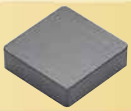
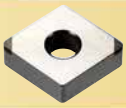
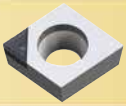
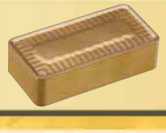
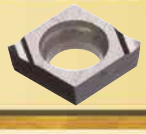
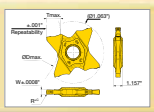
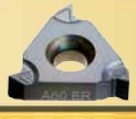
| Turning | Description | Series | Page |
|---|---|---|---|
|  | GOLD•RUSH GRADES | GOLD•RUSH grades for turning | 102 |
|  | BLACK•RUSH GRADES | Turning grades for high speed machining of cast iron & alloy steel | 104 |
|  | T•TURN™ WHISKER CERAMIC GRADE | Whisker reinforced ceramic grade TC430 for machining high strength & high temp alloys | 108 |
|  | T•TURN™ NEW CBN GRADES | CBN grades TB610, TB670, TB730 for machining hardened steel & cast iron | 112 |
|  | T•TURN™ PCD CHIPBREAKER | PCD-tipped inserts with CB chipbreaker | 122 |
|  | T•TANK™ | Size technology ISO turning inserts | 126 |
|  | T•TANK™ | Size technology external holders | 135 |
|  | T•TANK™ | Size technology boring bars | 137 |
|  | GOLD•DUTY | HB chipbreaker inserts for semi heavy turning | 140 |
|  | GOLD•DUTY | External holders | 142 |
|  | T•FORCE LNMM HX | 40mm helix insert for large part machining | 146 |
|  | T•FORCE 2PLLNR/L | External tool holder for LNMM insert | 147 |

| Turning | Description | Series | Page |
|---|---|---|---|
|  | ToFORCE 2PLBNR/L | External tool holder for LNMX inserts | 148 |
|  | ToFORCE LNMX HD | 50mm insert for large part machining | 149 |
|  | ToFORCE LNMX HY | 50mm insert for large part machining | 149 |
|  | ToFORCE 1.25" INSERT | Double sided SNMD insert with 1.25" cutting edge | 150 |
|  | ToFORCE HOLDERS FOR 1.25" INSERT | External holder for 1.25" SNMD inserts | 151 |
|  | ToFORCE CNMD/SNMD | Double sided H series chipbreaker for rough & finish machining | 152 |
|  | ToTURN™ EM CHIPBREAKER | EM chipbreaker for stainless steel machining | 158 |
|  | ToTURN™ PC CHIPBREAKER | 5°, 7°, & 11° positive inserts with PC chipbreaker | 162 |
|  | ToTURN™ RCMX INSERTS | RA chipbreaker for positive round inserts | 167 |
|  | ToTURN™ RCMX HOLDERS | External holders for positive round inserts (RCMX style) | 168 |
|  | ToTURN™ RX CHIPBREAKER | RX chipbreakers for rough machining of large parts | 170 |
|  | ToTURN™ SA CHIPBREAKER | 7° positive inserts with SA chipbreaker | 172 |

| Turning | Description | Series | Page |
|---|---|---|---|
|  | T•TURN™ KT CHIPBREAKER | KT chipbreaker for rough turning of cast iron | 176 |
|  | T•FEED™ | BNMX inserts for high feed machining | 178 |
|  | T•FEED™ | External holder for BNMX insert | 179 |
|  | T•TURN™ | External back clamping quick change holder for swiss type lathes | 180 |
|  | T•MINI™ MINIATURE INDEXABLE BORING BARS | Indexable system of boring bars & inserts for small component machining | 184 |
|  | T•MINI™ TSL SLEEVE | Sleeves to hold T•MINI boring bars | 189 |
|  | T•MINI™ INSERTS | Inserts for T•MINI boring bars | 190 |
|  | C•ADAPTER™ | External quick change holder for ISO turning | 192 |
|  | COMBI•CLAMP™ DCLS | Multi-function clamp for use with Ingersoll's existing T-type holders | 200 |
|  | GOLD•RUSH GRADES | GOLD•RUSH grades for T•CLAMP applications | 202 |
|  | GOLD•FLEX HOLDERS | Holder for precision grooving, parting, and recessing | 204 |
|  | GOLD•FLEX INSERTS | 4-edge inserts for precision grooving, parting, and recessing | 208 |

| Turning | Description | Series | Page |
|---|---|---|---|
|  | T-MICRO™ SLEEVES | Sleeves, coolant fittings for mini carbide bars | 212 |
|  | T-MICRO™ | Mini carbide bars for internal machining | 214 |
|  | T-CLAMP™ TTSIR/L | Internal grooving and turning on Small diameters | 223 |
|  | T-CLAMP™ TGSIR/L | Internal shallow grooving & turning on small diameters | 223 |
|  | T-CLAMP™ TTSER/L | External turning & grooving | 224 |
|  | T-CLAMP™ TGSFR/L | Shallow external turning & grooving | 224 |
|  | T-CLAMP™ TDIM | Pressed inserts for internal turning & grooving | 225 |
|  | T-CLAMP™ TDIP | Precision inserts for internal turning & grooving | 225 |
|  | T-THREAD™ NEW GRADE TT5080 | TT5080 for lathe threading applications | 226 |
|  | T-THREAD™ B-TYPE INSERTS | B-type threading inserts for excellent chip control and surface quality | 230 |
|  | T-CLAMP ULTRA+™ TGBFR/L | Deep face grooving blade product expansion | 234 |
|  | T-CLAMP ULTRA+™ TTIR/L | Internal turn/groove bars for deeper ID grooves | 236 |

| Turning | Description | Series | Page |
|---|---|---|---|
|  | T-CLAMP ULTRA+ MODULAR | Modular system product expansion | 238 |
|  | T-CLAMP ULTRA+ | 10mm & .375" wide inserts & holders | 246 |
|  | T-CLAMP ULTRA+ NEW GRADE TT9080 | New grade TT9080 phasing out grade TT9030 | 248 |
|  | T-GROOVE | Grooving system for special forms | 250 |
|  | T-CAP NEW GROOVING INSERT | Multifunction tool for drilling, boring, facing, turning & grooving | 252 |
| | | | |
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Member IMC Group
Ingersoll Cutting Tools

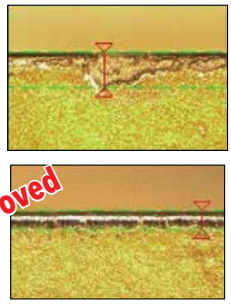

# GOLD·RUSH GRADES

## The ingenious solution that takes cutting tool materials to another level

### Features

- Excellent surface finish on the workpiece
- Improved coating adhesion and insert chipping resistance
- Stable and extended tool life in continuous and interrupted cutting operations
- Reduced cutting friction and minimized built-up edge on exotic materials

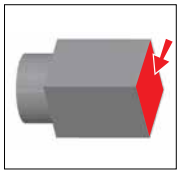
### Benefit of new cutting edge technology




**Material**: 0.2% Carbon Steel (HB145-160)

**Insert**: CNMG 432 TT8115

**Cutting Condition**
V=330 sfm
f=.004 ipr
d=.120"
Facing, Interrupted cut



# GOLD RUSH GRADES FOR STEEL APPLICATIONS

**TT8115 (CVD)** P05 — P25

- For high speed continuous turning on steels
- Excellent wear and heat-resistance

**TT8125 (CVD)** P15 — P35

- For a wide range of steel turning applications
- Very good combination of wear resistance and toughness
- For general use on steels

**TT5100 (CVD)** P20 — P40

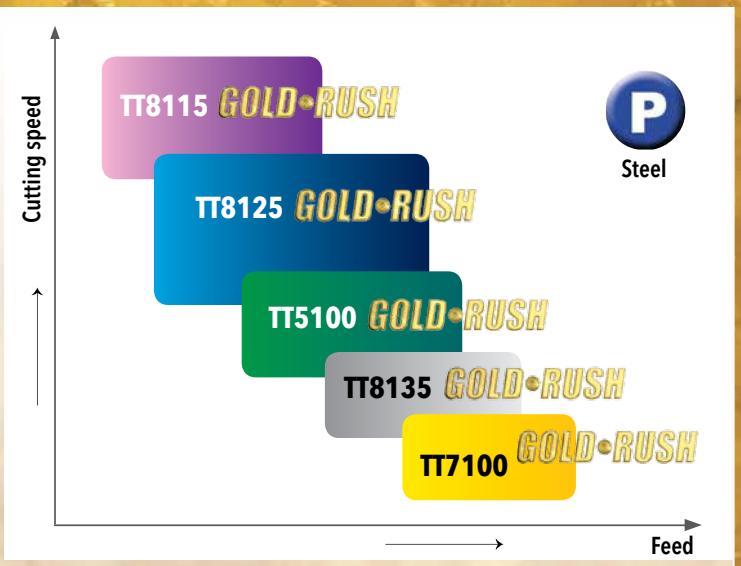
- For a wide range of turning operations on mild steel, low carbon steel and low carbon alloy steels
- Excellent chipping and sticking resistance

**TT8135 (CVD)** P25 — P40

- Tough carbide substrate with good fracture resistance
- For a wide range of medium to roughing applications at low cutting speed on steels
- For heavy turning

**TT7100 (CVD)** P30 — P45

- Very tough carbide substrate base with a CVD coating
- Excellent toughness and chipping resistance
- For heavy turning




# GOLD RUSH GRADES FOR STAINLESS STEELS AND HIGH-TEMP ALLOY APPLICATIONS

**TT5080 (PVD)** M05 — M15 / S05 — S15

- For turning a wide range of high-temp alloys
- Very hard submicron substrate with good fracture toughness

**TT9215 (CVD)** M10 — M25 / S10 — S25

- Excellent wear resistance
- For high cutting speed & continuous cutting on stainless steels

**TT9080 (PVD)** M10 — M30 / S15 — S25

- For general machining of stainless steels and high-temp alloys
- Submicron substrate with good fracture toughness

**TT9225 (CVD)** M20 — M35 / S20 — S35

- Good combination of insert wear resistance & fracture toughness
- For general use on stainless steels
- Suitable for continuous and interrupted cutting on stainless steels

**TT9235 (CVD)** M30 — M45 / S30 — S45

- Excellent fracture resistance & toughness
- For low cutting speed & interrupted cutting on stainless steels

# BLACKRUSH

## New! TURNING GRADES FOR HIGH SPEED MACHINING OF CAST IRON AND ALLOY STEEL

- Special "Black Rush" alumina CVD coating eliminates flaking and crater wear.
- Post coat surface treatment reduces build up and provides longer, more consistent tool life.

New!

- Positive chip breakers for alloy steel applictions.
- "KT" chip breaker for interrupted cuts in cast iron.

**TT7005** K05 – K15 / P05 – P15

For High Speed Machining of Gray & Ductile Cast Iron & Alloy Steel

**TT7015** K10 – K25 / P10 – P20

For General Machining of Gray & Ductile Cast Iron & Alloy Steel

All BLACKRUSH inserts feature a new coating technology which contains a special Al2O3 outer layer that maximizes hardness while providing thermal stability, an important consideration when machining cast iron especially at high cutting speeds. Following this alumina coating process, a special surface treatment is applied that greatly reduces friction, cutting force and build-up on the insert cutting edge. The result is stable and consistent tool life and an excellent surface finish on the work piece.

# INSERTS

| ANSI DESCRIPTION | ISO DESCRIPTION | Grade TT7005 | Grade TT7015 |
|---|---|---|---|
| New! CCMT21.51FG | CCMT060204FG | • | • |
| CCMT21.51MT | CCMT060204MT | • | • |
| CCMT21.52MT | CCMT060208MT | • | • |
| CCMT32.51FG | CCMT09T304FG | • | • |
| CCMT32.51MT | CCMT09T304MT | • | • |
| CCMT32.52FG | CCMT09T308FG | • | |
| CCMT32.52MT | CCMT09T308MT | • | • |
| CCMT32.52WT | CCMT09T308WT | • | |
| CCMT431MT | CCMT120404MT | • | • |
| CCMT432FG | CCMT120408FG | • | |
| CCMT432MT | CCMT120408MT | • | • |
| CCMT433MT | CCMT120412MT | • | |
| CNMA431 | CNMA120404 | • | • |
| CNMA432 | CNMA120408 | • | • |
| CNMA432WT | CNMA120408WT | • | |
| CNMA433 | CNMA120412 | • | • |
| CNMA434 | CNMA120416 | • | • |
| CNMA543 | CNMA160612 | • | • |
| CNMA544 | CNMA160616 | • | • |
| CNMA642 | CNMA190608 | • | • |
| CNMA643 | CNMA190612 | • | • |
| CNMA644 | CNMA190616 | • | • |
| CNMG322 | CNMG090308 | • | |
| CNMG322MT | CNMG090308MT | • | |
| CNMG431 | CNMG120404 | • | • |
| New! CNMG431FG | CNMG120404FG | • | • |
| CNMG431MT | CNMG120404MT | • | • |
| CNMG432 | CNMG120408 | • | • |
| New! CNMG432FG | CNMG120408FG | • | • |
| New! CNMG432KT | CNMG120408KT | • | • |
| CNMG432MC | CNMG120408MC | | • |
| New! CNMG432MP | CNMG120408MP | • | • |
| CNMG432MT | CNMG120408MT | • | • |
| CNMG432RT | CNMG120408RT | • | • |
| CNMG432WT | CNMG120408WT | • | • |
| CNMG433 | CNMG120412 | • | • |
| New! CNMG433KT | CNMG120412KT | • | • |
| CNMG433MT | CNMG120412MT | • | • |
| CNMG433RT | CNMG120412RT | • | • |
| CNMG433WT | CNMG120412WT | • | |
| New! CNMG434KT | CNMG120416KT | • | • |
| CNMG434RT | CNMG120416RT | | • |
| CNMG542MT | CNMG160608MT | • | |
| CNMG543MT | CNMG160612MT | • | • |
| CNMG543RT | CNMG160612RT | • | • |
| CNMG544RT | CNMG160616RT | • | • |
| CNMG642 | CNMG190608 | • | • |

| ANSI DESCRIPTION | ISO DESCRIPTION | Grade TT7005 | Grade TT7015 |
|---|---|---|---|
| CNMG642MT | CNMG190608MT | • | |
| CNMG642RT | CNMG190608RT | • | |
| CNMG643 | CNMG190612 | • | • |
| CNMG643MT | CNMG190612MT | • | |
| CNMG643RT | CNMG190612RT | • | • |
| CNMG644RT | CNMG190616RT | • | • |
| CNMM432RH | CNMM120408RH | | • |
| New! CPMT21.51PC | CPMT060204PC | • | • |
| New! CPMT21.52PC | CPMT060208PC | • | • |
| New! CPMT32.51PC | CPMT09T304PC | • | • |
| New! CPMT32.52PC | CPMT09T308PC | • | • |
| New! DCMT32.51FG | DCMT11T304FG | • | • |
| DCMT32.51MT | DCMT11T304MT | • | • |
| New! DCMT32.52FG | DCMT11T308FG | • | • |
| DCMT32.52MT | DCMT11T308MT | • | • |
| DCMT32.53MT | DCMT11T312MT | • | • |
| DNMA432 | DNMA150408 | • | • |
| DNMA433 | DNMA150412 | • | • |
| DNMA442 | DNMA150608 | • | • |
| DNMA443 | DNMA150612 | • | • |
| DNMG332MT | DNMG110408MT | • | • |
| DNMG333MT | DNMG110412MT | • | |
| DNMG431 | DNMG150404 | • | • |
| New! DNMG431FG | DNMG150404FG | • | • |
| DNMG431MT | DNMG150404MT | | • |
| DNMG432 | DNMG150408 | • | • |
| New! DNMG432FG | DNMG150408FG | • | • |
| New! DNMG432KT | DNMG150408KT | • | • |
| DNMG432MT | DNMG150408MT | • | • |
| DNMG432RT | DNMG150408RT | • | • |
| DNMG432WS | DNMG150408WS | • | • |
| DNMG433 | DNMG150412 | • | |
| New! DNMG433KT | DNMG150412KT | • | • |
| DNMG433MT | DNMG150412MT | | • |
| DNMG433RT | DNMG150412RT | | • |
| DNMG441 | DNMG150604 | • | • |
| DNMG441MT | DNMG150604MT | • | • |
| DNMG442 | DNMG150608 | • | • |
| New! DNMG442KT | DNMG150608KT | • | • |
| DNMG442MT | DNMG150608MT | • | • |
| DNMG442RT | DNMG150608RT | • | • |
| DNMG443 | DNMG150612 | • | • |
| New! DNMG443KT | DNMG150612KT | • | • |
| DNMG443MT | DNMG150612MT | • | • |
| DNMG443RT | DNMG150612RT | • | • |
| HNMG432GU | HNMG050408GU | • | • |
| HNMG643GU | HNMG100612GU | • | • |

• Marked : Standard item

# INSERTS

| ANSI DESCRIPTION | ISO DESCRIPTION | Grade TT7005 | Grade TT7015 |
|---|---|---|---|
| KNUX3331R11 | KNUX160405R11 | • | • |
| RCMT10T300MT | RCMT10T300MT | • | • |
| RCMT120400MT | RCMT120400MT | • | • |
| RCMT160600MT | RCMT160600MT | | • |
| RCMX100300 | RCMX100300 | • | • |
| RCMX120400 | RCMX120400 | • | • |
| RCMX160600 | RCMX160600 | • | • |
| RCMX200600 | RCMX200600 | • | • |
| RCMX250700 | RCMX250700 | • | • |
| RCMX250700 | RCMX250700 | | • |
| RCMX250700MT | RCMX250700MT | • | |
| RCMX320900 | RCMX320900 | • | |
| SCMT32.51MT | SCMT09T304MT | • | • |
| SCMT32.52MT | SCMT09T308MT | • | • |
| SCMT431MT | SCMT120404MT | • | • |
| SCMT432MT | SCMT120408MT | • | • |
| SCMT433MT | SCMT120412MT | • | • |
| SNMA432 | SNMA120408 | • | • |
| SNMA433 | SNMA120412 | • | • |
| SNMA434 | SNMA120416 | • | • |
| SNMA543 | SNMA150612 | • | |
| SNMA544 | SNMA150616 | | • |
| SNMA643 | SNMA190612 | • | • |
| SNMA644 | SNMA190616 | • | • |
| SNMA856 | SNMA250724 | • | • |
| SNMG431 | SNMG120404 | • | • |
| SNMG432 | SNMG120408 | • | • |
| New! SNMG432KT | SNMG120408KT | • | • |
| SNMG432MT | SNMG120408MT | • | • |
| SNMG432RT | SNMG120408RT | • | • |
| SNMG433 | SNMG120412 | • | • |
| New! SNMG433KT | SNMG120412KT | • | • |
| SNMG433MT | SNMG120412MT | • | |
| SNMG433RT | SNMG120412RT | • | • |
| SNMG543RT | SNMG150612RT | | • |
| SNMG642 | SNMG190608 | • | • |
| SNMG643 | SNMG190612 | • | • |
| SNMG643RT | SNMG190612RT | • | |
| SPG421 | SPGN120304 | • | |
| TCMT21.51MT | TCMT110204MT | • | • |
| New! TCMT21.52FG | TCMT110208FG | • | • |
| TCMT21.52MT | TCMT110208MT | • | • |
| New! TCMT32.51FG | TCMT16T304FG | • | • |
| TCMT32.51MT | TCMT16T304MT | • | • |
| New! TCMT32.52FG | TCMT16T308FG | • | • |
| TCMT32.52MT | TCMT16T308MT | • | • |
| TCMT32.53MT | TCMT16T312MT | • | |

| ANSI DESCRIPTION | ISO DESCRIPTION | Grade TT7005 | Grade TT7015 |
|---|---|---|---|
| TCMT731MT | TCMT090204MT | • | • |
| TCMT732MT | TCMT090208MT | • | • |
| TNMA331 | TNMA160404 | • | • |
| TNMA332 | TNMA160408 | • | • |
| TNMA333 | TNMA160412 | • | • |
| TNMA334 | TNMA160416 | • | • |
| TNMA432 | TNMA220408 | • | • |
| TNMA433 | TNMA220412 | • | • |
| TNMA434 | TNMA220416 | • | • |
| TNMG331 | TNMG160404 | • | • |
| TNMG331MT | TNMG160404MT | • | • |
| TNMG332 | TNMG160408 | • | • |
| New! TNMG332KT | TNMG160408KT | • | • |
| TNMG332MT | TNMG160408MT | • | • |
| TNMG332RT | TNMG160408RT | • | • |
| New! TNMG333KT | TNMG160412KT | • | • |
| TNMG333MT | TNMG160412MT | • | |
| TNMG333RT | TNMG160412RT | • | • |
| TNMG431 | TNMG220404 | • | |
| TNMG432 | TNMG220408 | • | • |
| New! TNMG432KT | TNMG220408KT | • | • |
| TNMG432MT | TNMG220408MT | • | |
| TNMG432RT | TNMG220408RT | | • |
| TNMG433 | TNMG220412 | • | |
| New! TNMG433KT | TNMG220412KT | • | • |
| TNMG433RT | TNMG220412RT | • | • |
| TNMG434 | TNMG220416 | | • |
| TPG322 | TPGN160308 | | • |
| TPMR732 | TPMR090208 | | • |
| TPMR221 | TPMR110304 | • | • |
| TPMR222 | TPMR110308 | | • |
| TPMR321 | TPMR160304 | • | • |
| TPMR322 | TPMR160308 | • | • |
| TPMR432 | TPMR220408 | • | |
| New! TPMT21.51PC | TPMT110204PC | • | • |
| New! TPMT21.52PC | TPMT110208PC | • | • |
| TPMT221FG | TPMT110304FG | • | |
| New! VBMT331FG | VBMT160404FG | • | • |
| VBMT331MT | VBMT160404MT | • | • |
| New! VBMT332FG | VBMT160408FG | • | • |
| VBMT332MT | VBMT160408MT | • | • |
| VBMT333MT | VBMT160412MT | • | |
| VNMG2.531MT | VNMG130404MT | • | • |
| VNMG2.532MT | VNMG130408MT | • | |
| VNMG331 | VNMG160404 | • | • |
| New! VNMG331FG | VNMG160404FG | • | • |
| VNMG332 | VNMG160408 | • | • |



• Marked : Standard item

# INSERTS

| ANSI DESCRIPTION | ISO DESCRIPTION | Grade TT7005 | Grade TT7015 |
|---|---|---|---|
| New! VNMG332FG | VNMG160408FG | • | • |
| VNMG332MT | VNMG160408MT | • | • |
| VNMG333 | VNMG160412 | • | • |
| WNMA332 | WNMA060408 | • | • |
| WNMA333 | WNMA060412 | • | |
| WNMA432 | WNMA080408 | • | • |
| WNMA433 | WNMA080412 | • | • |
| WNMA434 | WNMA080416 | • | • |
| WNMG331MT | WNMG060404MT | • | • |
| WNMG332MT | WNMG060408MT | • | |
| WNMG332WT | WNMG060408WT | • | |
| WNMG333MT | WNMG060412MT | • | |
| WNMG333WT | WNMG060412WT | | • |
| WNMG431 | WNMG080404 | • | • |
| WNMG431MT | WNMG080404MT | • | • |
| WNMG432 | WNMG080408 | • | • |
| New! WNMG432FG | WNMG080408FG | • | • |
| New! WNMG432KT | WNMG080408KT | • | • |
| New! WNMG432MP | WNMG080408MP | • | • |
| WNMG432MT | WNMG080408MT | • | • |
| WNMG432RT | WNMG080408RT | • | • |
| WNMG432WT | WNMG080408WT | • | • |
| WNMG433 | WNMG080412 | • | • |
| New! WNMG433KT | WNMG080412KT | • | • |
| WNMG433MT | WNMG080412MT | • | • |
| WNMG433RT | WNMG080412RT | • | • |
| WNMG433WT | WNMG080412WT | • | • |
| WNMG434RT | WNMG080416RT | • | |

• Marked : Standard item

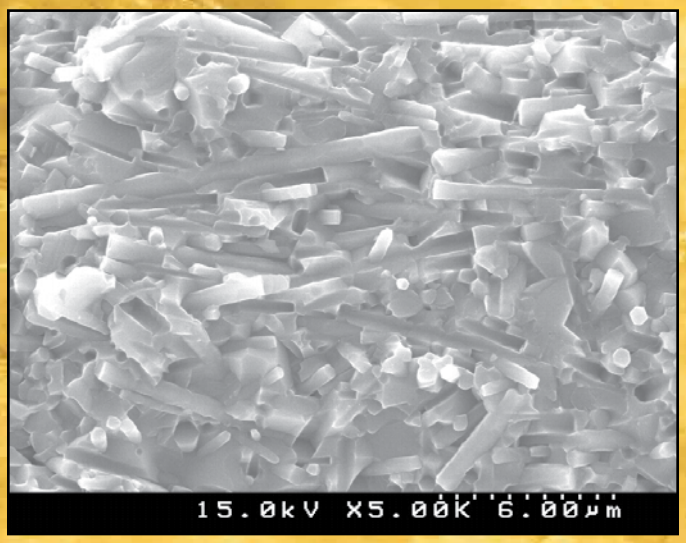
# TOTURN™

## CERAMIC GRADE

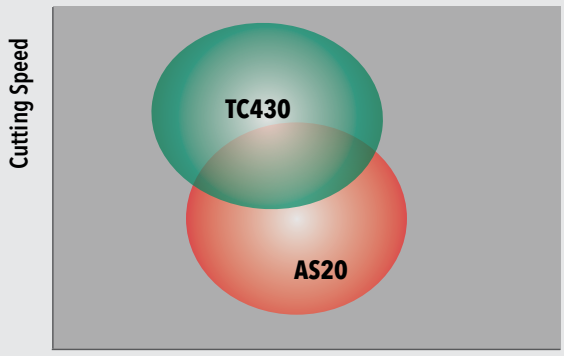
## TC430 WHISKER REINFORCED CERAMIC GRADE FOR MACHINING HIGH STRENGTH AND HIGH TEMPERATURE ALLOY MATERIAL

- SiC whisker reinforced ceramics grade.
- High hardness and high fracture toughness.
- Suitable for general turning and milling applications.
- Excellent for high speed cutting of Ni-based superalloys (Inconel, Waspaloy, Rene, etc.), hardened steels and hard castings

### MICROSTRUCTURE




### APPLICATION RANGE



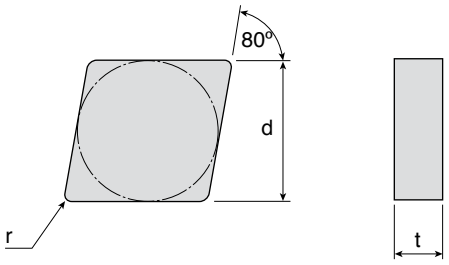

### PHYSICAL PROPERTIES

| Density | Hardness (Hv) | Fracture Toughness, KIC |
|---|---|---|
| 3.7 | 2,050 ~ 2,100 | 4.5 ~ 5.5 |

### RECOMMENDED CUTTING CONDITIONS FOR HIGH TEMPERATURE ALLOYS

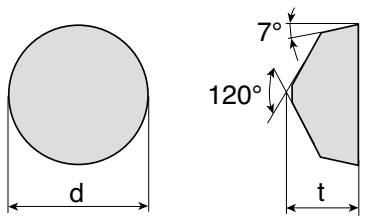
| Density | V(sfm) | F(ipr) |
|---|---|---|
| Turning | 500-1300 | .004-.012 |
| Milling | 1300-3280 | .004-.008 |

## CNG T6



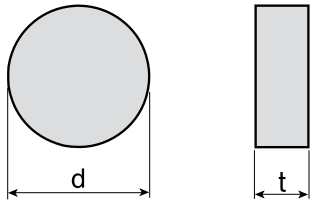

| ANSI Number | ISO Number | Dimensions (inch) d | t | r | Grade TC430 |
|---|---|---|---|---|---|
| CNG 432 T6 | CNGN 120408 T6 | .500 | .187 | .031 | • |
| CNG 433 T6 | CNGN 120412 T6 | .500 | .187 | .047 | • |
| CNG 452 T6 | CNGN 120708 T6 | .500 | .312 | .031 | • |
| CNG 453 T6 | CNGN 120712 T6 | .500 | .312 | .047 | • |

## RCGX T6



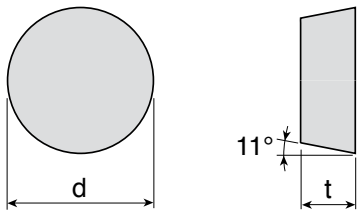

| ANSI Number | ISO Number | Dimensions (inch) d | t | r | Grade TC430 |
|---|---|---|---|---|---|
| RCGX 35 T6 | RCGX 090700 T6 | .375 | .315 | - | • |
| RCGX 45 T6 | RCGX 120700 T6 | .500 | .315 | - | • |

## RNG T6



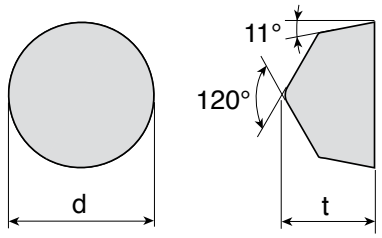

| ANSI Number | ISO Number | d | t | r | Grade | TC430 |
|---|---|---|---|---|---|---|
| RNG 32 T6 | RNGN 090300 T6 | .375 | .125 | - | | • |
| RNG 43 T6 | RNGN 120400 T6 | .500 | .187 | - | | • |
| RNG 45 T6 | RNGN 120700 T6 | .500 | .312 | - | | • |
| RNG 65 T6 | RNGN 190700 T6 | .750 | .312 | - | | • |

## RPG T6



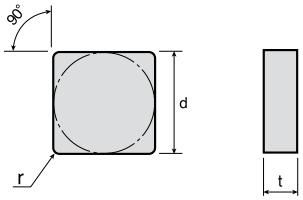

| ANSI Number | ISO Number | d | t | r | Grade | TC430 |
|---|---|---|---|---|---|---|
| RPG 43 T6 | RPGN 120400 T6 | .500 | .187 | - | | • |

## RPGX T6




| ANSI Number | ISO Number | d | t | r | Grade | TC430 |
|---|---|---|---|---|---|---|
| RPGX 35 T6 | RPGX 090700 T6 | .375 | .312 | - | | • |
| RPGX 45 T6 | RPGX 120700 T6 | .500 | .312 | - | | • |

## SNG T6




| ANSI Number | ISO Number | Dimensions (inch) d | t | r | Grade | TC430 |
|---|---|---|---|---|---|---|
| SNG 432 T6 | SNGN 120408 T6 | .500 | .187 | .031 | | • |
| SNG 433 T6 | SNGN 120412 T6 | .500 | .187 | .047 | | • |
| SNG 452 T6 | SNGN 120708 T6 | .500 | .312 | .031 | | • |
| SNG 453 T6 | SNGN 120712 T6 | .500 | .312 | .047 | | • |


# TOTURN™

## CBN GRADES

## TB610, TB670, TB730

### EXCELLENT CUTTING PERFORMANCE IN HARDENED STEEL AND CAST IRON

**TB610**

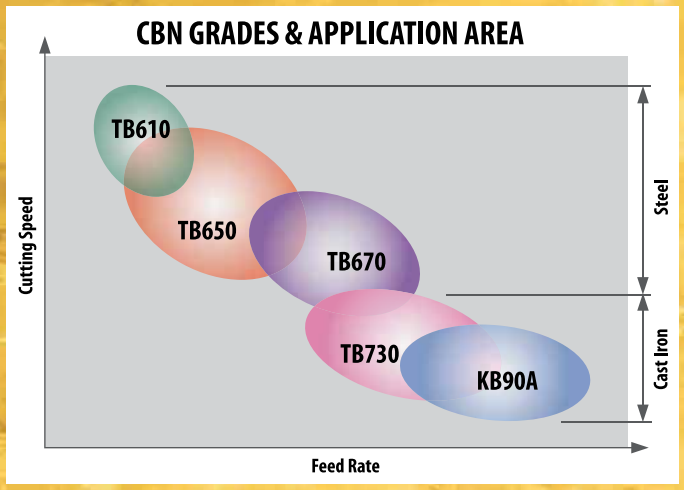
- Excellent oxidation resistance and chemical stability.
- For continuous to light interrupted turning.
- For machining hard steel, alloy steel, tool steel and case hardened steel.

**TB670**

- High hardness and impact resistance.
- For continuous to severe interrupted turning.
- For alloy steel, tool steel, case hardened steel and chilled cast iron.

**TB730**

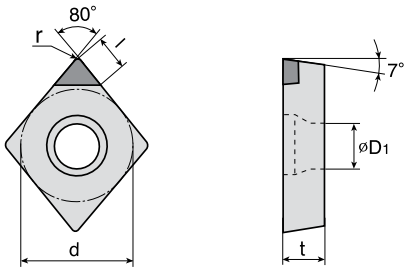
- High hardness and high fracture toughness.
- General turning and milling.
- For gray cast iron, nodular cast iron and carbide rolls.




### RECOMMEDED CUTTING CONDITIONS

| Materials | | TB610 | TB670 | TB730 |
|---|---|---|---|---|
| Gray Cast Iron (HB 180-230) | V (sfm) | | | 1640 - 3280 |
| | f (ipr) | | | .004 - .012 |
| Chilled Cast Iron (> HB 400) | V (sfm) | | 260 - 490 | 260 - 490 |
| | f (ipr) | | .004 - .008 | .004 - .012 |
| Hardened Steel (HRc 40-65) | V (sfm) | 490 - 1150 | 330 - 980 | |
| | f (ipr) | .002 - .008 | .004 - .012 | |
| Sintered Metal (Hv 200-600) | V (sfm) | | 330 - 980 | 330 - 820 |
| | f (ipr) | | .002 - .008 | .004 - .010 |
| DCI or HSS Roll | V (sfm) | | 650 - 1640 | |
| | f (ipr) | | .002 - .008 | |
| Super Alloy (Ni-base) | V (sfm) | | | 330 - 980 |
| | f (ipr) | | | .002 - .008 |

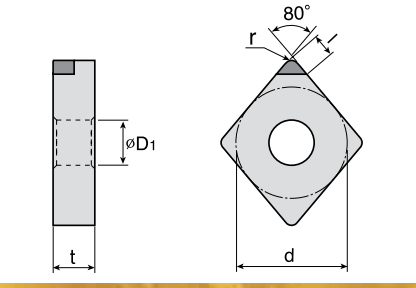
# CCGW CBN




| ANSI DESIGNATION | ISO DESIGNATION | Dimension (inches) l | d | t | r | D1 | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| CCGW 21.50.5LS2 | CCGW 060202 LS2 | .087 | .250 | .094 | .008 | .110 | | | ◐ | ● |
| CCGW 21.51LS2 | CCGW 060204 LS2 | .083 | .250 | .094 | .016 | .110 | | ○ | ◐ | ● |
| CCGW 21.52LS2 | CCGW 060208 LS2 | .083 | .250 | .094 | .031 | .110 | | ○ | ◐ | ● |
| CCGW 32.51LS2 | CCGW 09T304 LS2 | .094 | .375 | .157 | .016 | .173 | | ○ | ◐ | ● |
| CCGW 32.51WZ-LS2 | CCGW 09T304 WZ-LS2 | .094 | .375 | .157 | .016 | .173 | | ○ | ◐ | ● |
| CCGW 32.52LS2 | CCGW 09T308 LS2 | .091 | .375 | .157 | .031 | .173 | | ○ | ◐ | ● |
| CCGW 32.52WZ-LS2 | CCGW 09T308 WZ-LS2 | .091 | .375 | .157 | .031 | .173 | | | ◐ | ● |
| CCGW 431LS2 | CCGW 120404 LS2 | .083 | .500 | .187 | .016 | .216 | | | | ● |
| CCGW 432LS2 | CCGW 120408 LS2 | .083 | .500 | .187 | .031 | .216 | | | | ● |

LS2 - Insert with 2 tips  WZ - Insert with wiper geometry

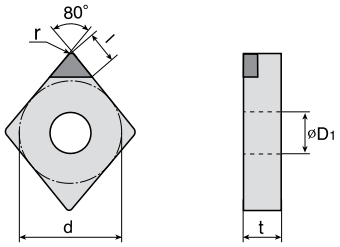
# CNGA CBN




| ANSI DESIGNATION | ISO DESIGNATION | Dimension (inches) l | d | t | r | D1 | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| CNGA 431WZ-LS2 | CNGA 120404 WZ-LS2 | .083 | .500 | .187 | .016 | .203 | | ○ | ◐ | |
| CNGA 431WZ-LS4 | CNGA 120404 WZ-LS4 | .083 | .500 | .187 | .016 | .203 | | | ◐ | |
| CNGA 432WZ-LS2 | CNGA 120408 WZ-LS2 | .083 | .500 | .187 | .031 | .203 | | ○ | ◐ | ● |
| CNGA 432WZ-LS4 | CNGA 120408 WZ-LS4 | .083 | .500 | .187 | .031 | .203 | | ○ | ◐ | |
| CNGA 433WZ-LS2 | CNGA 120412 WZ-LS2 | .098 | .500 | .187 | .047 | .203 | | | ◐ | ● |
| CNGA 433WZ-LS4 | CNGA 120412 WZ-LS4 | .098 | .500 | .187 | .047 | .203 | | | ◐ | |

LS2 - Insert with 2 tips  LS4 - Insert with 4 tips  WZ - Insert with wiper geometry

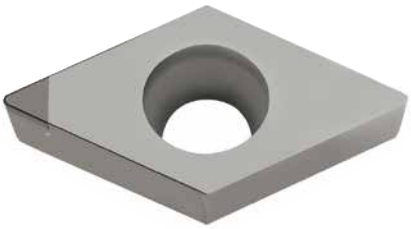
# CNMA CBN - LN/LS

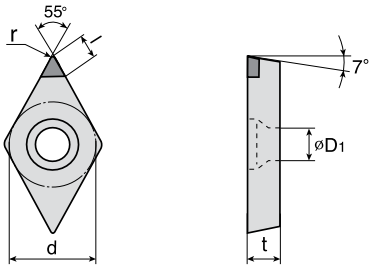



| ANSI DESIGNATION | ISO DESIGNATION | Dimension (inches) | | | | | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | l | d | t | r | D1 | | | | |
| CNMA 431LN | CNMA 120404 LN | .165 | .500 | .188 | .016 | .203 | | ○ | ◑ | |
| CNMA 431LN2 | CNMA 120404 LN2 | .165 | .500 | .188 | .016 | .203 | | | | ● |
| CNMA 431LS2 | CNMA 120404 LS2 | .087 | .500 | .188 | .016 | .203 | | ○ | ◑ | ● |
| CNMA431LS4 | CNMA 120404 LS4 | .087 | .500 | .188 | .016 | .203 | | | ◑ | |
| CNMA 432LN | CNMA 120408 LN | .157 | .500 | .188 | .031 | .203 | | ○ | ◑ | ● |
| CNMA 432LS2 | CNMA 120408 LS2 | .083 | .500 | .188 | .031 | .203 | | ○ | ◑ | ● |
| CNMA 432LS4 | CNMA 120408 LS4 | .083 | .500 | .188 | .031 | .203 | | ○ | ◑ | ● |
| CNMA433LN | CNMA 120412 LN | .154 | .500 | .188 | .047 | .203 | | ○ | ◑ | |
| CNMA433LS2 | CNMA 120412 LS2 | .098 | .500 | .188 | .047 | .203 | | | ◑ | ● |
| CNMA 433LS4 | CNMA 120412 LS4 | .098 | .500 | .188 | .047 | .203 | | | ◑ | ● |

LN - Insert with longer tip  LS2 - Insert with 2 tips  LS4 - Insert with 4 tips

# DCGW CBN - LS

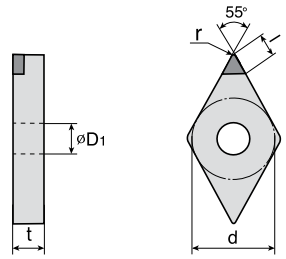





| ANSI DESIGNATION | ISO DESIGNATION | Dimension (inches) | | | | | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | l | d | t | r | D1 | | | | |
| DCGW21.50.5LS2 | DCGW 070202 LS2 | .102 | .250 | .094 | .008 | .110 | | | | |
| DCGW21.51LS2 | DCGW 070204LS2 | .094 | .250 | .094 | .016 | .110 | | ○ | ◑ | ● |
| DCGW21.52LS2 | DCGW 070208 LS2 | .083. | .250 | .094 | .031 | .110 | | ○ | ◑ | ● |
| DCGW32.51LS2 | DCGW 11T304 LS2 | .102 | .375 | .157 | .016 | .173 | | | | ● |
| DCGW32.52LS2 | DCGW 11T308 LS2 | .087 | .375 | .157 | .031 | .173 | | ○ | ◑ | ● |

LS2 - Insert with 2 tips

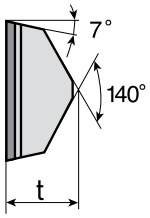
# DNMA - LN/LS

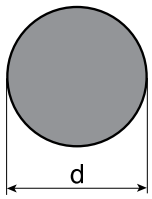



| ANSI DESIGNATION | ISO DESIGNATION | Dimension (inches) | | | | | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | l | d | t | r | D1 | | | | |
| DNMA 431LN | DNMA 150404 LN | .165 | .500 | .187 | .016 | .203 | | ○ | ◑ | |
| DNMA 431LS2 | DNMA 150404 LS2 | .102 | .500 | .187 | .016 | .203 | | ○ | ◑ | |
| DNMA 431LS4 | DNMA 150404 LS4 | .102 | .500 | .187 | .016 | .203 | | ○ | ◑ | ● |
| DNMA 432LN | DNMA 150408 LN | .154 | .500 | .187 | .031 | .203 | | ○ | ◑ | |
| DNMA 432LS2 | DNMA 150408 LS2 | .102 | .500 | .187 | .031 | .203 | | ○ | ◑ | |
| DNMA 432LS4 | DNMA 150408 LS4 | .091 | .500 | .187 | .031 | .203 | | ○ | ◑ | |
| DNMA 433LN | DNMA 150412 LN | .138 | .500 | .187 | .047 | .203 | | ○ | ◑ | ● |
| DNMA 433LS2 | DNMA 150412 LS2 | .087 | .500 | .187 | .047 | .203 | | | ◑ | |
| DNMA 433LS4 | DNMA 150412 LS4 | .087 | .500 | .187 | .047 | .203 | | | ◑ | |
| DNMA 441LN | DNMA 150604 LN | .165 | .500 | .250 | .016 | .203 | | ○ | ◑ | ● |
| DNMA 441LS2 | DNMA 150604 LS2 | .102 | .500 | .250 | .016 | .203 | | ○ | ◑ | ● |
| DNMA 442LN | DNMA 150608 LN | .154 | .500 | .250 | .031 | .203 | | ○ | ◑ | ● |
| DNMA 442LS2 | DNMA 150608 LS2 | .091 | .500 | .250 | .031 | .203 | | ○ | ◑ | ● |
| DNMA 442LS4 | DNMA 150608 LS4 | .091 | .500 | .250 | .031 | .203 | | | ◑ | |
| DNMA 443LS2 | DNMA 150612 LS2 | .087 | .500 | .250 | .047 | .203 | | ○ | ◑ | ● |

LN - Insert with longer tip  LS2 - Insert with 2 tips  LS4 - Insert with 4 tips

## RCGX CBN

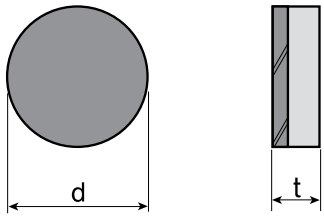



| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) l | d | t | r | D1 | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| RCGX 22FT | RCGX 060300 FT | - | .250 | .125 | - | - | | | | ● |
| RCGX 32FT | RCGX 090300 FT | - | .375 | .125 | - | - | | | | ● |
| RCGX 43FT | RCGX 120400 FT | - | .500 | .187 | - | - | | | | ● |

FT - Full top CBN

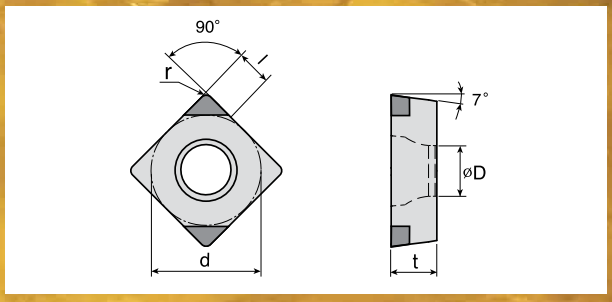
## RNMN FT




| ANSI DESIGNATION | ISO DESIGNATION | Dimension (inches) l | d | t | r | D1 | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| RNMN32FT | RNMN 090300 FT | - | .375 | .125 | - | - | | | ◐ | ● |

FT - Full top CBN

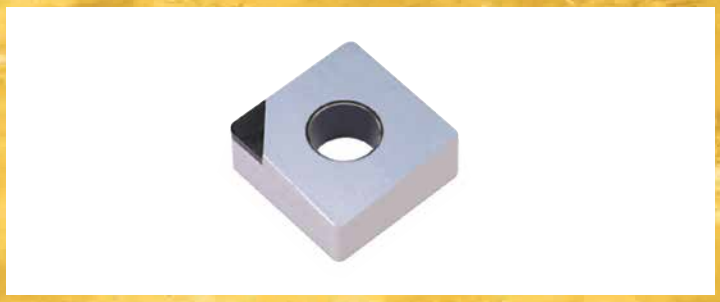
## SCGW CBN

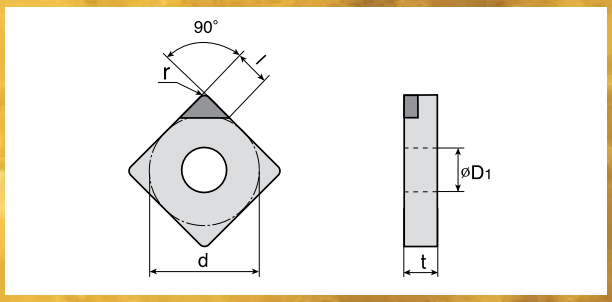



| ANSI DESIGNATION | ISO DESIGNATION | Dimension (inches) | | | | | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | l | d | t | r | D1 | | | | |
| SCGW 32.51LS2 | SCGW 09T304 LS2 | .106 | .375 | .157 | .016 | .173 | | | | ● |
| SCGW 32.52LS2 | SCGW 09T308 LS2 | .106 | .375 | .157 | .031 | .173 | | | | ● |

LS2 - Insert with 2 tips

## SNMA CBN

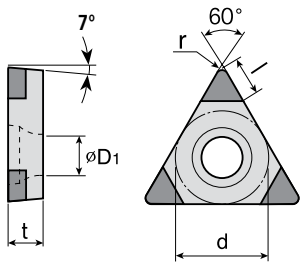





| ANSI DESIGNATION | ISO DESIGNATION | Dimension (inches) | | | | | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | l | d | t | r | D1 | | | | |
| SNMA 431LN | SNMA 120404 LN | .165 | .500 | .187 | .016 | .203 | | | ◐ | |
| SNMA 431LS2 | SNMA 120404 LS2 | .098 | .500 | .187 | .016 | .203 | | | ◐ | ● |
| SNMA 431LS4 | SNMA 120404 LS4 | .098 | .500 | .187 | .016 | .203 | | | ◐ | |
| SNMA 432LN | SNMA 120408 LN | .165 | .500 | .187 | .031 | .203 | | ○ | ◐ | ● |
| SNMA 432LS2 | SNMA 120408 LS2 | .098 | .500 | .187 | .031 | .203 | | ○ | ◐ | ● |
| SNMA 432LS4 | SNMA 120408 LS4 | .098 | .500 | .187 | .031 | .203 | | | ◐ | |
| SNMA 432LS8 | SNMA 120408 LS8 | .098 | .500 | .187 | .031 | .203 | | | ◐ | |

LN - Insert with longer tip  LS2 - Insert with 2 tips  LS4 - Insert with 4 tips  LS8 - Insert with 8 tips

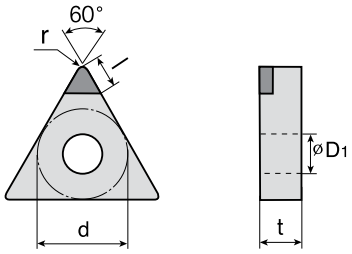
## TCGW LS




| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) l | d | t | r | D1 | Grade TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|
| TCGW 731LS3 | TCGW 090204 LS3 | .090 | .219 | .094 | .016 | .098 | ○ | ◑ | ● |
| TCGW 732LS3 | TCGW 090208 LS3 | .082 | .219 | .094 | .031 | .098 | | ◑ | |
| TCGW 21.51LS3 | TCGW 110204 LS3 | .090 | .250 | .094 | .016 | .110 | ○ | ◑ | ● |
| TCGW 21.52LS3 | TCGW 110208 LS3 | .090 | .250 | .094 | .031 | .110 | | ◑ | ● |
| TCGW 32.51LS3 | TCGW 16T304 LS3 | .082 | .375 | .157 | .016 | .173 | ○ | ◑ | ● |
| TCGW 32.52LS3 | TCGW 16T308 LS3 | .082 | .375 | .157 | .031 | .173 | ○ | ◑ | ● |

LS3 - Insert with 3 tips

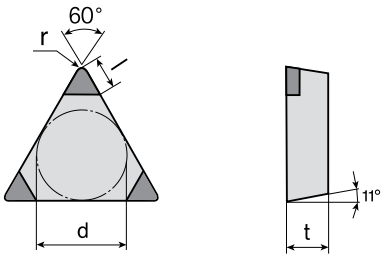
## TNMA CBN




| ANSI DESIGNATION | ISO DESIGNATION | Dimension (inches) l | d | t | r | D1 | Grade TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|
| TNMA 331LN | TNMA 160404 LN | .169 | .375 | .187 | .016 | .150 | | ◑ | |
| TNMA 331LS3 | TNMA 160404 LS3 | .086 | .375 | .187 | .016 | .150 | ○ | ◑ | ● |
| TNMA 331LS6 | TNMA 160404 LS6 | .086 | .375 | .187 | .016 | .150 | | ◑ | |
| TNMA 332LN | TNMA 160408 LN | .157 | .375 | .187 | .031 | .150 | | ◑ | |
| TNMA 332LS3 | TNMA 160408 LS3 | .082 | .375 | .187 | .031 | .150 | ○ | ◑ | ● |
| TNMA 332LS6 | TNMA 160408 LS6 | .082 | .375 | .187 | .031 | .150 | | ◑ | |
| TNMA 333LS3 | TNMA 160412 LS3 | .100 | .375 | .187 | .047 | .150 | | ◑ | ● |

LN - Insert with longer tip LS3 - Insert with 3 tips LS6 - Insert with 6 tips

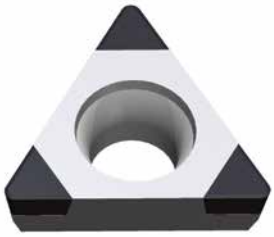
# TPG LS

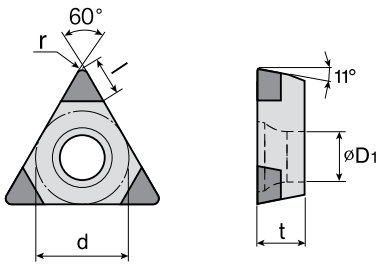



| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) l | d | t | r | D1 | Grade TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|
| TPG 731LS3 | TPGN 090204 LS3 | .090 | 0.219 | 0.094 | 0.016 | - | ○ | | |
| TPG 2205 LS3 | TPGN 110302 LS3 | .110 | 0.250 | 0.125 | 0.008 | - | | | ● |
| TPG 221 LS3 | TPGN 110304 LS3 | .102 | 0.250 | 0.125 | 0.016 | - | ○ | ◑ | ● |
| TPG 222 LS3 | TPGN 110308 LS3 | .090 | 0.250 | 0.125 | 0.031 | - | ○ | ◑ | ● |
| TPG 321 LS3 | TPGN 160304 LS3 | .110 | 0.375 | 0.125 | 0.016 | - | ○ | ◑ | ● |
| TPG 322 LS3 | TPGN 160308 LS3 | .100 | 0.375 | 0.125 | 0.031 | - | ○ | ◑ | ● |

LS3 - Insert with 3 tips

# TPGW CBN

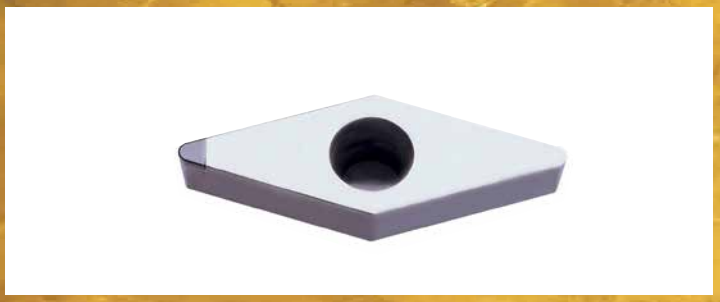


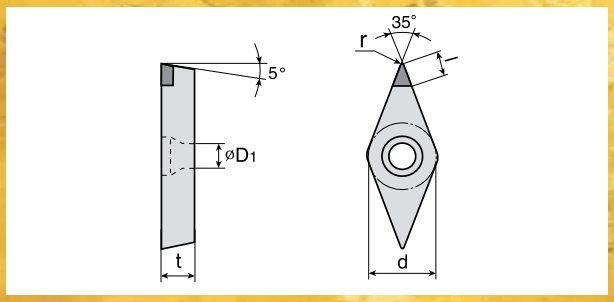



| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) l | d | t | r | D1 | Grade TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|
| TPGW631LS3 | TPGW080204LS3 | .082 | .187 | .094 | .016 | .098 | | ◑ | |
| TPGW731LS3 | TPGW090204LS3 | .090 | .219 | .094 | .016 | .098 | | ◑ | ● |
| TPGW732LS3 | TPGW090208LS3 | .078 | .219 | .094 | .031 | .098 | | ◑ | |
| TPGW220.5LS3 | TPGW110302LS3 | .110 | .250 | .125 | .008 | .134 | ○ | | ● |
| TPGW221LS | TPGW110304LS | .102 | .250 | .125 | .016 | .134 | | ◑ | |
| TPGW221LS3 | TPGW110304LS3 | .102 | .250 | .125 | .016 | .134 | ○ | | ● |
| TPGW222LS3 | TPGW110308LS3 | .090 | .250 | .125 | .031 | .134 | ○ | ◑ | ● |
| TPGW331LS3 | TPGW160404LS3 | .110 | .375 | .187 | .016 | .173 | | ◑ | |
| TPGW332LS3 | TPGW160408LS3 | .100 | .375 | .187 | .031 | .173 | | ◑ | |

LS3 - Insert with 3 tips

# VBGW CBN

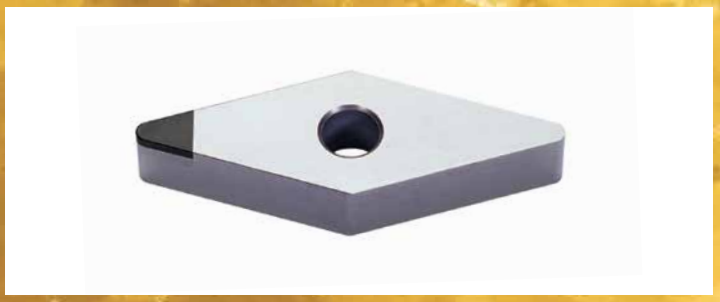


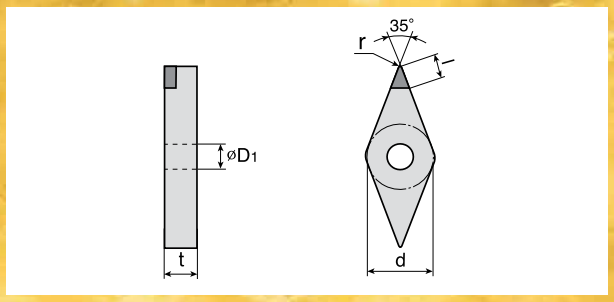



| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) l | d | t | r | D1 | Grade TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|
| VBGW 222LS2 | VBGW 110308 LS2 | .094 | .250 | .125 | .031 | .110 | ○ | | ● |
| VBGW 332LS2 | VBGW 160408 LS2 | .090 | .375 | .187 | .031 | .173 | ○ | | ● |

LS2 - Insert with 2 tips

# VNGA CBN

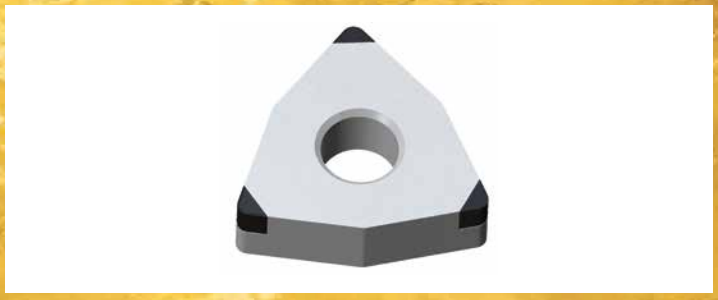


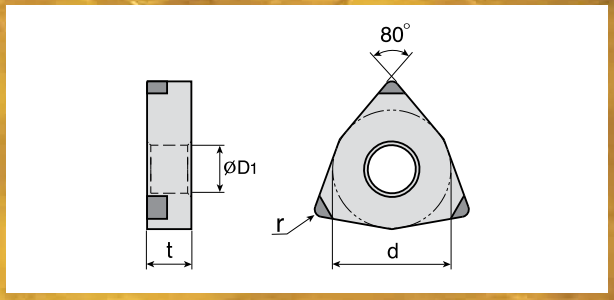



| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) l | d | t | r | D1 | Grade TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|
| VNGA 331LN | VNGA 160404 LN | .197 | .375 | .187 | .016 | .150 | | ◐ | |
| VNGA 331LS2 | VNGA 160404 LS2 | .126 | .375 | .187 | .016 | .150 | ○ | ◐ | ● |
| VNGA 332LN | VNGA 160408 LN | .161 | .375 | .187 | .031 | .150 | | ◐ | |
| VNGA 332LS2 | VNGA 160408 LS2 | .094 | .375 | .187 | .031 | .150 | ○ | ◐ | ● |
| VNGA 332LS4 | VNGA 160408 LS4 | .094 | .375 | .187 | .031 | .150 | | ◐ | |

LN - Insert with longer tip LS2 - Insert with 2 tips LS4 - Insert with 4 tips

# WNGA CBN

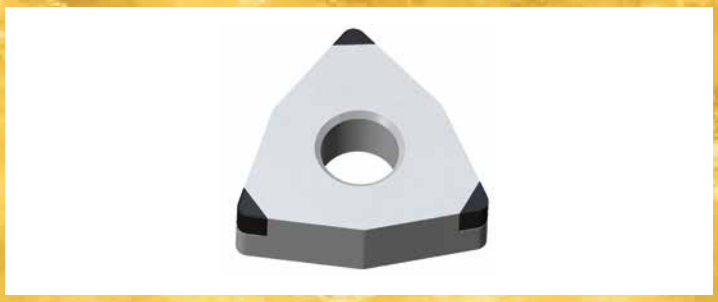


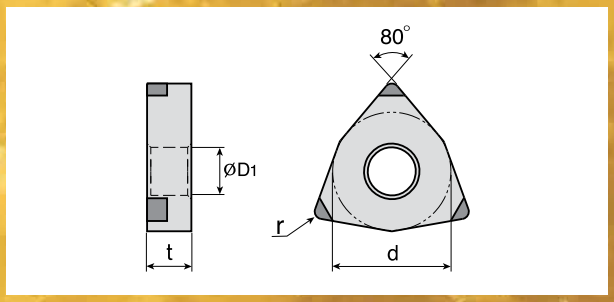



| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) l | d | t | r | D1 | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| WNGA332WZ-LS6 | WNGA060408WZ-LS6 | .083 | .375 | .187 | .031 | .150 | | | ◐ | |
| WNGA432WZ-LS3 | WNGA080408WZ-LS3 | .083 | .500 | .187 | .031 | .203 | | ○ | ◐ | |
| WNGA432WZ-LS6 | WNGA080408WZ-LS6 | .083 | .500 | .187 | .031 | .203 | | | ◐ | |
| WNGA433WZ-LS3 | WNGA080412WZ-LS3 | .083 | .500 | .187 | .047 | .203 | | | ◐ | |

LS3 - Insert with 3 tips LS6 - Insert with 6 tips

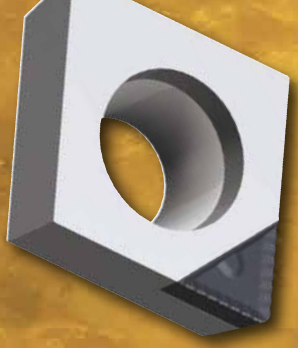
# WNMA CBN

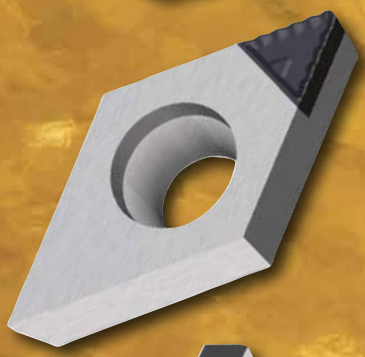





| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) l | d | t | r | D1 | Grade | TB610 | TB670 | TB730 |
|---|---|---|---|---|---|---|---|---|---|---|
| WNMA 432LS3 | WNMA 080408 LS3 | .083 | .500 | .187 | .031 | .203 | | | ◐ | |
| WNMA 432LS6 | WNMA 080408 LS6 | .083 | .500 | .187 | .031 | .203 | | | ◐ | |

LS3 - Insert with 3 tips LS6 - Insert with 6 tips



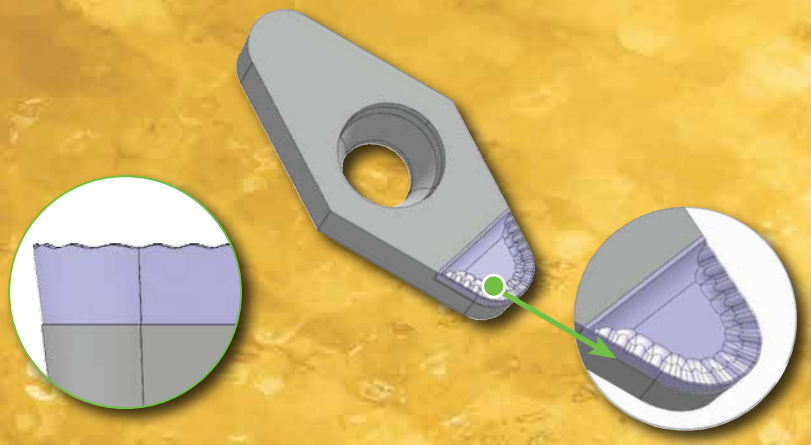


# TOTURN™

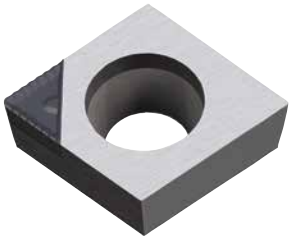
## PCD CHIPBREAKER INSERT

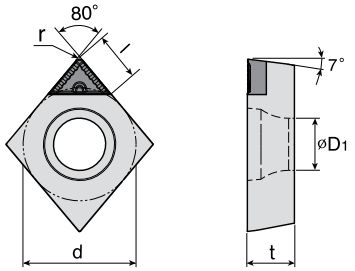
## CB - PCD INSERT WITH SPECIAL TOP FACE GEOMETRY

- Serrated cutting edge ensures maximum chip control and low cutting resistance
- Performs remarkably well even in low depth of cut and low feed
- Unique cutting edge geometry guarantees excellent chipping resistance



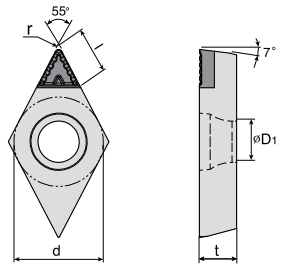
## CCGT CB





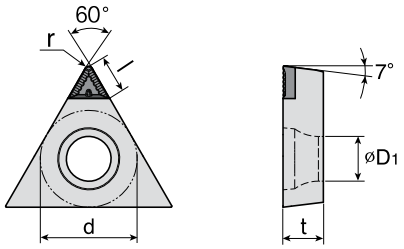

| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inch) | | | | | Grade | KP300 |
|---|---|---|---|---|---|---|---|---|
| | | l | d | t | r | D1 | | |
| CCGT21.51CB | CCGT060204CB | 0.122 | 0.250 | 0.094 | 0.016 | 0.110 | | ● |
| CCGT32.50.5CB | CCGT09T302CB | 0.163 | 0.375 | 0.156 | 0.008 | 0.173 | | ● |
| CCGT32.51CB | CCGT09T304CB | 0.161 | 0.375 | 0.156 | 0.016 | 0.173 | | ● |
| CCGT32.52CB | CCGT09T308CB | 0.157 | 0.375 | 0.156 | 0.031 | 0.173 | | ● |
| CCGT431CB | CCGT120404CB | 0.161 | 0.500 | 0.187 | 0.016 | 0.217 | | ● |
| CCGT432CB | CCGT120408CB | 0.157 | 0.500 | 0.187 | 0.031 | 0.217 | | ● |

## DCGT CB




| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inch) | | | | | Grade | KP300 |
|---|---|---|---|---|---|---|---|---|
| | | l | d | t | r | D1 | | |
| DCGT21.50.5CB | DCGT070202CB | 0.134 | 0.250 | 0.094 | 0.008 | 0.110 | | ● |
| DCGT21.51CB | DCGT070204CB | 0.130 | 0.250 | 0.094 | 0.016 | 0.110 | | ● |
| DCGT32.50.5CB | DCGT11T302CB | 0.193 | 0.375 | 0.156 | 0.008 | 0.173 | | ● |
| DCGT32.51CB | DCGT11T304CB | 0.185 | 0.375 | 0.156 | 0.016 | 0.173 | | ● |
| DCGT32.52CB | DCGT11T308CB | 0.173 | 0.375 | 0.156 | 0.031 | 0.173 | | ● |

## TCGT CB




| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inch) | | | | | Grade | KP300 |
|---|---|---|---|---|---|---|---|---|
| | | l | d | t | r | D1 | | |
| TCGT731CB | TCGT090204CB | 0.110 | 0.219 | 0.094 | 0.016 | 0.098 | | ● |
| TCGT21.51CB | TCGT110204CB | 0.150 | 0.250 | 0.094 | 0.016 | 0.173 | | ● |
| TCGT32.51CB | TCGT16T304CB | 0.154 | 0.375 | 0.156 | 0.016 | 0.173 | | ● |
| TCGT32.52CB | TCGT16T308CB | 0.142 | 0.375 | 0.156 | 0.031 | 0.173 | | ● |

# VCGT CB




| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inch) | | | | | Grade | |
|---|---|---|---|---|---|---|---|---|
| | | l | d | t | r | D1 | | KP300 |
| VCGT220.5CB | VCGT110302CB | 0.185 | 0.250 | 0.125 | 0.008 | 0.110 | | ● |
| VCGT221CB | VCGT110304CB | 0.197 | 0.250 | 0.125 | 0.016 | 0.110 | | ● |
| VCGT331CB | VCGT160404CB | 0.287 | 0.375 | 0.187 | 0.016 | 0.150 | | ● |
| VCGT332CB | VCGT160408CB | 0.252 | 0.375 | 0.187 | 0.031 | 0.150 | | ● |
| VCGT333CB | VCGT160412CB | 0.244 | 0.375 | 0.187 | 0.047 | 0.150 | | ● |
| VCGT43.57.5CB | VCGT220530CB | 0.252 | 0.500 | 0.219 | 0.118 | 0.217 | | ● |

# T-TANK™

## SAME PERFORMANCE AT 20-25% LOWER PRICE!

### SMALL inserts with superior durability and the SAME THICKNESS as ISO inserts


### Actual size of insert


Current trends in manufacturing feature work piece components with reduced stock conditions due to improved casting and forging technology. In these cases, depths of cut in rough turning are predominantly in the range of .040"~.080" per side, rendering conventional ISO turning inserts with .500" long cutting edges inefficient due to their disproportionate size.

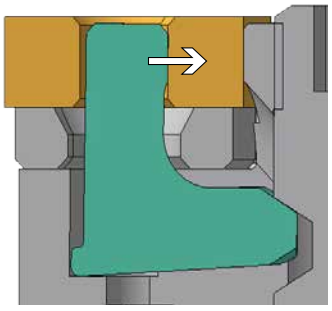
In the modern machining environment with high focus on cost reduction, Ingersoll is pleased to launch T-Tank, a series of smaller, but robust, ISO turning inserts to meet the manufacturing industry's needs of reduced machining costs and increased competitiveness.

# TOTANK™

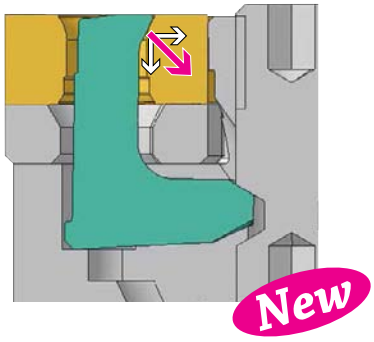
## Excellent insert rigidity! Strong clamping holder!

## "Next generation clamping system"

**Conventional ISO clamping structure**
Single directional clamping force



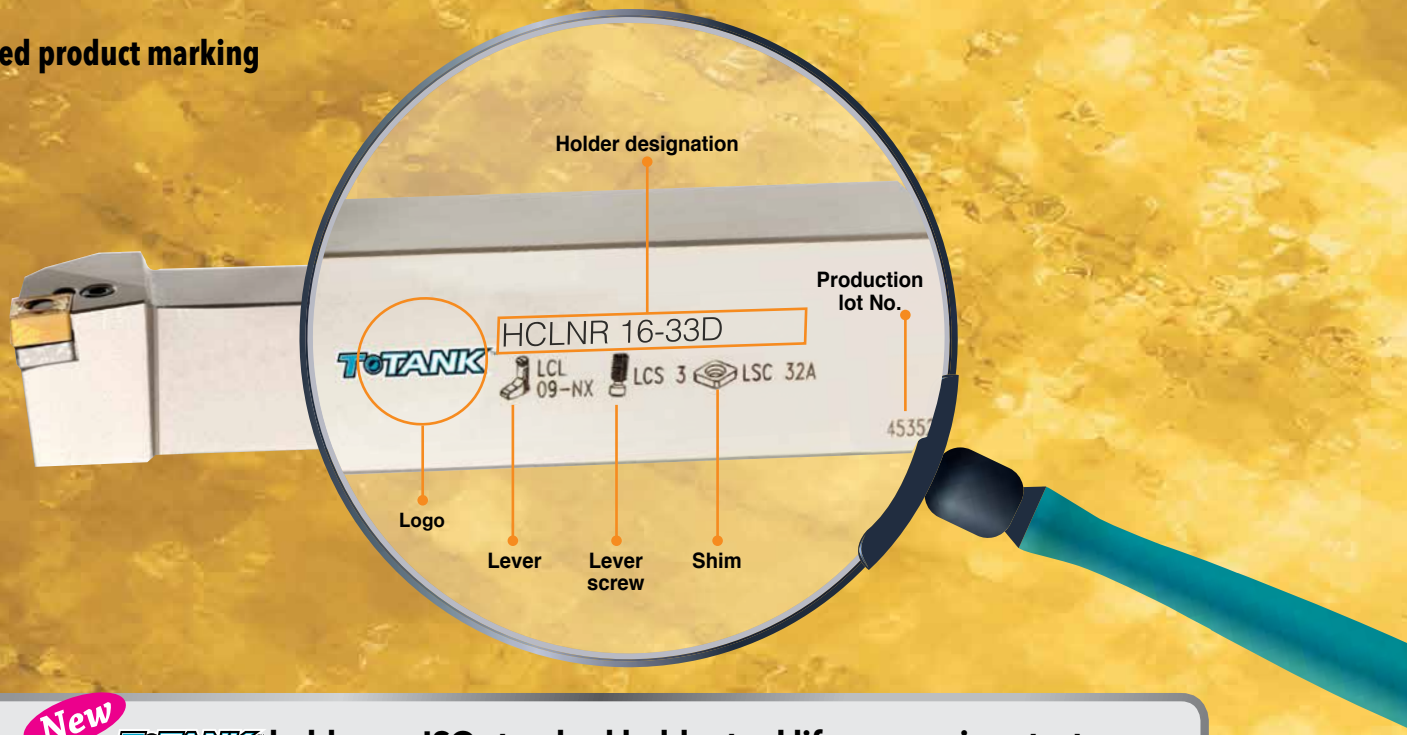

**TOTANK™ clamping structure**
Multi-directional clamping forces




### Features

- Exceptionally stable machining due to multi-directional clamping forces over the existing conventional ISO lever holder's single direction clamping force
- Excellent productivity and longer, stable tool life in high feed turning applications
- Optimal performance in interrupted cutting on weak/old machine set-ups

## Detailed product marking




New

### T•TANK holder vs. ISO standard holder tool life comparison test

**Interrupted cut** (Ingersoll tech center)

- Work piece: Medium carbon alloy steel
- Process: Interrupted facing
- Cutting condition: V=330sfm, f=.024ipr, d=.160", Dry

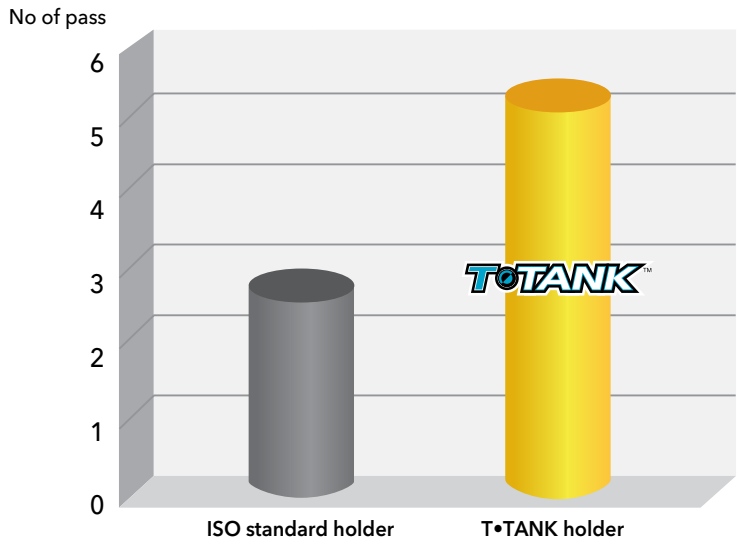
**Comparison test**

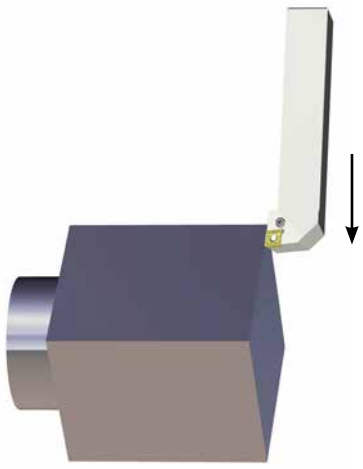
❶ CNMG 432 + PCLNR 2525 M12 holder (ISO standard holder)

❷ CNMG 332 + HCLNR 16-33D ( T•TANK holder)

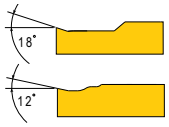
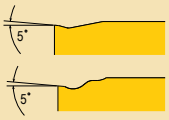
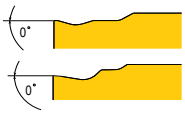
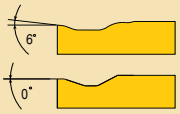
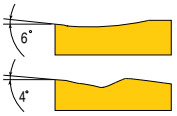
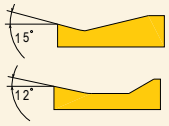
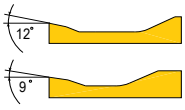
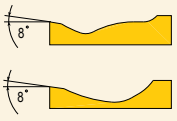
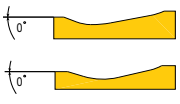
* Chip breaker & grade are the same

### Insert life



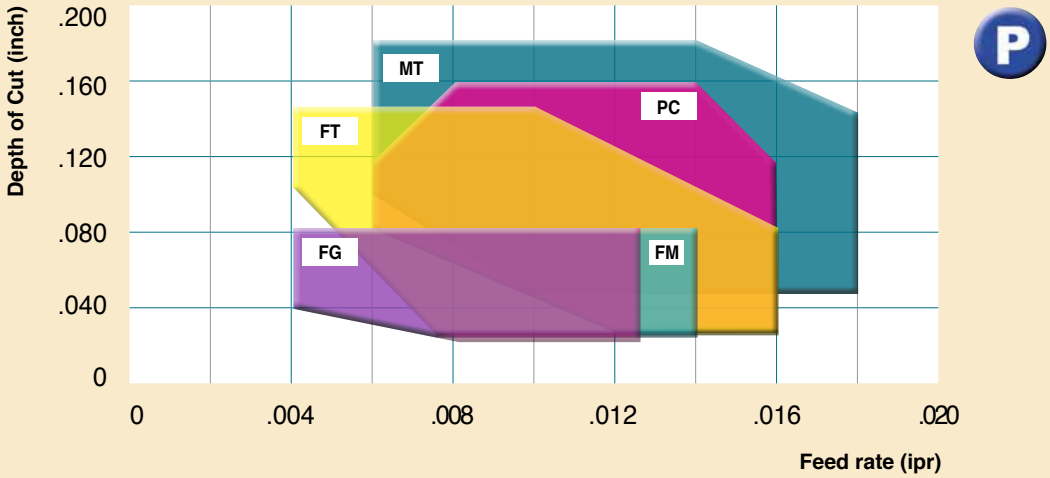



## Chipbreakers

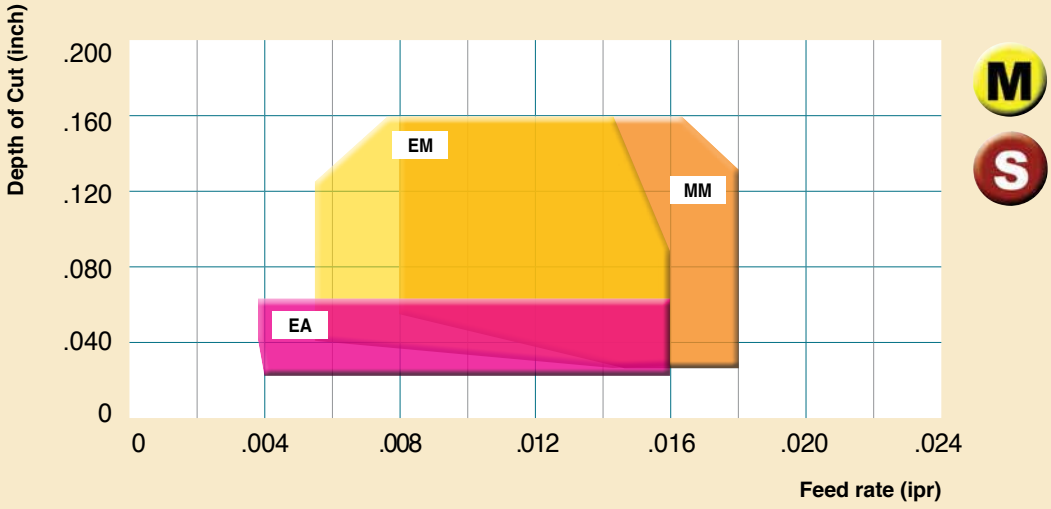
| Chipbreaker | | | | Range & Features |
|---|---|---|---|---|
| **FG** |  |   | A B | • For finishing and semi-finishing applications<br>• For steel application<br>• Low cutting forces |
| **FM** |  |   | A B | • For steel machining<br>• Solution for a wide range from semi-finishing to semi-medium machining |
| **FT** |  |   | A B | • For steel machining<br>• Strong, serrated cutting edge for excellent chip evacuation in wider depth of cut range for both profiling and step machining<br>• Semi-finishing and medium machining<br>• Excellent chip breaking for automotive components |
| **PC** |  |   | A B | • For semi-finishing to medium applications<br>• Ideal for Steel & Automotive components<br>• Excellent chip control on medium applications |
| **MT** |  |   | A B | • Suitable for continuous and interrupted cutting<br>• For medium rough applications<br>• Steel, cast iron and stainless steel<br>• Tough rake angle for general use |
| **EA** |  |   | A B | • For finishing applications<br>• Exotic materials<br>• Excellent chip control at low feeds and depths of cut |
| **EM** |  |   | A B | • For medium applications<br>• Stainless steel machining<br>• Sharp land design for low cutting force |
| **MM** |  |   | A B | • For general machining on stainless steel and steel<br>• Positive rake angle provides excellent chip evacuation |
| **MG-** |  |   | A B | • For medium rough applications<br>• For general machining on cast iron<br>• Strong rake geometry |
| **TNGG** |  |   | A | • Ground Insert<br>• Suitable for general purpose machining<br>• Lower cutting force and increased adhesion force<br>• Improved dimension and finishing surface accuracy |

## Chipbreakers

**Steel** - Workpiece: Medium carbon steel / Cutting speed (Vc): 650 sfm

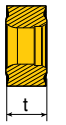


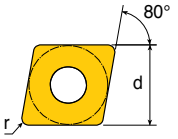

**Stainless Steel** - Workpiece: Stainless steel / Cutting speed (Vc): 650 sfm



# CNMG Negative 80° Rhombic Inserts

| Designation | d | t | r |
|---|---|---|---|
| CNMG 331 | 0.375 | 0.187 | 0.016 |
| CNMG 332 | 0.375 | 0.187 | 0.031 |
| CNMG 333 | 0.375 | 0.187 | 0.047 |



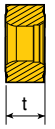



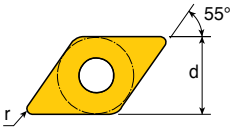


| Insert | Designation | | Recommended Parameters | | Grade | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cermet | CVD Coated | | | | | | | | | PVD Coated | |
| | ANSI | ISO | feed (ipr) | ap (inch) | CT3000 | TT7005 | TT7015 | TT8115 | TT8125 | TT8135 | TT9215 | TT9225 | TT9235 | TT5100 | TT5080 | TT9080 |
|  | **CNMA332** | **CNMA090408** | .006-.024 | .039-.157 | | ● | ● | | | | | | | | | |
| | **CNMA333** | **CNMA090412** | .006-.028 | .039-.157 | | ● | ● | | | | | | | | | |
|  | **CNMG331** | **CNMG090404** | .004-.018 | .020-.157 | | ● | ● | | | | | | | | | |
| | **CNMG332** | **CNMG090408** | .004-.020 | .020-.157 | | ● | ● | | | | | | | | | |
| | **CNMG333** | **CNMG090412** | .004-.022 | .020-.157 | | ● | ● | | | | | | | | | |
|  | **CNMG331EA** | **CNMG090404EA** | .002-.012 | .005-.059 | | | | | | | ● | ● | ● | | ● | ● |
| | **CNMG332EA** | **CNMG090408EA** | .003-.020 | .006-.059 | | | | | | | ● | ● | ● | | ● | ● |
|  | **CNMG332EM** | **CNMG090404EM** | .005-.020 | .020-.157 | | | | | | | ● | ● | ● | | ● | ● |
| | **CNMG333EM** | **CNMG090408EM** | .006-.020 | .028-.157 | | | | | | | ● | ● | ● | | ● | ● |
|  | **CNMG331FG** | **CNMG090404FG** | .003-.012 | .008-.079 | | | | ● | ● | | | | | ● | | |
| | **CNMG332FG** | **CNMG090408FG** | .004-.014 | .020-.079 | | | | ● | ● | | | | | ● | | |
| | **CNMG333FG** | **CNMG090412FG** | .006-.016 | .020-.079 | | | | ● | ● | | | | | ● | | |
|  | **CNMG331FM** | **CNMG090404FM** | .003-.012 | .010-.079 | ● | | | ● | ● | ● | | | | ● | | |
| | **CNMG332FM** | **CNMG090408FM** | .004-.014 | .012-.079 | ● | | | ● | ● | ● | | | | ● | | |
| | **CNMG333FM** | **CNMG090412FM** | .006-.016 | .014-.079 | ● | | | ● | ● | ● | | | | ● | | |
|  | **CNMG331FT** | **CNMG090404FT** | .003-.012 | .016-.138 | | | | ● | ● | ● | | | | ● | | |
| | **CNMG332FT** | **CNMG090408FT** | .004-.016 | .020-.138 | | | | ● | ● | ● | | | | ● | | |
| | **CNMG333FT** | **CNMG090412FT** | .006-.020 | .024-.138 | | | | ● | ● | ● | | | | ● | | |
|  | **CNMG331MM** | **CNMG090404MM** | .006-.018 | .016-.157 | | | | ● | ● | ● | ● | ● | ● | ● | | |
| | **CNMG332MM** | **CNMG090408MM** | .008-.020 | .020-.157 | | | | ● | ● | ● | ● | ● | ● | ● | | |
| | **CNMG333MM** | **CNMG090412MM** | .009-.020 | .028-.157 | | | | ● | ● | ● | ● | ● | ● | ● | | |
|  | **CNMG331MT** | **CNMG090404MT** | .004-.014 | .031-.177 | | | | ● | ● | ● | | | | ● | | |
| | **CNMG332MT** | **CNMG090408MT** | .006-.018 | .039-.177 | | | | ● | ● | ● | | | | ● | | |
| | **CNMG333MT** | **CNMG090412MT** | .008-.022 | .047-.177 | | | | ● | ● | ● | | | | ● | | |
|  | **CNMG331PC** | **CNMG090404PC** | .004-.012 | .016-.157 | | | | ● | ● | ● | | | | ● | | |
| | **CNMG332PC** | **CNMG090408PC** | .006-.016 | .020-.157 | | | | ● | ● | ● | | | | ● | | |
| | **CNMG333PC** | **CNMG090412PC** | .007-.020 | .024-.157 | | | | ● | ● | ● | | | | ● | | |

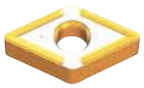
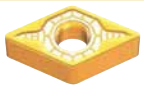
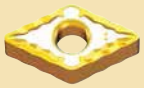
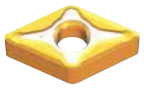
# DNMG Negative 55° Rhombic Inserts

| Designation | d | t | r |
|---|---|---|---|
| DNMG 3.53.51 | 0.437 | 0.219 | 0.016 |
| DNMG 3.53.52 | 0.437 | 0.219 | 0.031 |
| DNMG 3.53.53 | 0.437 | 0.219 | 0.047 |



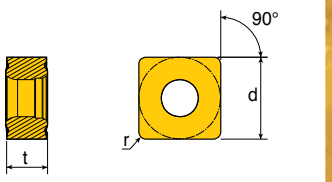





| Insert | Designation | | Recommended Parameters | | Grade | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cermet | CVD Coated | | | | | | | | | PVD Coated | |
| | ANSI | ISO | feed (ipr) | ap (inch) | CT3000 | TT7005 | TT7015 | TT8115 | TT8125 | TT8135 | TT9215 | TT9225 | TT9235 | TT5100 | TT5080 | TT9080 |
|  | DNMG3.53.51 | DNMG130504 | .004-.018 | .020-.157 | | ● | ● | | | | | | | | | |
| | DNMG3.53.52 | DNMG130508 | .004-.020 | .020-.157 | | ● | ● | | | | | | | | | |
| | DNMG3.53.53 | DNMG130512 | .004-.022 | .020-.157 | | ● | ● | | | | | | | | | |
|  | DNMG3.53.51EA | DNMG130504EA | .002-.012 | .005-.059 | | | | | | | ● | ● | ● | | ● | ● |
| | DNMG3.53.52EA | DNMG130508EA | .003-.016 | .006-.059 | | | | | | | ● | ● | ● | | ● | ● |
|  | DNMG3.53.52EM | DNMG130504EM | .005-.016 | .020-.157 | | | | | | | ● | ● | ● | | ● | ● |
| | DNMG3.53.53EM | DNMG130508EM | .006-.016 | .028-.157 | | | | | | | ● | ● | ● | | ● | ● |
|  | DNMG3.53.51FG | DNMG130504FG | .003-.012 | .008-.079 | | | | ● | ● | | | | | ● | | |
| | DNMG3.53.52FG | DNMG130508FG | .004-.014 | .020-.079 | | | | ● | ● | | | | | ● | | |
| | DNMG3.53.53FG | DNMG130512FG | .006-.016 | .020-.079 | | | | ● | ● | | | | | ● | | |
|  | DNMG3.53.51FM | DNMG130504FM | .003-.012 | .010-.079 | ● | | | ● | ● | ● | | | | ● | | |
| | DNMG3.53.52FM | DNMG130508FM | .004-.014 | .012-.079 | ● | | | ● | ● | ● | | | | ● | | |
| | DNMG3.53.53FM | DNMG130512FM | .006-.016 | .014-.079 | ● | | | ● | ● | ● | | | | ● | | |
|  | DNMG3.53.51FT | DNMG130504FT | .003-.012 | .010-.138 | | | | ● | ● | ● | | | | ● | | |
| | DNMG3.53.52FT | DNMG130508FT | .004-.016 | .012-.138 | | | | ● | ● | ● | | | | ● | | |
| | DNMG3.53.53FT | DNMG130512FT | .006-.020 | .014-.118 | | | | ● | ● | ● | | | | ● | | |
|  | DNMG3.53.51MM | DNMG130504MM | .006-.018 | .016-.177 | | | | ● | ● | ● | ● | ● | ● | ● | | |
| | DNMG3.53.52MM | DNMG130508MM | .008-.020 | .020-.177 | | | | ● | ● | ● | ● | ● | ● | ● | | |
| | DNMG3.53.53MM | DNMG130512MM | .009-.020 | .028-.177 | | | | ● | ● | ● | ● | ● | ● | ● | | |
|  | DNMG3.53.51MT | DNMG130504MT | .004-.014 | .031-.177 | | | | ● | ● | ● | | | | ● | | |
| | DNMG3.53.52MT | DNMG130508MT | .006-.018 | .039-.177 | | | | ● | ● | ● | | | | ● | | |
| | DNMG3.53.53MT | DNMG130512MT | .008-.022 | .047-.177 | | | | ● | ● | ● | | | | ● | | |
|  | DNMG3.53.51PC | DNMG130504PC | .004-.012 | .016-.157 | | | | ● | ● | ● | | | | ● | | |
| | DNMG3.53.52PC | DNMG130508PC | .006-.016 | .020-.157 | | | | ● | ● | ● | | | | ● | | |
| | DNMG3.53.53PC | DNMG130512PC | .007-.020 | .024-.157 | | | | ● | ● | ● | | | | ● | | |

# SNMG Negative 90° Square Inserts

| Designation | d | t | r |
|---|---|---|---|
| SNMG 331 | 0.375 | 0.187 | 0.016 |
| SNMG 332 | 0.375 | 0.187 | 0.031 |
| SNMG 333 | 0.375 | 0.187 | 0.047 |

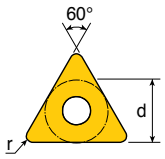


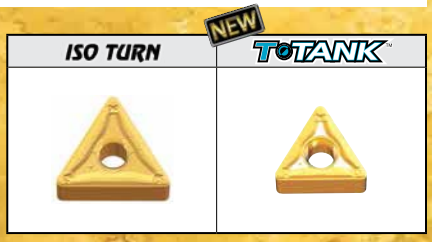


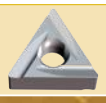
| Insert | Designation | | Recommended Parameters | | Grade | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cermet | CVD Coated | | | | | | | | | PVD Coated | |
| | ANSI | ISO | feed (mm/rev) | ap (mm) | CT3000 | TT7005 | TT7015 | TT8115 | TT8125 | TT8135 | TT9215 | TT9225 | TT9235 | TT5100 | TT5080 | TT9080 |
|  | SNMG331 | SNMG090404 | .004-.018 | .020-.157 | | ● | ● | | | | | | | | | |
| | SNMG332 | SNMG090408 | .004-.020 | .020-.157 | | ● | ● | | | | | | | | | |
| | SNMG333 | SNMG090412 | .004-.022 | .020-.157 | | ● | ● | | | | | | | | | |
|  | SNMG331EA | SNMG090404EA | .002-.012 | .005-.059 | | | | | | | ● | ● | ● | | ● | ● |
| | SNMG332EA | SNMG090408EA | .003-.016 | .006-.059 | | | | | | | ● | ● | ● | | ● | ● |
|  | SNMG332EM | SNMG090404EM | .005-.016 | .020-.157 | | | | | | | ● | ● | ● | | ● | ● |
| | SNMG333EM | SNMG090408EM | .006-.016 | .028-.157 | | | | | | | ● | ● | ● | | ● | ● |
|  | SNMG331FG | SNMG090404FG | .003-.012 | .008-.079 | | | | ● | ● | | | | | ● | | |
| | SNMG332FG | SNMG090408FG | .004-.014 | .020-.079 | | | | ● | ● | | | | | ● | | |
| | SNMG333FG | SNMG090412FG | .006-.016 | .020-.079 | | | | ● | ● | | | | | ● | | |
|  | SNMG331FM | SNMG090404FM | .003-.012 | .010-.079 | ● | | | ● | ● | ● | | | | ● | | |
| | SNMG332FM | SNMG090408FM | .004-.014 | .012-.079 | ● | | | ● | ● | ● | | | | ● | | |
| | SNMG333FM | SNMG090412FM | .006-.016 | .014-.079 | ● | | | ● | ● | ● | | | | ● | | |
|  | SNMG331MM | SNMG090404MM | .006-.018 | .016-.157 | | | | ● | ● | ● | ● | ● | ● | ● | | |
| | SNMG332MM | SNMG090408MM | .008-.020 | .020-.157 | | | | ● | ● | ● | ● | ● | ● | ● | | |
| | SNMG333MM | SNMG090412MM | .009-.020 | .028-.157 | | | | ● | ● | ● | ● | ● | ● | ● | | |
|  | SNMG331MT | SNMG090404MT | .004-.014 | .031-.157 | | | | ● | ● | ● | | | | ● | | |
| | SNMG332MT | SNMG090408MT | .006-.018 | .039-.157 | | | | ● | ● | ● | | | | ● | | |
| | SNMG333MT | SNMG090412MT | .008-.022 | .047-.157 | | | | ● | ● | ● | | | | ● | | |
|  | SNMG331PC | SNMG090404PC | .004-.012 | .016-.138 | | | | ● | ● | ● | | | | ● | | |
| | SNMG332PC | SNMG090408PC | .006-.016 | .020-.138 | | | | ● | ● | ● | | | | ● | | |
| | SNMG333PC | SNMG090412PC | .007-.020 | .024-.138 | | | | ● | ● | ● | | | | ● | | |

# TNMG Negative 60° Triangular Inserts

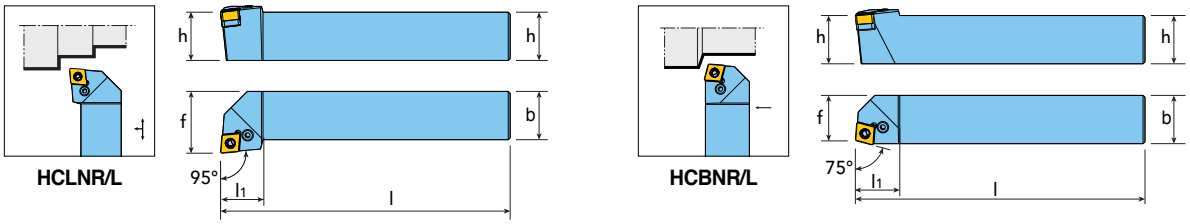
| Designation | d | t | r |
|---|---|---|---|
| TNMG 2.531 | 0.313 | 0.187 | 0.016 |
| TNMG 2.532 | 0.313 | 0.187 | 0.031 |
| TNMG 2.533 | 0.313 | 0.187 | 0.047 |

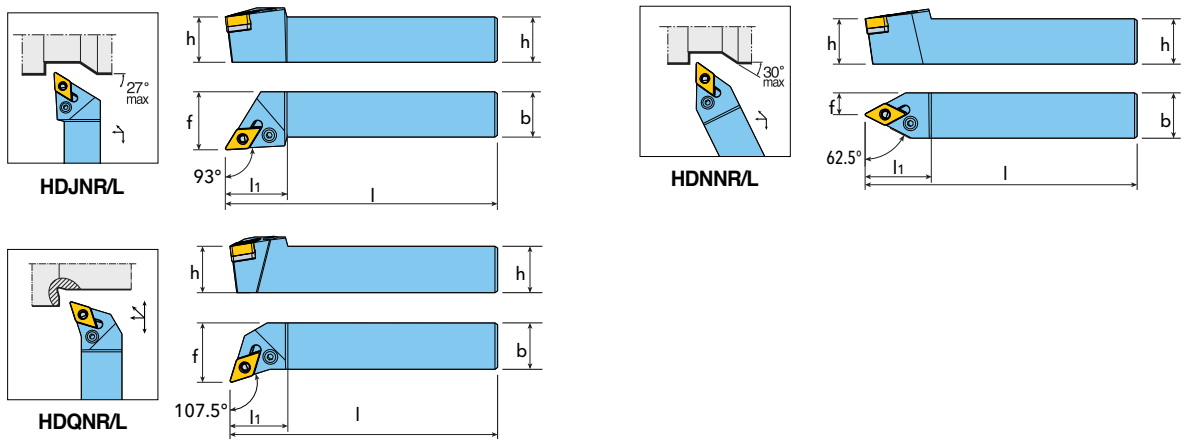

| Insert | Designation | | Recommended Parameters | | Grade | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cermet | CVD Coated | | | | | | | | | PVD Coated | |
| | ANSI | ISO | feed (mm/rev) | ap (mm) | CT3000 | TT7005 | TT7015 | TT8115 | TT8125 | TT8135 | TT9215 | TT9225 | TT9235 | TT5100 | TT5080 | TT9080 |
|  | TNMG2.531 | TNMG130404 | .004-.018 | .020-.157 | | ● | ● | | | | | | | | | |
| | TNMG2.532 | TNMG130408 | .004-.020 | .020-.157 | | ● | ● | | | | | | | | | |
| | TNMG2.533 | TNMG130412 | .004-.022 | .020-.157 | | ● | ● | | | | | | | | | |
|  | TNMG2.531EA | TNMG130404EA | .002-.012 | .005-.059 | | | | | | | ● | ● | ● | | ● | ● |
| | TNMG2.532EA | TNMG130408EA | .003-.016 | .006-.059 | | | | | | | ● | ● | ● | | ● | ● |
|  | TNMG2.531EM | TNMG130404EM | .005-.016 | .020-.157 | | | | | | | ● | ● | ● | | ● | ● |
| | TNMG2.532EM | TNMG130408EM | .006-.016 | .028-.157 | | | | | | | ● | ● | ● | | ● | ● |
|  | TNMG2.531FG | TNMG130404FG | .003-.012 | .010-.059 | | | | ● | ● | | | | | ● | | |
| | TNMG2.532FG | TNMG130408FG | .004-.014 | .012-.059 | | | | ● | ● | | | | | ● | | |
| | TNMG2.533FG | TNMG130412FG | .006-.016 | .014-.059 | | | | ● | ● | | | | | ● | | |
|  | TNMG2.531FM | TNMG130404FM | .003-.012 | .010-.059 | ● | | | ● | ● | ● | | | | ● | | |
| | TNMG2.532FM | TNMG130408FM | .004-.014 | .012-.059 | ● | | | ● | ● | ● | | | | ● | | |
| | TNMG2.533FM | TNMG130412FM | .006-.016 | .014-.059 | ● | | | ● | ● | ● | | | | ● | | |
|  | TNMG2.531FT | TNMG130404FT | .003-.012 | .010-.098 | | | | ● | ● | ● | | | | ● | | |
| | TNMG2.532FT | TNMG130408FT | .004-.016 | .012-.098 | | | | ● | ● | ● | | | | ● | | |
| | TNMG2.533FT | TNMG130412FT | .006-,020 | .014-.098 | | | | ● | ● | ● | | | | ● | | |
|  | TNMG2.531MM | TNMG130404MM | .006-.018 | .016-.138 | | | | ● | ● | ● | ● | ● | ● | ● | | |
| | TNMG2.532MM | TNMG130408MM | .008-,020 | .020-.138 | | | | ● | ● | ● | ● | ● | ● | ● | | |
| | TNMG2.533MM | TNMG130412MM | .009-,020 | .028-.138 | | | | ● | ● | ● | ● | ● | ● | ● | | |
|  | TNMG2.531MT | TNMG130404MT | .004-.014 | .031-.138 | | | | ● | ● | ● | | | | ● | | |
| | TNMG2.532MT | TNMG130408MT | .006-.018 | .039X | | | | ● | ● | ● | | | | ● | | |
| | TNMG2.533MT | TNMG130412MT | .008-.022 | .047-.138 | | | | ● | ● | ● | | | | ● | | |
|  | TNMG2.531PC | TNMG130404PC | .004-.012 | .016-.118 | | | | ● | ● | ● | | | | ● | | |
| | TNMG2.532PC | TNMG130408PC | .006-.016 | .020-.118 | | | | ● | ● | ● | | | | ● | | |
| | TNMG2.533PC | TNMG130412PC | .007-,020 | .024-.118 | | | | ● | ● | ● | | | | ● | | |
|  | TNGG2.531R/L | TNMG130404R/L | .005-.012 | .039-.118 | ● | | | | | | | | | | | |
| | TNGG2.532R/L | TNMG130408R/L | .006-.014 | .051-.118 | ● | | | | | | | | | | | |

## HCLNR/L HCBNR/L



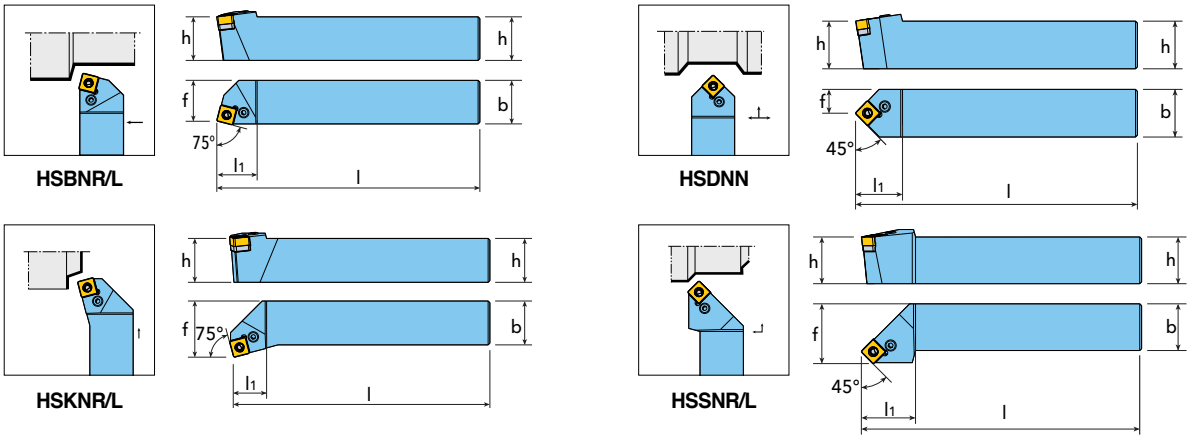

| Designation | Dimensions (inch) | | | | | Insert | Components | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | h | b | l | l1 | f | | Lever | Screw | Seat | Seat Pin | Wrench |
| HCLNR/L 10-33A | 0.625 | 0.625 | 4.00 | 0.87 | 0.750 | CNMG33_ | LCL09-NX | LCS3 | LSC32A | LSP3A | L-W2.5 |
| HCLNR/L 12-33B | 0.750 | 0.750 | 4.50 | 0.87 | 1.000 | | | | | | |
| HCLNR/L 16-33D | 1.000 | 1.000 | 6.00 | 0.87 | 1.250 | | | | | | |
| HCBNR/L 12-33B | 0.750 | 0.750 | 4.50 | 0.91 | 0.691 | CNMG33_ | LCL09-NX | LCS3 | LSC32A | LSP3A | L-W2.5 |
| HCBNR/L 16-33D | 1.000 | 1.000 | 6.00 | 0.91 | 0.941 | | | | | | |

## HDJNR/L HDNNR/L HDQNR/L



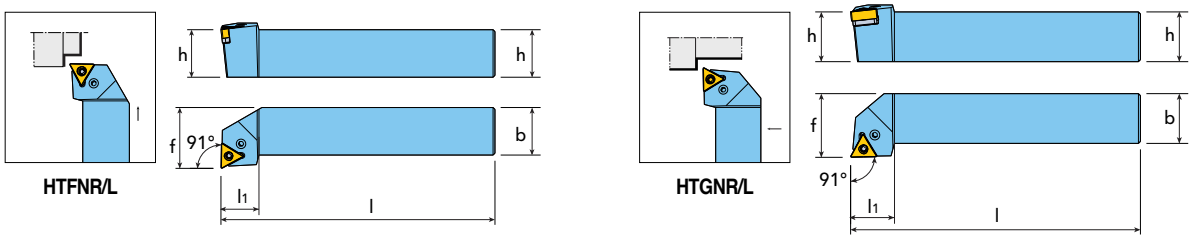

| Designation | Dimensions (inch) | | | | | Insert | Components | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | h | b | l | l1 | f | | Lever | Screw | Seat | Seat Pin | Wrench |
| HDJNR/L 12-3.53.5B | 0.750 | 0.750 | 4.50 | 1.34 | 1.000 | DNMG3.53.5_ | LCL11-NX | LCS4 | LSD3.52 | LSP4 | L-W3 |
| HDJNR/L 16-3.53.5D | 1.000 | 1.000 | 6.00 | 1.34 | 1.250 | | | | | | |
| HDNNR/L 12-3.53.5B | 0.750 | 0.750 | 4.50 | 1.44 | 0.375 | DNMG3.53.5_ | LCL11-NX | LCS4 | LSD3.52 | LSP4 | L-W3 |
| HDNNR/L 16-3.53.5D | 1.000 | 1.000 | 6.00 | 1.44 | 0.500 | | | | | | |
| HDQNR/L 12-3.53.5B | 0.750 | 0.750 | 4.50 | 1.22 | 1.000 | DNMG3.53.5_ | LCL11-NX | LCS4 | LSD3.52 | LSP4 | L-W3 |
| HDQNR/L 16-3.53.5D | 1.000 | 1.000 | 6.00 | 1.22 | 1.250 | | | | | | |

# HSBNR/L HSDNN HSKNR/L HSSNR/L



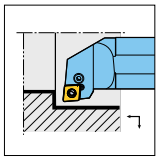

| Designation | Dimensions (inch) | | | | | Insert | Components | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | h | b | l | l1 | f | | Lever | Screw | Seat | Seat Pin | Wrench |
| HSBNR/L 12-33B | 0.750 | 0.750 | 4.50 | 0.91 | 0.691 | SNMG33_ | LCL09-NX | LCS3 | LSS32A | LSP3A | L-W2.5 |
| HSBNR/L 16-33D | 1.000 | 1.000 | 6.00 | 0.91 | 0.941 | | | | | | |
| HSDNN 12-33B | 0.750 | 0.750 | 4.50 | 0.98 | 0.375 | SNMG33_ | LCL09-NX | LCS3 | LSS32A | LSP3A | L-W2.5 |
| HSDNN 16-33D | 1.000 | 1.000 | 6.00 | 0.98 | 0.500 | | | | | | |
| HSKNR/L 12-33B | 0.750 | 0.750 | 4.50 | 0.75 | 1.000 | SNMG33_ | LCL09-NX | LCS3 | LSS32A | LSP3A | L-W2.5 |
| HSKNR/L 16-33D | 1.000 | 1.000 | 6.00 | 0.75 | 1.250 | | | | | | |
| HSSNR/L 12-33B | 0.750 | 0.750 | 4.50 | 0.85 | 1.000 | SNMG33_ | LCL09-NX | LCS3 | LSS32A | LSP3A | L-W2.5 |
| HSSNR/L 16-33D | 1.000 | 1.000 | 6.00 | 1.14 | 1.250 | | | | | | |

# HTFNR/L HTGNR/L

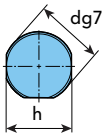


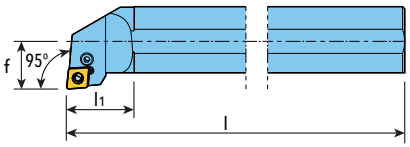

| Designation | Dimensions (inch) | | | | | Insert | Components | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | h | b | l | l1 | f | | Lever | Screw | Seat | Seat Pin | Wrench |
| HTFNR/L 12-2.53B | 0.750 | 0.750 | 4.50 | 0.79 | 1.000 | TNMG2.53_ | LCL08-NX | LCS3-NX | LST2.51.8 | LSP3B | L-W2.5 |
| HTFNR/L 16-2.53D | 1.000 | 1.000 | 6.00 | 0.79 | 1.250 | | | | | | |
| HTGNR/L 10-2.53A | 0.625 | 0.625 | 4.00 | 0.87 | 0.750 | | | | | | |
| HTGNR/L 12-2.53B | 0.750 | 0.750 | 4.50 | 0.87 | 1.000 | TNMG2.53_ | LCL08-NX | LCS3-NX | LST2.51.8 | LSP3B | L-W2.5 |
| HTGNR/L 16-2.53D | 1.000 | 1.000 | 6.00 | 0.87 | 1.250 | | | | | | |

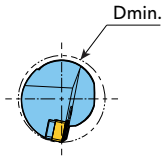
# A-HCLNR/L



A-HCLNR/L

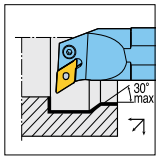


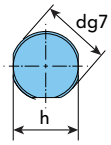



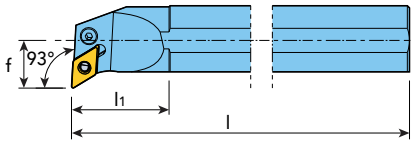

| Designation | Dimensions (inch) | | | | | | Insert | Components | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | d | h | l | l1 | f | Dmin | | Lever | Screw | Seat | Seat Pin | Snap Ring | Wrench |
| A10R-HCLNR/L-33 | 0.625 | 0.583 | 8.00 | 0.98 | 0.406 | 0.750 | CNMG 33_ | LCL09B-NX | LCS3B | – | – | LSR3B | L-W2 |
| A12S-HCLNR/L-33 | 0.750 | 0.669 | 10.00 | 1.10 | 0.500 | 1.000 | | | | | | | |
| A16T-HCLNR/L-33 | 1.000 | 0.921 | 12.00 | 1.22 | 0.640 | 1.250 | | | | | | | |
| A20U-HCLNR/L-33 | 1.250 | 1.169 | 14.00 | 1.22 | 0.765 | 1.500 | | LCL09-NX | LCS3 | LSC32 | LSP3A | – | L-W2.5 |

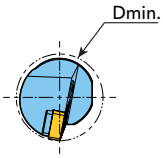
# A-HDUNR/L A-HDZNR/L

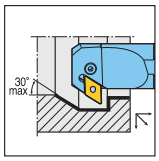



A-HDUNR/L

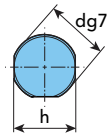


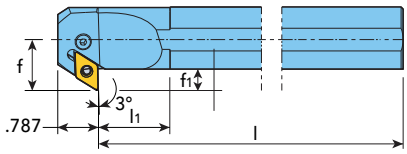



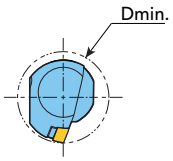




A-HDZNR/L

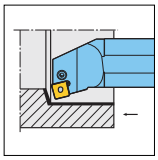


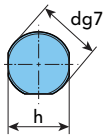



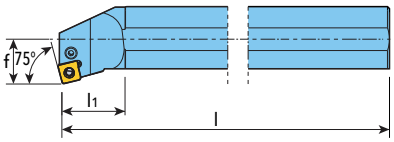

| Designation | Dimensions (inch) | | | | | | | Insert | Components | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | d | h | l | l1 | f | f1 | Dmin | | Lever | Screw | Seat | Seat Pin | Wrench |
| A20U-HDUNR/L-3.53.5 | 1.250 | 1.169 | 14.00 | 1.77 | 1.000 | – | 1.750 | DNMG3.53.5_ | LCL11-NX | LCS4S | LSD3.52B | LSP4 | L-W3 |
| A20U-HDZNR/L-3.53.5 | 1.250 | 1.169 | 14.00 | 1.36 | 1.000 | 0.434 | 1.750 | | | | | | |

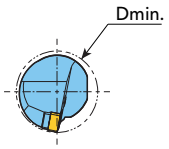
## A-HSKNR/L



S-PSKNR/L

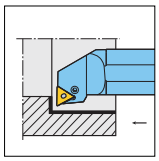


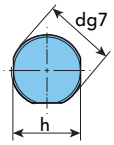



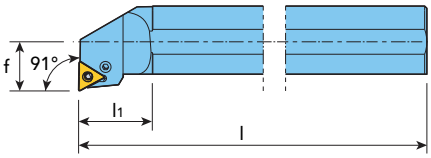

| Designation | Dimensions (inch) | | | | | | Insert | Components | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | d | h | l | l1 | f | Dmin | | Lever | Screw | Seat | Seat Pin | Snap Ring | Wrench |
| A16T-HSKNR/L-33 | 1.000 | 0.921 | 12.00 | 1.22 | 0.640 | 1.250 | SNMG33_ | LCL09B-NX | LCS3B | - | - | LSR3B | L-W2 |
| A20U-HSKNR/L-33 | 1.250 | 1.169 | 14.00 | 1.22 | 0.765 | 1.500 | | LCL09-NX | LCS3 | LSS32 | LSP3A | - | L-W2.5 |

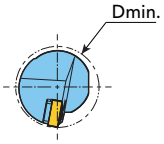
## A-HTFNR/L



A-HTFNR/L

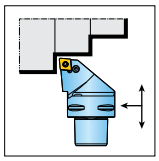


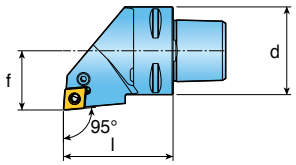




| Designation | Dimensions (inch) | | | | | | Insert | Components | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | d | h | l | l1 | f | Dmin | | Lever | Screw | Seat | Seat Pin | Snap Ring | Wrench |
| A10R-HTFNR/L-2.53 | 0.625 | 0.583 | 8.00 | 0.98 | 0.406 | 0.750 | TNMG2.53_ | LCL08B-NX | LCS3B | - | - | LSR3B | L-W2 |
| A12S-HTFNR/L-2.53 | 0.750 | 0.669 | 10.00 | 1.10 | 0.500 | 1.000 | | | | | | | |
| A16T-HTFNR/L-2.53 | 1.000 | 0.921 | 12.00 | 1.30 | 0.640 | 1.250 | | | | | | | |
| A20U-HTFNR/L-2.53 | 0.750 | 1.169 | 14.00 | 1.30 | 0.765 | 1.500 | | LCL08-NX | LCS3-NX | LST2.51.8B | LSP3B | - | L-W2.5 |

## HCLNR/L*

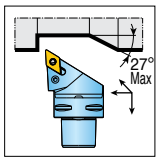


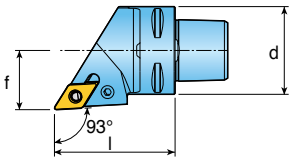



*compatable with Sandvik's COROMANT CAPTO* (**) system.

| Designation | Dimension (mm) | | | Insert | Components | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Lever | Screw | Shim | Shim Pin | Nozzle | Wrench |
| | d | f | l | | | | | | | |
| C4-HCLNR/L 27050-0904 | 40 | 27 | 50 | CNMG 33 □ | LCL 09-NX | LCS 3 | LSC 32 | LSP 3A | NZ 83 | L-W 2.5 |

## HDJNR/L*

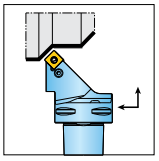


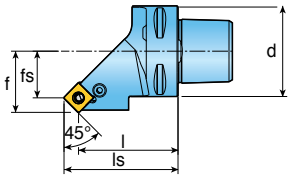




*compatable with Sandvik's COROMANT CAPTO* (**) system.

| Designation | Dimension (mm) | | | Insert | Components | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Lever | Screw | Shim | Shim Pin | Nozzle | Wrench |
| | d | f | l | | | | | | | |
| C4-HDJNR/L 27055-1305 | 40 | 27 | 55 | DNMG 3.53.5 □ | LCL 11-NX | LCS 4 | LSD 3.52 | LSP 4 | NZ 83 | L-W 3 |

## HSSNR/L*

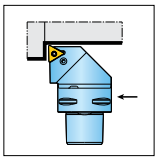


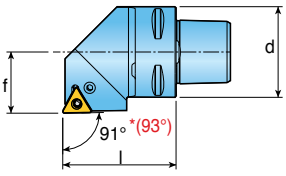



*compatable with Sandvik's COROMANT CAPTO* (**) system.

| Designation | Dimension (mm) | | | | | Insert | Components | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lever | Screw | Shim | Shim Pin | Nozzle | Wrench |
| | d | f | fs | l | ls | | | | | | | |
| C4-HSSNR/L 27042-0904 | 40 | 27 | 20.6 | 44 | 50.3 | SNMG 33 □ | LCL 09-NX | LCS 3 | LSS 32A | LSP 3A | NZ 83 | L-W 2.5 |

## HTGNR/L* HTJNR/L*






*compatable with Sandvik's COROMANT CAPTO* (**) system.

| Designation | Dimension (mm) | | | Insert | Components | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Lever | Screw | Shim | Shim Pin | Nozzle | Wrench |
| | d | f | l | | | | | | | |
| C4-HTGNR/L 27050-1304 | 40 | 27 | 50 | TNMG 2.53 □ | LCL 08-NX | LCS 3-NX | LST 2.51.8 | LSP 3B | NZ 83 | L-W 2.5 |
| [1]C4-HTJNR/L 27050-1304 | 40 | 27 | 50 | | | | | | | |

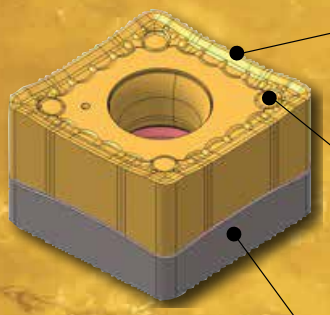
[1]Marked : Entering angle of HTJNR/L is 93 degrees.


# GOLD DUTY

## HB CHIPBREAKER

### FOR SEMI HEAVY TURNING

- Low cutting forces and an optimized chipbreaker suitable for semi heavy machining
- Hook lever clamping system gives unique contact surface with large convex double sided insert
- Unique insert and shim profile offer maximum stability in semi-heavy machining
- 3 dimensional geometry that is exchangeable with the ISO standard holder

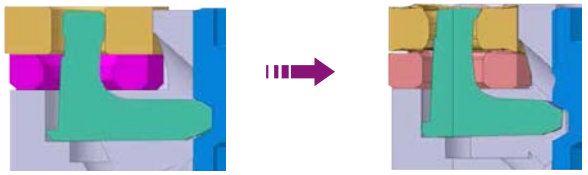


- **Double-sided semi-heavy turning insert**
  √ Low cutting force
  √ Optimized chipbreaker suitable for semi heavy machining
- **Stable contact surface with four rest pads**
  √ Unique seat contact with large convex surface

- **Exclusive seat**
  √ 3 dimensional geometry
  √ Exchangeable with ISO Standard P-type holders

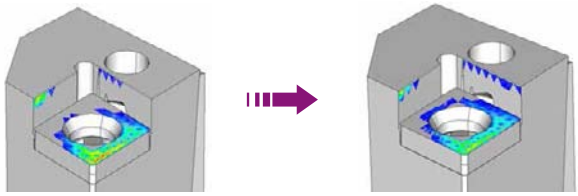
Contact Surface

## CLAMPING FEATURES OF INSERT



Conventional Lever Type (P-Type Holders)

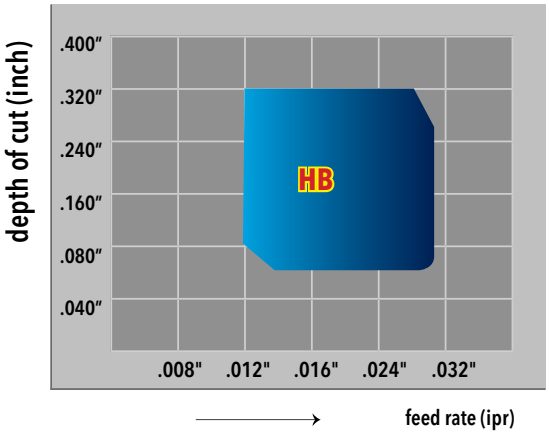
Hook Lever Type (H-Type Holders)



Poor clamping strength due to single directional force

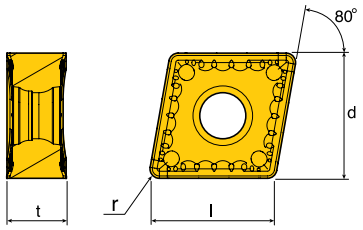
More stable clamping from multidirectional force

## CHIP CONTROL RANGE




- Insert: CNMX 553 HB
- Cutting speed: 500 sfm
- Material: 0.45% Carbon Steel

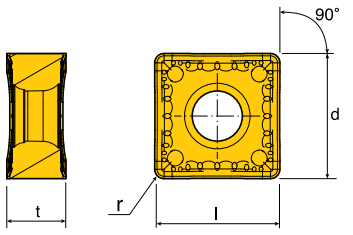
## GOLD DUTY CNMX HB




| ANSI Description | ISO Description | feed (ipr) | ap (inch) | Dimensions (inch) l | d | t | r | Grade | TT8115 | TT8125 | TT8135 | TT5080 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CNMX 553 HB | CNMX 160712 HB | .012-.031 | .060-.315 | .583 | .625 | .272 | .047 | | ● | ● | ● | ◐ | ◔ |
| CNMX 554 HB | CNMX 160716 HB | .012-.031 | .060-.315 | .567 | .625 | .272 | .063 | | ● | ● | ● | | |

● = P ○ = M ● = K ● = N ● = S ○ = H

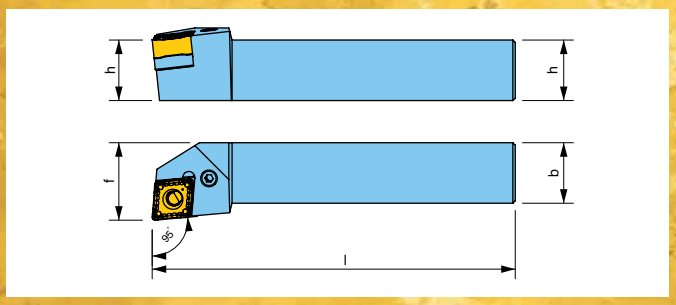
## GOLD DUTY SNMX HB




| ANSI Description | ISO Description | feed (ipr) | ap (inch) | Dimensions (inch) l | d | t | r | Grade | TT8115 | TT8125 |
|---|---|---|---|---|---|---|---|---|---|---|
| SNMX 553 HB | SNMX 150712 HB | .012-.031 | .060-.315 | .583 | .625 | .272 | .047 | | ● | ● |
| SNMX 554 HB | SNMX 150716 HB | .012-.031 | .060-.315 | .567 | .625 | .272 | .063 | | ● | ● |

● = P ○ = M ● = K ● = N ● = S ○ = H

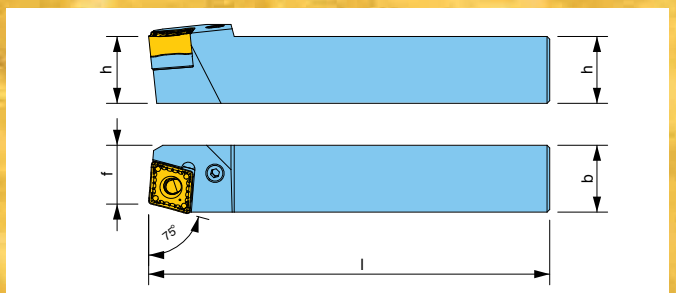
## GOLD DUTY HCLNR/L




| Designation | Dimensions (inch) h | b | l | f |
|---|---|---|---|---|
| HCLNR/L 16-55D | 1.00 | 1.00 | 6.0 | 1.25 |
| HCLNR/L 20-55E | 1.25 | 1.25 | 7.0 | 1.50 |
| HCLNR/L 24-55E | 1.50 | 1.50 | 7.0 | 2.00 |

| HARDWARE | 80° Insert | Lever | Screw | Shim | Shim Pin | Shim Pin Punch | Wrench |
|---|---|---|---|---|---|---|---|
| HCLNR/L 16-55D | CNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSC 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HCLNR/L 20-55E | CNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSC 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HCLNR/L 24-55E | CNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSC 54-NX | LSP 5 | SPP 5-6 | L-W 3 |

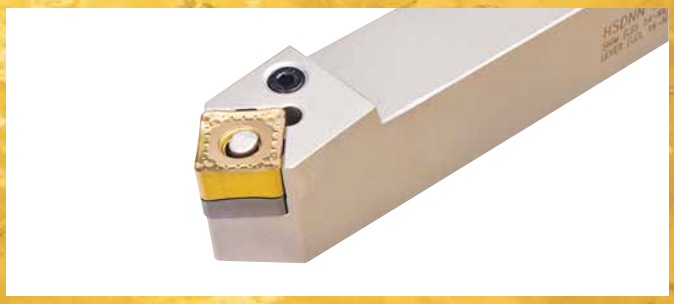
## GOLD DUTY HCRNR/L

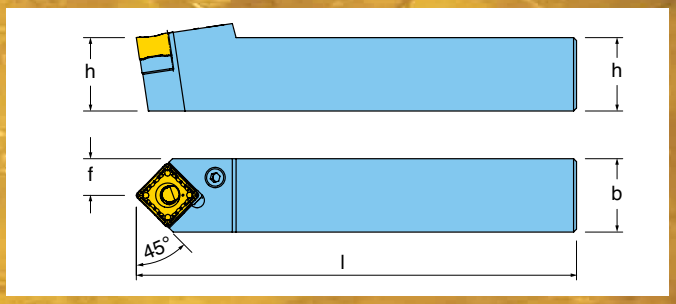




| Designation | Dimensions (inch) h | b | l | f |
|---|---|---|---|---|
| HCRNR/L 16-55D | 1.00 | 1.00 | 6.0 | 1.047 |
| HCRNR/L 20-55E | 1.25 | 1.25 | 7.0 | 1.291 |
| HCRNR/L 24-55E | 1.50 | 1.50 | 7.0 | 1.697 |

| HARDWARE | 80° Insert | Lever | Screw | Shim | Shim Pin | Shim Pin Punch | Wrench |
|---|---|---|---|---|---|---|---|
| HCRNR/L 16-55D | CNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSC 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HCRNR/L 20-55E | CNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSC 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HCRNR/L 24-55E | CNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSC 54-NX | LSP 5 | SPP 5-6 | L-W 3 |

## GOLD DUTY HSDNN

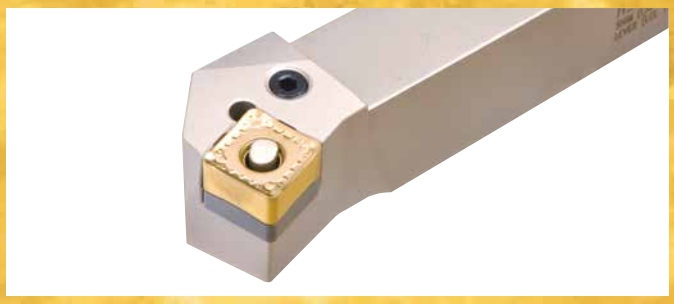


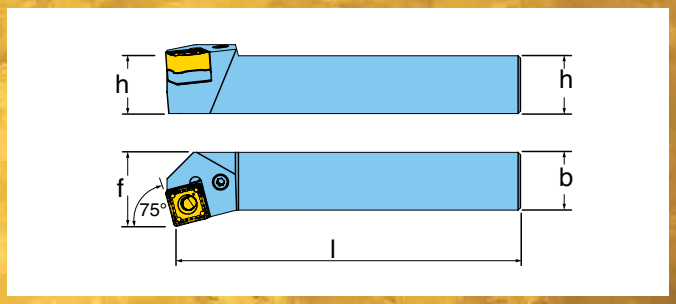



| Designation | Dimensions (inch) h | b | l | f |
|---|---|---|---|---|
| HSDNN 16-55D | 1.00 | 1.00 | 6.0 | .500 |
| HSDNN 20-55E | 1.25 | 1.25 | 7.0 | .625 |
| HSDNN 24-55D | 1.50 | 1.50 | 7.0 | .750 |

| HARDWARE | Insert | Lever | Screw | Shim | Shim Pin | Shim Pin Punch | Wrench |
|---|---|---|---|---|---|---|---|
| HSDNN 16-55D | SNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSS 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HSDNN 20-55E | SNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSS 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HSDNN 24-55D | SNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSS 54-NX | LSP 5 | SPP 5-6 | L-W 3 |

## GOLD DUTY HSKNR/L

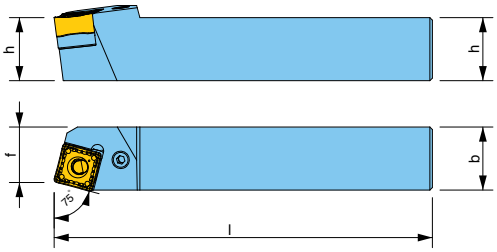





| Designation | Dimensions (inch) h | b | l | f |
|---|---|---|---|---|
| HSKNR/L 16-55D | 1.00 | 1.00 | 6.0 | 1.25 |
| HSKNR/L 20-55E | 1.25 | 1.25 | 7.0 | 1.50 |
| HSKNR/L 24-55D | 1.50 | 1.50 | 7.0 | 2.00 |

| HARDWARE | Insert | Lever | Screw | Shim | Shim Pin | Shim Pin Punch | Wrench |
|---|---|---|---|---|---|---|---|
| HSKNR/L 16-55D | SNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSS 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HSKNR/L 20-55E | SNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSS 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HSKNR/L 24-55D | SNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSS 54-NX | LSP 5 | SPP 5-6 | L-W 3 |

## GOLD DUTY HSRNR/L


| Designation | Dimensions (inch) h | b | l | f |
|---|---|---|---|---|
| HSRNR/L 16-55D | 1.00 | 1.00 | 6.0 | 1.047 |
| HSRNR/L 20-55E | 1.25 | 1.25 | 7.0 | 1.291 |
| HSRNR/L 24-55D | 1.50 | 1.50 | 7.0 | 1.697 |

| HARDWARE | Insert | Lever | Screw | Shim | Shim Pin | Shim Pin Punch | Wrench |
|---|---|---|---|---|---|---|---|
| HSRNR/L 16-55D | SNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSS 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HSRNR/L 20-55E | SNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSS 54-NX | LSP 5 | SPP 5-6 | L-W 3 |
| HSRNR/L 24-55D | SNMX 55□ HB | LCL 16-NX | LCS 5-L25.5 | LSS 54-NX | LSP 5 | SPP 5-6 | L-W 3 |

# REPLACEMENT SEATS FOR ISO LEVER LOCKING HOLDERS (P-TYPE HOLDERS)

Ingersoll offers several replacement seats that are exchangeable with ISO Lever Lock Holders. However, for best performance, Ingersoll recommends that the HB insert be used with its exclusive H-type holder to maximize tool life.

| Description | Shape | Seat for H-type Holder | Seat for ISO Lever Lock (P-type) Holder |
|---|---|---|---|
| CNMX 55_ |  | LSC 54-NX | LSC 53-NX<br>LSC 53-NXS |
| SNMX 55_ |  | LSS 54-NX | LSS 53-NX<br>LSS 53-NXS |

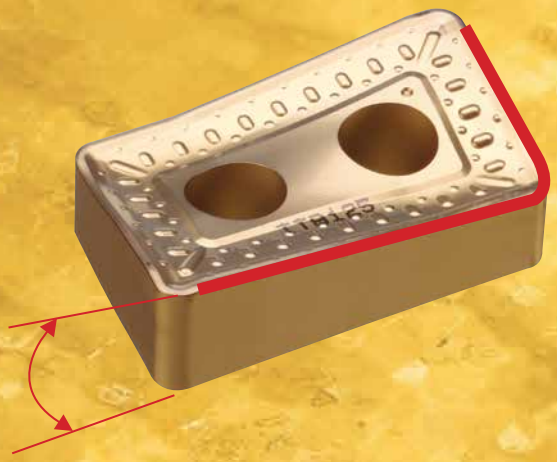
LSC 53-NX: Same IC as Insert IC
LSC 53-NXS: Slightly smaller size than Insert IC

# ToFORCE

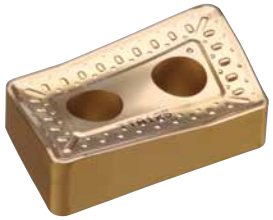
## 40 MM HELIX CUTTING EDGE

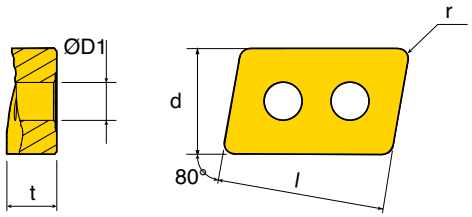
### FOR LARGE PART MACHINING IN THE WIND POWER, SHIPBUILDING AND POWER PLANT INDUSTRIES

- High helix cutting edge
- Double lever clamping for maximum stability
- Unique geometry provides low cutting force
- 40mm cutting edge allows cutting depths up to 1.25"
- Suitable for medium-powered machines
- Facing and external turning possible
- Available in left hand and right hand
- 80 degree corner angle allows it to be used in the same manner as CNMG/CNMM Inserts
- 95 degree entrance angle allows facing and external machining




# LNMM HX

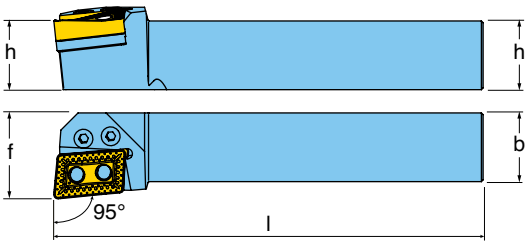





| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Dimensions (inch) | | | | | Grade | TT8115 | TT8125 | TT7100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | d | l | t | r | D1 | | | | |
| LNMM 401224R/L-HX | LNMM 401224R/L-HX | .028-.059 | .236-1.260 | 1.00 | 1.574 | .472 | .094 | .360 | | ● | ● | ● |

● = P ○ = M ● = K ● = N ● = S ○ = H

# 2PLLNR/L



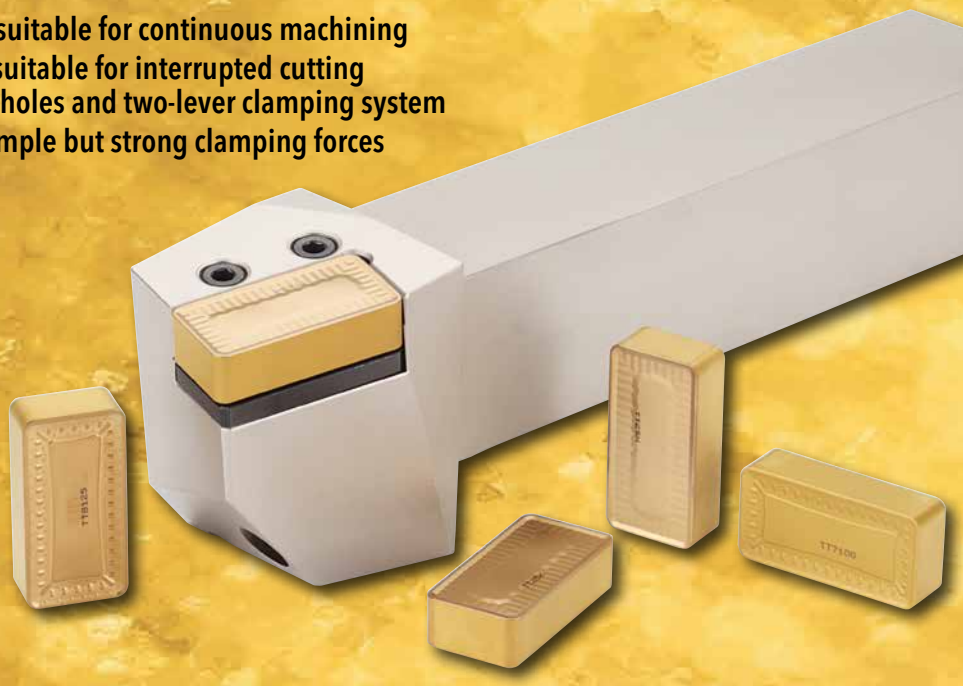

| Designation | Dimension (inch) | | | | Insert | Lever | Screw | Shim | Shim Pin | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|
| | h | b | l | f | | | | | | |
| 2PLLNR/L L24-4012-10 | 1.50 | 1.50 | 10.0 | 2.00 | LNMM 401224R/L-HX | LCL 8 | LCS 8-L39 | LN 4025-T6.35 R/L | LSP 8 | L-W 5 |
| 2PLLNR/L L32-4012-12 | 2.00 | 2.00 | 12.0 | 2.35 | LNMM 401224R/L-HX | LCL 8 | LCS 8-L39 | LN 4025-T6.35 R/L | LSP 8 | L-W 5 |


# TOFORCE

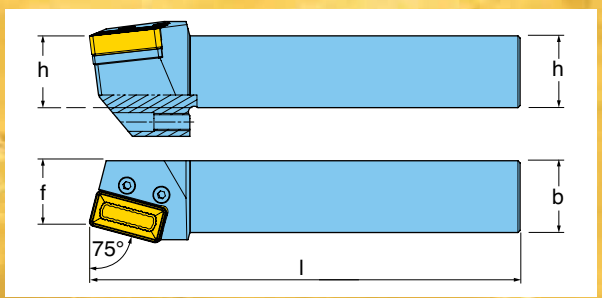
## 50 MM CUTTING EDGE

### FOR LARGE PART MACHINING IN THE WIND POWER, SHIPBUILDING AND POWER PLANT INDUSTRIES

- 50mm (1.97") cutting edge enables cutting up to 45mm (1.77") depth of cut
- Rectilinear shaped cutting edge ideal for heavy roughing on high-powered machines
- HD insert suitable for continuous machining
- HY insert suitable for interrupted cutting
- Two blind holes and two-lever clamping system provide simple but strong clamping forces

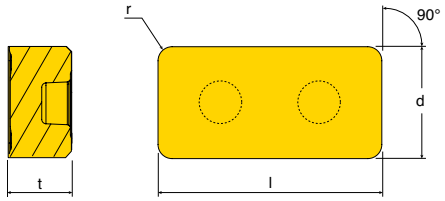


## 2PLBNR/L




| DESIGNATION | Dimensions (inch) | | | | Insert | Lever | Screw | Shim | Shim Pin | Set Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | h | b | l | f | | | | | | | |
| 2PLBNR/L 32-T5014 | 2.00 | 2.00 | 12.00 | 1.77 | LNMX | LCL 8 | LCS 8-L43 | LN 5025-T6.35 | LSP 8 | SS M12X1.75X25 | L-W 5 |

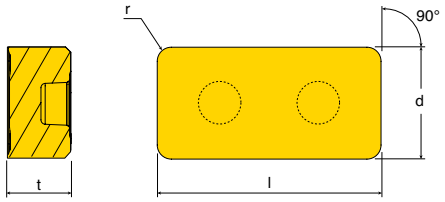
## LNMX HD


| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Dimensions (inch) d | l | t | r | Grade | TT8115 | TT8125 | TT7100 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LNMX 501432HD | LNMX 501432 HD | .028-.063 | .236-1.57 | 1.00 | 2.00 | .559 | .126 | | ● | ● | ● |

● = P ● = M ● = K ● = N ● = S ● = H

## LNMX HY



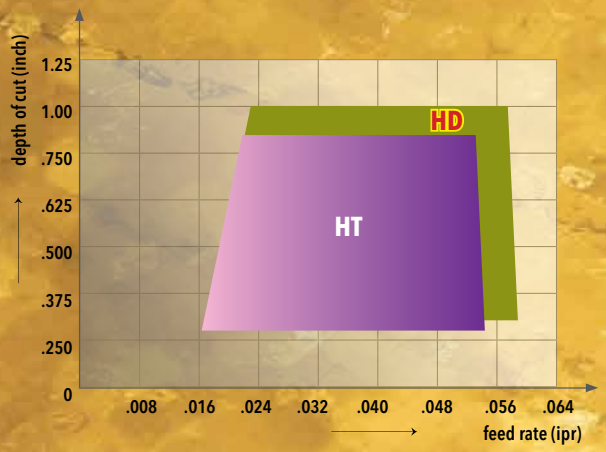

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Dimensions (inch) d | l | t | r | Grade | TT8125 | TT7100 | NEW! TT9225 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LNMX 501432HY | LNMX 501432 HY | .025-.059 | .197-1.57 | 1.00 | 2.00 | .559 | .126 | | ● | ● | ● |

● = P ● = M ● = K ● = N ● = S ● = H

# T-FORCE™

## DOUBLE SIDED INSERT WITH 1.25" CUTTING EDGE

- The front side has a negative HD or HT chip breaker suitable for heavy machining.
- The back side has a lighter chip breaker designed to minimize the cutting load and break chips effectively when machining depths of cut less than .200".
- Strong clamping force due to hook lever system.

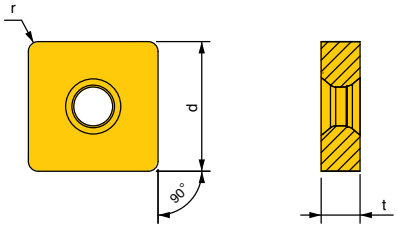



Material: 1045 steel

## SNMD HD/HT INSERTS

For Heavy

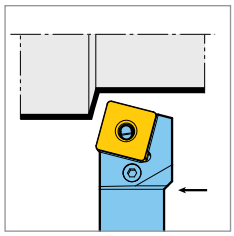
For Finishing

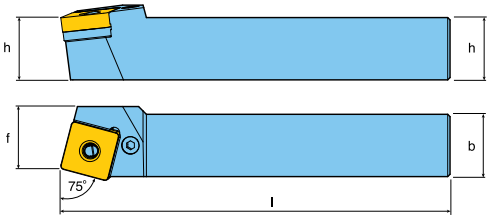



- P Carbon Steel C: 0.45%
- M Austenitic Stainless Steel
- K High Tensile Cast Iron
- N Aluminum
- S Inconel
- H Hardened Steel

| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) D1 | d | t | r | feed (ipr) | ap | Grade TT8115 | TT8125 | TT7100 |
|---|---|---|---|---|---|---|---|---|---|---|
| SNMD 1066 HD | SNMD 310924 HD | .375 | 1.250 | .375 | .094 | .023-.060 | .276-1.000 | • | • | • |
| SNMD 1066 HT | SNMD 310924 HT | .375 | 1.250 | .375 | .094 | .020-.056 | .240-.875 | • | • | • |

# HSBNR/L

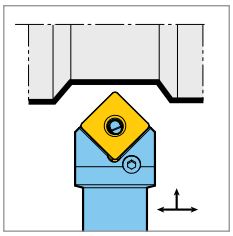


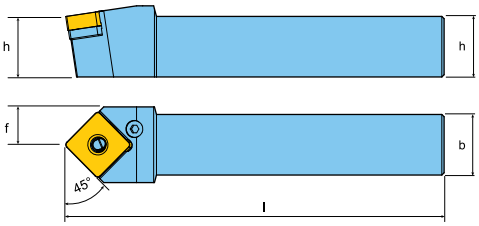



| DESIGNATION | | R | L | Dimensions (mm) h | b | l | f | Insert | Lever | Screw | Shim | Shim Pin | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HSBNR/L | 4040 S3109 | • | • | 40 | 40 | 250 | 35 | SNM□1066□□ | LCL 32-NX | LCS 8 | LSS 104 | LSP 8 | L-W 5 |
| HSBNR/L | 5050 T3109 | • | • | 50 | 50 | 300 | 43 | | | | | | |

• Marked: Standard items
INCH HOLDERS CAN BE PRODUCED AS SPECIALS.

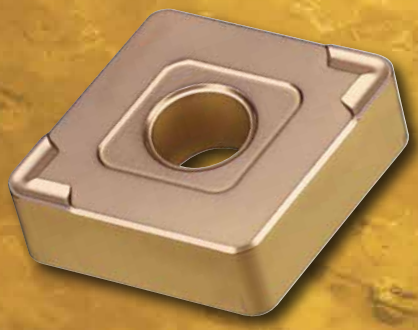
# HSDNN






| DESIGNATION | | Dimensions (mm) h | b | l | f | Insert | Lever | Screw | Shim | Shim Pin | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HSDNN | 4040 S3109 | • | 40 | 40 | 250 | 35 | SNM□1066□□ | LCL 32-NX | LCS 8 | LSS 104 | LSP 8 | L-W 5 |
| HSDNN | 5050 T3109 | • | 50 | 50 | 300 | 43 | | | | | | |

• Marked: Standard items
INCH HOLDERS CAN BE PRODUCED AS SPECIALS.



# TOFORCE

## DOUBLE SIDED H SERIES CHIPBREAKERS

### NEW DOUBLE-SIDED CHIPBREAKER INSERTS FOR ROUGH AND FINISH MACHINING

Most cutting tool manufacturers design and produce single-sided ISO turning inserts in order to provide high levels of strength and toughness in heavy turning applications. Ingersoll has developed a new concept that utilizes the otherwise useless underside of these single-sided inserts for finish turning capacity. The result is the TOFORCE product line that combines a heavy roughing insert with a finishing insert.

The new concept of double-sided inserts utilizes our most aggressive chip breaker geometry types such as the HT, HY, and HZ for 80 degree CNMD and 90 degree SNMD inserts for heavy rough machining. Also new is the HD roughing chip breaker, which is designed to protect the insert with a smooth chip-breaking action when machining deeply stepped parts such as shafts. The underside of all these inserts contains a common style, finishing chip breaker that allows each insert to be used in the same holder, under different operating conditions, for final finishing passes on large work pieces.

This new product summarizes the Ingersoll spirit that never stops developing innovative new products to improve cost reduction solutions to its customers.

**CNMD**

HT HD HY HZ TOFORCE

BONUS!

**SNMD**

HT HD HY HZ TOFORCE

BONUS!

# ToFORCE

## FEATURES

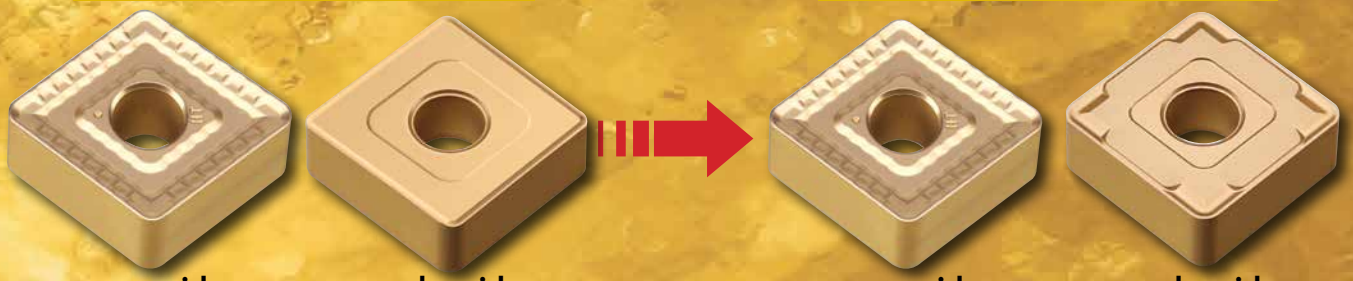
- Utilizes both sides of the insert to improve economy & cost reduction
- Available in a variety of sizes and chip breakers to meet customers specific heavy rough machining requirements
- Economy is further improved by using one tool holder for rough and finish machining

**TYPICAL**
**CNMM/SNMM STYLE**

**SINGLE-SIDED**

**ToFORCE**

**DOUBLE-SIDED!**



upper-side — Rough machining
under-side — Not utilized
upper-side — Rough machining
under-side — Finish machining

The upper-side of the double sided insert can be used in the same manner as a single-sided insert.
The under-side can then be used when finish machining is required.

## GUIDELINE FOR INSERT USE

under-side
storage
upper-side

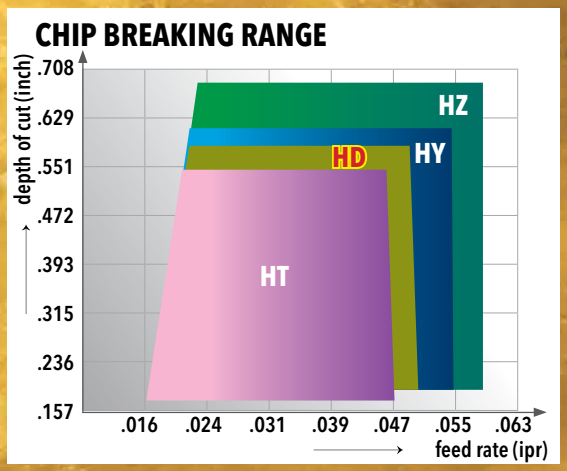
1. Commence operation on finish machining first using the under-side of insert
2. Operate rough machining with the upper-side after edges on under-side are used

### UNDER-SIDE FINISH MACHINING PARAMETERS

| Depth of Cut (inches) | Feed Rate (ipr) |
|---|---|
| .120" - .200" | .024" - (.016"-.032") |

- Insert : CNMD 866 HD
- Cutting speed: 100 m/min
- Material: 0.45% Carbon Steel

### CHIP BREAKING RANGE



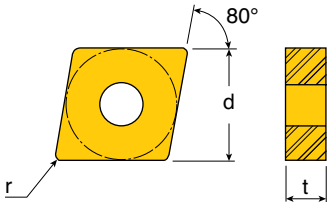



Member IMC Group
Ingersoll Cutting Tools

## CNMD HD

Roughing

Finishing




| ANSI Number | ISO Number | feed* (ipr) | DOC* (inch) | Dimensions (inch) d | t | r | Grade | TT8115 | TT8125 |
|---|---|---|---|---|---|---|---|---|---|
| CNMD 866 HD | | .022-.059 | .160-.590 | 1.00 | .375 | .094 | | ● | ● |

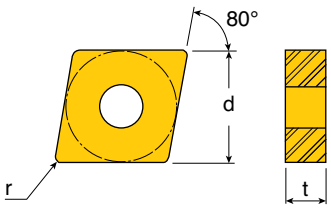
* See introduction page for finish side parameters

● = P ○ = M ● = K ● = N ● = S ○ = H

## CNMD HT

Roughing

Finishing




| ANSI Number | ISO Number | feed* (ipr) | DOC* (inch) | Dimensions (inch) d | t | r | Grade | TT8115 | TT8125 |
|---|---|---|---|---|---|---|---|---|---|
| CNMD 646 HT | CNMD 190624 HT | .014-.035 | .160-.355 | .750 | .250 | .094 | | ● | ● |
| CNMD 866 HT | CNMD 250924 HT | .022-.051 | .200-.470 | 1.00 | .375 | .094 | | ● | ● |

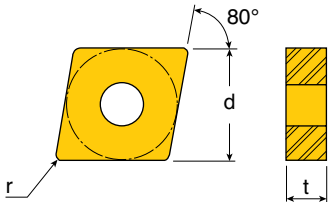
* See introduction page for finish side parameters

● = P ○ = M ● = K ● = N ● = S ○ = H

## CNMD HY

Roughing


Finishing




| ANSI Number | ISO Number | feed* (ipr) | DOC* (inch) | Dimensions (inch) d | t | r | Grade | TT8115 | TT8125 |
|---|---|---|---|---|---|---|---|---|---|
| CNMD 646 HY | CNMD 190624 HY | .020-.043 | .160-.470 | .750 | .250 | .094 | | ● | ● |
| CNMD 866 HY | CNMD 250924 HY | .022-.059 | .160-.590 | 1.00 | .375 | .094 | | ● | ● |

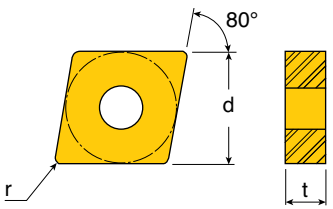
* See introduction page for finish side parameters

● = P ○ = M ● = K ● = N ● = S ○ = H

## CNMD HZ

Roughing


Finishing




| ANSI Number | ISO Number | feed* (ipr) | DOC* (inch) | Dimensions (inch) d | t | r | Grade | TT8115 | TT8125 |
|---|---|---|---|---|---|---|---|---|---|
| CNMD 866 HZ | CNMD 250924 HZ | .022-.059 | .160-.590 | 1.00 | .375 | .094 | | ● | ● |

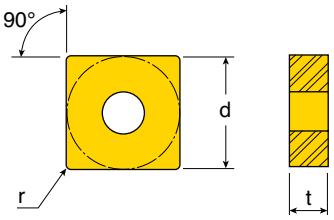
* See introduction page for finish side parameters

● = P ○ = M ● = K ● = N ● = S ○ = H

## SNMD HD

Roughing

Finishing




| ANSI Number | ISO Number | feed* (ipr) | DOC* (inch) | Dimensions (inch) d | t | r | Grade | TT8115 | TT8125 |
|---|---|---|---|---|---|---|---|---|---|
| SNMD 866 HD | SNMD 250924 HD | .022-.059 | .160-.590 | 1.00 | .375 | .094 | | ● | ● |

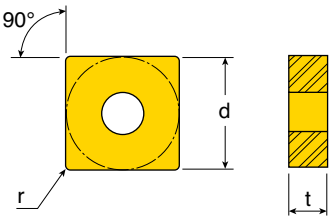
* See introduction page for finish side parameters

● = P ○ = M ● = K ● = N ● = S ○ = H

## SNMD HT

Roughing

Finishing



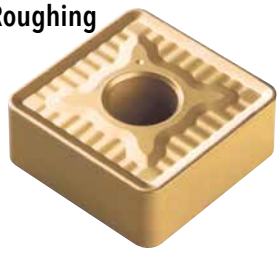

| ANSI Number | ISO Number | feed* (ipr) | DOC* (inch) | Dimensions (inch) d | t | r | Grade | TT8115 | TT8125 |
|---|---|---|---|---|---|---|---|---|---|
| SNMD 646 HT | SNMD 190624 HT | .022-.047 | .160-.355 | .750 | .250 | .094 | | ● | ● |
| SNMD 866 HT | SNMD 250924 HT | .022-.051 | .200-.470 | 1.00 | .375 | .094 | | | |

* See introduction page for finish side parameters

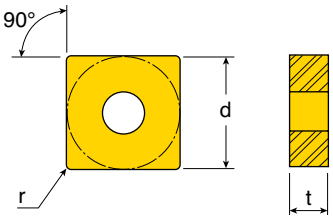
● = P ○ = M ● = K ● = N ● = S ○ = H

## SNMD HY

Roughing



Finishing




| ANSI Number | ISO Number | feed* (ipr) | DOC* (inch) | Dimensions (inch) d | t | r | Grade | TT8115 | TT8125 |
|---|---|---|---|---|---|---|---|---|---|
| SNMD 646 HY | SNMD 190624 HY | .020-.043 | .160-.470 | .750 | .250 | .094 | | ● | ● |
| SNMD 866 HY | SNMD 250924 HY | .022-.059 | .160-.590 | 1.00 | .375 | .094 | | ● | ● |

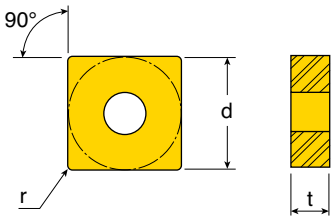
* See introduction page for finish side parameters

● = P ○ = M ● = K ● = N ● = S ○ = H

## SNMD HZ

Roughing

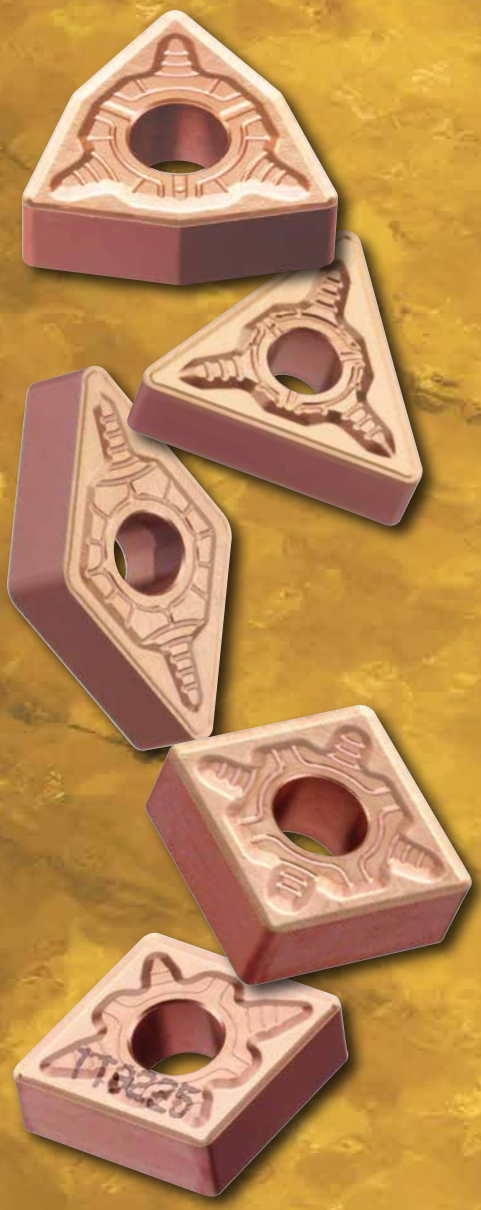
Finishing




| ANSI Number | ISO Number | feed* (ipr) | DOC* (inch) | Dimensions (inch) d | t | r | Grade | TT8115 | TT8125 |
|---|---|---|---|---|---|---|---|---|---|
| SNMD 866 HZ | SNMD 250924 HZ | .022-.059 | .160-.590 | 1.00 | .375 | .094 | | ● | ● |

* See introduction page for finish side parameters

● = P ○ = M ● = K ● = N ● = S ○ = H



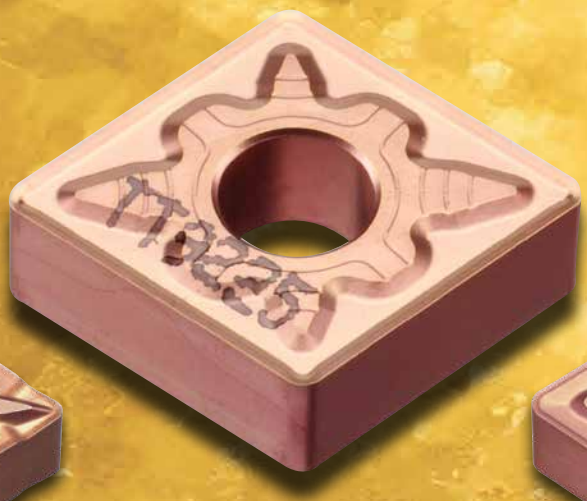
# TOTURN™

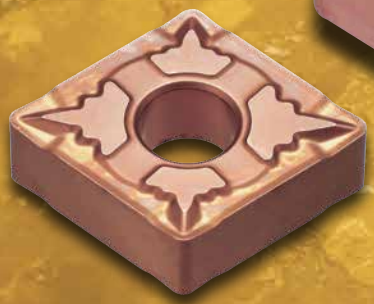
## EM CHIPBREAKER
### FOR STAINLESS STEEL MACHINING

Ingersoll previously introduced two new chipbreakers for machining stainless steels and exotic materials: The EA chipbreaker for finish to semi-finish operations in low depths of cut, and the ET chipbreaker for rough machining of these materials. The new EM chipbreaker is designed for medium applications where customers desire a single insert that encompasses many of the same features offered by the EA and ET.

The EM chipbreaker features a sharp land that reduces machining load during medium machining applications, while simultaneously reducing build up material on the cutting edge. The design also includes a broad boss face that dissipates heat on the upper side of the chipbreaker, improving the surface contact ratio while maximizing tool life. The result is an insert that provides stable performance in difficult to machine materials over a wide range of feed rates and cutting depths.

**EM FOR MEDIUM**





**EA FOR FINISHING**

**ET FOR ROUGHING**

## CNMG EM

| | ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT9215 | TT9225 | TT9235 | TT5080 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|---|
| NEW! | CNMG 431 EM | CNMG 120404 EM | .004-.018 | .020-.200 | | ○ | ○ | ○ | ◐ | ◐ |
| | CNMG 432 EM | CNMG 120408 EM | .005-.020 | .020-.200 | | ○ | ○ | ○ | ◐ | ◐ |
| | CNMG 433 EM | CNMG 120412 EM | .006-.022 | .020-.200 | | ○ | ○ | ○ | ◐ | ◐ |
| | CNMG 434 EM | CNMG 120416 EM | .007-.024 | .020-.200 | | ○ | ○ | ○ | ◐ | ◐ |
| | CNMG 542 EM | CNMG 160608 EM | .005-.020 | .020-.250 | | ○ | ○ | ○ | ◐ | |
| | CNMG 543 EM | CNMG 160612 EM | .006-.022 | .020-.250 | | ○ | ○ | ○ | ◐ | |
| | CNMG 544 EM | CNMG 160616 EM | .007-.024 | .020-.250 | | ○ | ○ | ○ | ◐ | |
| | CNMG 642 EM | CNMG 190608 EM | .005-.020 | .020-.315 | | ○ | ○ | ○ | ◐ | |
| | CNMG 643 EM | CNMG 190612 EM | .006-.022 | .020-.315 | | ○ | ○ | ○ | ◐ | |
| | CNMG 644 EM | CNMG 190616 EM | .007-.024 | .020-.315 | | ○ | ○ | ○ | ◐ | |

● = P ○ = M ● = K ● = N ● = S ○ = H

## DNMG EM

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT9215 | TT9225 | TT9235 | TT5080 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| DNMG 332 EM | DNMG 110408 EM* | .005-.020 | .020-.160 | | ○ | ○ | ○ | ◐ | |
| DNMG 432 EM | DNMG 150408 EM | .005-.020 | .020-.200 | | ○ | ○ | ○ | ◐ | ◐ |
| DNMG 442 EM | DNMG 150608 EM | .005-.020 | .020-.200 | | ○ | ○ | ○ | ◐ | ◐ |
| DNMG 433 EM | DNMG 150412 EM | .006-.022 | .020-.200 | | ○ | ○ | ○ | ◐ | |
| DNMG 443 EM | DNMG 150612 EM | .006-.022 | .020-.200 | | ○ | ○ | ○ | ◐ | |

*Insert is screw held

● = P ○ = M ● = K ● = N ● = S ○ = H

## SNMG EM

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT9215 | TT9225 | TT9235 | TT5080 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| SNMG 432 EM | SNMG 120408 EM | .005-.020 | .031-.200 | | ● | ● | ● | ◑ | ◑ |
| SNMG 433 EM | SNMG 120412 EM | .006-.022 | .031-.200 | | ● | ● | ● | ◑ | ◑ |
| SNMG 543 EM | SNMG 150612 EM | .006-.022 | .031-.250 | | ● | ● | ● | ◑ | |
| SNMG 544 EM | SNMG 150616 EM | .007-.024 | .031-.250 | | ● | ● | ● | ◑ | |
| SNMG 643 EM | SNMG 190612 EM | .006-.022 | .031-.315 | | ● | ● | ● | ◑ | |
| SNMG 644 EM | SNMG 190616 EM | .007-.024 | .031-.315 | | ● | ● | ● | ◑ | |

● = P ● = M ● = K ● = N ● = S ○ = H

## TNMG EM

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT9215 | TT9225 | TT9235 | TT5080 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| TNMG 332 EM | TNMG 160408 EM | .005-.020 | .031-.180 | | ● | ● | ● | ◑ | ◑ |
| TNMG 333 EM | TNMG 160412 EM | .006-.022 | .031-.180 | | ● | ● | ● | ◑ | ◑ |
| TNMG 432 EM | TNMG 220408 EM | .005-.020 | .031-.240 | | ● | ● | ● | ◑ | |
| TNMG 433 EM | TNMG 220412 EM | .006-.022 | .031-.240 | | ● | ● | ● | ◑ | ◑ |

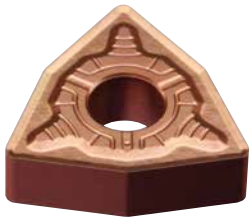
● = P ● = M ● = K ● = N ● = S ○ = H

## VNMG EM

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT9215 | TT9225 | TT9235 | TT5080 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| VNMG 332 EM | VNMG 160408 EM | .005-.020 | .031-.140 | | ● | ● | ● | | ◐ |

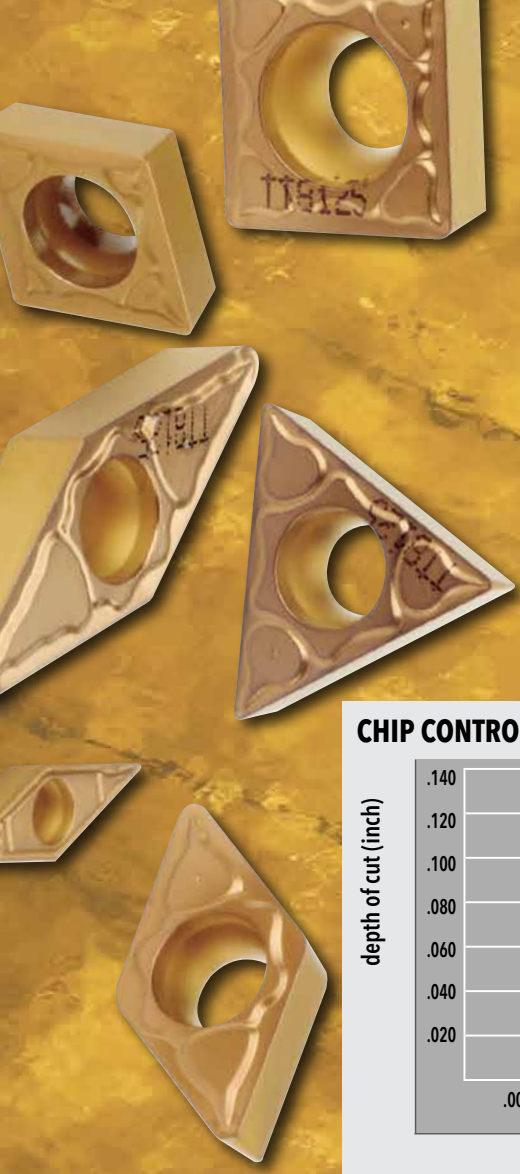
● = P ● = M ● = K ● = N ● = S ○ = H

## WNMG EM



| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT9215 | TT9225 | TT9235 | TT5080 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| WNMG 332 EM | WNMG 060408 EM | .005-.020 | .031-.120 | | ● | ● | ● | ◐ | ◐ |
| WNMG 333 EM | WNMG 060412 EM | .006-.022 | .031-.120 | | ● | ● | ● | ◐ | ◐ |
| WNMG 431 EM | WNMG 080404 EM | .004-.018 | .031-.160 | | ● | ● | ● | ◐ | |
| WNMG 432 EM | WNMG 080408 EM | .005-.020 | .031-.160 | | ● | ● | ● | ◐ | ◐ |
| WNMG 433 EM | WNMG 080412 EM | .005-.022 | .031-.160 | | ● | ● | ● | ◐ | ◐ |

● = P ● = M ● = K ● = N ● = S ○ = H



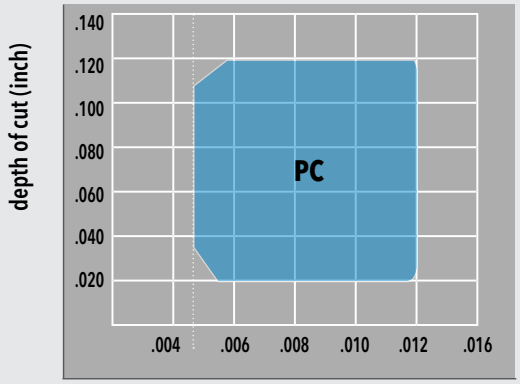
# TOTURN™

# PC CHIPBREAKER FOR POSITIVE INSERTS

## NEW SINGLE SIDED 'PC' CHIPBREAKER FOR SEMI-FINISH AND MEDIUM MACHINING

- Low cutting forces due to its positive rake angle
- Wide chip breaking range
- Suitable for a wide variety of materials
- For semi-finish to medium application
- 5°, 7°, and 11° positive inserts available

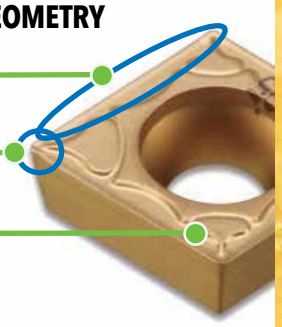
### CHIP CONTROL RANGE




- Insert: CCMT 32.52 (09T308)
- Cutting speed: 650 sfm
- Material: 0.45% Carbon steel

### POSITIVE PC INSERT GEOMETRY

- Slightly Waved cutting Edge
- Dimple Design Low cutting Force
- Wide Groove Smooth Cutting



## VBMT PC - 5° POSITIVE INSERTS WITH PC CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | CT3000 | TT8115 | TT8125 | TT9225 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| VBMT331PC | VBMT160404PC | 0.003 - 0.009 | 0.020 - 0.110 | | | | | | |
| VBMT332PC | VBMT160408PC | 0.004 - 0.011 | 0.020 - 0.110 | | | | | | |
| VBMT333PC | VBMT160412PC | 0.004 - 0.011 | 0.020 - 0.110 | | | | | | |

● = P ○ = M ● = K ● = N ● = S ○ = H

## CCMT PC - 7° POSITIVE, 80° RHOMBIC INSERTS WITH PC CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | CT3000 | TT8115 | TT8125 | TT9225 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| CCMT21.51PC | CCMT060204PC | 0.002 - 0.007 | 0.007 - 0.079 | | | | | | |
| CCMT21.52PC | CCMT060208PC | 0.003 - 0.010 | 0.010 - 0.079 | | | | | | |
| CCMT32.51PC | CCMT09T304PC | 0.003 - 0.010 | 0.010 - 0.118 | | | | | | |
| CCMT32.52PC | CCMT09T308PC | 0.004 - 0.011 | 0.011 - 0.118 | | | | | | |
| CCMT431PC | CCMT120404PC | 0.003 - 0.010 | 0.010 - 0.157 | | | | | | |
| CCMT432PC | CCMT120408PC | 0.004 - 0.012 | 0.012 - 0.157 | | | | | | |
| CCMT433PC | CCMT120412PC | 0.005 - 0.014 | 0.014 - 0.157 | | | | | | |

● = P ○ = M ● = K ● = N ● = S ○ = H

## DCMT PC - 7° POSITIVE, 55° RHOMBIC INSERTS WITH PC CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | CT3000 | TT8115 | TT8125 | TT9225 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| DCMT21.51PC | DCMT070204PC | 0.002 - 0.007 | 0.012 - 0.079 | | | | | | |
| DCMT21.52PC | DCMT070208PC | 0.003 - 0.010 | 0.016 - 0.079 | | | | | | |
| DCMT32.51PC | DCMT11T304PC | 0.003 - 0.010 | 0.014 - 0.118 | | | | | | |
| DCMT32.52PC | DCMT11T308PC | 0.004 - 0.011 | 0.020 - 0.118 | | | | | | |
| DCMT32.53PC | DCMT11T312PC | 0.005 - 0.013 | 0.020 - 0.118 | | | | | | |

● = P ○ = M ● = K ● = N ● = S ○ = H

## RCMT PC - 7° POSITIVE ROUND INSERTS WITH PC CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT8115 | TT8125 | TT9225 | TT9235 | TT5080 |
|---|---|---|---|---|---|---|---|---|---|
| RCMT120400PC | RCMT120400PC | 0.008 - 0.024 | 0.051 - 0.177 | | ● | ● | ○ | ○ | ◐ |

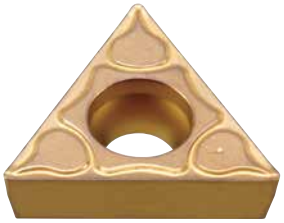
● = P ○ = M ● = K ● = N ● = S ○ = H

## SCMT PC - 7° POSITIVE SQUARE INSERTS WITH PC CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | CT3000 | TT8115 | TT8125 | TT9225 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| SCMT32.51PC | SCMT09T304PC | 0.003 - 0.010 | 0.014 - 0.118 | | ◔ | ● | ● | ○ | ◔ |
| SCMT32.52PC | SCMT09T308PC | 0.004 - 0.011 | 0.020 - 0.118 | | ◔ | ● | ● | ○ | ◔ |
| SCMT431PC | SCMT120404PC | 0.003 - 0.010 | 0.016 - 0.157 | | ◔ | ● | ● | ○ | ◔ |
| SCMT432PC | SCMT120408PC | 0.004 - 0.012 | 0.028 - 0.157 | | ◔ | ● | ● | ○ | ◔ |
| SCMT433PC | SCMT120412PC | 0.005 - 0.014 | 0.039 - 0.157 | | ◔ | ● | ● | ○ | ◔ |

● = P ○ = M ● = K ● = N ● = S ○ = H

## TCMT PC - 7° POSITIVE TRIANGULAR INSERTS WITH PC CHIPBREAKER



| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | CT3000 | TT8115 | TT8125 | TT9215 | TT9225 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|---|
| TCMT731PC | TCMT090204PC | 0.002 - 0.007 | 0.012 - 0.079 | | ● | ● | ● | | ○ | ● |
| TCMT732PC | TCMT090208PC | 0.003 - 0.010 | 0.016 - 0.079 | | ● | ● | ● | | ○ | ● |
| TCMT21.51PC | TCMT110204PC | 0.002 - 0.008 | 0.012 - 0.098 | | ● | ● | ● | ○ | ○ | ● |
| TCMT21.52PC | TCMT110208PC | 0.004 - 0.010 | 0.017 - 0.098 | | ● | ● | ● | | ○ | ● |
| TCMT32.51PC | TCMT16T304PC | 0.003 - 0.010 | 0.014 - 0.118 | | ● | ● | ● | | ○ | ● |
| TCMT32.52PC | TCMT16T308PC | 0.004 - 0.011 | 0.020 - 0.118 | | ● | ● | ● | | ○ | ● |
| TCMT32.53PC | TCMT16T312PC | 0.005 - 0.014 | 0.024 - 0.118 | | ● | ● | ● | | ○ | ● |

● = P ○ = M ● = K ● = N ● = S ○ = H

## VCMT PC - 7° POSITIVE 35° RHOMBIC INSERTS WITH PC CHIPBREAKER

VCMT 22x

VCMT 33x

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | CT3000 | TT8115 | TT8125 | TT9225 | TT5100 |
|---|---|---|---|---|---|---|---|---|---|
| VCMT221PC | VCMT110304PC | 0.002 - 0.008 | 0.004 - 0.067 | | ● | ● | ● | ○ | ● |
| VCMT332PC | VCMT160408PC | 0.002 - 0.008 | 0.012 - 0.079 | | ● | ● | ● | ○ | |

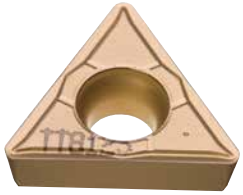
● = P ○ = M ● = K ● = N ● = S ○ = H

## CPMT PC - 11° POSITIVE, 80° RHOMBIC INSERTS WITH PC CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | CT3000 | TT7005 | TT7015 | TT8125 | TT9225 | TT5100 | TT5080 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CPMT21.51PC | CPMT060204PC | 0.002 - 0.007 | 0.012 - 0.079 | | ● | ● | ● | | ○ | ● | ◐ |
| CPMT21.52PC | CPMT060208PC | 0.003 - 0.010 | 0.016 - 0.079 | | ● | ● | ● | | ○ | ● | ◐ |
| CPMT32.51PC | CPMT09T304PC | 0.003 - 0.010 | 0.018 - 0.118 | | ● | ● | ● | ● | ○ | ● | ◐ |
| CPMT32.52PC | CPMT09T308PC | 0.004 - 0.012 | 0.024 - 0.118 | | ● | ● | ● | ● | ○ | ● | ◐ |

● = P ○ = M ● = K ● = N ● = S ○ = H

## TPMT PC - 11° POSITIVE TRIANGULAR INSERTS WITH PC CHIPBREAKER



| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | CT3000 | TT7005 | TT7015 | TT8115 | TT8125 | TT9225 | TT9235 | TT5080 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPMT731PC | TPMT090204PC | 0.002 - 0.007 | 0.012 - 0.079 | | ● | | | | | ○ | | ◐ |
| TPMT21.51PC | TPMT110204PC | 0.002 - 0.008 | 0.016 - 0.098 | | ● | ● | ● | | ● | ○ | ○ | |
| TPMT21.52PC | TPMT110208PC | 0.004 - 0.010 | 0.020 - 0.098 | | ● | ● | ● | | ● | ○ | ○ | |
| TPMT221PC | TPMT110304PC | 0.002 - 0.008 | 0.016 - 0.098 | | ● | | | | | ○ | | ◐ |
| TPMT222PC | TPMT110308PC | 0.004 - 0.010 | 0.020 - 0.098 | | ● | | | | ● | ○ | | ◐ |
| TPMT32.51PC | TPMT16T304PC | 0.003 - 0.010 | 0.018 - 0.118 | | | | | ● | ● | ○ | ○ | |
| TPMT32.52PC | TPMT16T308PC | 0.004 - 0.012 | 0.020 - 0.118 | | | | | ● | ● | ○ | ○ | |

● = P ○ = M ● = K ● = N ● = S ○ = H

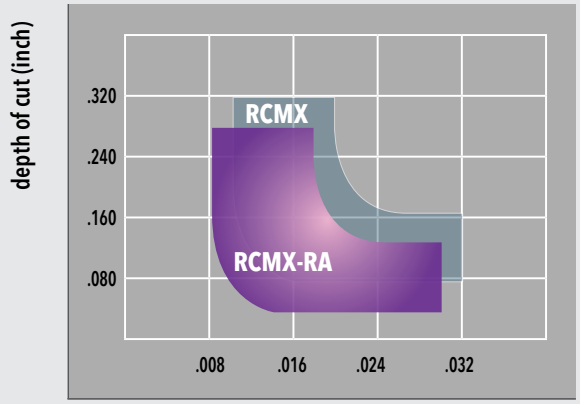
# TOTURN™

# RA CHIPBREAKER FOR POSITIVE INSERTS

## FOR ROUGH MACHINING OF MEDIUM AND LARGE SIZED COMPONENTS

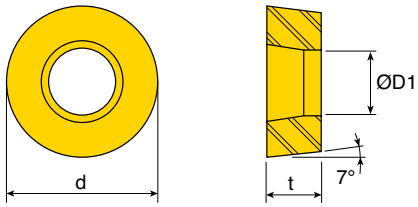
- Good chip control range at low feed rates and D.O.C
- Suitable for heavy & interrupted machining
- Wide chip control range

### Chip Control Range




- Insert: RCMX 160600 RA
- Cutting speed: 325 sfm
- Material: 0.45% Carbon steel

## RCMX RA




| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Dimensions (inch) | | | Grade | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | d | t | D1 | | TT8115 | TT8125 | TT8135 |
| RCMX100300RA | RCMX100300RA | 0.008 - 0.020 | 0.039 - 0.157 | 0.394 | 0.125 | 0.142 | | ● | ● | ● |
| RCMX120400RA | RCMX120400RA | 0.010 - 0.024 | 0.079 - 0.197 | 0.472 | 0.187 | 0.165 | | ● | ● | ● |
| RCMX160600RA | RCMX160600RA | 0.014 - 0.030 | 0.098 - 0.276 | 0.630 | 0.250 | 0.205 | | ● | ● | ● |
| RCMX200600RA | RCMX200600RA | 0.016 - 0.035 | 0.118 - 0.354 | 0.787 | 0.250 | 0.256 | | ● | ● | ● |
| RCMX250700RA | RCMX250700RA | 0.020 - 0.047 | 0.138 - 0.472 | 0.984 | 0.312 | 0.283 | | ● | ● | ● |
| RCMX320900RA | RCMX320900RA | 0.024 - 0.059 | 0.157 - 0.591 | 1.260 | 0.375 | 0.374 | | ● | ● | ● |

● = P ● = M ● = K ● = N ● = S ○ = H

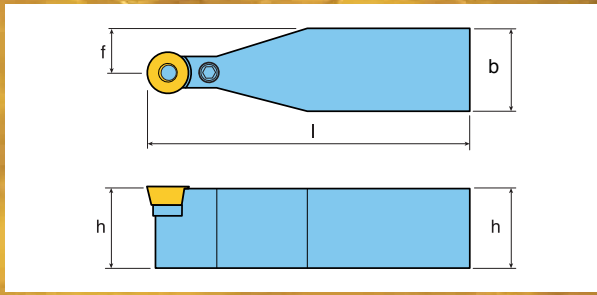
# T-TURN™

# EXTERNAL HOLDERS FOR POSITIVE ROUND INSERTS (RCMX STYLE)

## FOR TURNING AND PROFILING APPLICATIONS

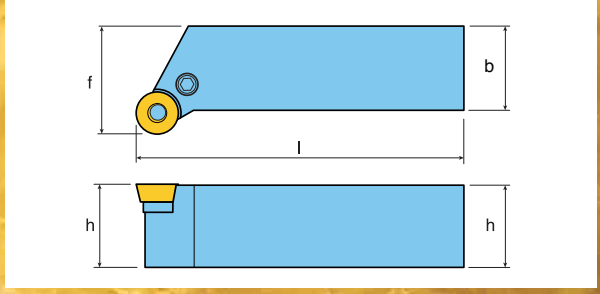
- Neutral and handed holders.
- For 10mm to 32mm round inserts containing countersunk screw holes (RCMX type).
- Simple lever lock clamping for fast indexing.
- Lever contacts screw hole taper for increased stability.

# PRDCN




| DESIGNATION | Dimensions (inch) h | b | l | l1 | f | Insert | Lever | Screw | Shim | Shim Pin | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PRDCN 12-10C | .75 | .75 | 5.00 | 1.97 | .375 | RC□X 100300 | LCL 10C | LCS 2 | LSR 32 | LSP 3A | L-W 2 |
| PRDCN 16-10D | 1.00 | 1.00 | 6.00 | 1.97 | .500 | | | | | | |
| PRDCN 12-12C | .75 | .75 | 5.00 | 1.97 | .375 | RC□X 120400 | LCL 12C | LCS 3 | LSR 1203 | LSP 3A | L-W 2.5 |
| PRDCN 16-12D | 1.00 | 1.00 | 6.00 | 1.97 | .500 | | | | | | |
| PRDCN 20-12D | 1.25 | 1.25 | 6.00 | 1.97 | .625 | | | | | | |
| PRDCN 16-16D | 1.00 | 1.00 | 6.00 | 1.97 | .500 | RC□X 160600 | LCL 16C | LCS 16C | LSR 1604 | LSP 16C | L-W 2.5 |
| PRDCN 20-16E | 1.25 | 1.25 | 7.00 | 1.97 | .625 | | | | | | |
| PRDCN 20-20F | 1.25 | 1.25 | 8.00 | 2.36 | .625 | RC□X 200600 | LCL 20C | LCS 5 | LSR 2004 | LSP 5 | L-W 3 |
| PRDCN 24-20X | 1.50 | 1.50 | 10.00 | 2.76 | .750 | | | | | | |
| PRDCN 24-25X | 1.50 | 1.50 | 10.00 | 3.15 | .750 | RC□X 250700 | LCL 25C | LCS 25C | LSR 2506 | LSP 6 | L-W 4 |
| PRDCN 32-32X | 2.00 | 2.00 | 14.00 | 3.54 | 1.000 | RC□X 320900 | LCL 32C | LCS 8 | LSR 3206 | LSP 8 | L-W 5 |

# PRGCR/L




| DESIGNATION | Dimensions (inch) h | b | l | l1 | f | Insert | Lever | Screw | Shim | Shim Pin | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PRGCR 12-10C | .75 | .75 | 5.00 | 0.57 | 1.00 | RC□X 100300 | LCL 10C | LCS 2 | LSR 32 | LSP 3A | L-W 2 |
| PRGCR/L 16-10D | 1.00 | 1.00 | 6.00 | .69 | 1.25 | | | | | | |
| PRGCR 12-12C | .75 | .75 | 5.00 | .71 | 1.00 | RC□X 120400 | LCL 12C | LCS 3 | LSR 1203 | LSP 3A | L-W 2.5 |
| PRGCR/L 16-12D | 1.00 | 1.00 | 6.00 | .71 | 1.25 | | | | | | |
| PRGCR/L 20-12D | 1.25 | 1.25 | 6.00 | .71 | 1.50 | | | | | | |
| PRGCR 16-16D | 1.00 | 1.00 | 6.00 | .71 | 1.25 | RC□X 160600 | LCL 16C | LCS 16C | LSR 1604 | LSP 16C | L-W 2.5 |
| PRGCR/L 20-16E | 1.25 | 1.25 | 7.00 | .91 | 1.25 | | | | | | |
| PRGCR/L 20-20F | 1.25 | 1.25 | 8.00 | 1.08 | 1.50 | RC□X 200600 | LCL 20C | LCS 5 | LSR 2004 | LSP 5 | L-W 3 |
| PRGCR 24-25X | 1.50 | 1.50 | 10.00 | 1.32 | 2.00 | RC□X 250700 | LCL 25C | LCS 25C | LSR 2506 | LSP 6 | L-W 4 |

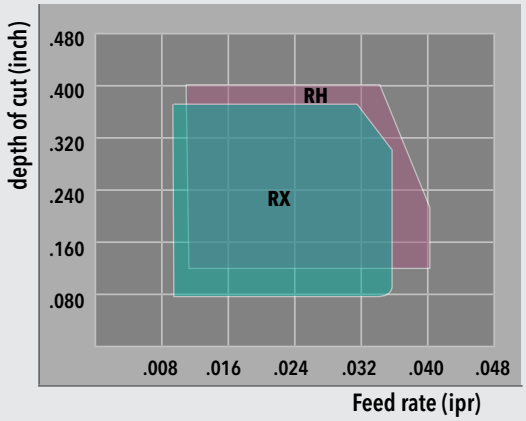
# TOTURN™

## RX CHIPBREAKER FOR ROUGH MACHINING OF LARGE PARTS

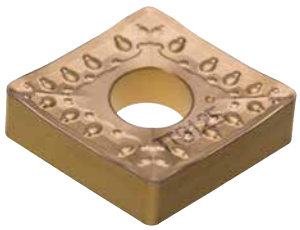
- Negative and positive cutting edge: improves stability and machinability
- Helical cutting edge: increases tool life by minimizing cutting resistance
- Applicable to a broad range of workpieces

- Insert : CNMM 644 RX
- Cutting speed(Vc): 325 sfm
- Material: 0.45% Carbon steel

### CHIP CONTROL RANGE




## CNMM RX



| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT8115 | TT8125 | TT8135 |
|---|---|---|---|---|---|---|---|
| CNMM432RX | CNMM120408RX | 0.008 - 0.022 | 0.028 - 0.276 | | ● | ● | ● |
| CNMM433RX | CNMM120412RX | 0.010 - 0.028 | 0.039 - 0.276 | | ● | ● | ● |
| CNMM543RX | CNMM160612RX | 0.010 - 0.028 | 0.039 - 0.354 | | ● | ● | ● |
| CNMM544RX | CNMM160616RX | 0.012 - 0.035 | 0.059 - 0.354 | | ● | ● | ● |
| CNMM546RX | CNMM160624RX | 0.014 - 0.047 | 0.079 - 0.354 | | ● | ● | ● |
| CNMM642RX | CNMM190608RX | 0.008 - 0.022 | 0.028 - 0.394 | | ● | ● | ● |
| CNMM643RX | CNMM190612RX | 0.010 - 0.028 | 0.039 - 0.394 | | ● | ● | ● |
| CNMM644RX | CNMM190616RX | 0.012 - 0.035 | 0.059 - 0.394 | | ● | ● | ● |
| CNMM646RX | CNMM190624RX | 0.014 - 0.043 | 0.079 - 0.394 | | ● | ● | ● |
| CNMM856RX | CNMM250724RX | 0.014 - 0.047 | 0.079 - 0.472 | | ● | ● | ● |
| CNMM866RX | CNMM250924RX | 0.014 - 0.047 | 0.079 - 0.472 | | ● | ● | ● |

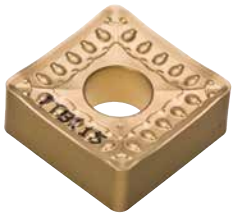
● = P ○ = M ● = K ● = N ● = S ○ = H

## TNMM RX

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT8115 | TT8125 | TT8135 |
|---|---|---|---|---|---|---|---|
| TNMM332RX | TNMM160408RX | 0.008 - 0.022 | 0.028 - 0.236 | | ● | ● | ● |
| TNMM333RX | TNMM160412RX | 0.010 - 0.028 | 0.039 - 0.276 | | ● | ● | ● |
| TNMM432RX | TNMM220408RX | 0.008 - 0.022 | 0.028 - 0.295 | | ● | ● | ● |
| TNMM433RX | TNMM220412RX | 0.010 - 0.028 | 0.039 - 0.295 | | ● | ● | ● |
| TNMM434RX | TNMM220416RX | 0.012 - 0.035 | 0.059 - 0.295 | | ● | ● | ● |

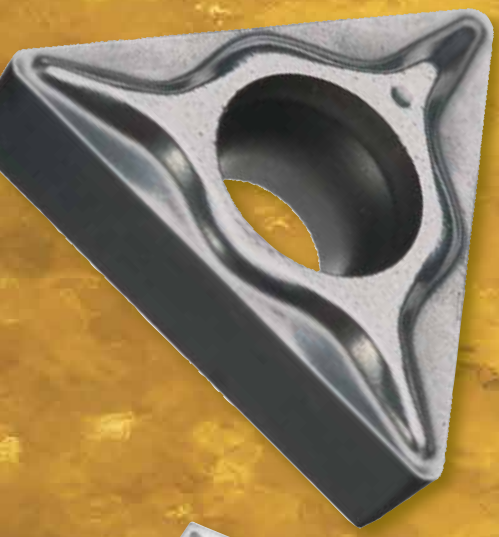
● = P ○ = M ● = K ● = N ● = S ○ = H

## SNMM RX



| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade | TT8115 | TT8125 | TT8135 |
|---|---|---|---|---|---|---|---|
| SNMM432RX | SNMM120408RX | 0.008 - 0.022 | 0.028 - 0.276 | | ● | ● | ● |
| SNMM433RX | SNMM120412RX | 0.010 - 0.028 | 0.039 - 0.276 | | ● | ● | ● |
| SNMM543RX | SNMM150612RX | 0.010 - 0.028 | 0.039 - 0.354 | | ● | ● | ● |
| SNMM643RX | SNMM190612RX | 0.010 - 0.028 | 0.039 - 0.394 | | ● | ● | ● |
| SNMM644RX | SNMM190616RX | 0.012 - 0.035 | 0.059 - 0.394 | | ● | ● | ● |
| SNMM646RX | SNMM190624RX | 0.014 - 0.043 | 0.079 - 0.394 | | ● | ● | ● |
| SNMM856RX | SNMM250724RX | 0.014 - 0.047 | 0.079 - 0.472 | | ● | ● | ● |
| SNMM866RX | SNMM250924RX | 0.014 - 0.047 | 0.079 - 0.472 | | ● | ● | ● |

● = P ○ = M ● = K ● = N ● = S ○ = H

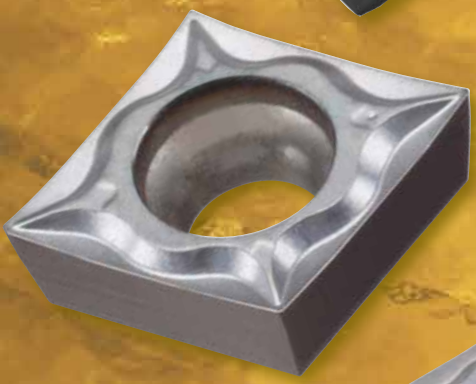


TOTURN™ MINI

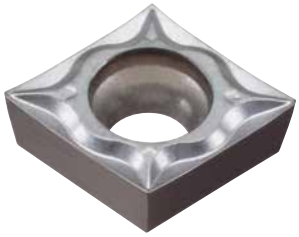
# SA CHIPBREAKER

## GROUND POSITIVE ISO INSERTS FOR HIGH PRECISION TURNING

- Peripherally ground geometry provides high accuracy
- Low cutting forces due to an inclined, sharp cutting edge and wide groove geometry
- Excellent chip control at low feed rates and depths of cut, due to an optimized chip-breaker design
- Grade TT9020 suitable for Swiss sliding head turning centers
- Grade TT5030 ideal for precision aerospace applications

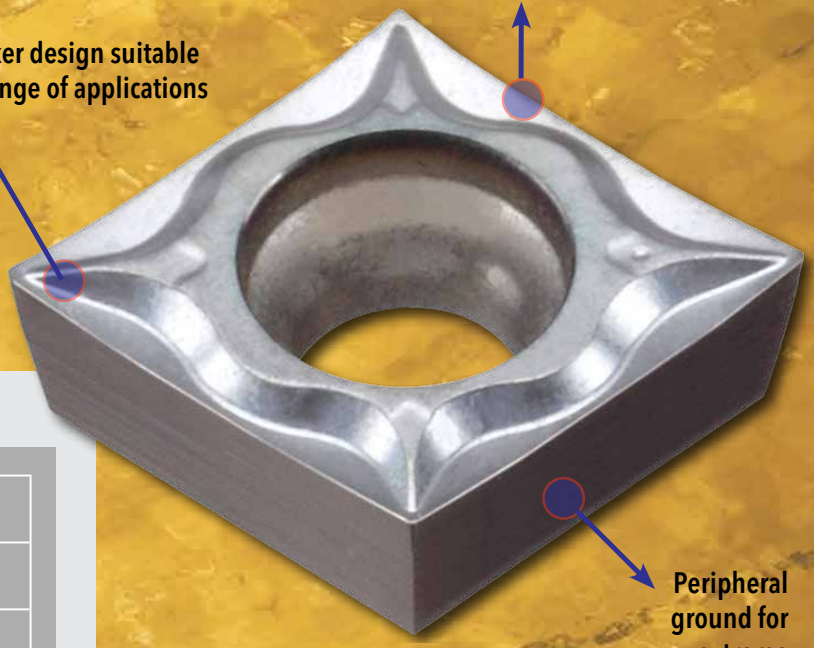


## CCGT SA - 7° POSITIVE, 80° RHOMBIC GROUND INSERTS WITH SA CHIPBREAKER

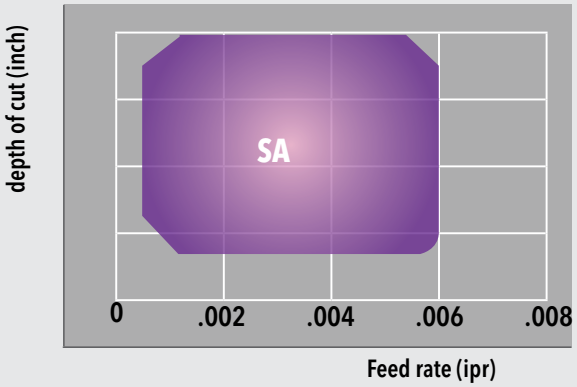


| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade TT5080 | TT9020 |
|---|---|---|---|---|---|
| CCGT 21.50 SA | CCGT 060201 SA | .0008 - .006 | .004 - .060 | | |
| CCGT 21.50.5 SA | CCGT 060202 SA | .0008 - .006 | .004 - .060 | | |
| CCGT 21.51 SA | CCGT 060204 SA | .002 - .008 | .004 - .095 | | |
| CCGT 32.50 SA | CCGT 09T301 SA | .0008 - .006 | .004 - .100 | | |
| CCGT 32.50.5 SA | CCGT 09T302 SA | .0008 - .006 | .004 - .100 | | |
| CCGT 32.51 SA | CCGT 09T304 SA | .002 - .008 | .008 - .100 | | |

● = P ● = M ● = K ● = N ● = S ● = H




## CHIP CONTROL RANGE




- Insert: CCGT 32.51 SA
- Cutting speed: 650 sfm
- Material: 0.45% Carbon steel

# DCGT SA - 7° POSITIVE, 55° RHOMBIC GROUND INSERTS WITH SA CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade TT5080 | TT9020 |
|---|---|---|---|---|---|
| DCGT 21.50 SA | DCGT 070201 SA | .0008 - .006 | .004 - .060 | | |
| DCGT 21.50.5 SA | DCGT 070202 SA | .0008 - .006 | .004 - .060 | | |
| DCGT 21.51 SA | DCGT 070204 SA | .002 - .008 | .004 - .060 | | |
| DCGT 32.50 SA | DCGT 11T301 SA | .0005 - .004 | .004 - .100 | | |
| DCGT 32.50.5 SA | DCGT 11T302 SA | .0008 - .006 | .004 - .100 | | |
| DCGT 32.51 SA | DCGT 11T304 SA | .001 - .008 | .004 - .100 | | |

● = P ● = M ● = K ● = N ● = S ● = H

## TCGT SA - 7° POSITIVE, TRIANGULAR GROUND INSERTS WITH SA CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade TT5080 | TT9020 |
|---|---|---|---|---|---|
| TCGT 21.50 SA | TCGT 110201 SA | .0005 - .004 | .004 - .100 | | |
| TCGT 21.50.5 SA | TCGT 110202 SA | .0008 - .006 | .008 - .100 | | |
| TCGT 21.51 SA | TCGT 110204 SA | .001 - .008 | .008 - .100 | | |

● = P ○ = M ● = K ● = N ● = S ○ = H

## VBGT SA - 5° POSITIVE, 35° RHOMBIC GROUND INSERTS WITH SA CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade TT5080 | TT9020 |
|---|---|---|---|---|---|
| VBGT 220 SA | VBGT 110301 SA | .0005 - .003 | .004 - .060 | | |
| VBGT 220.5 SA | VBGT 110302 SA | .0008 - .003 | .008 - .060 | | |
| VBGT 221 SA | VBGT 110304 SA | .001 - .004 | .008 - .060 | | |

● = P ○ = M ● = K ● = N ● = S ○ = H

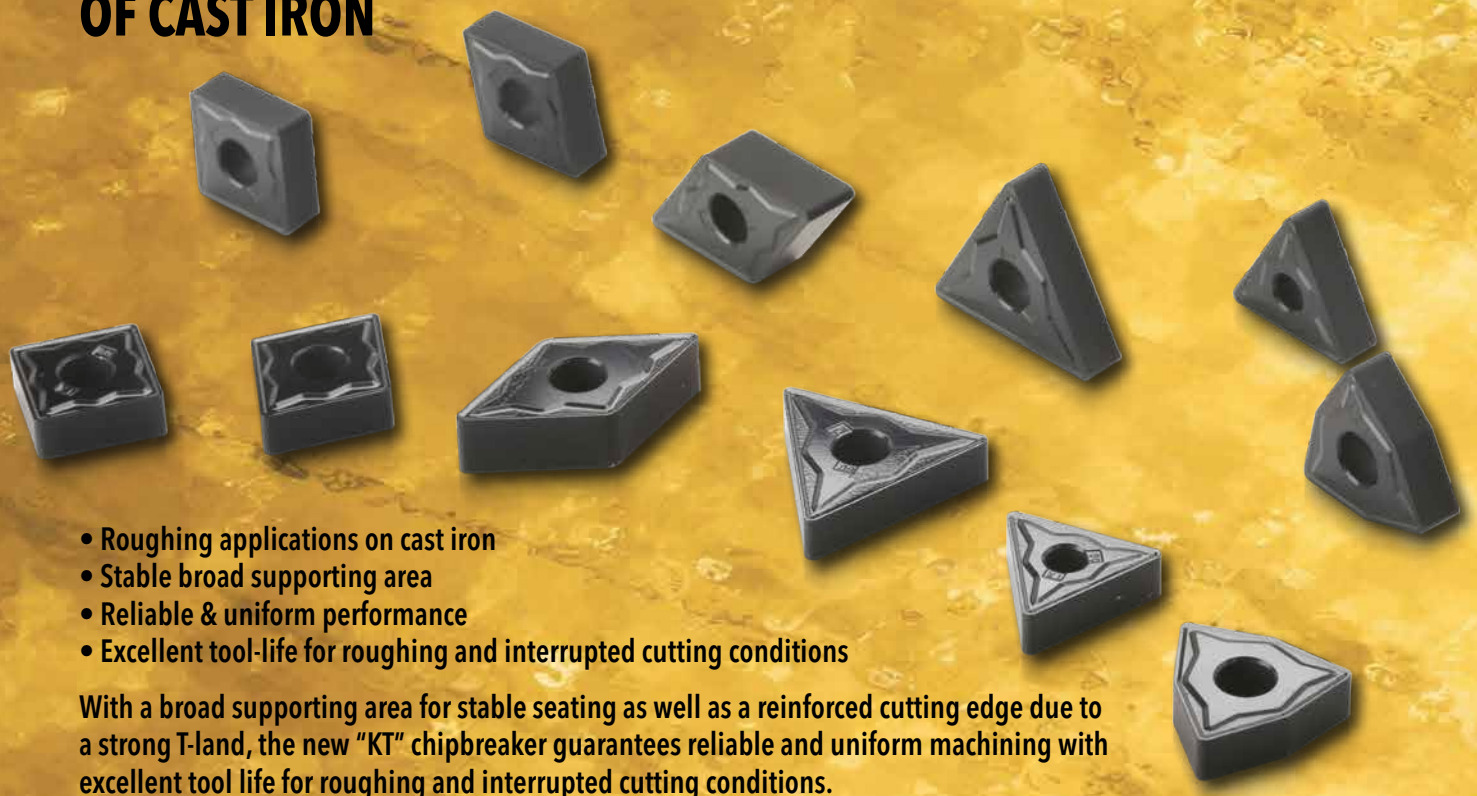
# VCGT SA - 7° POSITIVE, 35° RHOMBIC GROUND INSERTS WITH SA CHIPBREAKER

| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade TT5080 | TT9020 |
|---|---|---|---|---|---|
| VCGT 220 SA | VCGT 110301 SA | .0005 - .003 | .004 - .060 | | |
| VCGT 220.5 SA | VCGT 110302 SA | .0008 - .003 | .008 - .060 | | |
| VCGT 221 SA | VCGT 110304 SA | .001 - .004 | .008 - .060 | | |

● = P ● = M ● = K ● = N ● = S ● = H

# T-TURN™

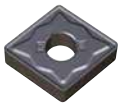
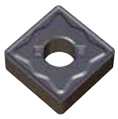
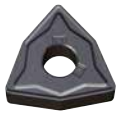
## KT CHIPBREAKER FOR ROUGH TURNING OF CAST IRON



- Roughing applications on cast iron
- Stable broad supporting area
- Reliable & uniform performance
- Excellent tool-life for roughing and interrupted cutting conditions

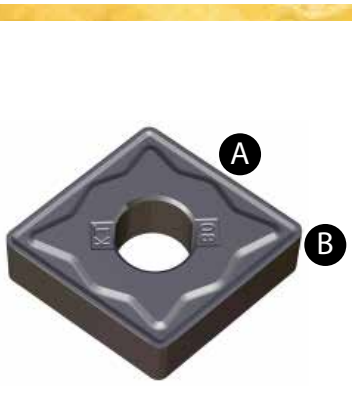
With a broad supporting area for stable seating as well as a reinforced cutting edge due to a strong T-land, the new "KT" chipbreaker guarantees reliable and uniform machining with excellent tool life for roughing and interrupted cutting conditions.

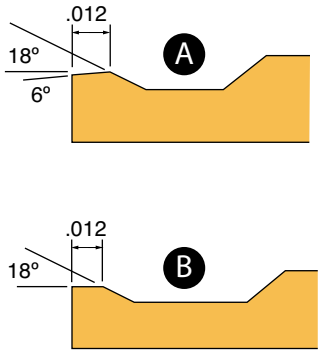
# KT CHIPBREAKERS

| Insert | ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Grade TT7005 | TT7015 |
|---|---|---|---|---|---|---|
|  | CNMG432KT | CNMG120408KT | 0.007 - 0.021 | 0.015 - 0.276 | • | • |
| | CNMG433KT | CNMG120412KT | 0.010 - 0.028 | 0.020 - 0.276 | • | • |
| | CNMG434KT | CNMG120416KT | 0.011 - 0.033 | 0.030 - 0.276 | • | • |
|  | DNMG432KT | DNMG150408KT | 0.007 - 0.019 | 0.015 - 0.276 | • | • |
| | DNMG442KT | DNMG150608KT | 0.007 - 0.019 | 0.015 - 0.276 | • | • |
| | DNMG433KT | DNMG150412KT | 0.009 - 0.025 | 0.020 - 0.276 | • | • |
| | DNMG443KT | DNMG150612KT | 0.009 - 0.025 | 0.020 - 0.276 | • | • |
|  | SNMG432KT | SNMG120408KT | 0.007 - 0.021 | 0.015 - 0.276 | • | • |
| | SNMG433KT | SNMG120412KT | 0.011 - 0.028 | 0.020 - 0.276 | • | • |
|  | TNMG332KT | TNMG160408KT | 0.007 - 0.017 | 0.013 - 0.244 | • | • |
| | TNMG333KT | TNMG160412KT | 0.008 - 0.022 | 0.018 - 0.248 | • | • |
| | TNMG432KT | TNMG220408KT | 0.007 - 0.021 | 0.015 - 0.276 | • | • |
| | TNMG433KT | TNMG220412KT | 0.010 - 0.028 | 0.020 - 0.276 | • | • |
|  | WNMG432KT | WNMG080408KT | 0.007 - 0.019 | 0.011 - 0.217 | • | • |
| | WNMG433KT | WNMG080412KT | 0.009 - 0.025 | 0.015 - 0.217 | • | • |

● = P ○ = M ● = K ● = N ● = S ○ = H

# CROSS SECTION VIEW



# T-FEED™

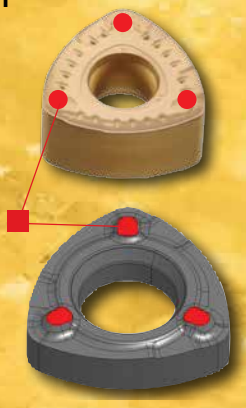
## HF CHIPBREAKER
### FOR HIGH FEED MACHINING

**ECONOMY**

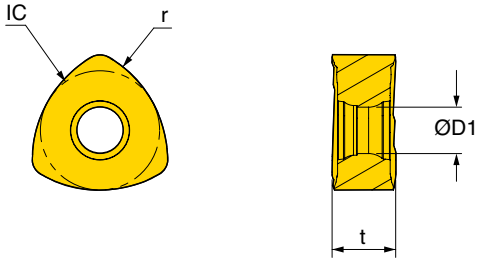
- Utilizes double-sided technology with 6 cutting edges!
- Reduces cycle time, increases productivity
- Double-sided insert offers economical advantages when compared to competitor's inserts

**PERFORMANCE**

- Optimized chip-breaker geometry designed for high feed machining, up to .118 inches per revolution (3mm/rev)
- Reduced cutting forces and surprisingly smooth cutting action due to a positive, but strong, cutting edge
- Chip thinning principle reduces depth of cut notching, prolonging tool life
- Increased clamping stability from unique and patented, 3-dimensional seat design that works in conjunction with rest pads on insert
- Hook designed lever lock system provides multidirectional clamping force



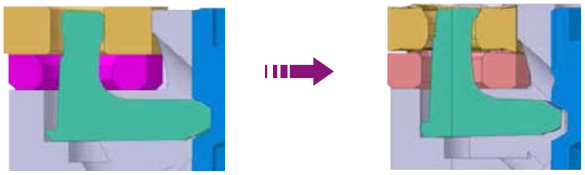
## BNMX HF




| ANSI Number | ISO Number | feed (ipr) | DOC (inch) | Dimensions (inch) IC | t | r | D1 | Grade TT8115 | TT8125 | TT9080 |
|---|---|---|---|---|---|---|---|---|---|---|
| BNMX 150720R/L HF | BNMX 150720R/L HF | .020 - .118 | .020 - .100 | .590 | .315 | .590 | 2.44 | | | |

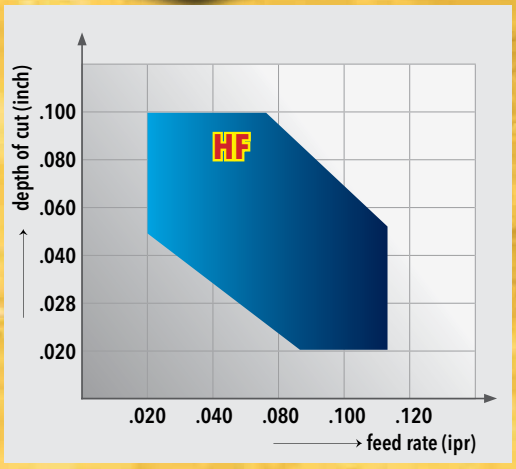
● = P ○ = M ● = K ● = N ● = S ○ = H

## CLAMPING FEATURES OF INSERT



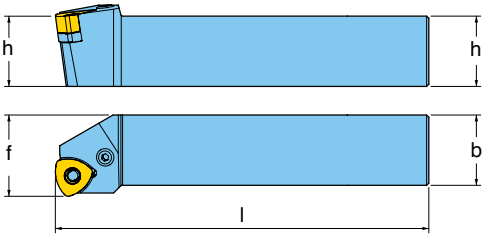
Conventional Lever Type
(P-Type Holders)

Hook Lever Type
(H-Type Holders)




- Insert: BNMX 150720 R-HF
- Cutting speed: 500 sfm
- Material: 0.45% Carbon Steel

# HBXNR/L




| DESIGNATION | Dimensions (inch) | | | | Insert | Lever | Screw | Shim | Shim Pin | Shim Pin Punch | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | h | b | l | f | | | | | | | |
| HBXNR/L 16-55D | 1.00 | 1.00 | 6.00 | 1.15 | BNMX 150720R/L-HF | LCL 16-NX | LCS 5-L25.5 | LSB 53 R/L | LSP 5 | SPP 5-6 | L-W3 |
| HBXNR/L 20-55E | 1.25 | 1.25 | 7.00 | 1.45 | BNMX 150720R/L-HF | LCL 16-NX | LCS 5-L25.5 | LSB 53 R/L | LSP 5 | SPP 5-6 | L-W3 |

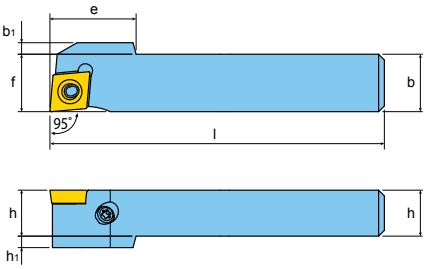
TOTURN™ MINI

# BACK CLAMPING HOLDER

## QUICK CHANGE HOLDER FOR SWISS TYPE LATHES

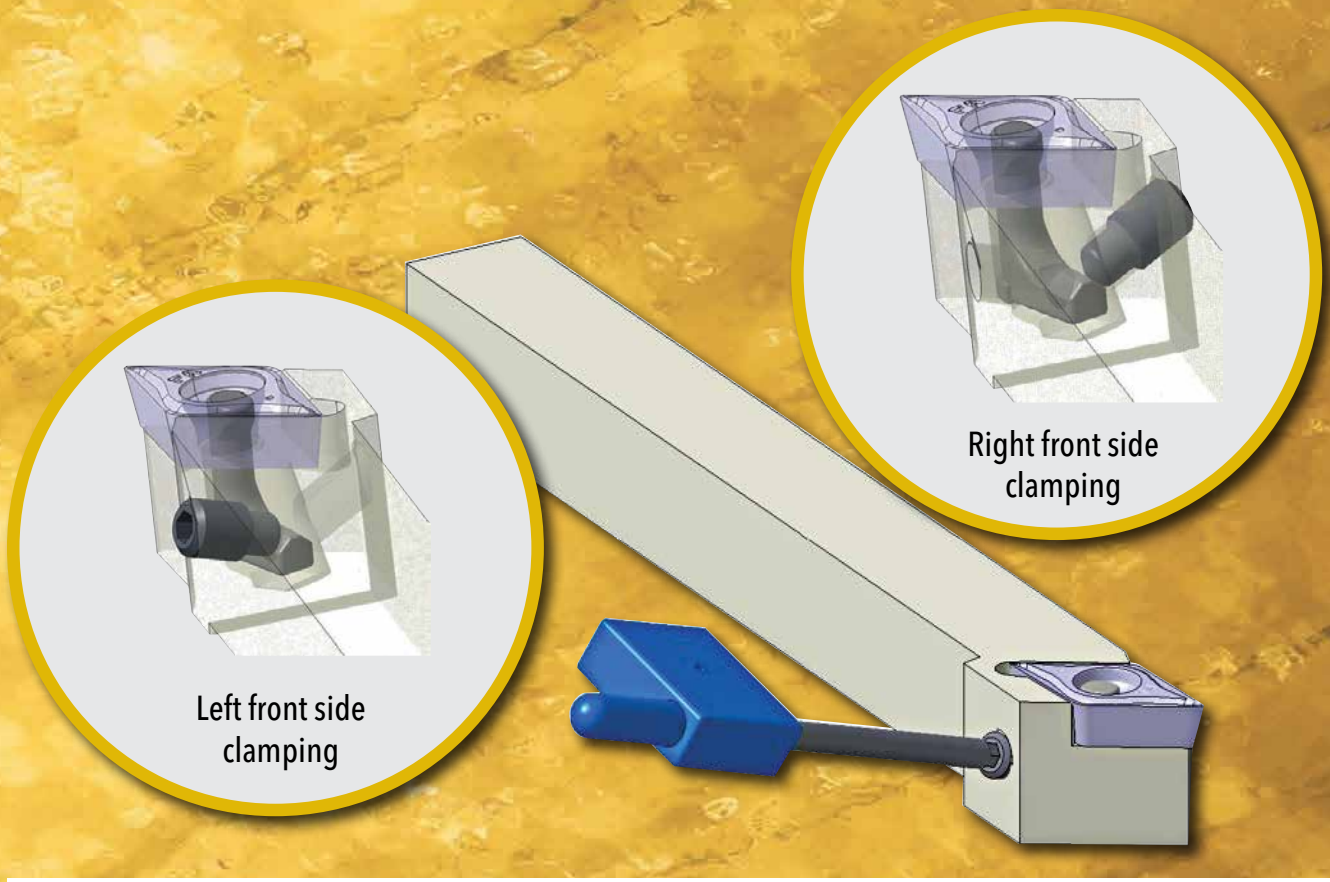
- Quick insert changeover with simple lever clamp design
- Both front and side clamping is available with each holder
- Holders use a unique backward and downward multi-directional clamping force
- No limitations – can be used with all Swiss-type turning machines

## BCLCR/L-SH

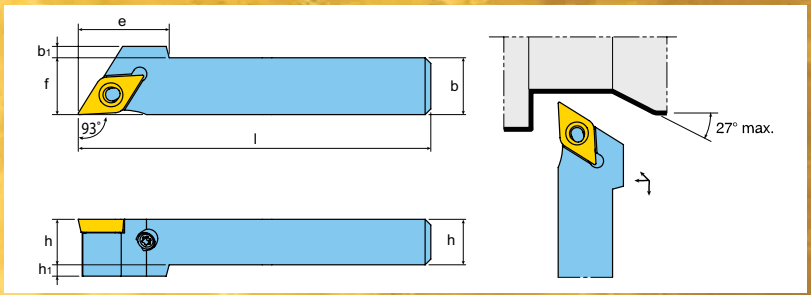



| INCH DESIGNATION | Dimensions (inch) h | h1 | b | b1 | l | f | e | 80° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCLCR/L 06-2C-SH | .375 | .079 | .375 | .079 | 5.00 | .375 | .591 | CC□T 21.5□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BCLCR/L 08-2C-SH | .500 | | .500 | | 5.00 | .500 | | CC□T 21.5□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BCLCR/L 083C-SH | .500 | | .500 | .079 | 5.00 | .500 | .669 | CC□T 32.5□ | BLCL 3 | BLCS 3 | BLSR 3 | L-W 2F |
| BCLCR/L 10-3C-SH | .625 | | .625 | | 5.00 | .625 | | CC□T 32.5□ | BLCL 3 | BLCS 3 | BLSR 3 | L-W 2F |

| METRIC DESIGNATION | Dimensions (mm) h | h1 | b | b1 | l | f | e | 80° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCLCR/L 1212 K06-SH | 12 | 1 | 12 | 2 | 125 | 12 | | CC□T 0602□□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BCLCR/L 1212 K09-SH | 12 | 1 | 12 | 2 | 125 | 12 | 17 | CC□T 09T3□□ | BLCL 3 | BLCS 3 | BLSR 3 | L-W 2F |



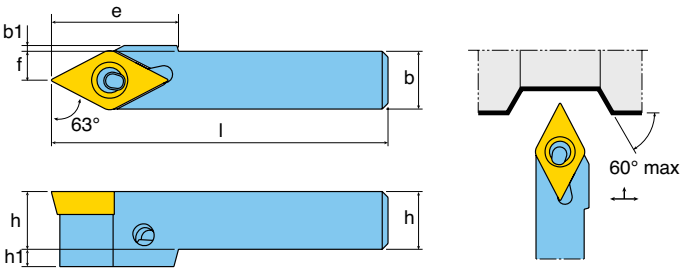

# BDJCR/L-SH




| DESIGNATION | Dimensions (inch) h | h1 | b | b1 | l | f | e | 55° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BDJCR/L 06-2C-SH | .375 | .079 | .375 | .079 | 5.00 | .375 | .591 | DC□T 21.5□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BDJCR/L 08-2C-SH | .500 | | .500 | | 5.00 | .500 | | DC□T 21.5□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BDJCR/L 08-3C-SH | .500 | | .500 | .079 | 5.00 | .500 | .669 | DC□T 32.5□ | BLCL 3 | BLCS 3 | BLSR 3 | L-W 2F |
| BDJCR/L 10-3C-SH | .625 | | .625 | | 5.00 | .625 | | DC□T 32.5□ | BLCL 3 | BLCS 3 | BLSR 3 | L-W 2F |

| DESIGNATION | Dimensions (mm) h | h1 | b | b1 | l | f | e | 55° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BDJCR/L 1212 K07-SH | 12 | - | 12 | - | 125 | 12 | - | DC□T 0702□□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BDJCR/L 1212 K11-SH | 12 | 1 | 12 | 2 | 125 | 12 | 20 | DC□T 11T3□□ | BLCL 3 | BLCS 3 | BLSR 3 | L-W 2F |

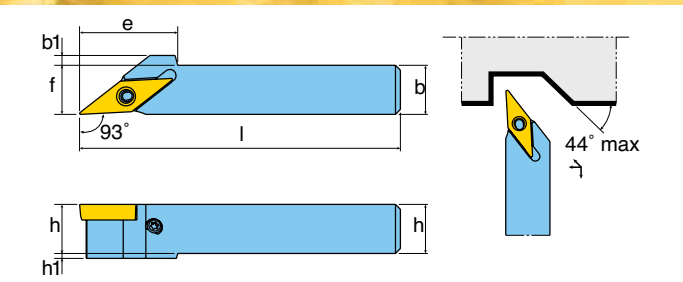
# BDNCN-SH




| INCH DESIGNATION | Dimensions (inch) h | h1 | b | b1 | l | f | e | 55° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BDNCN 06-2C-SH | .375 | | .375 | | 5.00 | .186 | | DC□T 21.5□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BDNCN 08-3C-SH | .500 | .039 | .500 | | 5.00 | .250 | | DC□T 32.5□ | BLCL 3 | BLCS 3 | BLSR 3 | L-W 2F |
| BDNCN 10-3C-SH | .625 | | .625 | | 5.00 | .313 | | DC□T 32.5□ | BLCL 3 | BLCS 3 | BLSR 3 | L-W 2F |

| METRIC DESIGNATION | Dimensions (mm) h | h1 | b | b1 | l | f | e | 55° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BDNCN 1212 K07-SH | 12 | - | 12 | - | 125 | 6 | | DC□T 0702□□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BDNCN 1212 K11-SH | 12 | 1 | 12 | - | 125 | 6 | 22 | DC□T 11T3□□ | BLCL 3 | BLCS 3 | BLSR 3 | L-W 2F |

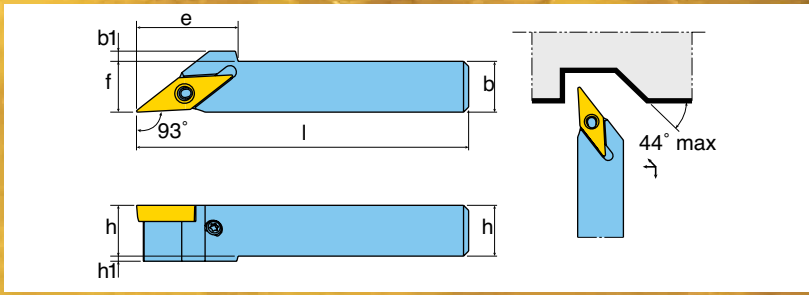
# BVJBR/L-SH




| INCH DESIGNATION | Dimensions (inch) h | h1 | b | b1 | l | f | e | 35° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BVJBR/L 06-2C-SH | .375 | .039 | .375 | .079 | 5.00 | .375 | .787 | VB□T 22□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BVJBR/L 08-2C-SH | .500 | | .500 | | 5.00 | .500 | | VB□T 22□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BVJBR/L 10-2C-SH | .625 | | .625 | | 5.00 | .625 | | VB□T 22□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |

| METRIC DESIGNATION | Dimensions (mm) h | h1 | b | b1 | l | f | e | 35° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BVJBR/L1212 K11-SH | 12 | | 12 | | 125 | 12 | - | VB□T 1103□□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |

# BVJCR/L-SH

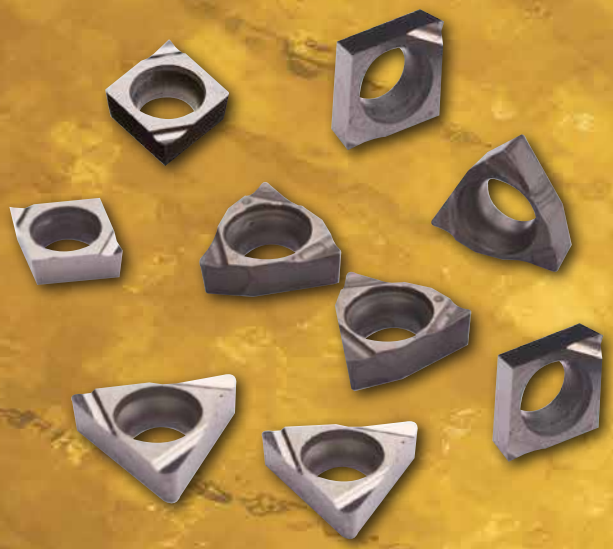



| INCH DESIGNATION | Dimensions (inch) h | h1 | b | b1 | l | f | e | 35° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BVJCR/L 06-2C-SH | .375 | .039 | .375 | .079 | 5.00 | .375 | .787 | VC□T 22□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BVJCR/L 08-2C-SH | .500 | | .500 | | 5.00 | .500 | | VC□T 22□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |
| BVJCR/L 10-2C-SH | .625 | | .625 | | 5.00 | .625 | | VC□T 22□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |

| METRIC DESIGNATION | Dimensions (mm) h | h1 | b | b1 | l | f | e | 35° Insert | Lever | Lever Screw | Snap Ring | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BVJCR/L1212 K11-SH | 12 | | 12 | | 125 | 12 | - | VC□T 1103 □□ | BLCL 2 | BLCS 2 | BLSR 2 | T 6 |

T•MINI™

# NEW INDEXABLE SYSTEM OF BORING BARS AND INSERTS FOR SMALL COMPONENT MACHINING



**T•MINI Boring Bars**

- Minimum bore diameter as small as .197" (5mm)
- Available with carbide and steel shanks, right hand and left hand
- Special design near the joints ensures improved durability
- Very good chip evacuation
- Stable machining with minimal vibration

**T•MINI Inserts**

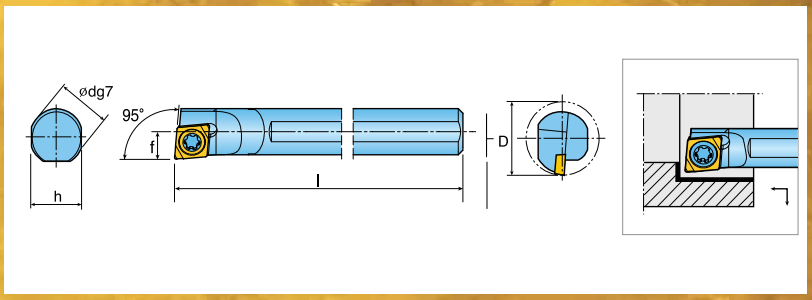
- Shapes available: CCGT, TBGT, WBGT, VCGT and VCMT
- Insert IC (inscribed circle) as small as .156" (3.97mm)
- Smooth cutting edge prevents micro chipping and prolongs tool life
- Available in right hand and left hand styles (Note: right hand inserts for left hand bars. Left hand inserts for right hand bars. VCGT & VCMT inserts are neutral and will fit either hand bar).

To meet the increasing demand for boring small parts such as machined medical implant devices and micro-sized electronic components, Ingersoll introduces a new line of miniature, indexable boring bars and inserts.

The unique T•MINI boring bar configuration improves chip evacuation and can be applied in boring applications where the minimum bore diameter is as small as .197" (5mm). Optional 16mm and .625" sleeves are available to provide a simple and secure means of holding of the boring bars.

T•MINI inserts feature sharp cutting edges that help lower cutting forces and vibration. This enables precision turning and excellent surface finish capabilities. Inserts are available in ground and pressed versions depending on the shape, and contain a smooth, homogenous surface finish that prevents chipping while extending tool life.

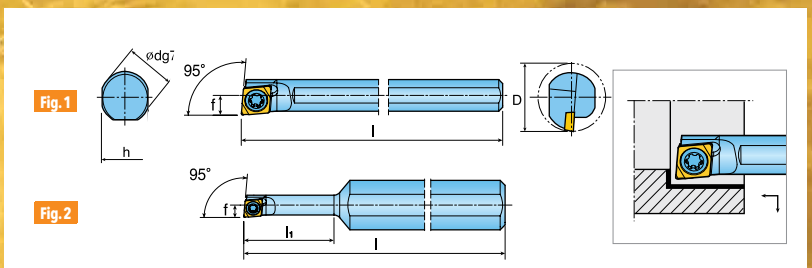
# C-SCLCR/L (CARBIDE SHANK)




| DESIGNATION | R | L | Dimensions (inch) d | h | l | f | ØD min | Insert | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|
| C04G-SCLCR/L 03-D05 | • | • | .157 (4mm) | .148 | 3.54 | .098 | .197 (5mm) | CC□T1.10.9□□ (CC□T 0301□□) | TS 16031I | T 6 |
| C05H-SCLCR/L 03-D06 | • | • | .197 (5mm) | .187 | 3.94 | .098 | .236 (6mm) | | | |
| C06J-SCLCR/L 04-D07 | • | • | .236 (6mm) | .217 | 4.33 | .098 | .276 (7mm) | CC□T1.41.1□□ (CC□T 0401□□) | TS 20038I/ HG-P | T 6P |
| C07K-SCLCR/L 04-D08 | • | • | .276 (7mm) | .256 | 4.92 | .098 | .315 (8mm) | | | |

• Marked: Standard items
L-hand insert for R-hand toolholder, R-hand insert for L-hand toolholder

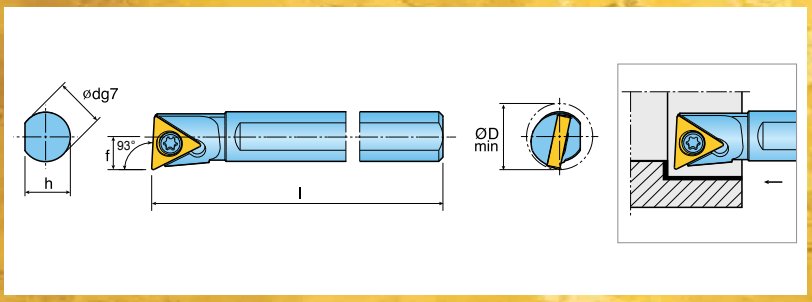
# S-SCLCR/L (STEEL SHANK)




| DESIGNATION | R | L | Dimensions (inch) d | h | l | l1 | f | ØD min | Insert | Screw | Wrench | SHAPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S04F-SCLCR/L 03-D05 | • | • | .157 (4mm) | .148 | 3.15 | | .098 | .197 (5mm) | CC□T1.10.9□□ (CC□T 0301□□) | TS 16031I | T 6 | Fig 1 |
| S05G-SCLCR/L 03-D06 | • | • | .197 (5mm) | .187 | 3.54 | | .118 | .236 (6mm) | | | | |
| S06H-SCLCR/L 04-D07 | • | • | .236 (6mm) | .217 | 3.94 | | .138 | .276 (7mm) | CC□T1.41.1□□ (CC□T 0401□□) | TS 20038I/ HG-P | T 6P | Fig 1 |
| S07J-SCLCR/L 04-D08 | • | • | .276 (7mm) | .256 | 4.33 | | .157 | .315 (8mm) | | | | |
| S10H-SCLCR/L 03-D05 | • | • | .394 (10mm) | .354 | 3.94 | .591 | .098 | .197 (5mm) | CC□T1.10.9□□ (CC□T 0301□□) | TS 16031I | T 6 | Fig 2 |

• Marked: Standard items
L-hand insert for R-hand toolholder, R-hand insert for L-hand toolholder

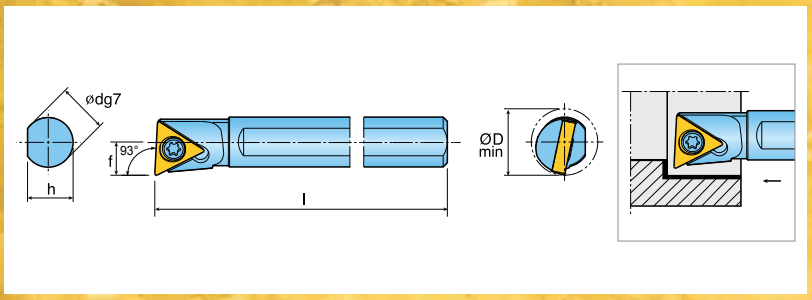
## C-STUBR/L (CARBIDE SHANK)




| DESIGNATION | R | L | Dimensions (inch) d | h | l | f | ØD min | Insert | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|
| C06J-STUBR/L 06-D08 | • | • | .236 (6mm) | .217 | 4.33 | .157 | .315 (8mm) | TB□T1.21□□ (TB□T 0601□□) | TS 20043I/ HG-P | T 6P |

• Marked: Standard items
L-hand insert for R-hand toolholder, R-hand insert for L-hand toolholder

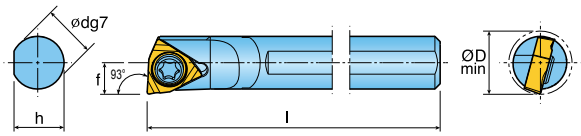
## S-STUBR/L (STEEL SHANK)

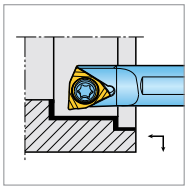



| DESIGNATION | R | L | Dimensions (inch) d | h | l | f | ØD min | Insert | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|
| S06H-STUBR/L 06-D08 | • | • | .236 (6mm) | .217 | 3.94 | .157 | .315 (8mm) | TB□T1.21□□ (TB□T 0601□□) | TS 20043I/ HG-P | T 6P |

• Marked: Standard items
L-hand insert for R-hand toolholder, R-hand insert for L-hand toolholder

# C-SWUBR/L (CARBIDE SHANK)



| DESIGNATION | R | L | Dimensions (inch) d | h | l | f | ØD min | Insert | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|
| C05H-SWUBR/L 06-D06 | • | • | .197 (5mm) | .187 | 3.94 | .118 | .236 (6mm) | WB□T1.21□□ (WB□T 0601□□) | TS 20038I/ HG-P | T 6P |
| C06J-SWUBR/L 06-D07 | • | • | .236 (6mm) | .217 | 4.33 | .138 | .276 (7mm) | | | |
| C07K-SWUBR/L 06-D08 | • | • | .276 (7mm) | .256 | 4.92 | .157 | .315 (8mm) | | | |

• Marked: Standard items
L-hand insert for R-hand toolholder, R-hand insert for L-hand toolholder

# S-SWUBR/L (STEEL SHANK)

Fig. 1

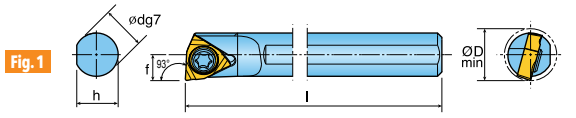
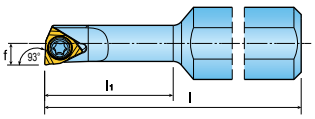
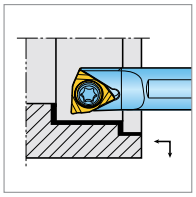



Fig. 2

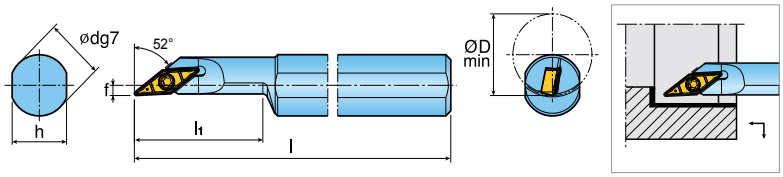


| DESIGNATION | R | L | Dimensions (inch) d | h | l | l1 | f | ØD min | Insert | Screw | Wrench | SHAPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S05G-SWUBR/L 06-D06 | • | • | .197 (5mm) | .187 | 3.54 | - | .118 | .236 (6mm) | WB□T1.21□□ (WB□T 0601□□) | TS 20038I/ HG-P | T 6P | Fig 1 |
| S06H-SWUBR/L 06-D07 | • | • | .236 (6mm) | .217 | 4.33 | - | .138 | .276 (7mm) | | | | |
| S07J-SWUBR/L 06-D08 | • | • | .276 (7mm) | .256 | 4.33 | - | .157 | .315 (8mm) | | | | |
| S10H-SWUBR/L 06-D06 | • | • | .394 (10mm) | .354 | 3.94 | .709 | .118 | .236 (6mm) | | | | Fig 2 |

• Marked: Standard items
L-hand insert for R-hand toolholder, R-hand insert for L-hand toolholder

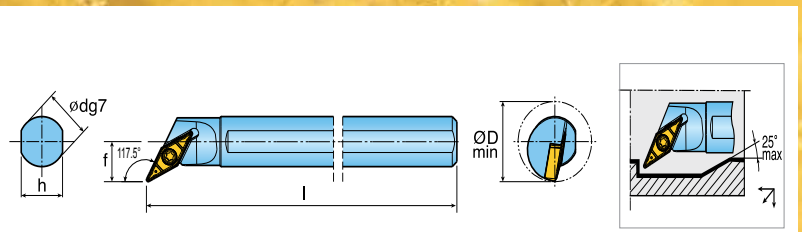
## S-SVJCR/L (STEEL SHANK)




| DESIGNATION | R | L | Dimensions (inch) d | h | l | l1 | f | ØD min | 35° Insert | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S12M-SVJCR/L 08-D16 | • | • | .472 (12mm) | .433 | 5.91 | 1.02 | .079 | .630 (16mm) | VC□T1.51.5□□ (VC□T 0802□□) | TS 20038I/ HG-P | T 6P |
| S16Q-SVJCR/L 08-D20 | • | • | .630 (16mm) | .591 | 7.09 | 1.42 | .079 | .787 (20mm) | | | |

• Marked: Standard items

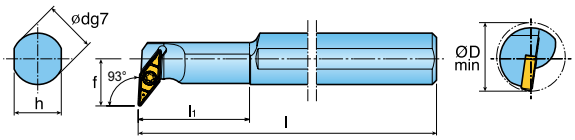
## S-SVPCR/L (STEEL SHANK)




| DESIGNATION | R | L | Dimensions (inch) d | h | l | f | ØD min | 35° Insert | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|
| S10K-SVPCR/L 08-D16 | • | • | .394 (10mm) | .354 | 4.92 | .236 | .630 (16mm) | VC□T1.51.5□□ (VC□T 0802□□) | TS 20038I/ HG-P | T 6P |
| S12M-SVPCR/L 11-D20 | • | • | .472 (12mm) | .433 | 5.91 | .394 | .787 (20mm) | VC□T 22□□ (VC□T 1103□□) | SO 25065I | T 7 |

• Marked: Standard items

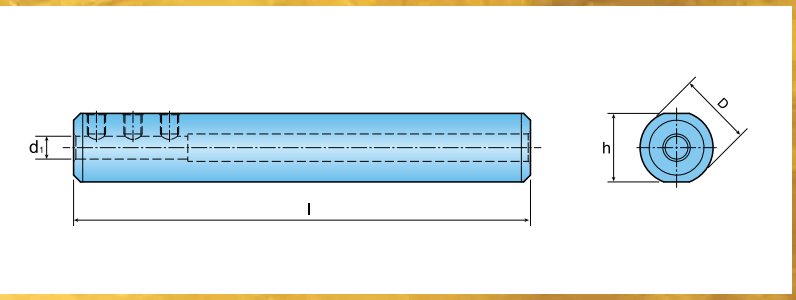
# S-SVUCR/L (STEEL SHANK)




| DESIGNATION | R | L | Dimensions (inch) d | h | l | l1 | f | ØD min | Insert | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S12M-SVUCR/L 08-D16 | • | • | .472 (12mm) | .433 | 5.91 | 1.02 | .433 | .630 (16mm) | VC□T1.51.5□□ (VC□T 0802□□) | TS 20038I/HG-P | T 6P |
| S16Q-SVUCR/L 11-D20 | • | • | .630 (16mm) | .591 | 7.09 | 1.26 | .610 | .787 (20mm) | VC□T 22□□ (VC□T 1103□□) | SO 25065I | T 7 |
| S20R-SVUCR/L 11-D25 | • | • | .787 (20mm) | .709 | 7.87 | 1.57 | .689 | .984 (25mm) | | | |

• Marked: Standard items

# TSL (SLEEVE)

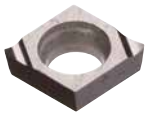
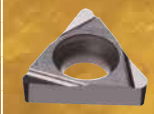
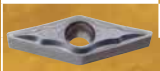



| | DESIGNATION | | Dimensions d1 | h | l | D | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|
| Metric | TSL 16-04 | • | .157 (4mm) | 15 | 100 | 16 | SS M4 x 0.7 x 4 | L-W2 |
| | TSL 16-05 | • | .197 (5mm) | 15 | 100 | 16 | | |
| | TSL 16-06 | • | .236 (6mm) | 15 | 100 | 16 | | |
| | TSL 16-07 | • | .276 (7mm) | 15 | 100 | 16 | | |
| Inch | TSL15.88-04-mini | • | .157 (4mm) | 5.91 | 3.94 | .625 | SS M4 x 0.7 x 4 | L-W2 |
| | TSL15.88-05-mini | • | .197 (5mm) | 5.91 | 3.94 | .625 | | |
| | TSL15.88-06-mini | • | .236 (6mm) | 5.91 | 3.94 | .625 | | |
| | TSL15.88-07-mini | • | .276 (7mm) | 5.91 | 3.94 | .625 | | |

• Marked: Standard items

# INSERTS

- **P** Carbon Steel C: 0.45%
- **M** Austenitic Stainless Steel
- **K** High Tensile Cast Iron
- **N** Aluminum
- **S** Inconel
- **H** Hardened Steel

| INSERT | ANSI DESIGNATION | ISO DESIGNATION | Dimensions (inches) I.C. | Rad | Feed (ipr) | DOC | Grade CT3000 | PV3010 | TT8115 | TT8125 | TT9225 | TT5100 | TT5080 | TT9020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  CCGT 03, 04 | CCGT 0301003 R-FF | CCGT 1.10.9X0R-FF | 0.138 | 0.001 | .001 - .004 | .002 - .012 | ● | | | | | | | |
| | CCGT0301003 L-FF | CCGT 1.10.9X0L-FF | 0.138 | 0.001 | .001 - .004 | .002 - .012 | ● | | | | | | | |
| | CCGT 030101 R-FF | CCGT 1.10.90XR-FF | 0.138 | 0.004 | .001 - .005 | .003 - .016 | ● | | | | | | | |
| | CCGT 030101 L-FF | CCGT 1.10.90XL-FF | 0.138 | 0.004 | .001 - .005 | .003 - .016 | ● | | | | | | | |
| | CCGT 030102 R-FF | CCGT 1.10.90.5R-FF | 0.138 | 0.008 | .001 - .006 | .004 - .016 | ● | | | | | | | |
| | CCGT 030102 L-FF | CCGT 1.10.90.5L-FF | 0.138 | 0.008 | .001 - .006 | .004 - .016 | ● | | | | | | | |
| | CCGT 030104 R-FF | CCGT 1.10.91R-FF | 0.138 | 0.016 | .002 - .008 | .004 - .016 | ● | | | | | | | |
| | CCGT 030104 L-FF | CCGT 1.10.91L-FF | 0.138 | 0.016 | .002 - .008 | .004 - .016 | ● | | | | | | | |
| | CCGT 0401003 R-FF | CCGT 1.41.1X0R-FF | 0.169 | 0.001 | .001 - .004 | .002 - .016 | ● | | | | | | | |
| | CCGT 0401003 L-FF | CCGT 1.41.1X0L-FF | 0.169 | 0.001 | .001 - .004 | .002 - .016 | ● | | | | | | | |
| | CCGT 040101 R-FF | CCGT 1.41.10R-FF | 0.169 | 0.004 | .001 - .005 | .004 - .020 | ● | | | | | | | |
| | CCGT 040101 L-FF | CCGT 1.41.10L-FF | 0.169 | 0.004 | .001 - .005 | .004 - .020 | ● | | | | | | | |
| | CCGT 040102 R-FF | CCGT 1.41.10.5R-FF | 0.169 | 0.008 | .001 - .005 | .004 - .020 | ● | | | | | | | |
| | CCGT 040102 L-FF | CCGT 1.41.10.5L-FF | 0.169 | 0.008 | .001 - .005 | .004 - .020 | ● | | | | | | | |
| | CCGT 040104 R-FF | CCGT 1.41.11R-FF | 0.169 | 0.016 | .002 - .008 | .004 - .020 | ● | | | | | | | |
| | CCGT 040104 L-FF | CCGT 1.41.11L-FF | 0.169 | 0.016 | .002 - .008 | .004 - .020 | ● | | | | | | | |
|  TBGT 06 | TBGT 0601003 R-FF | TBGT 1.21X0R-FF | 0.156 | 0.001 | .001 - .004 | .002 - .012 | ● | | | | | | | |
| | TBGT 0601003 L-FF | TBGT 1.21X0L-FF | 0.156 | 0.001 | .001 - .004 | .002 - .012 | ● | | | | | | | |
| | TBGT 060101 R-FF | TBGT 1.210R-FF | 0.156 | 0.004 | .001 - .005 | .003 - .016 | ● | | | | | | | |
| | TBGT 060101 L-FF | TBGT 1.210L-FF | 0.156 | 0.004 | .001 - .005 | .003 - .016 | ● | | | | | | | |
| | TBGT 060102 R-FF | TBGT 1.210.5R-FF | 0.156 | 0.008 | .001 - .006 | .004 - .016 | ● | | | | | | | |
| | TBGT 060102 L-FF | TBGT 1.210.5L-FF | 0.156 | 0.008 | .001 - .006 | .004 - .016 | ● | | | | | | | |
| | TBGT 060104 R-FF | TBGT 1.211R-FF | 0.156 | 0.016 | .002 - .008 | .004 - .016 | ● | | | | | | | |
| | TBGT 060104 L-FF | TBGT 1.211L-FF | 0.156 | 0.016 | .002 - .008 | .004 - .016 | ● | | | | | | | |
|  WBGT 06 | WBGT 0601003 R-FF | WBGT 1.21X0R-FF | 0.156 | 0.001 | .001 - .004 | .002 - .012 | ● | | | | | | | |
| | WBGT 0601003 L-FF | WBGT 1.21X0L-FF | 0.156 | 0.001 | .001 - .004 | .002 - .012 | ● | | | | | | | |
| | WBGT 060101 R-FF | WBGT 1.210R-FF | 0.156 | 0.004 | .001 - .005 | .003 - .016 | ● | | | | | | | |
| | WBGT 060101 L-FF | WBGT 1.210L-FF | 0.156 | 0.004 | .001 - .005 | .003 - .016 | ● | | | | | | | |
| | WBGT 060102 R-FF | WBGT 1.210.5R-FF | 0.156 | 0.008 | .001 - .006 | .004 - .016 | ● | | | | | | | |
| | WBGT 060102 L-FF | WBGT 1.210.5L-FF | 0.156 | 0.008 | .001 - .006 | .004 - .016 | ● | | | | | | | |
| | WBGT 060104 R-FF | WBGT 1.211R-FF | 0.156 | 0.016 | .002 - .008 | .004 - .016 | ● | | | | | | | |
| | WBGT 060104 L-FF | WBGT 1.211L-FF | 0.156 | 0.016 | .002 - .008 | .004 - .016 | ● | | | | | | | |
|  VCGT 11 | VCGT 110301 SA | VCGT 220 SA | 0.250 | 0.004 | .0005 - .008 | .004 - .060 | | | | | | | ◐ | ◐ |
| | VCGT 110302 SA | VCGT 220.5 SA | 0.250 | 0.008 | .0008 - .008 | .008 - .060 | | | | | | | ◐ | ◐ |
| | VCGT 110304 SA | VCGT 221 SA | 0.250 | 0.016 | .002 - .008 | .008 - .060 | | | | | | | ◐ | ◐ |
|  VCMT 08,11 | VCMT 080202 PC | VCMT 1.51.51 PC | 0.187 | 0.008 | .001 - .006 | .008 - .060 | ● | | ● | ● | ● | ● | | |
| | VCMT 080204 PC | VCMT 1.51.51 PC | 0.187 | 0.016 | .002 - .008 | .008 - .060 | ● | ◔ | ● | ● | ● | ● | | |
| | VCMT 110304 PC | VCMT 221 PC | 0.250 | 0.016 | .002 - .008 | .004 - .067 | ● | | ● | ● | ● | | | |

# C-ADAPTER™

## QUICK CHANGE HOLDERS FOR ISO TURNING

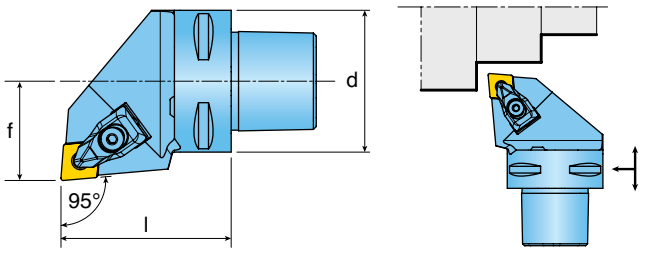
- Wide range of quick change heads for ISO turning inserts.
- Ideal for high precision machining due to stable clamping force.

C4, C5, C6-TCLNR

C4, C5, C6-SCLCR

C4, C5, C6-TDJNR

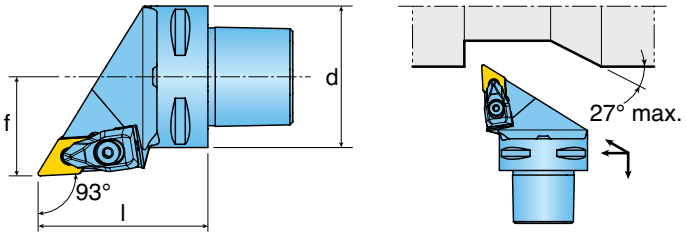
## C_-TCLNR/L*




| DESIGNATION | Dimensions (mm) d | f | l | 80° Insert | Clamp | Clamp Screw | Shim | Shim Screw | Spring | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C4-TCLNR/L 27050-09 | 40 | 27 | 50 | CN□□33□ | DLM 3 | DLS 3 | LSC 32 | SO 40085I | DSP 3 | NZ 83 | L-W 2.5 |
| C4-TCLNR/L 27050-12 | 40 | 27 | 50 | CN□□43□ | DLM 4 | DLS 4 | TSC 44 | SO 40050I | DSP 4 | NZ 83 | L-W 3 |
| C5-TCLNR/L 35060-12 | 50 | 35 | 60 | CN□□43□ | DLM 4 | DLS 4 | TSC 44 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |
| C6-TCLNR/L 45065-12 | 63 | 45 | 65 | CN□□43□ | DLM 4 | DLS 4 | TSC 44 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |
| C4-TCLNR/L 27055-16 | 40 | 27 | 55 | CN□□54□ | DLM 5 | DLS 5 | TSC 54 | SO 50090I | DSP 5 | NZ 83 | L-W 4 |
| C5-TCLNR/L 35060-19 | 50 | 35 | 60 | CN□□64□ | DLM 6 | DLS 5 | LSC 63 | SO 80180I | DSP 5 | NZ 104 | L-W 4 |
| C6-TCLNR/L 45065-19 | 63 | 45 | 65 | CN□□64□ | DLM 6 | DLS 5 | LSC 63 | SO 80180I | DSP 5 | NZ 104 | L-W 4 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

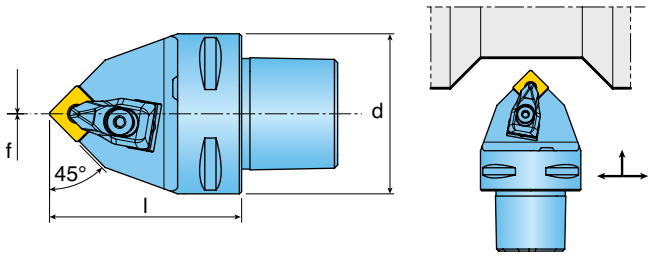
## C_-TDJNR/L*




| DESIGNATION | Dimensions (mm) d | f | l | 55° Insert | Clamp | Clamp Screw | Shim | Shim Screw | Spring | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C4-TDJNR/L 27055-1504 | 40 | 27 | 55 | DN□□43□ | DLM 4 | DLS 4 | TSD 44 | SO 40050I | DSP 4 | NZ 83 | L-W 3 |
| C4-TDJNR/L 27055-1506 | 40 | 27 | 55 | DN□□44□ | DLM 4 | DLS 4 | TSD 43 | SO 40050I | DSP 4 | NZ 83 | L-W 3 |
| C5-TDJNR/L 35060-1504 | 50 | 35 | 60 | DN□□43□ | DLM 4 | DLS 4 | TSD 44 | SO 40050I | DSP 4 | NZ 83 | L-W 3 |
| C5-TDJNR/L 35060-1506 | 50 | 35 | 60 | DN□□44□ | DLM 4 | DLS 4 | TSD 43 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |
| C6-TDJNR/L 45065-1504 | 63 | 45 | 65 | DN□□43□ | DLM 4 | DLS 4 | TSD 44 | SO 40050I | DSP 4 | NZ 83 | L-W 3 |
| C6-TDJNR/L 45065-1506 | 63 | 45 | 65 | DN□□44□ | DLM 4 | DLS 4 | TSD 43 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

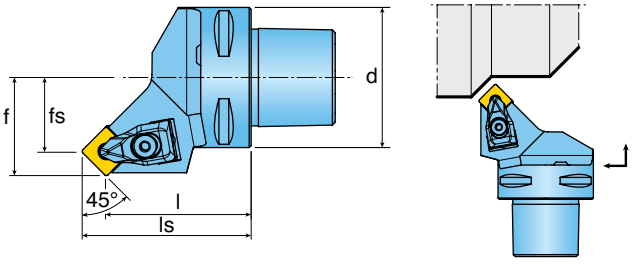
## C_-TSDNN*




| DESIGNATION | Dimensions (mm) d | f | l | Insert | Clamp | Clamp Screw | | Shim Screw | Spring | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C4-TSDNN 00050-12 | 40 | 0 | 50 | SN□□43□ | DLM 4 | DLS 4 | TSS 44 | SO 40050I | DSP 4 | NZ 83 | L-W 3 |
| C5-TSDNN 00060-12 | 50 | 0 | 60 | SN□□43□ | DLM 4 | DLS 4 | TSS 44 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |
| C6-TSDNN 00065-12 | 63 | 0 | 65 | SN□□43□ | DLM 4 | DLS 4 | TSS 44 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

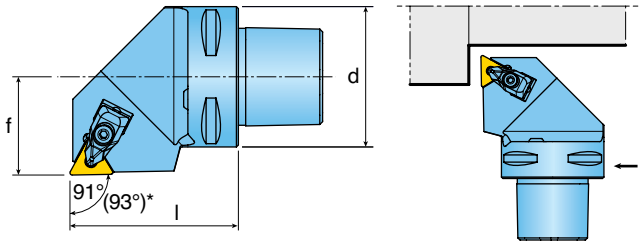
## C_-TSSNR/L*




| DESIGNATION | Dimensions (mm) d | f | fs | l | ls | Insert | Clamp | Clamp Screw | | Shim Screw | Spring | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C4-TSSNR/L 27042-12 | 40 | 27 | 18.7 | 42 | 50.3 | SN□□43□ | DLM 4 | DLS 4 | TSS 44 | SO 40050I | DSP 4 | NZ 83 | L-W 3 |
| C5-TSSNR/L 35052-12 | 50 | 35 | 26.7 | 52 | 60.3 | SN□□43□ | DLM 4 | DLS 4 | TSS 44 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |
| C6-TSSNR/L 45056-12 | 63 | 45 | 36.7 | 56 | 64.3 | SN□□43□ | DLM 4 | DLS 4 | TSS 44 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

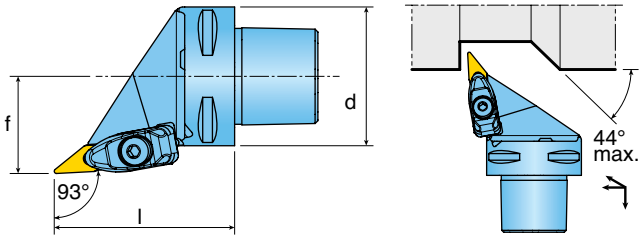
## C_-TTGNR/L C_-TTJNR/L*




| DESIGNATION | Dimensions (mm) d | f | l | Insert | Clamp | Clamp Screw | Shim | Shim Screw | Spring | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C4-TTGNR/L 27050-16 | 40 | 27 | 50 | TN□□33□ | DLM 3 | DLS 3 | TST 33 | SO 35080I | DSP 3 | NZ 83 | L-W 2.5 |
| C5-TTGNR/L 35060-16 | 50 | 35 | 60 | TN□□33□ | DLM 3 | DLS 3 | TST 33 | SO 35080I | DSP 3 | NZ 104 | L-W 2.5 |
| C6-TTGNR/L 45065-16 | 63 | 45 | 65 | TN□□33□ | DLM 3 | DLS 3 | TST 33 | SO 35080I | DSP 3 | NZ 104 | L-W 2.5 |
| C4-TTJNR/L 27050-16 | 40 | 27 | 50 | TN□□33□ | DLM 3 | DLS 3 | TST 33 | SO 35080I | DSP 3 | NZ 83 | L-W 2.5 |
| C5-TTJNR/L 35060-16 | 50 | 35 | 60 | TN□□33□ | DLM 3 | DLS 3 | TST 33 | SO 35080I | DSP 3 | NZ 104 | L-W 2.5 |
| C6-TTJNR/L 45065-16 | 63 | 45 | 65 | TN□□33□ | DLM 3 | DLS 3 | TST 33 | SO 35080I | DSP 3 | NZ 104 | L-W 2.5 |

NOTE: TTGNR/L has 91° lead angle. TTJNR/L has 93° lead angle.
*compatable with Sandvik's COROMANT CAPTO* (**) system.

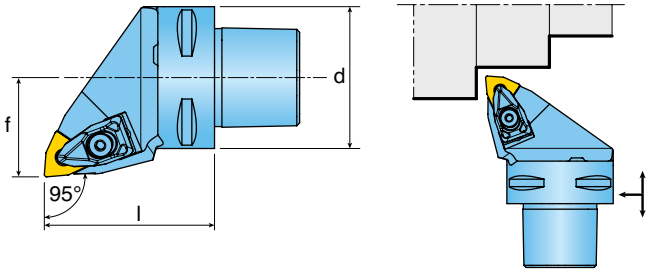
## C_-TVJNR/L*




| DESIGNATION | Dimensions (mm) d | f | l | Insert | Clamp | Clamp Screw | Shim | Shim Screw | Spring | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C4-TVJNR/L 27062-16 | 40 | 27 | 62 | VN□□33□ | DLM 3V | DLS 5 | TSV 33 | SO 35080I | DSP 5 | NZ 83 | L-W 4 |
| C5-TVJNR/L 35065-16 | 50 | 35 | 65 | VN□□33□ | DLM 3V | DLS 5 | TSV 33 | SO 35080I | DSP 5 | NZ 104 | L-W 4 |
| C6-TVJNR/L 45068-16 | 63 | 45 | 68 | VN□□33□ | DLM 3V | DLS 5 | TSV 33 | SO 35080I | DSP 5 | NZ 104 | L-W 4 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

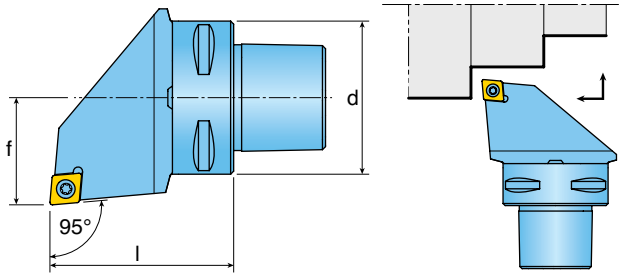
## C_-TWLNR/L*




| DESIGNATION | Dimensions (mm) d | f | l | Insert | Clamp | Clamp Screw | Shim | Shim Screw | Spring | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C4-TWLNR/L 27050-06 | 40 | 27 | 50 | WN□□33□ | DLM 3 | DLS 3 | PSW 32 | SO 40090I | DSP 3 | NZ 83 | L-W 2.5 |
| C4-TWLNR/L 27050-08 | 40 | 27 | 50 | WN□□43□ | DLM 4 | DLS 4 | TSW 44 | SO 40050I | DSP 4 | NZ 83 | L-W 3 |
| C5-TWLNR/L 35060-08 | 50 | 35 | 60 | WN□□43□ | DLM 4 | DLS 4 | TSW 44 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |
| C6-TWLNR/L 45065-08 | 63 | 45 | 65 | WN□□43□ | DLM 4 | DLS 4 | TSW 44 | SO 40050I | DSP 4 | NZ 104 | L-W 3 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

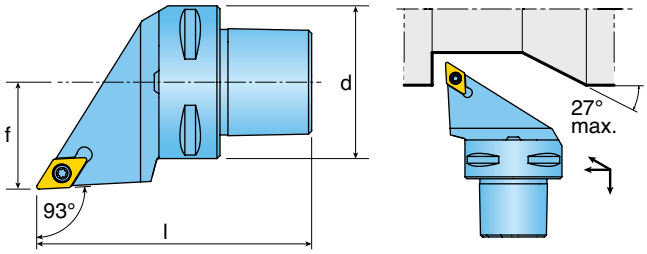
## C_-SCLCR/L*




| DESIGNATION | Dimensions (mm) d | f | l | Insert | Screw | Shim | Shim Screw | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|
| C4-SCLCR/L 27050-09 | 40 | 27 | 50 | CC□T 32.5□ | SO 35124I | SSC 32 | SO 50090S | NZ 83 | T 15 |
| C5-SCLCR/L 35060-09 | 50 | 35 | 60 | CC□T 32.5□ | SO 35124I | SSC 32 | SO 50090S | NZ 104 | T 15 |
| C6-SCLCR/L 45065-09 | 63 | 45 | 65 | CC□T 32.5□ | SO 35124I | SSC 32 | SO 50090S | NZ 104 | T 15 |
| C4-SCLCR/L 27050-12 | 40 | 27 | 50 | CC□T 43□ | SO 45130I | SSC 43N | SO 60105S | NZ 83 | T 20 |
| C5-SCLCR/L 35060-12 | 50 | 35 | 60 | CC□T 43□ | SO 45130I | SSC 43N | SO 60105S | NZ 104 | T 20 |
| C6-SCLCR/L 45065-12 | 63 | 45 | 65 | CC□T 43□ | SO 45130I | SSC 43N | SO 60105S | NZ 104 | T 20 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

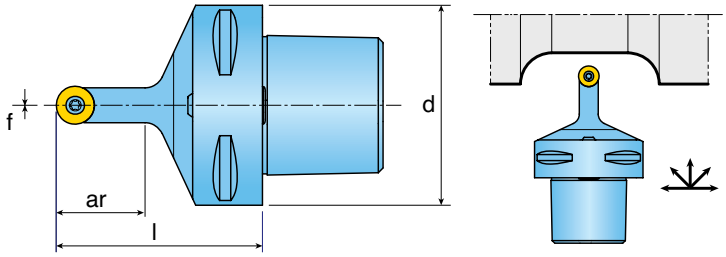
## C_-SDJCR/L*




| DESIGNATION | Dimensions (mm) d | f | l | Insert | Shim | Shim Screw | Spring | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|
| C4-SDJCR/L 27050-11 | 40 | 27 | 50 | DC□T 32.5□ | SO 35124I | SSD 32 | SO 50090S | NZ 83 | T 15 |
| C5-SDJCR/L 35060-11 | 50 | 35 | 60 | DC□T 32.5□ | SO 35124I | SSD 32 | SO 50090S | NZ 104 | T 15 |
| C6-SDJCR/L 45065-11 | 63 | 45 | 65 | DC□T 32.5□ | SO 35124I | SSD 32 | SO 50090S | NZ 104 | T 15 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

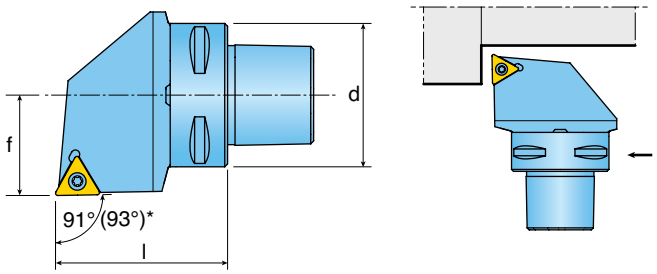
## C_-SRDCN*




| DESIGNATION | Dimensions (mm) d | f | l | ar | Insert | Screw | Shim | Shim Screw | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|
| C4-SRDCN 00050-10A | 40 | 0 | 50 | 25 | RC□T 10T300 | TS 40097I | TRC 3-0 | SR TC-3 | NZ 83 | T 15 |
| C5-SRDCN 00060-10A | 50 | 0 | 60 | 25 | RC□T 10T300 | TS 40097I | TRC 3-0 | SR TC-3 | NZ 104 | T 15 |
| C6-SRDCN 00065-10A | 63 | 0 | 65 | 25 | RC□T 10T300 | TS 40097I | TRC 3-0 | SR TC-3 | NZ 104 | T 15 |
| C4-SRDCN 00050-12A | 40 | 0 | 50 | 28 | RC□T 120400 | SO 40050I | TRC 4-0 | SR TC-4S | NZ 83 | T 15 |
| C5-SRDCN 00060-12A | 50 | 0 | 60 | 28 | RC□T 120400 | SO 40050I | TRC 4-0 | SR TC-4S | NZ 104 | T 15 |
| C6-SRDCN 00065-12A | 63 | 0 | 65 | 28 | RC□T 120400 | SO 40050I | TRC 4-0 | SR TC-4S | NZ 104 | T 15 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

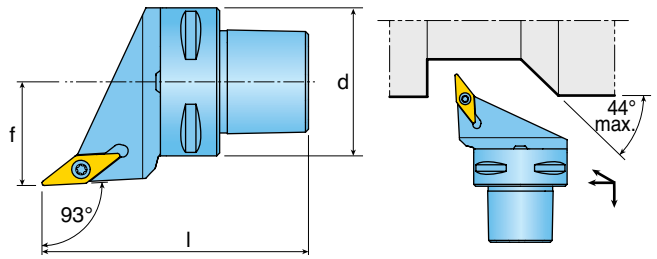
## C_-STGCR/L C_-STJCR/L*




| DESIGNATION | Dimensions (mm) d | f | l | Insert | Screw | Shim | Shim Screw | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|
| C4-STGCR/L 27050-16 | 40 | 27 | 50 | SC□T 32.5□ | SO 35124I | SST 32 | SO 50090S | NZ 83 | T 15 |
| C5-STGCR/L 35060-16 | 50 | 35 | 60 | SC□T 32.5□ | SO 35124I | SST 32 | SO 50090S | NZ 104 | T 15 |
| C4-STJCR/L 27050-16 | 40 | 27 | 50 | SC□T 32.5□ | SO 35124I | SST 32 | SO 50090S | NZ 83 | T 15 |
| C5-STJCR/L 35060-16 | 50 | 35 | 60 | SC□T 32.5□ | SO 35124I | SST 32 | SO 50090S | NZ 104 | T 15 |

NOTE: STGCR/L has 91° lead angle. STJCR/L has 93° lead angle.
*compatable with Sandvik's COROMANT CAPTO* (**) system.

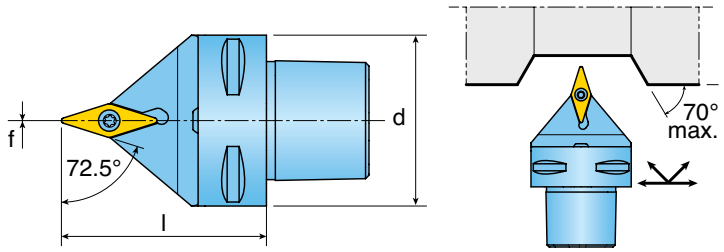
## C_-SVJBR/L*




| DESIGNATION | Dimensions (mm) d | f | l | Insert | Screw | Shim | Shim Screw | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|
| C4-SVJBR/L 27050-16 | 40 | 27 | 50 | VB□T 33 □ | SO 35124I | SSV 32 | TS 5035062S | NZ 83 | T 15 |
| C5-SVJBR/L 35060-16 | 50 | 35 | 60 | VB□T 33 □ | SO 35124I | SSV 32 | TS 5035062S | NZ 104 | T 15 |
| C6-SVJBR/L 45065-16 | 63 | 35 | 65 | VB□T 33 □ | SO 35124I | SSV 32 | TS 5035062S | NZ 104 | T 15 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

# C_-SVVBN*




| DESIGNATION | Dimensions (mm) d | f | l | Insert | Screw | Shim | Shim Screw | Nozzle | Wrench |
|---|---|---|---|---|---|---|---|---|---|
| C4-SVVBN 00050-16 | 40 | 0 | 50 | VB□T 33 □ | SO 35124I | SSV 32 | TS 5035062S | NZ 83 | T 15 |
| C5-SVVBN 00060-16 | 50 | 0 | 60 | VB□T 33 □ | SO 35124I | SSV 32 | TS 5035062S | NZ 104 | T 15 |
| C6-SVVBN 00065-16 | 63 | 0 | 65 | VB□T 33 □ | SO 35124I | SSV 32 | TS 5035062S | NZ 104 | T 15 |

*compatable with Sandvik's COROMANT CAPTO* (**) system.

# COMBI-CLAMP™

## MULTI-FUNCTION CLAMP
## FOR USE WITH INGERSOLL'S EXISTING T-TYPE HOLDERS

- Compatibility: 100% compatible with Ingersoll's T-Type holders.
- Versatility: 3 different types of inserts can be used in same toolholder.
- Durability: New carbide clamp shows better wear resistance, expecially in cast iron machining applications
- Stability: Due to the floating plate system in the insert's contact area, it provides much stronger and stable clamping

DCL S-4H

DCL S-4D

DCL S-4F

ex)

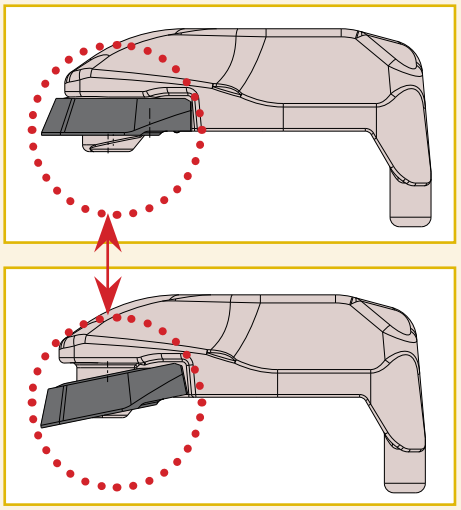
CN□A 43□
Insert with hole

CN□X 45□
Insert with Ingersoll dimple

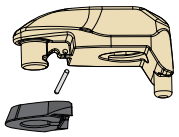
CN□N 43□
Insert with no hole


Floating carbide plate

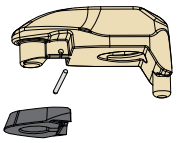
Floating carbide plate provides greater stability than conventional clamp.



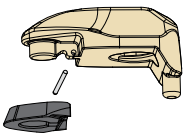
## NEW CLAMP FOR MULTI-FUNCTION



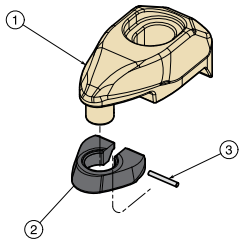
DCL S-4H

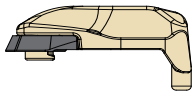
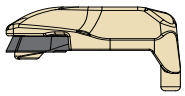
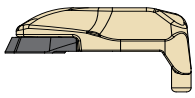


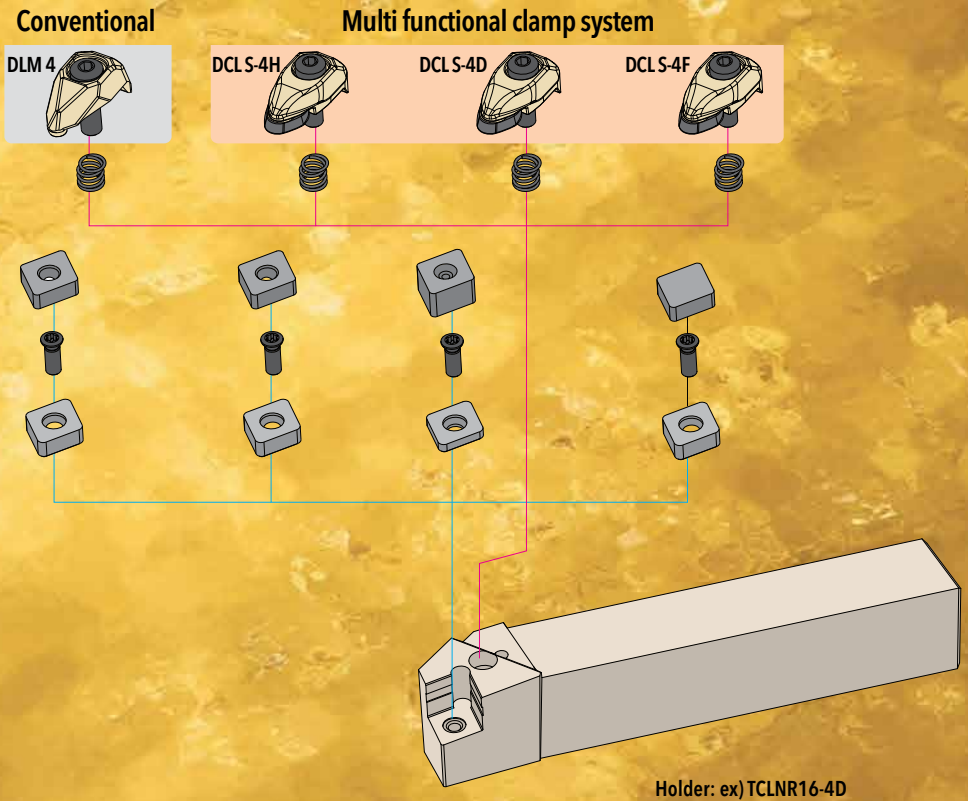
DCL S-4D



DCL S-4F




| Clamp | Designation | Components | | | Insert | Shim |
|---|---|---|---|---|---|---|
| | | [1] Clamp | [2] CTC Plate | [3] PIN | | |
|  | DCL S-4H | DCL 4H | DCL 4-PL | PIN 0683 | CN□A 43□ | TSC 44 |
| | | | | | DN□A 43□ | TSD 44 |
| | | | | | DN□A 44□ | TSD 43 |
| | | | | | SN□A 43□ | TSS 44 |
|  | DCL S-4D | DCL 4D | DCL 4-PL | PIN 0683 | CN□X 45□CH | TSC 42 |
| | | | | | DN□X 45□CH | TSD 42 |
| | | | | | SN□X 45□CHX | TSS 42 |
|  | DCL S-4F | DCL 4F | DCL 4-PL | PIN 0683 | CN□N 43□ | TSC 44 |
| | | | | | CN□N 45□ | TSC 42 |
| | | | | | DN□N 43□ | TSD 44 |
| | | | | | DN□N 45□ | TSD 42 |
| | | | | | SN□N 43□ | TSS 44 |
| | | | | | SN□N 45□ | TSS 42 |




Holder: ex) TCLNR16-4D


# GOLD RUSH GRADES FOR T-CLAMP APPLICATIONS

## The ingenious solution that takes cutting tool materials to another level

### FEATURES

- Improved adhesion and insert chipping resistance
- Stable and extended tool life in continuous and interrupted cutting operations
- Reduced cutting friction and minimized built-up edge
- High quality surface finish on the work piece

# GOLD RUSH GRADES IN T-CLAMP APPLICATIONS

## TT9100 (CVD) Steel

This new grade features a 20 micron thick, multi-layer CVD coating for maximum wear resistance. It's ideal for high speed turning and grooving in steel applications.

## TT9080 (PVD) Steel

In order to improve machining performance over our already successful TT9030 grade, Ingersoll has applied the latest coating technology to the same substrate to form grade TT9080. This grade will improve performance in general turning, grooving, profiling and parting applications on carbon steel, alloy steel and stainless steel. Users can expect wear resistance to improve while still maintaining the same toughness.

## TT6300 (CVD) Cast Iron

This new grade features an extra 10 micron thick CVD coating that guarantees excellent tool life, particularly in gray cast iron. It also features a post-coat surface treatment to create a smooth cutting edge that's more resistant to chipping.

## TT6080 (PVD) Cast Iron

The latest PVD coating technology has been applied to the K10 substrate that has multi-nano layers of AlTiN, TiAlCrN and TiN. This ensures outstanding performance when machining ductile cast iron. It also is ideal for interrupted cutting of gray cast iron. It also features a post-coat surface treatment to create a smooth cutting edge that's more resistant to chipping.

### APPLICATION RANGE IN STEEL MACHINING

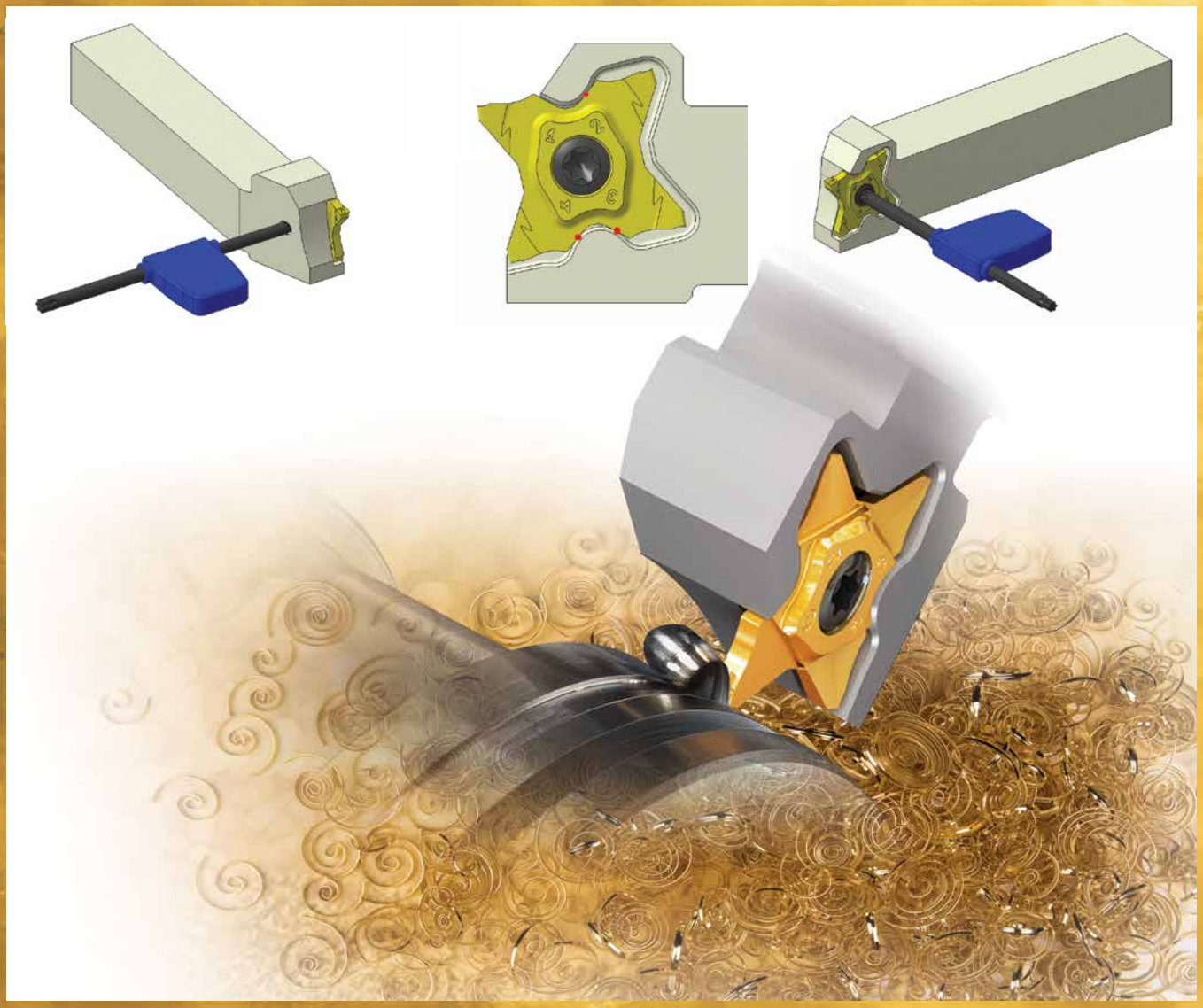

### APPLICATION RANGE IN CAST IRON MACHINING

# GOLD FLEX

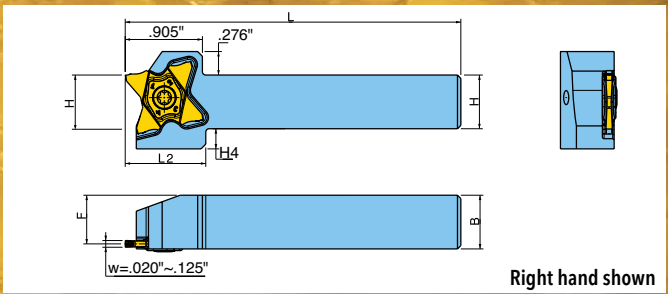
QUAD GROOVE LINE

## 4 CUTTING EDGES WITH CHIP FORMER FOR GROOVING, PARTING AND RECESSING

- 4 cutting-edges designed along with chip-former that provides excellent chip control in most applications.
- 3 contact points with a side torx screw offers highly accurate positioning of the insert.
- Users can release the screw from both side of the holder to index insert. This is another advantage to small machines where there is a small work envelope that restricts insert indexing.
- Gold Rush grade TT9080 is the latest coating technology with multi-nano coating layers. It provides improved surface quality and tool life in a wide variety of materials.
- NEW! Perpendicular-style holders.



# TQHR/L INTEGRAL SHANK TOOLHOLDERS

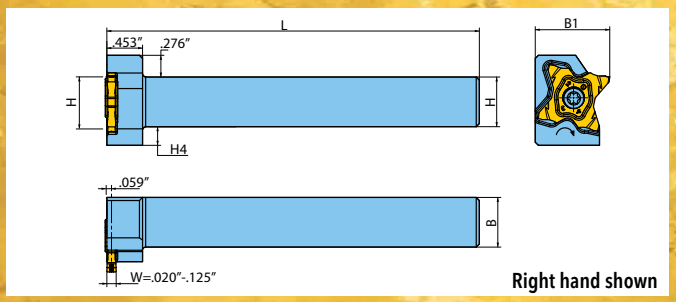

Right hand shown

| INCH SHANKS ITEM DESCRIPTION | Dimensions (inch) H | B | F | L | L2 | H4 | Screw | Torx Key | Insert |
|---|---|---|---|---|---|---|---|---|---|
| TQHL9.5-27 | .375 | .375 | .315 | 5.0 | .945 | .374 | SM50-125-60 | T-2010/5 | TQJ27... |
| TQHL12.7-27 | .500 | .500 | .440 | 5.0 | .945 | .287 | SM50-125-60 | T-2010/5 | TQJ27... |
| TQHL19-27 | .750 | .750 | .690 | 5.0 | .945 | .236 | SM50-125-60 | T-2010/5 | TQJ27... |
| TQHL25.4-27 | 1.000 | 1.000 | .940 | 5.5 | - | - | SM50-125-60 | T-2010/5 | TQJ27... |
| TQHR9.5-27 | .375 | .375 | .315 | 5.0 | .945 | .374 | SM50-125L60 | T-2010/5 | TQJ27... |
| TQHR12.7-27 | .500 | .500 | .440 | 5.0 | .945 | .287 | SM50-125L60 | T-2010/5 | TQJ27... |
| TQHR19-27 | .750 | .750 | .690 | 5.0 | .945 | .236 | SM50-125L60 | T-2010/5 | TQJ27... |
| TQHR25.4-27 | 1.000 | 1.000 | .940 | 5.5 | - | - | SM50-125L60 | T-2010/5 | TQJ27... |

| METRIC SHANKS ITEM DESCRIPTION | Dimensions (mm) H | B | F | L | L2 | H4 | Screw | Torx Key | Insert |
|---|---|---|---|---|---|---|---|---|---|
| TQHL10-27 | 10 | 10 | 8.5 | 120 | 24 | 9 | SM50-125-60 | T-2010/5 | TQJ27... |
| TQHL12-27 | 12 | 12 | 10.5 | 120 | 24 | 8 | SM50-125-60 | T-2010/5 | TQJ27... |
| TQHL16-27 | 16 | 16 | 14.5 | 120 | 24 | 6 | SM50-125-60 | T-2010/5 | TQJ27... |
| TQHL20-27 | 20 | 20 | 18.5 | 120 | 24 | 2 | SM50-125-60 | T-2010/5 | TQJ27... |
| TQHL25-27 | 25 | 25 | 23.5 | 135 | - | - | SM50-125-60 | T-2010/5 | TQJ27... |
| TQHR10-27 | 10 | 10 | 8.5 | 120 | 24 | 9 | SM50-125L60 | T-2010/5 | TQJ27... |
| TQHR12-27 | 12 | 12 | 10.5 | 120 | 24 | 8 | SM50-125L60 | T-2010/5 | TQJ27... |
| TQHR16-27 | 16 | 16 | 14.5 | 120 | 24 | 6 | SM50-125L60 | T-2010/5 | TQJ27... |
| TQHR20-27 | 20 | 20 | 18.5 | 120 | 24 | 2 | SM50-125L60 | T-2010/5 | TQJ27... |
| TQHR25-27 | 25 | 25 | 23.5 | 135 | - | - | SM50-125L60 | T-2010/5 | TQJ27... |

TQHL - Left hand holders TQHR - Right hand holders

# TQHPR/L INTEGRAL SHANK PERPENDICULAR TOOLHOLDERS

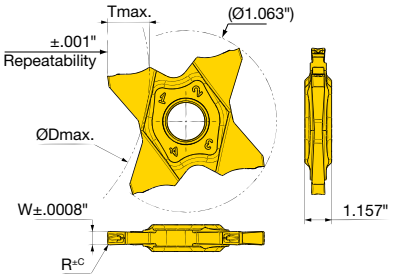

Right hand shown

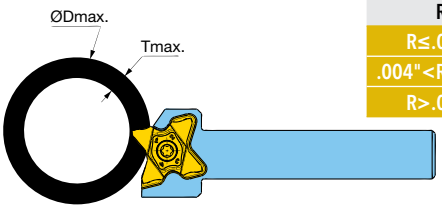
| INCH SHANKS ITEM DESCRIPTION | Dimensions (inch) H | B | B1 | L | H4 | Screw | Torx Key | Insert |
|---|---|---|---|---|---|---|---|---|
| TQHPL19-27 | .750 | .750 | 1.063 | 5.0 | .118 | SM50-125-L60 | T-2010/5 | TQJ27… |
| TQHPR19-27 | .750 | .750 | 1.063 | 5.0 | .118 | SM50-125-60 | | |
| TQHPL25.4-27 | 1.000 | 1.000 | 1.299 | 5.5 | - | SM50-125-L60 | | |
| TQHPR25.4-27 | 1.000 | 1.000 | 1.299 | 5.5 | - | SM50-125-60 | | |

| METRIC SHANKS ITEM DESCRIPTION | Dimensions (mm) H | B | B1 | L | H4 | Screw | Torx Key | Insert |
|---|---|---|---|---|---|---|---|---|
| TQHPL16-27 | 16 | 16 | 24 | 120 | 6 | SM50-125-L60 | T-2010/5 | TQJ27… |
| TQHPR16-27 | 16 | 16 | 24 | 120 | 6 | SM50-125-60 | | |
| TQHPL20-27 | 20 | 20 | 28 | 120 | 2 | SM50-125-L60 | | |
| TQHPR20-27 | 20 | 20 | 28 | 120 | 2 | SM50-125-60 | | |
| TQHPL25-27 | 25 | 25 | 33 | 135 | - | SM50-125-L60 | | |
| TQHPR25-27 | 25 | 25 | 33 | 135 | - | SM50-125-60 | | |

TQHPL - Left hand holders TQHPR - Right hand holders

# TQJ27 FOR PRECISION GROOVING, PARTING AND RECESSING



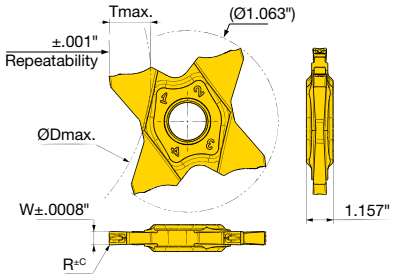

**Tolerance**

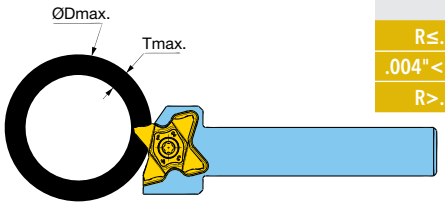
| R | C |
|---|---|
| R≤.004" | .0008" |
| .004"<R≤.016" | .0012" |
| R>.016" | .0020" |

| ITEM DESCRIPTION | W (+/-.0008") | R (inch) | Tmax (inch) | Dmax (inch) T = Groove Depth | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | T<= .118 | T<= .138 | T<= .157 | T<= .177 | T<= .197 | T<= .217 | T<= .236 | T<= .244 | T<= .252 |
| TQJ27-0.50-0.00 | .020 | - | .039 | - | - | - | - | - | - | - | - | - |
| TQJ27-0.50-0.04 | .020 | .002 | .098 | - | - | - | - | - | - | - | - | - |
| TQJ27-0.75-0.10 | .030 | .004 | .098 | - | - | - | - | - | - | - | - | - |
| TQJ27-0.80-0.00 | .031 | - | .063 | - | - | - | - | - | - | - | - | - |
| TQJ27-1.00-0.06 | .039 | .002 | .138 | N.L. | 23.62 | - | - | - | - | - | - | - |
| TQJ27-1.00-0.10 | .039 | .004 | .138 | N.L. | 23.62 | - | - | - | - | - | - | - |
| TQJ27-1.04-0.00 | .041 | - | .079 | - | - | - | - | - | - | - | - | - |
| TQJ27-1.20-0.00 | .047 | - | .079 | - | - | - | - | - | - | - | - | - |
| TQJ27-1.25-0.10 | .049 | .004 | .138 | N.L. | 23.62 | - | - | - | - | - | - | - |
| TQJ27-1.25-0.20 | .049 | .008 | .138 | N.L. | 23.62 | - | - | - | - | - | - | - |
| TQJ27-1.40-0.00 | .055 | - | .079 | - | - | - | - | - | - | - | - | - |
| TQJ27-1.47-0.00 | .058 | - | .098 | - | - | - | - | - | - | - | - | - |
| TQJ27-1.50-0.10 | .059 | .004 | .197 | N.L. | 23.62 | 11.02 | 7.09 | 5.12 | - | - | - | - |
| TQJ27-1.50-0.20 | .059 | .008 | .197 | N.L. | 23.62 | 11.02 | 7.09 | 5.12 | - | - | - | - |
| TQJ27-1.57-0.15 | .062 | .006 | .118 | N.L. | - | - | - | - | - | - | - | - |
| TQJ27-1.57-0.79 | .062 | .031 | .118 | N.L. | - | - | - | - | - | - | - | - |
| TQJ27-1.70-0.10 | .067 | .004 | .118 | N.L. | - | - | - | - | - | - | - | - |
| TQJ27-1.75-0.10 | .069 | .004 | .118 | N.L. | - | - | - | - | - | - | - | - |
| TQJ27-1.75-0.20 | .069 | .008 | .118 | N.L. | - | - | - | - | - | - | - | - |
| TQJ27-1.78-0.18 | .070 | .007 | .118 | N.L. | - | - | - | - | - | - | - | - |
| TQJ27-1.85-0.20 | .073 | .008 | .118 | N.L. | - | - | - | - | - | - | - | - |

1. N.L. = No Limit
2. Recessing is possible only with 2.39mm (.094") and wider inserts

# TQJ27 FOR PRECISION GROOVING, PARTING AND RECESSING



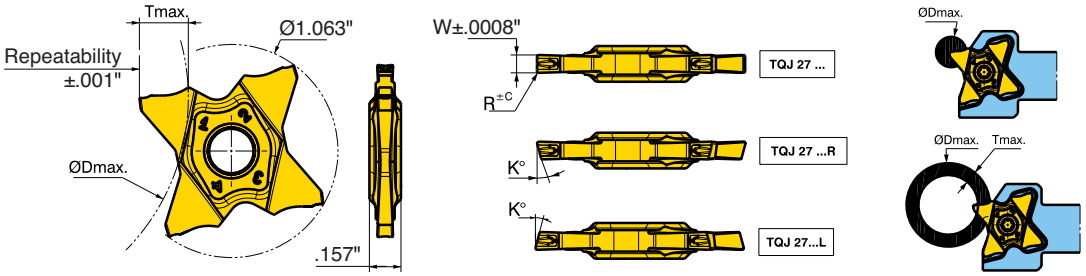

**Tolerance**

| R | C |
|---|---|
| R≤.004" | .0008" |
| .004"<R≤.016" | .0012" |
| R>.016" | .0020" |

| ITEM DESCRIPTION | W (+/-.0008") | R (inch) | Tmax (inch) | Dmax (inch) T = Groove Depth | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | T<= .118 | T<= .138 | T<= .157 | T<= .177 | T<= .197 | T<= .217 | T<= .236 | T<= .244 | T<= .252 |
| TQJ27-1.96-0.15 | .077 | .006 | .118 | N.L. | - | - | - | - | - | - | - | - |
| TQJ27-2.00-0.10 | .079 | .004 | .252 | N.L. | 23.62 | 11.02 | 7.09 | 5.12 | 4.13 | 2.36 | 1.97 | 1.18 |
| TQJ27-2.00-0.20 | .079 | .008 | .252 | N.L. | 23.62 | 11.02 | 7.09 | 5.12 | 4.13 | 2.36 | 1.97 | 1.18 |
| TQJ27-2.00-1.00 | .079 | .039 | .118 | N.L. | - | - | - | - | - | - | - | - |
| TQJ27-2.22-0.15 | .087 | .006 | .138 | N.L. | 23.62 | - | - | - | - | - | - | - |
| TQJ27-2.30-0.20 | .091 | .008 | .138 | N.L. | 23.62 | - | - | - | - | - | - | - |
| TQJ27-2.39-0.15 | .094 | .006 | .197 | N.L. | 23.62 | 11.02 | 7.09 | 5.12 | - | - | - | - |
| TQJ27-2.39-1.20 | .094 | .047 | .197 | N.L. | 23.62 | 11.02 | 7.09 | 5.12 | - | - | - | - |
| TQJ27-2.47-0.20 | .097 | .008 | .197 | N.L. | 23.62 | 11.02 | 7.09 | 5.12 | - | - | - | - |
| TQJ27-2.50-0.10 | .098 | .004 | .197 | N.L. | 23.62 | 11.02 | 7.09 | 5.12 | - | - | - | - |
| TQJ27-2.50-0.30 | .098 | .012 | .197 | N.L. | 23.62 | 11.02 | 7.09 | 5.12 | - | - | - | - |
| TQJ27-2.70-0.10 | .106 | .004 | .244 | N.L. | 23.62 | 11.02 | 7.09 | 5.31 | 4.13 | 3.35 | 3.07 | - |
| TQJ27-2.87-0.20 | .113 | .008 | .244 | N.L. | 23.62 | 11.02 | 7.09 | 5.31 | 4.13 | 3.35 | 3.07 | - |
| TQJ27-3.00-0.00 | .118 | - | .252 | N.L. | 23.62 | 11.02 | 7.09 | 5.31 | 4.13 | 3.35 | 3.07 | 2.17 |
| TQJ27-3.00-0.20 | .118 | .008 | .252 | N.L. | 23.62 | 11.02 | 7.09 | 5.31 | 4.13 | 3.35 | 3.07 | 2.17 |
| TQJ27-3.00-0.30 | .118 | .012 | .252 | N.L. | 23.62 | 11.02 | 7.09 | 5.31 | 4.13 | 3.35 | 3.07 | 2.17 |
| TQJ27-3.00-0.40 | .118 | .016 | .252 | N.L. | 23.62 | 11.02 | 7.09 | 5.31 | 4.13 | 3.35 | 3.07 | 2.17 |
| TQJ27-3.00-1.50 | .118 | .059 | .252 | N.L. | 23.62 | 11.02 | 7.09 | 5.31 | 4.13 | 3.35 | 3.07 | 2.17 |
| TQJ27-3.15-0.15 | .124 | .006 | .252 | N.L. | 23.62 | 11.02 | 7.09 | 5.31 | 4.13 | 3.35 | 3.07 | 2.68 |
| TQJ27-3.18-0.20 | .125 | .008 | .252 | N.L. | 23.62 | 11.02 | 7.09 | 5.31 | 4.13 | 3.35 | 3.07 | 2.68 |

1. N.L. = No Limit
2. Recessing is possible only with 2.39mm (.094") and wider inserts

# TQJ27 FOR PARTING AND GROOVING




| ITEM DESCRIPTION | W (+/-.0008") | R (inch) | K (deg) | Parting to Center Dmax (inch) | Parting Hollow Bars Tmax (inch) | Parting Hollow Bars Dmax (inch) |
|---|---|---|---|---|---|---|
| TQJ27-0.50-0.04 | .020 | .002 | 0 | .197 | .098 | No Limit |
| TQJ27-1.00-0.06 | .039 | .002 | 0 | .276 | .138 | 23.62 |
| TQJ27-1.50-0.10 | .059 | .004 | 0 | .472 | .197 | 5.12 |
| TQJ27-2.00-0.20 | .079 | .008 | 0 | .512 | .252 | 1.18 |
| TQJ27-1.00-15R/L | .039 | .002 | 15 | .276 | .138 | 23.62 |
| TQJ27-1.50-6R/L | .059 | .002 | 6 | .472 | .197 | 5.12 |
| TQJ27-1.50-15R/L | .059 | .002 | 15 | .472 | .197 | 5.12 |
| TQJ27-2.00-6R/L | .079 | .004 | 6 | .512 | .252 | 1.18 |
| TQJ27-2.00-15R/L | .079 | .004 | 15 | .512 | .252 | 1.18 |

## MACHINING CONDITION

| ISO | Material | | Condition | Tensile Strength Rm(N/mm2) | Hardness HB | Coated |
|---|---|---|---|---|---|---|
| | | | | | | TT9080 |
| P | Non-alloy steel, cast steel, free cutting steel | <0.25 %C | Annealed | 420 | 125 | 460~820 |
| | | >=0.25 %C | Annealed | 650 | 190 | 430~720 |
| | | <0.55 %C | Quenched and tempered | 850 | 250 | 300~660 |
| | | >=0.55%C | Annealed | 750 | 220 | 330~720 |
| | | | Quenched and tempered | 1000 | 300 | 230~560 |
| | Low alloy steel and cast steel (less than 5% alloying elements) | | Annealed | 600 | 200 | 300~390 |
| | | | Quenched and tempered | 930 | 275 | 260~560 |
| | | | | 1000 | 300 | 230~430 |
| | | | | 1200 | 350 | 160~390 |
| | High alloy steel, cast steel and tool steel. | | Annealed | 680 | 200 | 200~460 |
| | | | Quenched and tempered | 1100 | 325 | 160~230 |
| M | Stainless steel and cast steel | | Ferritic/martensitic | 680 | 200 | 230~560 |
| | | | Martensitic | 820 | 240 | 200~490 |
| | | | Austenitic | 600 | 180 | 300~590 |
| K | Malleable cast iron | | Ferritic/pearlitic | | 180 | 390~820 |
| | | | Pearlitic | | 260 | 330~690 |
| | Gray cast iron (GG) | | Ferritic | | 160 | 330~750 |
| | | | Pearlitic | | 250 | 300~590 |
| | Cast iron nodular (GGG) | | Ferritic | | 130 | 620~980 |
| | | | Pearlitic | | 230 | 390~720 |
| S | Fe based | | Annealed | | 200 | 130~230 |
| | | | Cured | | 280 | 100~160 |
| | High temp. alloys | Ni or Co based | Annealed | | 250 | 100~130 |
| | | | Cured | | 350 | 50~80 |
| | | | Cast | | 320 | 50~100 |
| | Titanium, Ti alloys | | | Rm 400 | | 300~620 |
| | | Alpha+beta alloys cured | | Rm 1050 | | 100~200 |

### Feed Rate

Neutral: .002" ~ .007" ipr

Handed: Reduce 20% feed rate

# T•MICRO™

## INTERNAL TURNING, PROFILING, GROOVING AND FACE MACHINING OF SMALL DIAMETERS

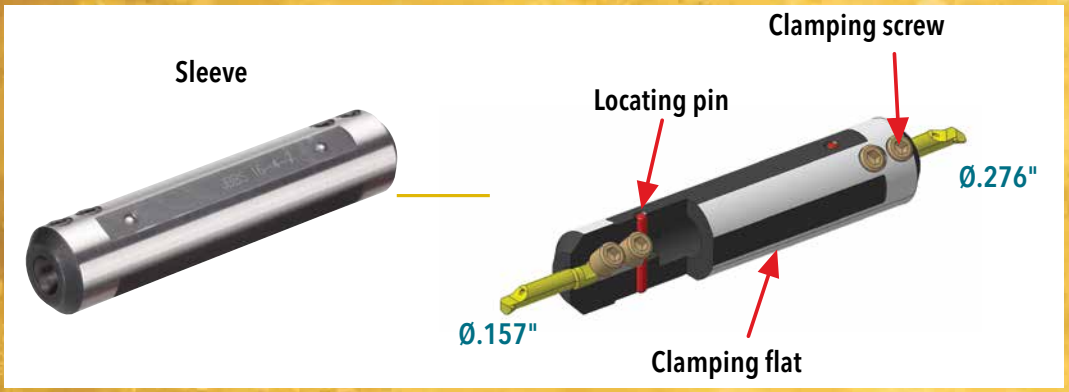
- Replaceable carbide inserts with thru coolant.
- Internal machining starting at .024" (.6mm).
- TiAlN coating along with sub-micron grade substrate.
- Specifically designed for machining of very small internal diameters.

### Machining Condition

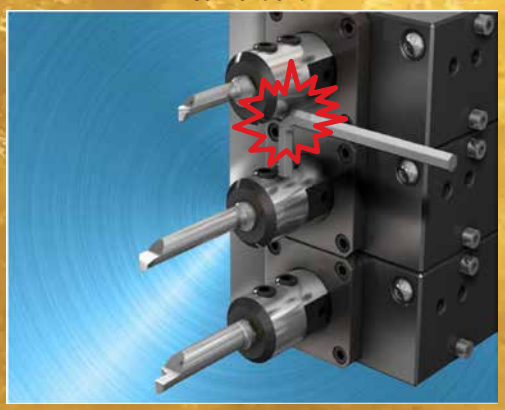
| Speed (sfm) | | Feed (ipr) | | |
|---|---|---|---|---|
| | | Turning | Grooving | Face Grooving |
| P | 35 - 560 | .0008" - .0002" | .0004" - .0008" | .0004" - .003" |
| K | 35 - 500 | | | |
| S | 35 - 395 | | | |

T•Micro system is a 2 piece design, consisting of a sleeve and replaceable carbide inserts that provide solutions for a wide range of applications including turning, boring, profiling and face grooving.

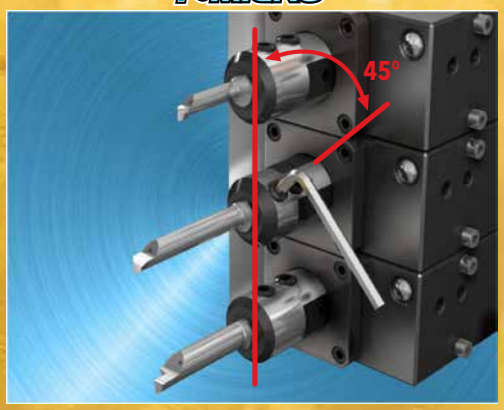
Inside the new sleeve design is a locating pin to ensure repeatability while allowing users to begin operations without resetting after indexing. Also enables users to replace inserts without removing the sleeve from the tool post.



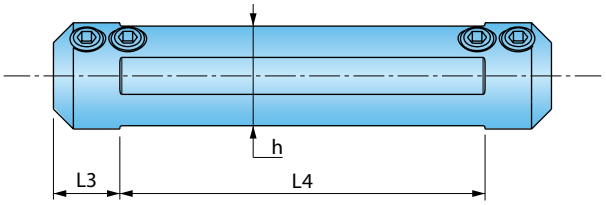

Conventional

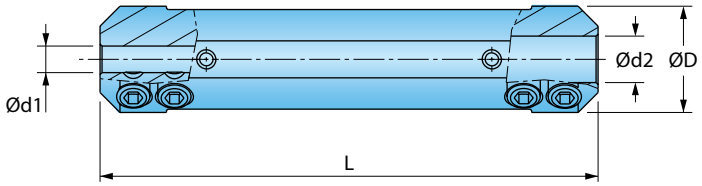


T•MICRO



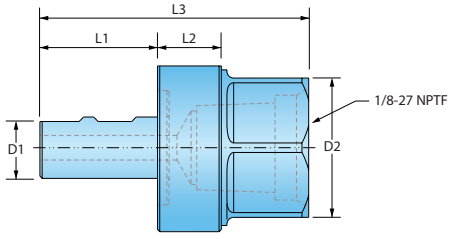
## SLEEVES



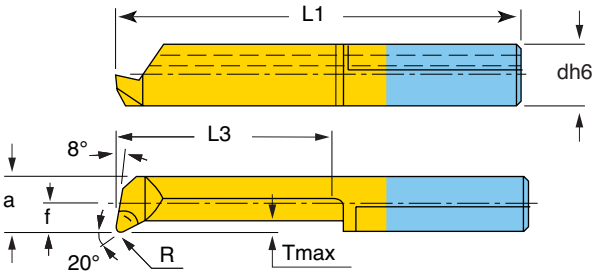

| Designation | Dimensions (inches) | | | | | | | Set Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|
| | ØD | Ød1 | Ød2 | L | L3 | L4 | h | | |
| MINSL12-4-4 | .472 | .157 | .157 | 2.95 | .39 | 2.17 | .41 | SSM5X0.8X4-MG | L-W2.5 |
| MINSL12.7-4-4 | .500 | .157 | .157 | 3.00 | .39 | 2.21 | .46 | SSM5X0.8X4-MG | L-W2.5 |
| MINSL14-4-4 | .551 | .157 | .157 | 2.95 | .39 | 2.17 | .47 | SSM5X0.8X6-MG | L-W2.5 |
| MINSL15.9-4-7 | .625 | .157 | .276 | 3.00 | .39 | 2.21 | .55 | SSM5X0.8X6-MG | L-W2.5 |
| MINSL16-4-7 | .630 | .157 | .276 | 2.95 | .39 | 2.17 | .59 | SSM5X0.8X6-MG | L-W2.5 |
| MINSL19-4-7 | .750 | .157 | .276 | 3.50 | .39 | 2.72 | .68 | SSM5X0.8X6-MG | L-W2.5 |
| MINSL20-4-7 | .787 | .157 | .276 | 3.54 | .39 | 2.76 | .71 | SSM5X0.8X6-MG | L-W2.5 |
| MINSL22-4-7 | .866 | .157 | .276 | 3.54 | .39 | 2.76 | .79 | SSM5X0.8X6-MG | L-W2.5 |
| MINSL25-4-7 | .984 | .157 | .276 | 3.94 | .39 | 3.15 | .91 | SSM5X0.8X6-MG | L-W2.5 |
| MINSL25.4-4-7 | 1.000 | .157 | .276 | 3.54 | .39 | 2.76 | .92 | SSM5X0.8X6-MG | L-W2.5 |

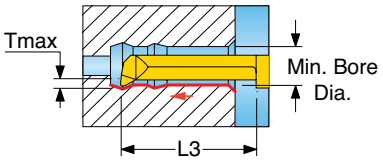
## COOLANT FITTING




| Designation | Dimensions | | | | |
|---|---|---|---|---|---|
| | D1 | L1 | L2 | L3 | D2 |
| NEW! PF-MIN4 | .156 (3.96mm) | .525 (13.34mm) | .285 (7.24mm) | 1.200 (30.48mm) | .740 (18.80mm) |
| NEW! PF-MIN7 | .274 (6.96mm) | .525 (13.34mm) | .285 (7.24mm) | 1.200 (30.48mm) | .740 (18.80mm) |

# MINT - MINI CARBIDE BARS FOR INTERNAL TURNING AND CHAMFERING

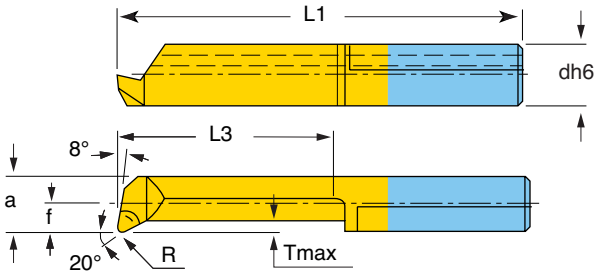


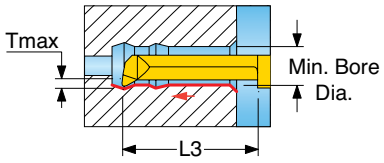




| Designation | Dimensions (inches) dh6 | f | a | L1 | L3 | R±0.002 | Tmax | Dmin | R/L | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| *MINTR04-020004D006 | .157 | - | .020 | .728 | .14 | .002 | .003 | .024 | R | TT9030 |
| *MINTR04-030004D006 | .157 | - | .020 | .768 | .18 | .002 | .003 | .024 | R | TT9030 |
| MINTR04-045005D010 | .157 | - | .035 | .827 | .24 | .002 | .004 | .039 | R | TT9030 |
| MINTR04-065005D010 | .157 | - | .035 | .906 | .31 | .002 | .004 | .039 | R | TT9030 |
| MINTR04-040005D020 | .157 | - | .067 | .807 | .22 | .002 | .004 | .079 | R | TT9030 |
| MINTR04-090005D020 | .157 | - | .067 | 1.004 | .41 | .002 | .004 | .079 | R | TT9030 |
| MINTR04-140005D020 | .157 | - | .067 | 1.201 | .61 | .002 | .004 | .079 | R | TT9030 |
| MINTL04-090010D028 | .157 | .024 | .102 | 1.004 | .41 | .004 | .008 | .110 | L | TT9030 |
| MINTR04-090010D028 | .157 | .024 | .102 | 1.004 | .41 | .004 | .008 | .110 | R | TT9030 |
| MINTL04-150010D028 | .157 | .024 | .102 | 1.240 | .65 | .004 | .008 | .110 | L | TT9030 |
| MINTR04-150010D028 | .157 | .024 | .102 | 1.240 | .65 | .004 | .008 | .110 | R | TT9030 |
| MINTL04-190010D028 | .157 | .024 | .102 | 1.398 | .81 | .004 | .008 | .110 | L | TT9030 |
| MINTR04-190010D028 | .157 | .024 | .102 | 1.339 | .81 | .004 | .008 | .110 | R | TT9030 |
| MINTL04-090010D040 | .157 | .059 | .138 | 1.004 | .41 | .004 | .012 | .157 | L | TT9030 |
| MINTR04-090010D040 | .157 | .059 | .138 | 1.004 | .41 | .004 | .012 | .157 | R | TT9030 |
| MINTL04-150010D040 | .157 | .059 | .138 | 1.240 | .65 | .004 | .012 | .157 | L | TT9030 |
| MINTR04-150010D040 | .157 | .059 | .138 | 1.240 | .65 | .004 | .012 | .157 | R | TT9030 |
| MINTL04-190010D040 | .157 | .059 | .138 | 1.398 | .81 | .004 | .012 | .157 | L | TT9030 |
| MINTR04-190010D040 | .157 | .059 | .138 | 1.398 | .81 | .004 | .012 | .157 | R | TT9030 |
| MINTR04-230010D040 | .157 | .059 | .138 | 1.555 | .96 | .004 | .012 | .157 | R | TT9030 |
| MINTR04-270010D040 | .157 | .059 | .138 | 1.713 | 1.12 | .004 | .012 | .157 | R | TT9030 |

*Max DOC = .0004"~.0012", Max feed = .0004" ipr

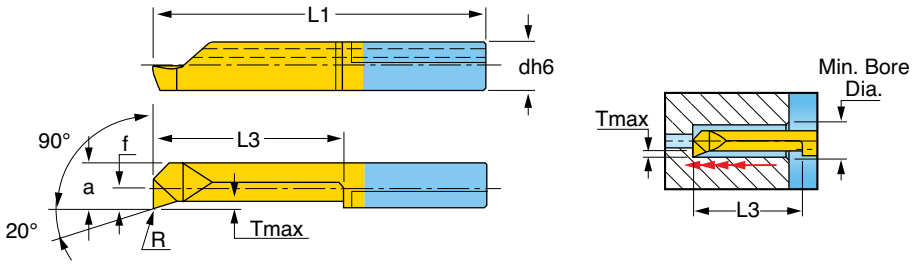
# MINT - MINI CARBIDE BARS FOR INTERNAL TURNING AND CHAMFERING



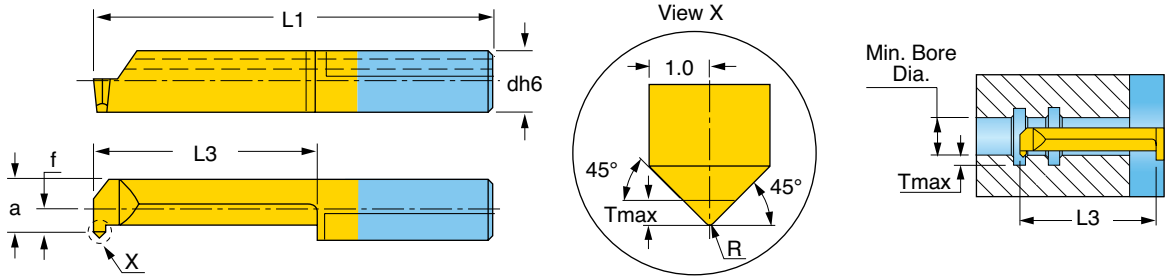

| Designation | Dimensions (inches) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | dh6 | f | a | L1 | L3 | R±0.002 | Tmax | Dmin | R/L | Grade |
| MINTL07-090015D050 | .276 | .075 | .173 | .984 | .35 | .006 | .020 | .197 | L | TT9030 |
| MINTR07-090015D050 | .276 | .075 | .173 | .984 | .35 | .006 | .020 | .197 | R | TT9030 |
| MINTL07-140015D050 | .276 | .075 | .173 | 1.181 | .55 | .006 | .020 | .197 | L | TT9030 |
| MINTR07-140015D050 | .276 | .075 | .173 | 1.181 | .55 | .006 | .020 | .197 | R | TT9030 |
| MINTL07-190015D050 | .276 | .075 | .173 | 1.378 | .75 | .006 | .020 | .197 | L | TT9030 |
| MINTR07-190015D050 | .276 | .075 | .173 | 1.378 | .75 | .006 | .020 | .197 | R | TT9030 |
| MINTL07-240015D050 | .276 | .075 | .173 | 1.575 | .94 | .006 | .020 | .197 | L | TT9030 |
| MINTR07-240015D050 | .276 | .075 | .173 | 1.575 | .94 | .006 | .020 | .197 | R | TT9030 |
| MINTL07-290015D050 | .276 | .075 | .173 | 1.772 | 1.14 | .006 | .020 | .197 | L | TT9030 |
| MINTR07-290015D050 | .276 | .075 | .173 | 1.772 | 1.14 | .006 | .020 | .197 | R | TT9030 |
| MINTR07-340015D050 | .276 | .075 | .173 | 1.969 | 1.34 | .006 | .020 | .197 | R | TT9030 |
| MINTL07-140015D060 | .276 | .091 | .209 | 1.181 | .55 | .006 | .020 | .236 | L | TT9030 |
| MINTR07-140015D060 | .276 | .091 | .209 | 1.181 | .55 | .006 | .020 | .236 | R | TT9030 |
| MINTL07-210015D060 | .276 | .091 | .209 | 1.457 | .83 | .006 | .020 | .236 | L | TT9030 |
| MINTR07-210015D060 | .276 | .091 | .209 | 1.457 | .83 | .006 | .020 | .236 | R | TT9030 |
| MINTL07-240015D060 | .276 | .091 | .209 | 1.575 | .94 | .006 | .020 | .236 | L | TT9030 |
| MINTR07-240015D060 | .276 | .091 | .209 | 1.575 | .94 | .006 | .020 | .236 | R | TT9030 |
| MINTL07-290015D060 | .276 | .091 | .209 | 1.772 | 1.14 | .006 | .020 | .236 | L | TT9030 |
| MINTR07-290015D060 | .276 | .091 | .209 | 1.772 | 1.14 | .006 | .020 | .236 | R | TT9030 |
| MINTR07-340015D060 | .276 | .091 | .209 | 1.969 | 1.34 | .006 | .020 | .236 | R | TT9030 |
| MINTR07-410015D060 | .276 | .091 | .209 | 2.244 | 1.61 | .006 | .020 | .236 | R | TT9030 |
| MINTL07-190015D068 | .276 | .110 | .248 | 1.378 | .75 | .006 | .024 | .268 | L | TT9030 |
| MINTR07-190015D068 | .276 | .110 | .248 | 1.378 | .75 | .006 | .024 | .268 | R | TT9030 |
| MINTR07-240015D068 | .276 | .110 | .248 | 1.575 | .94 | .006 | .024 | .268 | R | TT9030 |
| MINTL07-290015D068 | .276 | .110 | .248 | 1.772 | 1.14 | .006 | .024 | .268 | L | TT9030 |
| MINTR07-290015D068 | .276 | .110 | .248 | 1.772 | 1.14 | .006 | .024 | .268 | R | TT9030 |
| MINTL07-340015D070 | .276 | .110 | .248 | 1.969 | 1.34 | .006 | .024 | .276 | L | TT9030 |
| MINTR07-340015D070 | .276 | .110 | .248 | 1.969 | 1.34 | .006 | .024 | .276 | R | TT9030 |
| MINTR07-390015D070 | .276 | .110 | .248 | 2.165 | 1.54 | .006 | .024 | .276 | R | TT9030 |
| MINTR07-440015D070 | .276 | .110 | .248 | 2.362 | 1.73 | .006 | .024 | .276 | R | TT9030 |
| MINTR07-490015D070 | .276 | .110 | .248 | 2.559 | 1.93 | .006 | .024 | .276 | R | TT9030 |

## MINP - MINI CARBIDE BARS FOR INTERNAL TURNING AND PROFILING



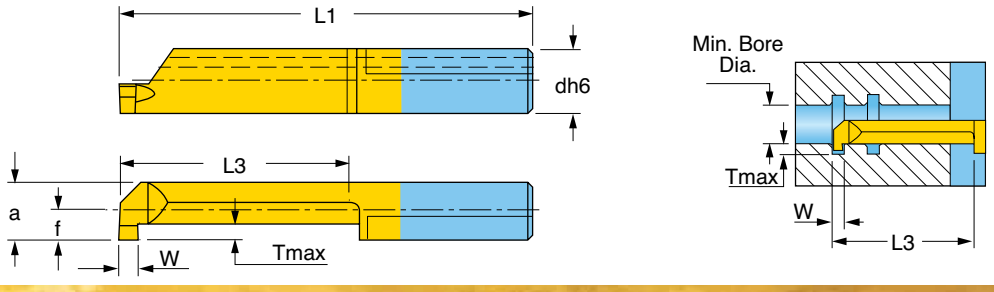

| Designation | Dimensions (inches) dh6 | f | a | L1 | L3 | R±0.002 | Tmax | Dmin | R/L | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| MINPR04-090010D028 | .157 | .024 | .102 | 1.004 | .413 | .004 | .008 | .110 | R | TT9030 |
| MINPR04-150010D028 | .157 | .024 | .102 | 1.240 | .650 | .004 | .008 | .110 | R | TT9030 |
| MINPR04-090010D040 | .157 | .059 | .138 | 1.004 | .413 | .004 | .012 | .157 | R | TT9030 |
| MINPR04-150010D040 | .157 | .059 | .138 | 1.240 | .650 | .004 | .012 | .157 | R | TT9030 |
| MINPR07-140015D050 | .276 | .035 | .173 | 1.181 | .591 | .006 | .020 | .197 | R | TT9030 |
| MINPR07-190015D050 | .276 | .035 | .173 | 1.378 | .787 | .006 | .020 | .197 | R | TT9030 |

## MINC - MINI CARBIDE BARS FOR INTERNAL TURNING AND 45° CHAMFERING



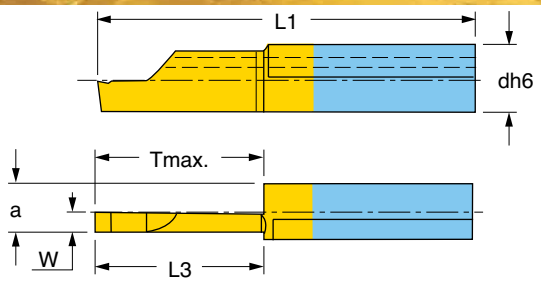

| Designation | Dimensions (inches) dh6 | R±0.0016 | f | a | L1 | L3 | Tmax | Dmin | R/L | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| MINCR07-140020D050 | .276 | .008 | .035 | .173 | 1.181 | .551 | .028 | .197 | R | TT9030 |
| MINCR07-190020D050 | .276 | .008 | .035 | .173 | 1.378 | .787 | .028 | .197 | R | TT9030 |
| MINCR07-190020D068 | .276 | .008 | .110 | .248 | 1.378 | .787 | .028 | .268 | R | TT9030 |

# MING - MINI CARBIDE BARS FOR GROOVING AND TURNING



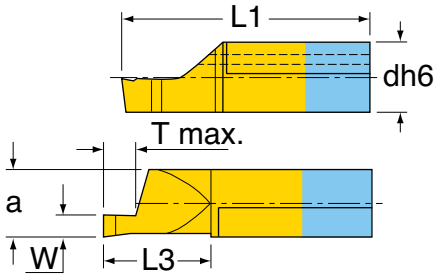

| Designation | Dimensions (inches) dh6 | W±0.05 | f | a | L1 | L3 | Tmax | Dmin | R/L | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| MINGR04-050050-D20 | .157 | .020 | .008 | .071 | .827 | .236 | .016 | .079 | R | TT9030 |
| MINGR04-100050-D20 | .157 | .020 | .008 | .071 | 1.024 | .433 | .016 | .079 | R | TT9030 |
| MINGR04-050070-D30 | .157 | .028 | .028 | .106 | .827 | .236 | .024 | .118 | R | TT9030 |
| MINGR04-100070-D30 | .157 | .028 | .028 | .106 | 1.024 | .433 | .024 | .118 | R | TT9030 |
| MINGR04-090100-D40 | .157 | .039 | .059 | .138 | 1.004 | .413 | .031 | .157 | R | TT9030 |
| MINGR04-150100-D40 | .157 | .039 | .059 | .138 | 1.240 | .650 | .031 | .157 | R | TT9030 |
| MINGR07-090100-D50 | .276 | .039 | .035 | .173 | .984 | .394 | .039 | .197 | R | TT9030 |
| MINGR07-140100-D50 | .276 | .039 | .035 | .173 | 1.181 | .591 | .039 | .197 | R | TT9030 |
| MINGR07-090150-D50 | .276 | .059 | .035 | .173 | .984 | .394 | .039 | .197 | R | TT9030 |
| MINGR07-140150-D50 | .276 | .059 | .035 | .173 | 1.181 | .591 | .039 | .197 | R | TT9030 |
| MINGR07-090200-D50 | .276 | .079 | .035 | .173 | .984 | .394 | .039 | .197 | R | TT9030 |
| MINGR07-190200-D50 | .276 | .079 | .035 | .173 | 1.378 | .787 | .039 | .197 | R | TT9030 |
| MINGR07-090100D060 | .276 | .039 | .071 | .209 | .984 | .394 | .071 | .236 | R | TT9030 |
| MINGL07-090100D060 | .276 | .039 | .071 | .209 | .984 | .394 | .071 | .236 | L | TT9030 |
| MINGR07-140100D060 | .276 | .039 | .071 | .209 | 1.181 | .591 | .071 | .236 | R | TT9030 |
| MINGR07-210100D060 | .276 | .039 | .071 | .209 | 1.457 | .866 | .071 | .236 | R | TT9030 |
| MINGR07-290100D060 | .276 | .039 | .071 | .209 | 1.772 | 1.181 | .071 | .236 | R | TT9030 |
| MINGR07-090150D060 | .276 | .059 | .071 | .209 | .984 | .394 | .071 | .236 | R | TT9030 |
| MINGL07-090150D060 | .276 | .059 | .071 | .209 | .984 | .394 | .071 | .236 | L | TT9030 |
| MINGR07-140150D060 | .276 | .059 | .071 | .209 | 1.181 | .591 | .071 | .236 | R | TT9030 |
| MINGR07-210150D060 | .276 | .059 | .071 | .209 | 1.457 | .866 | .071 | .236 | R | TT9030 |
| MINGR07-240150D060 | .276 | .059 | .071 | .209 | 1.575 | .984 | .071 | .236 | R | TT9030 |
| MINGR07-290150D060 | .276 | .059 | .071 | .209 | 1.772 | 1.181 | .071 | .236 | R | TT9030 |
| MINGR07-090200D060 | .276 | .079 | .071 | .209 | .984 | .394 | .071 | .236 | R | TT9030 |
| MINGR07-140200D060 | .276 | .079 | .071 | .209 | 1.181 | .591 | .071 | .236 | R | TT9030 |
| MINGR07-210200D060 | .276 | .079 | .071 | .209 | 1.457 | .866 | .071 | .236 | R | TT9030 |
| MINGR07-240200D060 | .276 | .079 | .071 | .209 | 1.575 | .984 | .071 | .236 | R | TT9030 |
| MINGR07-290200D060 | .276 | .079 | .071 | .209 | 1.772 | 1.181 | .071 | .236 | R | TT9030 |
| MINGR07-090100D068 | .276 | .039 | .106 | .244 | .984 | .394 | .098 | .268 | R | TT9030 |
| MINGR07-140100D068 | .276 | .039 | .106 | .244 | 1.181 | .591 | .098 | .268 | R | TT9030 |
| MINGR07-210100D068 | .276 | .039 | .106 | .244 | 1.457 | .866 | .098 | .268 | R | TT9030 |
| MINGR07-090150D068 | .276 | .059 | .106 | .244 | .984 | .394 | .098 | .268 | R | TT9030 |
| MINGR07-140150D068 | .276 | .059 | .106 | .244 | 1.181 | .591 | .098 | .268 | R | TT9030 |
| MINGR07-210150D068 | .276 | .059 | .106 | .244 | 1.457 | .866 | .098 | .268 | R | TT9030 |
| MINGR07-290150D068 | .276 | .059 | .106 | .244 | 1.772 | 1.181 | .098 | .268 | R | TT9030 |
| MINGR07-090200D068 | .276 | .079 | .106 | .244 | .984 | .394 | .098 | .268 | R | TT9030 |
| MINGR07-140200D068 | .276 | .079 | .106 | .244 | 1.181 | .591 | .098 | .268 | R | TT9030 |
| MINGL07-140200D068 | .276 | .079 | .106 | .244 | 1.181 | .591 | .098 | .268 | L | TT9030 |
| MINGR07-210200D068 | .276 | .079 | .106 | .244 | 1.457 | .866 | .098 | .268 | R | TT9030 |
| MINGR07-290200D068 | .276 | .079 | .106 | .244 | 1.772 | 1.142 | .098 | .268 | R | TT9030 |

## MINF - MINI CARBIDE BARS FOR DEEP FACE GROOVING



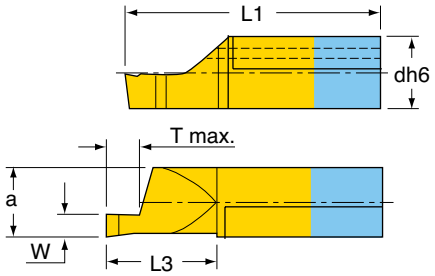

| Designation | Dimensions (inches) dh6 | W | a | L3 | L1 | Tmax | Dmin | R/L | Grade |
|---|---|---|---|---|---|---|---|---|---|
| MINFR07-200250D150 | .276 | .098 | .232 | .827 | 1.417 | .787 | .591 | R | TT9030 |
| MINFR07-200300D150 | .276 | .118 | .232 | .827 | 1.417 | .787 | .591 | R | TT9030 |
| MINFR07-300300D150 | .276 | .118 | .232 | 1.220 | 1.811 | 1.181 | .591 | R | TT9030 |

## MINF - MINI CARBIDE BARS FOR FACE GROOVING



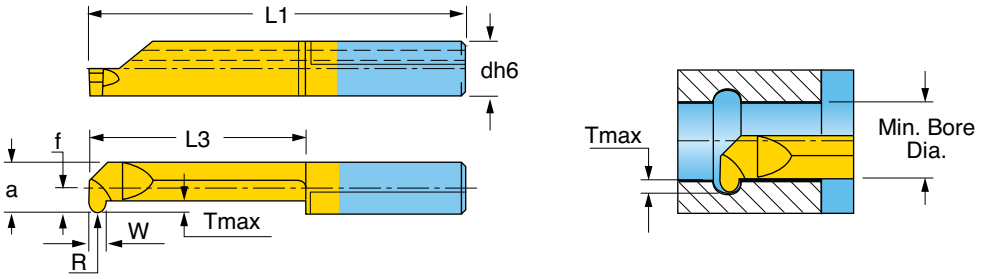

| Designation | Dimensions (inches) dh6 | W | a | L3 | L1 | Tmax | Dmin | R/L | Grade |
|---|---|---|---|---|---|---|---|---|---|
| MINFR07-110100D060 | .276 | .039 | .205 | .433 | 1.024 | .059 | .236 | R | TT9030 |
| MINFR07-110100D080 | .276 | .039 | .232 | .472 | 1.063 | .059 | .315 | R | TT9030 |
| MINFR07-110150D060 | .276 | .059 | .205 | .433 | 1.024 | .079 | .236 | R | TT9030 |
| MINFR07-110200D060 | .276 | .079 | .232 | .472 | 1.063 | .118 | .315 | R | TT9030 |
| MINFR07-200200D080 | .276 | .079 | .205 | .787 | 1.378 | .118 | .315 | R | TT9030 |
| MINFL07-210150D080 | .276 | .059 | .232 | .827 | 1.417 | .098 | .315 | L | TT9030 |
| MINFR07-110150D080 | .276 | .059 | .232 | .472 | 1.063 | .098 | .315 | R | TT9030 |
| MINFR07-210150D080 | .276 | .059 | .232 | .866 | 1.417 | .098 | .315 | R | TT9030 |
| MINFL07-300200D080 | .276 | .079 | .232 | 1.220 | 1.811 | .118 | .315 | L | TT9030 |
| MINFR07-110200D080 | .276 | .079 | .232 | .472 | 1.063 | .118 | .315 | R | TT9030 |
| MINFR07-210200D080 | .276 | .079 | .232 | .866 | 1.417 | .118 | .315 | R | TT9030 |
| MINFR07-110250D080 | .276 | .098 | .232 | .472 | 1.063 | .138 | .315 | R | TT9030 |
| MINFR07-210250D080 | .276 | .098 | .232 | .866 | 1.417 | .138 | .315 | R | TT9030 |
| MINFR07-110300D080 | .276 | .118 | .232 | .472 | 1.063 | .138 | .315 | R | TT9030 |
| MINFR07-210300D080 | .276 | .118 | .232 | .866 | 1.417 | .138 | .315 | R | TT9030 |
| MINFR07-300300D080 | .276 | .118 | .232 | 1.220 | 1.811 | .138 | .315 | R | TT9030 |

## MINA - MINI CARBIDE BARS FOR SHAFT GROOVING



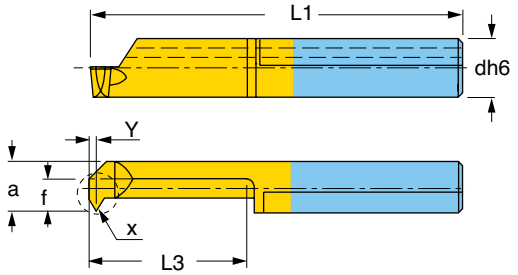

| Designation | Dimensions (inches) dh6 | W | a | L3 | L1 | Tmax | Dmin | R/L | Grade |
|---|---|---|---|---|---|---|---|---|---|
| MINAR07-200200D060 | .276 | .079 | .205 | .827 | 1.417 | .157 | .236 | R | TT9030 |

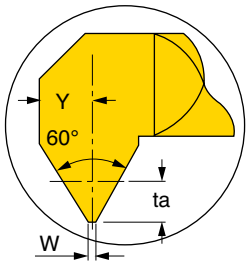
## MINR - MINI CARBIDE BARS, FULL RADIUS FOR INTERNAL BORING AND PROFILING




| Designation | Dimensions (inches) dh6 | W±0.002 | f | a | R | L1 | L3 | Tmax | Dmin | R/L | Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MINRR07-190050D050 | .276 | .039 | .035 | .173 | .020 | 1.378 | .787 | .039 | .197 | R | TT9030 |
| MINRR07-240050D060 | .276 | .039 | .071 | .209 | .020 | 1.575 | .984 | .071 | .236 | R | TT9030 |
| MINRR07-290050D068 | .276 | .039 | .110 | .248 | .020 | 1.772 | 1.181 | .098 | .268 | R | TT9030 |

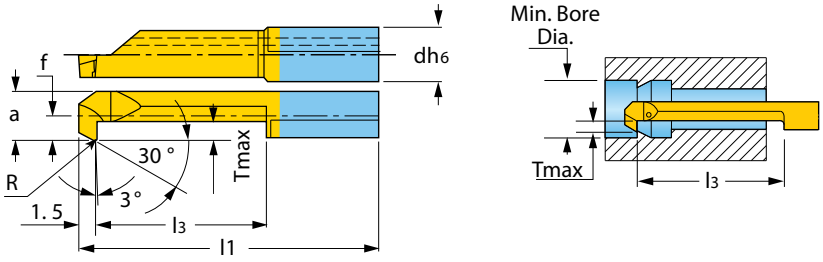
# MINN - MINI CARBIDE BARS FOR 60° PROFILE INTERNAL THREAD TURNING




| Designation | dh6 | MAX Pitch TPI | MAX Pitch mm | ta | W+.000 -.001 | Dimensions (inches) Y | f | a | L3 | L1 | Dmin | Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MINNR04-140050D040 | .157 | 48 | .50 | .012 | .002 | .014 | .059 | .138 | .591 | 1.181 | .157 | TT9030 |
| MINNR07-140050D050 | .276 | 48 | .50 | .012 | .002 | .014 | .035 | .173 | .591 | 1.181 | .197 | TT9030 |
| MINNR07-140050D075 | .276 | 32 | .75 | .016 | .035 | .018 | .035 | .173 | .591 | 1.181 | .197 | TT9030 |
| MINNR07-140100D048 | .276 | 24 | 1.00 | .024 | .005 | .022 | .035 | .173 | .591 | 1.181 | .189 | TT9030 |
| MINNR07-140100D060 | .276 | 24 | 1.00 | .024 | .005 | .022 | .071 | .209 | .591 | 1.181 | .236 | TT9030 |
| MINNR07-140125D060 | .276 | 20 | 1.25 | .028 | .006 | .026 | .071 | .209 | .591 | 1.181 | .236 | TT9030 |
| MINNR07-140150D060 | .276 | 16 | 1.50 | .031 | .007 | .030 | .071 | .209 | .591 | 1.181 | .236 | TT9030 |
| MINNR07-140150D070 | .276 | 16 | 1.50 | .031 | .007 | .030 | .110 | .248 | .591 | 1.181 | .276 | TT9030 |

# MINB - MINI CARBIDE BARS FOR INTERNAL BACK TURNING




| Designation | Dimensions (inches) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | dh6 | f | a | L1 | L3 | R±0.002 | Tmax | Dmin | R/L | Grade |
| MINBR04-140010D030 | .157 | .024 | .102 | 1.181 | .591 | .008 | .020 | .118 | R | TT9030 |
| MINBR04-190010D030 | .157 | .024 | .102 | 1.378 | .787 | .008 | .020 | .118 | R | TT9030 |
| MINBR04-140015D040 | .157 | .059 | .138 | 1.181 | .591 | .006 | .031 | .157 | R | TT9030 |
| MINBR04-240015D040 | .157 | .059 | .138 | 1.575 | .984 | .006 | .031 | .157 | R | TT9030 |
| MINBR07-190020D050 | .276 | .035 | .173 | 1.378 | .787 | .008 | .039 | .197 | R | TT9030 |
| MINBR07-290020D050 | .276 | .035 | .173 | 1.772 | 1.181 | .008 | .039 | .197 | R | TT9030 |
| MINBR07-190020D060 | .276 | .071 | .209 | 1.378 | .787 | .008 | .071 | .236 | R | TT9030 |
| MINBR07-290020D060 | .276 | .071 | .209 | 1.772 | 1.181 | .008 | .071 | .236 | R | TT9030 |
| MINBR07-190020D070 | .276 | .110 | .248 | 1.378 | .787 | .008 | .098 | .276 | R | TT9030 |
| MINBR07-290020D070 | .276 | .110 | .248 | 1.772 | 1.181 | .008 | .098 | .276 | R | TT9030 |

# TOCLAMP

## FOR SMALL ID AND OD TURNING AND GROOVING

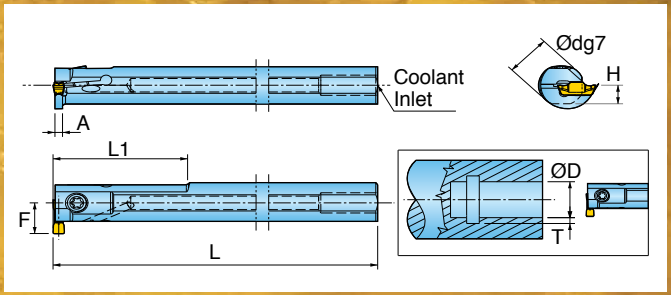
- Economical double-ended insert
- Internal bars are coolant-through
- NEW! Holder styles for shallow grooves and external machining
- Various application range
  - TDIP: ground insert for precision grooving and ID turning
  - TDIM: pressed insert with molded chipbreaker for optimal chip control
- Internal machining from Dmin .472"






FINE GOLD

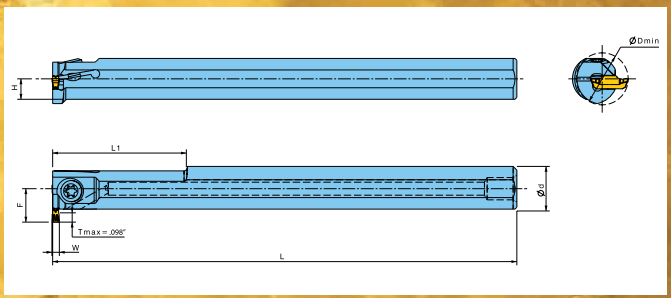
# TTSIR/L - INTERNAL GROOVING AND TURNING ON SMALL DIAMETERS


| Designation | Insert Seat Size | Dimensions (inch) Ød | L | L1 | F | H | A | Tmax | ØDmin | Coolant Inlet | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TTSIR/L 9.5-12.5-2 | 2 | .375 | 5.0 | .984 | .295 | .167 | .063 | .094 | .492 | Ø.138 | SE02-82 | T 15 |
| TTSIR/L 12.7-14-2 | 2 | .500 | 5.0 | 1.378 | .358 | .230 | .063 | .102 | .551 | Ø.236 | SE02-82 | T 15 |
| TTSIR/L 15.9-12.5-2 | 2 | .625 | 6.0 | .787 | .413 | .291 | .063 | .094 | .492 | Ø.315 | SE02-82 | T 15 |
| TTSIR/L 15.9-14-2 | 2 | .625 | 6.0 | .984 | .433 | .291 | .063 | .102 | .551 | Ø.315 | SE02-82 | T 15 |
| TTSIR/L 15.9-16-2 | 2 | .625 | 6.0 | 1.575 | .433 | .291 | .063 | .118 | .630 | Ø.315 | SR16-212 | T 20 |
| TTSIR/L 12.7-14-3 | 3 | .375 | 5.0 | 1.378 | .358 | .230 | .079 | .102 | .551 | Ø.236 | SE02-82 | T 15 |
| TTSIR/L 15.9-12.5-3 | 3 | .625 | 6.0 | .787 | .413 | .291 | .079 | .094 | .492 | Ø.315 | SE02-82 | T 15 |
| TTSIR/L 15.9-14-3 | 3 | .625 | 6.0 | .984 | .433 | .291 | .079 | .102 | .551 | Ø.315 | SE02-82 | T 15 |
| TTSIR/L 15.9-16-3 | 3 | .625 | 6.0 | 1.575 | .433 | .291 | .079 | .118 | .630 | Ø.315 | SR16-212 | T 20 |
| TTSIR/L 19-20-3 | 3 | .750 | 6.0 | 1.575 | .551 | .335 | .079 | .157 | .787 | PL 075 | SR16-212 | T 20 |

TTSIL: Left-hand holder TTSIR: Right-hand holder

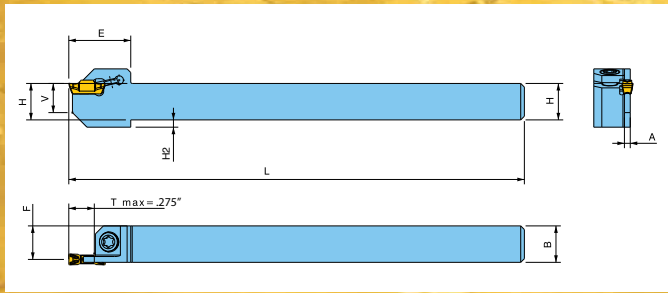
# NEW! TGSIR/L - INTERNAL SHALLOW GROOVING AND TURNING ON SMALL DIAMETERS


| Designation | Insert Seat Size | Dimensions (inch) Ød | L | L1 | F | H | Tmax | ØDmin | Coolant Inlet | W | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TGSIR/L 9.5-13-2 | 2 | .375 | 5.0 | .984 | .295 | .167 | 2.50 | .492 | Ø.138 | | | |
| TGSIR/L 12.7-14-2 | 2 | .500 | 5.0 | 1.378 | .354 | .230 | 2.50 | .551 | Ø.236 | | | |
| TGSIR/L 15.9-13-2 | 2 | .625 | 6.0 | .787 | .417 | .291 | 2.50 | .512 | Ø.315 | < .080 | SE02-82 | T 15 |
| TGSIR/L 15.9-14-2 | 2 | .625 | 6.0 | .984 | .429 | .291 | 2.50 | .551 | Ø.315 | | | |
| TGSIR/L 15.9-16-2 | 2 | .625 | 6.0 | 1.575 | .413 | .291 | 2.50 | .630 | Ø.315 | | | |

TGSIL: Left-hand holder TGSIR: Right-hand holder

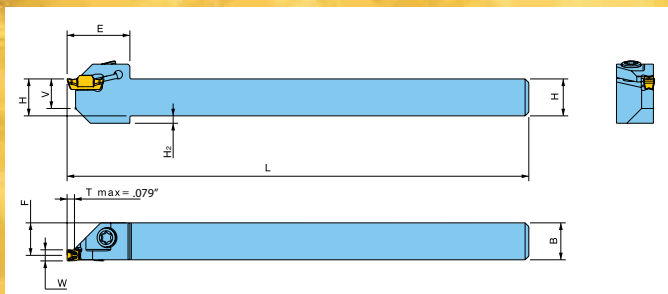
## NEW! TTSER/L - EXTERNAL TURNING AND GROOVING


| Designation | Insert Seat Size | Dimensions (inch) H | B | L | F | E | A | H1 | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|
| TTSER/L 9.5-2T7 | 2 | .375 | .375 | 5.0 | .343 | .669 | .063 | .079 | SM40-097-60 | T 15 |
| TTSER/L 12.7-2T7 | 2 | .500 | .500 | 5.0 | .469 | .669 | .063 | - | | |
| TTSER/L 15.9-2T7 | 2 | .625 | .625 | 5.0 | .598 | .787 | .063 | - | | |
| TTSER/L 19-2T7 | 2 | .750 | .750 | 5.0 | .717 | .787 | .063 | - | | |
| TTSER/L 25.4-2T7 | 2 | 1.000 | 1.000 | 5.0 | .969 | .787 | .063 | - | | |
| TTSER/L 9.5-3T7 | 3 | .375 | .375 | 5.0 | .327 | .669 | .094 | .079 | | |
| TTSER/L 12.7-3T7 | 3 | .500 | .500 | 5.0 | .453 | .669 | .094 | - | | |
| TTSER/L 15.9-3T7 | 3 | .625 | .625 | 5.0 | .579 | .787 | .094 | - | | |
| TTSER/L 19-3T7 | 3 | .750 | .750 | 5.0 | .701 | .787 | .094 | - | | |
| TTSER/L 25.4-3T7 | 3 | 1.000 | 1.000 | 5.0 | .953 | .787 | .094 | - | | |

TTSEL: Left-hand holder TTSER: Right-hand holder

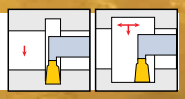
## NEW! TGSFR/L - SHALLOW EXTERNAL TURNING AND GROOVING

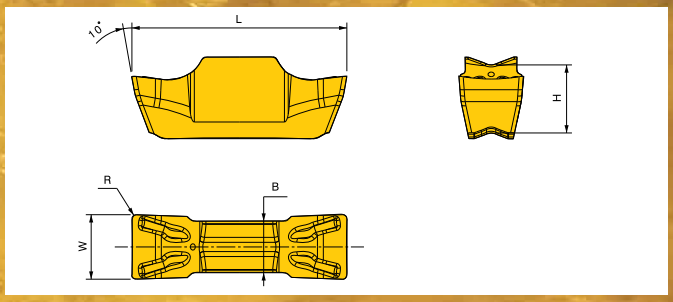




| Designation | Insert Seat Size | Dimensions (inch) H | B | L | F | E | H1 | W | Screw | Wrench |
|---|---|---|---|---|---|---|---|---|---|---|
| TGSFR/L 9.5-3T2 | 2, 3 | .375 | .375 | 5.0 | .327 | .669 | .079 | < .125 | SM40-097-60 | T 15 |
| TGSFR/L 12.7-3T2 | 2, 3 | .500 | .500 | 5.0 | .453 | .669 | - | | | |
| TGSFR/L 15.9-3T2 | 2, 3 | .625 | .625 | 5.0 | .579 | .787 | - | | | |

TGSFL: Left-hand holder TGSFR: Right-hand holder

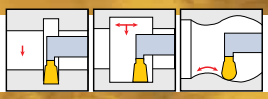
## TDIM - PRESSED INSERTS FOR INTERNAL TURNING AND GROOVING

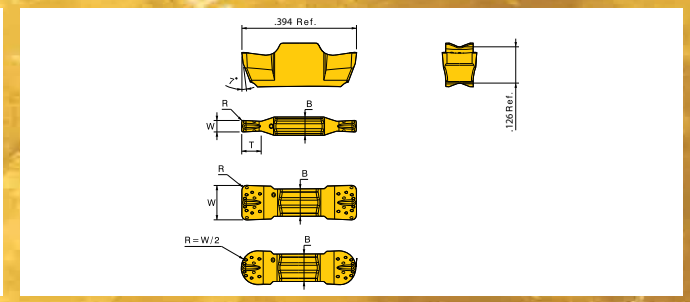





| Designation | Insert Seat Size | Dimensions (inch) W±0.002 | R | B | L | H | Grade |
|---|---|---|---|---|---|---|---|
| TDIM 2E-0.15 | 2 | .079 | .006 | .063 | .394 | .126 | TT9080 |
| TDIM 3E-0.2 | 3 | .118 | .008 | .094 | .394 | .126 | TT9080 |

## TDIP - PRECISION INSERTS FOR INTERNAL TURNING AND GROOVING






| Designation | Insert Seat Size | Dimensions (inch) W±0.0008 | R | B | T | Grade |
|---|---|---|---|---|---|---|
| TDIP 1.00-0.10* | 2 | .039 | .004 | .063 | .063 | TT9080 |
| TDIP 1.00-0.50* | 2 | .039 | .020 | .063 | .063 | TT9080 |
| TDIP 1.20-0.00* | 2 | .047 | .000 | .063 | .071 | TT9080 |
| TDIP 1.40-0.00* | 2 | .055 | .000 | .063 | .079 | TT9080 |
| TDIP 1.50-0.10* | 2 | .059 | .004 | .063 | .079 | TT9080 |
| TDIP 2.00E-0.10 | 2 | .079 | .004 | .063 | - | TT9080 |
| TDIP 2.00E-0.20 | 2 | .079 | .008 | .063 | - | TT9080 |
| TDIP 2.00E-1.00 | 2 | .079 | .039 | .063 | - | TT9080 |
| TDIP 2.15E-0.15 | 2 | .085 | .006 | .063 | - | TT9080 |
| TDIP 2.50E-0.20 | 3 | .098 | .008 | .094 | - | TT9080 |
| TDIP 3.00E-0.20 | 3 | .118 | .008 | .094 | - | TT9080 |
| TDIP 3.00E-1.50 | 3 | .118 | .059 | .094 | - | TT9080 |

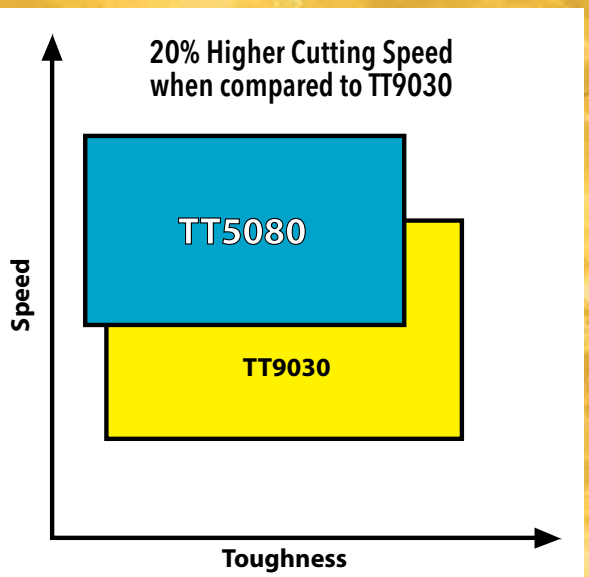
*Use holders TGSIR/L, TGSFR/L. (Only for grooving)

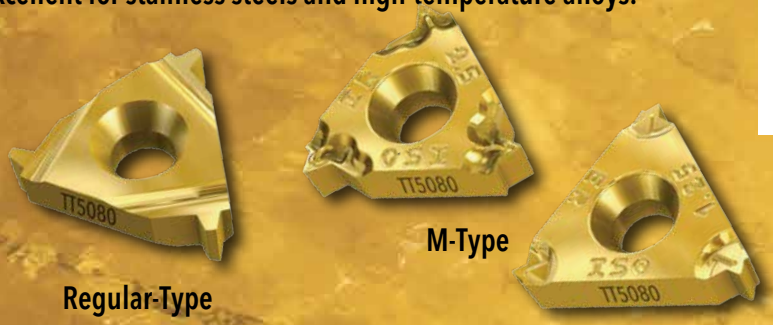
# TOTHREAD™

## TT5080 Grade

### FOR LATHE THREADING APPLICATIONS

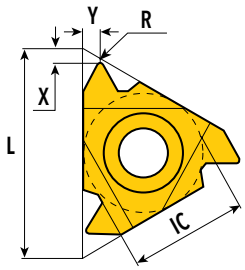
- Grade TT5080 features a very hard submicron grain substrate with PVD-AlTiN/TiN coating and special post-coat treatment.
- Improved flaking and chipping resistance in all materials.
- Excellent for stainless steels and high-temperature alloys.



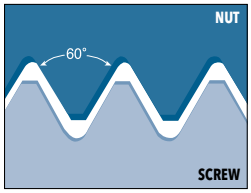




Regular-Type

M-Type

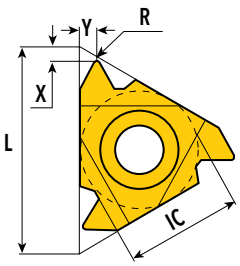



Application:
General Industry

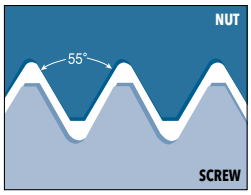



## PARTIAL PROFILE 60°

| Designation | Thread Type | Hand | Insert Type | IC (inch) | Pitch TPI | Pitch mm | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 08IRMA60 | INTERNAL | RIGHT | M TYPE | 0.188 | 16-48 | .5-1.5 | 0.315 | 0.002 | 0.024 | 0.028 | TT5080 |
| 11IRMA60 | | | M TYPE | 0.250 | 16-48 | .5-1.5 | 0.433 | 0.002 | 0.031 | 0.035 | |
| 16IRMA60 | | | M TYPE | 0.375 | 16-48 | .5-1.5 | 0.630 | 0.002 | 0.031 | 0.035 | |
| 16IRMG60 | | | M TYPE | 0.375 | 8-14 | 1.75-3.0 | 0.630 | 0.005 | 0.047 | 0.067 | |
| 16IRAG60 | | | REGULAR | 0.375 | 8-48 | .5-3.0 | 0.630 | 0.002 | 0.047 | 0.067 | |
| 16IRMAG60 | | | M TYPE | 0.375 | 8-48 | .5-3.0 | 0.630 | 0.002 | 0.047 | 0.067 | |
| 22IRMN60 | | | M TYPE | 0.500 | 5-7 | 3.5-5.0 | 0.866 | 0.007 | 0.067 | 0.098 | |
| 16ERMA60 | EXTERNAL | | M TYPE | 0.375 | 16-48 | .5-1.5 | 0.630 | 0.002 | 0.031 | 0.035 | |
| 16ERMG60 | | | M TYPE | 0.375 | 8-14 | 1.75-3.0 | 0.630 | 0.005 | 0.047 | 0.067 | |
| 16ERAG60 | | | REGULAR | 0.375 | 8-48 | .5-3.0 | 0.630 | 0.002 | 0.047 | 0.067 | |
| 16ERMAG60 | | | M TYPE | 0.375 | 8-48 | .5-3.0 | 0.630 | 0.002 | 0.047 | 0.067 | |
| 22ERMN60 | | | M TYPE | 0.500 | 5-7 | 3.5-5.0 | 0.866 | 0.007 | 0.067 | 0.098 | |

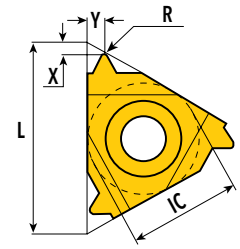



Application:
General Industry

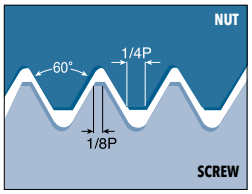



## PARTIAL PROFILE 55°

| Designation | Thread Type | Hand | Insert Type | IC (inch) | Pitch TPI | Pitch mm | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16IRMAG55 | INTERNAL | RIGHT | M TYPE | 0.375 | 8-48 | .5-3.0 | 0.630 | 0.002 | 0.047 | 0.067 | TT5080 |
| 16ERMAG55 | EXTERNAL | | | | | | | | | | |

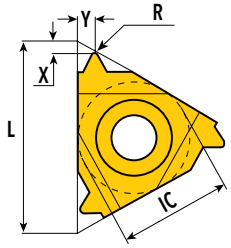



Application:
General Industry

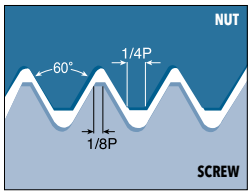



## ISO FULL PROFILE (DIN13 12-1986 CLASS 6G/6H)

| Designation | Thread Type | Hand | Insert Type | IC (inch) | Pitch mm | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| 11IR1.50ISO | INTERNAL | RIGHT | REGULAR | 0.250 | 1.50 | 0.433 | 0.003 | 0.031 | 0.039 | TT5080 |
| 11IRM1.50ISO | | | M TYPE | 0.250 | 1.50 | 0.433 | 0.003 | 0.031 | 0.039 | |
| 16IRM1.00ISO | | | M TYPE | 0.375 | 1.00 | 0.630 | 0.002 | 0.024 | 0.028 | |
| 16IRM1.50ISO | | | M TYPE | 0.375 | 1.50 | 0.630 | 0.003 | 0.031 | 0.039 | |
| 16IRM2.00ISO | | | M TYPE | 0.375 | 2.00 | 0.630 | 0.004 | 0.039 | 0.510 | |
| 16IRM2.50ISO | | | M TYPE | 0.375 | 2.50 | 0.630 | 0.006 | 0.043 | 0.059 | |
| 16IRM3.00ISO | | | M TYPE | 0.375 | 3.00 | 0.630 | 0.007 | 0.043 | 0.059 | |
| 16IR1.50ISO | | | REGULAR | 0.375 | 1.50 | 0.630 | 0.003 | 0.031 | 0.039 | |
| 16ER1.00ISO | EXTERNAL | | REGULAR | 0.375 | 1.00 | 0.630 | 0.005 | 0.028 | 0.028 | |
| 16ERM1.00ISO | | | M TYPE | 0.375 | 1.00 | 0.630 | 0.005 | 0.028 | 0.028 | |
| 16ERM1.25ISO | | | M TYPE | 0.375 | 1.25 | 0.630 | 0.006 | 0.031 | 0.035 | |
| 16ER1.50ISO | | | REGULAR | 0.375 | 1.50 | 0.630 | 0.007 | 0.031 | 0.039 | |
| 16ERM1.50ISO | | | M TYPE | 0.375 | 1.50 | 0.630 | 0.007 | 0.031 | 0.039 | |
| 16ERM1.75ISO | | | M TYPE | 0.375 | 1.75 | 0.630 | 0.008 | 0.035 | 0.047 | |
| 16ER2.00ISO | | | REGULAR | 0.375 | 2.00 | 0.630 | 0.010 | 0.039 | 0.051 | |
| 16ERM2.00ISO | | | M TYPE | 0.375 | 2.00 | 0.630 | 0.010 | 0.039 | 0.051 | |
| 16ERM2.50ISO | | | M TYPE | 0.375 | 2.50 | 0.630 | 0.012 | 0.043 | 0.059 | |
| 16ER3.00ISO | | | M TYPE | 0.375 | 3.00 | 0.630 | 0.015 | 0.047 | 0.063 | |

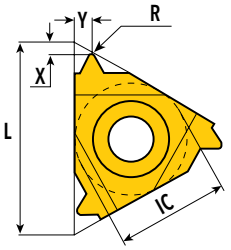



Application:
General Industry

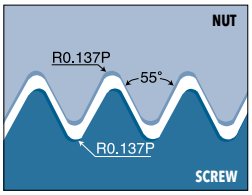



## AMERICAN UN FULL PROFILE (ANSI B1, 3M-1986 CLASS 2A/2B)

| Designation | Thread Type | Hand | Insert Type | IC (inch) | TPI | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| 16IRM12UN | INTERNAL | RIGHT | M TYPE | 0.375 | 12 | 0.630 | 0.005 | 0.043 | 0.055 | TT5080 |
| 16IRM16UN | | | | | 16 | | 0.004 | 0.035 | 0.043 | |
| 16ERM20UN | EXTERNAL | | | | 20 | | 0.006 | 0.031 | 0.035 | |
| 16ERM12UN | | | | | 12 | | 0.010 | 0.043 | 0.055 | |
| 16ERM14UN | | | | | 14 | | 0.009 | 0.039 | 0.047 | |
| 16ERM16UN | | | | | 16 | | 0.007 | 0.035 | 0.043 | |
| 16ERM18UN | | | | | 18 | | 0.006 | 0.031 | 0.039 | |

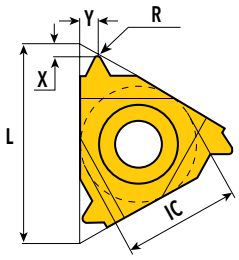



Application:
General Industry, Fittings and
Pipe Couplings

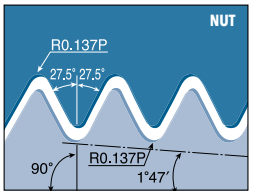



## WHITWORTH FULL PROFILE (BS 84-1956 DIN259 MEDIUM CLASS)

| Designation | Thread Type | Hand | Insert Type | IC (inch) | TPI | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| 16IRM11W | INTERNAL | RIGHT | M TYPE | 0.375 | 11 | 0.630 | 0.012 | 0.043 | 0.059 | TT5080 |
| 16IRM14W | | | | | 14 | | 0.009 | 0.039 | 0.047 | |
| 16ERM11W | EXTERNAL | | | | 11 | | 0.012 | 0.043 | 0.059 | |
| 16ERM14W | | | | | 14 | | 0.009 | 0.039 | 0.047 | |
| 16ERM19W | | | | | 19 | | 0.003 | 0.031 | 0.039 | |

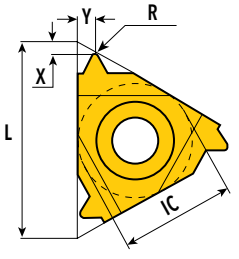



Application:
Steam, Gas and
Water Pipes

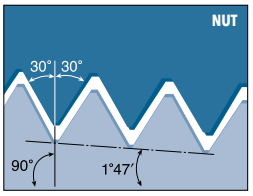



## BSPT (BRITISH STANDARD TAPERED THREAD) FULL PROFILE (BS 21-1957)

| Designation | Thread Type | Hand | Insert Type | IC (inch) | TPI | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| 16IRM11BSPT | INTERNAL | RIGHT | M TYPE | 0.375 | 11 | 0.630 | 0.011 | 0.043 | 0.059 | TT5080 |
| 16IRM14BSPT | | | | | 14 | | 0.008 | 0.039 | 0.047 | |
| 16ERM11BSPT | EXTERNAL | | | | 11 | | 0.011 | 0.043 | 0.059 | |
| 16ERM14BSPT | | | | | 14 | | 0.008 | 0.039 | 0.047 | |




Application:
Steam, Gas and
Water Pipes



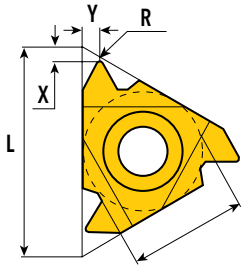

## NPT (NATIONAL PIPE TAPERED THREAD) FULL PROFILE (ANSI/ASME B1.20.1-1983)

| Designation | Thread Type | Hand | Insert Type | IC (inch) | TPI | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| 16IRM8NPT | INTERNAL | RIGHT | M TYPE | 0.375 | 8 | 0.630 | 0.006 | 0.047 | 0.071 | TT5080 |
| 16IRM11.5NPT | | | | | 11.5 | | 0.004 | 0.043 | 0.059 | |
| 16IRM14NPT | | | | | 14 | | 0.002 | 0.035 | 0.047 | |
| 16ERM11.5NPT | EXTERNAL | | | | 11.5 | | 0.004 | 0.043 | 0.059 | |
| 16ERM14NPT | | | | | 14 | | 0.002 | 0.035 | 0.047 | |

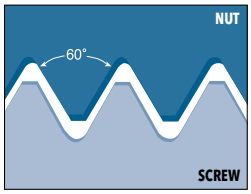
# TOTHREAD™

# B-TYPE THREADING INSERTS

- Combination of M Type and Regular Type threading inserts
- Molded chipbreaker for strength
- Precise and sharp cutting edges reduce cutting forces
- Improved chip breaking and better chip evacuation
- Better surface quality
- Economical choice

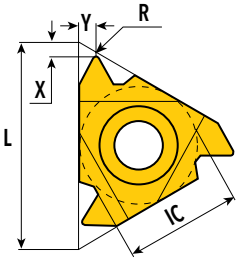




Application:
General Industry

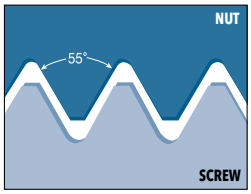



## PARTIAL PROFILE 60°

| Designation | Thread Type | Hand | IC (inch) | Pitch TPI | Pitch mm | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| 16ERBA60 | EXTERNAL | RIGHT | 0.375 | 16-48 | .5-1.5 | 0.630 | 0.002 | 0.031 | 0.035 | TT9030 |
| 16ERBAG60 | | | | 8-48 | .5-3.0 | | 0.002 | 0.047 | 0.067 | |
| 16ERBG60 | | | | 8-14 | 1.75-3.0 | | 0.005 | 0.047 | 0.067 | |
| 16IRBA60 | INTERNAL | | | 16-48 | .5-1.5 | | 0.002 | 0.031 | 0.035 | |
| 16IRBAG60 | | | | 8-48 | .5-3.0 | | 0.002 | 0.047 | 0.067 | |
| 16IRBG60 | | | | 8-14 | 1.75-3.0 | | 0.005 | 0.047 | 0.067 | |

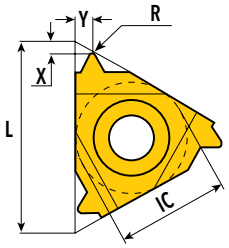



Application:
General Industry

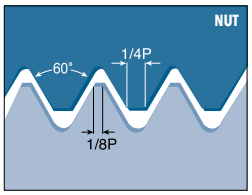



## PARTIAL PROFILE 55°

| Designation | Thread Type | Hand | IC (inch) | Pitch TPI | Pitch mm | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| 16ERBAG55 | EXTERNAL | RIGHT | 0.375 | 8-48 | .5-3.0 | 0.630 | 0.002 | 0.047 | 0.067 | TT9030 |
| 16ERBG55 | | | | 8-14 | 1.75-3.0 | | 0.008 | | | |
| 16IRBAG55 | INTERNAL | | | 8-48 | .5-3.0 | | 0.002 | | | |
| 16IRBG55 | | | | 8-14 | 1.75-3.0 | | 0.008 | | | |

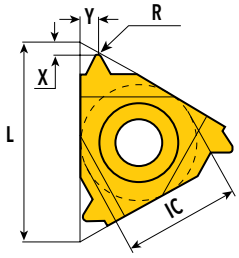



Application:
General Industry

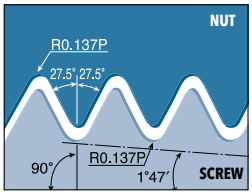



## ISO FULL PROFILE (DIN13 12-1986 CLASS 6G/6H)

| Designation | Thread Type | Hand | IC (inch) | Pitch mm | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|
| 16ERB0.80ISO | EXTERNAL | RIGHT | 0.375 | 0.8 | 0.630 | 0.004 | 0.024 | 0.024 | TT9030 |
| 16ERB1.00ISO | | | | 1.00 | | 0.004 | 0.028 | 0.028 | |
| 16ERB1.25ISO | | | | 1.25 | | 0.006 | 0.031 | 0.035 | |
| 16ERB1.50ISO | | | | 1.50 | | 0.007 | 0.031 | 0.039 | |
| 16ERB1.75ISO | | | | 1.75 | | 0.008 | 0.035 | 0.047 | |
| 16ERB2.00ISO | | | | 2.00 | | 0.010 | 0.039 | 0.051 | |
| 16ERB2.50ISO | | | | 2.50 | | 0.012 | 0.043 | 0.059 | |
| 16ERB3.00ISO | | | | 3.00 | | 0.015 | 0.047 | 0.063 | |
| 16IRB1.00ISO | INTERNAL | | | 1.00 | | 0.002 | 0.024 | 0.028 | |
| 16IRB1.25ISO | | | | 1.25 | | 0.003 | 0.031 | 0.035 | |
| 16IRB1.50ISO | | | | 1.50 | | 0.003 | 0.031 | 0.039 | |
| 16IRB1.75ISO | | | | 1.75 | | 0.004 | 0.035 | 0.047 | |
| 16IRB2.00ISO | | | | 2.00 | | 0.004 | 0.039 | 0.510 | |
| 16IRB2.50ISO | | | | 2.50 | | 0.006 | 0.043 | 0.059 | |
| 16IRB3.00ISO | | | | 3.00 | | 0.007 | 0.043 | 0.059 | |

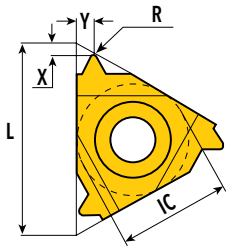



Application:
Steam, Gas and
Water Pipes

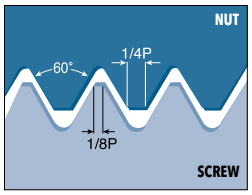



## BSPT (BRITISH STANDARD TAPERED THREAD) FULL PROFILE (BS 21-1957)

| Designation | Thread Type | Hand | IC (inch) | TPI | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|
| 16ERB11BSPT | EXTERNAL | RIGHT | 0.375 | 11 | 0.630 | 0.011 | 0.043 | 0.059 | TT9030 |
| 16ERB14BSPT | | | | 14 | | 0.008 | 0.039 | 0.047 | |
| 16IRB11BSPT | INTERNAL | | | 11 | | 0.011 | 0.043 | 0.059 | |
| 16IRB14BSPT | | | | 14 | | 0.008 | 0.039 | 0.047 | |

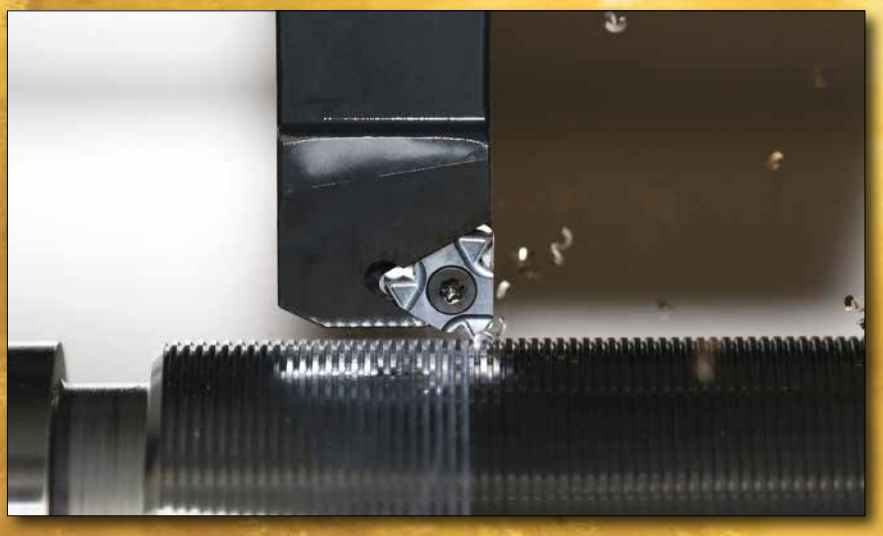


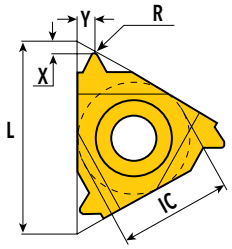

Application:
General Industry



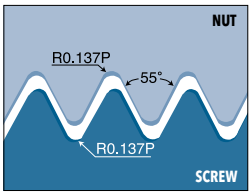

## AMERICAN UN FULL PROFILE (ANSI B1, 3M-1986 CLASS 2A/2B)

| Designation | Thread Type | Hand | IC (inch) | TPI | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|
| 16ERB8UN | EXTERNAL | RIGHT | 0.375 | 8 | 0.630 | 0.016 | 0.047 | 0.063 | TT9030 |
| 16ERB9UN | | | | 9 | | 0.014 | 0.047 | 0.067 | |
| 16ERB10UN | | | | 10 | | 0.013 | 0.043 | 0.059 | |
| 16ERB11UN | | | | 11 | | 0.011 | 0.043 | 0.059 | |
| 16ERB12UN | | | | 12 | | 0.010 | 0.043 | 0.055 | |
| 16ERB13UN | | | | 13 | | 0.009 | 0.039 | 0.051 | |
| 16ERB14UN | | | | 14 | | 0.009 | 0.039 | 0.047 | |
| 16ERB16UN | | | | 16 | | 0.007 | 0.035 | 0.043 | |
| 16ERB18UN | | | | 18 | | 0.006 | 0.031 | 0.039 | |
| 16ERB20UN | | | | 20 | | 0.006 | 0.031 | 0.035 | |
| 16ERB24UN | | | | 24 | | 0.005 | 0.028 | 0.031 | |
| 16IRB8UN | INTERNAL | | | 8 | | 0.007 | 0.043 | 0.059 | |
| 16IRB9UN | | | | 9 | | 0.007 | 0.047 | 0.067 | |
| 16IRB10UN | | | | 10 | | 0.006 | 0.043 | 0.059 | |
| 16IRB12UN | | | | 12 | | 0.005 | 0.043 | 0.055 | |
| 16IRB14UN | | | | 14 | | 0.004 | 0.035 | 0.047 | |
| 16IRB16UN | | | | 16 | | 0.004 | 0.035 | 0.043 | |
| 16IRB18UN | | | | 18 | | 0.003 | 0.031 | 0.039 | |
| 16IRB20UN | | | | 20 | | 0.002 | 0.031 | 0.035 | |
| 16IRB24UN | | | | 24 | | 0.002 | 0.028 | 0.031 | |



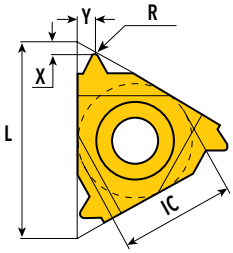



Application:
General Industry, Fittings and Pipe Couplings

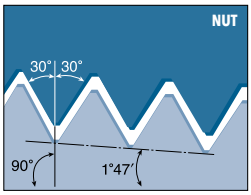



## WHITWORTH FULL PROFILE (BS 84-1956 DIN259 MEDIUM CLASS)

| Designation | Thread Type | Hand | IC (inch) | TPI | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|
| 16ERB10W | EXTERNAL | RIGHT | 0.375 | 10 | 0.630 | 0.012 | 0.043 | 0.059 | TT9030 |
| 16ERB11W | | | | 11 | | 0.012 | 0.043 | 0.059 | |
| 16ERB14W | | | | 14 | | 0.009 | 0.039 | 0.047 | |
| 16ERB16W | | | | 16 | | 0.007 | 0.035 | 0.043 | |
| 16ERB19W | | | | 19 | | 0.003 | 0.031 | 0.039 | |
| 16IRB10W | INTERNAL | | | 10 | | 0.012 | 0.043 | 0.059 | |
| 16IRB11W | | | | 11 | | 0.012 | 0.043 | 0.059 | |
| 16IRB14W | | | | 14 | | 0.009 | 0.039 | 0.047 | |
| 16IRB16W | | | | 16 | | 0.007 | 0.035 | 0.043 | |
| 16IRB19W | | | | 19 | | 0.006 | 0.031 | 0.039 | |




Application:
Steam, Gas and Water Pipes



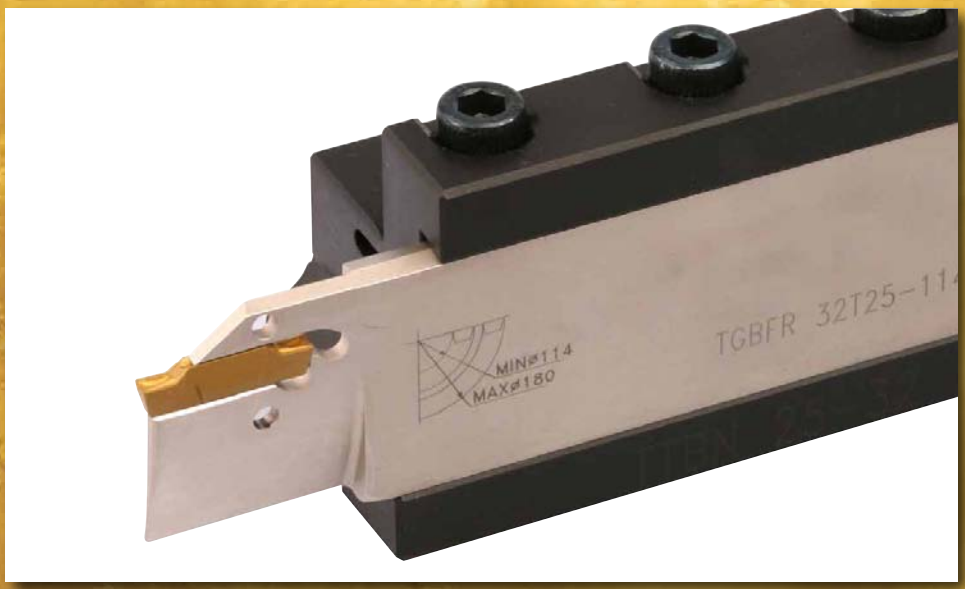

## NPT (NATIONAL PIPE TAPERED THREAD) FULL PROFILE (ANSI/ASME B1.20.1-1983)

| Designation | Thread Type | Hand | IC (inch) | TPI | L (inch) | R (inch) | X (inch) | Y (inch) | Grade |
|---|---|---|---|---|---|---|---|---|---|
| 16ERB8NPT | EXTERNAL | RIGHT | 0.375 | 8 | 0.630 | 0.006 | 0.047 | 0.071 | TT9030 |
| 16ERB11.5NPT | | | | 11.5 | | 0.004 | 0.043 | 0.059 | |
| 16ERB14NPT | | | | 14 | | 0.002 | 0.035 | 0.047 | |
| 16ERB18NPT | | | | 18 | | 0.002 | 0.031 | 0.039 | |
| 16IRB8NPT | INTERNAL | | | 8 | | 0.006 | 0.047 | 0.071 | |
| 16IRB11.5NPT | | | | 11.5 | | 0.004 | 0.043 | 0.059 | |
| 16IRB14NPT | | | | 14 | | 0.002 | 0.035 | 0.047 | |

T-CLAMP ULTRA+™

# DEEP FACE GROOVING BLADE PRODUCT EXPANSION

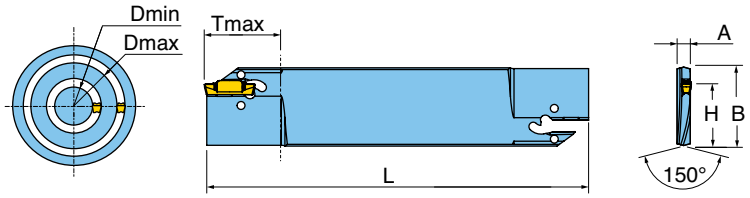
- New face grooving blade sizes for larger diameter grooves.
- Capable of face grooving to 1.496" (38mm) depth!
- Blades fully compatible with industry standard blocks (1.26" height).
- Blades use single or double-ended T-Clamp Ultra+ inserts with seat sizes 3, 4, 5 or 6.

# TGBFR/L

DEEP FACE GROOVING BLADES


Face Grooving


| Designation | Insert Seat Size | H (inch) | B (inch) | L (inch) | A (inch) | Tmax (inch) | Dmin (inch) | Dmax (inch) |
|---|---|---|---|---|---|---|---|---|
| TGBFL32T20-40-60-3 | 3 | 0.976 | 1.26 | 5.90 | 0.205 | 0.787 | 1.57 | 2.36 |
| TGBFL32T20-54-80-3 | 3 | 0.976 | 1.26 | 5.90 | 0.205 | 0.787 | 2.13 | 3.15 |
| TGBFL32T25-74-120-3 | 3 | 0.976 | 1.26 | 5.90 | 0.205 | 0.984 | 2.91 | 4.72 |
| TGBFL32T25-114-180-3 | 3 | 0.976 | 1.26 | 5.90 | 0.205 | 0.984 | 4.49 | 7.09 |
| TGBFL32T25-40-60-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 0.984 | 1.57 | 2.36 |
| TGBFL32T25-50-80-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 0.984 | 1.97 | 3.15 |
| TGBFL32T30-70-130-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 1.181 | 2.76 | 5.12 |
| TGBFL32T30-120-200-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 1.181 | 4.72 | 7.87 |
| NEW! TGBFL32T30-200-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 1.181 | 7.87 | INF |
| TGBFL32T32-60-95-5 | 5 | 0.976 | 1.26 | 5.90 | 0.205 | 1.260 | 2.36 | 3.74 |
| TGBFL32T35-85-140-5 | 5 | 0.976 | 1.26 | 5.90 | 0.205 | 1.378 | 3.35 | 5.51 |
| TGBFL32T35-130-250-5 | 5 | 0.976 | 1.26 | 5.90 | 0.205 | 1.378 | 5.12 | 9.84 |
| NEW! TGBFL32T35-250-5 | 5 | 0.976 | 1.26 | 5.90 | 0.205 | 1.378 | 9.84 | INF |
| TGBFL32T32-80-180-6 | 6 | 0.976 | 1.26 | 5.90 | 0.205 | 1.260 | 3.15 | 7.09 |
| TGBFL32T38-168-300-6 | 6 | 0.976 | 1.26 | 5.90 | 0.205 | 1.496 | 6.61 | 11.81 |
| NEW! TGBFL32T38-300-6 | 6 | 0.976 | 1.26 | 5.90 | 0.205 | 1.496 | 11.81 | INF |
| TGBFR32T20-40-60-3 | 3 | 0.976 | 1.26 | 5.90 | 0.205 | 0.787 | 1.57 | 2.36 |
| TGBFR32T20-54-80-3 | 3 | 0.976 | 1.26 | 5.90 | 0.205 | 0.787 | 2.13 | 3.15 |
| TGBFR32T25-74-120-3 | 3 | 0.976 | 1.26 | 5.90 | 0.205 | 0.984 | 2.91 | 4.72 |
| TGBFR32T25-114-180-3 | 3 | 0.976 | 1.26 | 5.90 | 0.205 | 0.984 | 4.49 | 7.09 |
| TGBFR32T25-40-60-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 0.984 | 1.57 | 2.36 |
| TGBFR32T25-50-80-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 0.984 | 1.97 | 3.15 |
| TGBFR32T30-70-130-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 1.181 | 2.76 | 5.12 |
| TGBFR32T30-120-200-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 1.181 | 4.72 | 7.87 |
| NEW! TGBFR32T30-200-4 | 4 | 0.976 | 1.26 | 5.90 | 0.205 | 1.181 | 7.87 | INF |
| TGBFR32T32-60-95-5 | 5 | 0.976 | 1.26 | 5.90 | 0.205 | 1.260 | 2.36 | 3.74 |
| TGBFR32T35-85-140-5 | 5 | 0.976 | 1.26 | 5.90 | 0.205 | 1.378 | 3.35 | 5.51 |
| TGBFR32T35-130-250-5 | 5 | 0.976 | 1.26 | 5.90 | 0.205 | 1.378 | 5.12 | 9.84 |
| NEW! TGBFR32T35-250-5 | 5 | 0.976 | 1.26 | 5.90 | 0.205 | 1.378 | 9.84 | INF |
| TGBFR32T32-80-180-6 | 6 | 0.976 | 1.26 | 5.90 | 0.205 | 1.260 | 3.15 | 11.81 |
| TGBFR32T38-168-300-6 | 6 | 0.976 | 1.26 | 5.90 | 0.205 | 1.496 | 6.61 | 7.09 |
| NEW! TGBFR32T38-300-6 | 6 | 0.976 | 1.26 | 5.90 | 0.205 | 1.496 | 11.81 | INF |

Use inserts TDC/TSC, TDJ/TSJ, TDXU, TDT, TDFT.
NOTE: Insert Extractor Sold Separately.

HARDWARE

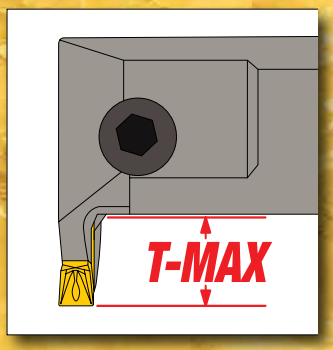

Insert Extractor
EDG-33B


Block
TTBU__-32


Block
TTBN__-32

# T-CLAMP ULTRA+™

## INTERNAL TURN/GROOVE BARS FOR DEEPER ID GROOVES




- Product expansion to existing TTIR series tools.
- NEW! • Extended T-max dimension for grooves of up to .472" (12mm) per side!
- All bars are coolant through.
- Bars use single or double-ended T-Clamp Ultra+ inserts with seat sizes 3, 4, 5 or 6.
- 1.00", 1.25" and 1.50" right hand bars are stocked.

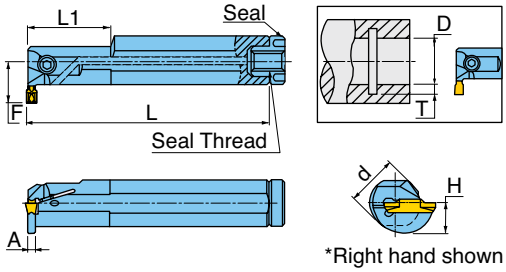

• INSERT SELECTION FOR ID GROOVING

| Insert | Min. Diameter | Remark |
|---|---|---|
| TDC/J 2 | 1.57 | Use TDIT or TDXU type if workpiece internal diameter is smaller than Min. Diameter |
| TDC/J 3 | 1.97 | |
| TDC/J 4 | 1.97 | |
| TDC/J 5 | 2.36 | |
| TDC/J 6 | 2.36 | |
| TDT 3 | 1.57 | |
| TDT 4 | 1.57 | |
| TDT 5 | 1.97 | |
| TDT 6 | 1.97 | |
| TDT 8 | 2.60 | |

# TTIR/L

INTERNAL TURNING, GROOVING AND PROFILING HOLDERS

ID Profiling | ID Turning | ID Grooving




*Right hand shown

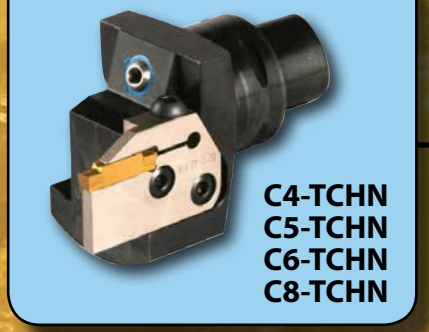
| Designation | Insert Seat Size | d (inch) | A (inch) | H (inch) | F (inch) | L (inch) | L1 (inch) | Tmax (inch) | Dmin (inch) | Seal | Seal Thread | Screw | Wrench | Torque (lb-in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TTIL16-2C | | 0.63 | 0.063 | 0.30 | 0.65 | 4.9 | - | 0.33 | 0.98 | PL16 | | SH M5X0.8X10 | | |
| TTIR16-2C | 2 | 0.63 | 0.063 | 0.30 | 0.65 | 4.9 | - | 0.33 | 0.98 | PL16 | | SH M5X0.8X10 | | |
| TTIR19-2C | | 0.75 | 0.063 | 0.33 | 0.62 | 6.3 | 1.57 | 0.24 | 0.98 | PL075 | | SH M5X0.8X12 | | |
| TTIR25.4-2C | | 1.00 | 0.063 | 0.45 | 0.69 | 8.0 | 1.57 | 0.2 | 0.98 | PL100 | | SH M5X0.8X16 | | |
| TTIL19-3C | | 0.75 | 0.083 | 0.33 | 0.62 | 6.5 | 1.57 | 0.26 | 0.98 | PL075 | | SH M5X0.8X12 | | |
| TTIR19-3C | | 0.75 | 0.083 | 0.33 | 0.62 | 6.5 | 1.57 | 0.26 | 0.98 | PL075 | | SH M5X0.8X12 | | |
| TTIL25.4-3C | | 1.00 | 0.083 | 0.45 | 0.69 | 8.0 | 1.57 | 0.23 | 0.98 | PL100 | | SH M5X0.8X16 | | |
| TTIR25.4-3C | 3 | 1.00 | 0.083 | 0.45 | 0.69 | 8.0 | 1.57 | 0.23 | 0.98 | PL100 | | SH M5X0.8X16 | | |
| NEW! TTIR25.4-3C-T8 | | 1.00 | 0.094 | 0.45 | 0.85 | 8.0 | 1.57 | 0.31 | 1.26 | PL100 | | SH M5X0.8X16 | | |
| NEW! TTIR31.7-3C-T10 | | 1.25 | 0.094 | 0.55 | 1.06 | 10.0 | 2.36 | 0.39 | 1.57 | PL125 | | SH M5X0.8X20 | | |
| NEW! TTIR38.1-3C-T12 | | 1.50 | 0.094 | 0.70 | 1.30 | 12.0 | 2.56 | 0.47 | 1.97 | PL150 | | SH M5X0.8X25 | L-W4 | 49.0 |
| TTIL19-4C | | 0.75 | 0.114 | 0.33 | 0.62 | 6.5 | 1.57 | 0.26 | 0.98 | PL075 | | SH M5X0.8X20 | | |
| TTIR19-4C | | 0.75 | 0.114 | 0.33 | 0.62 | 6.5 | 1.57 | 0.26 | 0.98 | PL075 | | SH M5X0.8X20 | | |
| TTIL25.4-4C | | 1.00 | 0.114 | 0.45 | 0.69 | 8.0 | 1.57 | 0.23 | 0.98 | PL100 | | SH M5X0.8X25 | | |
| TTIR25.4-4C | | 1.00 | 0.114 | 0.45 | 0.69 | 8.0 | 1.57 | 0.23 | 0.98 | PL100 | | SH M5X0.8X25 | | |
| NEW! TTIR25.4-4C-T8 | 4 | 1.00 | 0.118 | 0.45 | 0.85 | 8.0 | 1.57 | 0.31 | 1.26 | PL100 | | SH M5X0.8X16 | | |
| TTIL31.7-4C | | 1.25 | 0.114 | 0.55 | 0.82 | 10.0 | 2.36 | 0.26 | 1.26 | PL125 | NPT 1/8 | SH M5X0.8X16 | | |
| TTIR31.7-4C | | 1.25 | 0.114 | 0.55 | 0.82 | 10.0 | 2.36 | 0.26 | 1.26 | PL125 | | SH M5X0.8X16 | | |
| NEW! TTIR31.7-4C-T10 | | 1.25 | 0.118 | 0.55 | 1.06 | 10.0 | 2.36 | 0.39 | 1.57 | PL125 | | SH M5X0.8X20 | | |
| NEW! TTIR38.1-4C-T12 | | 1.50 | 0.118 | 0.70 | 1.30 | 12.0 | 2.56 | 0.47 | 1.97 | PL150 | | SH M5X0.8X25 | | |
| TTIL25.4-5C | | 1.00 | 0.154 | 0.45 | 0.68 | 8.0 | 1.57 | 0.26 | 1.26 | PL100 | | SH M5X0.8X25 | | |
| TTIR25.4-5C | | 1.00 | 0.154 | 0.45 | 0.68 | 8.0 | 1.57 | 0.26 | 1.26 | PL100 | | SH M6X1X16 | | |
| TTIL31.7-5C | 5 | 1.25 | 0.154 | 0.55 | 0.82 | 10.0 | 2.36 | 0.26 | 1.26 | PL125 | | SH M6X1X25 | | |
| TTIR31.7-5C | | 1.25 | 0.154 | 0.55 | 0.82 | 10.0 | 2.36 | 0.26 | 1.26 | PL125 | | SH M6X1X25 | | |
| NEW! TTIR31.7-5C-T10 | | 1.25 | 0.151 | 0.55 | 1.06 | 10.0 | 2.36 | 0.39 | 1.57 | PL125 | | SH M6X1X20 | | |
| NEW! TTIR38.1-5C-T12 | | 1.50 | 0.151 | 0.70 | 1.30 | 12.0 | 2.56 | 0.47 | 1.97 | PL150 | | SH M6X1X25 | | |
| TTIL31.7-6C | | 1.25 | 0.193 | 0.55 | 0.82 | 10.0 | 2.36 | 0.26 | 1.26 | PL125 | | SH M6X1X25 | | |
| TTIR31.7-6C | 6 | 1.25 | 0.193 | 0.55 | 0.82 | 10.0 | 2.36 | 0.26 | 1.26 | PL125 | | SH M6X1X20 | L-W5 | 71.0 |
| NEW! TTIR31.7-6C-T10 | | 1.25 | 0.190 | 0.55 | 1.06 | 10.0 | 2.36 | 0.39 | 1.57 | PL125 | | SH M6X1X20 | | |
| NEW! TTIR38.1-6C-T12 | | 1.50 | 0.190 | 0.70 | 1.30 | 12.0 | 2.56 | 0.47 | 1.97 | PL150 | | SH M6X1X25 | | |
| TTIL31.7-8C | | 1.25 | 0.232 | 0.57 | 0.84 | 10.0 | 2.36 | 0.26 | 1.46 | PL125 | | SH M6X1X25 | | |
| TTIR31.7-8C | 8 | 1.25 | 0.232 | 0.57 | 0.84 | 10.0 | 2.36 | 0.26 | 1.46 | PL125 | | SH M6X1X25 | | |
| TTIL38.1-8C | | 1.50 | 0.232 | 0.70 | 1.02 | 12.0 | 2.56 | 0.26 | 1.65 | PL150 | | SH M6X1X25 | | |
| TTIR38.1-8C | | 1.50 | 0.232 | 0.70 | 1.02 | 12.0 | 2.56 | 0.26 | 1.65 | PL150 | | SH M6X1X25 | | |

Use inserts TDC/TSC, TDJ/TSJ for grooving
Use inserts TDXU, TDT, TDIT for grooving and turning

# TOCLAMP ULTRA+™

## MODULAR SYSTEM PRODUCT EXPANSION

- New cartridges for 1.4mm and 2mm wide inserts.
- New external cartridges with longer T-max dimensions for deeper machining.
- New face grooving cartridges for larger diameter grooves.
- New C8 holder for Quick-Change product line.



C4-TCHN
C5-TCHN
C6-TCHN
C8-TCHN

C4-TCHPN
C5-TCHPN
C6-TCHPN
C8-TCHPN

Adaptor for External Machining

TCER

TCEL

Adaptor for Face Machining

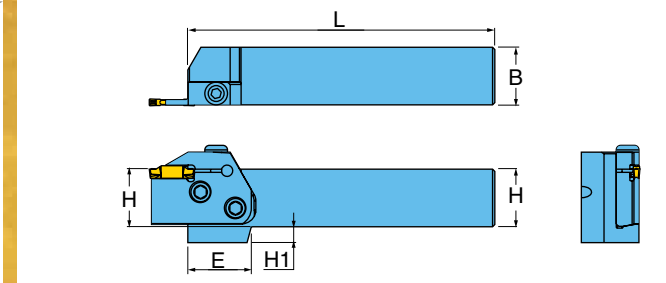
TCFR

TCFL

# TCHR/L

PARALLEL HOLDERS FOR MODULAR BLADES

OD Turning | Face Groove Turn

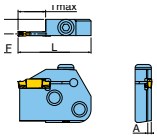




| Designation | ISO Number | H (inch) | B (inch) | L (inch) | E (inch) | H1 (inch) |
|---|---|---|---|---|---|---|
| TCHL19 | TCHL19 | 0.750 | 0.750 | 6.000 | 1.380 | 0.470 |
| TCHL25.4 | TCHL25.4 | 1.000 | 1.000 | 6.000 | 1.100 | 0.280 |
| TCHL31.8 | TCHL31.8 | 1.250 | 1.250 | 6.000 | 1.100 | - |
| TCHR19 | TCHR19 | 0.750 | 0.750 | 6.000 | 1.380 | 0.470 |
| TCHR25.4 | TCHR25.4 | 1.000 | 1.000 | 6.000 | 1.100 | 0.280 |
| TCHR31.8 | TCHR31.8 | 1.250 | 1.250 | 6.000 | 1.100 | - |

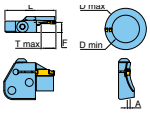
| HARDWARE | Screw | EXTERNAL LH ADAPTER | EXTERNAL RH ADAPTER | FACE LH ADAPTER | FACE RH ADAPTER | Wrench |
|---|---|---|---|---|---|---|
| TCHL19 | TS60190I | TCEL | - | - | TCFR | L-W4 |
| TCHL25.4 | TS60190I | TCEL | - | - | TCFR | L-W4 |
| TCHL31.8 | TS60190I | TCEL | - | - | TCFR | L-W4 |
| TCHR19 | TS60190I | - | TCER | TCFL | - | L-W4 |
| TCHR25.4 | TS60190I | - | TCER | TCFL | - | L-W4 |
| TCHR31.8 | TS60190I | - | TCER | TCFL | - | L-W4 |

## Adapter and holder selection

TCHR

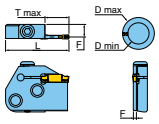


TCER XX

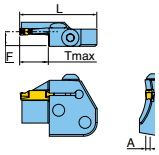


TCFL XX

TCHL



TCEL XX

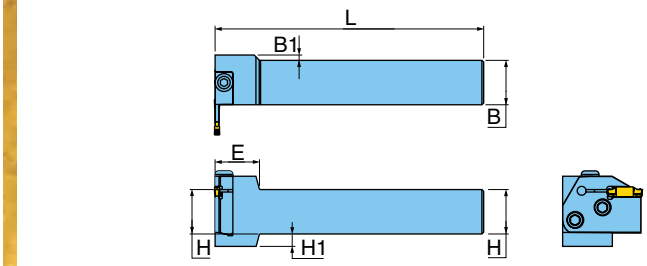


TCFR XX

# TCHPR/L

PERPENDICULAR HOLDERS FOR MODULAR BLADES

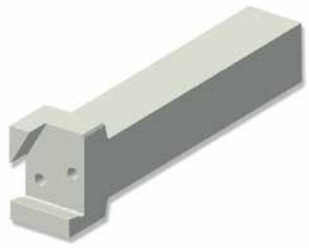
OD Turning | Face Groove Turn

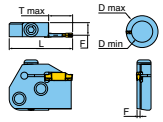

| Designation | H (inch) | B (inch) | L (inch) | E (inch) | B1 (inch) | H1 (inch) |
|---|---|---|---|---|---|---|
| TCHPL19 | 0.750 | 0.750 | 6.000 | 0.980 | 0.295 | 0.470 |
| TCHPL25.4 | 1.000 | 1.000 | 6.000 | 0.980 | 0.118 | 0.280 |
| TCHPL31.8 | 1.250 | 1.250 | 6.000 | 0.980 | 0.295 | - |
| TCHPR19 | 0.750 | 0.750 | 6.000 | 0.980 | 0.295 | 0.470 |
| TCHPR25.4 | 1.000 | 1.000 | 6.000 | 0.980 | 0.118 | 0.280 |
| TCHPR31.8 | 1.250 | 1.250 | 6.000 | 0.980 | 0.295 | - |

| HARDWARE | Screw | EXTERNAL LH ADAPTER | EXTERNAL RH ADAPTER | FACE LH ADAPTER | FACE RH ADAPTER | Wrench |
|---|---|---|---|---|---|---|
| TCHPL19 | TS60190I | - | TCER | TCFL | - | L-W4 |
| TCHPL25.4 | TS60190I | - | TCER | TCFL | - | L-W4 |
| TCHPL31.8 | TS60190I | - | TCER | TCFL | - | L-W4 |
| TCHPR19 | TS60190I | TCEL | - | - | TCFR | L-W4 |
| TCHPR25.4 | TS60190I | TCEL | - | - | TCFR | L-W4 |
| TCHPR31.8 | TS60190I | TCEL | - | - | TCFR | L-W4 |

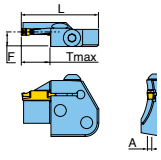
## Adapter and holder selection



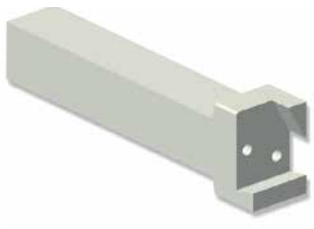
TCHPR



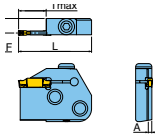

TCEL XX



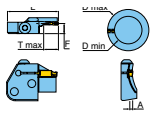

TCFR XX



TCHPL




TCER XX



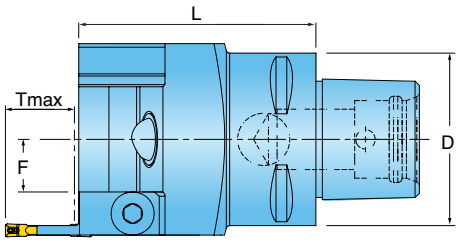

TCFL XX

# TCHN & TCHPN QUICK-CHANGE* COADAPTER™

ADAPTER FOR EXTERNAL TURNING AND GROOVING (LEFT HAND OR RIGHT HAND) OR FACE TURNING AND GROOVING


OD Turning


Face Groove Turn




| Designation | L (inch) | D (mm) | F (inch) |
|---|---|---|---|
| C4-TCHN | 2.16 | 40 mm | 0.480 |
| C5-TCHN | 2.28 | 50 mm | 0.677 |
| C6-TCHN | 2.36 | 63 mm | 0.874 |
| NEW! C8-TCHN | 2.56 | 80 mm | 1.197 |

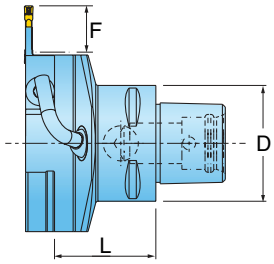
*compatable with Sandvik's COROMANT CAPTO® (**) system.

| HARDWARE | Screw | FACE LH ADAPTER | EXTERNAL LH ADAPTER | FACE RH ADAPTER | EXTERNAL RH ADAPTER | Wrench | Nozzle |
|---|---|---|---|---|---|---|---|
| | TS60190I | TCFL | TCEL | TCFR | TCER | L-W4 | NZ125 |

ADAPTER FOR EXTERNAL TURNING AND GROOVING (LEFT HAND OR RIGHT HAND) OR FACE TURNING AND GROOVING


OD Turning


Face Grooving



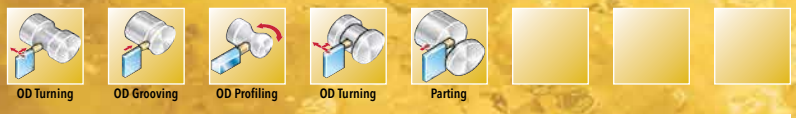

| Designation | L (inch) | D (mm) | F (inch) |
|---|---|---|---|
| C4-TCHPN | 1.38 | 40 mm | 1.20 |
| C5-TCHPN | 1.57 | 50 mm | 1.40 |
| C6-TCHPN | 1.65 | 63 mm | 1.40 |
| NEW! C8-TCHPN | 2.17 | 80 mm | 1.67 |

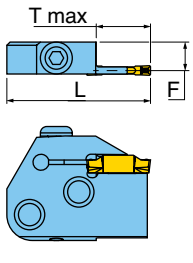
*compatable with Sandvik's COROMANT CAPTO® (**) system.

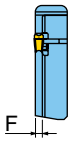
| HARDWARE | Screw | FACE LH ADAPTER | EXTERNAL LH ADAPTER | FACE RH ADAPTER | EXTERNAL RH ADAPTER | Wrench | Nozzle | Nozzle Pipe |
|---|---|---|---|---|---|---|---|---|
| | TS60190I | TCFL | TCEL | TCFR | TCER | L-W4 | NZ125 | NZP5 |

# TCEL

ADAPTER FOR EXTERNAL TURNING AND GROOVING
(LEFT HAND)




| | Designation | Insert Seat Size | L (inch) | A (inch) | F (inch) | Tmax (inch) |
|---|---|---|---|---|---|---|
| New! | TCEL1.4T12 | 1 | 1.61 | 0.039 | 0.374 | 0.472 |
| New! | TCEL2T16 | 2 | 1.77 | 0.071 | 0.358 | 0.630 |
| New! | TCEL2T22 | 2 | 2.01 | 0.071 | 0.358 | 0.866 |
| | TCEL3T16 | 3 | 1.77 | 0.094 | 0.346 | 0.630 |
| New! | TCEL3T22 | 3 | 2.01 | 0.094 | 0.346 | 0.866 |
| | TCEL4T16 | 4 | 1.77 | 0.118 | 0.335 | 0.630 |
| New! | TCEL4T22 | 4 | 2.01 | 0.118 | 0.335 | 0.866 |
| | TCEL5T20 | 5 | 1.93 | 0.157 | 0.315 | 0.787 |
| New! | TCEL5T25 | 5 | 2.13 | 0.157 | 0.315 | 0.984 |
| | TCEL6T20 | 6 | 1.93 | 0.197 | 0.295 | 0.787 |
| New! | TCEL6T25 | 6 | 2.13 | 0.197 | 0.295 | 0.984 |
| | TCEL8T25 | 8 | 2.13 | 0.236 | 0.000 | 0.984 |

Use Holders TCHL, TCHPR, TCHN, TCHPN. Use inserts TDC/TSC*, TDJ/TSJ*, TDXU, TDT.

*Grooving only

HARDWARE

| Holder | Holder | Clamp Screw | Clamp Screw Wrench |
|---|---|---|---|
| TCHL | TCHPR | BHM6X1X20 | L-W4 |

# TCER

ADAPTER FOR EXTERNAL TURNING AND GROOVING (RIGHT HAND)

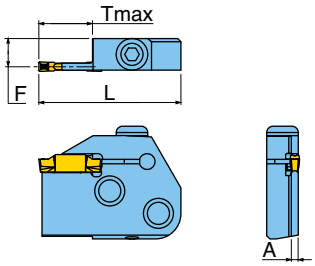

OD Turning


OD Grooving


OD Profiling


OD Turning


Parting

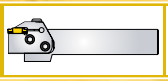




| | Designation | Insert Seat Size | L (inch) | A (inch) | F (inch) | Tmax (inch) |
|---|---|---|---|---|---|---|
| New! | TCER1.4T12 | 1 | 1.61 | 0.039 | 0.374 | 0.472 |
| New! | TCER2T16 | 2 | 1.77 | 0.071 | 0.358 | 0.630 |
| New! | TCER2T22 | 2 | 2.01 | 0.071 | 0.358 | 0.866 |
| | TCER3T16 | 3 | 1.77 | 0.094 | 0.346 | 0.630 |
| New! | TCER3T22 | 3 | 2.01 | 0.094 | 0.346 | 0.866 |
| | TCER4T16 | 4 | 1.77 | 0.118 | 0.335 | 0.630 |
| New! | TCER4T22 | 4 | 2.01 | 0.118 | 0.335 | 0.866 |
| | TCER5T20 | 5 | 1.93 | 0.157 | 0.315 | 0.787 |
| New! | TCER5T25 | 5 | 2.13 | 0.157 | 0.315 | 0.984 |
| | TCER6T20 | 6 | 1.93 | 0.197 | 0.295 | 0.787 |
| New! | TCER6T25 | 6 | 2.13 | 0.197 | 0.295 | 0.984 |
| | TCER8T25 | 8 | 2.13 | 0.236 | 0.000 | 0.984 |

Use Holders TCHR, TCHPL, TCHN, TCHPN. Use inserts TDC/TSC*, TDJ/TSJ*, TDXU, TDT.

*Grooving only

HARDWARE


Holder
TCHR


Holder
TCHPL

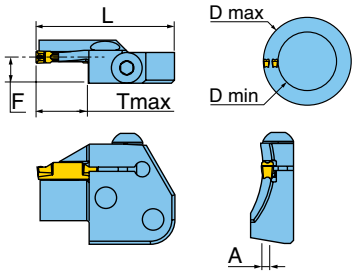

Clamp Screw
BHM6X1X20


Clamp Screw Wrench
L-W4

# TCFR

ADAPTER FOR EXTERNAL FACE GROOVING AND TURNING (RIGHT HAND)

Face Turning | Face Grooving




| Designation | Insert Seat Size | L (inch) | F (inch) | Tmax (inch) | Dmin (inch) | Dmax (inch) |
|---|---|---|---|---|---|---|
| TCFR3T12-40-55RN | 3 | 1.77 | 0.350 | 0.472 | 1.58 | 2.17 |
| TCFR3T12-55-75RN | 3 | 1.77 | 0.350 | 0.472 | 2.17 | 2.95 |
| TCFR3T12-75-100RN | 3 | 1.77 | 0.350 | 0.472 | 2.95 | 3.94 |
| TCFR3T12-100-140RN | 3 | 1.77 | 0.350 | 0.472 | 3.94 | 5.51 |
| TCFR3T12-140-200RN | 3 | 1.77 | 0.350 | 0.472 | 5.51 | 7.87 |
| TCFR4T16-50-70RN | 4 | 1.77 | 0.335 | 0.630 | 1.97 | 2.76 |
| TCFR4T16-70-100RN | 4 | 1.77 | 0.335 | 0.630 | 2.76 | 3.94 |
| TCFR4T16-100-150RN | 4 | 1.77 | 0.335 | 0.630 | 3.94 | 5.91 |
| TCFR4T16-150-250RN | 4 | 1.77 | 0.335 | 0.630 | 5.91 | 9.84 |
| NEW! TCFR4T16-250RN | 4 | 1.77 | 0.335 | 0.630 | 9.84 | INF |
| TCFR5T20-55-80RN | 5 | 1.97 | 0.315 | 0.787 | 2.17 | 3.15 |
| TCFR5T20-80-120RN | 5 | 1.97 | 0.315 | 0.787 | 3.15 | 4.72 |
| TCFR5T20-120-180RN | 5 | 1.97 | 0.315 | 0.787 | 4.72 | 7.09 |
| TCFR5T20-180-300RN | 5 | 1.97 | 0.315 | 0.787 | 7.09 | 11.81 |
| NEW! TCFR5T20-300RN | 5 | 2.17 | 0.315 | 0.787 | 11.81 | INF |
| TCFR6T25-60-90RN | 6 | 2.17 | 0.305 | 0.984 | 2.36 | 3.54 |
| TCFR6T25-90-150RN | 6 | 2.17 | 0.305 | 0.984 | 3.54 | 5.91 |
| TCFR6T25-150-250RN | 6 | 2.17 | 0.305 | 0.984 | 5.91 | 9.84 |
| TCFR6T25-250-400RN | 6 | 2.17 | 0.305 | 0.984 | 9.84 | 15.75 |
| NEW! TCFR6T25-400RN | 6 | 2.17 | 0.305 | 0.984 | 15.75 | INF |

Use Holders TCHL, TCHPR, TCHN, TCHPN. Use inserts TDC/TSC*, TDJ/TSJ*, TDXU, TDT, TDFT. *Grooving only

HARDWARE

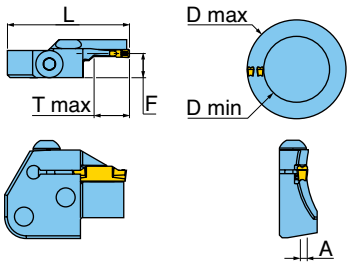
| Holder | Holder | Clamp Screw | Wrench |
|---|---|---|---|
| TCHL | TCHPR | BHM6X1X20 | L-W4 |

# TCFL

ADAPTER FOR EXTERNAL FACE GROOVING AND TURNING (LEFT HAND)


Face Turning

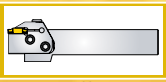

Face Grooving




| Designation | Insert Seat Size | L (inch) | F (inch) | Tmax (inch) | Dmin (inch) | Dmax (inch) |
|---|---|---|---|---|---|---|
| TCFL3T12-40-55RN | 3 | 1.77 | 0.350 | 0.472 | 1.58 | 2.17 |
| TCFL3T12-55-75RN | 3 | 1.77 | 0.350 | 0.472 | 2.17 | 2.95 |
| TCFL3T12-75-100RN | 3 | 1.77 | 0.350 | 0.472 | 2.95 | 3.94 |
| TCFL3T12-100-140RN | 3 | 1.77 | 0.350 | 0.472 | 3.94 | 5.51 |
| TCFL3T12-140-200RN | 3 | 1.77 | 0.350 | 0.472 | 5.51 | 7.87 |
| TCFL4T16-50-70RN | 4 | 1.77 | 0.335 | 0.630 | 1.97 | 2.76 |
| TCFL4T16-70-100RN | 4 | 1.77 | 0.335 | 0.630 | 2.76 | 3.94 |
| TCFL4T16-100-150RN | 4 | 1.77 | 0.335 | 0.630 | 3.94 | 5.91 |
| TCFL4T16-150-250RN | 4 | 1.77 | 0.335 | 0.630 | 5.91 | 9.84 |
| NEW! TCFL4T16-250RN | 4 | 1.77 | 0.335 | 0.630 | 9.84 | INF |
| TCFL5T20-55-80RN | 5 | 1.97 | 0.315 | 0.787 | 2.17 | 3.15 |
| TCFL5T20-80-120RN | 5 | 1.97 | 0.315 | 0.787 | 3.15 | 4.72 |
| TCFL5T20-120-180RN | 5 | 1.97 | 0.315 | 0.787 | 4.72 | 7.09 |
| TCFL5T20-180-300RN | 5 | 1.97 | 0.315 | 0.787 | 7.09 | 11.81 |
| NEW! TCFL5T20-300RN | 5 | 2.17 | 0.315 | 0.787 | 11.81 | INF |
| TCFL6T25-60-90RN | 6 | 2.17 | 0.305 | 0.984 | 2.36 | 3.54 |
| TCFL6T25-90-150RN | 6 | 2.17 | 0.305 | 0.984 | 3.54 | 5.91 |
| TCFL6T25-150-250RN | 6 | 2.17 | 0.305 | 0.984 | 5.91 | 9.84 |
| TCFL6T25-250-400RN | 6 | 2.17 | 0.305 | 0.984 | 9.84 | 15.75 |
| NEW! TCFL6T25-400RN | 6 | 2.17 | 0.305 | 0.984 | 15.75 | INF |

Use Holders TCHR, TCHPL, TCHN, TCHPN. Use inserts TDC/TSC*, TDJ/TSJ*, TDXU, TDT, TDFT. *Grooving only.

HARDWARE


Holder


Holder


Clamp Screw


Clamp Screw Wrench

| | TCHR | TCHPL | BHM6X1X20 | L-W4 |
|---|---|---|---|---|

# TOCLAMP ULTRA+™

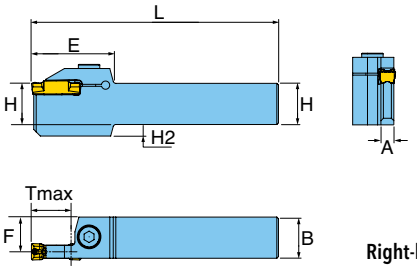
## 10MM & .375" WIDE INSERTS & HOLDERS

- New, larger insert widths for increased material removal rates
- TDT chip breaker for grooving and turning applications
- Double-ended inserts for increased economy
- Right hand and left hand holders with 1", 1.25" and 1.50" shanks.

# TTER/L

HOLDER FOR 10MM AND .375" INSERTS

Face Grooving




Right-hand holder shown

| Designation | Insert Seat Size | F (inch) | L (inch) | H (inch) | B (inch) | E (inch) | H2 (inch) | Tmax (inch) | A* (inch) |
|---|---|---|---|---|---|---|---|---|---|
| TTEL25.4-10 | 10 | 0.846 | 6.0 | 1.00 | 1.00 | 1.97 | 0.276 | 0.984 | 0.309 |
| TTEL31.8-10 | 10 | 1.094 | 7.0 | 1.25 | 1.25 | 1.97 | - | 0.984 | 0.309 |
| TTEL38.1-10 | 10 | 1.346 | 8.0 | 1.50 | 1.50 | 1.97 | - | 0.984 | 0.309 |
| TTER25.4-10 | 10 | 0.846 | 6.0 | 1.00 | 1.00 | 1.97 | 0.276 | 0.984 | 0.309 |
| TTER31.8-10 | 10 | 1.094 | 7.0 | 1.25 | 1.25 | 1.97 | - | 0.984 | 0.309 |
| TTER38.1-10 | 10 | 1.346 | 8.0 | 1.50 | 1.50 | 1.97 | - | 0.984 | 0.309 |

* "A" is the width of the support blade on the holder, NOT the insert.

HARDWARE

Screw

Wrench

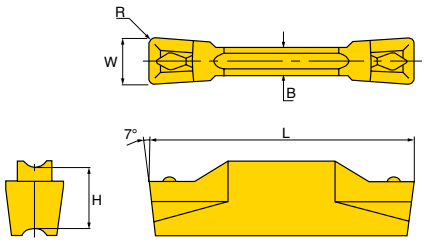
SHM8X1.25X25 L-W6

# TDT

INSERTS FOR EXTERNAL TURNING AND GROOVING

OD Turning

OD Grooving




| Designation | Insert Seat Size | W ±.0008 (inch) | W ±.02 (mm) | R ±.002 (inch) | B (inch) | L (inch) | H (inch) | Grade TT6080 | Grade TT9080 |
|---|---|---|---|---|---|---|---|---|---|
| TDT9.52E-0.80 | 10 | 0.375 | 9.52 | 0.031 | 0.315 | 1.181 | 0.185 | | • |
| TDT9.52E-1.20 | 10 | 0.375 | 9.52 | 0.047 | 0.315 | 1.181 | 0.185 | | • |
| TDT9.52E-4.76 | 10 | 0.375 | 9.52 | 0.187 | 0.315 | 1.181 | 0.185 | | • |
| TDT10.00E-0.80 | 10 | 0.394 | 10.00 | 0.031 | 0.315 | 1.181 | 0.185 | • | • |
| TDT10.00E-1.20 | 10 | 0.394 | 10.00 | 0.047 | 0.315 | 1.181 | 0.185 | • | • |
| TDT10.00E-2.00 | 10 | 0.394 | 10.00 | 0.079 | 0.315 | 1.181 | 0.185 | • | • |
| TDT10.00E-5.00 | 10 | 0.394 | 10.00 | 0.197 | 0.315 | 1.181 | 0.185 | | • |

• Marked: Standard items

# T-CLAMP ULTRA+™

# NEW GRADE TT9080 PHASING OUT GRADE TT9030

Following the successful testing and application of GoldRush grade TT9080 in our T-Clamp Ultra Plus parting and grooving product line, Ingersoll is pleased to announce the addition of this grade for all T-Clamp Ultra Plus inserts.

Grade TT9080 features a modified PVD coating with an outer layer of TiN making it gold in appearance. Additionally, our post-coat GoldRush treatment provides a more stable cutting edge that reduces build-up and chipping, resulting in prolonged tool life. As a result of this change, grade TT9030 will be phased out in the coming months as stock is depleted.

Below you will find a list of the current TT9030 inserts along with the replacement inserts in TT9080. For further questions please contact Ingersoll's Turning Product Management team.

| PHASE-OUT | | | REPLACEMENT | |
|---|---|---|---|---|
| Item Number | ISO Description | | Item Number | ISO Description |
| 6000490 | TDC2 TT9030 | ➡ | 6000998 | TDC2 TT9080 |
| 6000660 | TDC2-15R TT9030 | ➡ | 6110856 | TDC2-15R TT9080 |
| 6000654 | TDC2-15RS TT9030 | ➡ | 6110855 | TDC2-15RS TT9080 |
| 6000661 | TDC2-6R TT9030 | ➡ | 6110857 | TDC2-6R TT9080 |
| 6000501 | TDC2-6RS TT9030 | ➡ | 6110851 | TDC2-6RS TT9080 |
| 6000491 | TDC3 TT9030 | ➡ | 6000999 | TDC3 TT9080 |
| 6000662 | TDC3-15L TT9030 | ➡ | 6110858 | TDC3-15L TT9080 |
| 6000663 | TDC3-15R TT9030 | ➡ | 6110859 | TDC3-15R TT9080 |
| 6000630 | TDC3-6L TT9030 | ➡ | 6110854 | TDC3-6L TT9080 |
| 6000761 | TDC3-6LS TT9030 | ➡ | 6110863 | TDC3-6LS TT9080 |
| 6000546 | TDC3-6R TT9030 | ➡ | 6110852 | TDC3-6R TT9080 |
| 6000664 | TDC3-6RS TT9030 | ➡ | 6110860 | TDC3-6RS TT9080 |
| 6000628 | TDC4-4L TT9030 | ➡ | 6110853 | TDC4-4L TT9080 |
| 6000665 | TDC4-4R TT9030 | ➡ | 6110861 | TDC4-4R TT9080 |
| 6000651 | TDC5 TT9030 | ➡ | 6001104 | TDC5 TT9080 |
| 6000666 | TDC5-4R TT9030 | ➡ | 6110862 | TDC5-4R TT9080 |
| 6000652 | TDC6 TT9030 | ➡ | 6001105 | TDC6 TT9080 |
| 6000639 | TDC8 TT9030 | ➡ | 6001106 | TDC8 TT9080 |
| 6401397 | TDIM 2E-0.15 TT9030 | ➡ | 6402249 | TDIM 2E-0.15 TT9080 |
| 6401240 | TDIM 3E-0.2 TT9030 | ➡ | 6402129 | TDIM 3E-0.2 TT9080 |
| 6401684 | TDIP1.00-0.10 TT9030 | ➡ | 6402250 | TDIP1.00-0.10 TT9080 |
| 6401685 | TDIP1.00-0.50 TT9030 | ➡ | 6402251 | TDIP1.00-0.50 TT9080 |
| 6401686 | TDIP1.20-0.00 TT9030 | ➡ | 6402252 | TDIP1.20-0.00 TT9080 |
| 6401687 | TDIP1.40-0.00 TT9030 | ➡ | 6402253 | TDIP1.40-0.00 TT9080 |
| 6401688 | TDIP1.50-0.10 TT9030 | ➡ | 6402254 | TDIP1.50-0.10 TT9080 |
| 6401689 | TDIP2.00E-0.10 TT9030 | ➡ | 6402255 | TDIP2.00E-0.10 TT9080 |
| 6401697 | TDIP2.00E-0.20 TT9030 | ➡ | 6402130 | TDIP2.00E-0.20 TT9080 |
| 6401690 | TDIP2.00E-1.00 TT9030 | ➡ | 6402256 | TDIP2.00E-1.00 TT9080 |
| 6401691 | TDIP2.50E-0.20 TT9030 | ➡ | 6402257 | TDIP2.50E-0.20 TT9080 |
| 6401692 | TDIP3.00E-0.20 TT9030 | ➡ | 6402258 | TDIP3.00E-0.20 TT9080 |
| 6000737 | TDJ1.4 TT9030 | ➡ | 6000914 | TDJ1.4 TT9080 |
| 6000671 | TDJ2-15L TT9030 | ➡ | 6110868 | TDJ2-15L TT9080 |
| 6000672 | TDJ2-15LS TT9030 | ➡ | 6110869 | TDJ2-15LS TT9080 |
| 6000673 | TDJ2-15R TT9030 | ➡ | 6110870 | TDJ2-15R TT9080 |

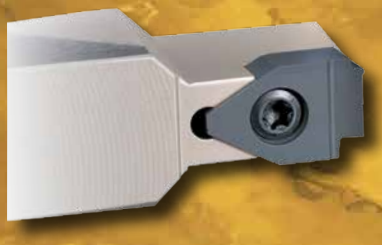
## PHASE-OUT

## REPLACEMENT

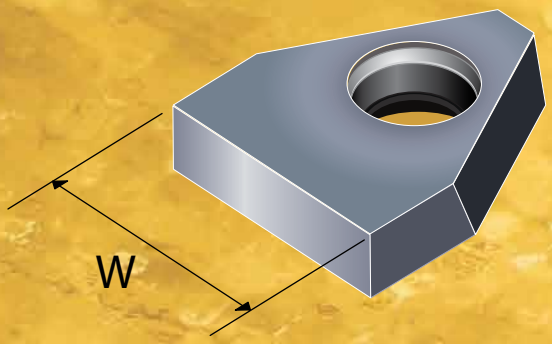
| Item Number | ISO Description | | Item Number | ISO Description | |
|---|---|---|---|---|---|
| 6000674 | TDJ2-15RS | TT9030 | 6000768 | TDJ2-15RS | TT9080 |
| 6000675 | TDJ2-6L | TT9030 | 6110871 | TDJ2-6L | TT9080 |
| 6000676 | TDJ2-6R | TT9030 | 6110872 | TDJ2-6R | TT9080 |
| 6000552 | TDJ2-6RS | TT9030 | 6110867 | TDJ2-6RS | TT9080 |
| 6000677 | TDJ2-8L | TT9030 | 6110873 | TDJ2-8L | TT9080 |
| 6000678 | TDJ2-8R | TT9030 | 6110874 | TDJ2-8R | TT9080 |
| 6000679 | TDJ3-15L | TT9030 | 6110875 | TDJ3-15L | TT9080 |
| 6000680 | TDJ3-15R | TT9030 | 6110876 | TDJ3-15R | TT9080 |
| 6000681 | TDJ3-15RS | TT9030 | 6110877 | TDJ3-15RS | TT9080 |
| 6000682 | TDJ3-6L | TT9030 | 6110878 | TDJ3-6L | TT9080 |
| 6000594 | TDJ3-6R | TT9030 | 6000783 | TDJ3-6R | TT9080 |
| 6000489 | TDJ4 | TT9030 | 6001110 | TDJ4 | TT9080 |
| 6000683 | TDJ4-4R | TT9030 | 6110879 | TDJ4-4R | TT9080 |
| 6000515 | TDJ5 | TT9030 | 6001111 | TDJ5 | TT9080 |
| 6000516 | TDJ6 | TT9030 | 6001112 | TDJ6 | TT9080 |
| 6401052 | TDT1.00-0.00 | TT9030 | 6402307 | TDT1.00-0.00 | TT9080 |
| 6401053 | TDT1.30-0.00 | TT9030 | 6402308 | TDT1.30-0.00 | TT9080 |
| 6401054 | TDT1.60-0.10 | TT9030 | 6402309 | TDT1.60-0.10 | TT9080 |
| 6401055 | TDT1.85-0.10 | TT9030 | 6402310 | TDT1.85-0.10 | TT9080 |
| 6401056 | TDT2.15-0.15 | TT9030 | 6402311 | TDT2.15-0.15 | TT9080 |
| 6401057 | TDT2.65-0.15 | TT9030 | 6110883 | TDT2.65-0.15 | TT9080 |
| 6401058 | TDT3.00E-0.20 | TT9030 | 6402277 | TDT3.00E-0.20 | TT9080 |
| 6400841 | TDT3.00E-1.50 | TT9030 | 6402317 | TDT3.00E-1.50 | TT9080 |
| 6401014 | TDT3E-0.4 | TT9030 | 6402272 | TDT3E-0.4 | TT9080 |
| 6401059 | TDT3.15-0.15 | TT9030 | 6110884 | TDT3.15-0.15 | TT9080 |
| 6401016 | TDT4.00E-0.40 | TT9030 | 6402010 | TDT4.00E-0.40 | TT9080 |
| 6401060 | TDT4.00E-0.80 | TT9030 | 6402011 | TDT4.00E-0.80 | TT9080 |
| 6401017 | TDT4.00E-2.00 | TT9030 | 6402318 | TDT4.00E-2.00 | TT9080 |
| 6401013 | TDT4E-0.4 | TT9030 | 6402273 | TDT4E-0.4 | TT9080 |
| 6401061 | TDT4.15-0.15 | TT9030 | 6110885 | TDT4.15-0.15 | TT9080 |
| 6401063 | TDT5.00E-0.40 | TT9030 | 6402283 | TDT5.00E-0.40 | TT9080 |
| 6401064 | TDT5.00E-0.80 | TT9030 | 6402284 | TDT5.00E-0.80 | TT9080 |
| 6401065 | TDT5.00E-2.50 | TT9030 | 6402319 | TDT5.00E-2.50 | TT9080 |
| 6400632 | TDT6.00E-0.80 | TT9030 | 6402286 | TDT6.00E-0.80 | TT9080 |
| 6401066 | TDT6.00E-1.20 | TT9030 | 6402287 | TDT6.00E-1.20 | TT9080 |
| 6401067 | TDT6.00E-3.00 | TT9030 | 6402320 | TDT6.00E-3.00 | TT9080 |
| 6401069 | TDT8.00E-1.20 | TT9030 | 6402289 | TDT8.00E-1.20 | TT9080 |
| 6401024 | TDXU3E-0.3 | TT9030 | 6401297 | TDXU3E-0.3 | TT9080 |
| 6401001 | TDXU4E-0.4 | TT9030 | 6401280 | TDXU4E-0.4 | TT9080 |
| 6401025 | TDXU5E-0.4 | TT9030 | 6402155 | TDXU5E-0.4 | TT9080 |
| 6401445 | TDXU6E-0.4 | TT9030 | 6402083 | TDXU6E-0.4 | TT9080 |
| 6401520 | TDXU6E-0.8 | TT9030 | 6402084 | TDXU6E-0.8 | TT9080 |
| 6401028 | TDXU8E-0.8 | TT9030 | 6402085 | TDXU8E-0.8 | TT9080 |
| 6000505 | TSC2 | TT9030 | 6001119 | TSC2 | TT9080 |
| 6000661 | TSC2-6R | TT9030 | 6110865 | TSC2-6R | TT9080 |
| 6000506 | TSC3 | TT9030 | 6001120 | TSC3 | TT9080 |
| 6000547 | TSC3-6R | TT9030 | 6110864 | TSC3-6R | TT9080 |
| 6000669 | TSC5 | TT9030 | 6001122 | TSC5 | TT9080 |
| 6000804 | TSC8 | TT9030 | 6001124 | TSC8 | TT9080 |
| 6000502 | TSJ2 | TT9030 | 6001113 | TSJ2 | TT9080 |
| 6000503 | TSJ3 | TT9030 | 6001114 | TSJ3 | TT9080 |
| 6000761 | TSJ3-6LS | TT9030 | 6110882 | TSJ3-6LS | TT9080 |
| 6000684 | TSJ3-6R | TT9030 | 6110880 | TSJ3-6R | TT9080 |
| 6000504 | TSJ4 | TT9030 | 6001115 | TSJ4 | TT9080 |
| 6000967 | TSJ5 | TT9030 | 6001116 | TSJ5 | TT9080 |

# T-GROOVE™

## INSERT FOR WIDE GROOVING APPLICATIONS

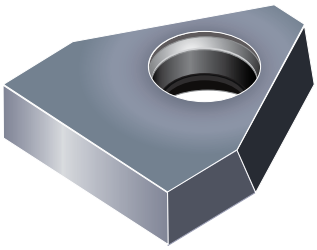


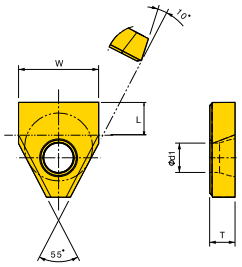
- Perfect for applications like ball bearings, taper roller bearings and miniature machined parts.
- Insert holder shank size*:
  - Inch: .500, .625, .750, 1.000, 1.250
  - Metric: 12x12, 16x16, 20x20, 25x25, 32x32
- Carbide Grades**:
  - P40A for Steel
  - K10 for Cast Iron
- Blank Widths (W):
  - 10mm, 15mm, 20mm, 25mm




* Holders custom designed and manufactured to match insert form.
** Coated grades can also be provided.

## TGUX Semi-Finished Blank for External Profiles

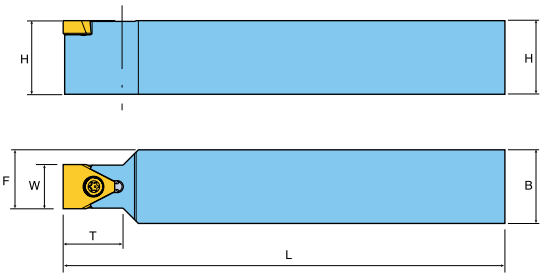





| Designation | W | | T | | D1 | | L | | Grade | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (mm) | (inch) | (mm) | (inch) | (mm) | (inch) | (mm) | (inch) | K10 | P40A |
| TGUX1004 | 10.2 | 0.402 | 4.76 | 0.188 | 5.5 | 0.217 | 5.85 | 0.230 | • | • |
| TGUX1504 | 15.2 | 0.598 | 4.76 | 0.188 | 5.5 | 0.217 | 5.85 | 0.230 | • | • |
| TGUX2006 | 20.2 | 0.795 | 6.35 | 0.250 | 6 | 0.236 | 9.35 | 0.368 | • | • |
| TGUX2506 | 25.2 | 0.992 | 6.35 | 0.250 | 6 | 0.236 | 9.25 | 0.364 | • | • |

• Marked: Standard items

## TTLEN Holders




| Designation | Dimensions (inch) | | | | | | Inserts | Screw | Wrench | Torque |
|---|---|---|---|---|---|---|---|---|---|---|
| | H | B | F | T | L | W | | | | |
| TTLEN12.7K10 | 0.500 | 0.500 | 0.45 | 0.79 | 5.0 | 0.394 | TGUX1004… | TS40B100I | T-15 | 40 |
| TTLEN15.9K10 | 0.625 | 0.625 | 0.51 | 0.79 | 5.0 | 0.394 | | | | |
| TTLEN19M10 | 0.750 | 0.750 | 0.57 | 0.79 | 6.0 | 0.394 | | | | |
| TTLEN25.4M10 | 1.000 | 1.000 | 0.70 | 0.79 | 6.0 | 0.394 | | | | |
| TTLEN15.9K15 | 0.625 | 0.625 | 0.61 | 0.79 | 5.0 | 0.591 | TGUX1504… | | | |
| TTLEN19M15 | 0.750 | 0.750 | 0.67 | 0.79 | 6.0 | 0.591 | | | | |
| TTLEN25.4M15 | 1.000 | 1.000 | 0.80 | 0.79 | 6.0 | 0.591 | | | | |
| TTLEN19K20 | 0.750 | 0.750 | 0.77 | 1.38 | 5.0 | 0.787 | TGUX2006… | TS45120I | T-20 | 44 |
| TTLEN25.4M20 | 1.000 | 1.000 | 0.89 | 1.38 | 6.0 | 0.787 | | | | |
| TTLEN31.8P20 | 1.250 | 1.250 | 1.02 | 1.38 | 7.0 | 0.787 | | | | |
| TTLEN19K25 | 0.750 | 0.750 | 0.87 | 1.38 | 5.0 | 0.984 | TGUX2506… | | | |
| TTLEN25.4M25 | 1.000 | 1.000 | 0.99 | 1.38 | 6.0 | 0.984 | | | | |
| TTLEN31.8P25 | 1.250 | 1.250 | 1.12 | 1.38 | 7.0 | 0.984 | | | | |

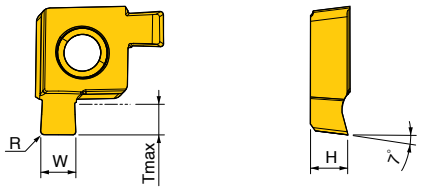
TOCAP™

# GROOVING WITH THE NEW STANDARD HOLDER

- Double ended insert.
- New holder design will accept standard XCMT insert or new XCMT-GV grooving insert.
- Pocket design protects the edge not in use.
- Smooth chip evacuation with thru coolant.
- Economical solution to add even more capability to an existing multifunctional tool.

## XCMT GV

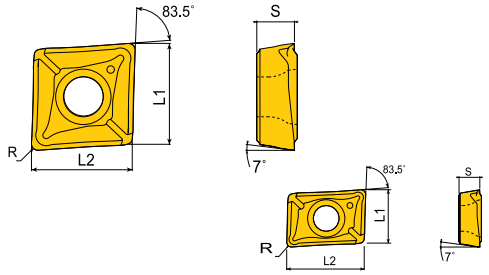
New!




| DESIGNATION | Dimensions (Inch) | | | | Grade | |
|---|---|---|---|---|---|---|
| | W | Tmax | R | H | | TT9080 |
| XCMT 05R-200020 GV | 0.079 | 0.071 | 0.008 | 0.090 | | • |
| XCMT 06R-200020 GV | 0.079 | 0.079 | 0.008 | 0.104 | | • |
| XCMT 07R-250020 GV | 0.098 | 0.079 | 0.008 | 0.134 | | • |
| XCMT 08R-250020 GV | 0.098 | 0.098 | 0.008 | 0.138 | | • |
| XCMT 10R-300030 GV | 0.118 | 0.118 | 0.012 | 0.171 | | • |
| XCMT 13R-350030 GV | 0.138 | 0.138 | 0.012 | 0.204 | | • |
| XCMT 17R-400040 GV | 0.157 | 0.157 | 0.016 | 0.236 | | • |

# XCMT TC

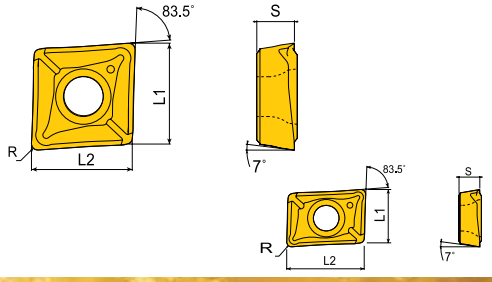
Right hand shown (XCMT 0401)




| ANSI DESIGNATION | ISO DESIGNATION | Dimensions (Inch) L1 | L2 | t | R | Grade TT6030 | TT8020 | TT9030/ TT9080 |
|---|---|---|---|---|---|---|---|---|
| XCMT040104LTC | XCMT040104LTC | 0.173 | 0.252 | 0.067 | 0.016 | | • | • |
| XCMT040104RTC | XCMT040104RTC | 0.173 | 0.252 | 0.067 | 0.016 | | • | • |
| XCMT050204TC | XCMT050204TC | 0.220 | 0.220 | 0.083 | 0.016 | | • | • |
| XCMT060204TC | XCMT060204TC | 0.252 | 0.252 | 0.094 | 0.016 | | • | • |
| XCMT070304TC | XCMT070304TC | 0.295 | 0.295 | 0.125 | 0.016 | | • | • |
| XCMT080304TC | XCMT080304TC | 0.331 | 0.331 | 0.125 | 0.016 | | • | • |
| XCMT10T304TC | XCMT10T304TC | 0.413 | 0.413 | 0.156 | 0.016 | • | • | • |
| XCMT10T308TC | XCMT10T308TC | 0.413 | 0.413 | 0.156 | 0.031 | | • | • |
| XCMT130404 TC | XCMT130404TC | 0.528 | 0.528 | 0.187 | 0.016 | | | • |
| XCMT130408TC | XCMT130408TC | 0.528 | 0.528 | 0.187 | 0.031 | | • | • |
| XCMT170508TC | XCMT170508TC | 0.685 | 0.685 | 0.219 | 0.031 | | • | • |

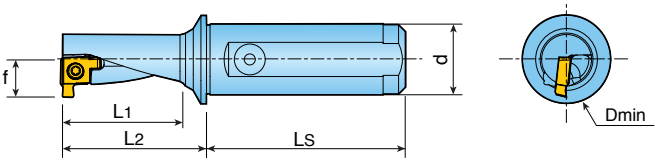
# XCGT TA

Right hand shown (XCGT 0401)




| ANSI DESIGNATION | ISO DESIGNATION | Dimensions Inch (mm) L1 | L2 | t | R | Grade K10 |
|---|---|---|---|---|---|---|
| XCGT040104LTA | XCGT040104LTA | 0.252 | 0.173 | 0.187 | 0.016 | • |
| XCGT040104RTA | XCGT040104RTA | 0.252 | 0.173 | 0.187 | 0.016 | • |
| XCGT050204TA | XCGT050204TA | 0.225 | 0.220 | 0.083 | 0.016 | • |
| XCGT060204TA | XCGT060204TA | 0.252 | 0.252 | 0.094 | 0.016 | • |
| XCGT070304TA | XCGT070304TA | 0.295 | 0.295 | 0.125 | 0.016 | • |
| XCGT080304TA | XCGT080304TA | 0.331 | 0.331 | 0.125 | 0.016 | • |
| XCGT10T304TA | XCGT10T304TA | 0.413 | 0.413 | 0.156 | 0.016 | • |
| XCGT130404TA | XCGT130404TA | 0.528 | 0.528 | 0.187 | 0.016 | • |
| XCGT170508TA | XCGT170508TA | 0.689 | 0.689 | 0.219 | 0.031 | • |

# 2.25XD HOLDER



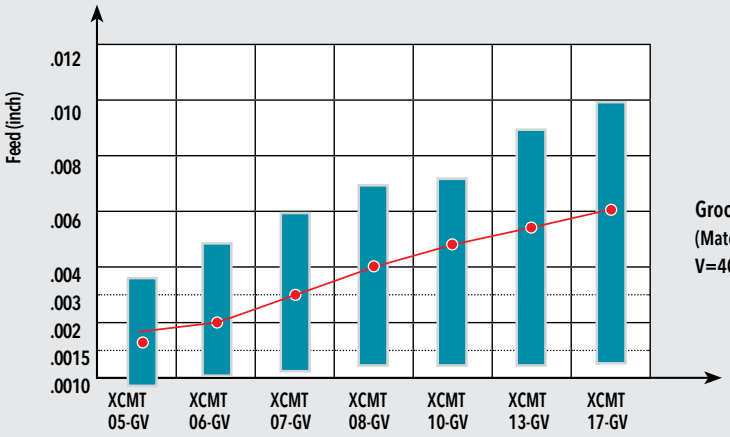

| DESIGNATION | Dimensions (mm) f | d | L1 | L2 | LS | Dmin | Screw | Wrench | Insert | Pipe Thread |
|---|---|---|---|---|---|---|---|---|---|---|
| TCAP 10R/L-2.25DN-IN-GV | .280 | .500 | .886 | 1.083 | 1.654 | .472 | TS 20038I/HG-P | T 6P | XCMT 05R/L200020GV | NPT 1/16 |
| TCAP 12R/L-2.25DN-IN-GV | .335 | .625 | 1.063 | 1.299 | 1.772 | .571 | TS 22052I/HG-P | T 7P | XCMT 06R/L200020GV | NPT 1/8 |
| TCAP 14R/L-2.25DN-IN-GV | .374 | .625 | 1.240 | 1.516 | 1.772 | .650 | TS 25064I/HG-P | T 8P | XCMT 07R/L250020GV | NPT 1/8 |
| TCAP 16R/L-2.25DN-IN-GV | .437 | .750 | 1.417 | 1.732 | 1.968 | .748 | TS 30100I/HG-P | T 9P | XCMT 08R/L250020GV | NPT 1/8 |
| TCAP 20R/L-2.25DN-IN-GV | .520 | 1.000 | 1.772 | 2.165 | 2.205 | .925 | TS 35088I/HG-P | T 10P | XCMT 10R/L300030GV | NPT 1/8 |
| TCAP 25R/L-2.25DN-IN-GV | .650 | 1.250 | 2.224 | 2.716 | 2.402 | 1.142 | TS 45A100I/HG | T 20 | XCMT 13R/L350030GV | NPT 1/8 |
| TCAP 32R/L-2.25DN-IN-GV | .807 | 1.500 | 2.835 | 3.386 | 2.913 | 1.437 | TS 45A100I/HG | T 20 | XCMT 17R/L400040GV | NPT 1/8 |

# 3.0XD HOLDER


| DESIGNATION | Dimensions (mm) f | d | L1 | L | Dmin | Screw | Wrench | Insert | Pipe Thread |
|---|---|---|---|---|---|---|---|---|---|
| TCAP 10R/L-3.0DN-IN-GV | .280 | .500 | .886 | 3.228 | .472 | TS 20038I/HG-P | T 6P | XCMT 05R/L200020GV | NPT 1/16 |
| TCAP 12R/L-3.0DN-IN-GV | .335 | .625 | 1.063 | 3.740 | .571 | TS 22052I/HG-P | T 7P | XCMT 06R/L200020GV | NPT 1/8 |
| TCAP 14R/L-3.0DN-IN-GV | .374 | .625 | 1.240 | 3.937 | .650 | TS 25064I/HG-P | T 8P | XCMT 07R/L250020GV | NPT 1/8 |
| TCAP 16R/L-3.0DN-IN-GV | .437 | .750 | 1.417 | 4.331 | .748 | TS 30100I/HG-P | T 9P | XCMT 08R/L250020GV | NPT 1/8 |
| TCAP 20R/L-3.0DN-IN-GV | .520 | 1.000 | 1.772 | 5.118 | .925 | TS 35088I/HG-P | T 10P | XCMT 10R/L300030GV | NPT 1/8 |
| TCAP 25R/L-3.0DN-IN-GV | .650 | 1.250 | 2.224 | 5.906 | 1.142 | TS 45A100I/HG | T 20 | XCMT 13R/L350030GV | NPT 1/8 |
| TCAP 32R/L-3.0DN-IN-GV | .807 | 1.500 | 2.835 | 7.283 | 1.437 | TS 45A100I/HG | T 20 | XCMT 17R/L400040GV | NPT 1/8 |

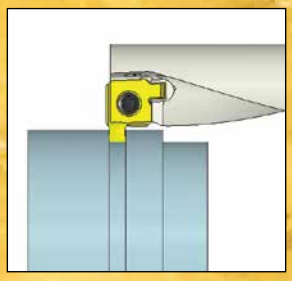
# RECOMMENDED CUTTING CONDITIONS

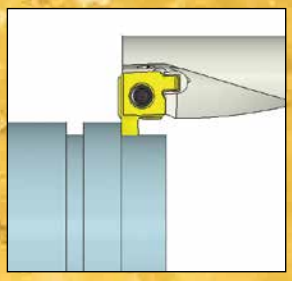
Chip control Range for XCMT-GV

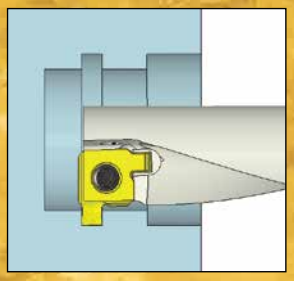


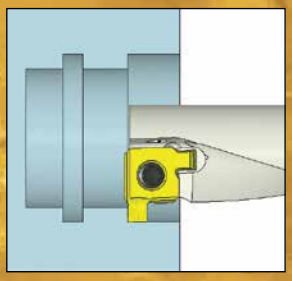

Grooving
(Material: SAE4140 (220BHN), V=400sfm)

# APPLICATION


External Groove


External Turning


Internal Groove


Internal Turning