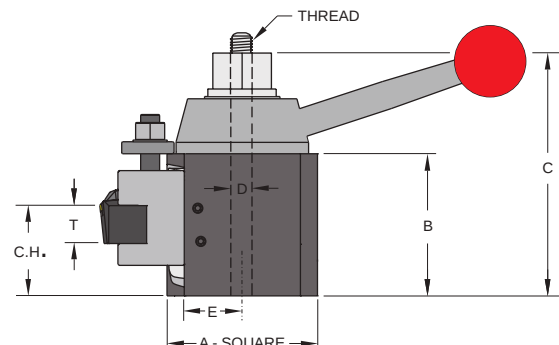
(shown right) The differential between the sliding gib angle and the quick change holder angle pulls the toolholder towards the tool post dovetail surface, creating a one-piece locking effect.

## Wedge Style Sliding Gib

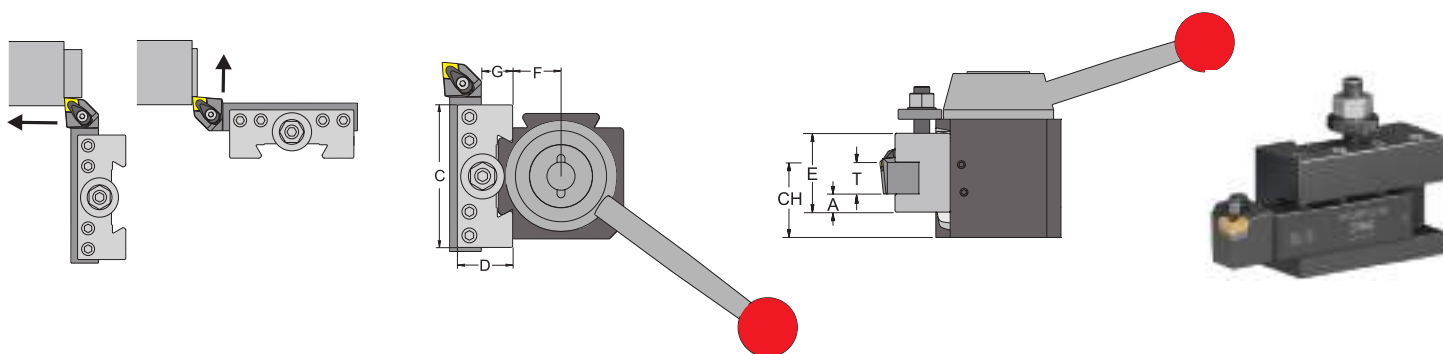


| Description           | SDN25AXA | SDN30BXA | SDN35CXAX | SDN40CA   | SDN50DA     | SDN60EA  |
|-----------------------|----------|----------|-----------|-----------|-------------|----------|
| UPC #                 | 01000    | 01002    | 01004     | 01006     | 01008       | 01010    |
| Lathe Swing 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   | 1.0-1 1/4 | 1 1/4-1 1/2 | 1 1/2    |
| Optimum Center Height | 1.250    | 1.312    | 1.625     | 1.937     | 2.562       | 3.000    |
| Minimum Center Height | 0.875    | 1.062    | 1.250     | 1.562     | 2.000       | 2.500    |
| Maximum Center Height | 1.875    | 1.937    | 2.250     | 2.562     | 3.575       | 3.500    |
| Holding Post Thread   | 1/2-20   | 5/8-18   | 3/4-16    | 7/8-14    | 1.0-14      | 1 1/8-12 |

\* Optimum center height is calculated with the smaller tool System of the tool capacity. If the higher System tool is to be used, add 1/8" to the optimum center height.



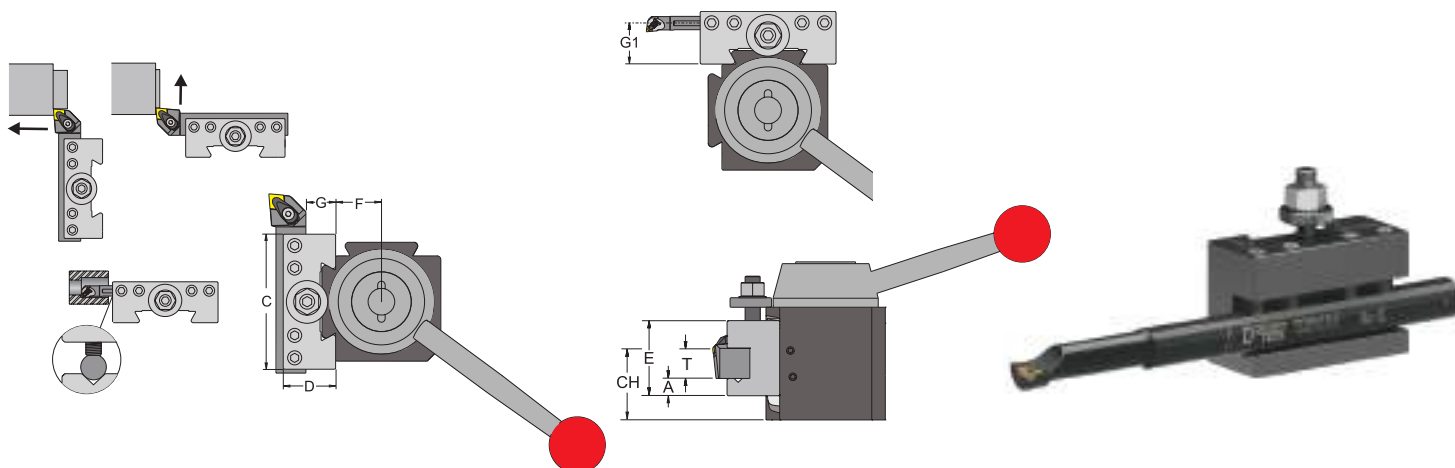
## No. D1 Turning & Facing Tool holder



| Description | UPC # | A     | T     | C     | D     | E     | F     | G     |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| D25AXA-1    | 01100 | 0.375 | 0.750 | 2.750 | 1.250 | 1.750 | 0.880 | .790  |
| D30BXA-1    | 01250 | 0.437 | 1.000 | 3.250 | 1.500 | 2.250 | 1.115 | .915  |
| D35CXA-1    | 01400 | 0.500 | 1.000 | 3.750 | 1.750 | 2.500 | 1.199 | 1.040 |
| D40CA-1     | 01550 | 0.562 | 1.250 | 4.500 | 2.000 | 3.000 | 1.530 | 1.040 |
| D50DA-1     | 01700 | 0.750 | 1.500 | 6.000 | 2.500 | 3.500 | 1.900 | 1.290 |
| D60EA-1     | 01850 | 1.000 | 1.500 | 7.000 | 3.000 | 4.000 | 2.207 | 1.540 |

## No. D2 Turning, Facing & Boring Tool holder

The "V" groove makes this holder more versatile so that it can hold either square shank tool holders or boring bars. .

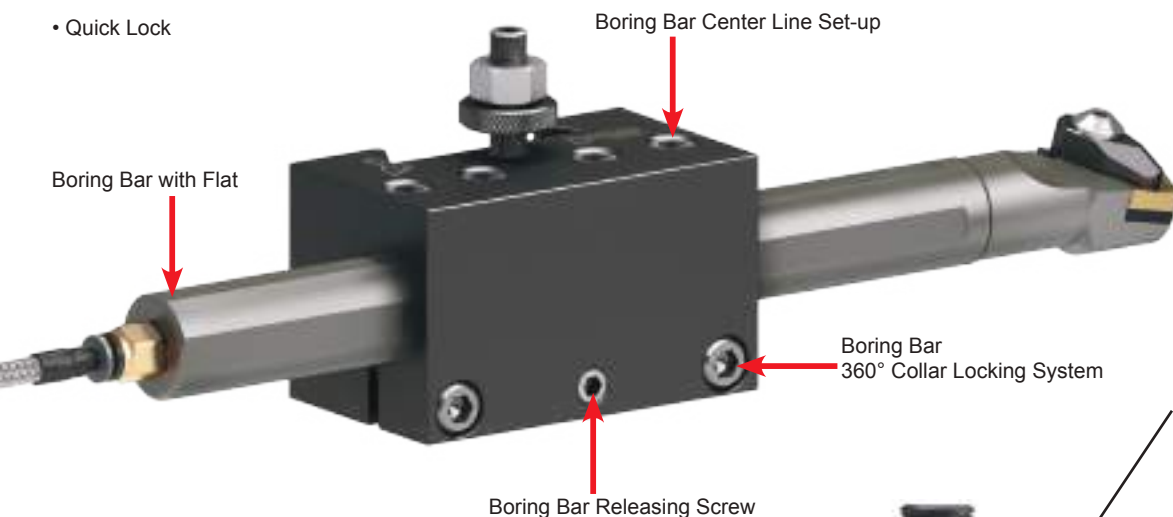


| Description | UPC # | A     | T     | C     | D     | E     | F     | G     | G1    |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| D25AXA-2    | 01104 | 0.375 | 0.750 | 2.750 | 1.250 | 1.750 | 0.880 | 0.790 | 1.015 |
| D30BXA-2    | 01254 | 0.437 | 1.000 | 3.250 | 1.500 | 2.250 | 1.115 | 0.915 | 1.205 |
| D35CXA-2    | 01404 | 0.500 | 1.000 | 3.750 | 1.750 | 2.500 | 1.199 | 1.040 | 1.390 |
| D40CA-2     | 01554 | 0.562 | 1.250 | 4.500 | 2.000 | 3.000 | 1.530 | 1.040 | 1.515 |
| D50DA-2     | 01704 | 0.750 | 1.500 | 6.000 | 2.500 | 3.500 | 1.900 | 1.290 | 1.890 |
| D60EA-2     | 01854 | 1.000 | 1.500 | 7.000 | 3.000 | 4.000 | 2.207 | 1.540 | 2.265 |

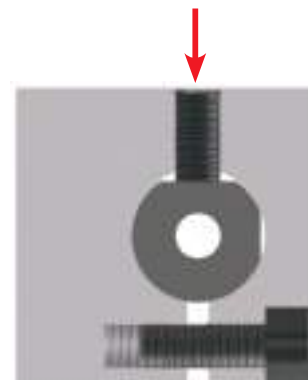
# Dual Boring Bar Quick Change Holder **NEW**

## For Precise Set-up and Maximum Rigidity

- Boring Bar Center Line Set-up
- Set Screw Locking System
- 360° Collar Locking System
- Maximum Locking force
- No Boring Bar Damage
- Quick Release
- Quick Lock



For boring Bars **with flats**  
Use this screw to position  
and lock center line



360° Collar Locking System



Ground flat screw, for precise insert center  
heights alignment and not to damage  
boring bar flats

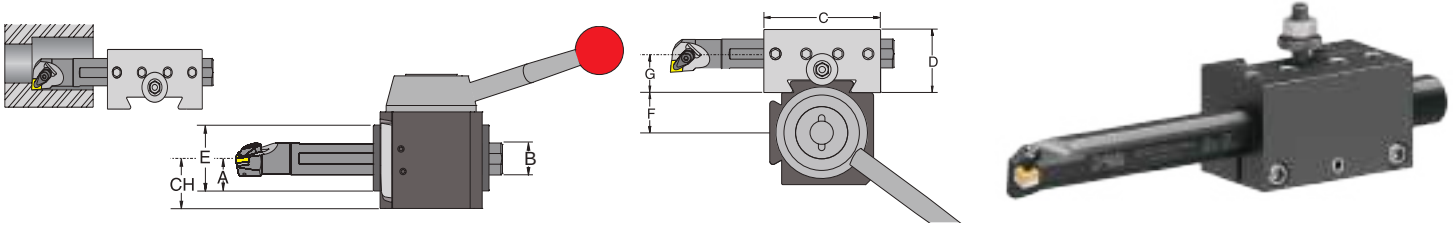


For Boring Bar with **no flats**  
do not use this screw to  
position or lock.



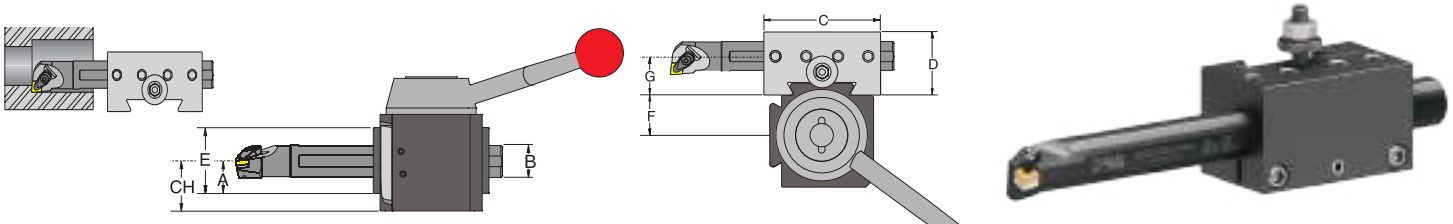
360° Collar Locking System

## No. D4-DUAL Heavy Duty Boring Bar Tool holder



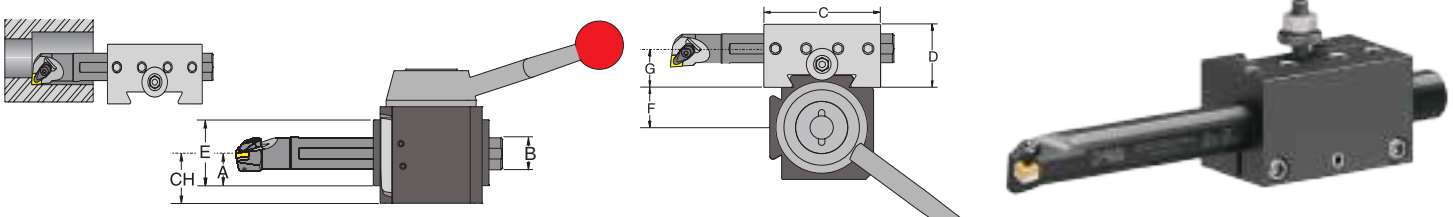
| Description        | UPC # | A     | Boring Bar Capacity<br>B | C     | D     | E     | F     | G     |
|--------------------|-------|-------|--------------------------|-------|-------|-------|-------|-------|
| D25AXA-4-750-DUAL  | 01111 | .745  | .750                     | 2.750 | 1.490 | 1.490 | .880  | .937  |
| D30BXA-4-1000-DUAL | 01261 | .995  | 1.000                    | 3.250 | 1.990 | 1.990 | 1.115 | 1.250 |
| D35CXA-4-1000-DUAL | 01411 | 1.120 | 1.000                    | 3.750 | 2.240 | 2.240 | 1.199 | 1.375 |
| D40CA-4-1250-DUAL  | 01559 | 1.245 | 1.250                    | 4.500 | 2.490 | 2.490 | 1.530 | 1.500 |
| D50DA-4-1500-DUAL  | 01709 | 1.495 | 1.500                    | 5.500 | 2.990 | 2.990 | 1.900 | 2.000 |
| D60EA-4-2000-DUAL  | 01859 | 1.995 | 2.000                    | 6.500 | 3.990 | 3.990 | 2.207 | 2.500 |

## No. D41-DUAL Extra Heavy Duty Boring Bar Tool holder



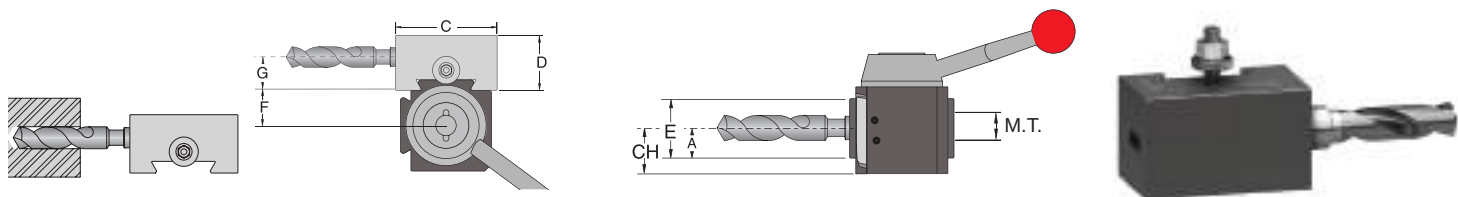
| Description         | UPC # | A     | Boring Bar Capacity<br>B | C     | D     | E     | F     | G     |
|---------------------|-------|-------|--------------------------|-------|-------|-------|-------|-------|
| D25AXA-41-1000-DUAL | 01113 | .870  | 1.000                    | 2.750 | 1.740 | 1.740 | .880  | 1.062 |
| D30BXA-41-1250-DUAL | 01263 | 1.120 | 1.250                    | 3.250 | 2.240 | 2.240 | 1.115 | 1.375 |
| D35CXA-41-1250-DUAL | 01413 | 1.120 | 1.250                    | 3.750 | 2.240 | 2.240 | 1.199 | 1.375 |
| D40CA-41-1500-DUAL  | 01563 | 1.245 | 1.500                    | 4.500 | 2.490 | 2.490 | 1.530 | 1.500 |
| D50DA-41-2000-DUAL  | 01713 | 1.745 | 2.000                    | 5.500 | 3.490 | 3.490 | 1.900 | 2.250 |
| D60EA-41-2500-DUAL  | 01863 | 1.995 | 2.500                    | 6.500 | 3.990 | 3.990 | 2.207 | 2.375 |

## No. DQ41S-DUAL Super Over Sized Boring Bar Tool holder



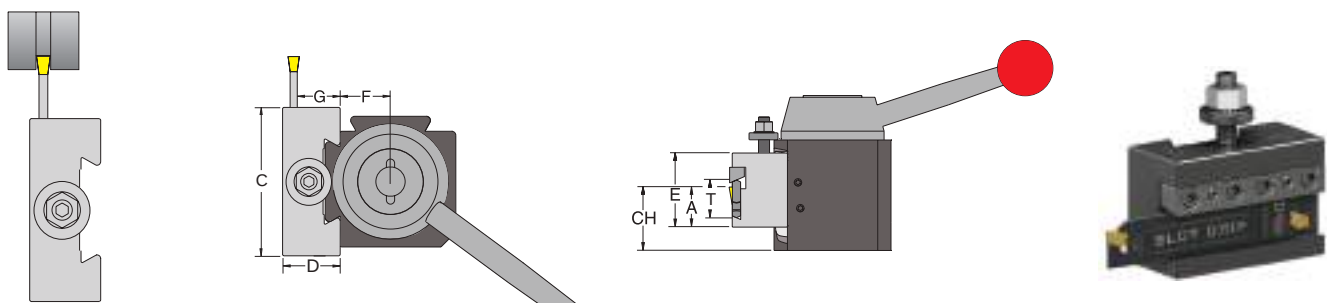
| Description           | UPC # | A     | Boring Bar Capacity<br>B | C     | D     | E     | F     | G     |
|-----------------------|-------|-------|--------------------------|-------|-------|-------|-------|-------|
| DQ35CXA-41S-1500-DUAL | 00415 | 1.245 | 1.500                    | 4.000 | 2.490 | 2.490 | 1.199 | 1.500 |
| DQ40CA-41S-2000-DUAL  | 00565 | 1.495 | 2.000                    | 4.500 | 2.990 | 2.990 | 1.530 | 1.750 |
| DQ50DA-41S-2500-DUAL  | 00715 | 1.995 | 2.500                    | 6.500 | 3.990 | 3.990 | 1.900 | 2.250 |
| DQ60EA-41S-3000-DUAL  | 00865 | 2.245 | 3.000                    | 7.000 | 4.490 | 4.490 | 2.207 | 2.625 |

No. D5 Morse Taper Tool holder .



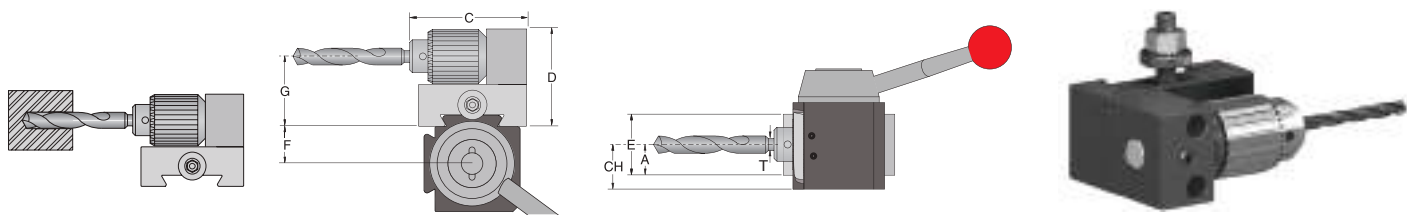
| Description | UPC # | A     | Morse Taper | C     | D     | E     | F     | G     |
|-------------|-------|-------|-------------|-------|-------|-------|-------|-------|
| D35CXA-5-4  | 01424 | 1.125 | MT4         | 4.150 | 2.500 | 2.250 | 1.199 | 1.615 |
| D40CA-5-4   | 01572 | 1.250 | MT4         | 4.500 | 2.500 | 2.500 | 1.530 | 1.615 |
| D50DA-5-5   | 01722 | 1.750 | MT5         | 5.625 | 3.500 | 3.500 | 1.900 | 2.300 |
| D60EA-5-5   | 01872 | 1.750 | MT5         | 5.500 | 3.500 | 3.500 | 2.207 | 2.240 |

No. D7-71C Extra Heavy Duty Cut-Off Blade Tool holder



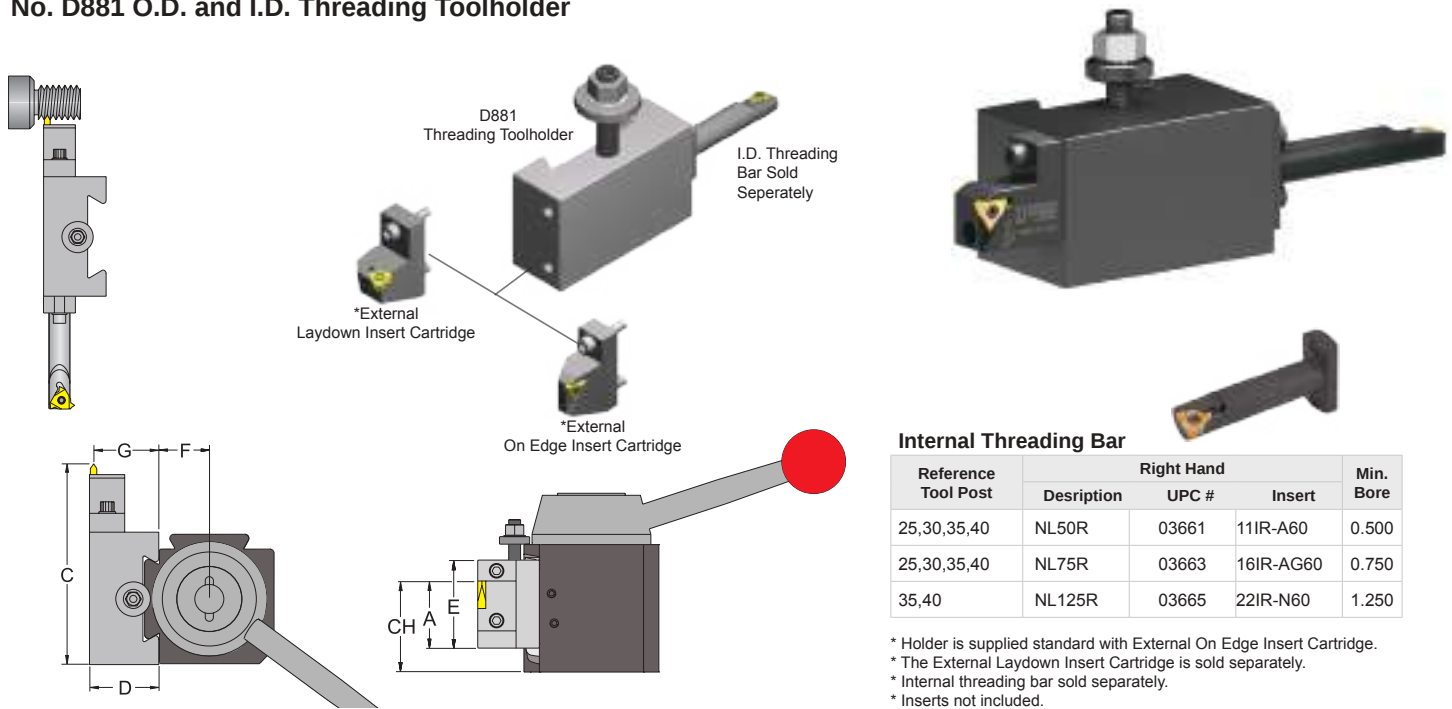
| Description  | UPC # | A     | Slot Grip Blade<br>T | C     | D     | E     | F     | G     |
|--------------|-------|-------|----------------------|-------|-------|-------|-------|-------|
| D25AXA-7-71C | 01126 | 0.933 | SGIH-19-2            | 2.750 | 1.250 | 2.000 | 0.880 | 1.127 |
| D30BXA-7-71C | 01276 | 0.933 |                      | 3.250 | 1.250 | 2.000 | 1.115 | 1.127 |
| D35CXA-7-71C | 01428 | 1.255 | SGIH-26-2 to 26-6    | 3.750 | 1.750 | 2.500 | 1.245 | 1.520 |
| D40CA-7-71C  | 01576 | 1.255 |                      | 4.500 | 1.750 | 3.000 | 1.530 | 1.520 |
| D50DA-7-71C  | 01726 | 1.483 | SGIH-32-3 to 32-9    | 6.000 | 2.000 | 3.000 | 1.900 | 1.710 |
| D60EA-7-71C  | 01876 | 2.050 |                      | 7.000 | 2.250 | 3.500 | 2.207 | 1.980 |

No. D35 Drill Chuck Tool holder



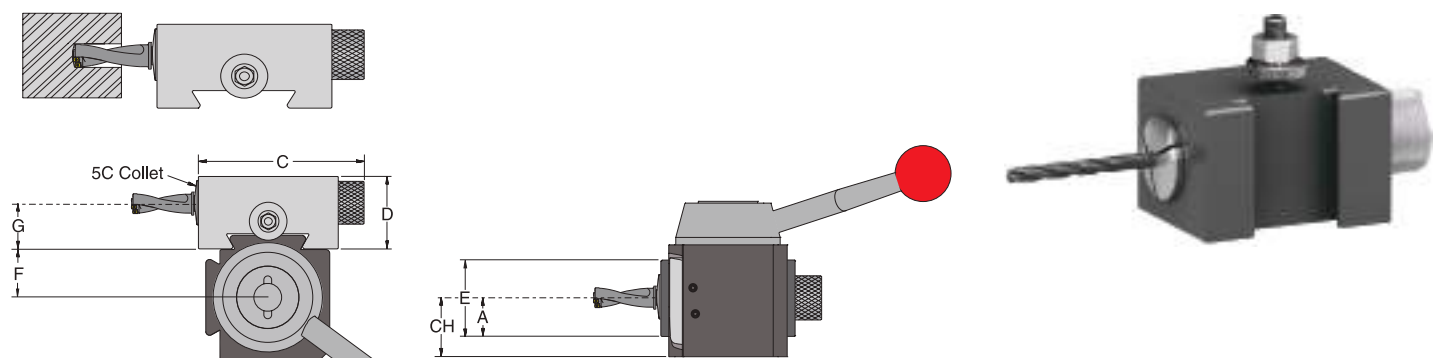
| Description | UPC # | A     | T Capacity | C     | D     | E     | F     | G     |
|-------------|-------|-------|------------|-------|-------|-------|-------|-------|
| D25AXA-35   | 01140 | 1.000 | 0 - .500   | 4.175 | 3.101 | 2.000 | 0.880 | 2.063 |
| D30BXA-35   | 01290 | 1.000 | 0 - .500   | 4.175 | 3.101 | 2.000 | 1.115 | 2.063 |
| D35CXA-35   | 01442 | 1.125 | 0 - .500   | 4.673 | 3.726 | 2.250 | 1.199 | 2.625 |
| D40CA-35    | 01590 | 1.125 | 0 - .500   | 4.673 | 3.726 | 2.250 | 1.530 | 2.625 |

## No. D881 O.D. and I.D. Threading Toolholder



|               |       |       |       |       |       |       |       | *External On Edge Insert Cartridge |       |             |            |          | *External Laydown Insert Cartridge |       |           |            |          |
|---------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------|-------|-------------|------------|----------|------------------------------------|-------|-----------|------------|----------|
| Description   | UPC # | A     | C     | D     | E     | F     | G     | Description                        | UPC # | TNMC Insert | Torx Screw | Torx Key | Description                        | UPC # | Insert    | Torx Screw | Torx Key |
| D25AXA-881-OE | 01132 | 0.875 | 3.869 | 1.000 | 1.500 | 0.880 | 1.000 | TIH253-32                          | 03621 | 32          | GTS-1M     | T-10     | NL253-3R                           | 03635 | 16ER-AG60 | TS-16      | T-10     |
| D30BXA-881-OE | 01282 | 1.000 | 4.369 | 1.250 | 1.750 | 1.115 | 1.250 |                                    |       |             |            |          |                                    |       |           |            |          |
| D35CXA-881-OE | 01434 | 1.250 | 5.119 | 1.500 | 2.000 | 1.199 | 1.435 | TIH354-32                          | 03623 | 32          | GTS-1M     | T-10     | NL354-3R                           | 03637 | 16ER-AG60 | TS-16      | T-10     |
| D40CA-881-OE  | 01582 | 1.500 | 5.619 | 1.500 | 2.250 | 1.530 | 1.435 |                                    |       |             |            |          |                                    |       |           |            |          |

## No. D36 5C Collet Toolholder



| Description | UPC # | A     | C     | D     | E     | F     | G     |
|-------------|-------|-------|-------|-------|-------|-------|-------|
| D25AXA-36   | 01142 | 1.125 | 4.250 | 2.500 | 2.250 | 0.880 | 1.500 |
| D30BXA-36   | 01292 | 1.250 | 4.250 | 2.500 | 2.250 | 1.115 | 1.500 |
| D35CXA-36   | 01444 | 1.375 | 4.500 | 2.750 | 2.750 | 1.199 | 1.625 |
| D40CA-36    | 01592 | 1.375 | 5.000 | 2.750 | 2.750 | 1.530 | 1.625 |

## Turning Set Includes

- (1) Tool Post  
(4) Holders

Tooling Not Included



| UPC #               | 01014                        | 01015                        | 01016                        | 01017                      | 01018                      | 01019                      |
|---------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|
| Description         | SDN25AXA-TS                  | SDN30BXA-TS                  | SDN35CXA-TS                  | SDN40CA-TS                 | SDN50DA-TS                 | SDN60EA-TS                 |
| <b>Set Includes</b> |                              |                              |                              |                            |                            |                            |
| (1) Tool Post       | SDN25AXA                     | SDN30BXA                     | SDN35CXA                     | SDN40CA                    | SDN50DA                    | SDN60EA                    |
| (4) Holders         | (2) D25AXA-1<br>(2) D25AXA-2 | (2) D30BXA-1<br>(2) D30BXA-2 | (2) D35CXA-1<br>(2) D35CXA-2 | (2) D40CA-1<br>(2) D40CA-2 | (2) D50DA-1<br>(2) D50DA-2 | (2) D60EA-1<br>(2) D60EA-2 |

## Standard Set Includes

- (1) Tool Post  
(4) Holders

Tooling Not Included



| UPC #               | 01020                                                                | 01021                                                                | 01022                                                                | 01023                                                            | 01024                                                            | 01025                                                            |
|---------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
| Description         | SDN25AXA-INSS                                                        | SDN30BXA-INSS                                                        | SDN35CXA-INSS                                                        | SDN40CA-INSS                                                     | SDN50DA-INSS                                                     | SDN60EA-INSS                                                     |
| <b>Set Includes</b> |                                                                      |                                                                      |                                                                      |                                                                  |                                                                  |                                                                  |
| (1) Tool Post       | SDN25AXA                                                             | SDN30BXA                                                             | SDN35CXA                                                             | SDN40CA                                                          | SDN50DA                                                          | SDN60EA                                                          |
| (4) Holders         | (1) D25AXA-1<br>(1) D25AXA-2<br>(1) D25AXA-4-CNC<br>(1) D25AXA-7-71C | (1) D30BXA-1<br>(1) D30BXA-2<br>(1) D30BXA-4-CNC<br>(1) D30BXA-7-71C | (1) D35CXA-1<br>(1) D35CXA-2<br>(1) D35CXA-4-CNC<br>(1) D35CXA-7-71C | (1) D40CA-1<br>(1) D40CA-2<br>(1) D40CA-4-CNC<br>(1) D40CA-7-71C | (1) D50DA-1<br>(1) D50DA-2<br>(1) D50DA-4-CNC<br>(1) D50DA-7-71C | (1) D60EA-1<br>(1) D60EA-2<br>(1) D60EA-4-CNC<br>(1) D60EA-7-71C |

## SUPER Quick Change **First Time Buyer Set** Includes **FREE TOOLING**

Set Includes:

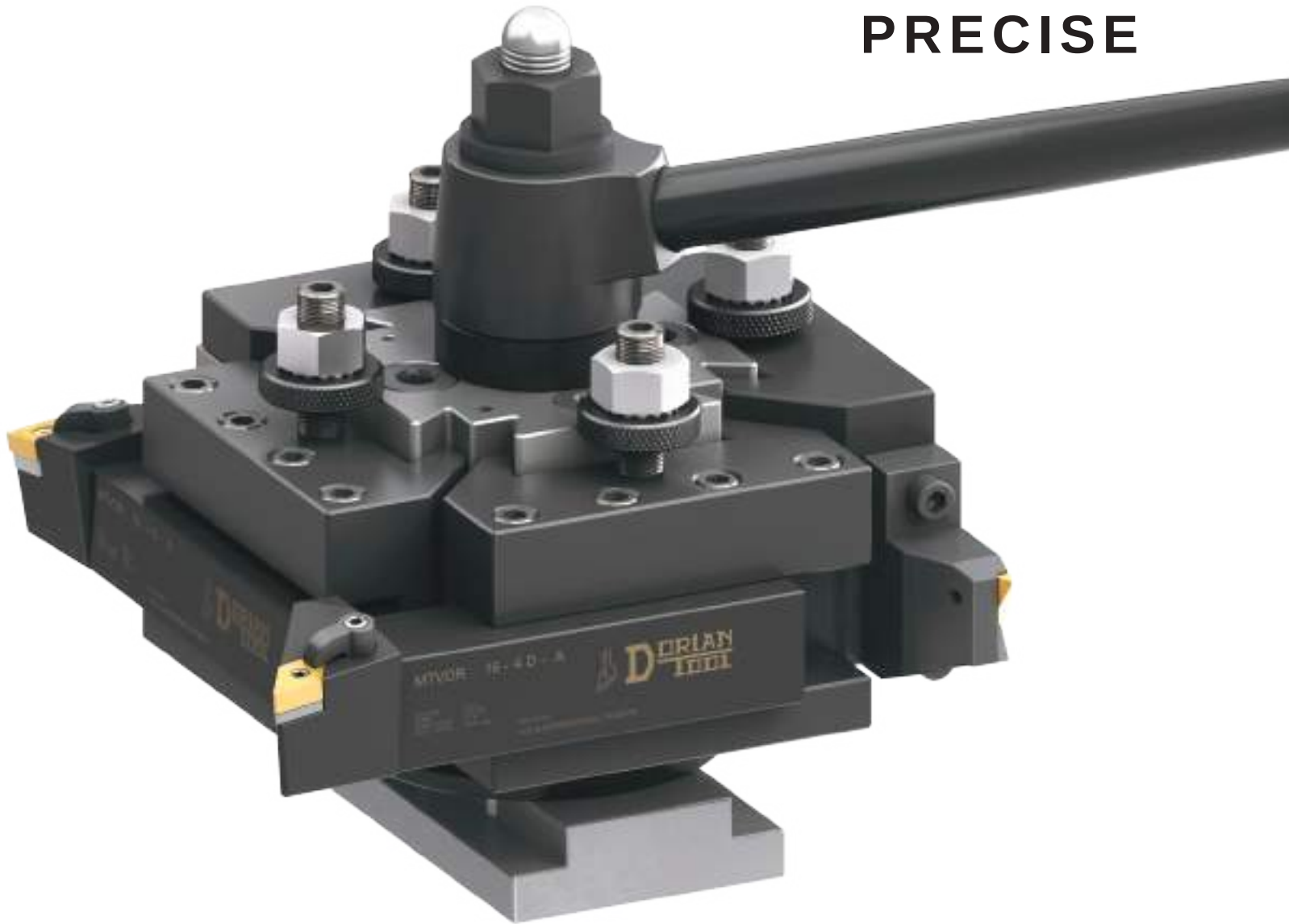
- (1) Tool Post  
(4) Holders  
(4) Toolholders **FREE**  
(5) Inserts **FREE**



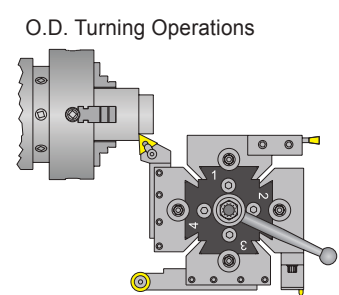
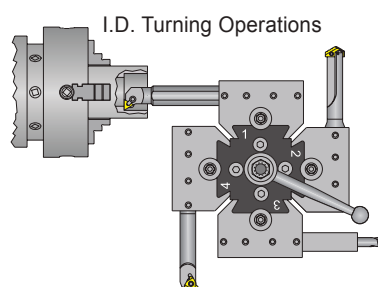
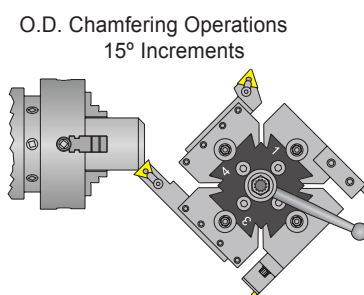
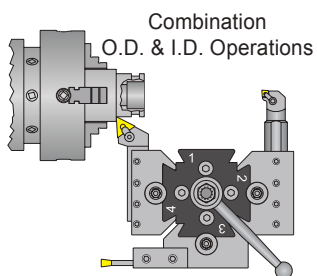
| UPC #               | 01056                                                                                                   | 01058                                                                                                   | 01060                                                                                                   | 01062                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Description         | SDN25AXA-FTB                                                                                            | SDN30BXA-FTB                                                                                            | SDN35CXA-FTB                                                                                            | SDN40CA-FTB                                                                                             |
| <b>Set Includes</b> |                                                                                                         |                                                                                                         |                                                                                                         |                                                                                                         |
| (1) Tool Post       | SDN25AXA                                                                                                | SDN30BXA                                                                                                | SDN35CXA                                                                                                | SDN40CA                                                                                                 |
| (4) Holders         | D25AXA-1<br>D25AXA-2<br>D25AXA-7-71C<br>D25AXA-881-OE                                                   | D30BXA-1<br>D30BXA-2<br>D30BXA-7-71C<br>D30BXA-881-OE                                                   | D35CXA-1<br>D35CXA-2<br>D35CXA-7-71C<br>D35CXA-881-OE                                                   | D40CA-1<br>D40CA-2<br>D40CA-7-71C<br>D40CA-881-OE                                                       |
| <b>Free Tooling</b> |                                                                                                         |                                                                                                         |                                                                                                         |                                                                                                         |
| (4) Toolholders     | STNCR08-2J<br>STCMB06-2<br>SGIH19-2<br>NL50R                                                            | STNCR10-2A<br>STCMB08-2<br>SGIH19-2<br>NL50R                                                            | STNCR12-3B<br>STCMB10-2<br>SGIH26-3<br>NL75R                                                            | STNCR64-3D<br>STCMB12-3<br>SGIH26-3<br>NL75R                                                            |
| (5) Inserts         | TCMT-21.51-PEM-DPC25UT<br>TCMT-21.52-PEM-DPC25UT<br>SGTN-2-DC656<br>TNMC-32NV-DVP656<br>11IR-A60-DVP656 | TCMT-21.51-PEM-DPC25UT<br>TCMT-21.52-PEM-DPC25UT<br>SGTN-2-DC656<br>TNMC-32NV-DVP656<br>11IR-A60-DVP656 | TCMT-21.51-PEM-DPC25UT<br>TCMT-32.52-PEM-DPC25UT<br>SGTN-3-DC656<br>TNMC-32NV-DVP656<br>16IR-A60-DVP656 | TCMT-21.51-PEM-DPC25UT<br>TCMT-32.52-PEM-DPC25UT<br>SGTN-3-DC656<br>TNMC-32NV-DVP656<br>16IR-A60-DVP656 |

# QUADRA INDEXING QUICK CHANGE

STRONG  
RIGID, QUICK  
&  
**PRECISE**



## 4 Toolholders Held Simultaneously!



# NEW LOCKING & INDEXABLE SYSTEM

with 24 SUPER PRECISE POSITIONING BALL BEARINGS & 2 PRE-LOADED INDEXING PINS

## Tool Post Indexing

- Indexing Flexibility every 15°
- 24 Locking Positions
- Multi-position of the locking handle
- Instant Tool Repositioning
- From Prototypes to High Production

## Quick Change Tool Holders

- 4 Tool Holders Locked Simultaneously
- 1 to 4 Tool Holders ready to be used
- Positive Lock with absolute zero backlash
- Tool holder repeatability within .0001"
- Indexing repeatability within .00005"

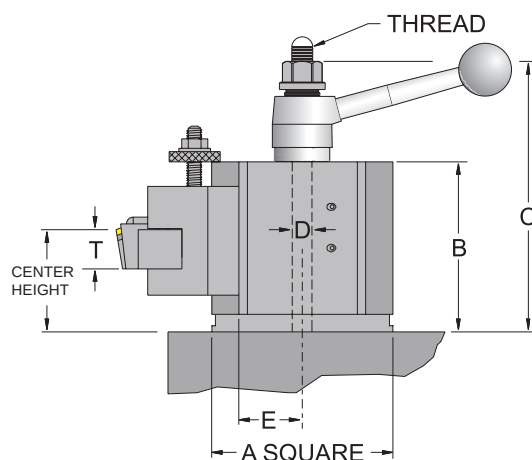
## Tool Post Application

- 6 sizes of Tool Post available
- From tool room to oil country lathes
- Quick and versatile for finishing
- Strong for heavy-duty roughing
- Easy to install
- Maintenance free

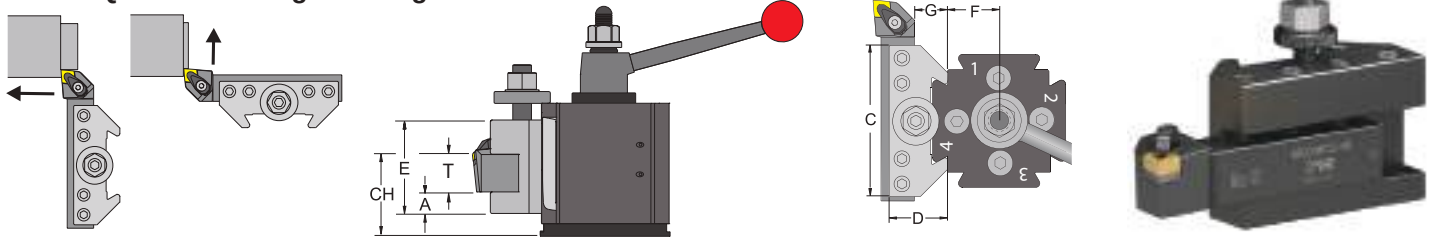


| Description            | QITP25N | QITP30N | QITP35N | QITP40N   | QITP50N       | QITP60N  |
|------------------------|---------|---------|---------|-----------|---------------|----------|
| UPC #                  | 00000   | 00002   | 00004   | 00006     | 00008         | 00010    |
| Lathe Swing 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 Center Height* | 1.422   | 1.747   | 1.835   | 2.202     | 2.995         | 3.440    |
| Min.Center Height      | 0.995   | 1.213   | 1.445   | 1.757     | 2.245         | 2.750    |
| Max.Center Height      | 1.849   | 2.282   | 2.225   | 2.646     | 3.744         | 4.129    |
| Holding Post Thread    | 1/2-20  | 1/2-20  | 5/8-18  | 3/4-16    | 1.0-14        | 1 1/2-12 |

\*Optimum center height is calculated with the smaller tool System of the tool capacity.



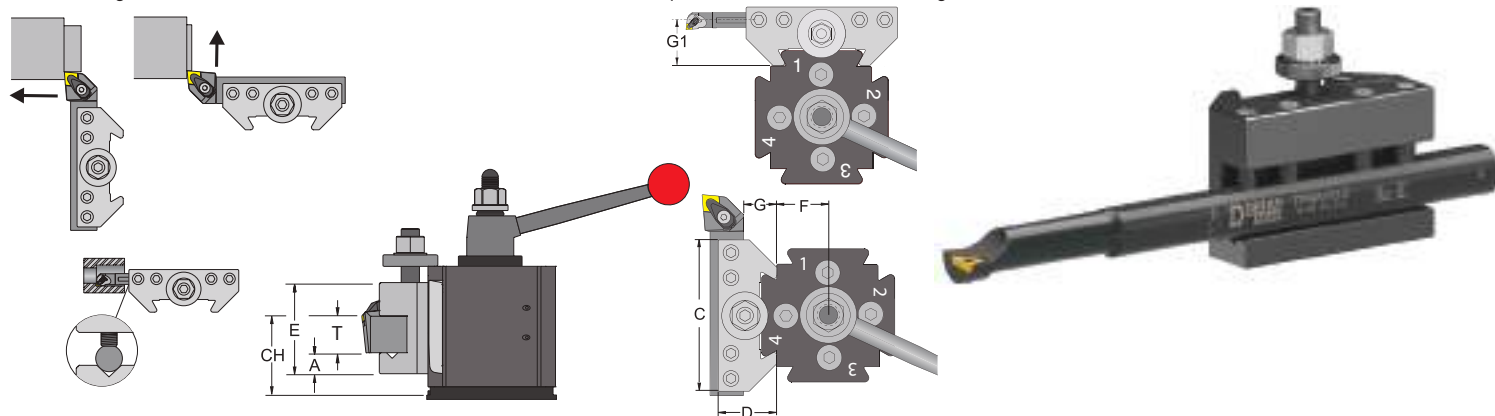
### No. QITPN-1 Turning & Facing Tool holder



| Description | UPC # | A     | T     | C     | D     | E     | F     | G     |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| QITP25N-1   | 00100 | 0.375 | 0.750 | 2.750 | 1.240 | 1.740 | 0.880 | 0.770 |
| QITP30N-1   | 00250 | 0.437 | 1.000 | 3.250 | 1.490 | 2.240 | 1.115 | 0.890 |
| QITP35N-1   | 00400 | 0.500 | 1.000 | 3.750 | 1.740 | 2.490 | 1.245 | 1.010 |
| QITP40N-1   | 00550 | 0.562 | 1.250 | 4.500 | 1.990 | 2.990 | 1.530 | 1.040 |
| QITP50N-1   | 00700 | 0.750 | 1.500 | 6.000 | 2.490 | 3.490 | 1.900 | 1.290 |
| QITP60N-1   | 00850 | 1.000 | 1.500 | 7.000 | 2.990 | 3.990 | 2.207 | 1.540 |

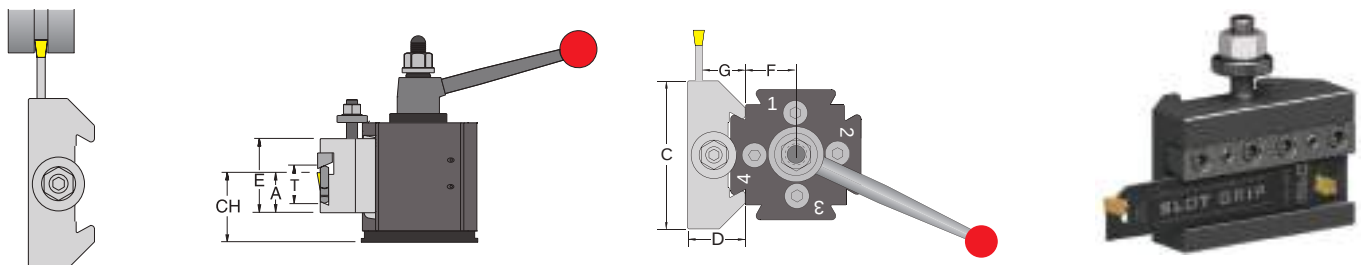
### No. QITPN-2 Turning, Facing & Boring Tool holder

The "V" groove makes this holder more versatile so that it can hold either square shank tool holders or boring bars.



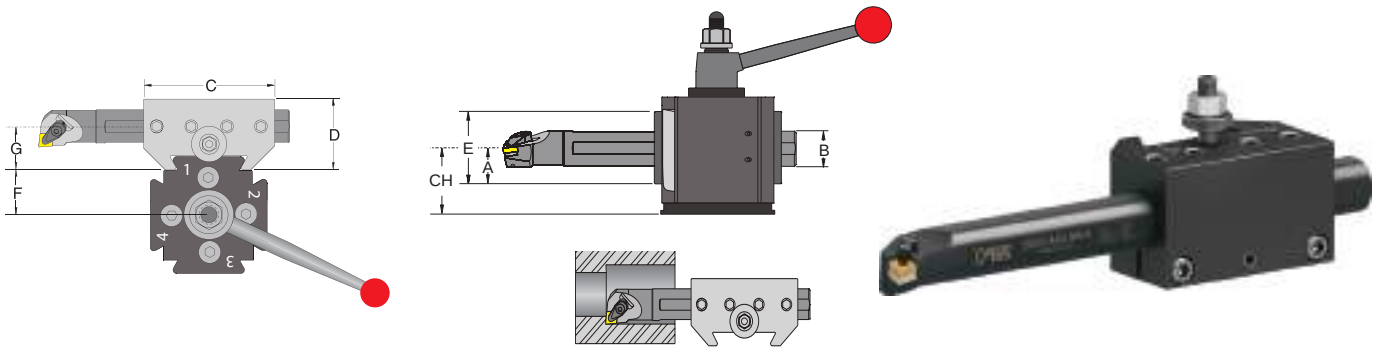
| Description | UPC # | A     | T     | C     | D     | E     | F     | G     | G1    |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| QITP25N-2   | 00104 | 0.375 | .750  | 2.750 | 1.240 | 1.740 | 0.880 | 0.770 | 1.030 |
| QITP30N-2   | 00254 | 0.437 | 1.000 | 3.250 | 1.490 | 2.240 | 1.115 | 0.890 | 1.210 |
| QITP35N-2   | 00404 | 0.500 | 1.000 | 3.750 | 1.740 | 2.490 | 1.245 | 1.010 | 1.410 |
| QITP40N-2   | 00554 | 0.562 | 1.250 | 4.500 | 1.990 | 2.990 | 1.530 | 1.040 | 1.575 |
| QITP50N-2   | 00704 | 0.750 | 1.500 | 6.000 | 2.490 | 3.490 | 1.900 | 1.290 | 1.950 |
| QITP60N-2   | 00854 | 1.000 | 1.500 | 7.000 | 2.990 | 3.990 | 2.207 | 1.540 | 2.340 |

### No. QITPN-7-71C Extra Heavy Duty Cut-Off Blade Tool holder



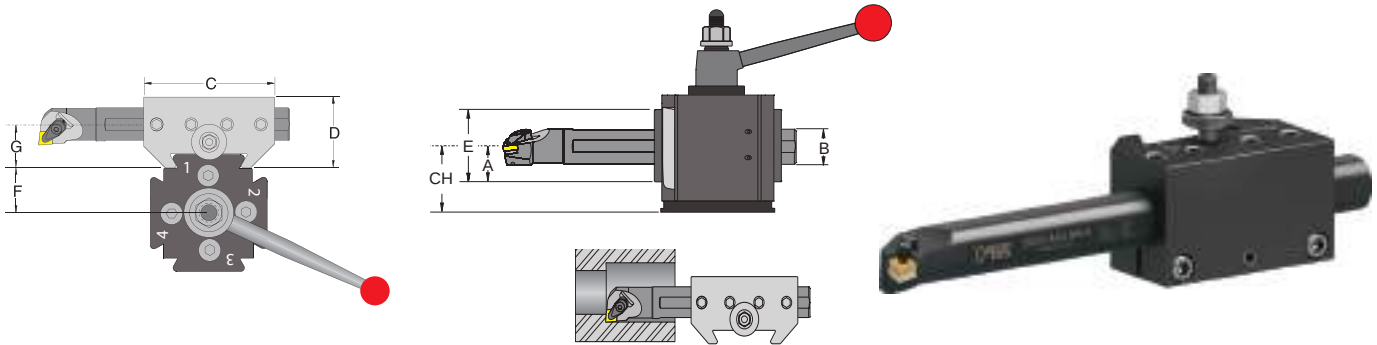
| Description   | UPC # | A     | Slot Grip Blade<br>T | C     | D     | E     | F     | G     |
|---------------|-------|-------|----------------------|-------|-------|-------|-------|-------|
| QITP25N-7-71C | 00126 | 0.933 | SGIH-19-2            | 2.750 | 1.250 | 2.000 | 0.880 | 1.127 |
| QITP30N-7-71C | 00276 | 0.933 |                      | 3.250 | 1.250 | 2.000 | 1.115 | 1.127 |
| QITP35N-7-71C | 00428 | 1.255 | SGIH-26-2 to 26-6    | 3.750 | 1.750 | 2.500 | 1.245 | 1.520 |
| QITP40N-7-71C | 00576 | 1.255 |                      | 4.500 | 1.750 | 3.000 | 1.530 | 1.520 |
| QITP50N-7-71C | 00726 | 1.483 | SGIH-32-3 to 32-9    | 6.000 | 2.000 | 3.000 | 1.900 | 1.710 |
| QITP60N-7-71C | 00876 | 2.050 |                      | 7.000 | 2.250 | 3.500 | 2.207 | 2.150 |

## No. QITPN-4-DUAL Heavy Duty Boring Bar Tool holder



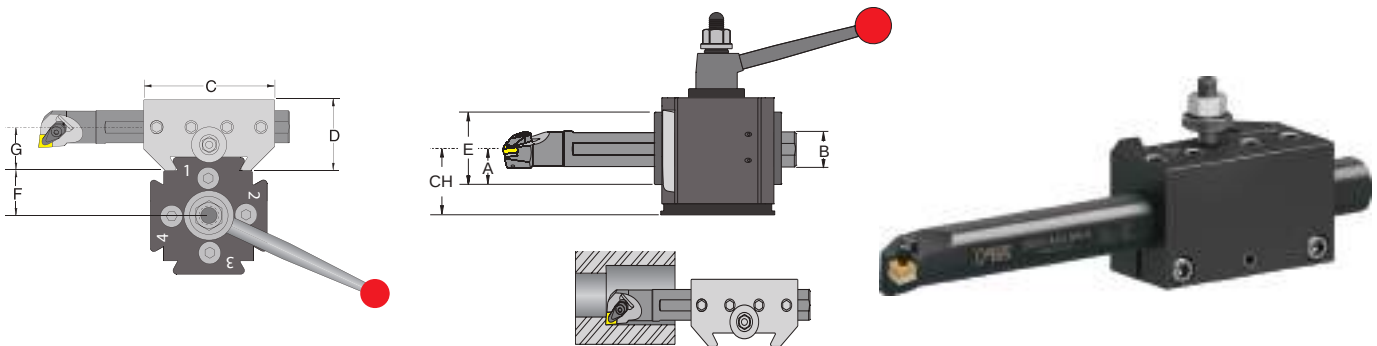
| Description         | UPC # | Boring Bar Capacity |       |       |       |       |       |       |
|---------------------|-------|---------------------|-------|-------|-------|-------|-------|-------|
|                     |       | A                   | B     | C     | D     | E     | F     | G     |
| QITP25N-4-750-DUAL  | 00111 | 0.745               | 0.750 | 2.750 | 1.490 | 1.490 | 0.880 | 0.937 |
| QITP30N-4-1000-DUAL | 00261 | 0.995               | 1.000 | 3.250 | 1.990 | 1.990 | 1.115 | 1.250 |
| QITP35N-4-1000-DUAL | 00411 | 1.120               | 1.000 | 3.750 | 2.240 | 2.240 | 1.245 | 1.375 |
| QITP40N-4-1250-DUAL | 00561 | 1.245               | 1.250 | 4.500 | 2.490 | 2.490 | 1.530 | 1.500 |
| QITP50N-4-1500-DUAL | 00711 | 1.495               | 1.500 | 5.500 | 2.990 | 2.990 | 1.900 | 2.000 |
| QITP60N-4-2000-DUAL | 00861 | 1.995               | 2.000 | 6.500 | 3.990 | 3.990 | 2.207 | 2.500 |

## No. QITPN-41-DUAL Extra Heavy Duty Boring Bar Tool holder



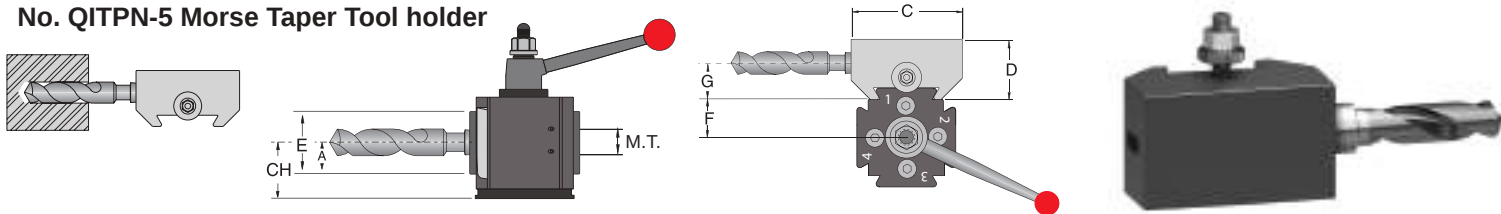
| Description          | UPC # | Boring Bar Capacity |       |       |       |       |       |       |
|----------------------|-------|---------------------|-------|-------|-------|-------|-------|-------|
|                      |       | A                   | B     | C     | D     | E     | F     | G     |
| QITP35N-41-1250-DUAL | 00413 | 1.120               | 1.250 | 3.750 | 2.240 | 2.240 | 1.245 | 1.375 |
| QITP40N-41-1500-DUAL | 00563 | 1.370               | 1.500 | 4.500 | 2.740 | 2.740 | 1.530 | 1.625 |
| QITP50N-41-2000-DUAL | 00713 | 1.745               | 2.000 | 5.500 | 3.490 | 3.490 | 1.900 | 2.250 |
| QITP60N-41-2500-DUAL | 00863 | 2.245               | 2.500 | 6.500 | 4.490 | 4.490 | 2.207 | 2.750 |

## No. DQ-41S-DUAL Super Over Sized Boring Bar Tool holder



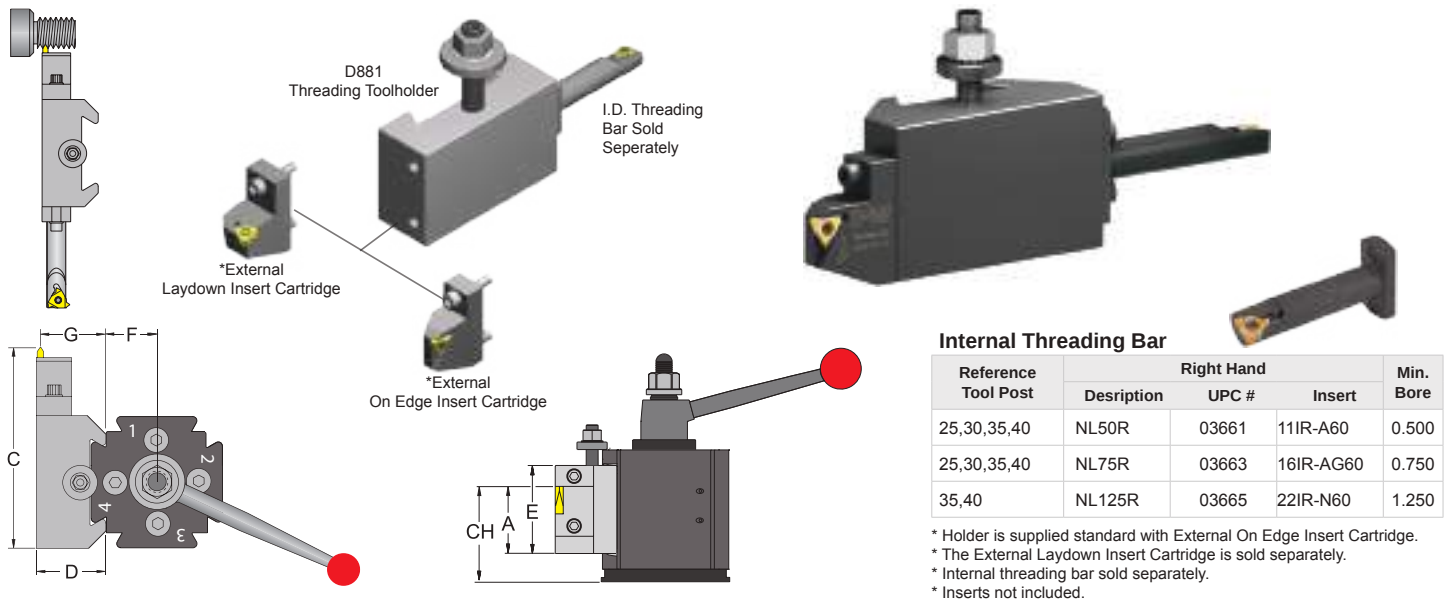
| Description           | UPC # | Boring Bar Capacity |       |       |       |       |       |       |
|-----------------------|-------|---------------------|-------|-------|-------|-------|-------|-------|
|                       |       | A                   | B     | C     | D     | E     | F     | G     |
| DQ35CXA-41S-1500-DUAL | 00415 | 1.245               | 1.500 | 4.000 | 2.490 | 2.490 | 1.245 | 1.500 |
| DQ40CA-41S-2000-DUAL  | 00565 | 1.495               | 2.000 | 4.500 | 2.990 | 2.990 | 1.530 | 1.750 |
| DQ50DA-41S-2500-DUAL  | 00715 | 1.995               | 2.500 | 6.500 | 3.990 | 3.990 | 1.900 | 2.250 |
| DQ60EA-41S-3000-DUAL  | 00865 | 2.245               | 3.000 | 7.000 | 4.490 | 4.490 | 2.207 | 2.625 |

## No. QITPN-5 Morse Taper Tool holder



| Description | UPC # | A     | Morse Taper | C     | D     | E     | F     | G     |
|-------------|-------|-------|-------------|-------|-------|-------|-------|-------|
| QITP35N-5-4 | 00424 | 1.250 | MT4         | 4.150 | 2.500 | 2.500 | 1.245 | 1.615 |
| QITP40N-5-4 | 00572 | 1.250 | MT4         | 4.500 | 2.500 | 2.500 | 1.530 | 1.615 |
| QITP50N-5-5 | 00722 | 1.750 | MT5         | 5.625 | 3.500 | 3.500 | 1.900 | 2.310 |
| QITP60N-5-5 | 00872 | 1.750 | MT5         | 5.625 | 3.500 | 3.500 | 2.207 | 2.310 |

## No. QITPN-881 O.D. and I.D. Threading Toolholder



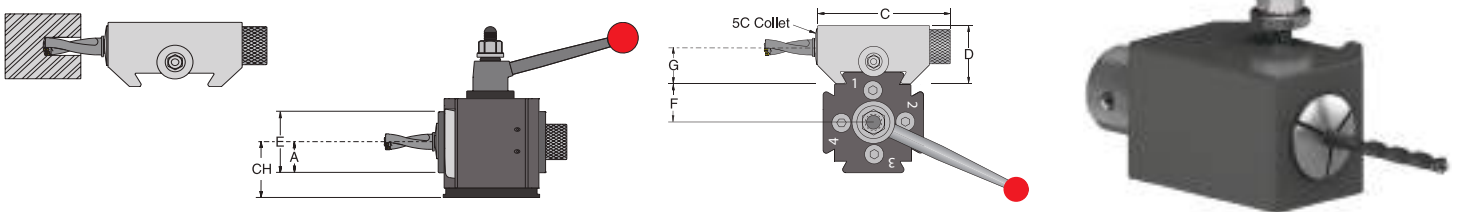
### Internal Threading Bar

| Reference Tool Post | Right Hand  |       |           | Min. Bore |
|---------------------|-------------|-------|-----------|-----------|
|                     | Description | UPC # | Insert    |           |
| 25,30,35,40         | NL50R       | 03661 | 11IR-A60  | 0.500     |
| 25,30,35,40         | NL75R       | 03663 | 16IR-AG60 | 0.750     |
| 35,40               | NL125R      | 03665 | 22IR-N60  | 1.250     |

\* Holder is supplied standard with External On Edge Insert Cartridge.  
 \* The External Laydown Insert Cartridge is sold separately.  
 \* Internal threading bar sold separately.  
 \* Inserts not included.

|                |       |       |       |       |       |       |       | *External On Edge Insert Cartridge |       |             |            |          | *External Laydown Insert Cartridge |       |           |            |          |
|----------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------|-------|-------------|------------|----------|------------------------------------|-------|-----------|------------|----------|
| Description    | UPC # | A     | C     | D     | E     | F     | G     | Description                        | UPC # | TNMC Insert | Torx Screw | Torx Key | Description                        | UPC # | Insert    | Torx Screw | Torx Key |
| QITP25N-881-OE | 00132 | 0.875 | 4.130 | 1.250 | 1.750 | 0.880 | 1.000 | TIH253-32                          | 03621 | 32          | GTS-1M     | T-10     | NL253-3R                           | 03635 | 16ER-AG60 | TS-16      | T-10     |
| QITP30N-881-OE | 00282 | 1.000 | 4.630 | 1.500 | 2.000 | 1.115 | 1.250 |                                    |       |             |            |          |                                    |       |           |            |          |
| QITP35N-881-OE | 00434 | 1.250 | 5.630 | 1.750 | 2.500 | 1.245 | 1.435 | TIH354-32                          | 03623 | 32          | GTS-1M     | T-10     | NL354-3R                           | 03637 | 16ER-AG60 | TS-16      | T-10     |
| QITP40N-881-OE | 00582 | 1.500 | 6.130 | 1.750 | 2.500 | 1.530 | 1.435 |                                    |       |             |            |          |                                    |       |           |            |          |

## No. QITPN-36 5C Collet Tool holder



| Description | UPC # | A     | C     | D     | E     | F     | G     |
|-------------|-------|-------|-------|-------|-------|-------|-------|
| QITP25N-36  | 00142 | 1.125 | 4.250 | 2.500 | 2.250 | 0.880 | 1.500 |
| QITP30N-36  | 00292 | 1.125 | 4.250 | 2.500 | 2.250 | 1.115 | 1.500 |
| QITP35N-36  | 00444 | 1.375 | 4.500 | 2.750 | 2.750 | 1.245 | 1.625 |
| QITP40N-36  | 00592 | 1.375 | 5.000 | 2.750 | 2.750 | 1.530 | 1.625 |

## Quadra® Indexing Quick Change Tool Post Turning Set

### Turning Set Includes

- (1) Tool Post  
(4) Holders

Tooling Not Included



| UPC #               | 00014                          | 00015                          | 00016                          | 00017                          | 00018                          | 00019                          |
|---------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Description         | QITP25N-TS                     | QITP30N-TS                     | QITP35N-TS                     | QITP40N-TS                     | QITP50N-TS                     | QITP60N-TS                     |
| <b>Set Includes</b> |                                |                                |                                |                                |                                |                                |
| (1) Tool Post       | QITP25N                        | QITP30N                        | QITP35N                        | QITP40N                        | QITP50N                        | QITP60N                        |
| (4) Holders         | (2) QITP25N-1<br>(2) QITP25N-2 | (2) QITP30N-1<br>(2) QITP30N-2 | (2) QITP35N-1<br>(2) QITP35N-2 | (2) QITP40N-1<br>(2) QITP40N-2 | (2) QITP50N-1<br>(2) QITP50N-2 | (2) QITP60N-1<br>(2) QITP60N-2 |

### Standard Set Includes

- (1) Tool Post  
(4) Holders

Tooling Not Included



| UPC #               | 00020                                                                    | 00021                                                                    | 00022                                                                    | 00023                                                                    | 00024                                                                    | 00025                                                                    |
|---------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Description         | QITP25N-INSS                                                             | QITP30N-INSS                                                             | QITP35N-INSS                                                             | QITP40N-INSS                                                             | QITP50N-INSS                                                             | QITP60N-INSS                                                             |
| <b>Set Includes</b> |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |                                                                          |
| (1) Tool Post       | QITP25N                                                                  | QITP30N                                                                  | QITP35N                                                                  | QITP40N                                                                  | QITP50N                                                                  | QITP60N                                                                  |
| (4) Holders         | (1) QITP25N-1<br>(1) QITP25N-2<br>(1) QITP25N-4-CNC<br>(1) QITP25N-7-71C | (1) QITP30N-1<br>(1) QITP30N-2<br>(1) QITP30N-4-CNC<br>(1) QITP30N-7-71C | (1) QITP35N-1<br>(1) QITP35N-2<br>(1) QITP35N-4-CNC<br>(1) QITP35N-7-71C | (1) QITP40N-1<br>(1) QITP40N-2<br>(1) QITP40N-4-CNC<br>(1) QITP40N-7-71C | (1) QITP50N-1<br>(1) QITP50N-2<br>(1) QITP50N-4-CNC<br>(1) QITP50N-7-71C | (1) QITP60N-1<br>(1) QITP60N-2<br>(1) QITP60N-4-CNC<br>(1) QITP60N-7-71C |

## Quadra® First Time Buyer SET Includes FREE TOOLING

Set Includes:

- (1) Tool Post  
(4) Holders  
(4) Toolholders **FREE**  
(5) Inserts **FREE**



| UPC #               | 00056                                                                                                   | 00058                                                                                                   | 00060                                                                                                   | 00062                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Description         | QITP25N-FTB                                                                                             | QITP30N-FTB                                                                                             | QITP35N-FTB                                                                                             | QITP40N-FTB                                                                                             |
| <b>Set Includes</b> |                                                                                                         |                                                                                                         |                                                                                                         |                                                                                                         |
| (1) Tool Post       | QITP25N                                                                                                 | QITP30N                                                                                                 | QITP35N                                                                                                 | QITP40N                                                                                                 |
| (4) Holders         | QITP25N-1<br>QITP25N-2<br>QITP25N-7-71C<br>QITP25N-881-OE                                               | QITP30N-1<br>QITP30N-2<br>QITP30N-7-71C<br>QITP30N-881-OE                                               | QITP35N-1<br>QITP35N-2<br>QITP35N-7-71C<br>QITP35N-881-OE                                               | QITP40N-1<br>QITP40N-2<br>QITP40N-7-71C<br>QITP40N-881-OE                                               |
| <b>Free Tooling</b> |                                                                                                         |                                                                                                         |                                                                                                         |                                                                                                         |
| (4) Toolholders     | STNCR08-2J<br>STCMB08-2<br>SGIH19-2<br>NL50R                                                            | STNCR10-2A<br>STCMB08-2<br>SGIH19-2<br>NL50R                                                            | STNCR12-3B<br>STCMB10-2<br>SGIH26-3<br>NL75R                                                            | STNCR64-3D<br>STCMB12-3<br>SGIH26-3<br>NL75R                                                            |
| (5) Inserts         | TCMT-21.51-PEM-DPC25UT<br>TCMT-21.52-PEM-DPC25UT<br>SGTN-2-DC656<br>TNMC-32NV-DVP656<br>11IR-A60-DVP656 | TCMT-21.51-PEM-DPC25UT<br>TCMT-21.52-PEM-DPC25UT<br>SGTN-2-DC656<br>TNMC-32NV-DVP656<br>11IR-A60-DVP656 | TCMT-21.51-PEM-DPC25UT<br>TCMT-32.52-PEM-DPC25UT<br>SGTN-3-DC656<br>TNMC-32NV-DVP656<br>16IR-A60-DVP656 | TCMT-32.51-PEM-DPC25UT<br>TCMT-32.52-PEM-DPC25UT<br>SGTN-3-DC656<br>TNMC-32NV-DVP656<br>16IR-A60-DVP656 |



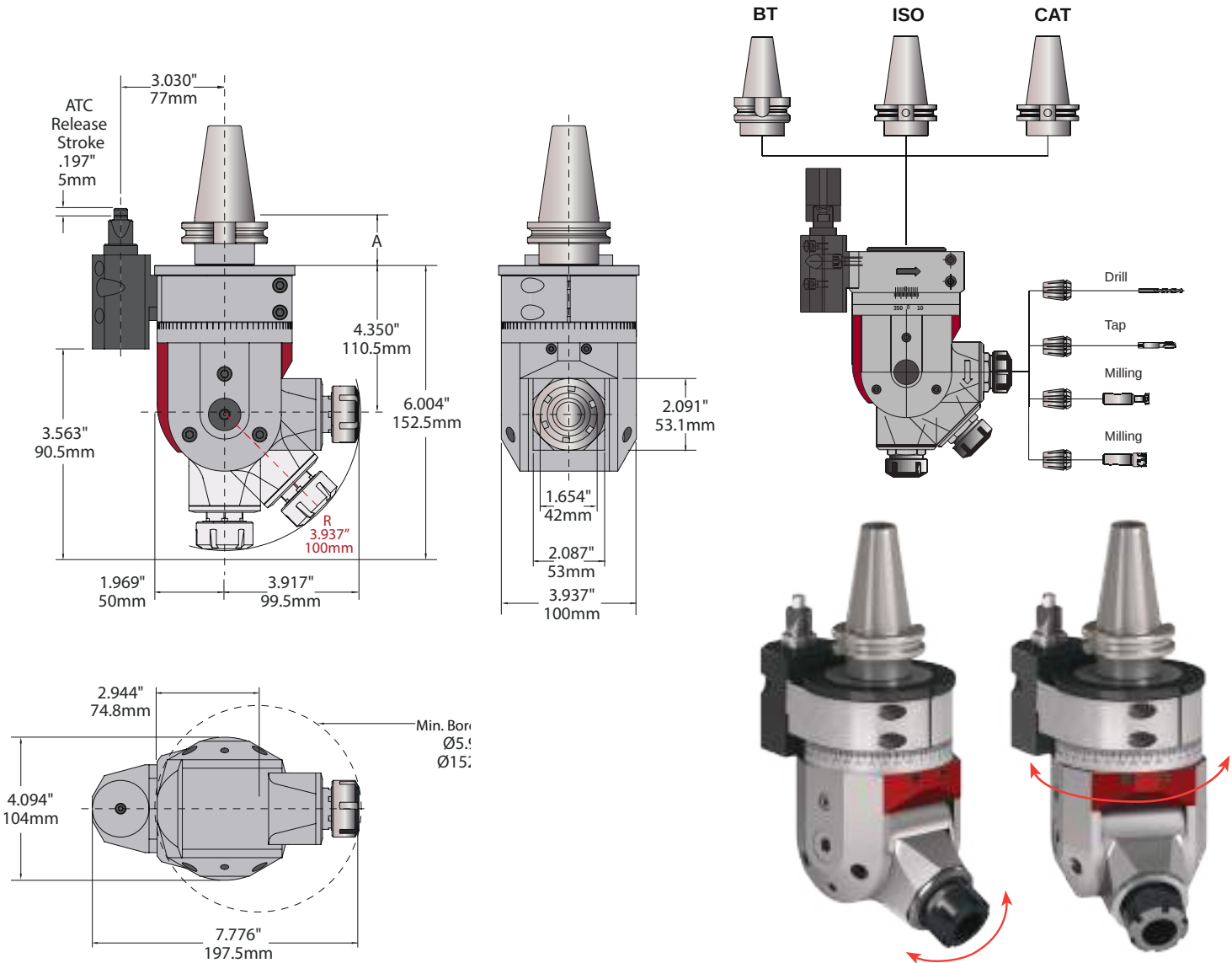
# MODULAR CNC ADJUSTABLE ANGLE HEADS

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.

## PLCNC-AAH-ER25 - Pivoting Modular CNC Angle Head

- 4000 rpm max.
- ER25 Collet System
- 11 lb.ft. torque
- 1 to 1 Driving Ratio
- 5/8" max tool shank size
- 14.5 lb weight
- Automatic tool change capability
- Capable of machining in two axial positioning angles
- Designed to perform any CNC medium duty operations
- Interchangeable spindle taper holder for CAT, ISO & BT Spindles

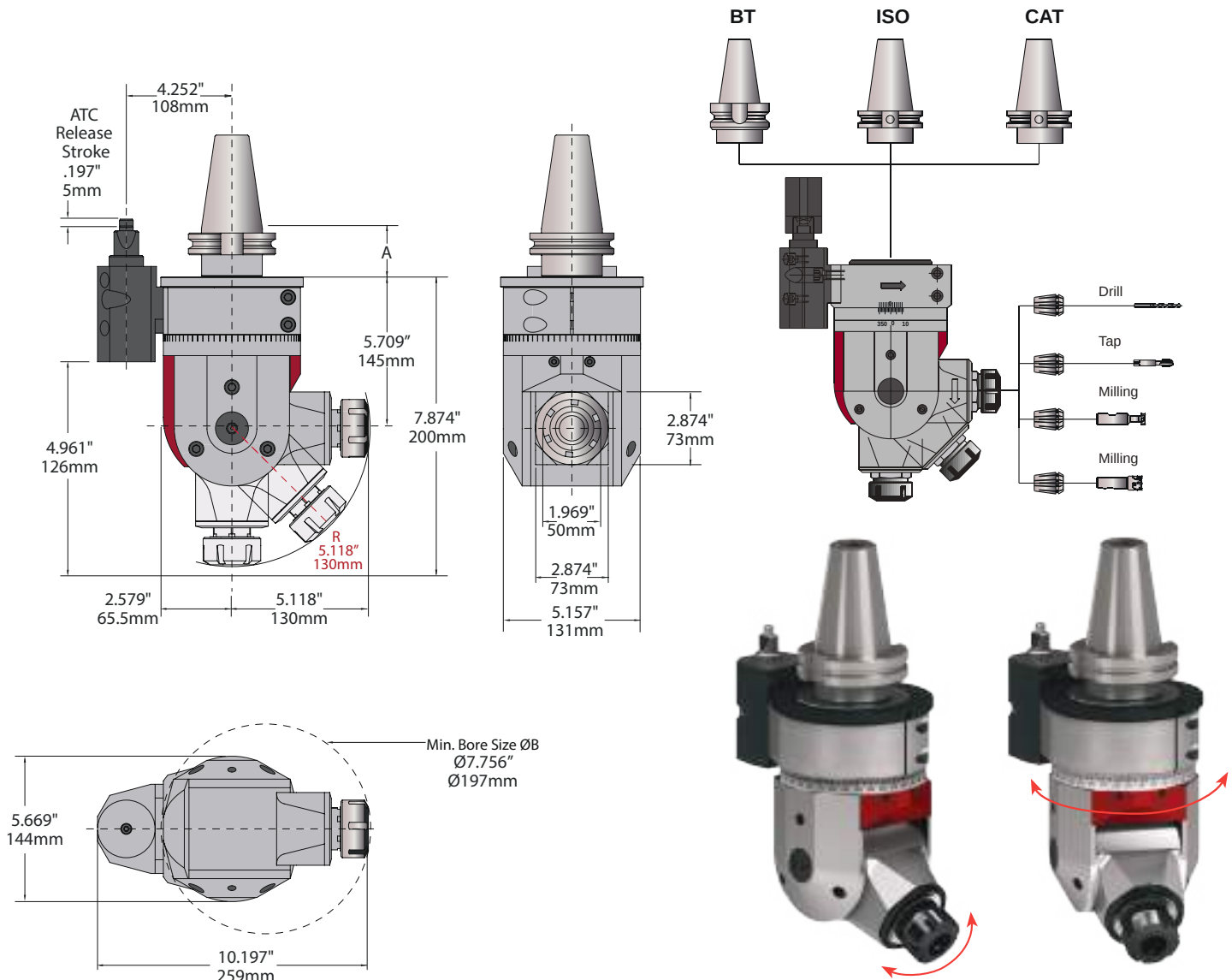


| Shank Style    | Description               | UPC # | Torque<br>Nm | Torque<br>lb.ft | Driving<br>Ratio | Max<br>RPM | A<br>Gage Line | Collet Size | Max. Tool<br>Cap. Dia. | Max. Tap Size | *Max Slotting<br>Cutter I.D. | **Weight |
|----------------|---------------------------|-------|--------------|-----------------|------------------|------------|----------------|-------------|------------------------|---------------|------------------------------|----------|
| ISO40-DIN69871 | PLCNC-AAH-ER25-40DIN69871 | 45951 | 15           | 11              | 1 To 1           | 4000       | 0.520          | ER25        | 0.625                  | 0.625         | 1.250                        | 14.3     |
| BT40           | PLCNC-AAH-ER25-BT40       | 45952 |              |                 |                  |            | 1.378          |             |                        |               |                              |          |
| CAT40          | PLCNC-AAH-ER25-CAT40      | 45953 |              |                 |                  |            | 1.457          |             |                        |               |                              |          |
| ISO50-DIN69871 | PLCNC-AAH-ER25-50DIN69871 | 45955 |              |                 |                  |            | 0.724          |             |                        |               |                              |          |
| BT50           | PLCNC-AAH-ER25-BT50       | 45956 |              |                 |                  |            | 1.457          |             |                        |               |                              |          |
| CAT50          | PLCNC-AAH-ER25-CAT50      | 45957 |              |                 |                  |            | 2.047          |             |                        |               |                              |          |

\*\* The weights of the angle heads do not include spindle taper holders.

## PLCNC-AAH-ER32 - Pivoting Modular CNC Angle Head

- 3500 RPM max.
- ER32 Collet System
- 30 lb.ft. torque
- 1 to 1 Driving Ratio
- 3/4" max tool shank size
- 46 lb weight
- Automatic tool change capability
- Designed to perform any CNC heavy duty operations
- Capable of machining in two axial positioning angles
- Interchangeable spindle taper holder for CAT, ISO & BT Spindles

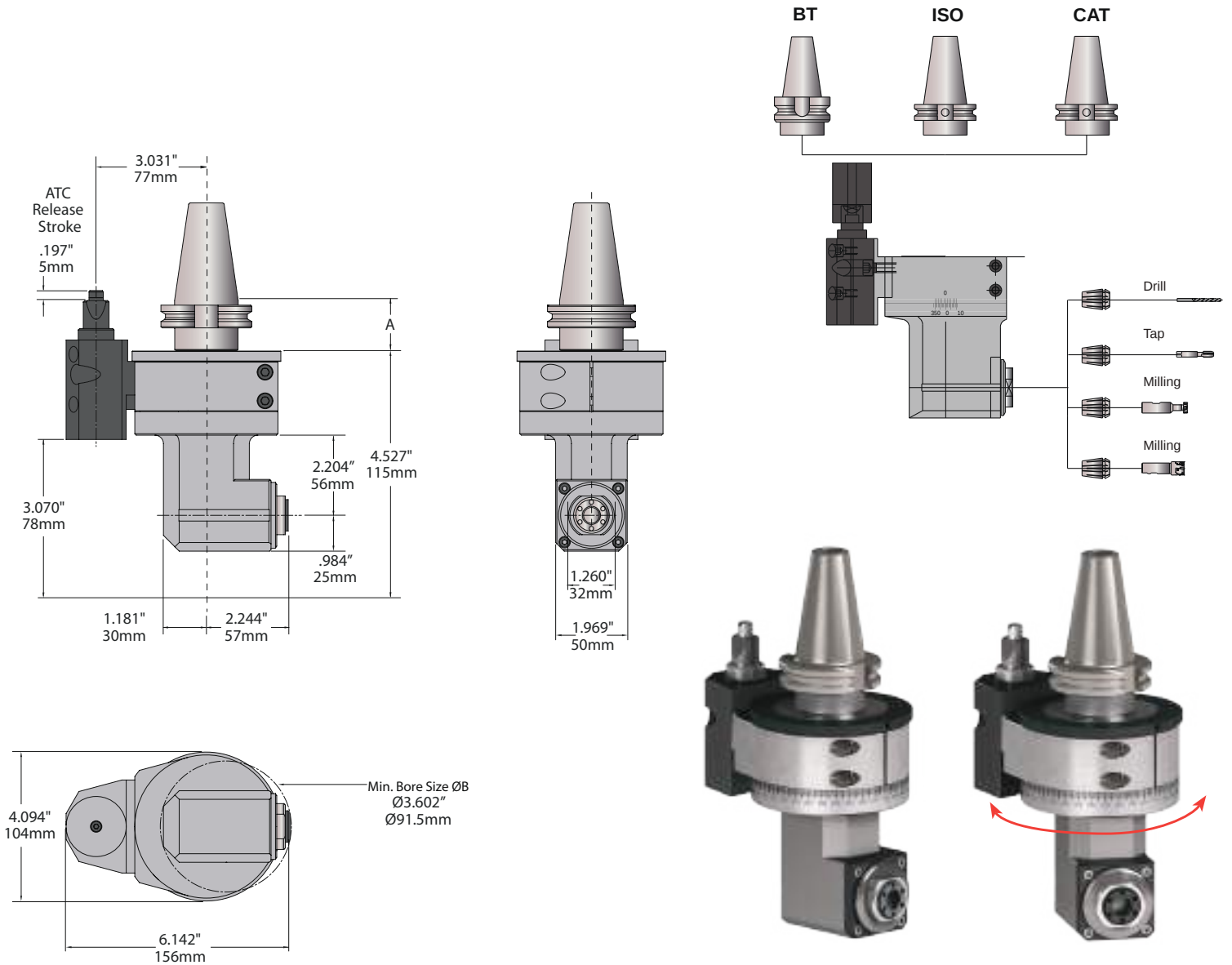


| Shank Style    | Description               | UPC # | Torque<br>Nm | lb.ft | Driving<br>Ratio | Max<br>RPM | A<br>Gage Line | Collet Size | Max. Tool<br>Cap. Dia. | Max. Tap Size | *Max Slotting<br>Cutter I.D. | **Weight |
|----------------|---------------------------|-------|--------------|-------|------------------|------------|----------------|-------------|------------------------|---------------|------------------------------|----------|
| ISO40-DIN69871 | PLCNC-AAH-ER32-40DIN69871 | 45941 | 40           | 29.5  | 1 to 1           | 3500       | 0.520          | ER32        | 0.750                  | 0.812         | 1.500                        | 46.2     |
| BT40           | PLCNC-AAH-ER32-BT40       | 45942 |              |       |                  |            | 1.378          |             |                        |               |                              |          |
| CAT40          | PLCNC-AAH-ER32-CAT40      | 45943 |              |       |                  |            | 1.457          |             |                        |               |                              |          |
| ISO50-DIN69871 | PLCNC-AAH-ER32-50DIN69871 | 45961 |              |       |                  |            | 1.378          |             |                        |               |                              |          |
| BT50           | PLCNC-AAH-ER32-BT50       | 45962 |              |       |                  |            | 1.457          |             |                        |               |                              |          |
| CAT50          | PLCNC-AAH-ER32-CAT50      | 45963 |              |       |                  |            | 2.047          |             |                        |               |                              |          |

\*\* The weights of the angle heads do not include spindle taper holders.

## 90CNC-AAH-ER16- 90° Modular CNC Angle Head

- 4000 RPM max.
- ER16 Collet System
- 5 lb.ft. torque
- 1 to 1 Driving Ratio
- 3/8" max tool shank size
- 14.5 lb weight
- Automatic tool change capability
- Fixed 90° angle head with 0- 360° circular rotation
- Designed for precision machining for small to medium tool applications
- Interchangeable spindle taper holder for CAT, ISO & BT Spindles

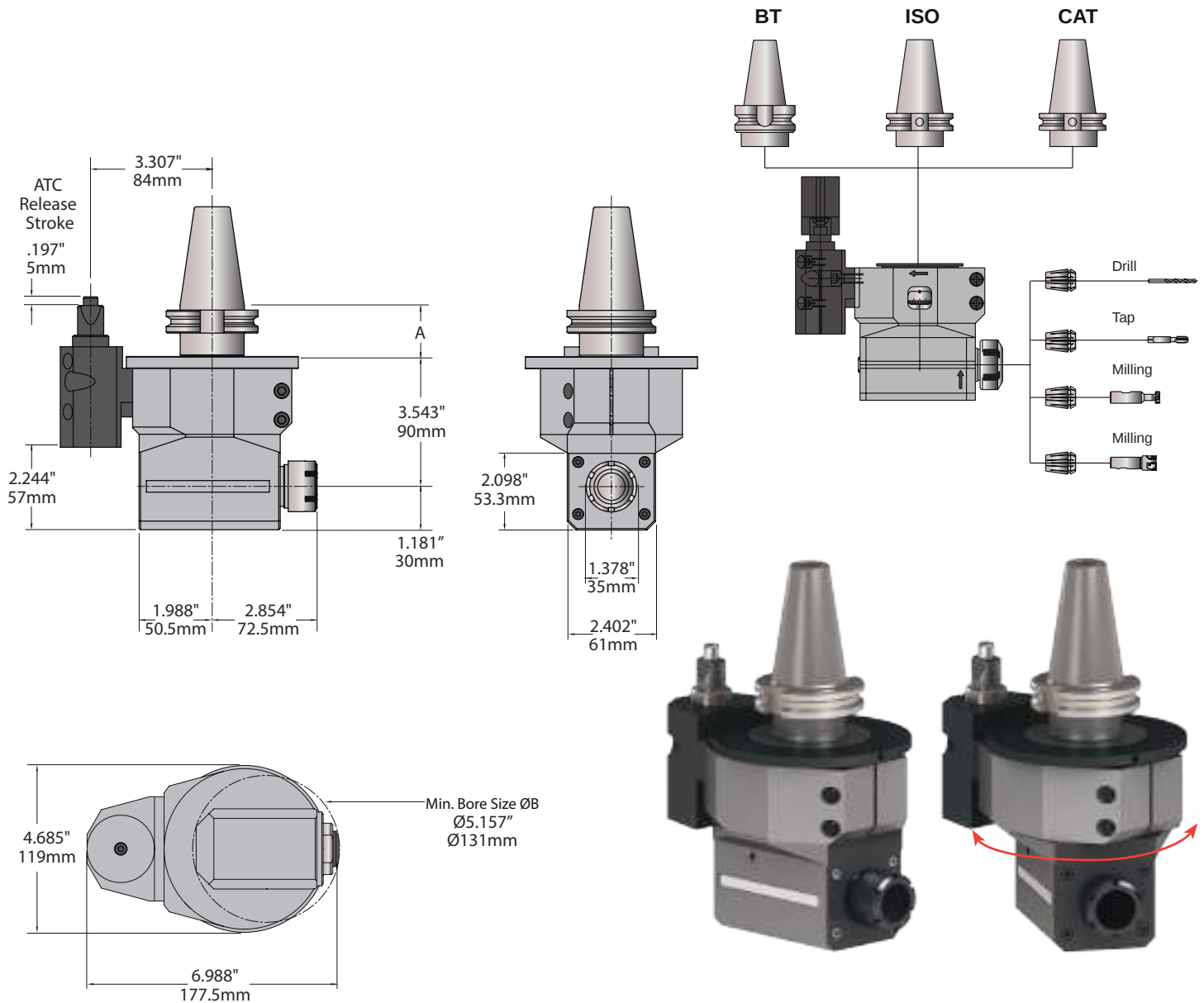


| Shank Style    | Description               | UPC # | Torque<br>Nm | lb.ft | Driving<br>Ratio | Max<br>RPM | A<br>Gage Line | Collet<br>Size | Tool Cap.<br>Dia. | Max. Tap Size | *Max Slotting<br>Cutter I.D. | ** Weight |
|----------------|---------------------------|-------|--------------|-------|------------------|------------|----------------|----------------|-------------------|---------------|------------------------------|-----------|
| ISO40-DIN69871 | 90CNC-AAH-ER16-40DIN69871 | 45966 | 6.5          | 4.8   | 1 to 1           | 4000       | 0.520          | ER16           | 0.375             | 0.312         | -                            | 14.3      |
| BT40           | 90CNC-AAH-ER16-BT40       | 45967 |              |       |                  |            | 1.378          |                |                   |               |                              |           |
| CAT40          | 90CNC-AAH-ER16-CAT40      | 45968 |              |       |                  |            | 1.457          |                |                   |               |                              |           |
| ISO50-DIN69871 | 90CNC-AAH-ER16-50DIN69871 | 45970 |              |       |                  |            | 1.378          |                |                   |               |                              |           |
| BT50           | 90CNC-AAH-ER16-BT50       | 45971 |              |       |                  |            | 1.457          |                |                   |               |                              |           |
| CAT50          | 90CNC-AAH-ER16-CAT50      | 45972 |              |       |                  |            | 2.047          |                |                   |               |                              |           |

\*\* The weights of the angle heads do not include spindle taper holders.

## 90CNC-AAH-ER25 - 90° Modular CNC Angle Head

- 3500 RPM max.
- ER25 Collet System
- 15 lb.ft. torque
- 1 to 1 Driving Ratio
- 5/8" max tool shank size
- 14.5 lb weight
- Automatic tool change capability
- Designed to perform any CNC medium duty operations
- Fixed 90° angle head with 0-360° circular rotation
- Interchangeable spindle taper holder for CAT, ISO & BT Spindles

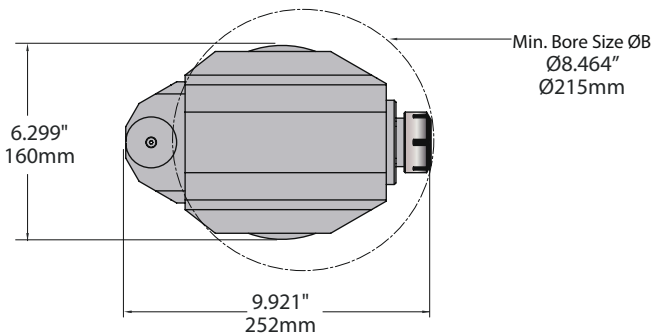
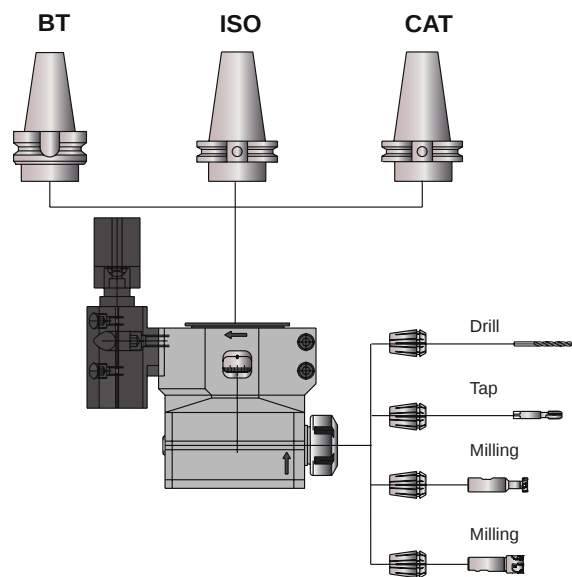
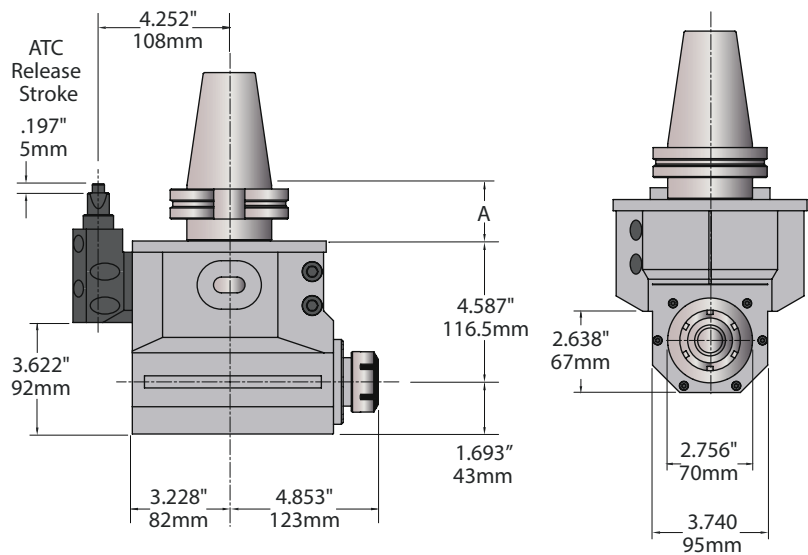


| Shank Style    | Description               | UPC # | Torque<br>Nm | Torque<br>lb.ft | Driving<br>Ratio | Max<br>RPM | A<br>Gage Line | Collet<br>Size | Tool Cap.<br>Dia. | Max. Tap<br>Size | *Max Slotting<br>Cutter I.D. | ** Weight |
|----------------|---------------------------|-------|--------------|-----------------|------------------|------------|----------------|----------------|-------------------|------------------|------------------------------|-----------|
| ISO40-DIN69871 | 90CNC-AAH-ER25-40DIN69871 | 45975 | 20           | 14.7            | 1 to 1           | 3500       | 0.520          | ER25           | 0.625             | 0.625            | 1.250                        | 14.3      |
| BT40           | 90CNC-AAH-ER25-BT40       | 45976 |              |                 |                  |            | 1.378          |                |                   |                  |                              |           |
| CAT40          | 90CNC-AAH-ER25-CAT40      | 45977 |              |                 |                  |            | 1.457          |                |                   |                  |                              |           |
| ISO50-DIN69871 | 90CNC-AAH-ER25-50DIN69871 | 45979 |              |                 |                  |            | 1.378          |                |                   |                  |                              |           |
| BT50           | 90CNC-AAH-ER25-BT50       | 45980 |              |                 |                  |            | 1.457          |                |                   |                  |                              |           |
| CAT50          | 90CNC-AAH-ER25-CAT50      | 45981 |              |                 |                  |            | 2.047          |                |                   |                  |                              |           |

\*\* The weights of the angle heads do not include spindle taper holders.

90CNC-AAH-ER32 - 90° Modular CNC Angle Head

- 3500 RPM max.
  - ER32 Collet System
  - 30 lb.ft. torque
  - 1 to 1 Driving Ratio
  - 3/4" max tool shank size
- 44 lb weight
  - Automatic tool change capability
  - Designed for any fixed 90° heavy duty operations
  - Fixed 90° angle head with 0-360° circular rotation
  - Interchangeable spindle taper holder for CAT, ISO & BT Spindles

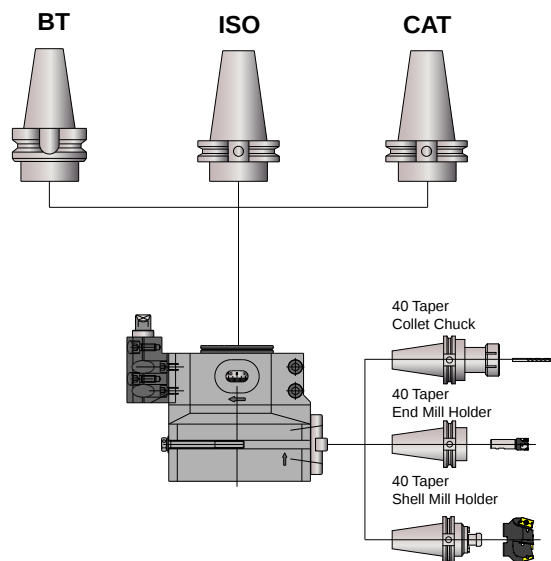
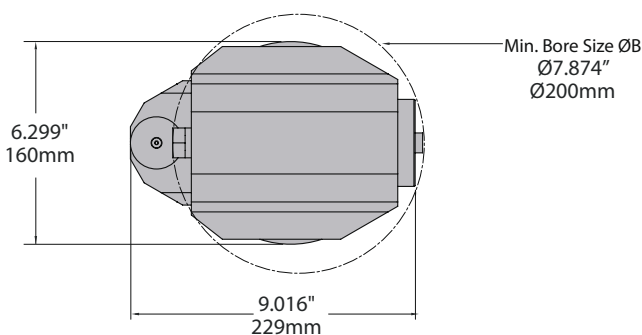
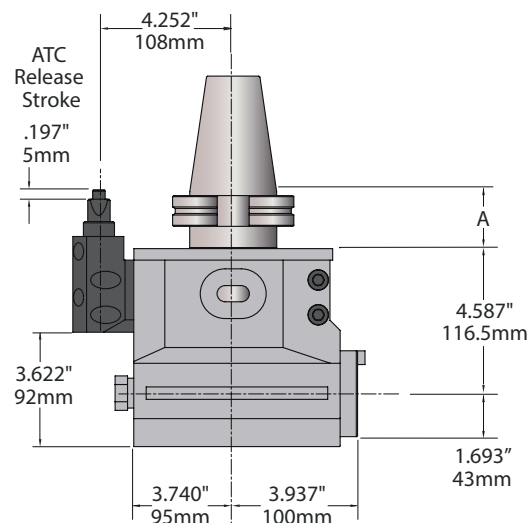


| Shank Style    | Description               | UPC # | Torque<br>Nm<br>lb.ft | Driving<br>Ratio | Max<br>RPM | A<br>Gage Line | Collet<br>Size | Tool Cap.<br>Dia. | Max. Tap<br>Size | *Max Slotting<br>Cutter I.D. | ** Weight |
|----------------|---------------------------|-------|-----------------------|------------------|------------|----------------|----------------|-------------------|------------------|------------------------------|-----------|
| ISO40-DIN69871 | 90CNC-AAH-ER32-40DIN69871 | 45984 | 60                    | 44               | 3500       | 0.520          | ER32           | 0.750             | 0.812            | 1.500                        | 44        |
| BT40           | 90CNC-AAH-ER32-BT40       | 45985 |                       |                  |            | 1.378          |                |                   |                  |                              |           |
| CAT40          | 90CNC-AAH-ER32-CAT40      | 45986 |                       |                  |            | 1.457          |                |                   |                  |                              |           |
| ISO50-DIN69871 | 90CNC-AAH-ER32-50DIN69871 | 45988 |                       |                  |            | 1.378          |                |                   |                  |                              |           |
| BT50           | 90CNC-AAH-ER32-BT50       | 45989 |                       |                  |            | 1.457          |                |                   |                  |                              |           |
| CAT50          | 90CNC-AAH-ER32-CAT50      | 45990 |                       |                  |            | 2.047          |                |                   |                  |                              |           |

\*\* The weights of the angle heads do not include spindle taper holders.

## 90CNC-AAH-TP40 - 90° Modular CNC Angle Head

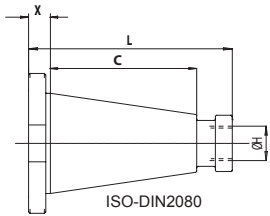
- 2000 RPM max.
- 30 lb.ft. torque
- 1 to 1 Driving Ratio
- 3/4" max tool shank size
- 44 lb weight
- Automatic tool change capability
- Engineered to accept any CAT, ISO, or BT-40 taper holder
- Designed to perform any CNC heavy duty operations
- Fixed 90° angle head with 0-360° circular rotation
- Interchangeable spindle taper holder for CAT, ISO & BT Spindles



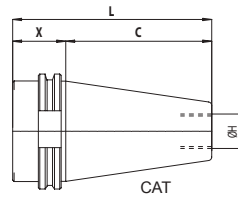
| Shank Style    | Description               | UPC # | Torque |       | Driving Ratio | Max RPM | A Gage Line | Output                 | * Weight |    |
|----------------|---------------------------|-------|--------|-------|---------------|---------|-------------|------------------------|----------|----|
|                |                           |       | Nm     | lb.ft |               |         |             |                        | Kg       | Lb |
| ISO40-DIN69871 | 90CNC-AAH-TP40-40DIN69871 | 45934 | 40     | 29.5  | 1 to 1        | 2000    | 0.520       | ISO40<br>CAT40<br>BT40 | 20       | 44 |
| BT40           | 90CNC-AAH-TP40-BT40       | 45935 |        |       |               |         | 1.378       |                        |          |    |
| CAT40          | 90CNC-AAH-TP40-CAT40      | 45936 |        |       |               |         | 1.457       |                        |          |    |
| ISO50-DIN69871 | 90CNC-AAH-TP40-50DIN69871 | 45994 |        |       |               |         | 1.378       |                        |          |    |
| BT50           | 90CNC-AAH-TP40-BT50       | 45995 |        |       |               |         | 1.457       |                        |          |    |
| CAT50          | 90CNC-AAH-TP40-CAT50      | 45996 |        |       |               |         | 2.047       |                        |          |    |

\* The weights of the angle heads do not include spindle taper holders.

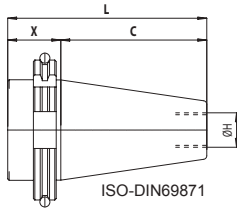
## Spindle Taper Holders CAT-BT-ISO 40/50



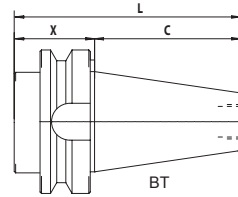
| Style       | ISO40-DIN2080   | ISO50-DIN2080   |
|-------------|-----------------|-----------------|
| Description | AHIS040-DIN2080 | AHIS050-DIN2080 |
| UPC #       | 46003           | 46004           |
| C           | 2.512           | 3.882           |
| H           | M16             | M24             |
| L           | 4.134           | 5.591           |
| X           | .520            | .724            |



| Style       | CAT40   | CAT50   |
|-------------|---------|---------|
| Description | AHCAT40 | AHCAT50 |
| UPC #       | 46001   | 46002   |
| C           | 2.693   | 4.006   |
| H           | 5/8-11  | 1-8     |
| L           | 4.071   | 5.463   |
| X           | 1.378   | 1.457   |



| Style       | ISO40-DIN69871   | ISO50-DIN69871   |
|-------------|------------------|------------------|
| Description | AHIS040-DIN69871 | AHIS050-DIN69871 |
| UPC #       | 46012            | 46021            |
| C           | 2.693            | 4.006            |
| H           | M16              | M24              |
| L           | 4.071            | 5.463            |
| X           | 1.378            | 1.457            |



| Style       | BT40   | BT50   |
|-------------|--------|--------|
| Description | AHBT40 | AHBT50 |
| UPC #       | 46005  | 46006  |
| C           | 2.575  | 4.008  |
| H           | M16    | M24    |
| L           | 4.032  | 6.055  |
| X           | 1.457  | 2.047  |

ER 25 & ER 32 Wrench

ER16 Wrench



ER 25 & ER 32 Collet Nut

ER16 Collet Nut



### ER Standard Collet Nut Wrench

| Style | Description  | UPC # | Type               |
|-------|--------------|-------|--------------------|
| ER16  | ER16STWR-AAH | 45998 | ER Standard Wrench |
| ER 25 | ER25STWR     | 49996 | ER Standard Wrench |
| ER 32 | ER32STWR     | 49997 | ER Standard Wrench |

### ER Standard Collet Nuts (Dimensions are in mm)

| Style | Description   | UPC # | Body Dia. | Length | Thread  |
|-------|---------------|-------|-----------|--------|---------|
| ER 16 | ER16NTS24-080 | 49771 | 24        | 8      | M24X1.0 |
| ER 25 | ER25NTS32-200 | 49782 | 42        | 20     | M32x1.5 |
| ER 32 | ER32NTS50-225 | 49783 | 50        | 22,5   | M40x1.5 |

## R8 Right Angle Milling Attachment for Vertical Milling Machines



### Features

- For Manual Machines
- Ductile Iron Body
- Precision Hardened & Ground Spiral Bevel Gears
- Sealed High Speed Bearings
- 1.33 to 1 Gear Ratio
- Grease Fitting
- Alignment Flats on 2 Sides
- R-8 Collet Spindle

### Output

R8

### Shank

3 3/8" Quill with R8 Taper

### Description

MMRAA-R8

### UPC #

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

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QUALITY, SPEED &  
**PERFORMANCE**

Precision Balanced to 12,000 RPM  
Each holder comes with a Certificate of Inspection

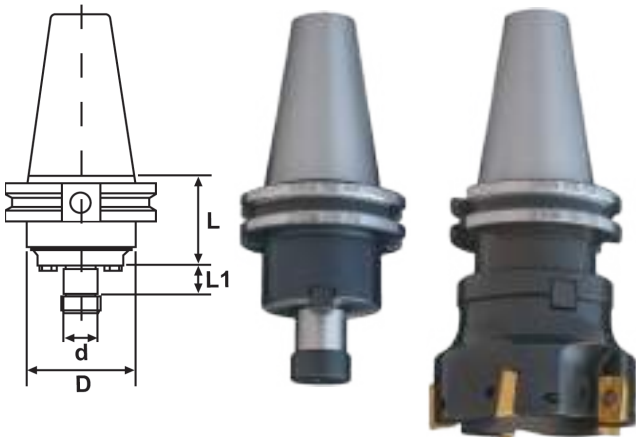


- .0001" Taper-Bore Runout Tolerance.
- Made of 8620 Alloy Steel with Case Hardness of 56-60 HRC and Core
- Tapers Ground to AT-3 Specifications or BETTER.
- H5 Bore Tolerance for air-tight fit provides maximum contact surface area.
- Thru Coolant Feature
- Made In Italy.

#### End Mill Holders

| UPC # | Description         | Hole Dia.<br>(d) (in) | Gage Length<br>(L) (in) | Body Dia.<br>(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



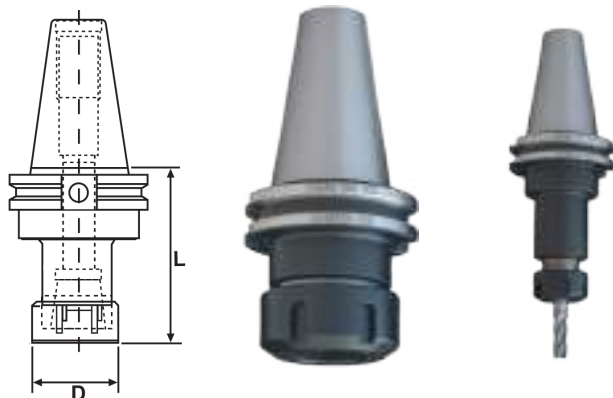
#### Shell Mill Holders

| UPC # | Description         | Arbor Dia<br>(d) (in) | Arbor Length<br>(L1) (in) | Gage Length<br>(L) (in) | Body Dia<br>(D) (in) | Arbor Thread<br>(AT) (in) | Key Size<br>(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                   | 0.68                      | 1.75                    | 2.75                 | 3/8-24                    | 5/16             |
| 45142 | CAT50 SMH-1000-1750 | 1                     | 0.68                      | 1.75                    | 2.75                 | 1/2-20                    | 3/8              |
| 45146 | CAT50 SMH-1250-1750 | 1-1/4                 | 0.68                      | 1.75                    | 2.75                 | 5/8-18                    | 1/2              |
| 45150 | CAT50 SMH-1500-2000 | 1-1/2                 | 0.94                      | 2.00                    | 3.75                 | 3/4-16                    | 5/8              |
| 45154 | CAT50 SMH-2000-2000 | 2                     | 0.94                      | 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

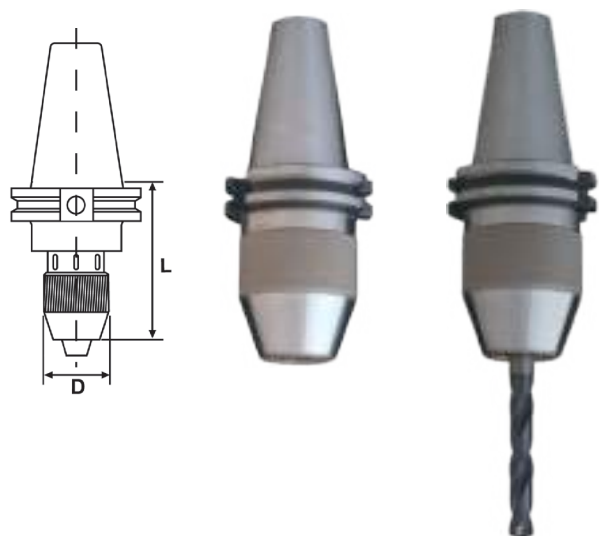
Each holder comes with a Certificate of Inspection



- .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



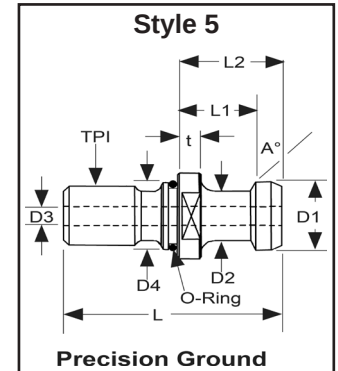
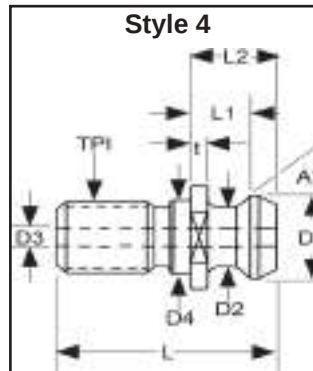
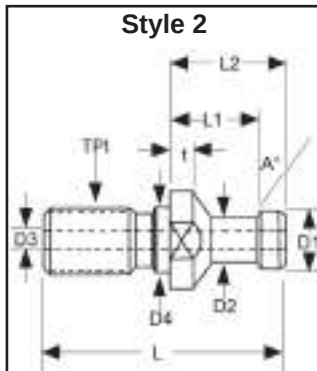
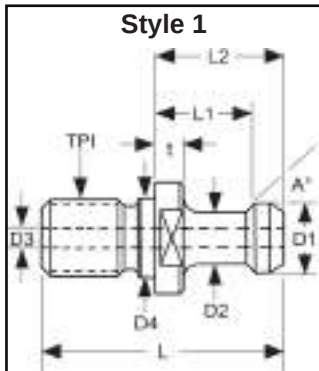
| Style | Description | UPC # | Thread     | Height (mm) | Body Dia. (mm) |
|-------|-------------|-------|------------|-------------|----------------|
| ER11  | ER11NTM16   | 49773 | M13 X .075 | 12          | 16             |
| ER16  | ER16NTS32   | 49780 | M22 X 1,5  | 17          | 32             |
| 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



| 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      | 2     | 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

**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 0.0002" TIR**



## Ultra Precision ER 11 Collets

| Description     | UPC # | Holding Capacity |       |
|-----------------|-------|------------------|-------|
| ER11-STIMC-10   | 46236 | 0.020            | 0.039 |
| ER11-STIMC-15   | 46237 | 0.039            | 0.059 |
| ER11-STIMC-20   | 46238 | 0.059            | 0.079 |
| ER11-STIMC-0937 | 46249 | 0.074            | 0.094 |
| ER11-STIMC-25   | 46239 | 0.079            | 0.098 |
| ER11-STIMC-30   | 46240 | 0.098            | 0.118 |
| ER11-STIMC-0125 | 46250 | 0.105            | 0.125 |
| ER11-STIMC-35   | 46241 | 0.118            | 0.138 |
| ER11-STIMC-40   | 46242 | 0.138            | 0.157 |
| ER11-STIMC-45   | 46243 | 0.157            | 0.177 |
| ER11-STIMC-0187 | 46251 | 0.168            | 0.188 |
| ER11-STIMC-50   | 46244 | 0.177            | 0.197 |
| ER11-STIMC-55   | 46245 | 0.197            | 0.217 |
| ER11-STIMC-60   | 46246 | 0.217            | 0.236 |
| ER11-STIMC-0250 | 46252 | 0.230            | 0.250 |
| ER11-STIMC-65   | 46247 | 0.236            | 0.256 |
| ER11-STIMC-70   | 46248 | 0.256            | 0.276 |



## Ultra Precision ER 16 Collets

| Description     | UPC # | Holding Capacity |       |
|-----------------|-------|------------------|-------|
| ER16-STIMC-10   | 46290 | 0.020            | 0.039 |
| ER16-STIMC-15   | 46288 | 0.039            | 0.059 |
| ER16-STIMC-20   | 46291 | 0.059            | 0.079 |
| ER16-STIMC-0937 | 46275 | 0.074            | 0.094 |
| ER16-STIMC-25   | 46289 | 0.079            | 0.098 |
| ER16-STIMC-30   | 46292 | 0.079            | 0.118 |
| ER16-STIMC-0125 | 46276 | 0.087            | 0.125 |
| ER16-STIMC-40   | 46293 | 0.118            | 0.157 |
| ER16-STIMC-0187 | 46278 | 0.150            | 0.188 |
| ER16-STIMC-50   | 46294 | 0.157            | 0.197 |
| ER16-STIMC-60   | 46295 | 0.197            | 0.236 |
| ER16-STIMC-0250 | 46280 | 0.213            | 0.250 |
| ER16-STIMC-70   | 46296 | 0.236            | 0.276 |
| ER16-STIMC-80   | 46297 | 0.276            | 0.315 |
| ER16-STIMC-90   | 46298 | 0.315            | 0.354 |
| ER16-STIMC-0375 | 46284 | 0.335            | 0.375 |
| ER16-STIMC-100  | 46299 | 0.354            | 0.394 |



## Ultra Precision ER 20 Collets

| Description     | UPC # | Holding Capacity |       |
|-----------------|-------|------------------|-------|
| ER20-STIMC-10   | 46353 | 0.020            | 0.039 |
| ER20-STIMC-15   | 46354 | 0.039            | 0.059 |
| ER20-STIMC-20   | 46355 | 0.059            | 0.079 |
| ER20-STIMC-30   | 46356 | 0.079            | 0.118 |
| ER20-STIMC-0937 | 46386 | 0.075            | 0.094 |
| ER20-STIMC-0125 | 46387 | 0.087            | 0.125 |
| ER20-STIMC-40   | 46358 | 0.118            | 0.157 |
| ER20-STIMC-0187 | 46388 | 0.150            | 0.188 |
| ER20-STIMC-50   | 46359 | 0.157            | 0.197 |
| ER20-STIMC-60   | 46360 | 0.197            | 0.236 |
| ER20-STIMC-0250 | 46389 | 0.213            | 0.250 |
| ER20-STIMC-70   | 46361 | 0.236            | 0.276 |
| ER20-STIMC-80   | 46362 | 0.276            | 0.315 |
| ER20-STIMC-90   | 46363 | 0.315            | 0.354 |
| ER20-STIMC-375  | 46390 | 0.335            | 0.375 |
| ER20-STIMC-100  | 46364 | 0.354            | 0.394 |
| ER20-STIMC-110  | 46365 | 0.394            | 0.433 |
| ER20-STIMC-120  | 46367 | 0.433            | 0.472 |
| ER20-STIMC-0500 | 46391 | 0.461            | 0.500 |
| ER20-STIMC-130  | 46368 | 0.472            | 0.512 |



### Ultra Precision ER 25 Collets

| Description     | UPC # | Holding Capacity |       |
|-----------------|-------|------------------|-------|
| ER25-STIMC-10   | 46428 | 0.020            | 0.039 |
| ER25-STIMC-15   | 46429 | 0.039            | 0.059 |
| ER25-STIMC-20   | 46430 | 0.059            | 0.079 |
| ER25-STIMC-0937 | 46499 | 0.075            | 0.094 |
| ER25-STIMC-30   | 46431 | 0.079            | 0.118 |
| ER25-STIMC-0125 | 46500 | 0.086            | 0.125 |
| ER25-STIMC-40   | 46433 | 0.118            | 0.157 |
| ER25-STIMC-0187 | 46501 | 0.148            | 0.188 |
| ER25-STIMC-50   | 46434 | 0.157            | 0.197 |
| ER25-STIMC-60   | 46435 | 0.197            | 0.236 |
| ER25-STIMC-0250 | 46502 | 0.211            | 0.250 |
| ER25-STIMC-70   | 46436 | 0.236            | 0.276 |
| ER25-STIMC-80   | 46437 | 0.276            | 0.315 |
| ER25-STIMC-90   | 46438 | 0.315            | 0.354 |
| ER25-STIMC-0375 | 46503 | 0.336            | 0.375 |
| ER25-STIMC-100  | 46439 | 0.354            | 0.394 |
| ER25-STIMC-110  | 46440 | 0.394            | 0.433 |
| ER25-STIMC-120  | 46442 | 0.433            | 0.472 |
| ER25-STIMC-0500 | 46517 | 0.461            | 0.500 |
| ER25-STIMC-130  | 46443 | 0.472            | 0.512 |
| ER25-STIMC-140  | 46444 | 0.512            | 0.551 |
| ER25-STIMC-150  | 46445 | 0.551            | 0.591 |
| ER25-STIMC-0625 | 46518 | 0.586            | 0.625 |
| ER25-STIMC-160  | 46446 | 0.591            | 0.630 |



### Ultra Precision ER 32 Collets

| Description     | UPC # | Holding Capacity |       |
|-----------------|-------|------------------|-------|
| ER32-STIMC-20   | 46521 | 0.059            | 0.079 |
| ER32-STIMC-0937 | 46543 | 0.075            | 0.094 |
| ER32-STIMC-30   | 46522 | 0.079            | 0.118 |
| ER32-STIMC-0125 | 46544 | 0.086            | 0.125 |
| ER32-STIMC-40   | 46524 | 0.118            | 0.157 |
| ER32-STIMC-0187 | 46545 | 0.148            | 0.188 |
| ER32-STIMC-50   | 46525 | 0.157            | 0.197 |
| ER32-STIMC-60   | 46526 | 0.197            | 0.236 |
| ER32-STIMC-0250 | 46546 | 0.211            | 0.250 |
| ER32-STIMC-70   | 46527 | 0.236            | 0.276 |
| ER32-STIMC-80   | 46528 | 0.276            | 0.315 |
| ER32-STIMC-90   | 46529 | 0.315            | 0.354 |
| ER32-STIMC-0375 | 46547 | 0.336            | 0.375 |
| ER32-STIMC-100  | 46530 | 0.354            | 0.394 |
| ER32-STIMC-110  | 46531 | 0.394            | 0.433 |
| ER32-STIMC-120  | 46533 | 0.433            | 0.472 |
| ER32-STIMC-0500 | 46569 | 0.461            | 0.500 |
| ER32-STIMC-130  | 46534 | 0.472            | 0.512 |
| ER32-STIMC-140  | 46535 | 0.512            | 0.551 |
| ER32-STIMC-150  | 46536 | 0.551            | 0.591 |
| ER32-STIMC-0625 | 46570 | 0.586            | 0.625 |
| ER32-STIMC-160  | 46537 | 0.591            | 0.630 |
| ER32-STIMC-170  | 46538 | 0.630            | 0.669 |
| ER32-STIMC-180  | 46539 | 0.669            | 0.709 |
| ER32-STIMC-190  | 46540 | 0.709            | 0.748 |
| ER32-STIMC-0750 | 46571 | 0.713            | 0.750 |
| ER32-STIMC-200  | 46542 | 0.748            | 0.787 |



### Ultra Precision ER 40 Collets

| Description     | UPC # | Holding Capacity |       |
|-----------------|-------|------------------|-------|
| ER40-STIMC-30   | 46623 | 0.079            | 0.118 |
| ER40-STIMC-0125 | 46649 | 0.087            | 0.125 |
| ER40-STIMC-40   | 46624 | 0.118            | 0.157 |
| ER40-STIMC-0187 | 46650 | 0.150            | 0.188 |
| ER40-STIMC-50   | 46625 | 0.157            | 0.197 |
| ER40-STIMC-60   | 46626 | 0.197            | 0.236 |
| ER40-STIMC-0250 | 46651 | 0.213            | 0.250 |
| ER40-STIMC-70   | 46627 | 0.236            | 0.276 |
| ER40-STIMC-80   | 46628 | 0.276            | 0.315 |
| ER40-STIMC-90   | 46629 | 0.315            | 0.354 |
| ER40-STIMC-0375 | 46652 | 0.335            | 0.375 |
| ER40-STIMC-100  | 46630 | 0.354            | 0.394 |
| ER40-STIMC-110  | 46631 | 0.394            | 0.433 |
| ER40-STIMC-120  | 46633 | 0.433            | 0.472 |
| ER40-STIMC-0500 | 46653 | 0.461            | 0.500 |
| ER40-STIMC-130  | 46634 | 0.472            | 0.512 |
| ER40-STIMC-140  | 46635 | 0.512            | 0.551 |
| ER40-STIMC-150  | 46636 | 0.551            | 0.591 |
| ER40-STIMC-0625 | 46683 | 0.587            | 0.625 |
| ER40-STIMC-160  | 46637 | 0.591            | 0.630 |
| ER40-STIMC-170  | 46638 | 0.630            | 0.669 |
| ER40-STIMC-180  | 46639 | 0.669            | 0.709 |
| ER40-STIMC-190  | 46640 | 0.709            | 0.748 |
| ER40-STIMC-200  | 46642 | 0.748            | 0.787 |
| ER40-STIMC-0750 | 46686 | 0.713            | 0.750 |
| ER40-STIMC-210  | 46643 | 0.787            | 0.827 |
| ER40-STIMC-220  | 46644 | 0.827            | 0.866 |
| ER40-STIMC-0875 | 46684 | 0.835            | 0.875 |
| ER40-STIMC-230  | 46645 | 0.866            | 0.906 |
| ER40-STIMC-240  | 46646 | 0.906            | 0.945 |
| ER40-STIMC-250  | 46647 | 0.945            | 0.984 |
| ER40-STIMC-1000 | 46685 | 0.961            | 1.000 |
| ER40-STIMC-260  | 46648 | 0.984            | 1.024 |



### Ultra Precision ER Collets-Sets

| Description  | 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 |



# TOOL PRESETTER & TIGHTENING FIXTURES

PRECISION,  
PERFORMANCE

&

**EFFICIENCY**

# 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.

|                       |               |         |         |         |
|-----------------------|---------------|---------|---------|---------|
| UPC #                 | 42001         | 42030   | 42032   | 42034   |
| Quik-SET              | Z300          | Z400    | XM      | Z600    |
| Accuracy              | ±.0005        | ±.0005  | ±.0005  | ±.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

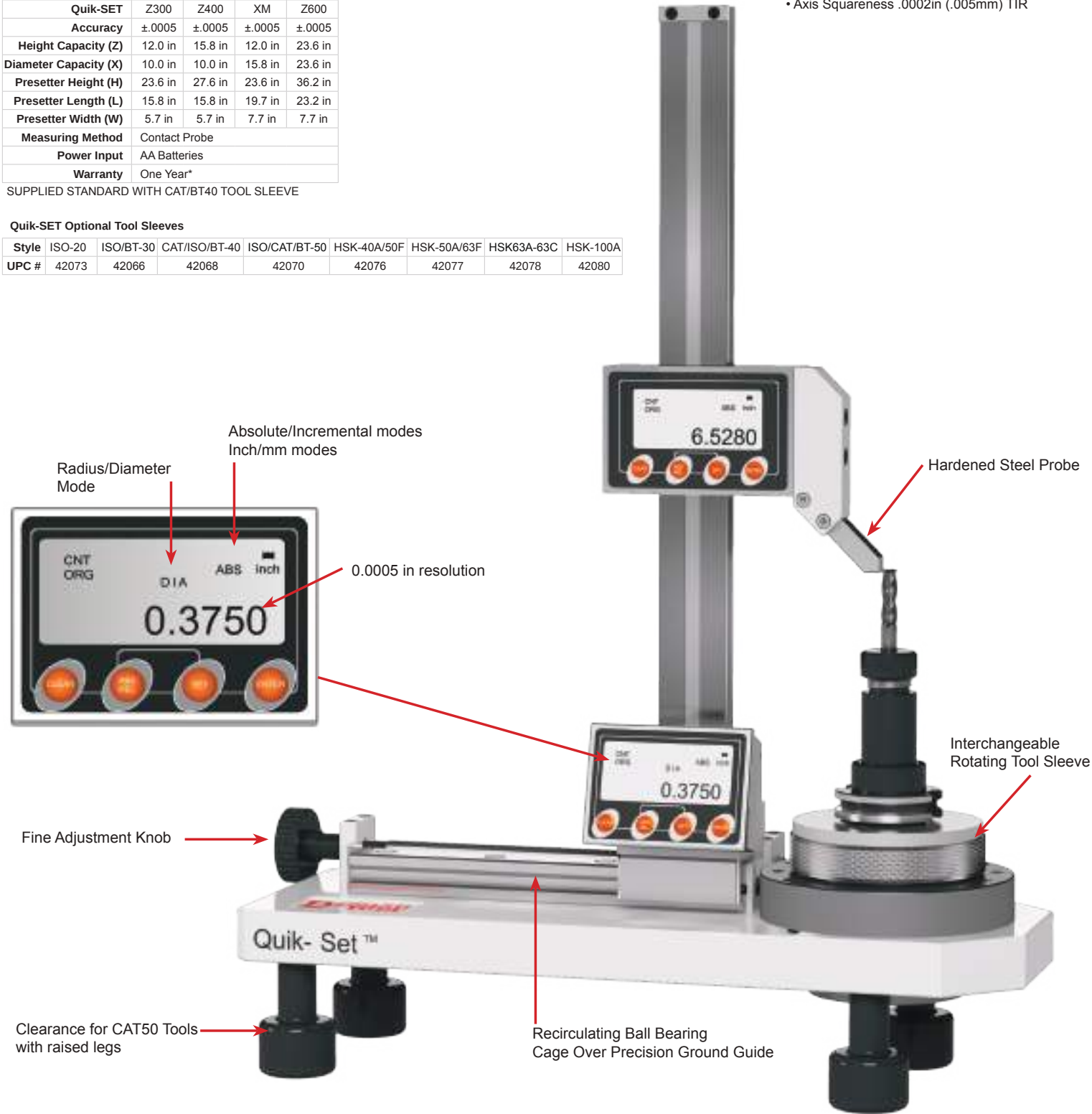
|       |        |           |               |               |             |             |            |          |
|-------|--------|-----------|---------------|---------------|-------------|-------------|------------|----------|
| Style | ISO-20 | ISO/BT-30 | CAT/ISO/BT-40 | ISO/CAT/BT-50 | HSK-40A/50F | HSK-50A/63F | HSK63A-63C | HSK-100A |
| UPC # | 42073  | 42066     | 42068         | 42070         | 42076       | 42077       | 42078      | 42080    |

## 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

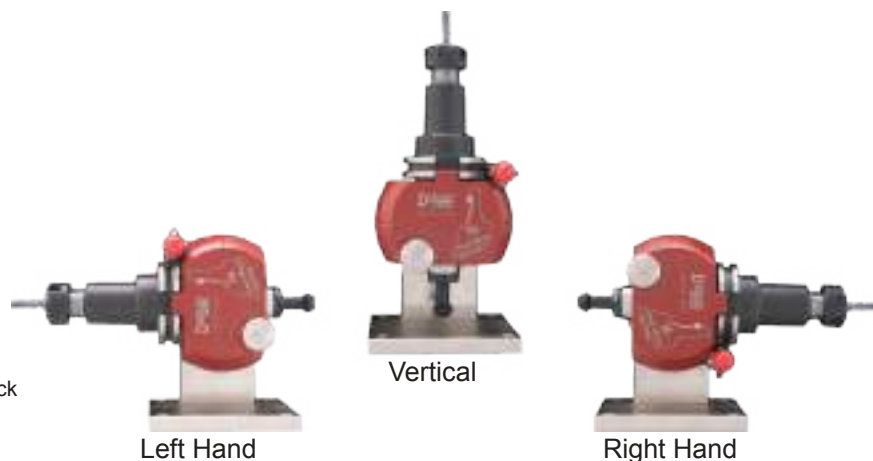
## Precision

- Resolution .0005in (0.10mm)
- Accuracy ± .0005in (0.10mm)
- Repeatability .0005in (0.10mm)
- Axis Squareness .0002in (.005mm) TIR



# 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.



Fontana Liri Italy



Inch Vol 6  
**TOOL GUIDE**  
FOR EVERYDAY MACHINING

MPR08 DT TG6

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