

# ISO<sup>ECO</sup>TURN

Tungaloy Report No. 426-US

**Cartridge Set** allows the use of ISO-EcoTurn insert with **no need to swap** the toolholder



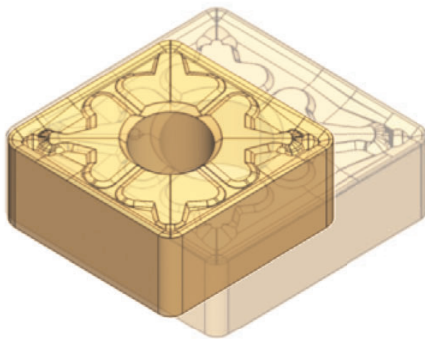


**INDUSTRY 4.0**  
*FEED the SPEED!*

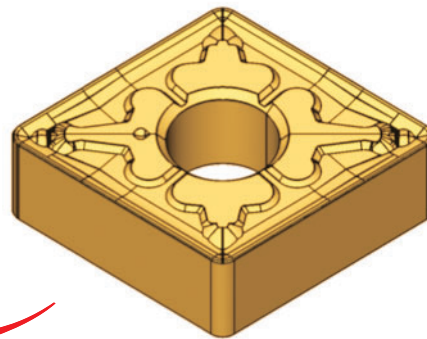


## ISO E<sup>o</sup>TURN

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**ISO E<sup>o</sup>TURN**  
**CNMG 332E type**



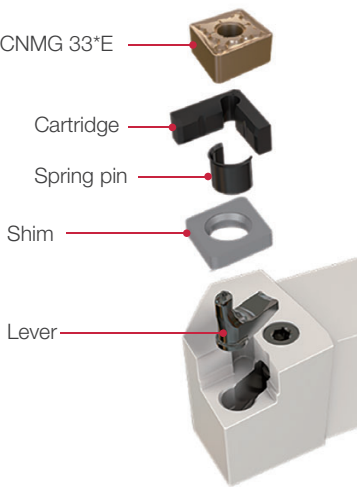
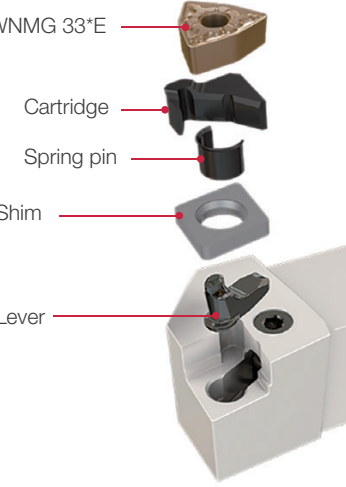
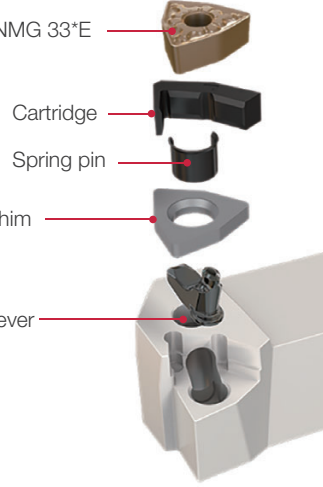
**Regular size inserts**  
**CNMG 432 type**



**Cost effective:**  
Identical cutting performance, just a smaller size

## ISO-EcoTurn small sized inserts, offer an economical advantage

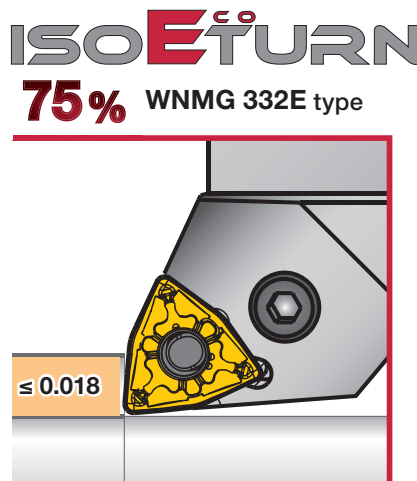
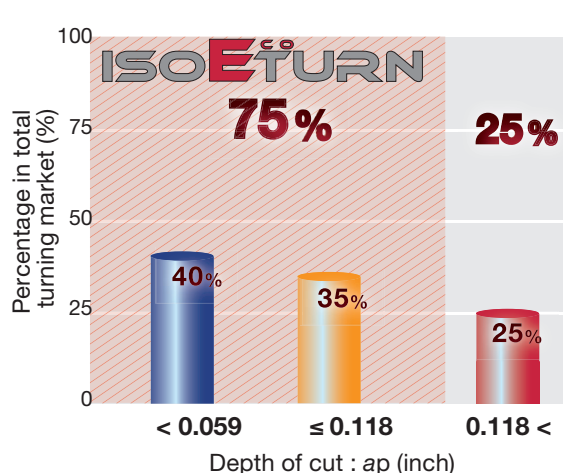
**Cartridge Set** allows more flexibility with use of ISO-EcoTurn inserts and lever-lock holders. This increases the ability to maximize potential cost efficiency and productivity

| Applicable combination             | CNMG 43...<br>↓<br>ISO-EcoTurn<br>CNMG 33*E                                                                                                                      | CNMG 43...<br>↓<br>ISO-EcoTurn<br>WNMG 33*E                                                                                                                       | WNMG 43...<br>↓<br>ISO-EcoTurn<br>WNMG 33*E                                                                                                                        |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cartridge Set + ISO-EcoTurn Insert |                                                                                |                                                                                |                                                                                |
| Detail of Cartridge Set            |  <p>CNMG 33*E</p> <p>Cartridge</p> <p>Spring pin</p> <p>Shim</p> <p>Lever</p> |  <p>WNMG 33*E</p> <p>Cartridge</p> <p>Spring pin</p> <p>Shim</p> <p>Lever</p> |  <p>WNMG 33*E</p> <p>Cartridge</p> <p>Spring pin</p> <p>Shim</p> <p>Lever</p> |
| Cartridge Set                      | AD-CL-4/3-SET<br>AD-CL-4/3-SET-S                                                                                                                                 | AD-CL-4/3-W-SET                                                                                                                                                   | AD-WL-4/3-SET                                                                                                                                                      |
| Applicable Tool holder             | PCLNR/L**4                                                                                                                                                       | PCLNR/L**4                                                                                                                                                        | PWLNR/L**4                                                                                                                                                         |

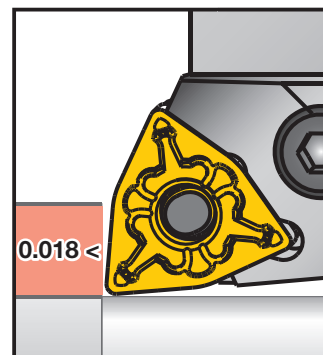
Note: How to install the cartridge set page 11. Cartridge set cannot be assembled on Tungaloy's P-style holders.  
This product might correspond to the Export Trade Control Order.  
When you export this product, you might need apply for export licenses to the authorities in your country.

Over 75%\* of the turning market only uses a depth of cut at or less than 0.118"

\* Based on Tungaloy market research.



Regular size inserts  
WNMG 432 type **25%**



## Chip control

ISO-EcoTurn inserts incorporate an identical chipbreaker geometry as regular size inserts providing the same chip removal at a depth of cut up to 0.118"m.

Workpiece : 1045  
Cutting speed :  $V_c = 656$  sfm  
Coolant : Wet

**ISO ETURN**  
CNMG 332E TM

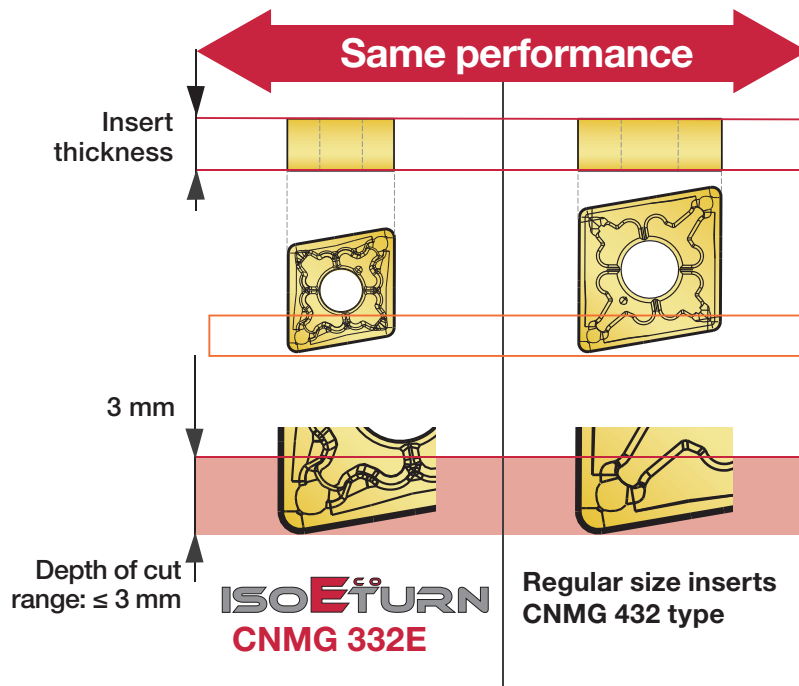
|                          |       |                  |       |       |       |       |
|--------------------------|-------|------------------|-------|-------|-------|-------|
| Depth of cut : ap (inch) | 0.118 |                  |       |       |       |       |
|                          | 0.079 |                  |       |       |       |       |
|                          | 0.059 |                  |       |       |       |       |
|                          | 0.039 |                  |       |       |       |       |
|                          | 0.020 |                  |       |       |       |       |
| Condition                |       | 0.004            | 0.006 | 0.008 | 0.012 | 0.016 |
|                          |       | Feed : $f$ (ipr) |       |       |       |       |

**Regular size inserts**  
CNMG 432 TM

|                          |       |                  |       |       |       |       |
|--------------------------|-------|------------------|-------|-------|-------|-------|
| Depth of cut : ap (inch) | 0.118 |                  |       |       |       |       |
|                          | 0.079 |                  |       |       |       |       |
|                          | 0.059 |                  |       |       |       |       |
|                          | 0.039 |                  |       |       |       |       |
|                          | 0.020 |                  |       |       |       |       |
| Condition                |       | 0.004            | 0.006 | 0.008 | 0.012 | 0.016 |
|                          |       | Feed : $f$ (ipr) |       |       |       |       |

## Uncompromising insert performance

### - Comparison of ISO-EcoTurn and regular sized inserts

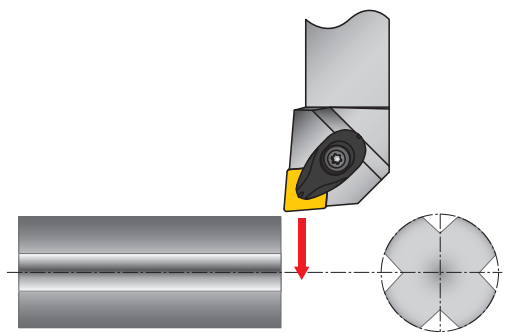
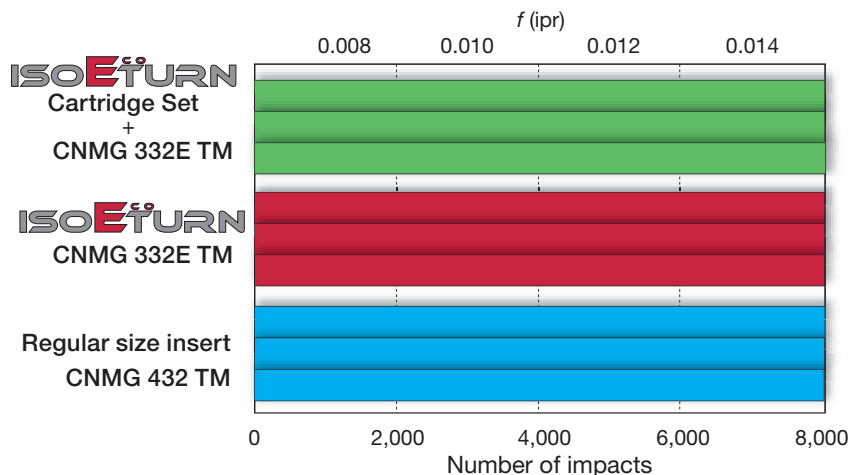


ISO-EcoTurn inserts feature the identical thickness and chipbreaker geometry as Tungaloy's regular size inserts.

These properties provide cutting performance equal to that of the regular size inserts, including chip control at a depth of cut up to 0.018".

## Fracture resistance

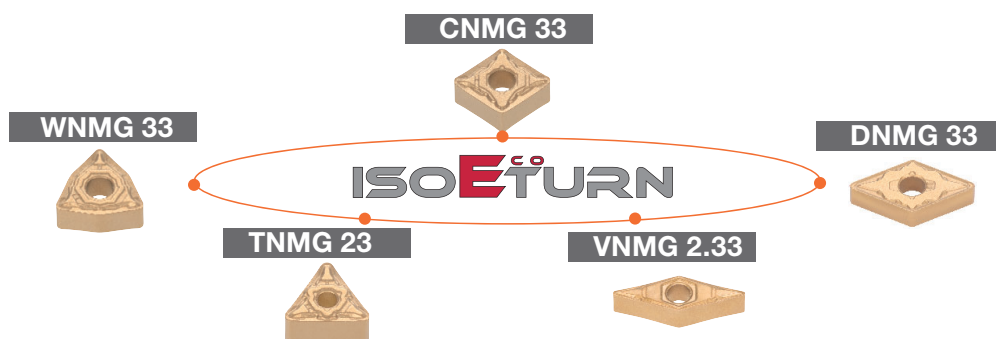
- Even used Cartridge Set ISO-Eco Turn inserts preserve the thickness of standard inserts in order to maintain fracture resistance.



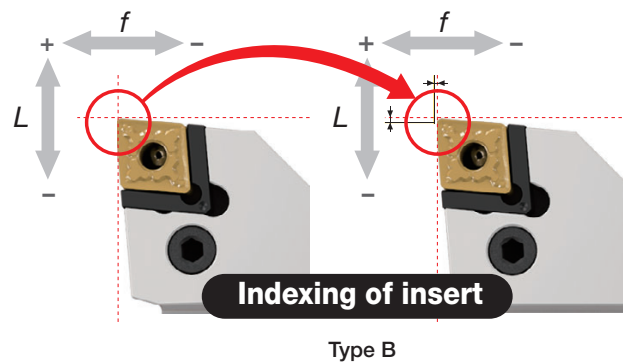
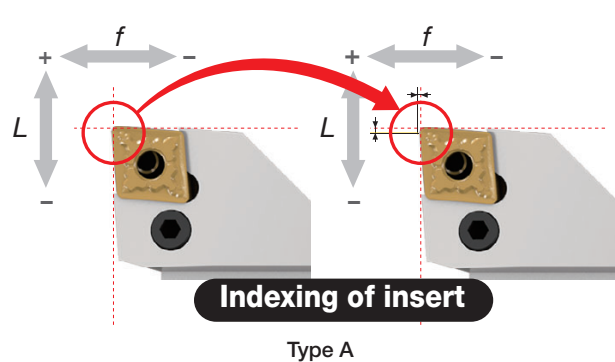
Workpiece : 1045  
Cutting speed :  $V_c = 492$  sfm  
Feed :  $f = 0.008 - 0.014$  ipr  
Depth of cut :  $a_p = 0.118$ "  
Work process : Face turning (Interrupted)  
Coolant : Wet

# A complete tooling solution is now available with ISO-EcoTurn

For a wide range of turning applications.



## Indexing accuracy



| Type                                      | Tool holder | Insert       | Cartridge Set | $f$ direction ( $\mu\text{m}$ ) | $L$ direction ( $\mu\text{m}$ ) |
|-------------------------------------------|-------------|--------------|---------------|---------------------------------|---------------------------------|
| A: <b>ISO ETURN</b>                       | PCLNR**33   | CNMG 333E TM | -             | 1                               | 2                               |
| B: <b>ISO ETURN</b><br>+<br>Cartridge Set | PCLNR**4    | CNMG 333E TM | AD-CL-4/3-SET | 1.7                             | 2.5                             |
| C: Competitor P-type<br>tool holder       | PCLNR**4    | CNMG 433 TM  | -             | 2                               | 4                               |

## GRADES & CHIPBREAKERS

### T9200 SERIES (CVD)

#### PREMIUMTEC

- T9205** : Good wear resistance
- T9215** : First choice for machining steel
- T9225** : Grade with a good balance of wear resistance and fracture toughness

### NS9530 & GT9530

(Cermet) (Coated cermet)

#### PREMIUMTEC

- NS9530** : Suitable for finishing to medium cutting of steel
- GT9530** : Ideal for finishing with high surface quality

### AH600 SERIES (PVD)

#### PREMIUMTEC

- AH630** : Good resistance to wear and fracture in machining stainless steel at low to medium cutting speed
- AH645** : High fracture resistance in machining stainless steel

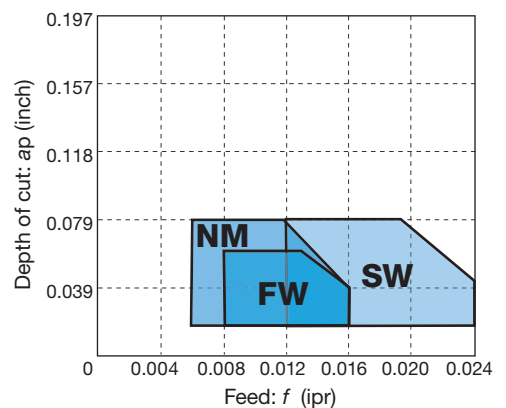
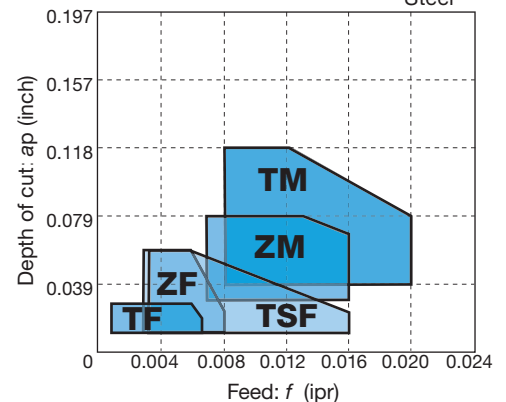
### T6100 SERIES (CVD)

#### PREMIUMTEC

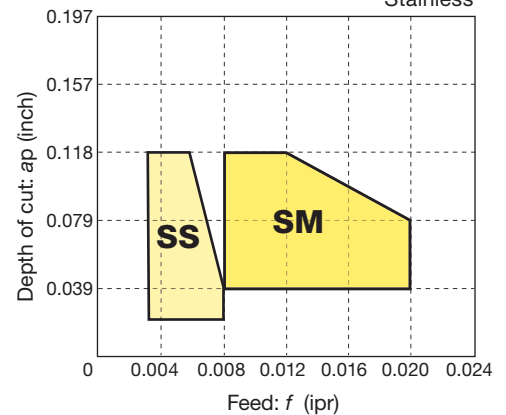
- T6120** : Good wear resistance in continuous cutting at high speed
- T6130** : High wear resistance in cutting at medium to high speed



Steel



Stainless



## GRADES & CHIPBREAKERS

### T5100 SERIES (CVD)

**PREMIUMTEC**  
TUNGALOY

**T5115** : Stable machining in a wide range of applications from continuous to interrupted cutting

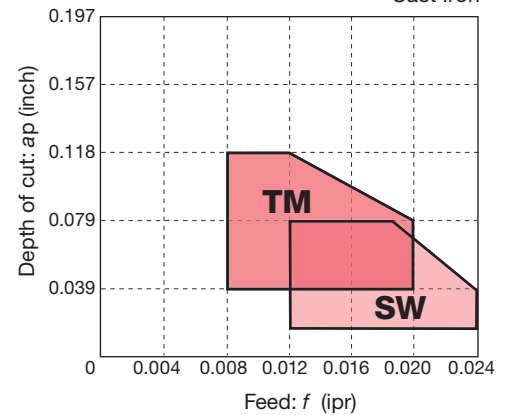
### T515 (CVD)

**PREMIUMTEC**  
TUNGALOY

**T515** : Good wear resistance even in high speed machining



Cast Iron



### AH8000 SERIES (PVD)

**PREMIUMTEC**  
TUNGALOY

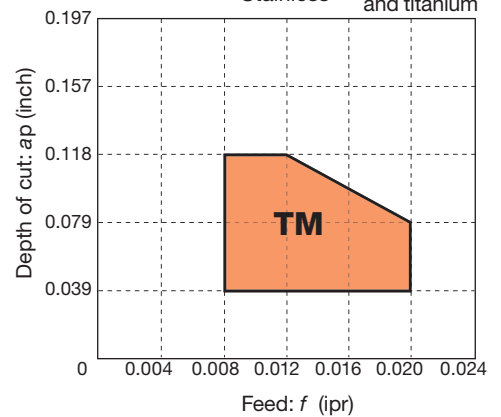
**AH8015** : Strong resistance to wear and built up edge



Stainless



Superalloys and titanium



### AH120 (PVD)

**PREMIUMTEC**  
TUNGALOY

**AH120** : Suitable for machining steel, stainless steel, cast iron and heat resistant alloys under general cutting conditions



Steel



Stainless



Cast Iron



Superalloys and titanium

## AD-\*L-4/3-\* -SET

Cartridge Set for ISO-Eco Turn insert

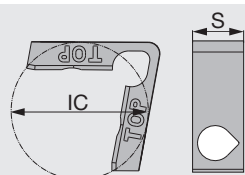


Fig.1 AD-CL-4/3-(-S) CartridgeSet

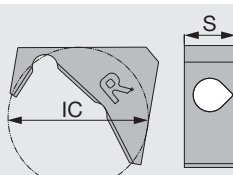


Fig.2 AD-CL-4/3-W-CartridgeSet

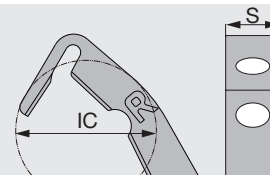


Fig.3 AD-WL-4/3-CartridgeSet

| Inch            | IC  | S     | Insert       | Fig. |
|-----------------|-----|-------|--------------|------|
| AD-CL-4/3-SET   | 0.5 | 0.186 | CNM* 33*E... | 1    |
| AD-CL-4/3-SET-S | 0.5 | 0.186 | CNM* 33*E... | 1    |
| AD-CL-4/3-W-SET | 0.5 | 0.197 | WNM* 33*E... | 2    |
| AD-WL-4/3-SET   | 0.5 | 0.197 | WNM* 33*E... | 3    |

### SPARE PARTS



| Designation     | Cartidge    | Lever   | Wrench  |
|-----------------|-------------|---------|---------|
| AD-CL-4/3-SET   | AD-CL-4/3   | LR4/3   | HW3.0/5 |
| AD-CL-4/3-SET-S | AD-CL-4/3   | LR4/3-T | HW3.0/5 |
| AD-WL-4/3-SET   | AD-WL-4/3   | LR4/3   | HW3.0/5 |
| AD-CL-4/3-W-SET | AD-CL-4/3-W | LR4/3   | HW3.0/5 |

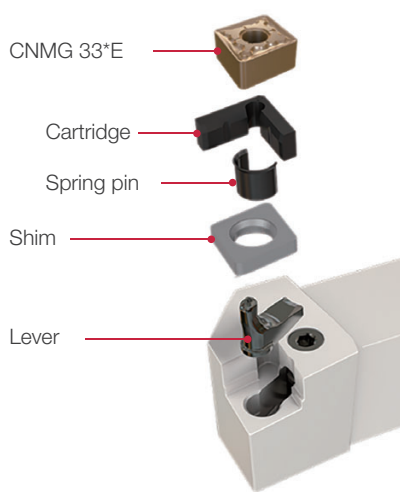


| Shim          | Spring pin |
|---------------|------------|
| TCN423        | -          |
| TWN423        | -          |
| LSC42-ECO D30 | LSP4       |

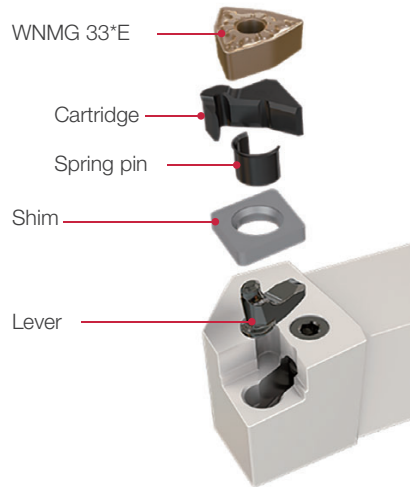
Shim and spring pin are not included

## How to install the Cartridge Set

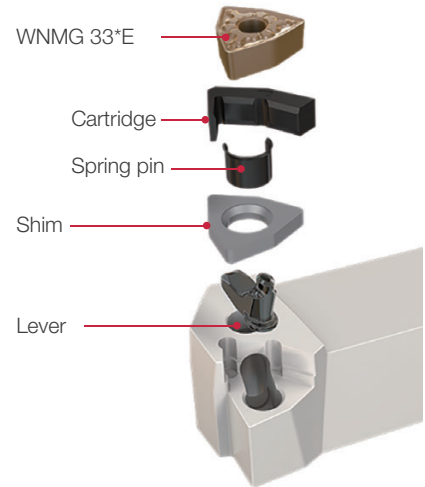
1. Remove the Shim sheet and Lever from the using toolholder (P type: Lever lock style).
  2. Install the Lever → Shim sheet → Spring Pin → Cartridge.
- Note: Use the key for easy assembly of the spring pin.
3. Offset the cutting edge position.
  4. OK to machining.



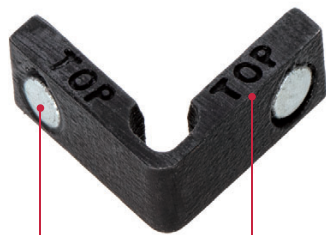
Cartridge for  
CNMG 4 → Eco CNMG 3



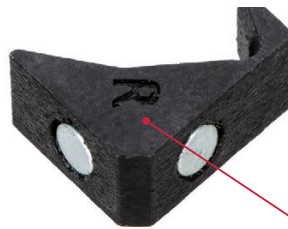
Cartridge for  
CNMG 4 → Eco WNMG 3



Cartridge for  
WNMG 4 → Eco WNMG 3



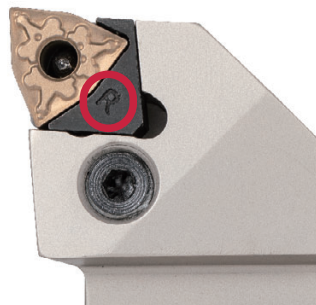
Magnet ID marking



Make sure to place the "R" side face up when using the right-hand insert



Ensures TOP side is placed face up for both right- and left-hand inserts



Note: Cartridge set cannot be assembled on Tungaloy's P-style holders.  
This product might correspond to the Export Trade Control Order.  
When you export this product, you might need apply for export licenses to the authorities in your country.



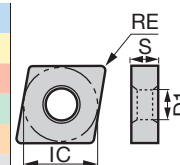
Insert **NEGATIVE TYPE**

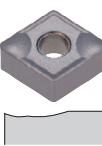
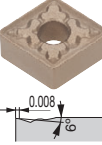
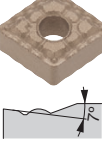
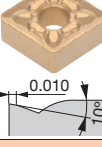
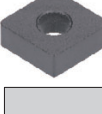
- : Continuous cutting
- ◐ : Light interrupted cutting
- ⊕ : Heavy interrupted cutting

# CN



**Rhombic, 80°  
with hole**

[illegible]

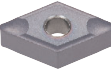
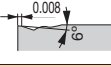
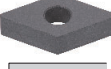
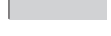
| Application                 | Chipbreaker                                                                         | Designation  | Coated |       |       |       |       |       |       |       |       |       |       |        | Coated cermet |       | Cermet |        | Dimension (inch) |  |  |       |       |       |      |
|-----------------------------|-------------------------------------------------------------------------------------|--------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------------|-------|--------|--------|------------------|--|--|-------|-------|-------|------|
|                             |                                                                                     |              | T9205  | T9215 | T9225 | T9105 | T9115 | T9125 | T6120 | T6130 | AH630 | AH645 | AH120 | AH8015 | T515          | T5115 | GT9530 | AT9530 | NS9530           |  |  | RE    | IC    | S     | D1   |
| Finishing                   | SS                                                                                  | CNMG 331E SS |        |       |       |       |       |       |       | ●     | ●     |       |       |        |               |       |        |        |                  |  |  | 0.016 | 0.375 | 0.187 | 0.15 |
|                             |    | CNMG 332E SS |        |       |       |       |       |       |       | ●     | ●     |       |       |        |               |       |        |        |                  |  |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |  |  |       |       |       |      |
|                             |                                                                                     |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |  |  |       |       |       |      |
| Medium cutting              | TM                                                                                  | CNMG 331E TM |        | ●     | ●     |       | ▲     | ▲     | ●     | ●     |       | ●     | ●     | ●      |               |       |        |        |                  |  |  | 0.016 | 0.375 | 0.187 | 0.15 |
|                             |   | CNMG 332E TM |        | ●     | ●     |       | ▲     | ▲     | ●     | ●     |       | ●     | ●     | ●      |               |       |        |        |                  |  |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     | CNMG 333E TM |        | ●     | ●     |       | ▲     | ▲     | ●     | ●     |       | ●     | ●     | ●      |               |       |        |        |                  |  |  | 0.047 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |  |  |       |       |       |      |
| Finishing to medium cutting | ZM                                                                                  | CNMG 332E ZM |        | ●     | ●     |       | ▲     | ▲     |       |       |       |       |       |        |               |       |        |        |                  |  |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |  |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |  |  |       |       |       |      |
| Medium cutting              | SM                                                                                  | CNMG 331E SM |        |       |       |       |       |       | ●     | ●     | ●     |       |       |        |               |       |        |        |                  |  |  | 0.016 | 0.375 | 0.187 | 0.15 |
|                             |  | CNMG 332E SM |        |       |       |       |       |       | ●     | ●     | ●     |       |       |        |               |       |        |        |                  |  |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     | CNMG 333E SM |        |       |       |       |       |       | ●     | ●     | ●     |       |       |        |               |       |        |        |                  |  |  | 0.047 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |  |  |       |       |       |      |
| Finishing to medium cutting | -                                                                                   | CNMA331E     |        |       |       |       |       |       |       |       |       |       | ●     |        |               |       |        |        |                  |  |  | 0.016 | 0.375 | 0.187 | 0.15 |
|                             |  | CNMA332E     |        |       |       |       |       |       |       |       |       |       | ●     |        |               |       |        |        |                  |  |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     | CNMA333E     |        |       |       |       |       |       |       |       |       |       | ●     |        |               |       |        |        |                  |  |  | 0.047 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     | CNMA334E     |        |       |       |       |       |       |       |       |       |       | ●     |        |               |       |        |        |                  |  |  | 0.063 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |  |  |       |       |       |      |

● : Line up  
▲ : To be discontinued



# DN

**Rhombic, 55°  
with hole**

| Application                 | Chipbreaker                                                                         | Designation  | Coated |       |       |       |       |       |       |       |       |       |       |        | Coated cermet |       | Cermet |        | Dimension (inch) |        |  |       |       |       |      |
|-----------------------------|-------------------------------------------------------------------------------------|--------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------------|-------|--------|--------|------------------|--------|--|-------|-------|-------|------|
|                             |                                                                                     |              | T9205  | T9215 | T9225 | T9105 | T9115 | T9125 | T6120 | T6130 | AH630 | AH645 | AH120 | AH8015 | T515          | T5115 | GT9530 | AT9530 |                  | NS9530 |  |       | RE    | IC    | S    |
| Finishing                   | SS                                                                                  | DNMG 331E SS |        |       |       |       |       |       |       | ●     | ●     |       |       |        |               |       |        |        |                  |        |  | 0.016 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     | DNMG 332E SS |        |       |       |       |       |       |       | ●     | ●     |       |       |        |               |       |        |        |                  |        |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |    |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |        |  |       |       |       |      |
|                             |    |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |        |  |       |       |       |      |
| Medium cutting              | TM                                                                                  | DNMG 331E TM |        | ●     | ●     |       | ▲     | ▲     |       |       |       |       |       |        |               |       |        |        |                  |        |  | 0.016 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     | DNMG 332E TM |        | ●     | ●     |       | ▲     | ▲     |       |       |       |       |       |        |               |       |        |        |                  |        |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |    | DNMG 333E TM |        | ●     | ●     |       | ▲     | ▲     |       |       |       |       |       |        |               |       |        |        |                  |        |  | 0.047 | 0.375 | 0.187 | 0.15 |
|                             |   |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |        |  |       |       |       |      |
| Finishing to medium cutting | ZM                                                                                  | DNMG 332E ZM |        | ●     | ●     |       | ▲     | ▲     |       |       |       |       |       |        |               |       |        |        |                  |        |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |  |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |        |  |       |       |       |      |
| Medium cutting              | SM                                                                                  | DNMG 331E SM |        |       |       |       |       |       | ●     | ●     | ●     |       |       |        |               |       |        |        |                  |        |  | 0.016 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     | DNMG 332E SM |        |       |       |       |       |       | ●     | ●     | ●     |       |       |        |               |       |        |        |                  |        |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |  |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |        |  |       |       |       |      |
| Finishing to medium cutting | -                                                                                   | DNMA 331E    |        |       |       |       |       |       |       |       |       |       |       | ●      |               |       |        |        |                  |        |  | 0.016 | 0.375 | 0.187 | 0.15 |
|                             |                                                                                     | DNMA 332E    |        |       |       |       |       |       |       |       |       |       |       | ●      |               |       |        |        |                  |        |  | 0.031 | 0.375 | 0.187 | 0.15 |
|                             |  | DNMA 333E    |        |       |       |       |       |       |       |       |       |       |       | ●      |               |       |        |        |                  |        |  | 0.047 | 0.375 | 0.187 | 0.15 |
|                             |  |              |        |       |       |       |       |       |       |       |       |       |       |        |               |       |        |        |                  |        |  |       |       |       |      |

Reference pages : External toolholders → **P.24** - Internal toolholders → **P.30**



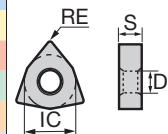


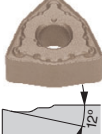
|          |                |
|----------|----------------|
| <b>P</b> | Steel          |
| <b>M</b> | Stainless      |
| <b>K</b> | Cast iron      |
| <b>N</b> | Non-ferrous    |
| <b>S</b> | Superalloys    |
| <b>H</b> | Hard materials |

- 

● : Line up  
▲ : To be discontinued



[illegible]

| Application                         | Chipbreaker                                                                         | Designation     | Coated |       |       |       |       |       |       |       |       |       |       |        |      |       | Coated<br>cermet |        | Cermet |   | Dimension (inch) |       |       |       |       |      |
|-------------------------------------|-------------------------------------------------------------------------------------|-----------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|------|-------|------------------|--------|--------|---|------------------|-------|-------|-------|-------|------|
|                                     |                                                                                     |                 | T9205  | T9215 | T9225 | T9105 | T9115 | T9125 | T6120 | T6130 | AH630 | AH645 | AH120 | AH8015 | T515 | T5115 | GT9530           | AT9530 | NS9530 |   |                  | RE    | IC    | S     | D1    |      |
| Precision finishing                 | TF                                                                                  | WNMG 330.5E TF  |        | ●     | ●     |       |       |       |       |       |       |       |       |        |      |       |                  |        |        |   |                  | 0.008 | 0.375 | 0.187 | 0.15  |      |
|                                     |    | WNMG 331E TF    |        | ●     | ●     |       |       |       |       |       |       |       |       |        |      |       |                  |        |        |   |                  | 0.016 | 0.375 | 0.187 | 0.15  |      |
|                                     |                                                                                     | WNMG 332E TF    |        | ●     | ●     |       |       |       |       |       |       |       |       |        |      |       |                  |        |        |   |                  |       | 0.032 | 0.375 | 0.187 | 0.15 |
|                                     |                                                                                     |                 |        |       |       |       |       |       |       |       |       |       |       |        |      |       |                  |        |        |   |                  |       |       |       |       |      |
| Finishing                           | TSF                                                                                 | WNMG 330.5E TSF |        | ●     | ●     |       |       |       |       |       |       |       |       |        |      |       |                  |        |        |   |                  | 0.008 | 0.375 | 0.187 | 0.15  |      |
|                                     |   | WNMG 331E TSF   |        | ●     | ●     |       | ▲     | ▲     |       |       |       |       |       |        |      |       | ●                | ●      |        | ● |                  | 0.016 | 0.375 | 0.187 | 0.15  |      |
|                                     |                                                                                     | WNMG 332E TSF   |        | ●     | ●     |       | ▲     | ▲     |       |       |       |       |       |        |      |       |                  | ●      | ●      |   | ●                |       | 0.032 | 0.375 | 0.187 | 0.15 |
|                                     |                                                                                     | WNMG 333E TSF   |        | ●     | ●     |       | ▲     | ▲     |       |       |       |       |       |        |      |       |                  | ●      |        |   | ●                |       | 0.047 | 0.375 | 0.187 | 0.15 |
| Finishing (wiper)                   | FW                                                                                  | WNMG 331E FW    |        | ●     | ●     | ●     | ▲     | ▲     | ▲     |       |       |       |       |        |      |       | ●                |        |        | ● |                  | 0.016 | 0.375 | 0.187 | 0.15  |      |
|                                     |  | WNMG 332E FW    |        | ●     | ●     | ●     | ▲     | ▲     | ▲     |       |       |       |       |        |      |       | ●                |        |        | ● |                  | 0.031 | 0.375 | 0.187 | 0.15  |      |
|                                     |                                                                                     | * Wiper         |        |       |       |       |       |       |       |       |       |       |       |        |      |       |                  |        |        |   |                  |       |       |       |       |      |
| Finishing                           | ZF                                                                                  | WNMG 331E ZF    |        |       | ●     | ●     |       | ▲     | ▲     |       |       |       |       |        |      |       |                  |        |        |   |                  | 0.016 | 0.375 | 0.187 | 0.15  |      |
|                                     |  |                 |        |       |       |       |       |       |       |       |       |       |       |        |      |       |                  |        |        |   |                  |       |       |       |       |      |
| Finishing to medium cutting (wiper) | SW                                                                                  | WNMG 332E SW    |        | ●     | ●     | ●     | ▲     | ▲     | ▲     |       |       |       |       |        | ●    |       |                  |        |        |   |                  | 0.031 | 0.375 | 0.187 | 0.15  |      |
|                                     |  | WNMG 333E SW    |        | ●     | ●     | ●     | ▲     | ▲     | ▲     |       |       |       |       |        | ●    |       |                  |        |        |   |                  | 0.047 | 0.375 | 0.187 | 0.15  |      |
|                                     |                                                                                     | * Wiper         |        |       |       |       |       |       |       |       |       |       |       |        |      |       |                  |        |        |   |                  |       |       |       |       |      |

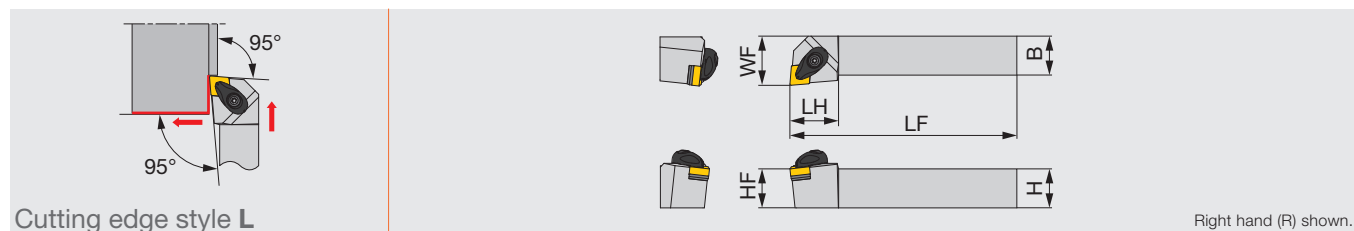
● : Line up  
▲ : To be discontinued



# External toolholders

## ACLNR/L-Eco

Double-clamp toolholder with 95° approach angle, for negative 80° rhombic inserts



| Inch          | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|---------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| ACLNR/L1233-A | 0.750 | 0.750 | 4.500 | 0.900 | 0.750 | 1.000 | 0.031 | CN**33... | 3.0     |
| ACLNR/L1633-A | 1.000 | 1.000 | 6.000 | 1.000 | 1.000 | 1.250 | 0.031 | CN**33... | 3.0     |

\*Torque: Recommended torque (lb·f) for clamping

\*\*RE: The holder measurements are true with this insert radius

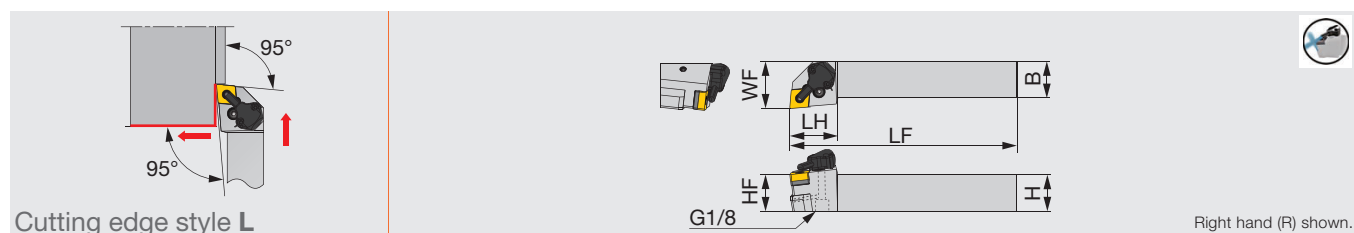
### SPARE PARTS

| Designation | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|-------------|---------|-------------|--------|------------|--------|------------|--------|
| ACLNR/L**-A | ACP3S-E | ACS-5W      | BP-7   | SP-2.5     | ASC322 | CSTB-3.5   | T-15F  |

## TUNG T<sup>URN</sup> T<sup>JET</sup>

### PCLNR/L-CHP-Eco

Lever-lock toolholder with 95° approach angle, for negative 80° rhombic inserts, with high pressure coolant capability



| Inch            | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| PCLNR/L1233-CHP | 0.750 | 0.750 | 4.500 | 1.300 | 0.750 | 1.250 | 0.031 | CN**33... | 2.0     |
| PCLNR/L1633-CHP | 1.000 | 1.000 | 6.000 | 1.300 | 1.000 | 1.250 | 0.031 | CN**33... | 2.0     |

\*Torque: Recommended torque (lb·f) for clamping

\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

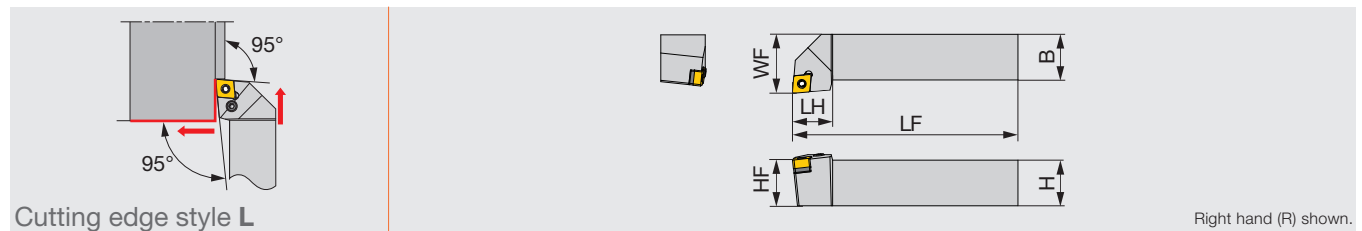
| Designation   | Shim   | Clamping screw | Wrench 1 | Spring pin | Lever |
|---------------|--------|----------------|----------|------------|-------|
| PCLNR/L**-CHP | LSC317 | LCS3           | P-2.5    | LSP3       | LCL33 |

### SPARE PARTS

| Designation   | Coolant unit | Mounting screw | Wrench 2 | O-ring     | Coolant screw | Wrench 3 |
|---------------|--------------|----------------|----------|------------|---------------|----------|
| PCLNR/L**-CHP | CU-CW-CHP    | SRM3           | T-8F     | OR6.4X0.9N | SRM4X4TL360   | P-2      |

## PCLNR/L-Eco

Lever-lock toolholder with 95° approach angle, for negative 80° rhombic inserts



| Inch        | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|-------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| PCLNR/L1233 | 0.750 | 0.750 | 4.500 | 0.813 | 0.750 | 1.000 | 0.031 | CN**33... | 2.0     |
| PCLNR/L1633 | 1.000 | 1.000 | 6.000 | 0.813 | 1.000 | 1.250 | 0.031 | CN**33... | 2.0     |

\*Torque: Recommended torque (lb·f) for clamping

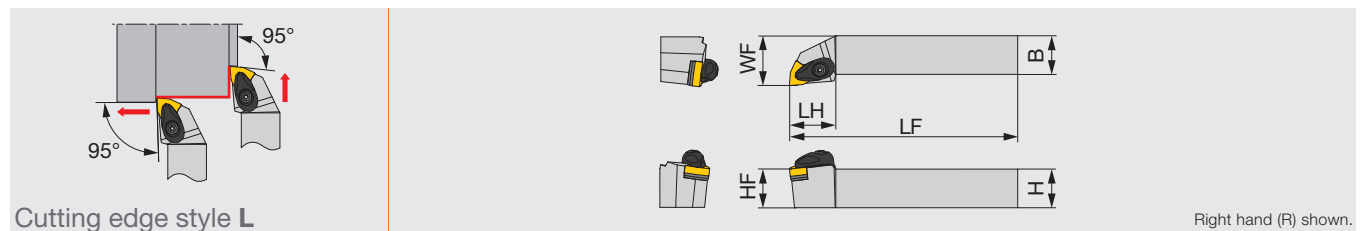
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation | Shim   | Clamping screw | Wrench | Spring pin | Lever |
|-------------|--------|----------------|--------|------------|-------|
| PCLNR/L**   | LSC317 | LCS3           | P-2.5  | LSP3       | LCL33 |

## AWLNR/L-Eco

Double-clamp toolholder with 95° approach angle, for negative 80° trigon inserts



| Inch          | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|---------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| AWLNR/L1233-A | 0.750 | 0.750 | 4.500 | 1.125 | 0.750 | 1.000 | 0.031 | WN**33... | 3.0     |
| AWLNR/L1633-A | 1.000 | 1.000 | 6.000 | 1.125 | 1.000 | 1.250 | 0.031 | WN**33... | 3.0     |

\*Torque: Recommended torque (lb·f) for clamping

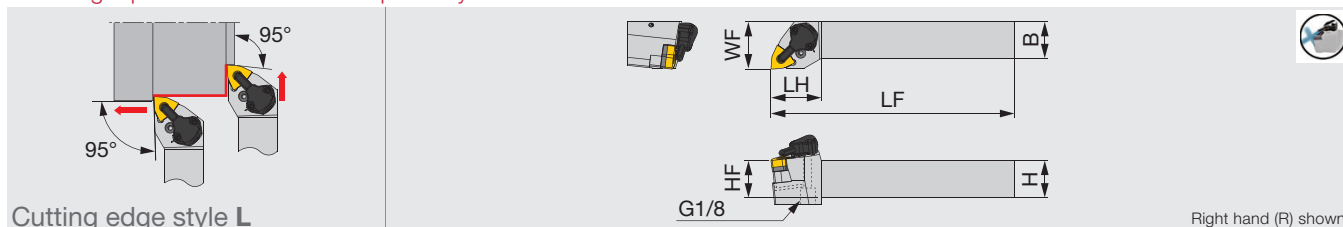
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|-------------|---------|-------------|--------|------------|--------|------------|--------|
| AWLNR/L**-A | ACP3S-E | ACS-5W      | BP-7   | SP-2.5     | ASW322 | CSTB-3.5   | T-15F  |

## PWLNLR/L-CHP

Lever-lock toolholder with 95° approach angle, for negative 80° trigon inserts, with high pressure coolant capability



| Inch             | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|------------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| PWLNLR/L1233-CHP | 0.750 | 0.750 | 4.500 | 1.969 | 0.750 | 1.250 | 0.031 | WN**33... | 2.0     |
| PWLNLR/L1633-CHP | 1.000 | 1.000 | 6.000 | 1.969 | 1.000 | 1.250 | 0.031 | WN**33... | 2.0     |

\*Torque: Recommended torque (lb·f) for clamping

\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

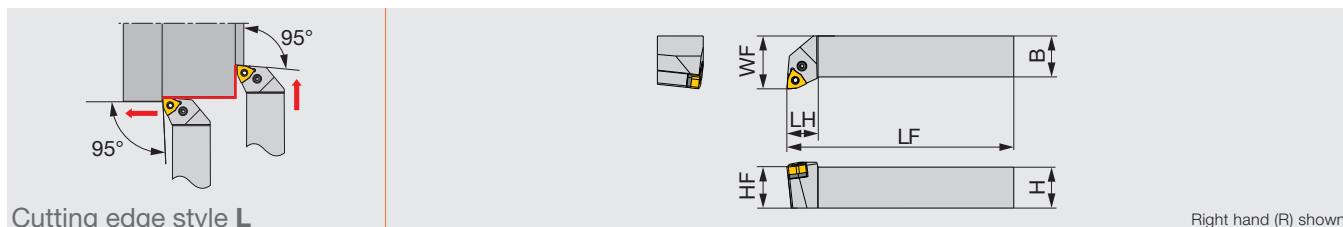
| Designation    | Shim   | Clamping screw | Wrench 1 | Spring pin | Lever |
|----------------|--------|----------------|----------|------------|-------|
| PWLNLR/L**-CHP | LSW312 | LCS3           | P-2.5    | LSP3       | LCL3  |

### SPARE PARTS

| Designation    | Coolant unit | Mounting screw | Wrench 2 | O-ring     | Coolant screw | Wrench 3 |
|----------------|--------------|----------------|----------|------------|---------------|----------|
| PWLNLR/L**-CHP | CU-CW-CHP    | SRM3           | T-8F     | OR6.4X0.9N | SRM4X4TL360   | P-2      |

## PWLNLR/L-Eco

Lever-lock toolholder with 95° approach angle, for negative 80° trigon inserts



| Inch         | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|--------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| PWLNLR/L1233 | 0.750 | 0.750 | 4.500 | 0.625 | 0.750 | 1.000 | 0.031 | WN**33... | 2.0     |
| PWLNLR/L1633 | 1.000 | 1.000 | 6.000 | 0.719 | 1.000 | 1.250 | 0.031 | WN**33... | 2.0     |

\*Torque: Recommended torque (lb·f) for clamping

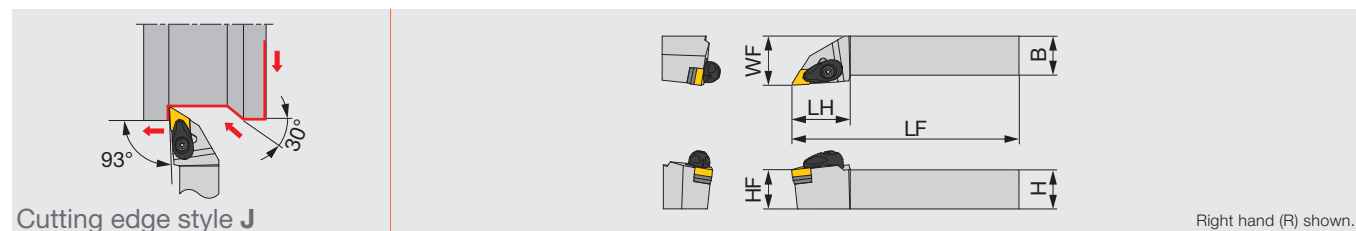
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation | Shim   | Clamping screw | Wrench | Spring pin | Lever |
|-------------|--------|----------------|--------|------------|-------|
| PWLNLR/L**  | LSW312 | LCS3           | P-2.5  | LSP3       | LCL3  |

## ADJNR/L-Eco

Double-clamp toolholder with 93° approach angle, for negative 55° rhombic inserts



| Inch          | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|---------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| ADJNR/L1233-A | 0.750 | 0.750 | 4.500 | 1.250 | 0.750 | 1.000 | 0.031 | DN**33... | 3.0     |
| ADJNR/L1633-A | 1.000 | 1.000 | 6.000 | 1.250 | 1.000 | 1.250 | 0.031 | DN**33... | 3.0     |

\*Torque: Recommended torque (lb·f) for clamping

\*\*RE: The holder measurements are true with this insert radius

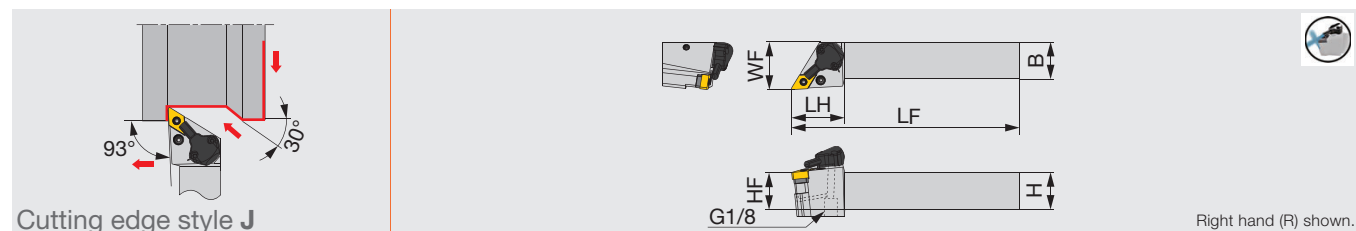
### SPARE PARTS

| Designation | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|-------------|---------|-------------|--------|------------|--------|------------|--------|
| ADJNR/L**-A | ACP3S-E | ACS-5W      | BP-7   | SP-2.5     | ASD322 | CSTB-3.5   | T-15F  |

## TUNG<sup>TURN</sup>TJET

### PDJNR/L-CHP-Eco

Lever-lock toolholder with 93° approach angle, for negative 55° rhombic inserts, with high pressure coolant capability



| Inch            | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| PDJNR/L1233-CHP | 0.750 | 0.750 | 4.500 | 1.420 | 0.750 | 1.250 | 0.031 | DN**33... | 2.0     |
| PDJNR/L1633-CHP | 1.000 | 1.000 | 6.000 | 1.420 | 1.000 | 1.250 | 0.031 | DN**33... | 2.0     |

\*Torque: Recommended torque (lb·f) for clamping

\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

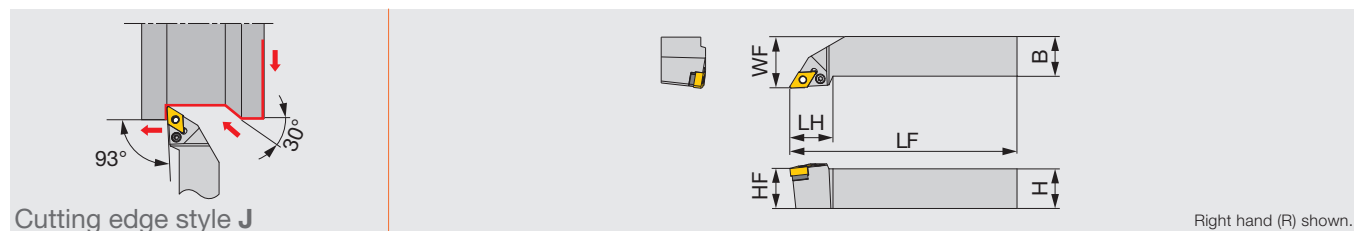
| Designation   | Shim   | Clamping screw | Wrench 1 | Spring pin | Lever  |
|---------------|--------|----------------|----------|------------|--------|
| PDJNR/L**-CHP | ELSD32 | LCS3           | P-2.5    | LSP3       | LCL33L |

### SPARE PARTS

| Designation   | Coolant unit | Mounting screw | Wrench 2 | O-ring     | Coolant screw | Wrench 3 |
|---------------|--------------|----------------|----------|------------|---------------|----------|
| PDJNR/L**-CHP | CU-D-CHP     | SRM3           | T-8F     | OR6.4X0.9N | SRM4X4TL360   | P-2      |

## PDJNR/L-Eco

Lever-lock toolholder with 93° approach angle, for negative 55° rhombic inserts



| Inch        | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|-------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| PDJNR/L1033 | 0.625 | 0.625 | 4.000 | 1.125 | 0.625 | 0.875 | 0.031 | DN**33... | 2.0     |
| PDJNR/L1233 | 0.750 | 0.750 | 4.500 | 1.125 | 0.750 | 1.000 | 0.031 | DN**33... | 2.0     |
| PDJNR/L1633 | 1.000 | 1.000 | 6.000 | 1.125 | 1.000 | 1.250 | 0.031 | DN**33... | 2.0     |

\*Torque: Recommended torque (lb·f) for clamping

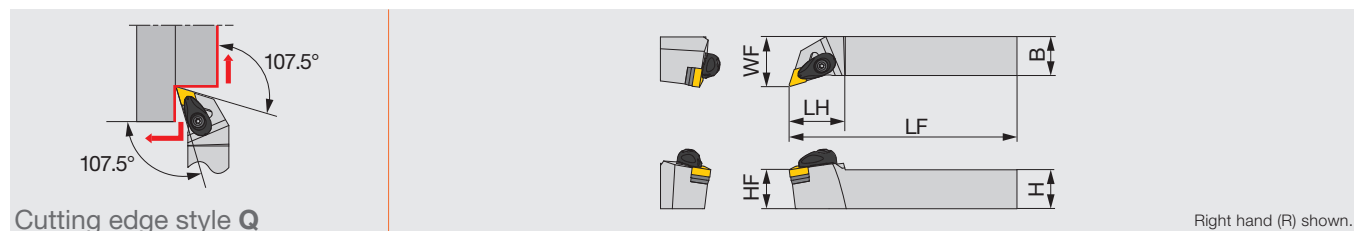
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation | Shim   | Clamping screw | Wrench | Spring pin | Lever  |
|-------------|--------|----------------|--------|------------|--------|
| PDJNR/L**   | ELSD32 | LCS3           | P-2.5  | LSP3       | LCL33L |

## ADQNR/L-Eco

Double-clamp toolholder with 107.5° approach angle, for negative 55° rhombic inserts



| Inch          | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|---------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| ADQNR/L1233-A | 0.750 | 0.750 | 4.500 | 1.150 | 0.750 | 1.000 | 0.031 | DN**33... | 2.2     |
| ADQNR/L1633-A | 1.000 | 1.000 | 6.000 | 1.150 | 1.000 | 1.250 | 0.031 | DN**33... | 2.2     |

\*Torque: Recommended torque (lb·f) for clamping

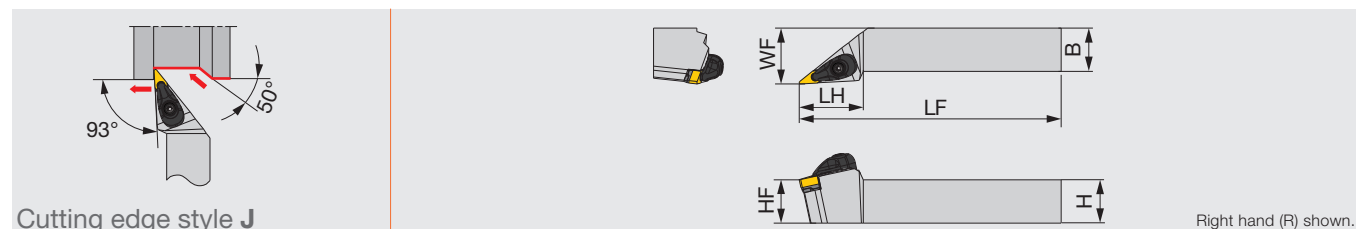
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|-------------|---------|-------------|--------|------------|--------|------------|--------|
| ADQNR/L**-A | ACP3S-E | ACS-5W      | BP-7   | SP-2.5     | ASD322 | CSTB-3.5   | T-15F  |

## AVJNR/L-Eco

Double-clamp toolholder with 93° approach angle, for negative 35° rhombic inserts



| Inch            | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert      | Torque* |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------------|---------|
| AVJNR/L122.33-A | 0.750 | 0.750 | 4.500 | 1.500 | 0.750 | 1.000 | 0.031 | VN**2.33... | 3.0     |
| AVJNR/L162.33-A | 1.000 | 1.000 | 6.000 | 1.500 | 1.000 | 1.250 | 0.031 | VN**2.33... | 3.0     |

\*Torque: Recommended torque (lb-ft) for clamping

\*\*RE: The holder measurements are true with this insert radius

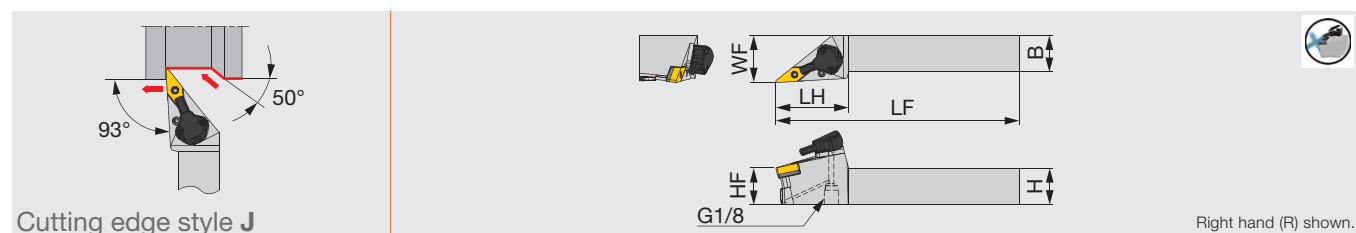
### SPARE PARTS

| Designation | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|-------------|---------|-------------|--------|------------|--------|------------|--------|
| AVJNR/L**-A | ACP3L-E | ACS-5W      | BP-7   | SP-2.5     | ASV222 | CSTB-3.0   | T-15F  |

## TUNG<sup>TURN</sup>TJET

### PVJNR/L-CHP

Lever-lock toolholder with 93° approach angle, for negative 35° rhombic inserts, with high pressure coolant capability



| Inch              | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert      | Torque* |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------------|---------|
| PVJNR/L122.33-CHP | 0.750 | 0.750 | 4.500 | 2.000 | 0.750 | 1.250 | 0.031 | VN**2.33... | 2       |
| PVJNR/L162.33-CHP | 1.000 | 1.000 | 6.000 | 2.000 | 1.000 | 1.250 | 0.031 | VN**2.33... | 2       |

\*Torque: Recommended torque (lb-ft) for clamping

\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

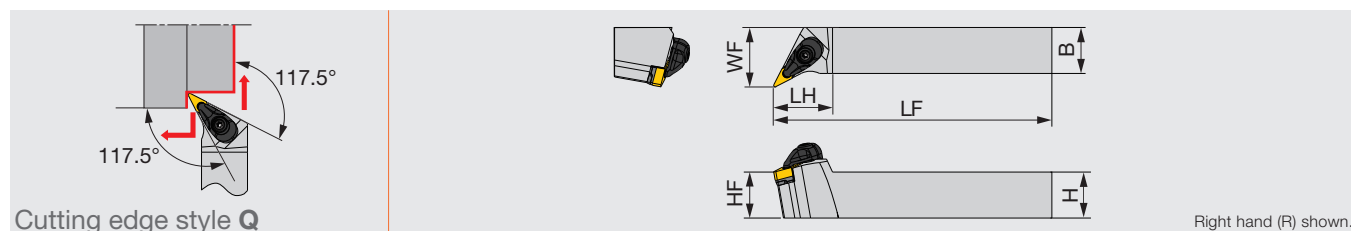
| Designation   | Shim   | Clamping screw | Wrench 1 | Spring pin | Lever |
|---------------|--------|----------------|----------|------------|-------|
| PVJNR/L**-CHP | LSV212 | LCS3V          | P-2.5    | LSP3       | LCL3V |

### SPARE PARTS

| Designation   | Coolant unit | Mounting screw | Wrench 2 | O-ring     | Coolant screw | Wrench 3 |
|---------------|--------------|----------------|----------|------------|---------------|----------|
| PVJNR/L**-CHP | CU-V-CHP     | SRM3           | T-8F     | OR6.4X0.9N | SRM4X4TL360   | P-2      |

## AVQNR/L-Eco

Double-clamp toolholder with 117.5° approach angle, for negative 35° rhombic inserts



| Inch            | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert      | Torque* |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------------|---------|
| AVQNR/L122.33-A | 0.750 | 0.750 | 4.500 | 1.250 | 0.750 | 1.000 | 0.031 | VN**2.33... | 3.0     |
| AVQNR/L162.33-A | 1.000 | 1.000 | 6.000 | 1.250 | 1.000 | 1.250 | 0.031 | VN**2.33... | 3.0     |

\*Torque: Recommended torque (lb·f) for clamping

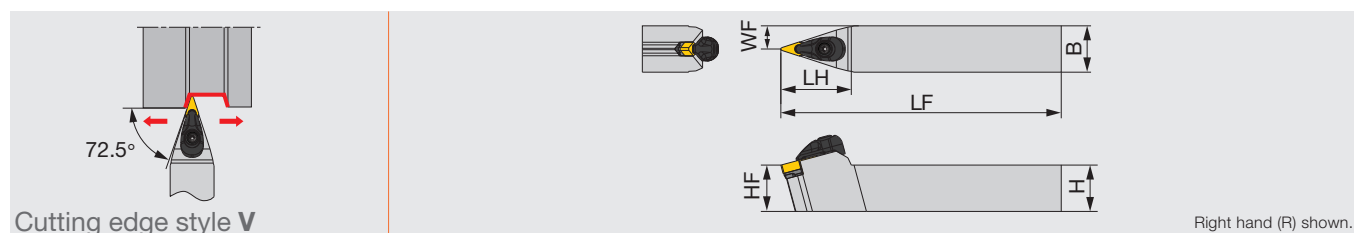
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|-------------|---------|-------------|--------|------------|--------|------------|--------|
| AVQNR/L**-A | ACP3L-E | ACS-5W      | BP-7   | SP-2.5     | ASV222 | CSTB-3.0   | T-15F  |

## AVVNN-Eco

Double-clamp toolholder with 72.5° approach angle, for negative 35° rhombic inserts



| Inch          | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert      | Torque* |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------------|---------|
| AVVNN122.33-A | 0.750 | 0.750 | 4.500 | 1.500 | 0.750 | 0.375 | 0.031 | VN**2.33... | 3.0     |
| AVVNN162.33-A | 1.000 | 1.000 | 6.000 | 1.500 | 1.000 | 0.500 | 0.031 | VN**2.33... | 3.0     |

\*Torque: Recommended torque (lb·f) for clamping

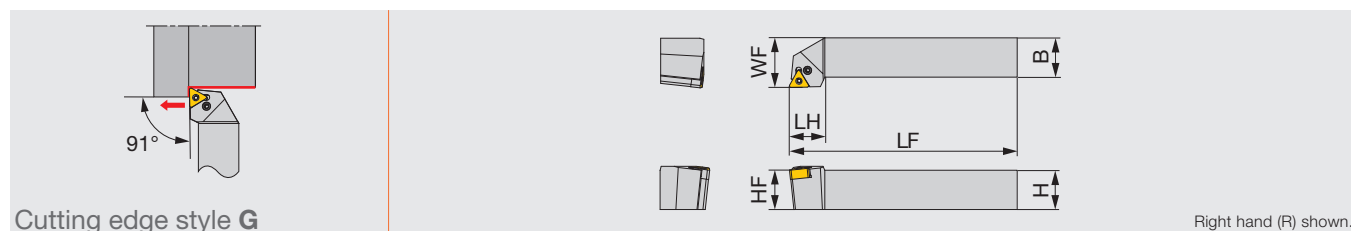
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|-------------|---------|-------------|--------|------------|--------|------------|--------|
| AVVNN**-A   | ACP3L-E | ACS-5W      | BP-7   | SP-2.5     | ASV222 | CSTB-3.0   | T-15F  |

## PTGNR/L-Eco

Lever-lock toolholder with 91° approach angle, for negative triangular inserts



| Inch        | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|-------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| PTGNR/L1223 | 0.750 | 0.750 | 4.500 | 0.750 | 1.000 | 1.000 | 0.031 | TN**23... | 2.0     |
| PTGNR/L1623 | 1.000 | 1.000 | 6.000 | 0.750 | 1.000 | 1.250 | 0.031 | TN**23... | 2.0     |

\*Torque: Recommended torque (lb·ft) for clamping

\*\*RE: The holder measurements are true with this insert radius

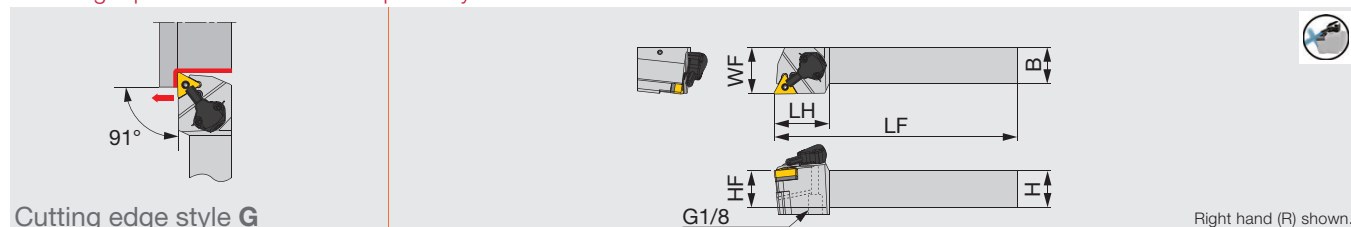
### SPARE PARTS

| Designation | Clamping screw | Wrench | Lever |
|-------------|----------------|--------|-------|
| PTGNR/L**   | LCS23A         | P-2.5  | LCL23 |

## TUNG<sup>URN</sup>TJET

### PTGNR/L-CHP

Lever-lock toolholders with 91° approach angle, for negative 60° triangular inserts, with high pressure coolant capability



| Inch            | H     | B     | LF    | LH    | HF    | WF    | RE**  | Insert    | Torque* |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| PTGNR/L1223-CHP | 0.750 | 0.750 | 4.500 | 1.500 | 0.750 | 1.250 | 0.031 | TN**23... | 2.0     |
| PTGNR/L1623-CHP | 1.000 | 1.000 | 6.000 | 1.500 | 1.000 | 1.250 | 0.031 | TN**23... | 2.0     |

\*Torque: Recommended torque (lb·ft) for clamping

\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation   | Shim | Clamping screw | Wrench 1 | Spring pin | Lever |
|---------------|------|----------------|----------|------------|-------|
| PTGNR/L**-CHP | -    | LCS23A         | P-2.5    | LSP3       | LCL23 |

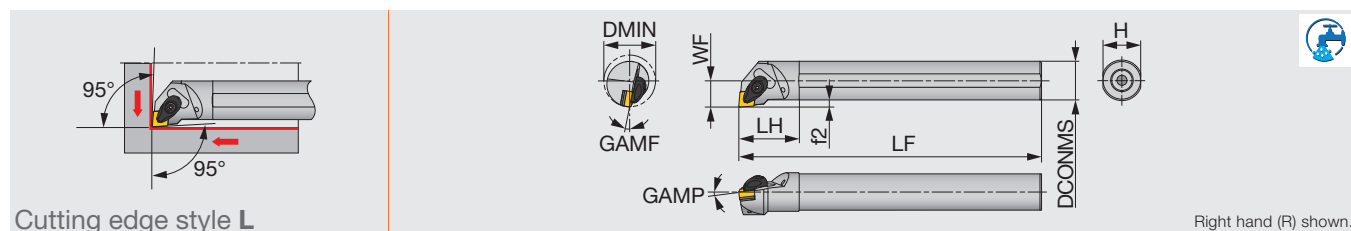
### SPARE PARTS

| Designation   | Coolant unit | Mounting screw | Wrench 2 | O-ring     | Coolant screw | Wrench 3 |
|---------------|--------------|----------------|----------|------------|---------------|----------|
| PTGNR/L**-CHP | CU-CW-CHP    | SRM3           | T-8F     | OR6.4X0.9N | SRM4X4TL360   | P-2      |

# Internal toolholders

## A-ACLNR/L-Eco

Double-clamp boring bar, for negative 80° rhombic inserts



| Inch              | Material | DMIN  | DCONMS | WF    | LF     | LH    | H     | f2    | GAMP | GAMF | RE**  | Insert    | Torque* |
|-------------------|----------|-------|--------|-------|--------|-------|-------|-------|------|------|-------|-----------|---------|
| A16-ACLNR/L33-D20 | Steel    | 1.250 | 1.000  | 0.672 | 12.000 | 1.750 | 0.906 | 0.172 | -6   | -13  | 0.031 | CN**33... | 3       |
| A20-ACLNR/L33-D25 | Steel    | 1.560 | 1.250  | 0.859 | 14.000 | 1.938 | 1.188 | 0.234 | -6   | -10  | 0.031 | CN**33... | 3       |

\*Torque: Recommended torque (lb-ft) for clamping

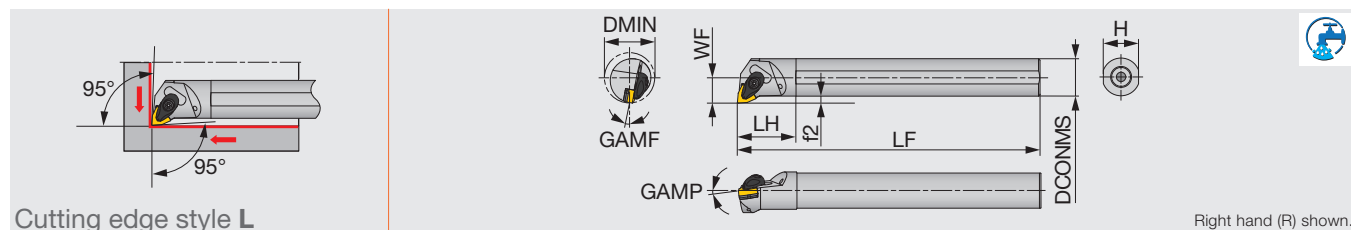
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation      | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|------------------|---------|-------------|--------|------------|--------|------------|--------|
| A**-ACLNR/L33... | ACP3S-E | ACS-5W      | BP-7   | SP-2.5     | ASC322 | CSTB-3.5   | T-15F  |

## A-AWLNR/L-Eco

Double-clamp boring bar, for negative 80° trigon inserts



| Inch              | Material | DMIN  | DCONMS | WF    | LF     | LH    | H     | f2    | GAMP | GAMF | RE**  | Insert    | Torque* |
|-------------------|----------|-------|--------|-------|--------|-------|-------|-------|------|------|-------|-----------|---------|
| A16-AWLNR/L33-D20 | Steel    | 1.250 | 1.000  | 0.672 | 12.000 | 1.750 | 0.906 | 0.172 | -6   | -13  | 0.031 | WN**33... | 3       |
| A20-AWLNR/L33-D25 | Steel    | 1.560 | 1.250  | 0.859 | 14.000 | 1.938 | 1.188 | 0.234 | -6   | -10  | 0.031 | WN**33... | 3       |

\*Torque: Recommended torque (lb-ft) for clamping

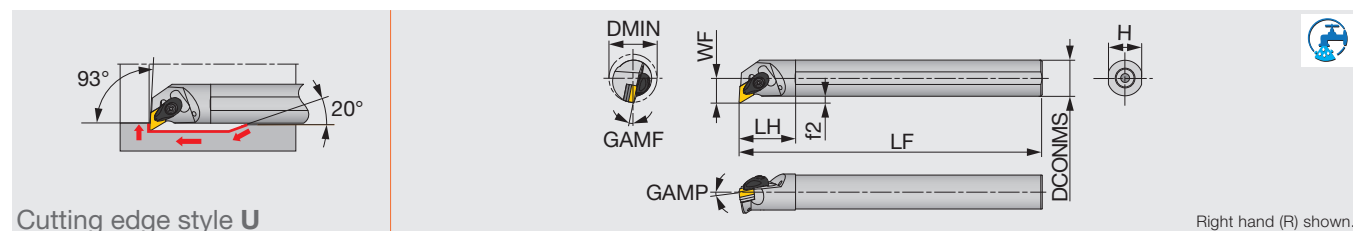
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation      | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|------------------|---------|-------------|--------|------------|--------|------------|--------|
| A**-AWLNR/L33... | ACP3S-E | ACS-5W      | BP-7   | SP-2.5     | ASW322 | CSTB-3.5   | T-15F  |

## A-ADUNR/L-Eco

Double-clamp boring bar, for negative 55° rhombic inserts



| Inch              | Material | DMIN  | DCONMS | WF    | LF     | LH    | H     | f2    | GAMF | GAMF | RE**  | Insert    | Torque* |
|-------------------|----------|-------|--------|-------|--------|-------|-------|-------|------|------|-------|-----------|---------|
| A16-ADUNR/L33-D20 | Steel    | 1.250 | 1.000  | 0.672 | 12.000 | 1.750 | 0.906 | 0.172 | -6   | -13  | 0.031 | DN**33... | 3       |
| A20-ADUNR/L33-D25 | Steel    | 1.560 | 1.250  | 0.859 | 14.000 | 1.938 | 1.188 | 0.234 | -6   | -11  | 0.031 | DN**33... | 3       |

\*Torque: Recommended torque (lb·ft) for clamping

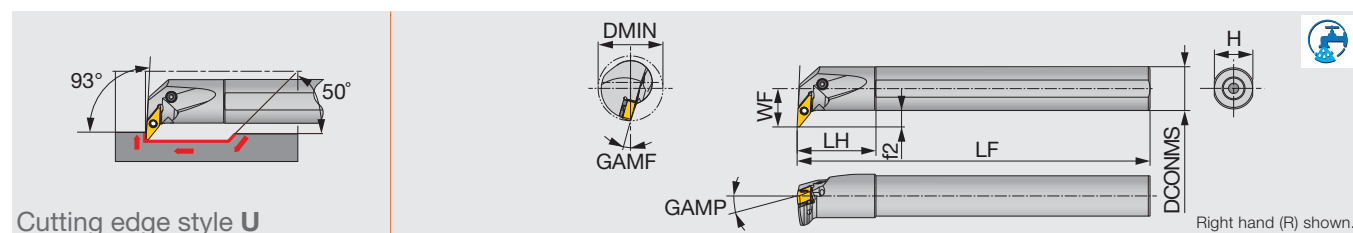
\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

| Designation      | Clamp   | Clamp screw | Spring | Spring pin | Shim   | Shim screw | Wrench |
|------------------|---------|-------------|--------|------------|--------|------------|--------|
| A**-ADUNR/L33... | ACP3S-E | ACS-5W      | BP-7   | SP-2.5     | ASD322 | CSTB-3.5   | T-15F  |

## A-PVUNR/L-Eco

Lever-lock boring bar, for negative 35° rhombic inserts



| Inch                | Material | DMIN  | DCONMS | WF    | LF     | LH    | H     | f2    | GAMF | GAMF | RE**  | Insert         | Torque* |
|---------------------|----------|-------|--------|-------|--------|-------|-------|-------|------|------|-------|----------------|---------|
| A16-PVUNR/L2.33-D20 | Steel    | 1.250 | 1.000  | 0.672 | 12.000 | 1.750 | 0.906 | 0.167 | -6   | -13  | 0.031 | VN**2.33**E... | 3.0     |
| A16-PVUNR/L2.33-D24 | Steel    | 1.500 | 1.000  | 0.859 | 12.000 | 1.750 | 0.906 | 0.354 | -6   | -10  | 0.031 | VN**2.33**E... | 3.0     |
| A20-PVUNR/L2.33-D26 | Steel    | 1.643 | 1.250  | 0.859 | 14.000 | 2.000 | 1.188 | 0.229 | -6   | -10  | 0.031 | VN**2.33**E... | 3.0     |

\*Torque: Recommended torque (lb·ft) for clamping

\*\*RE: The holder measurements are true with this insert radius

### SPARE PARTS

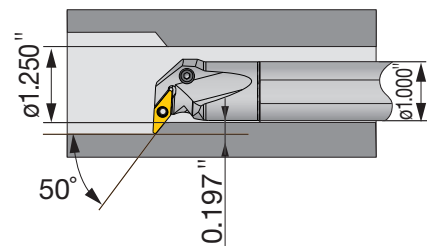
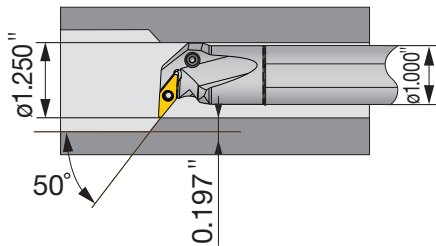
| Designation         | Clamping screw | Wrench | Lever | Shim   | Spring pin | Oil supply attachment* | Screw for oil hole* |
|---------------------|----------------|--------|-------|--------|------------|------------------------|---------------------|
| A16-PVUNR/L2.33-D20 | LCS3V          | P-2.5  | LCL3V | LSV212 | LSP3       | EA-25                  | SSHM4-5             |
| A16-PVUNR/L2.33-D24 | LCS3V          | P-2.5  | LCL3V | LSV212 | LSP3       | EA-25                  | SSHM4-5             |
| A20-PVUNR/L2.33-D26 | LCS3V          | P-2.5  | LCL3V | LSV212 | LSP3       | EA-32                  | SSHM4-5             |

\*Optional

## **Economical sized insert bring benefits in small diameter ID Turning**

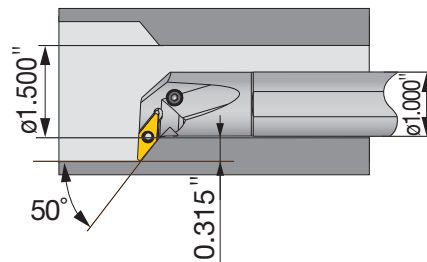
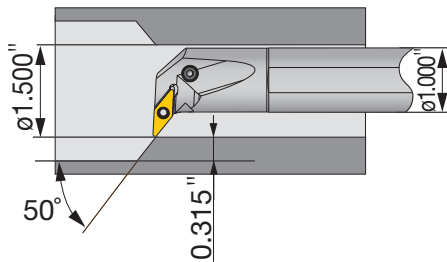
- The new VNMG233 insert combined with a P-type holder can turn and profile an inner diameter as small as  $\phi 1.250''$ .

**A16-PVUNR/L2.33-D20**



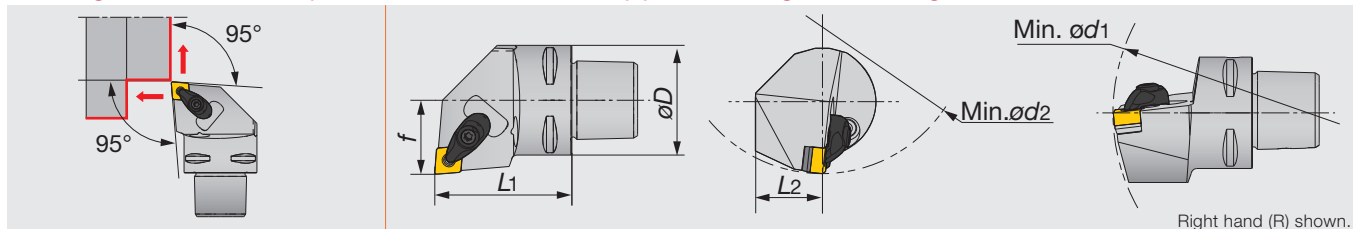
- ISO-EcoTurn also offers a holder line for a minimum working diameter of  $\phi 1.500''$  with VNMG2.33 insert. This holder makes an excellent alternative to a standard holder with VNMG33 insert, whose minimum working diameter is also  $\phi 1.500''$ .

**A16-PVUNR/L2.33-D24**



## C-ACLNR/L

Turning A double-clamp toolholder with 95° approach angle. For negative 80° rhombic insert.



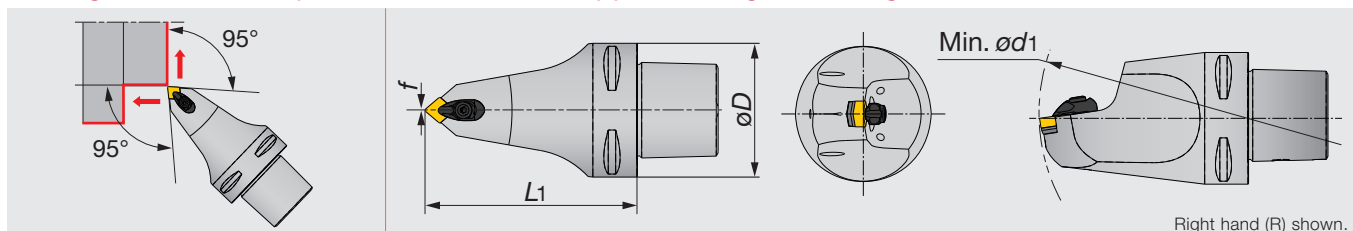
| Metric               | øD | L1 | L2 | f  | ød1 | ød2 | re** | Insert             |
|----------------------|----|----|----|----|-----|-----|------|--------------------|
| C4ACLNR/L27050-0904N | 40 | 50 | 25 | 27 | 140 | 110 | 0.8  | CN**0904.../CN**33 |
| C6ACLNR/L45065-0904N | 63 | 65 | 35 | 45 | 190 | 110 | 0.8  | CN**0904.../CN**33 |

Applicable for 7 MPa pressure coolant.

| SPARE PARTS       |         |                |               |        |            |        |          |        |          |
|-------------------|---------|----------------|---------------|--------|------------|--------|----------|--------|----------|
| Designation       | Clamp   | Clamping screw | Coolant parts | Shim   | Shim screw | Spring | Spring 1 | Wrench | Wrench 1 |
| C*ACLNR/L**-0904N | ACP3S-E | ACS-5W         | SATZ-M10X1-M5 | ASC322 | CSTB-3.5   | BP-7   | SP-2.5   | -      | T-15F    |

## C-ACMNN

Turning A double-clamp toolholder with 95° approach angle. For negative 80° rhombic insert.



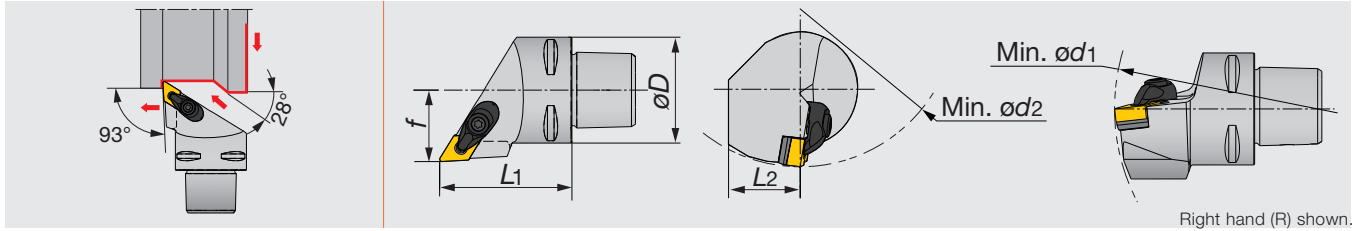
| Metric             | øD | L1  | L2 | f | ød1 | ød2 | re** | Insert             |
|--------------------|----|-----|----|---|-----|-----|------|--------------------|
| C6ACMNN00100-0904N | 63 | 100 | -  | 0 | 110 | -   | 0.8  | CN**0904.../CN**33 |
| C6ACMNN00140-0904N | 63 | 140 | -  | 0 | 110 | -   | 0.8  | CN**0904.../CN**33 |

Applicable for 7 MPa pressure coolant.

| SPARE PARTS     |         |                |               |        |            |        |          |        |          |
|-----------------|---------|----------------|---------------|--------|------------|--------|----------|--------|----------|
| Designation     | Clamp   | Clamping screw | Coolant parts | Shim   | Shim screw | Spring | Spring 1 | Wrench | Wrench 1 |
| C6ACMNN**-0904N | ACP3S-E | ACS-5W         | -             | ASC322 | CSTB-3.5   | BP-7   | SP-2.5   | -      | T-15F    |

## C-ADJNR/L

Turning A double-clamp toolholder with 93° approach angle. For negative 55° rhombic insert.



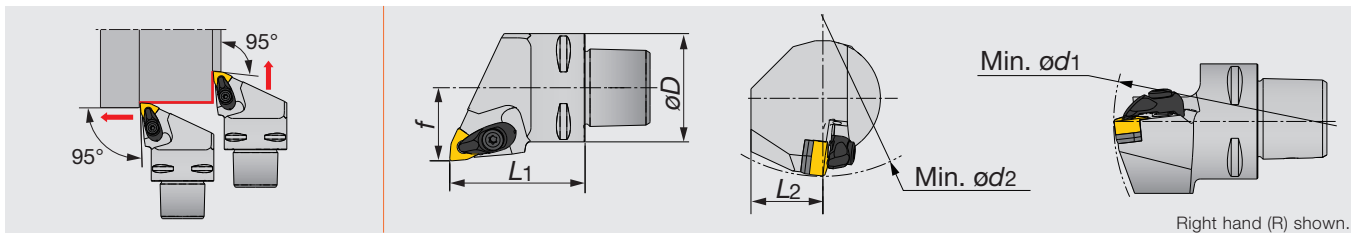
| Metric               | øD | L1 | L2 | f  | ød1 | ød2 | rc** | Insert             |
|----------------------|----|----|----|----|-----|-----|------|--------------------|
| C4ADJNR/L27050-1104N | 40 | 50 | 25 | 27 | 145 | 110 | 0.8  | DN**1104.../DN**33 |
| C6ADJNR/L45065-1104N | 63 | 65 | 35 | 45 | 190 | 119 | 0.8  | DN**1104.../DN**33 |

Applicable for 7 MPa pressure coolant.

| SPARE PARTS      |  |  |  |  |  |  |  |  |  |
|------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Designation      | Clamp                                                                             | Clamping screw                                                                    | Coolant parts                                                                     | Shim                                                                              | Shim screw                                                                        | Spring                                                                              | Spring 1                                                                            | Wrench                                                                              | Wrench 1                                                                            |
| C*ADJNR/L*-1104N | ACP3S-E                                                                           | ACS-5W                                                                            | SATZ-M10X1-M5                                                                     | ASD322                                                                            | CSTB-3.5                                                                          | BP-7                                                                                | SP-2.5                                                                              | -                                                                                   | T-15F                                                                               |

## C-AWLNR/L

Turning A double-clamp toolholder with 95° approach angle. For negative 80° trigon inserts.



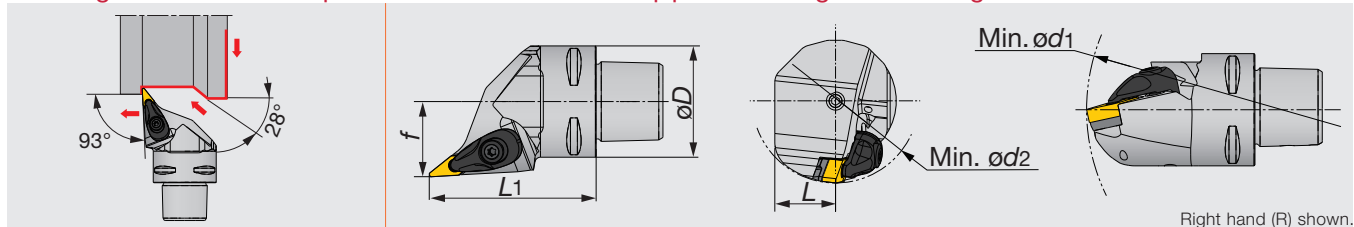
| Metric               | øD | L1 | L2 | f  | ød1 | ød2 | rc** | Insert             |
|----------------------|----|----|----|----|-----|-----|------|--------------------|
| C4AWLNR/L27050-0604N | 40 | 50 | 25 | 27 | 140 | 110 | 0.8  | WN**0604.../CN**33 |

Applicable for 7 MPa pressure coolant.

| SPARE PARTS          |  |  |  |  |  |  |  |  |  |
|----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Designation          | Clamp                                                                               | Clamping screw                                                                      | Coolant parts                                                                       | Shim                                                                                | Shim screw                                                                          | Spring                                                                                | Spring 1                                                                              | Wrench                                                                                | Wrench 1                                                                              |
| C4AWLNR/L27050-0604N | ACP3S-E                                                                             | ACS-5W                                                                              | -                                                                                   | ASW322                                                                              | CSTB-3.5                                                                            | BP-7                                                                                  | SP-2.5                                                                                | -                                                                                     | T-15F                                                                                 |

## C-AVJNR/L

Turning A double-clamp toolholder with 93° approach angle. For negative 35° rhombic insert.



| Metric               | øD | L1 | L2   | f  | ød1 | ød2 | rc** | Insert               |
|----------------------|----|----|------|----|-----|-----|------|----------------------|
| C4AVJNR/L27060-1204N | 40 | 60 | 20   | 27 | 140 | 55  | 0.8  | VN**1204.../VN**2.33 |
| C6AVJNR/L45065-1204N | 63 | 65 | 31.5 | 45 | 190 | 81  | 0.8  | VN**1204.../VN**2.33 |

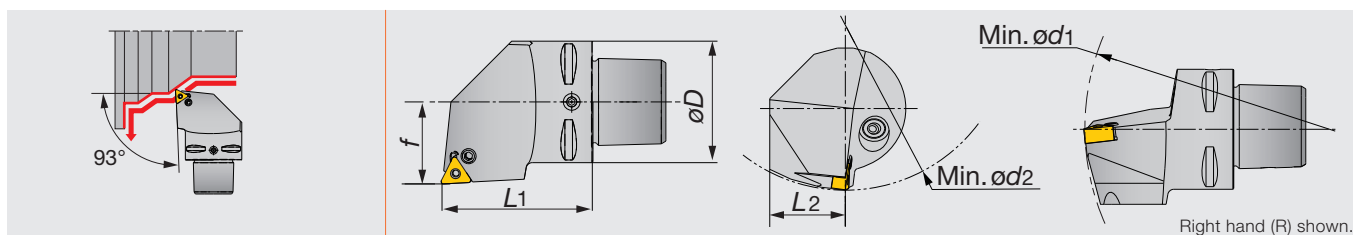
Applicable for 7 MPa pressure coolant.

### SPARE PARTS

| Designation          | Clamp   | Clamping screw | Coolant parts | Shim   | Shim screw | Spring | Spring 1 | Wrench | Wrench 1 |
|----------------------|---------|----------------|---------------|--------|------------|--------|----------|--------|----------|
| C4AVJNR/L27060-1204N | ACP3L-E | ACS-5W         | -             | ASV222 | CSTB-3     | BP-7   | SP-2.5   | T-9F   | T-15F    |
| C6AVJNR/L45065-1204N | ACP3L-E | ACS-5W         | SATZ-M10X1-M5 | ASV222 | CSTB-3     | BP-7   | SP-2.5   | T-9F   | T-15F    |

## C-PTJNR/L

Lever lock type toolholder with 93° approach angle. For negative 60° triangular insert.



| Metric               | øD | L1 | L2 | f  | ød1 | ød2 | rc** | Insert             |
|----------------------|----|----|----|----|-----|-----|------|--------------------|
| C4PTJNR/L27050-1104N | 40 | 50 | 25 | 27 | 140 | 110 | 0.8  | TN**1104.../TN**23 |

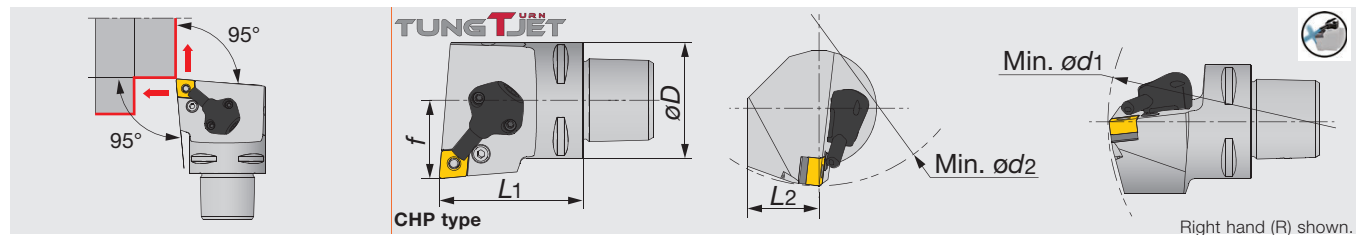
Applicable for 7 MPa pressure coolant.

### SPARE PARTS

| Designation          | Clamping screw | Lever | Wrench 1 |
|----------------------|----------------|-------|----------|
| C4PTJNR/L27050-1104N | LCS23A         | LCL23 | P-2.5    |

## C-PCLNR/L-CHP

Lever lock type toolholder with 95° approach angle. For negative 80° rhombic insert.



| Metric                  | øD | L1 | L2 | f  | ød1 | ød2 | re** | Insert             |
|-------------------------|----|----|----|----|-----|-----|------|--------------------|
| C4PCLNR/L27050-0904-CHP | 40 | 50 | 25 | 27 | 140 | 110 | 0.8  | CN**0904.../CN**33 |
| C6PCLNR/L45065-0904-CHP | 63 | 65 | 35 | 45 | 190 | 110 | 0.8  | CN**0904.../CN**33 |

Applicable for 14 MPa pressure coolant

### SPARE PARTS

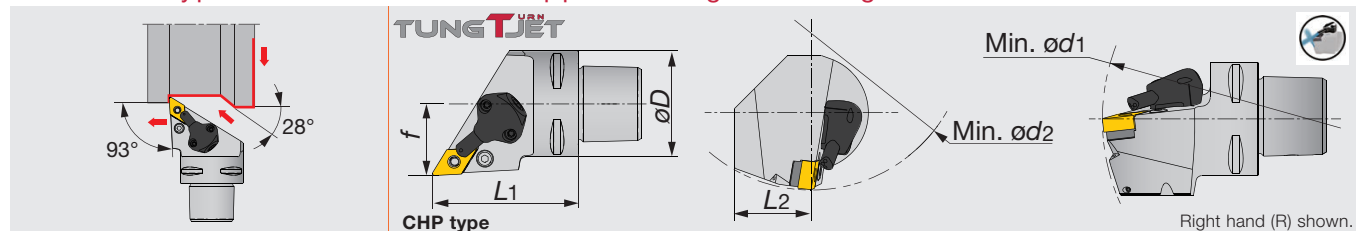
| Designation          | Shim   | Clamping screw | Spring pin | Lever | Wrench 1 |
|----------------------|--------|----------------|------------|-------|----------|
| C*PCLNR/L**-0904-CHP | LSC317 | LCS3           | LSP3       | LCL33 | P-2.5    |

### SPARE PARTS

| Designation          | Coolant unit | Mounting screw | Wrench 2 | O-ring     |
|----------------------|--------------|----------------|----------|------------|
| C*PCLNR/L**-0904-CHP | CU-CW-CHP    | SRM3           | T-8F     | OR6.4X0.9N |

## C-PDJNR/L-CHP

Lever lock type toolholder with 93° approach angle. For negative 55° rhombic insert.



| Metric                  | øD | L1 | L2 | f  | ød1 | ød2 | re** | Insert             |
|-------------------------|----|----|----|----|-----|-----|------|--------------------|
| C4PDJNR/L27055-1104-CHP | 40 | 55 | 27 | 27 | 145 | 110 | 0.8  | DN**1104.../DN**33 |
| C6PDJNR/L45065-1104-CHP | 63 | 65 | 35 | 45 | 195 | 95  | 0.8  | DN**1104.../DN**33 |

Applicable for 14 MPa pressure coolant

### SPARE PARTS

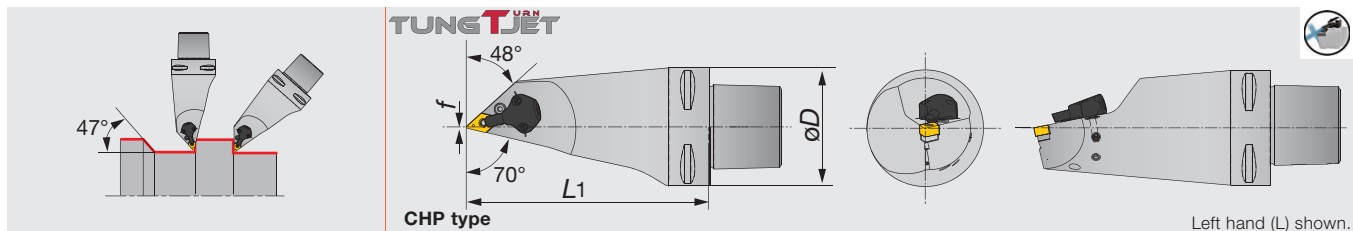
| Designation          | Shim   | Clamping screw | Spring pin | Lever | Wrench 1 |
|----------------------|--------|----------------|------------|-------|----------|
| C*PDJNR/L**-1104-CHP | ELSD32 | LCS3           | LSP3       | LCL33 | P-2.5    |

### SPARE PARTS

| Designation          | Coolant unit | Mounting screw | Wrench 2 | O-ring     |
|----------------------|--------------|----------------|----------|------------|
| C*PDJNR/L**-1104-CHP | CU-D-CHP     | SRM3           | T-8F     | OR6.4X0.9N |

## C-PDMNL-CHP

Lever lock type toolholder with 93° approach angle. For negative 55° rhombic insert.



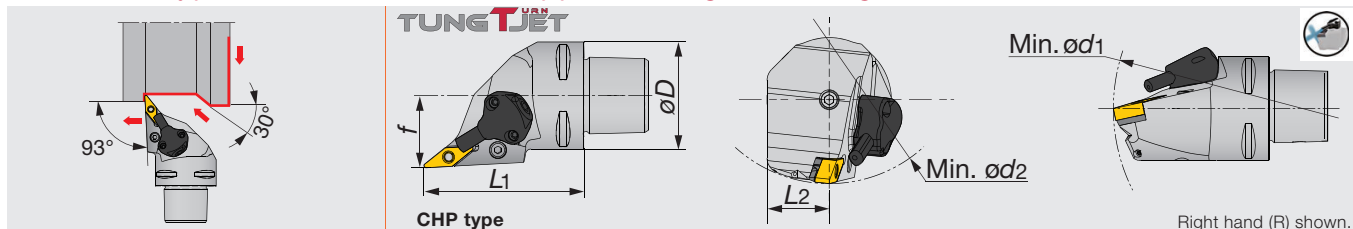
| Metric                | øD | L1  | L2 | f | ød1 | ød2 | rc** | Insert             |
|-----------------------|----|-----|----|---|-----|-----|------|--------------------|
| C6PDMNL00130-1104-CHP | 63 | 130 | -  | 0 | -   | -   | 0.8  | DN**1104.../DN**33 |

Applicable for 14 MPa pressure coolant.

| SPARE PARTS           |        |                |            |        |          | SPARE PARTS           |              |                |          |            |
|-----------------------|--------|----------------|------------|--------|----------|-----------------------|--------------|----------------|----------|------------|
| Designation           | Shim   | Clamping screw | Spring pin | Lever  | Wrench 1 | Designation           | Coolant unit | Mounting screw | Wrench 2 | O-ring     |
| C6PDMNL00130-1104-CHP | ELSD32 | LCS3           | LSP3       | LCL33L | P-2.5    | C6PDMNL00130-1104-CHP | CU-D-CHP     | SRM3           | T-8F     | OR6.4X0.9N |

## C-PVJNR/L-CHP

Lever lock type toolholder with 93° approach angle. For negative 35° rhombic inserts.



| Metric                  | øD | L1 | L2   | f  | ød1 | ød2 | rc** | Insert               |
|-------------------------|----|----|------|----|-----|-----|------|----------------------|
| C4PVJNR/L27060-1204-CHP | 40 | 60 | 20   | 27 | 140 | 90  | 0.8  | VN**1204.../VN**2.33 |
| C6PVJNR/L45065-1204-CHP | 63 | 65 | 31.5 | 45 | 190 | 81  | 0.8  | VN**1204.../VN**2.33 |

Applicable for 14 MPa pressure coolant.

| SPARE PARTS         |        |                |            |       |          | SPARE PARTS         |              |                |          |            |
|---------------------|--------|----------------|------------|-------|----------|---------------------|--------------|----------------|----------|------------|
| Designation         | Shim   | Clamping screw | Spring pin | Lever | Wrench 1 | Designation         | Coolant unit | Mounting screw | Wrench 2 | O-ring     |
| C*PVJNR/L*-1204-CHP | LSV212 | LCS3V          | LSP3       | LCL3V | P-2.5    | C*PVJNR/L*-1204-CHP | CU-V-CHP     | SRM3           | T-8F     | OR6.4X0.9N |

## STANDARD CUTTING CONDITIONS



Steel

| Application                         | Chipbreaker | Grades | Cutting speed Vc (sfm)            |                                      |                                    | Depth of cut<br>ap (inch) | Feed<br>f (ipr) |
|-------------------------------------|-------------|--------|-----------------------------------|--------------------------------------|------------------------------------|---------------------------|-----------------|
|                                     |             |        | Low carbon steels<br>Alloy steels | Medium carbon steels<br>Alloy steels | High carbon steels<br>Alloy steels |                           |                 |
| Precision finishing                 | TF          | T9215  | 492 - 1312                        | 492 - 1312                           | 394 - 984                          | 0.004 - 0.02              | 0.001 - 0.006   |
|                                     |             | T9225  | 394 - 984                         | 394 - 984                            | 328 - 820                          |                           |                 |
| Finishing                           | TSF         | NS9530 | 492 - 820                         | 262 - 722                            | 262 - 591                          | 0.008 - 0.059             | 0.003 - 0.016   |
|                                     |             | GT9530 | 492 - 984                         | 262 - 820                            | 262 - 656                          |                           |                 |
|                                     |             | AT9530 | 492 - 984                         | 262 - 820                            | 262 - 656                          |                           |                 |
|                                     |             | T9215  | 492 - 1312                        | 492 - 1312                           | 394 - 984                          |                           |                 |
|                                     |             | T9225  | 394 - 984                         | 394 - 984                            | 328 - 820                          |                           |                 |
|                                     |             | T9215  | 492 - 1312                        | 492 - 1312                           | 394 - 984                          |                           |                 |
| Finishing (Wiper)                   | ZF          | T9225  | 394 - 984                         | 394 - 984                            | 328 - 820                          | 0.008 - 0.059             | 0.003 - 0.008   |
|                                     |             | T9215  | 492 - 1312                        | 492 - 1312                           | 394 - 984                          |                           |                 |
|                                     |             | T9205  | 591 - 1312                        | 591 - 1312                           | 492 - 1148                         |                           |                 |
|                                     |             | T9215  | 492 - 1312                        | 492 - 1312                           | 394 - 984                          |                           |                 |
|                                     |             | T9225  | 394 - 984                         | 394 - 984                            | 328 - 820                          |                           |                 |
|                                     |             | NS9530 | 492 - 820                         | 262 - 722                            | 262 - 591                          |                           |                 |
| Finishing to medium cutting         | FW          | GT9530 | 492 - 984                         | 262 - 820                            | 262 - 656                          | 0.02 - 0.059              | 0.008 - 0.016   |
|                                     |             | T9215  | 492 - 1312                        | 492 - 1312                           | 394 - 984                          |                           |                 |
|                                     |             | T9225  | 394 - 984                         | 394 - 984                            | 328 - 820                          |                           |                 |
|                                     |             | T9205  | 591 - 1312                        | 591 - 1312                           | 492 - 1148                         |                           |                 |
| Finishing to medium cutting (Wiper) | SW          | T9215  | 492 - 1312                        | 492 - 1312                           | 394 - 984                          | 0.02 - 0.079              | 0.012 - 0.024   |
|                                     |             | T9225  | 394 - 984                         | 394 - 984                            | 328 - 820                          |                           |                 |
| Finishing to medium cutting         | NM          | T9225  | 394 - 984                         | 394 - 984                            | 328 - 820                          | 0.02 - 0.079              | 0.006 - 0.016   |
| Medium cutting                      | TM          | T9215  | 492 - 1312                        | 492 - 1312                           | 394 - 984                          | 0.039 - 0.118             | 0.008 - 0.02    |
|                                     |             | T9225  | 394 - 984                         | 394 - 984                            | 328 - 820                          |                           |                 |



Stainless

| Application    | Chipbreaker | Grades | Cutting speed Vc (sfm) |                           |                           | Depth of cut<br>ap (inch) | Feed<br>f (ipr) |
|----------------|-------------|--------|------------------------|---------------------------|---------------------------|---------------------------|-----------------|
|                |             |        | Austenitic             | Ferritic /<br>Martensitic | Precipitation<br>hardened |                           |                 |
| Finishing      | SS          | AH630  | 295 - 623              | 361 - 689                 | 197 - 295                 | 0.02 - 0.118              | 0.003 - 0.008   |
|                |             | AH645  | 230 - 492              | 295 - 558                 | -                         |                           |                 |
| Medium cutting | SM          | T6120  | 459 - 787              | 525 - 919                 | 262 - 492                 | 0.039 - 0.118             | 0.008 - 0.02    |
|                |             | T6130  | 328 - 656              | 394 - 787                 | 230 - 361                 |                           |                 |
|                |             | AH630  | 295 - 623              | 361 - 689                 | 197 - 295                 |                           |                 |



Cast Iron

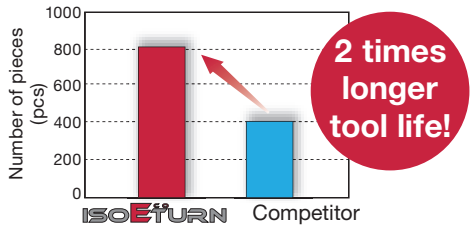
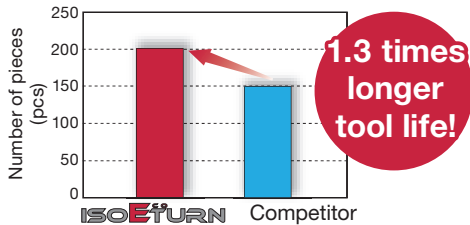
| Application                         | Chipbreaker | Grades | Cutting speed Vc (sfm) |                    | Depth of cut<br>ap (inch) | Feed<br>f (ipr) |
|-------------------------------------|-------------|--------|------------------------|--------------------|---------------------------|-----------------|
|                                     |             |        | Grey cast irons        | Ductile cast irons |                           |                 |
| Finishing to medium cutting (Wiper) | SW          | T5115  | 459 - 1312             | 459 - 1214         | 0.02 - 0.079              | 0.012 - 0.024   |
| Medium cutting                      | TM          | T515   | 492 - 2297             | 459 - 1214         | 0.039 - 0.118             | 0.008 - 0.02    |



Superalloys  
and titanium

| Application    | Chipbreaker | Grades | Cutting speed Vc (sfm) |                | Depth of cut<br>ap (inch) | Feed<br>f (ipr) |
|----------------|-------------|--------|------------------------|----------------|---------------------------|-----------------|
|                |             |        | Titanium alloys        | Ni-base alloys |                           |                 |
| Medium cutting | TM          | AH8015 | 66 - 492               | 66 - 328       | 0.039 - 0.118             | 0.008 - 0.02    |

## PRACTICAL EXAMPLES

| Workpiece type     |                             | Machine part                                                                                                                                                                                                                                                                | Shaft                                                                                                                                                                                                                                                |
|--------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toolholder         |                             | AWLNR1633-A                                                                                                                                                                                                                                                                 | ADJNR1633-A                                                                                                                                                                                                                                          |
| Insert             |                             | WNMG 332E TM                                                                                                                                                                                                                                                                | DNMG 332E TSF                                                                                                                                                                                                                                        |
| Grade              |                             | T9215                                                                                                                                                                                                                                                                       | T9215                                                                                                                                                                                                                                                |
| Workpiece material |                             | low alloy steel                                                                                                                                                                                                                                                             | 1045                                                                                                                                                                                                                                                 |
|                    |                             |  <b>P</b>                                                                                                                                                                                  |  <b>P</b>                                                                                                                                                         |
| Cutting conditions | Cutting speed: $V_c$ (sfm)  | 787                                                                                                                                                                                                                                                                         | 853                                                                                                                                                                                                                                                  |
|                    | Feed : $f$ (ipr)            | 0.004 - 0.01                                                                                                                                                                                                                                                                | 0.008                                                                                                                                                                                                                                                |
|                    | Depth of cut : $a_p$ (inch) | 0.039                                                                                                                                                                                                                                                                       | 0.039                                                                                                                                                                                                                                                |
|                    | Machining                   | External face turning                                                                                                                                                                                                                                                       | External turning                                                                                                                                                                                                                                     |
|                    | Coolant                     | Wet                                                                                                                                                                                                                                                                         | Wet                                                                                                                                                                                                                                                  |
| Results            |                             |  <p>ISO-ECOTURN insert has demonstrated excellent chip control at 1 mm depth of cut. With T9215 grade, tool life has been doubled over the competitor's regular sized CNMG 43 insert.</p> |  <p>ISO-ECOTURN insert in T9215 grade has increased tool life by 1.3 times over the competitor's regular sized DNMG 43 insert with added machining stability.</p> |
|                    |                             |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                      |



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