Member IMC Group
Tungaloy
INDUSTRY 4.0

# PROMOTIONS 2022

*VALID TILL 6/30/2022*


Bass TOOL & SUPPLY, INC.
713-682-1889
800-442-0042
sales@basstool.com
www.basstool.com


## TURNING INSERTS

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SAVE UP TO 55% FROM LIST

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FREE TOOLS

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FREE CUTTERS

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FREE DRILL BODIES

# AH6225

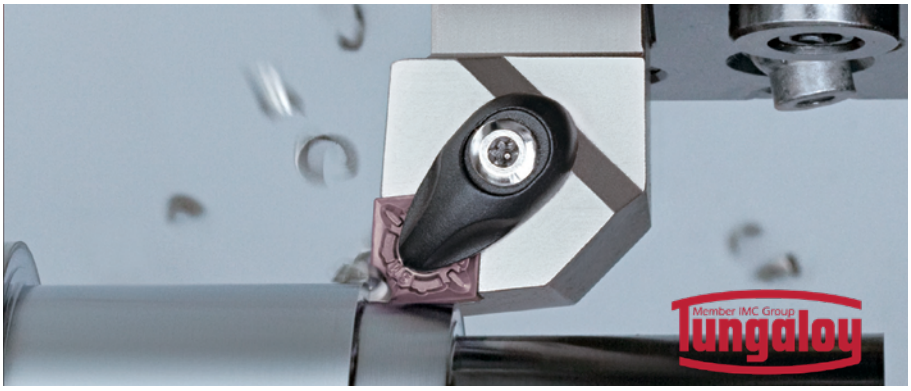
- A NEW GENERATION OF PVD GRADE FOR **STAINLESS STEEL**
- SUPERIOR WEAR RESISTANCE
- ELIMINATES BUILT UP EDGE

**BUY 50** inserts AND **GET**

**20%** additional discount!

Promo code: TG129

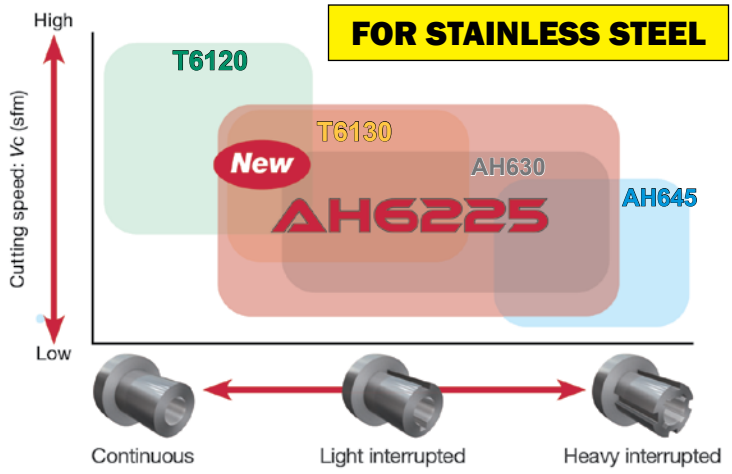
SAVE UP TO **55%** FROM LIST




| INSERTS INCLUDED IN THE PROMO: | Negative type | Positive type |
|---|---|---|
| | CNMG..., DNMG..., SNMG..., TNMG..., VNMG..., WNMG | CCMT..., CPMT..., DCMT..., SCMT..., TCMT..., TPMT..., VBMT..., VCMT..., |

**AH6225** is our new versatile solution for all your challenges in **STAINLESS STEEL** machining!

**FOR STAINLESS STEEL**




## STEEL TURNING

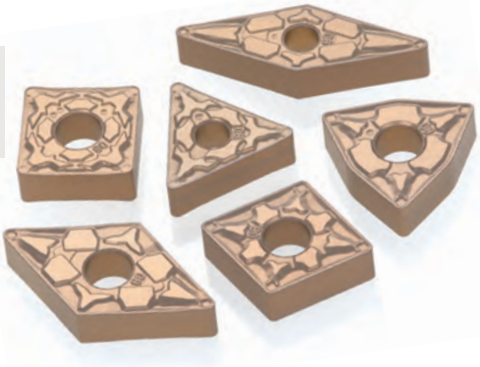
# PS & PM T9200

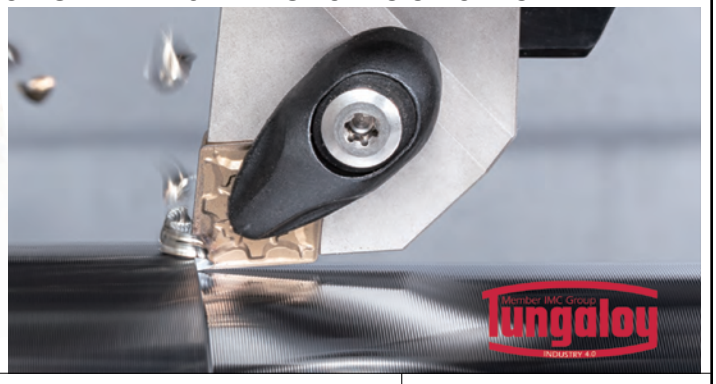
**BUY 50** inserts AND **GET**

**20%** additional discount!

Promo code: TG132

**PS AND PM CHIPBREAKERS FOR LIGHT CUTTING DEPTHS OR HIGH FEED RATES**
**TURNING INSERTS FOR STEEL IN GRADES T9215 & T9225**






SAVE UP TO **55%** FROM LIST

**STANDARD CUTTING CONDITIONS**

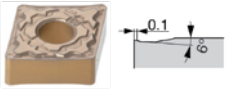
| ISO | Operation | Chip breaker | Grade | Depth of cut ap (in) | Feed f (ipr) | Cutting speed: vc (sfm) Low carbon steel, alloy steel | Medium carbon steel, alloy steel | High carbon steel, alloy steel |
|---|---|---|---|---|---|---|---|---|
| P | Finishing | PS | T9215 | 0.012 - 0.059 | 0.004 - 0.016 | 492 - 1312 | 492 - 1312 | 394 - 984 |
| | | | T9225 | 0.012 - 0.059 | 0.004 - 0.016 | 394 - 984 | 394 - 984 | 328 - 820 |
| | Medium cutting | PM | T9215 | 0.020 - 0.217 | 0.006 - 0.020 | 492 - 1312 | 492 - 1312 | 394 - 984 |
| | | | T9225 | 0.020 - 0.217 | 0.006 - 0.020 | 394- 984 | 394- 984 | 328 - 820 |

**CARBIDE GRADES APPLICATIONS**

| | | T9215 | AH8015 |
|---|---|---|---|
| P | Steel | ●◆ | ◆✠ |
| M | Stainless | ●◆ | |
| K | Cast iron | ●◆ | |

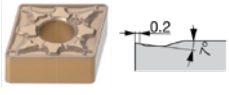
● Continuous cutting
◆ Light interrupted cutting
✠ Heavy interrupted cutting

**PS**




Unique geometry to provide better crater wear resistance and chip control during turning at light cutting depths.

**PM**




Versatile geometry with optimized cutting edge design to provide superior chip control in wide range of applications.

# MODULAR SYSTEM FOR SWISS MACHINES

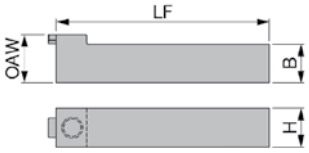
- Modularity and productivity with a wide selection of turning, grooving and threading heads.
- Substantially reduced setup time for maximum machine utilization.
- By feeding in the Y-axis direction, downward-facing chipbreaker directs the chip flow down and away from the cutting point.
- Positioning accuracy for the same insert: ±5 µm (±0.0002").
- **ModuMiniTurn** offers precision internal coolant delivery, which improves chip control and tool life.

**BUY 20** inserts* **GET 1** head **FREE**
- OR - **GET 1** CHP head at **50% discount**
Promo code: TG136

* ONLY INSERTS SHOWN ON THE RIGHT

WXGU... DXMU... DXGU... VGXU... TCP... J10ER TCG... TCT TCL... TCS

## SHANKS




| PART#: (Inch) | H | B | LF | OAW |
|---|---|---|---|---|
| QC-08F | 0.500 | 0.500 | 2.559 | 0.591 |
| QC-08X | 0.500 | 0.500 | 3.937 | 0.591 |
| **PART#: (Metric)** | **H** | **B** | **LF** | **OAW** |
| QC-1212F | 12 | 12 | 65 | 15 |
| QC-1212X | 12 | 12 | 100 | 15 |

### Shanks with high pressure coolant capability

Fig. 1

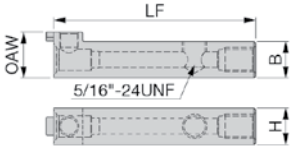
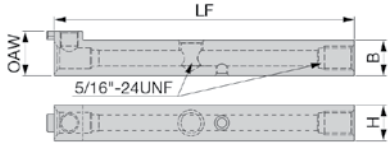


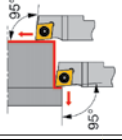

Fig. 2



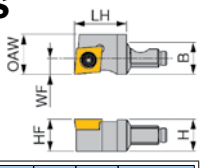

| PART#: (Inch) | H | B | LF | OAW | Fig. |
|---|---|---|---|---|---|
| QC-08F-CHP | 0.500 | 0.500 | 2.559 | 0.591 | 1 |
| QC-08X-CHP(1) | 0.500 | 0.500 | 3.937 | 0.591 | 2 |
| **PART#: (Metric)** | **H** | **B** | **LF** | **OAW** | **Fig.** |
| QC-1212F-CHP | 12 | 12 | 65 | 15 | 1 |
| QC-1212X-CHP(1) | 12 | 12 | 100 | 15 | 2 |

(1) Compatible to the direct internal coolant supply system without the use of external coolant hose. Through-coolant shank

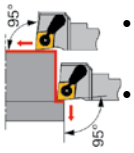
## MODULAR HEADS



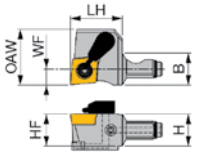

- USE 80° POSITIVE INSERTS



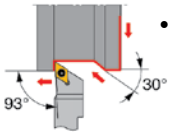

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSCL2CR09 | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.591 | CC**32.5 |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSCL2CR09 | 12 | 12 | 19.5 | 12 | 6 | 15 | CC**09T3... |



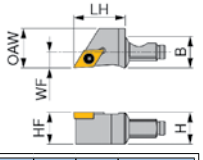

- WITH HIGH PRESSURE COOLANT SUPPLY
- USE 80° POSITIVE INSERTS



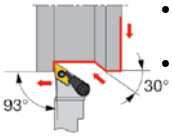

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSCL2CR09-CHP | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.827 | CC**32.5 |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSCL2CR09-CHP | 12 | 12 | 19.5 | 12 | 6 | 21 | CC**09T3... |



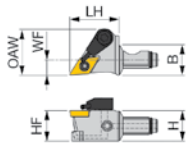

- USE 55° POSITIVE INSERTS



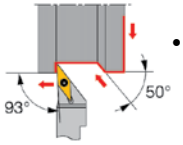

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSDJ2CR07 | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.591 | DC**21.5... |
| QC12-JSDJ2CR11 | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.591 | DC**32.5... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSDJ2CR07 | 12 | 12 | 19.5 | 12 | 6 | 15 | DC**0702... |
| QC12-JSDJ2CR11 | 12 | 12 | 19.5 | 12 | 6 | 15 | DC**11T3... |



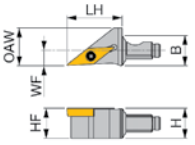

- USE 55° POSITIVE INSERTS
- WITH HIGH PRESSURE COOLANT SUPPLY



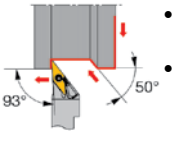

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSDJ2CR07-CHP | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.709 | DC**21.5 |
| QC12-JSDJ2CR11-CHP | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.827 | DC**32.5 |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSDJ2CR07-CHP | 12 | 12 | 19.5 | 12 | 6 | 18 | DC**0702... |
| QC12-JSDJ2CR11-CHP | 12 | 12 | 19.5 | 12 | 6 | 21 | DC**11T3... |



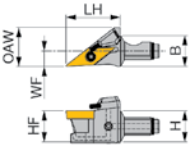

- USE 35° POSITIVE INSERTS



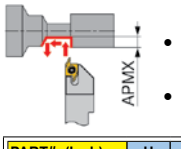

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSVJ2BR11 | 0.472 | 0.472 | 0.866 | 0.472 | 0.236 | 0.591 | VB**22... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSVJ2BR11 | 12 | 12 | 22 | 12 | 6 | 15 | VB**1103... |



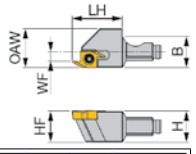

- USE 35° POSITIVE INSERTS
- WITH HIGH PRESSURE COOLANT SUPPLY



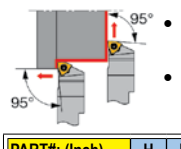

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSVJ2BR11-CHP | 0.472 | 0.472 | 0.827 | 0.472 | 0.236 | 0.591 | VB**22... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSVJ2BR11-CHP | 12 | 12 | 21 | 12 | 6 | 15 | VB**1103... |



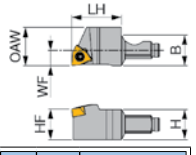

- FOR BACK TURNING
- APMAX = 3mm



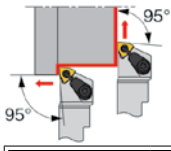

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSEGR10 | 0.472 | 0.472 | 0.768 | 0.472 | 0.138 | 0.591 | J10ER... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSEGR10 | 12 | 12 | 19.5 | 12 | 3.5 | 15 | J10ER... |



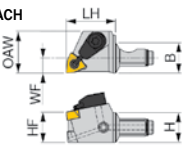

- 95° APPROACH ANGLE
- USE WXGU INSERTS



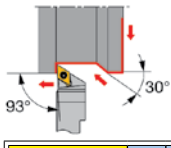

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSWL2XR04 | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.591 | WXGU022**L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSWL2XR04 | 12 | 12 | 19.5 | 12 | 6 | 15 | WXGU0403**L... |



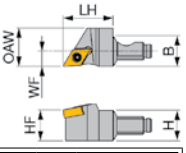

- 95° APPROACH ANGLE
- HIGH PRESSURE COOLANT SUPPLY
- USE WXGU INSERTS



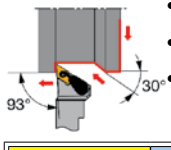

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSWL2XR04-CHP | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.650 | WXGU22**L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSWL2XR04-CHP | 12 | 12 | 19.5 | 12 | 6 | 16.5 | WXGU0403**L... |



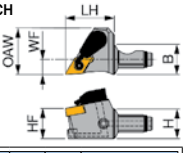

- 93° APPROACH ANGLE
- USE DXGU INSERTS



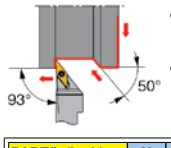

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSDJ2XR07 | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.591 | DXGU22**L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSDJ2XR07 | 12 | 12 | 19.5 | 12 | 6 | 15 | DXGU0703**L... |



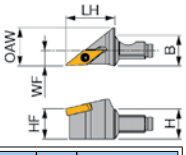

- 93° APPROACH ANGLE
- USE DXGU INSERTS
- WITH HIGH PRESSURE COOLANT SUPPLY



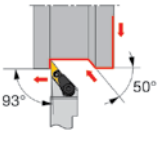

| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSDJ2XR07-CHP | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.724 | DXGU22**L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSDJ2XR07-CHP | 12 | 12 | 19.5 | 12 | 6 | 18.4 | DXGU0703**L... |



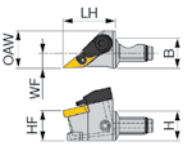

- 93° APPROACH ANGLE
- USE VXGU INSERTS




| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSVJ2XR09 | 0.472 | 0.472 | 0.768 | 0.472 | 0.236 | 0.591 | VXGU73.5**L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSVJ2XR09 | 12 | 12 | 19.5 | 12 | 6 | 15 | VXGU09T2**L... |




- 93° APPROACH ANGLE
- HIGH PRESSURE COOLANT SUPPLY
- USE VXGU INSERTS

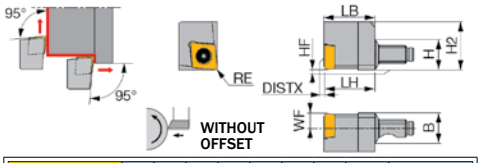



| PART#: (Inch) | H | B | LH | HF | WF | OAW | Insert |
|---|---|---|---|---|---|---|---|
| QC12-JSVJ2XR09-CHP | 0.472 | 0.472 | 0.827 | 0.472 | 0.236 | 0.591 | VXGU73.5**L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **OAW** | **Insert** |
| QC12-JSVJ2XR09-CHP | 12 | 12 | 21 | 12 | 6 | 15 | VXGU09T2**L... |

Tungaloy MODUMINI TURN

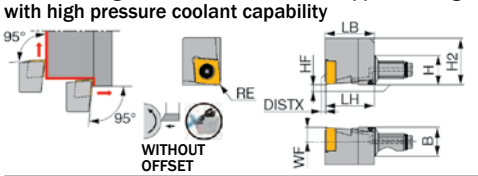
# MODULAR SYSTEM FOR SWISS MACHINES

## QC12-JSCL2CR-Y
**Y-axis turning modular head with 95° approach angle**




| PART#: (Inch) | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|
| QC12-JSCL2CR09-Y | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 0.780 | 0.732 | 0.012 | CC*T32.50.5... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-JSCL2CR09-Y | 12 | 12 | 19.5 | 0 | 6 | 19.8 | 18.6 | 0.3 | CC**09T3... |

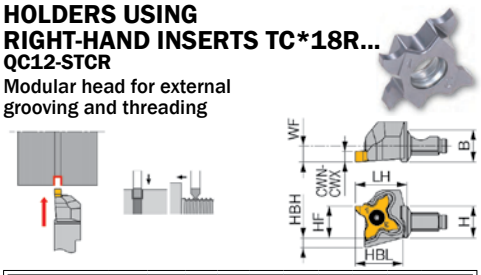
## QC12-JSCL2CR-Y-CHP
**Y-axis turning modular head with 95° approach angle with high pressure coolant capability**




| PART#: (Inch) | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|
| QC12-JSCL2CR09-Y-CHP | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 0.780 | 0.732 | 0.012 | CC*T32.50.5... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-JSCL2CR09-Y-CHP | 12 | 12 | 19.5 | 0 | 6 | 19.8 | 18.6 | 0.3 | CC**09T3... |

## HOLDERS USING RIGHT-HAND INSERTS TC*18R...

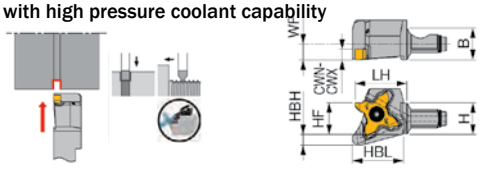
## QC12-STCR
**Modular head for external grooving and threading**




| PART#: (Inch) | CWN | CWX | H | B | LH | HF | HBH | HBL | WF | Insert |
|---|---|---|---|---|---|---|---|---|---|---|
| QC12-STCR18 | 0.013 | 0.118 | 0.472 | 0.472 | 0.768 | 0.472 | 0.154 | 0.705 | 0.236 | TC*18R |
| **PART#: (Metric)** | **CWN** | **CWX** | **H** | **B** | **LH** | **HF** | **HBH** | **HBL** | **WF** | **Insert** |
| QC12-STCR18 | 0.33 | 3 | 12 | 12 | 19.5 | 12 | 3.9 | 17.9 | 9 | TC*18R |

The right hand insert (R) is used for the right hand toolholder (R).

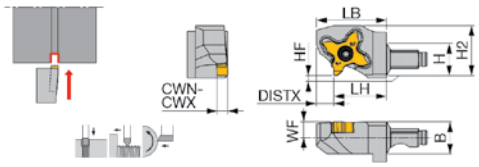
## QC12-STCR-CHP
**Modular head for external grooving and threading, with high pressure coolant capability**




| PART#: (Inch) | CWN | CWX | H | B | LH | HF | HBH | HBL | WF | Insert |
|---|---|---|---|---|---|---|---|---|---|---|
| QC12-STCR18-CHP | 0.113 | 0.118 | 0.472 | 0.472 | 0.768 | 0.472 | 0.165 | 0.760 | 0.236 | TC*18R |
| **PART#: (Metric)** | **CWN** | **CWX** | **H** | **B** | **LH** | **HF** | **HBH** | **HBL** | **WF** | **Insert** |
| QC12-STCR18-CHP | 0.33 | 3 | 12 | 12 | 19.5 | 12 | 4.2 | 19.3 | 6 | TC*18R |

The right hand insert (R) is used for the right hand toolholder (R). Through coolant head

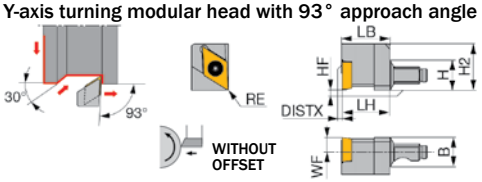
## QC12-STCR-Y Y-axis turning modular head for external grooving and threading




| PART#: (Inch) | CWN | CWX | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| QC12-STCR18-Y | 0.113 | 0.118 | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 1.024 | 0.732 | 0.256 | TC*18R |
| **PART#: (Metric)** | **CWN** | **CWX** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-STCR18-Y | 0.33 | 3 | 12 | 12 | 19.5 | 0 | 6 | 26 | 18.6 | 6.5 | TC*18R |

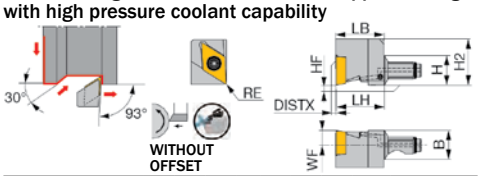
The right hand insert (R) is used for the right hand toolholder (R).

## QC12-JSDJ2CR-Y
**Y-axis turning modular head with 93° approach angle**



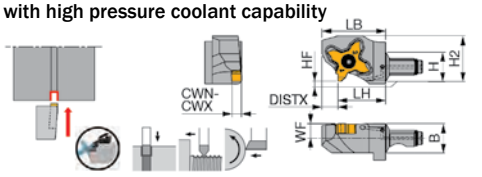

| PART#: (Inch) | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|
| QC12-JSDJ2CR11-Y | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 0.780 | 0.732 | 0.012 | DC*T32.50.5... |
| **PART#: (Inch)** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-JSDJ2CR11-Y | 12 | 12 | 19.5 | 0 | 6 | 19.8 | 18.7 | 0.3 | DC**11T3... |

## QC12-JSDJ2CR-Y-CHP
**Y-axis turning modular head with 93° approach angle with high pressure coolant capability**




| PART#: (Inch) | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|
| QC12-JSDJ2CR11-Y-CHP | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 0.780 | 0.736 | 0.012 | DC*T32.50.5... |
| **PART#: (Inch)** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-JSDJ2CR11-Y-CHP | 12 | 12 | 19.5 | 0 | 6 | 19.8 | 18.7 | 0.3 | DC**11T3... |

## QC12-STCR-Y-CHP Y-axis turning modular head for external grooving and threading with high pressure coolant capability

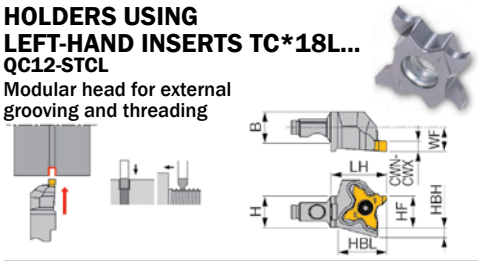



| PART#: (Inch) | CWN | CWX | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| QC12-STCR18-Y-CHP | 0.113 | 0.118 | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 1.024 | 0.732 | 0.256 | TC*18R |
| **PART#: (Metric)** | **CWN** | **CWX** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-STCR18-Y-CHP | 0.33 | 3 | 12 | 12 | 19.5 | 0 | 6 | 26 | 18.6 | 6.5 | TC*18R |

The right hand insert (R) is used for the right hand toolholder (R). Through coolant head

## HOLDERS USING LEFT-HAND INSERTS TC*18L...

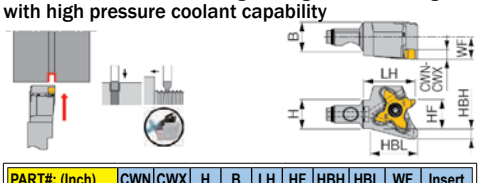
## QC12-STCL
**Modular head for external grooving and threading**




| PART#: (Inch) | CWN | CWX | H | B | LH | HF | HBH | HBL | WF | Insert |
|---|---|---|---|---|---|---|---|---|---|---|
| QC12-STCL18 | 0.013 | 0.118 | 0.472 | 0.472 | 0.827 | 0.472 | 0.154 | 0.720 | 0.354 | TC*18L |
| **PART#: (Metric)** | **CWN** | **CWX** | **H** | **B** | **LH** | **HF** | **HBH** | **HBL** | **WF** | **Insert** |
| QC12-STCL18 | 0.33 | 3 | 12 | 12 | 21 | 12 | 3.9 | 18.3 | 9 | TC*18L |

The left hand insert (L) is used for the left hand toolholder (L).

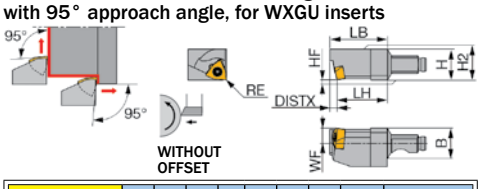
## QC12-STCL-CHP
**Modular head for external grooving and threading, with high pressure coolant capability**




| PART#: (Inch) | CWN | CWX | H | B | LH | HF | HBH | HBL | WF | Insert |
|---|---|---|---|---|---|---|---|---|---|---|
| QC12-STCL18-CHP | 0.013 | 0.118 | 0.472 | 0.472 | 0.827 | 0.472 | 0.165 | 0.760 | 0.354 | TC*18L |
| **PART#: (Metric)** | **CWN** | **CWX** | **H** | **B** | **LH** | **HF** | **HBH** | **HBL** | **WF** | **Insert** |
| QC12-STCL18-CHP | 0.33 | 3 | 12 | 12 | 21 | 12 | 4.2 | 19.3 | 9 | TC*18L |

The left hand insert (L) is used for the left hand toolholder (L). Through coolant head

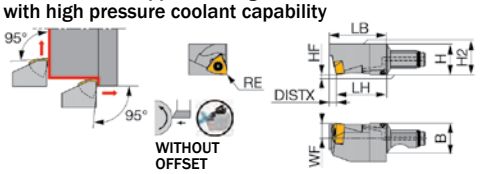
## QC12-JSDJ2CR-Y Y-axis turning modular head with 95° approach angle, for WXGU inserts




| PART#: (Inch) | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|
| QC12-JSWL2XR04-Y | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 0.878 | 0.472 | 0.110 | WXGU220.5L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-JSWL2XR04-Y | 12 | 12 | 19.5 | 0 | 6 | 22.3 | 12 | 2.8 | WXGU0403**L... |

Use right-hand toolholders (R) with left-hand inserts (L).

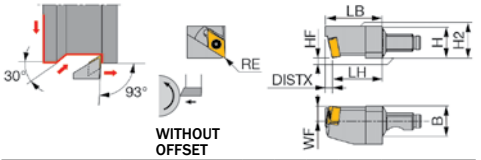
## QC12-JSWL2XR-Y-CHP Y-axis turning modular head with 95° approach angle, for WXGU inserts, with high pressure coolant capability




| PART#: (Inch) | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|
| QC12-JSWL2XR04-Y-CHP | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 0.878 | 0.472 | 0.110 | WXGU220.5L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-JSWL2XR04-Y-CHP | 12 | 12 | 19.5 | 0 | 6 | 22.3 | 12 | 2.8 | WXGU0403**L... |

Use right-hand toolholders (R) with left-hand inserts (L). Through coolant head.

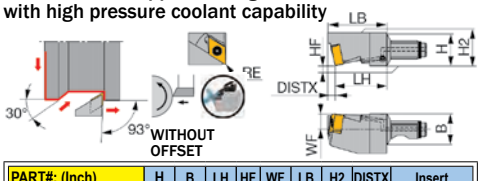
## QC12-JSDJ2XR-Y Y-axis turning modular head with 93° approach angle, for DX*U inserts




| PART#: (Inch) | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|
| QC12-JSDJ2XR07-Y | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 0.878 | 0.492 | 0.110 | DX*U220.5L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-JSDJ2XR07-Y | 12 | 12 | 19.5 | 0 | 6 | 22.3 | 12.5 | 2.8 | DX*U0703**L... |

Use right-hand toolholders (R) with left-hand inserts (L).

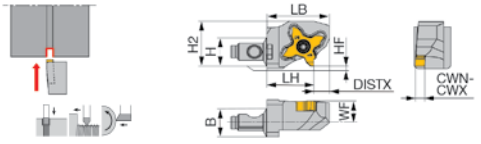
## QC12-JSDJ2XR-Y-CHP Y-axis turning modular head with 93° approach angle, for DX*U inserts, with high pressure coolant capability




| PART#: (Inch) | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|
| QC12-JSDJ2XR07-Y-CHP | 0.472 | 0.472 | 0.768 | 0 | 0.236 | 0.878 | 0.492 | 0.110 | DX*U220.5L... |
| **PART#: (Metric)** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-JSDJ2XR07-Y-CHP | 12 | 12 | 19.5 | 0 | 6 | 22.3 | 12.5 | 2.8 | DX*U0703**L... |

Use right-hand toolholders (R) with left-hand inserts (L). Through coolant head

## Y-axis turning modular heads using L.H. inserts for external grooving and threading




## QC12-STCL-Y : without high pressure coolant hole

| PART#: (Inch) | CWN | CWX | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| QC12-STCL18-Y | 0.013 | 0.118 | 0.472 | 0.472 | 0.768 | 0 | 0.354 | 1.024 | 0.732 | 0.256 | TC*18L |
| **PART#: (Metric)** | **CWN** | **CWX** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-STCL18-Y | 0.33 | 3 | 12 | 12 | 19.5 | 0 | 9 | 26 | 18.6 | 6.5 | TC*18L |

## QC12-STCL-Y-CHP : with high pressure coolant hole

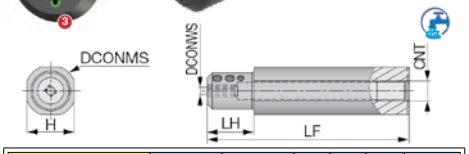
| PART#: (Inch) | CWN | CWX | H | B | LH | HF | WF | LB | H2 | DISTX | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| QC12-STCL18-Y-CHP | 0.013 | 0.118 | 0.472 | 0.472 | 0.768 | 0 | 0.354 | 1.024 | 0.732 | 0.256 | TC*18L |
| **PART#: (Metric)** | **CWN** | **CWX** | **H** | **B** | **LH** | **HF** | **WF** | **LB** | **H2** | **DISTX** | **Insert** |
| QC12-STCL18-Y-CHP | 0.33 | 3 | 12 | 12 | 19.5 | 0 | 9 | 26 | 18.6 | 6.5 | TC*18L |

# TINYMTURN MINIATURE CARBIDE BORING BARS

## SLEEVES

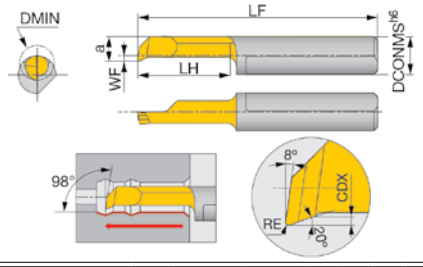
FOR INTERNAL COOLANT SUPPLY WITH 4 COOLANT HOLES

4 PERIPHERAL COOLING JETS



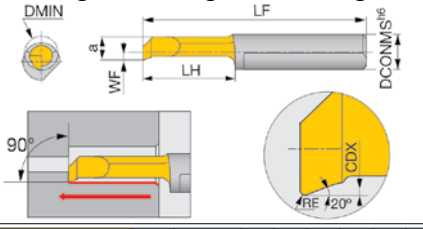

| PART#: | DCONMS | DCONWS | LF | LH | H | CNT |
|---|---|---|---|---|---|---|
| JBBS12-4-L80C-4N | 12 | 4 | 80 | 10 | 10.3 | Rc1/16 |
| JBBS127-4-L80C-4N | 12.7 | 4 | 80 | 10 | 11.6 | Rc1/16 |
| JBBS14-4-L80C-4N | 14 | 4 | 80 | 10 | 12 | Rc1/8 |
| JBBS159-4-L100C-4N | 15.875 | 4 | 100 | 10 | 14.58 | Rc1/8 |
| JBBS159-7-L100C-4N | 15.875 | 7 | 100 | 10 | 14.58 | Rc1/8 |
| JBBS16-4-L100C-4N | 16 | 4 | 100 | 10 | 15 | Rc1/8 |
| JBBS16-7-L100C-4N | 16 | 7 | 100 | 10 | 15 | Rc1/8 |
| JBBS19-4-L100C-4N | 19.05 | 4 | 100 | 20 | 17.2 | Rc1/8 |
| JBBS19-7-L100C-4N | 19.05 | 7 | 100 | 20 | 17.2 | Rc1/8 |
| JBBS20-4-L100C-4N | 20 | 4 | 100 | 20 | 18 | Rc1/8 |
| JBBS20-7-L100C-4N | 20 | 7 | 100 | 20 | 18 | Rc1/8 |
| JBBS22-4-L100C-4N | 22 | 4 | 100 | 20 | 20 | Rc1/8 |
| JBBS22-7-L100C-4N | 22 | 7 | 100 | 20 | 20 | Rc1/8 |
| JBBS25-4-L100C-4N | 25 | 4 | 100 | 23 | 23 | Rc1/8 |
| JBBS25-7-L100C-4N | 25 | 7 | 100 | 23 | 23 | Rc1/8 |
| JBBS254-4-L100C-4N | 25.4 | 4 | 100 | 23 | 23.4 | Rc1/8 |
| JBBS254-7-L100C-4N | 25.4 | 7 | 100 | 23 | 23.4 | Rc1/8 |

### Solid boring bar for boring, profiling and chamfering




| PART#: | DMIN | DCONMS | WF | a | LF | LH | CDX | RE |
|---|---|---|---|---|---|---|---|---|
| TBTR04045005-D010 | 1 | 4 | -1.1 | 0.9 | 21 | 4.5 | 0.1 | 0.05 |
| TBTR04065005-D010 | 1 | 4 | -1.1 | 0.9 | 23 | 6.5 | 0.1 | 0.05 |
| TBTR04040005-D020 | 2 | 4 | -0.3 | 1.7 | 20.5 | 4 | 0.1 | 0.05 |
| TBTR04090005-D020 | 2 | 4 | -0.3 | 1.7 | 25.5 | 9 | 0.1 | 0.05 |
| TBTR04140005-D020 | 2 | 4 | -0.3 | 1.7 | 30.5 | 14 | 0.1 | 0.05 |
| TBTR/L04090010-D028 | 2.8 | 4 | 0.9 | 2.6 | 25.5 | 9 | 0.2 | 0.1 |
| TBTR04150010-D028 | 2.8 | 4 | 0.9 | 2.6 | 31.5 | 15 | 0.2 | 0.1 |
| TBTR04190010-D028 | 2.8 | 4 | 0.9 | 2.6 | 35.5 | 19 | 0.2 | 0.1 |
| TBTR04090010-D040 | 4 | 4 | 1.5 | 3.5 | 25.5 | 9 | 0.3 | 0.1 |
| TBTR04150010-D040 | 4 | 4 | 1.5 | 3.5 | 31.5 | 15 | 0.3 | 0.1 |
| TBTR04190010-D040 | 4 | 4 | 1.5 | 3.5 | 35.5 | 19 | 0.3 | 0.1 |
| TBTR04230010-D040 | 4 | 4 | 1.5 | 3.5 | 39.5 | 23 | 0.3 | 0.1 |
| TBTR04270010-D040 | 4 | 4 | 1.5 | 3.5 | 43.5 | 27 | 0.3 | 0.1 |
| TBTR07090015-D050 | 5 | 7 | 0.9 | 4.4 | 25 | 9 | 0.5 | 0.15 |
| TBTR07140015-D050 | 5 | 7 | 0.9 | 4.4 | 30 | 14 | 0.5 | 0.15 |
| TBTR07190015-D050 | 5 | 7 | 0.9 | 4.4 | 35 | 19 | 0.5 | 0.15 |
| TBTR07240015-D050 | 5 | 7 | 0.9 | 4.4 | 40 | 24 | 0.5 | 0.15 |
| TBTR07290015-D050 | 5 | 7 | 0.9 | 4.4 | 45 | 29 | 0.5 | 0.15 |
| TBTR07340015-D050 | 5 | 7 | 0.9 | 4.4 | 50 | 34 | 0.5 | 0.15 |
| TBTR07140015-D060 | 6 | 7 | 1.8 | 5.3 | 30 | 14 | 0.5 | 0.15 |
| TBTR/L07210015-D060 | 6 | 7 | 1.8 | 5.3 | 37 | 21 | 0.5 | 0.15 |
| TBTR07240015-D060 | 6 | 7 | 1.8 | 5.3 | 40 | 24 | 0.5 | 0.15 |
| TBTR07290015-D060 | 6 | 7 | 1.8 | 5.3 | 45 | 29 | 0.5 | 0.15 |
| TBTR07340015-D060 | 6 | 7 | 1.8 | 5.3 | 50 | 34 | 0.5 | 0.15 |
| TBTR07410015-D060 | 6 | 7 | 1.8 | 5.3 | 57 | 41 | 0.5 | 0.15 |
| TBTR07190015-D068 | 6.8 | 7 | 2.8 | 6.3 | 35 | 19 | 0.6 | 0.15 |
| TBTR07240015-D068 | 6.8 | 7 | 2.8 | 6.3 | 40 | 24 | 0.6 | 0.15 |
| TBTR07290015-D068 | 6.8 | 7 | 2.8 | 6.3 | 45 | 29 | 0.6 | 0.15 |
| TBTR07340015-D070 | 7 | 7 | 2.8 | 6.3 | 50 | 34 | 0.6 | 0.15 |
| TBTR07390015-D070 | 7 | 7 | 2.8 | 6.3 | 55 | 39 | 0.6 | 0.15 |
| TBTR07440015-D070 | 7 | 7 | 2.8 | 6.3 | 60 | 44 | 0.6 | 0.15 |
| TBTR07490015-D070 | 7 | 7 | 2.8 | 6.3 | 65 | 49 | 0.6 | 0.15 |

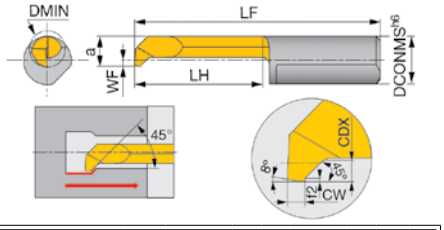
### Solid boring bar for boring and chamfering




| PART#: | DMIN | DCONMS | WF | a | LF | LH | CDX | RE |
|---|---|---|---|---|---|---|---|---|
| TBPR04090010-D028 | 2.8 | 4 | 0.9 | 2.6 | 25.5 | 9 | 0.2 | 0.1 |
| TBPR04150010-D040 | 4 | 4 | 1.5 | 3.5 | 31.5 | 15 | 0.3 | 0.1 |
| TBPR07140015-D050 | 5 | 7 | 0.9 | 4.4 | 30 | 14 | 0.5 | 0.15 |
| TBPR07190015-D050 | 5 | 7 | 0.9 | 4.4 | 35 | 19 | 0.5 | 0.15 |

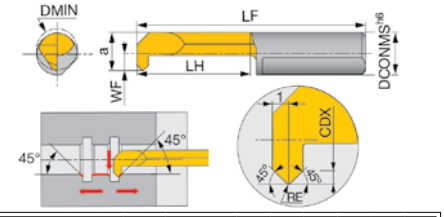
**BUY 10** solid bars AND **GET 1** sleeve — **FREE** of charge! Promo code: TG137

### Solid boring bar for back boring and chamfering



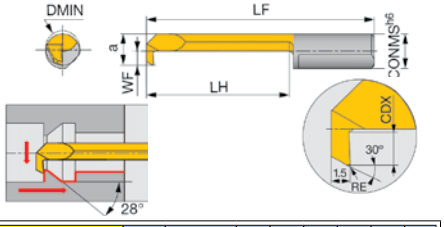

| PART#: | DMIN | DCONMS | WF | a | LF | LH | f2 | CDX | CW |
|---|---|---|---|---|---|---|---|---|---|
| TBUR07140010-D050 | 5 | 7 | 0.9 | 4.4 | 30 | 14 | 0.2 | 1 | 1 |
| TBUR07190010-D050 | 5 | 7 | 0.9 | 4.4 | 35 | 19 | 0.2 | 1 | 1 |

### Solid boring bar for boring and 45° chamfering



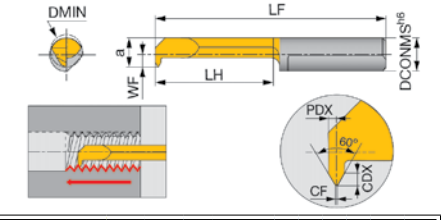

| PART#: | DMIN | DCONMS | WF | a | LF | LH | CDX | RE |
|---|---|---|---|---|---|---|---|---|
| TBCR07140020-D050 | 5 | 7 | 0.9 | 4.4 | 30 | 14 | 0.7 | 0.2 |
| TBCR07190020-D068 | 6.8 | 7 | 2.8 | 6.3 | 35 | 19 | 0.7 | 0.2 |

### Solid boring bar for back boring



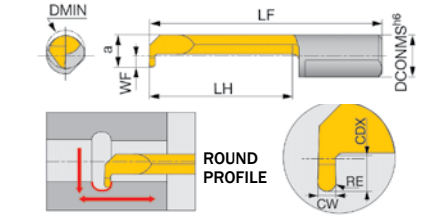

| PART#: | DMIN | DCONMS | WF | a | LF | LH | CDX | RE |
|---|---|---|---|---|---|---|---|---|
| TBBR04140020-D030 | 3 | 4 | 0.6 | 2.6 | 30 | 14 | 0.5 | 0.2 |
| TBBR04140015-D040 | 4 | 4 | 1.5 | 3.5 | 30 | 14 | 0.8 | 0.15 |
| TBBR07190020-D050 | 5 | 7 | 0.9 | 4.4 | 35 | 19 | 1 | 0.2 |

### Solid boring bar for threading (metric)




| PART#: | Pitch | DMIN | CF | DCONMS | WF | a | LF | LH | CDX | PDX |
|---|---|---|---|---|---|---|---|---|---|---|
| TBIR04140050-D040 | 0.5 | 4 | 0.06 | 4 | 1.5 | 3.5 | 30 | 14 | 0.3 | 0.35 |
| TBIR07140050-D050 | 0.5 | 5 | 0.06 | 7 | 0.9 | 4.4 | 30 | 14 | 0.3 | 0.35 |
| TBIR07140075-D050 | 0.75 | 5 | 0.09 | 7 | 0.9 | 4.4 | 30 | 14 | 0.4 | 0.45 |
| TBIR07140100-D048 | 1 | 4.8 | 0.12 | 7 | 0.9 | 4.4 | 30 | 14 | 0.6 | 0.55 |
| TBIR07140100-D060 | 1 | 6 | 0.12 | 7 | 1.8 | 5.3 | 30 | 14 | 0.6 | 0.55 |
| TBIR07140150-D060 | 1.5 | 6 | 0.18 | 7 | 1.8 | 5.3 | 30 | 14 | 0.8 | 0.75 |

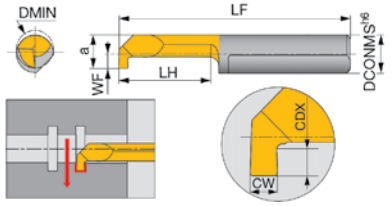
### Solid boring bar for boring and profiling




| PART#: | CW | DMIN | DCONMS | WF | a | LF | LH | CDX | RE |
|---|---|---|---|---|---|---|---|---|---|
| TBRR07190050-D050 | 1 | 5 | 7 | 0.9 | 4.4 | 35 | 19 | 1 | 0.5 |
| TBRR07240050-D060 | 1 | 6 | 7 | 1.8 | 5.3 | 40 | 24 | 1.8 | 0.5 |
| TBRR07290050-D068 | 1 | 6.8 | 7 | 2.8 | 6.3 | 45 | 29 | 2.5 | 0.5 |

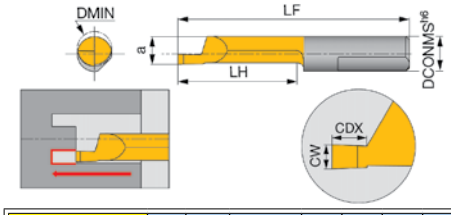
- Ideal for machining extremely small diameter bores in a wide range of materials.
- Carbide grade **SH725** provides a good combination of wear and fracture resistance, ensuring long tool life and wear prediction.
- 3D chip breaker for better chip control.

### Solid boring bar for internal grooving



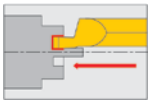

| PART#: | CW | DMIN | DCONMS | WF | a | LF | LH | CDX |
|---|---|---|---|---|---|---|---|---|
| TBGR04100050-D020 | 0.5 | 2 | 4 | -0.2 | 1.8 | 26 | 10 | 0.4 |
| TBGR04090100-D040 | 1 | 4 | 4 | 1.5 | 3.5 | 25.5 | 9 | 0.8 |
| TBGR04150100-D040 | 1 | 4 | 4 | 1.5 | 3.5 | 31.5 | 15 | 0.8 |
| TBGR07090200-D050 | 2 | 5 | 7 | 0.9 | 4.4 | 25 | 9 | 1 |
| TBGR07090100-D060 | 1 | 6 | 7 | 1.8 | 5.3 | 25 | 9 | 1.8 |
| TBGR07140100-D060 | 1 | 6 | 7 | 1.8 | 5.3 | 30 | 14 | 1.8 |
| TBGR07090150-D060 | 1.5 | 6 | 7 | 1.8 | 5.3 | 25 | 9 | 1.8 |
| TBGR07090200-D060 | 2 | 6 | 7 | 1.8 | 5.3 | 25 | 9 | 1.8 |
| TBGR07140200-D060 | 2 | 6 | 7 | 1.8 | 5.3 | 30 | 14 | 1.8 |
| TBGR07090100-D068 | 1 | 6.8 | 7 | 2.7 | 6.2 | 25 | 9 | 2.5 |
| TBGR07090150-D068 | 1.5 | 6.8 | 7 | 2.7 | 6.2 | 25 | 9 | 2.5 |
| TBGR07140150-D068 | 1.5 | 6.8 | 7 | 2.7 | 6.2 | 30 | 14 | 2.5 |
| TBGR07090200-D068 | 2 | 6.8 | 7 | 2.7 | 6.2 | 25 | 9 | 2.5 |
| TBGR07140200-D068 | 2 | 6.8 | 7 | 2.7 | 6.2 | 30 | 14 | 2.5 |
| TBGR07210200-D068 | 2 | 6.8 | 7 | 2.7 | 6.2 | 37 | 21 | 2.5 |
| TBGR07290200-D068 | 2 | 6.8 | 7 | 2.7 | 6.2 | 45 | 29 | 2.5 |

### Solid boring bar for face grooving




| PART#: | CW | DMIN | DCONMS | a | LF | LH | CDX |
|---|---|---|---|---|---|---|---|
| TBFR07110100-D060 | 1 | 6 | 7 | 5.2 | 26 | 10 | 1.5 |
| TBFR07110200-D060 | 2 | 6 | 7 | 5.2 | 26 | 10 | 3 |
| TBFR07110100-D080 | 1 | 8 | 7 | 5.9 | 27 | 11 | 1.5 |
| TBFR07110250-D080 | 2.5 | 8 | 7 | 5.9 | 27 | 11 | 3.5 |
| TBFR07300300-D080 | 3 | 8 | 7 | 5.9 | 46 | 30 | 3.5 |
| TBFR07200250-D150 | 2.5 | 15 | 7 | 5.9 | 36 | 20 | 20 |
| TBFR07200300-D150 | 3 | 15 | 7 | 5.9 | 36 | 20 | 20 |
| TBFR07300300-D150 | 3 | 15 | 7 | 5.9 | 46 | 30 | 30 |

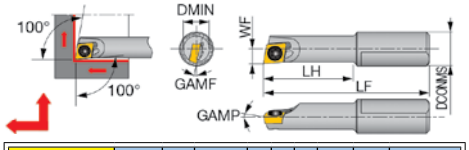
### Solid boring bar for face grooving (for shaft)



SEE DIAGRAM ABOVE

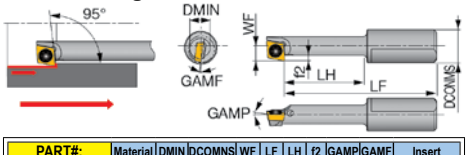
| PART#: | CW | DMIN | DCONMS | a | LF | LH | CDX |
|---|---|---|---|---|---|---|---|
| TBSR07200200-D060 | 2 | 6 | 7 | 5.2 | 36 | 20 | 4 |

### Screw on boring bar, for positive 75° rhombic inserts




| PART#: | Material | DMIN | DCOMNS | WF | LF | LH | GAMP | GAMF | Insert |
|---|---|---|---|---|---|---|---|---|---|
| A07050-SEXPR03-3 | Steel | 5 | 7 | 2.5 | 31 | 15 | 0° | -13° | EPGT03X1... |
| A07060-SEXPR04-3 | Steel | 6 | 7 | 3.1 | 34 | 18 | 0° | -12° | EPGT0401... |
| E07050-SEXPR03-4 | Carbide | 5 | 7 | 2.5 | 37 | 20 | 0° | -13° | EPGT03X1... |
| E07050-SEXPR03-5 | Carbide | 5 | 7 | 2.5 | 42 | 25 | 0° | -13° | EPGT03X1... |
| E07060-SEXPR04-5 | Carbide | 6 | 7 | 3.1 | 46 | 30 | 0° | -12° | EPGT0401... |

### Screw on boring bar, for positive 75° rhombic inserts




| PART#: | Material | DMIN | DCOMNS | WF | LF | LH | f2 | GAMP | GAMF | Insert |
|---|---|---|---|---|---|---|---|---|---|---|
| A07055-SEZPR03-3 | Steel | 5.5 | 7 | 3.2 | 32.5 | 16.5 | 1.2 | 0° | -8° | EPGT03X1... |
| E07055-SEZPR03-5 | Carbide | 5.5 | 7 | 3.2 | 44.7 | 27.5 | 1.2 | 0° | -8° | EPGT03X1... |

# BORING BARS USING INSERTS CLAMPED IN A DOVETAIL POCKET

- Using inserts with sharpness of positive inserts and with twice the number of cutting edges
- Double sided inserts - double the cutting edges
- Coolant hole directed to the cutting edge

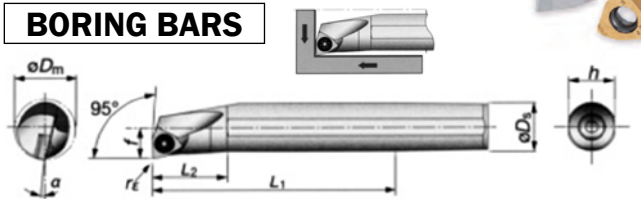
## 6-CORNER CBN INSERT FOR MORE RELIABLE, ECONOMICAL AND PRODUCTIVE I.D. TURNING OF HARD METALS

**BUY 5** CBN inserts AND **GET 1** holder **FREE**

**Promo code: TG138**


- Innovative insert geometry and secure insert clamping method ensures machining stability
- Available in two grades: **BXA20** grade for general applications and **BXA10** grade suited for continuous cuts, providing reliability and long tool life from continuous to interrupted cuts.
- **HP** type chipbreaker guarantees short chips, ensuring good chip breaking and control at 0.008" (0.2 mm) and lighter d.o.c.
- Double-sided insert with six positive cutting edges for excellent cost-per-edge economy for reduced tool cost.

## BORING BARS




### STEEL SHANK

| PART # | MIN BORE DIA. φDm | DIMENSIONS (in) | | | | | | | STD. CORNER RADIUS rε | INSERT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | φDs | f | L1 | L2 | h | θ | a | | |
| A06-SWLXR/L2-D08 | .500 | .375 | .281 | 5.000 | .750 | .350 | -10° | -14° | .016 | 6QS-WXGU04*L/R |
| A08-SWLXR/L2-D11 | .688 | .500 | .406 | 5.000 | 1.000 | .475 | -10° | -10° | .016 | |
| A10-SWLXR/L2-D14 | .875 | .625 | .531 | 7.000 | 1.250 | .600 | -10° | -8° | .016 | |
| A12-SWLXR/L2-D16 | 1.000 | .750 | .593 | 7.000 | 1.438 | .725 | -10° | -7° | .016 | |

### CARBIDE SHANK

| PART # | MIN BORE DIA. φDm | DIMENSIONS (in) | | | | | | | STD. CORNER RADIUS rε | INSERT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | φDs | f | L1 | L2 | h | θ | a | | |
| E06-SWLXR/L2-D08 | .500 | .375 | .281 | 5.000 | 1.000 | .350 | -10° | -14° | .016 | 6QS-WXGU04*L/R |
| E08-SWLXR/L2-D11 | .688 | .500 | .406 | 5.000 | 1.063 | .475 | -10° | -10° | .016 | |
| E10-SWLXR/L2-D14 | .875 | .625 | .531 | 7.000 | 1.250 | .600 | -10° | -8° | .016 | |
| E12-SWLXR/L2-D16 | 1.000 | .750 | .593 | 7.000 | 1.438 | .725 | -10° | -7° | .016 | |

Note: Right hand toolholders (R) are used with right hand inserts (R)
Left hand toolholders (L) are used with left hand inserts (L)

## Lineup

### Inserts

- **6QS-WXGQ...**
RE = 0.2 - 0.8 mm
- **6QS-WXGU**-HP**
RE = 0.4, 0.8 mm

### Chipbreaker

- **HP type:** For chatter prevention and the finest machined surfaces. Suitable for turning operations of hardened steel materials

### Toolholders

- **A-SWLXR/L...**
- **E-SWLXR/L...**
DCONMS = ø10 - ø20 mm

### Grades

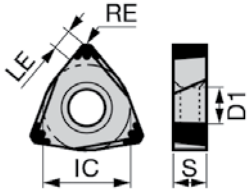
- **BXA10:** Incredible reliability in hardened steel turning. First choice for continuous to light interrupted cuts.
- **BXA20:** Incredible reliability in hardened steel turning. Covers a wide range of application areas from continuous to heavy interrupted cutting.

**6QS-WXGQ...**
Double-sided insert with six positive cutting edges for excellent cost-per-edge economy for reduced tool cost.

**6QS-WXGU**-HP**
The HP chipbreaker provides excellent surface quality and good chip control.

## INSERT POSITIVE TYPE

CBN Inserts with WavyJoint brazing technology




## STANDARD CUTTING CONDITIONS

| ISO | Grade | Edge Preparation | Workpiece Condition | Cutting Speed vc (sfm) | Depth of cut ap (in) | Feed f (ipr) |
|---|---|---|---|---|---|---|
| H | BXA10 | No symbol | Continuous | 328 - 755 | 0.002 - 0.02 | 0.001 - 0.012 |
| | | | Light interrupted | 328 - 755 | 0.002 - 0.02 | 0.001 - 0.008 |
| | | -HP | Continuous | 328 - 755 | 0.002 - 0.008 | 0.001 - 0.008 |
| | BXA20 | No symbol | Continuous | 197 - 591 | 0.002 - 0.02 | 0.001 - 0.012 |
| | | | Interrupted | 197 - 591 | 0.002 - 0.02 | 0.001 - 0.008 |
| | | -HP | Continuous | 197 - 591 | 0.002 - 0.08 | 0.001 - 0.008 |

H Hard Material ● ●c

| Shape | Designation Inch | Designation Metric | BXA10 | BXA20 | | | | No. of corners | LE | RE | IC | S | D1 | Standard | SP | L | LF | LC | H | Wiper | Chipbreaker |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6QS-WXGQ | 6QS-WXGQ 220.5SPR | 6QS-WXGQ040302SPR | ● | ● | | | | 6 | 0.071 | 0.008 | 0.250 | 0.125 | 0.106 | | ○ | | | | | | |
| | 6QS-WXGQ 220.5SPL | 6QS-WXGQ040302SPL | ● | ● | | | | 6 | 0.071 | 0.008 | 0.250 | 0.125 | 0.106 | | ○ | | | | | | |
| | 6QS-WXGQ 221SPR | 6QS-WXGQ040304SPR | ● | ● | | | | 6 | 0.071 | 0.016 | 0.250 | 0.125 | 0.106 | | ○ | | | | | | |
| | 6QS-WXGQ 221SPL | 6QS-WXGQ040304SPL | ● | ● | | | | 6 | 0.071 | 0.016 | 0.250 | 0.125 | 0.106 | | ○ | | | | | | |
| | 6QS-WXGQ 222SPR | 6QS-WXGQ040308SPR | ● | ● | | | | 6 | 0.067 | 0.031 | 0.250 | 0.125 | 0.106 | | ○ | | | | | | |
| | 6QS-WXGQ 222SPL | 6QS-WXGQ040308SPL | ● | ● | | | | 6 | 0.067 | 0.031 | 0.250 | 0.125 | 0.106 | | ○ | | | | | | |
| 6QS-WXGU**-HP | 6QS-WXGU 221R HP | 6QS-WXGU040304R-HP | ● | ● | | | | 6 | 0.071 | 0.016 | 0.250 | 0.125 | 0.106 | | | | | | | | ○ |
| | 6QS-WXGU 221L HP | 6QS-WXGU040304L-HP | ● | ● | | | | 6 | 0.071 | 0.016 | 0.250 | 0.125 | 0.106 | | | | | | | | ○ |
| | 6QS-WXGU 222R HP | 6QS-WXGU040308R-HP | ● | ● | | | | 6 | 0.067 | 0.031 | 0.250 | 0.125 | 0.106 | | | | | | | | ○ |
| | 6QS-WXGU 222L HP | 6QS-WXGU040308L-HP | ● | ● | | | | 6 | 0.067 | 0.031 | 0.250 | 0.125 | 0.106 | | | | | | | | ○ |

●: Continuous cutting ●c: Light interrupted cutting

# 0.024” AND 0.031” WIDE PARTING INSERTS WITH PRESSED 3D CHIPBREAKER

ADD significant reduction of material waste for increased mass-production economy

**BUY 20** inserts AND **GET 1** holder — **FREE** of charge! Promo code: TG149

**BUY 20** inserts AND **GET 1 CHP** holder at — **40%** additional discount! Promo code: TG149

JXPS12**08F

JXPS06**06F

Innovative JXPS chipbreaker enables effective chip control

**Inserts:**
**JXPS06R/L06F**
CW = 0.024” (0.6 mm)
**JXPS06R/L08F**
CW = 0.031” (0.8 mm)
**Grade:**
**SH725**

JSXXR/L...

JSXXR/L**-S...

**Toolholders:**
**JSXXR/L...**
**JSXXR/L**-S...**
**JSXXR/L**-CHP**
**JSXXR/L**-S-CHP**
H = 0.500”, 0.625” (10, 12, 16 mm)

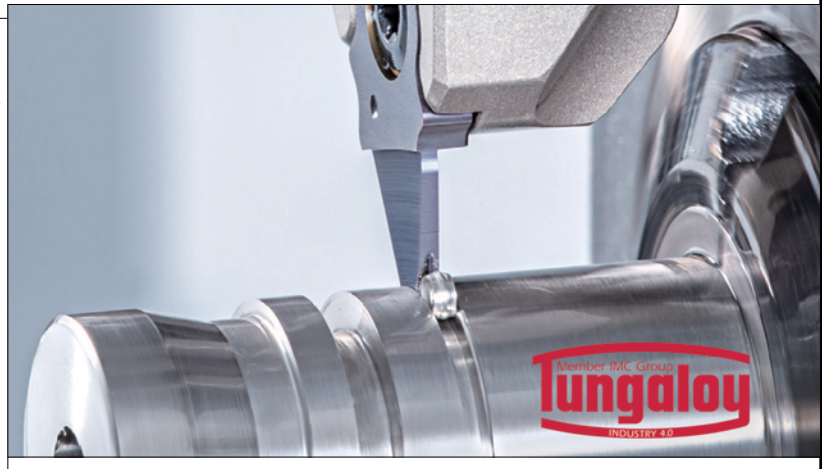
## FOR AUTOMATIC LATHES

Small tools with insert containing 2 cutting edges, is excellent for parting miniature parts up to .629” (16mm) diameter.

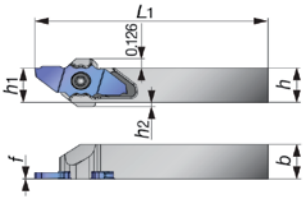
JXPG06

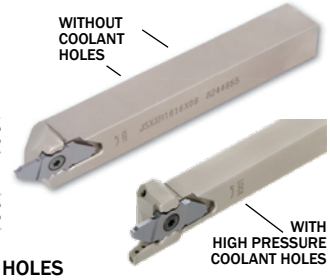
JXPG12

JXPG16




## TOOL HOLDERS



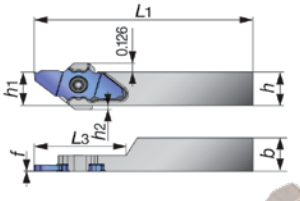

### TOOLHOLDERS W/OUT COOLANT HOLES

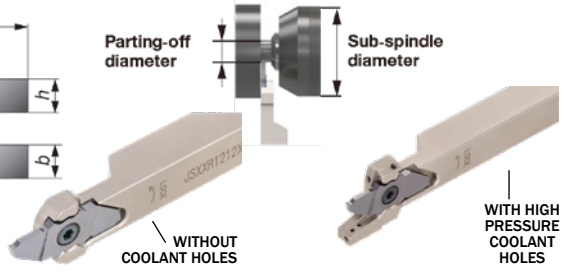
| PART # | h | b | f | L1* | h1 | h2 | INSERT |
|---|---|---|---|---|---|---|---|
| JSXXR/L063 | 0.375 | 0.375 | 0.008 | ≤ 4.75 | 0.375 | 0.12 | JXPG06,12,16, 20R/L |
| JSXXR/L083 | 0.500 | 0.500 | | | 0.500 | 0.06 | JXPG06,12,16, 20R/L |
| JSXXR/L103 | 0.625 | 0.625 | | | 0.625 | 0.06 | JXPG06,12,16, 20R/L |

### HOLDERS WITH HIGH PRESSURE COOLANT HOLES

| PART # | h | b | f | L1 | h1 | h2 | INSERT |
|---|---|---|---|---|---|---|---|
| JSXXR/L083X-CHP | 0.500 | 0.500 | 0.008/0.492 | 4.750 | 0.500 | 0.051 | JX*G06,12,16, 20 |
| JSXXR/L103X-CHP | 0.625 | 0.625 | 0.008/0.617 | 4.750 | 0.625 | 0 | JX*G06,12,16, 20 |
| JSXXR/L083F-CHP | 0.500 | 0.500 | 0.008/0.492 | 3.344 | 0.500 | 0.051 | JX*G06,12,16, 20 |

## TOOL HOLDERS - FOR CUT-OFF IN SUB-SPINDLE




### HOLDERS W/OUT COOLANT HOLES

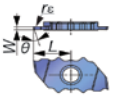
| PART # | h | b | f | L1* | L3* | h1 | h2 | INSERT |
|---|---|---|---|---|---|---|---|---|
| JSXXR/L063-S | 0.375 | 0.375 | 0.008 / 0.217 | ≤ 4.75 | ≤ 1.03 | 0.383 | 0.12 | JXPG06,12,16, 20R/L |
| JSXXR/L083-S | 0.500 | 0.500 | | | | 0.500 | 0.06 | JXPG06,12,16, 20R/L |

### HOLDERS WITH HIGH PRESSURE COOLANT HOLES

| PART # | h | b | L1 | L3 | h1 | h2 | INSERT |
|---|---|---|---|---|---|---|---|
| JSXXR/L083X-S-CHP | 0.500 | 0.500 | 4.750 | 1.181 | 0.500 | 0.051 | JXPG06,12,16, 20R/L |
| JSXXR/L103X-S-CHP | 0.625 | 0.625 | 4.750 | 1.181 | 0.625 | --- | JXPG06,12,16, 20R/L |
| JSXXR/L083F-S-CHP | 0.500 | 0.500 | 3.344 | 1.024 | 0.500 | 0.051 | JXPG06,12,16, 20R/L |

## INSERTS

• Right hand shown • Dmax: Max. parting off dia




### INSERTS WITH CHIPBREAKER

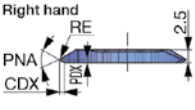
| PART # | W | Dmax |
|---|---|---|
| JXPS06R/L06F | .024 | .236 |
| JXPS12R/L08F | .031 | .472 |
| JXPS12R/L10F | .039 | .472 |
| JXPS12R/L15F | .059 | .472 |
| JXPS16R/L15F | .059 | .630 |
| JXPS16R/L20F | .079 | .787 |

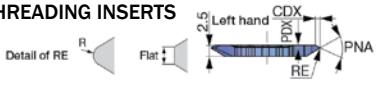
### INSERTS WITHOUT CHIPBREAKER

| PART # | W | Dmax | θ |
|---|---|---|---|
| JXPG06R/L10F | .039 | .236 | |
| JXPG06R/L15F | .059 | .236 | |
| JXPG06R/L10F-15 | .039 | .236 | 15° |
| JXPG06R/L15F-15 | .059 | .236 | 15° |
| JXPG12R/L15F | .059 | .472 | |
| JXPG12R/L20F | .079 | .472 | |
| JXPG12R/L15F-15 | .059 | .472 | 15° |
| JXPG12R/L20F-15 | .079 | .472 | 15° |

| PART # | W | Dmax | θ |
|---|---|---|---|
| JXPG16R/L15F | .059 | .630 | |
| JXPG16R/L20F | .079 | .630 | |
| JXPG16R/L15F-15 | .059 | .630 | 15° |
| JXPG16R/L20F-15 | .079 | .630 | 15° |
| JXPG20R/L15F | .059 | .787 | |
| JXPG20R/L20F | .079 | .787 | |
| JXPG20R/L15F-15 | .059 | .787 | 15° |
| JXPG20R/L20F-15 | .079 | .787 | 15° |

### 60° THREADING INSERTS



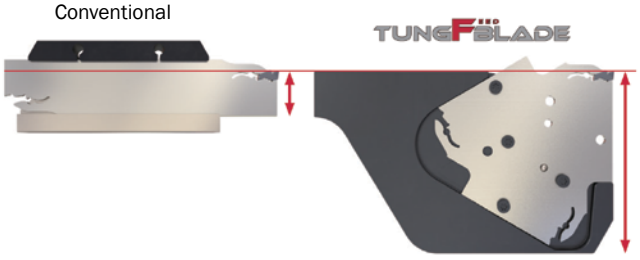

| PART # | PITCH | PDX | CDX | RE |
|---|---|---|---|---|
| JXTG12FR/L-60A-000 | .008-.016 | .010 | .016 | FLAT .002 |
| JXTG12FR/L-60B-000 | .008-.016 | .010 | .016 | FLAT .002 |
| JXTG12FR/L-60A-005 | .016-.039 | .024 | .039 | FLAT .002 |
| JXTG12FR/L-60B-005 | .016-.039 | .075 | .039 | FLAT .002 |
| JXTG12FR/L-60N-010 | .039-.059 | .049 | .081 | FLAT .004 |

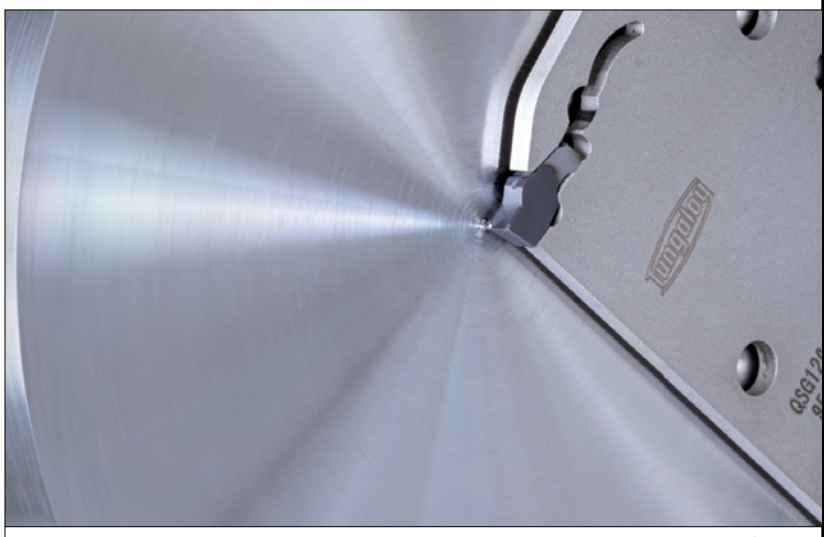
# SUPERB STABILITY AND PRODUCTIVITY FOR DEEP GROOVING AND PARTING-OFF OPERATIONS

ADD highly rigid self-clamping system to improve productivity in deep grooving and parting-off operations

- With much thicker support than existing grooving blades, tool deflection and chatter are minimized even at higher feed rates

Conventional



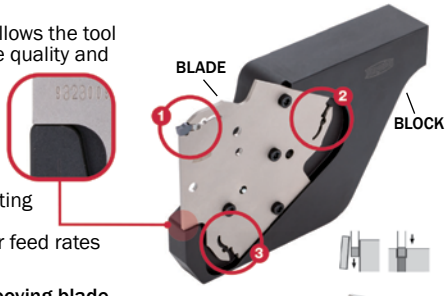


**BUY 20 inserts AND GET 1 blade** — **FREE of charge!** Promo code: TG147

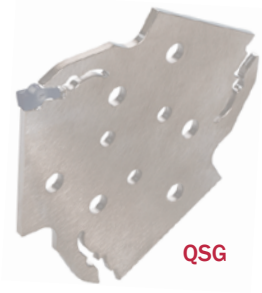
**BUY 10 inserts AND 1 block AND GET 1 blade** — **FREE of charge!** Promo code: TG148*

* not fulfillable on webshop, must call customer service

- A thick support beneath the insert allows the tool to produce grooves with high surface quality and straightness at increased feed rates
- Economical blade with three insert pockets
- The block is clamped by contacting two surfaces for enhanced rigidity
- With much thicker support than existing grooving blades, tool deflection and chatter are minimized even at higher feed rates

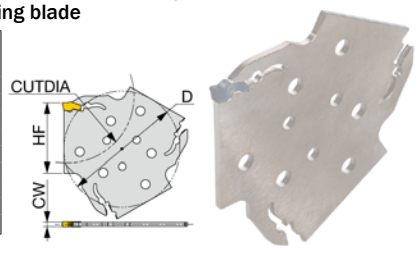



**Blade:**
**QSG...**
CW = .079" - .197"
(2 - 5 mm)
Max cut-off diameters:
CUTDIA = Ø2.047",
Ø3.228", Ø4.724"
(Ø52, Ø82, and Ø32mm)




**Parting-off and external grooving blade**

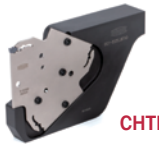
| PART#: | CW | Seat size | CUTDIA | HF | D |
|---|---|---|---|---|---|
| QSG52-2T | 0.079 | 2 | 2.047 | 1.063 | 1.902 |
| QSG82-2T | 0.079 | 2 | 3.228 | 1.654 | 2.728 |
| QSG52-3T | 0.118 | 3 | 2.047 | 1.063 | 1.902 |
| QSG82-3T | 0.118 | 3 | 3.228 | 1.654 | 2.728 |
| QSG120-3T | 0.118 | 3 | 4.724 | 2.402 | 3.465 |
| QSG52-4T | 0.157 | 4 | 2.047 | 1.063 | 2.728 |
| QSG82-4T | 0.157 | 4 | 3.228 | 1.654 | 2.728 |
| QSG120-4T | 0.157 | 4 | 4.724 | 2.402 | 3.465 |
| QSG120-5T | 0.197 | 5 | 4.724 | 2.402 | 3.465 |




**Block:**
**CHTBR/L**
H = 0.75", 1.00", 1.25"
(20, 25, and 32mm)

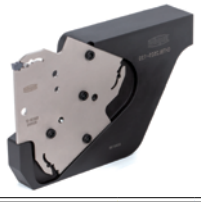
**Inserts:**
**QGM...**
**QGS**
CW = 079" - .197" (2 - 5 mm)

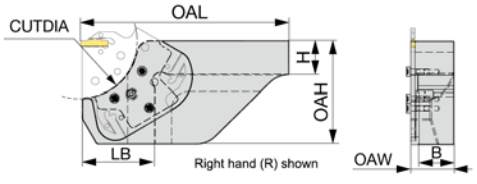
**Grade:**
**AH7025**






**Tool block for OSG blade**

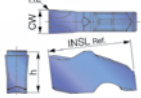





| PART#: | CUTDIA | H | B | OAL | OAH | OAW | LB |
|---|---|---|---|---|---|---|---|
| CHTBR/L12-52 | 2.047 | 0.750 | 0.770 | 4.000 | 1.970 | 1.000 | 1.457 |
| CHTBR/L16-52 | 2.047 | 1.000 | 1.020 | 5.000 | 1.970 | 1.250 | 1.457 |
| CHTBR/L12-82 | 3.228 | 0.750 | 0.770 | 5.500 | 2.950 | 1.000 | 2.087 |
| CHTBR/L16-82 | 3.228 | 1.000 | 1.020 | 6.000 | 2.950 | 1.250 | 2.087 |
| CHTBR/L16-120 | 4.724 | 1.000 | 1.020 | 6.500 | 3.940 | 1.250 | 2.638 |
| CHTBR/L20-120 | 4.724 | 1.252 | 1.268 | 6.500 | 3.940 | 1.500 | 2.638 |

## INSERTS WITH AH7025 COATING

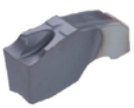
**QGM**
The first choice chipbreaker for grooving and parting-off



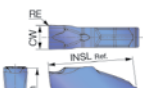

| PART#: | Seat Size | CW±0.05 | RE | AH7025 | INSL | h |
|---|---|---|---|---|---|---|
| QGM2-020 | 2 | 0.079 | 0.008 | ● | 0.433 | 0.209 |
| QGM3-020 | 3 | 0.118 | 0.008 | ● | 0.433 | 0.209 |
| QGM4-030 | 4 | 0.157 | 0.012 | ● | 0.512 | 0.287 |
| QGM5-030 | 5 | 0.197 | 0.012 | ● | 0.512 | 0.287 |

| | | |
|---|---|---|
| P | Steel | ★ |
| M | Stainless | ★ |
| K | Cast iron | ★ |
| N | Non-ferrous | |
| S | Superalloys | ★ |
| H | Hard materials | |

★ : First choice



**QGS**
Sharp cutting edge for lower cutting force




| PART#: | Seat Size | CW±0.05 | RE | AH7025 | INSL | h |
|---|---|---|---|---|---|---|
| QGS2-020 | 2 | 0.079 | 0.008 | ● | 0.433 | 0.209 |
| QGS3-020 | 3 | 0.118 | 0.008 | ● | 0.433 | 0.209 |
| QGS4-030 | 4 | 0.157 | 0.012 | ● | 0.512 | 0.287 |
| QGS5-030 | 5 | 0.197 | 0.012 | ● | 0.512 | 0.287 |

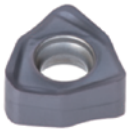
# HIGH PERFORMANCE AND PROFITABILITY IN HIGH-FEED MILLING OPERATIONS

ADD more cutting edges per insert to your machining operations

**BUY 10** inserts per pocket
up to max 50 inserts
AND
**GET 1** cutter

**FREE**
of charge!
Promo code: TG142

**Insert:**
**WXMU03-MM**
APMX = 0.039"
**Grades:**
**AH3225**
**AH8015**



**WXMU03-MM**
Economical double-sided inserts with six cutting edges

**Shank type:**
**EXWX03... (Short type)**
DCX = Ø0.625" - Ø1.250"
**EXWX03******L (Long type)**
DCX = Ø0.625" - Ø1.250"

EXWX03...

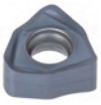
**Bore type:**
**TXWX03...**
DCX = Ø1.50" - Ø2.00"

TXWX03...

**Modular type:**
**HXWX03...**
DCX = Ø16 - Ø32 mm

HXWX03...

## HIGH FEED MILLING

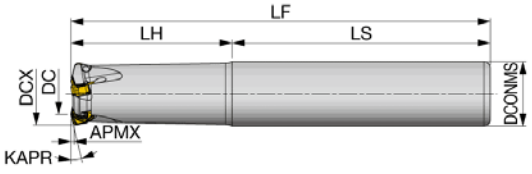


- Large effective cutter diameter leaves less uncut material.
- Utilizing 6-corner double sided inserts
- Steep ramping capability makes the cutter ideal for pocketing and cavity milling applications.

The cutter features a small approach angle, providing smooth access into the material, making it an ideal tool for long overhang setups.

### EXWX03
HIGH FEED
END MILLS
WITH COOLANT
HOLE

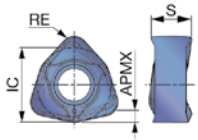
INDEXABLE END-MILLS




| PART#: | DCX | DCONMS | DC | APMX | LS | LH | LF | KAPR | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|
| EXWX03U0.62C0.62R02 | 0.625 | 0.625 | 0.3448 | 0.039 | 2.750 | 1.250 | 4.000 | 12° | 2 | WXMU03... |
| EXWX03U0.62C0.62R02L | 0.625 | 0.625 | 0.3448 | 0.039 | 4.000 | 2.000 | 6.000 | 12° | 2 | WXMU03... |
| EXWX03U0.75C0.75R03 | 0.750 | 0.750 | 0.4645 | 0.039 | 3.000 | 2.000 | 5.000 | 12° | 3 | WXMU03... |
| EXWX03U0.75C0.75R03L | 0.750 | 0.750 | 0.4645 | 0.039 | 3.000 | 3.500 | 6.500 | 12° | 3 | WXMU03... |
| EXWX03U1.00C1.00R04 | 1.000 | 1.000 | 0.7125 | 0.039 | 3.000 | 2.500 | 5.500 | 12° | 4 | WXMU03... |
| EXWX03U1.00C1.00R04L | 1.000 | 1.000 | 0.7125 | 0.039 | 3.000 | 4.000 | 7.000 | 12° | 4 | WXMU03... |
| EXWX03U1.25C1.25R05 | 1.250 | 1.250 | 0.9606 | 0.039 | 3.000 | 3.000 | 6.000 | 12° | 5 | WXMU03... |
| EXWX03U1.25C1.25R05L | 1.250 | 1.250 | 0.9606 | 0.039 | 3.000 | 5.000 | 8.000 | 12° | 5 | WXMU03... |

z* = No. of inserts

**INSERTS:** WXMU0303-MM

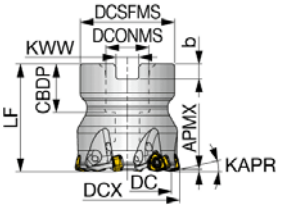



| PART#: | RE | APMX | IC | S |
|---|---|---|---|---|
| WXMU0303ZER-MM | 0.047 | 0.039 | .219 | 0.143 |

| | | AH3225 | AH8015 |
|---|---|---|---|
| P | Steel | ★ | ☆ |
| M | Stainless | ★ | |
| K | Cast iron | ☆ | ★ |
| S | Superalloys | ☆ | ★ |
| H | Hard Materials | | ★ |

★ First choice
☆ Second choice

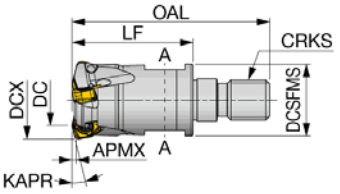
### TXWX03
HIGH FEED
CUTTERS
WITH COOLANT
HOLES




| PART#: | DCX | DCONMS | DC | DCSFMS | APMX | CBDP | LF | b | KWW | KAPR | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TXWX03U1.50B0.50R05 | 1.500 | 0.500 | 1.217 | 1.457 | 0.039 | 0.630 | 1.575 | 0.157 | 0.258 | 12° | 6 | WXMU03... |
| TXWX03U2.00B0.75R08 | 2.000 | 0.750 | 1.713 | 1.693 | 0.039 | 0.750 | 1.969 | 0.197 | 0.315 | 12° | 8 | WXMU03... |

z* = No. of inserts

### HXWX03-M
TUNGFLEX
MODULAR
HIGH-FEED
END MILL
WITH
COOLANT
HOLES





A-A cross section

| PART#: | DCX | CRKS | DC | APMX | OAL | LF | H | DCSFMS | KAPR | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HXWX03M016M08R02 | 16 | M8 | 8.9 | 1 | 42 | 25 | 10 | 12.8 | 12° | 2 | WXMU03... |
| HXWX03M020M10R03 | 20 | M10 | 12.8 | 1 | 49 | 30 | 15 | 17.8 | 12° | 3 | WXMU03... |
| HXWX03M025M12R04 | 25 | M12 | 17.8 | 1 | 57 | 35 | 17 | 20.8 | 12° | 4 | WXMU03... |
| HXWX03M032M16R05 | 32 | M16 | 24.7 | 1 | 63 | 40 | 22 | 28.8 | 12° | 5 | WXMU03... |

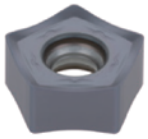
z* = No. of inserts

# AH3225 GRADE FOR IMPROVED MACHINING EFFICIENCY AND ECONOMY

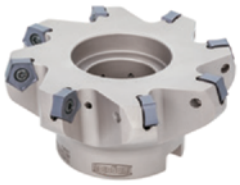
ADD long and predictable tool life with face milling cutters with economical 10 edged inserts

**BUY 10** inserts per pocket
up to max 50 inserts
AND
**GET 1** cutter (up to 5" dia.)

**FREE** of charge!
Promo code: TG145



PN**U09...
Double sided pentagonal insert



TEN09R/L

EEN09...

## AH3225 P M

- CVD grade with high chipping and fracture resistance

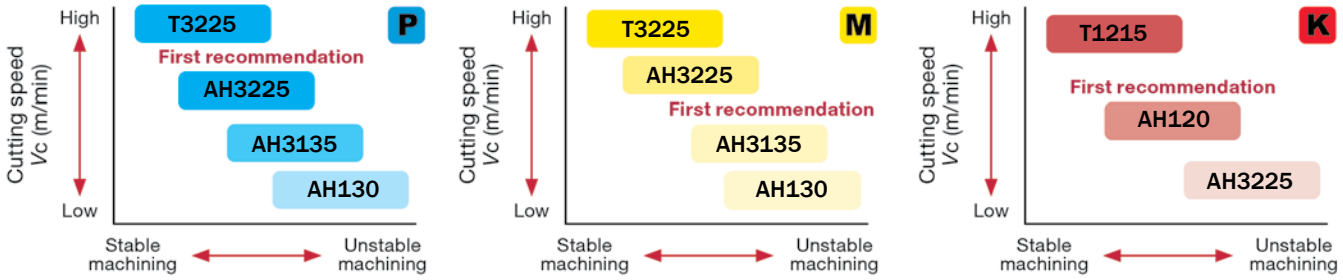
- Nano multi-layer coating technology with three major properties for optimal cutting edge integrity
- Increased resistance to wear, fracture, oxidation, built-up edge, and delamination

### PROMO INCLUDES

**Inserts**
**PNMU09-MJ**
APMX = 6.4mm
Grade: **AH3225**

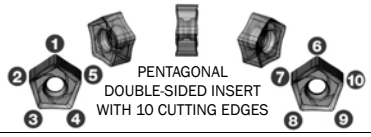
**PNCU09**-MJ/ML**
APMX= 6.4mm

## APPLICATION AREAS



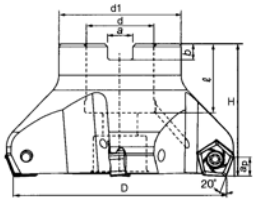

## DOPENT MILLING CUTTERS

- High Feed Rate & Cutting Efficiency • 10 Cutting Edges
- Increase Metal Removal by 50%



PENTAGONAL DOUBLE-SIDED INSERT WITH 10 CUTTING EDGES

## FACE MILLS

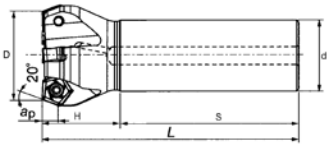


**max. depth of cut: Max. ap = .250 in.**

NOTE: 6" FACE MILLS ARE NOT ON PROMO

| PITCH | CUTTER | NO. OF INSERTS | D | d | d1 | ℓ | H | b | a | WEIGHT (KG) | COOLANT HOLE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| COARSE | TEN09R200U0075A03 | 3 | 2.00 | 0.75 | 1.69 | 0.75 | 1.57 | 0.20 | 0.31 | .3 | with |
| | TEN09R250U0075A04 | 4 | 2.50 | 0.75 | 1.69 | 0.75 | 1.57 | 0.20 | 0.31 | .5 | with |
| | TEN09R300U0100A04 | 4 | 3.00 | 1.00 | 1.97 | 1.02 | 1.97 | 0.24 | 0.37 | .9 | with |
| | TEN09R400U0150A05 | 5 | 4.00 | 1.50 | 3.15 | 1.38 | 1.97 | 0.39 | 0.63 | 1.3 | with |
| | TEN09R500U0150A06 | 6 | 5.00 | 1.50 | 3.15 | 1.46 | 2.48 | 0.39 | 0.63 | 2.6 | with |
| | TEN09R600U0200A07 | 7 | 6.00 | 2.00 | 3.94 | 1.50 | 2.48 | 0.43 | 0.75 | 4.4 | without |
| CLOSE | TEN09R200U0075A04 | 4 | 2.00 | 0.75 | 1.69 | 0.75 | 1.57 | 0.20 | 0.31 | .3 | with |
| | TEN09R250U0075A06 | 6 | 2.50 | 0.75 | 1.69 | 0.75 | 1.57 | 0.20 | 0.31 | .5 | with |
| | TEN09R300U0100A07 | 7 | 3.00 | 1.00 | 1.97 | 1.02 | 1.97 | 0.24 | 0.37 | .9 | with |
| | TEN09R400U0150A08 | 8 | 4.00 | 1.50 | 3.15 | 1.38 | 1.97 | 0.39 | 0.63 | 1.3 | with |
| | TEN09R500U0150A10 | 10 | 5.00 | 1.50 | 3.15 | 1.46 | 2.48 | 0.39 | 0.63 | 2.7 | with |
| | TEN09R600U0200A12 | 12 | 6.00 | 2.00 | 3.94 | 1.50 | 2.48 | 0.43 | 0.75 | 4.7 | without |
| FINE | TEN09R200U0075A06 | 6 | 2.00 | 0.75 | 1.69 | 0.75 | 1.57 | 0.20 | 0.31 | .3 | with |
| | TEN09R250U0075A08 | 8 | 2.50 | 0.75 | 1.69 | 0.75 | 1.57 | 0.20 | 0.31 | .5 | with |
| | TEN09R300U0100A10 | 10 | 3.00 | 1.00 | 1.97 | 1.02 | 1.97 | 0.24 | 0.37 | .9 | with |
| | TEN09R400U0150A12 | 12 | 4.00 | 1.50 | 3.15 | 1.38 | 1.97 | 0.39 | 0.63 | 1.4 | with |
| | TEN09R500U0150A16 | 16 | 5.00 | 1.50 | 3.15 | 1.46 | 2.48 | 0.39 | 0.63 | 2.9 | with |
| | TEN09R600U0200A20 | 20 | 6.00 | 2.00 | 3.94 | 1.50 | 2.48 | 0.43 | 0.75 | 4.9 | without |

## INDEXABLE END-MILLS WITH COOLANT HOLES

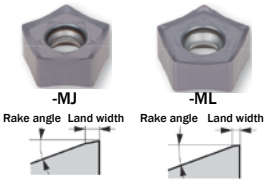


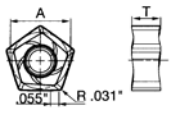
| CUTTER | D | d | S | H | L | NO. OF INSERT |
|---|---|---|---|---|---|---|
| EEN09R125U0125W03 | 1.25 | 1.25 | 2.28 | 1.50 | 3.78 | 3 |
| EEN09R150U0125W04 | 1.50 | 1.25 | 2.28 | 2.00 | 4.28 | 4 |

### INSERTS

- Pentagonal double sided insert. Economical corner unit price.
- 30% tool cost reduction compared to conventional four edge insert

### CHIP-BREAKERS




**MJ (General)**
**ML (General)**

| INSERT | DIMENSIONS (in) A | DIMENSIONS (in) T | APPLICATION |
|---|---|---|---|
| PNCU0905GNER-MJ | .480 | .232 | For general purpose, C class, Double sided pentagonal insert. Suitable for steels and cast iron. |
| PNCU0905GNEN-MJ | .480 | .236 | For low cutting force and low thrust force, C class, Neutral geometry, Double sided pentagonal insert. Can be used on Right and Left hand cutters. |
| PNMU0905GNEN-MJ | .480 | .236 | For general purpose, M class, Neutral geometry, Double sided pentagonal insert. Suitable for steels and cast iron. Can be used on Right and Left hand cutters. |
| PNCU0905GNEN-ML | .480 | .235 | For low cutting force and low thrust force, C class, Neutral geometry, Double sided pentagonal insert. Can be used on Right and Left hand cutters. |

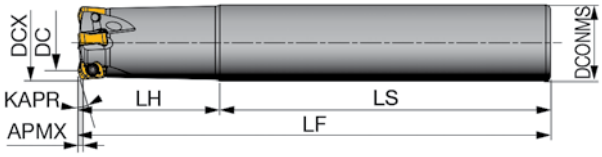
# HIGH FEED MILLING - SMALL DIAMETER SOLUTION

Highly successful DoFeed series now available in smaller 8 mm (.375") diameter milling cutter. AddDoFeed double sided negative insert features a large rake angle with optimal inclination that allows good chip control and smooth chip evacuation.

**BUY 10** inserts per pocket
AND
**GET 1** cutter
Maximum purchase of 50 inserts required

**FREE** of charge!
Promo code: TG114


- WITH COOLANT HOLE




## EXN02, EXN02...L

**High feed endmill, shank type, for 4-corner double sided inserts**

GAMP: Rake angle axial = +6°
GAMF: Rake angle radial = +5° - +11°

| PART#: | APMX | DCX | z* | DC | DCONMS | LF | LH | LS | KAPR | WT (lb) | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EXN02R037U0037-01 | 0.020 | 0.375 | 1 | 0.212 | 0.375 | 3.000 | 0.750 | 2.250 | 17° | 0.090 | LNMU02... |
| EXN02R037U0037-01L | 0.020 | 0.375 | 1 | 0.212 | 0.375 | 3.500 | 1.250 | 2.250 | 17° | 0.090 | LNMU02... |
| EXN02R050U0050-02 | 0.020 | 0.500 | 2 | 0.335 | 0.500 | 3.000 | 0.750 | 2.250 | 17° | 0.150 | LNMU02... |
| EXN02R050U0050-02L | 0.020 | 0.500 | 2 | 0.335 | 0.500 | 4.250 | 2.000 | 2.250 | 17° | 0.200 | LNMU02... |
| EXN02R062U0062-03L | 0.020 | 0.625 | 3 | 0.460 | 0.625 | 4.500 | 2.000 | 2.500 | 17° | 0.330 | LNMU02... |
| EXN02R062U0062-04 | 0.020 | 0.625 | 4 | 0.460 | 0.625 | 4.000 | 1.500 | 2.500 | 17° | 0.310 | LNMU02... |
| EXN02R075U0075-04L | 0.020 | 0.750 | 4 | 0.585 | 0.750 | 6.500 | 3.500 | 3.000 | 17° | 0.640 | LNMU02... |
| EXN02R075U0075-05 | 0.020 | 0.750 | 5 | 0.585 | 0.750 | 5.000 | 2.000 | 3.000 | 17° | 0.510 | LNMU02... |
| EXN02R100U0100-06L | 0.020 | 1.000 | 6 | 0.835 | 1.000 | 7.000 | 4.000 | 3.000 | 17° | 1.280 | LNMU02... |
| EXN02R100U0100-07 | 0.020 | 1.000 | 7 | 0.835 | 1.000 | 5.500 | 2.500 | 3.000 | 17° | 1.040 | LNMU02... |

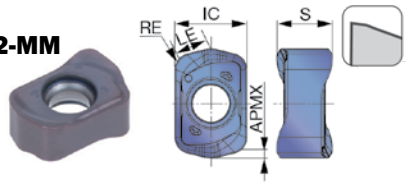
z* = No. of inserts

### SPARE PARTS

Clamping screw
CSPB-1.8FL4.3

Wrench
IP-6DB

## INSERT LNMU02-MM




| PART#: | IC | S | RE | APMX | LE |
|---|---|---|---|---|---|
| LNMU0202ZER-MM | 0.157 | 0.122 | 0.035 | 0.020 | 0.070 |

## CARBIDE GRADES APPLICATIONS

| | | AH130 | AH3225 | AH8015 |
|---|---|---|---|---|
| P | Steel | | ★ | ☆ |
| M | Stainless | ★ | ☆ | |
| K | Cast iron | | ☆ | ★ |
| N | Non-ferrous | | | |
| S | Superalloys | ★ | | ★ |
| H | Hard Materials | | ☆ | ★ |

- Alternative to solid carbide end-mills.
- Higher efficiency and cost saving

★ First choice
☆ Second choice

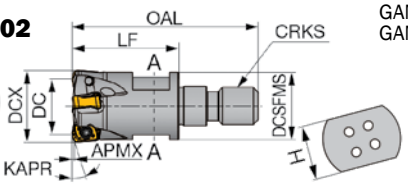
## TUNGFLEX HXN02

**High feed endmill, modular type (TungFlex)**

- WITH COOLANT HOLE

DIMENSIONS SHOWN IN MM

Insert: LNMU02




A-A cross section

GAMP = +6°
GAMF = +5° - +11°

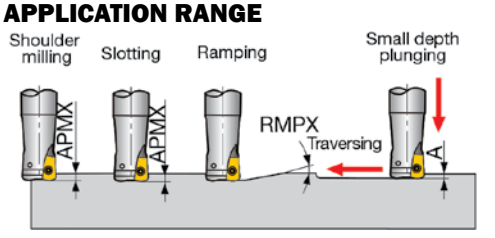
| PART#: | APMX | DCX | z* | DC | DCSFMS | OAL | LF | H | KAPR | CRKS |
|---|---|---|---|---|---|---|---|---|---|---|
| HXN02R008MM06-01 | 0.5 | 8 | 1 | 3.95 | 9.5 | 33.5 | 19 | 7 | 17° | M6 |
| HXN02R010MM06-02 | 0.5 | 10 | 2 | 5.85 | 9.5 | 31.5 | 17 | 7 | 17° | M6 |
| HXN02R012MM06-02 | 0.5 | 12 | 2 | 7.8 | 10 | 31.5 | 17 | 7 | 17° | M6 |
| HXN02R016MM08-04 | 0.5 | 16 | 4 | 11.8 | 14.5 | 40 | 23 | 10 | 17° | M8 |
| HXN02R020MM10-05 | 0.5 | 20 | 5 | 15.8 | 17.8 | 49 | 30 | 15 | 17° | M10 |
| HXN02R025MM12-07 | 0.5 | 25 | 7 | 20.8 | 23 | 52 | 30 | 17 | 17° | M12 |

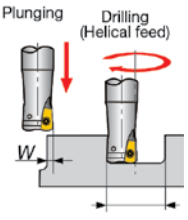
z* = No. of inserts

Optimized jet coolant delivery effectively removes chip and prevents it from being re-cut

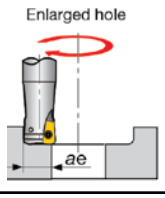
Large inclination forms ideal chips and controls the chips flow

## APPLICATION RANGE




APMAX = MAX. DEPTH OF CUT
RPMX = MAX. RAMPING ANGLE
A = MAX. PLUNGING DEPTH
W = MAX. CUTTING WIDTH IN PLUNGING
D1 = MIN. MACHINING
D2 = MAX. MACHINING
ae = MAX CUTTING WIDTH IN ENLARGED HOLES




| PART#: | DCX | APMX | RMPX | A | W | øD1 | øD2 | ae |
|---|---|---|---|---|---|---|---|---|
| EXN02R037U... | 0.375 | 0.020 | 3.100 | 0.006 | 0.079 | 0.509 | 0.635 | 0.289 |
| EXN02R050U... | 0.500 | 0.020 | 1.780 | 0.006 | 0.079 | 0.760 | 0.886 | 0.413 |
| EXN02R062U... | 0.625 | 0.020 | 1.230 | 0.006 | 0.079 | 1.011 | 1.137 | 0.539 |
| EXN02R075U... | 0.750 | 0.020 | 0.950 | 0.006 | 0.079 | 1.262 | 1.388 | 0.664 |
| EXN02R100U... | 1.000 | 0.020 | 0.640 | 0.006 | 0.079 | 1.756 | 1.882 | 0.913 |

## STANDARD CUTTING CONDITIONS

| ISO | Workpiece materials | | Hardness | Priority | Grades | Cutting speed vc (sfm) | Feed per tooth fz (ipt) |
|---|---|---|---|---|---|---|---|
| P | Carbon steels 1045, 1055, etc. | | - 300HB | First choice | AH3225 | 330-980 | 0.008-0.047 |
| | | | - 300HB | For wear resistance | AH8015 | 330-980 | 0.008-0.047 |
| | Alloy steels 4140, etc. | | - 300HB | First choice | AH3225 | 330-980 | 0.008-0.047 |
| | | | - 300HB | For wear resistance | AH8015 | 330-980 | 0.008-0.047 |
| | Prehardened steels NAK80, PX5, etc. | | 30-40HRC | First choice | AH8015 | 330-660 | 0.008-0.031 |
| | | | 30-40HRC | For impact resistance | AH3225 | 330-660 | 0.008-0.031 |
| M | Stainless steels 304SS, etc. | | - 200HB | First choice | AH130 | 330-490 | 0.008-0.031 |
| K | Gray cast irons class25, etc. | | 150-250HB | First choice | AH8015 | 330-980 | 0.008-0.047 |
| | | | 150-250HB | For impact resistance | AH3225 | 330-980 | 0.008-0.047 |
| | Ductile cast irons 80-50-06, etc. | | 150-250HB | First choice | AH8015 | 260-660 | 0.008-0.047 |
| | | | 150-250HB | For impact resistance | AH3225 | 260-660 | 0.008-0.047 |
| S | Titanium alloy Ti-6Al-4V, etc. | | - 40HRC | First choice | AH130 | 100-200 | 0.008-0.028 |
| | | | - 40HRC | For wear resistance | AH8015 | 100-200 | 0.008-0.028 |
| | Heat resistant alloy Inconel, Hastelloy, etc. | | - 40HRC | First choice | AH8015 | 70-160 | 0.004-0.012 |
| | | | - 40HRC | For impact resistance | AH3225 | 70-160 | 0.004-0.012 |
| H | Hardened steel | H13, etc. | 40-50HRC | First choice | AH8015 | 260-490 | 0.004-0.020 |
| | | | 40-50HRC | For impact resistance | AH3225 | 260-490 | 0.004-0.020 |
| | | D2, etc. | 50~60HRC | First choice | AH8015 | 160-230 | 0.004-0.012 |

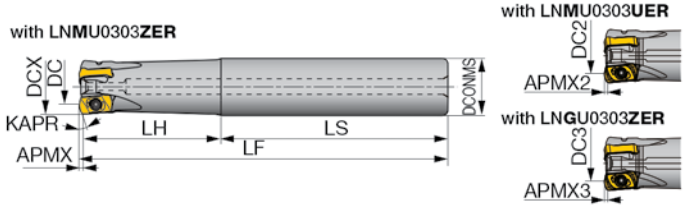
# ADDFEED HIGH FEED MILLING

- Two insert styles: UER and ZER are interchangeable on the same cutter body.
- Economical double-sided insert with four total cutting edges.
- Thanks to small approach angle, UER inserts generate thin chips, reducing cutting load on the edge for prolonged tool life in difficult to machine materials
- UER inserts provide stability in long overhang milling.

## EXN03 EXN03-L

INDEXABLE END-MILLS

- With coolant hole




| PART#: | DCX | DCONMS | LF | LH | LS | APMX | APMX2 | APMX3 | DC | DC2 | DC3 | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXN03R062U0062-02 | 0.625 | 0.625 | 4.000 | 1.250 | 2.750 | 0.039 | 0.035 | 0.039 | 0.373 | 0.342 | 0.381 | 2 | LN*U03... |
| EXN03R062U0062-02L | 0.625 | 0.625 | 6.000 | 2.000 | 4.000 | 0.039 | 0.035 | 0.039 | 0.373 | 0.342 | 0.381 | 2 | LN*U03... |
| EXN03R068U0062-02 | 0.688 | 0.625 | 4.000 | 1.250 | 2.750 | 0.039 | 0.035 | 0.039 | 0.432 | 0.401 | 0.436 | 2 | LN*U03... |
| EXN03R068U0062-02L | 0.688 | 0.625 | 6.000 | 1.000 | 5.000 | 0.039 | 0.035 | 0.039 | 0.432 | 0.401 | 0.436 | 2 | LN*U03... |
| EXN03R075U0075-02 | 0.750 | 0.750 | 5.000 | 2.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.494 | 0.463 | 0.498 | 2 | LN*U03... |
| EXN03R075U0075-03 | 0.750 | 0.750 | 5.000 | 2.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.494 | 0.463 | 0.498 | 3 | LN*U03... |
| EXN03R075U0075-03L | 0.750 | 0.750 | 6.500 | 3.500 | 3.000 | 0.039 | 0.035 | 0.039 | 0.494 | 0.463 | 0.498 | 3 | LN*U03... |
| EXN03R087U0075-02 | 0.875 | 0.750 | 5.000 | 2.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.619 | 0.588 | 0.623 | 2 | LN*U03... |
| EXN03R087U0075-03 | 0.875 | 0.750 | 5.000 | 2.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.619 | 0.588 | 0.623 | 3 | LN*U03... |
| EXN03R087U0075-03L | 0.875 | 0.750 | 6.500 | 1.250 | 5.250 | 0.039 | 0.035 | 0.039 | 0.619 | 0.588 | 0.623 | 3 | LN*U03... |
| EXN03R100U0100-04 | 1.000 | 1.000 | 5.500 | 2.500 | 3.000 | 0.039 | 0.035 | 0.039 | 0.744 | 0.713 | 0.748 | 4 | LN*U03... |
| EXN03R100U0100-04L | 1.000 | 1.000 | 7.000 | 4.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.744 | 0.713 | 0.748 | 4 | LN*U03... |
| EXN03R100U0100-05 | 1.000 | 1.000 | 5.500 | 2.500 | 3.000 | 0.039 | 0.035 | 0.039 | 0.744 | 0.713 | 0.748 | 5 | LN*U03... |
| EXN03R112U0100-04 | 1.125 | 1.000 | 5.500 | 2.500 | 3.000 | 0.039 | 0.035 | 0.039 | 0.869 | 0.838 | 0.873 | 4 | LN*U03... |
| EXN03R112U0100-04L | 1.125 | 1.000 | 7.000 | 1.500 | 5.500 | 0.039 | 0.035 | 0.039 | 0.869 | 0.838 | 0.873 | 4 | LN*U03... |
| EXN03R112U0100-05 | 1.125 | 1.000 | 5.500 | 2.500 | 3.000 | 0.039 | 0.035 | 0.039 | 0.869 | 0.838 | 0.873 | 5 | LN*U03... |
| EXN03R125U0125-05 | 1.250 | 1.250 | 6.000 | 3.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.994 | 0.963 | 0.998 | 5 | LN*U03... |
| EXN03R125U0125-05L | 1.250 | 1.250 | 8.000 | 5.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.994 | 0.963 | 0.998 | 5 | LN*U03... |
| EXN03R125U0125-06 | 1.250 | 1.250 | 6.000 | 3.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.994 | 0.963 | 0.998 | 6 | LN*U03... |

## EXN03-C • With coolant directly to the tool tips

| PART#: | DCX | DCONMS | LF | LH | LS | APMX | APMX2 | APMX3 | DC | DC2 | DC3 | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXN03R075U0075-03-C | 0.750 | 0.750 | 5.000 | 2.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.494 | 0.463 | 0.498 | 3 | LN*U03... |
| EXN03R087U0075-03-C | 0.875 | 0.750 | 5.000 | 2.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.619 | 0.588 | 0.623 | 3 | LN*U03... |
| EXN03R100U0100-05-C | 1.000 | 1.000 | 5.500 | 2.500 | 3.000 | 0.039 | 0.035 | 0.039 | 0.744 | 0.713 | 0.748 | 5 | LN*U03... |
| EXN03R125U0125-06-C | 1.250 | 1.250 | 6.000 | 3.000 | 3.000 | 0.039 | 0.035 | 0.039 | 0.994 | 0.963 | 0.998 | 6 | LN*U03... |

## EXN03-C • Metric • With coolant directly to the tool tips

| PART#: | DCX | DCONMS | LF | LH | LS | APMX | APMX2 | APMX3 | DC | DC2 | DC3 | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXN03R016M16.0-02-C | 16 | 16 | 100 | 30 | 70 | 1 | 0.9 | 1 | 9.6 | 8.8 | 9.8 | 2 | LN*U03... |
| EXN03R016M16.0-02L-C | 16 | 16 | 150 | 50 | 100 | 1 | 0.9 | 1 | 9.6 | 8.8 | 9.8 | 2 | LN*U03... |
| EXN03R020M20.0-03-C | 20 | 20 | 130 | 50 | 80 | 1 | 0.9 | 1 | 13.5 | 12.7 | 13.6 | 3 | LN*U03... |
| EXN03R020M20.0-03L-C | 20 | 20 | 160 | 80 | 80 | 1 | 0.9 | 1 | 13.5 | 12.7 | 13.6 | 3 | LN*U03... |
| EXN03R020M20.0-04-C | 20 | 20 | 130 | 50 | 80 | 1 | 0.9 | 1 | 13.5 | 12.7 | 13.6 | 4 | LN*U03... |
| EXN03R025M25.0-04-C | 25 | 25 | 140 | 60 | 80 | 1 | 0.9 | 1 | 18.5 | 17.7 | 18.6 | 4 | LN*U03... |
| EXN03R025M25.0-04L-C | 25 | 25 | 180 | 100 | 80 | 1 | 0.9 | 1 | 18.5 | 17.7 | 18.6 | 4 | LN*U03... |
| EXN03R025M25.0-05-C | 25 | 25 | 140 | 60 | 80 | 1 | 0.9 | 1 | 18.5 | 17.7 | 18.6 | 5 | LN*U03... |
| EXN03R032M32.0-05-C | 32 | 32 | 150 | 70 | 80 | 1 | 0.9 | 1 | 25.5 | 24.7 | 25.6 | 5 | LN*U03... |
| EXN03R032M32.0-05L-C | 32 | 32 | 200 | 120 | 80 | 1 | 0.9 | 1 | 25.5 | 24.7 | 25.6 | 5 | LN*U03... |
| EXN03R032M32.0-06-C | 32 | 32 | 150 | 70 | 80 | 1 | 0.9 | 1 | 25.5 | 24.7 | 25.6 | 6 | LN*U03... |
| EXN03R040M32.0-06-C | 40 | 32 | 150 | 45 | 105 | 1 | 0.9 | 1 | 33.6 | 32.8 | 33.7 | 6 | LN*U03... |
| EXN03R040M32.0-06L-C | 40 | 32 | 220 | 45 | 175 | 1 | 0.9 | 1 | 33.6 | 32.8 | 33.7 | 6 | LN*U03... |

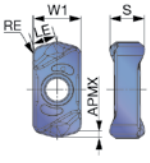
## EXN03-N • Metric • Without coolant hole

| PART#: | DCX | DCONMS | LF | LH | LS | APMX | APMX2 | APMX3 | DC | DC2 | DC3 | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXN03R016M16.0-02N | 16 | 16 | 100 | 30 | 70 | 1 | 0.9 | 1 | 9.6 | 8.8 | 9.8 | 2 | LN*U03... |
| EXN03R020M20.0-03N | 20 | 20 | 130 | 50 | 80 | 1 | 0.9 | 1 | 13.5 | 12.7 | 13.6 | 3 | LN*U03... |
| EXN03R025M25.0-04N | 25 | 25 | 140 | 60 | 80 | 1 | 0.9 | 1 | 18.5 | 17.7 | 18.6 | 4 | LN*U03... |
| EXN03R032M32.0-05N | 32 | 32 | 150 | 70 | 80 | 1 | 0.9 | 1 | 25.5 | 24.7 | 25.6 | 5 | LN*U03... |

*z = No. of inserts

## INSERTS

★ First choice
☆ Second choice

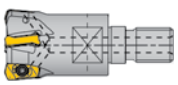



| | | AH130 | AH3225 | AH8015 |
|---|---|---|---|---|
| P | Steel | | ★ | |
| M | Stainless | ★ | ☆ | |
| K | Cast iron | | ☆ | |
| N | Non-ferrous | | | |
| S | Titanium | ★ | ☆ | |
| S | Inconel | | | ★ |
| H | Hard Materials | | | ★ |

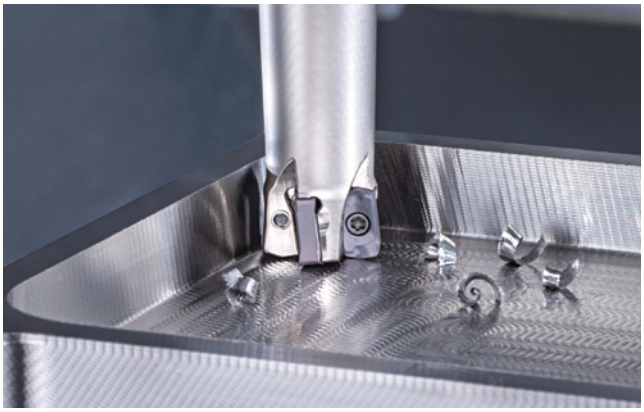
| PART#: | RE | APMX | LE | W1 | S | | | | APPLICATION |
|---|---|---|---|---|---|---|---|---|---|
| LNMU0303ZER-MJ | 0.047 | 0.039 | 0.126 | 0.236 | 0.169 | ● | ● | ● | for general purpose |
| LNMU0303ZER-ML | 0.047 | 0.039 | 0.126 | 0.236 | 0.169 | ● | ● | ● | for low cutting force |
| LNMU0303ZER-MS | 0.047 | 0.039 | 0.126 | 0.236 | 0.169 | ● | ● | | for stainless steel |
| LNGU0303ZER-MH | 0.047 | 0.039 | 0.126 | 0.236 | 0.169 | | | ● | Robust cutting edges |
| LNMU0303UER-MJ | 0.039 | 0.035 | 0.122 | 0.236 | 0.161 | ● | ● | ● | for general purpose, low approach angle |
| LNMU0303UER-ML | 0.039 | 0.035 | 0.122 | 0.236 | 0.161 | ● | ● | ● | for low cutting force, low approach angle |

## HXN03-C:

DIMENSIONS SHOWN IN MM



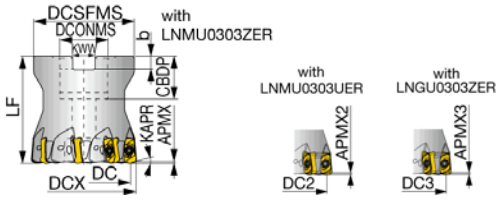




## TXN03

MILLING CUTTERS

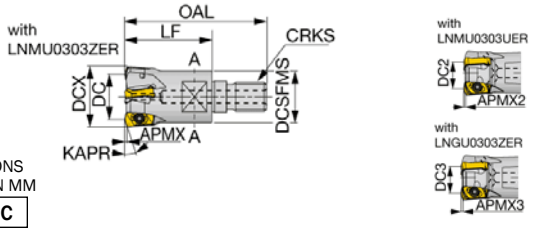
- With coolant holes




| PART#: | DCX | DCONMS | LF | b | KWW | APMX | APMX2 | APMX3 | DC | DC2 | DC3 | DCSFMS | CBDP | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TXN03R150U0050A05 | 1.500 | 0.500 | 1.575 | 0.160 | 0.252 | 0.039 | 0.035 | 0.039 | 1.323 | 1.291 | 1.327 | 1.460 | 0.750 | 5 | LN*U03... |
| TXN03R150U0050A06 | 1.500 | 0.500 | 1.575 | 0.160 | 0.252 | 0.039 | 0.035 | 0.039 | 1.323 | 1.291 | 1.327 | 1.380 | 0.600 | 6 | LN*U03... |
| TXN03R200U0075A05 | 2.000 | 0.750 | 1.969 | 0.197 | 0.315 | 0.039 | 0.035 | 0.039 | 1.717 | 1.685 | 1.720 | 1.693 | 0.750 | 5 | LN*U03... |
| TXN03R200U0075A08 | 2.000 | 0.750 | 1.969 | 0.197 | 0.315 | 0.039 | 0.035 | 0.039 | 1.717 | 1.685 | 1.720 | 1.693 | 0.750 | 8 | LN*U03... |
| TXN03R200U0075A10 | 2.000 | 0.750 | 1.969 | 0.197 | 0.315 | 0.039 | 0.035 | 0.039 | 1.717 | 1.685 | 1.720 | 1.693 | 0.750 | 10 | LN*U03... |

*z = No. of inserts

## HXN03 • Modular (TungFlex) with through center coolant hole




DIMENSIONS SHOWN IN MM

METRIC

| PART#: | DCX | CRKS | OAL | LF | H | APMX | APMX2 | APMX3 | DC | DC2 | DC3 | DCSFMS | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HXN03R016MM08-02 | 16 | M8 | 42 | 25 | 10 | 1 | 0.9 | 1 | 9.6 | 8.8 | 9.8 | 12.8 | 2 | LN*U03... |
| HXN03R018MM08-02 | 18 | M8 | 42 | 25 | 10 | 1 | 0.9 | 1 | 11.5 | 10.7 | 11.7 | 14.5 | 2 | LN*U03... |
| HXN03R020MM10-03 | 20 | M10 | 49 | 30 | 15 | 1 | 0.9 | 1 | 13.5 | 12.7 | 13.6 | 17.8 | 3 | LN*U03... |
| HXN03R020MM10-04 | 20 | M10 | 49 | 30 | 15 | 1 | 0.9 | 1 | 13.5 | 12.7 | 13.6 | 17.8 | 4 | LN*U03... |
| HXN03R022MM10-03 | 22 | M10 | 49 | 30 | 15 | 1 | 0.9 | 1 | 15.5 | 14.7 | 15.6 | 17.8 | 3 | LN*U03... |
| HXN03R022MM10-04 | 22 | M10 | 49 | 30 | 15 | 1 | 0.9 | 1 | 15.5 | 14.7 | 15.6 | 17.8 | 4 | LN*U03... |
| HXN03R025MM12-04 | 25 | M12 | 57 | 35 | 17 | 1 | 0.9 | 1 | 18.5 | 17.7 | 18.6 | 20.8 | 4 | LN*U03... |
| HXN03R025MM12-05 | 25 | M12 | 57 | 35 | 17 | 1 | 0.9 | 1 | 18.5 | 17.7 | 18.6 | 20.8 | 5 | LN*U03... |
| HXN03R028MM12-04 | 28 | M12 | 57 | 35 | 17 | 1 | 0.9 | 1 | 21.5 | 20.7 | 21.6 | 23 | 4 | LN*U03... |
| HXN03R028MM12-05 | 28 | M12 | 57 | 35 | 17 | 1 | 0.9 | 1 | 21.5 | 20.7 | 21.6 | 23 | 5 | LN*U03... |
| HXN03R030MM16-04 | 30 | M16 | 63 | 40 | 22 | 1 | 0.9 | 1 | 23.5 | 22.7 | 23.6 | 28.8 | 4 | LN*U03... |
| HXN03R030MM16-05 | 30 | M16 | 63 | 40 | 22 | 1 | 0.9 | 1 | 23.5 | 22.7 | 23.6 | 28.8 | 5 | LN*U03... |
| HXN03R032MM16-05 | 32 | M16 | 63 | 40 | 22 | 1 | 0.9 | 1 | 25.5 | 24.7 | 25.6 | 28.8 | 5 | LN*U03... |
| HXN03R032MM16-06 | 32 | M16 | 63 | 40 | 22 | 1 | 0.9 | 1 | 25.5 | 24.7 | 25.6 | 28.8 | 6 | LN*U03... |

SAME AS ABOVE WITH COOLANT DIRECTED TO THE TOOL TIPS

| PART#: | DCX | CRKS | OAL | LF | H | APMX | APMX2 | APMX3 | DC | DC2 | DC3 | DCSFMS | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HXN03R016MM08-02-C | 16 | M8 | 42 | 25 | 10 | 1 | 0.9 | 1 | 9.6 | 8.8 | 9.8 | 12.8 | 2 | LN*U03... |
| HXN03R020MM10-03-C | 20 | M10 | 49 | 30 | 15 | 1 | 0.9 | 1 | 13.5 | 12.7 | 13.6 | 17.8 | 3 | LN*U03... |
| HXN03R020MM10-04-C | 20 | M10 | 49 | 30 | 15 | 1 | 0.9 | 1 | 13.5 | 12.7 | 13.6 | 17.8 | 4 | LN*U03... |
| HXN03R025MM12-04-C | 25 | M12 | 57 | 35 | 17 | 1 | 0.9 | 1 | 18.5 | 17.7 | 18.6 | 20.8 | 4 | LN*U03... |
| HXN03R025MM12-05-C | 25 | M12 | 57 | 35 | 17 | 1 | 0.9 | 1 | 18.5 | 17.7 | 18.6 | 20.8 | 5 | LN*U03... |
| HXN03R032MM16-05-C | 32 | M16 | 63 | 40 | 22 | 1 | 0.9 | 1 | 25.5 | 24.7 | 25.6 | 28.8 | 5 | LN*U03... |
| HXN03R032MM16-06-C | 32 | M16 | 63 | 40 | 22 | 1 | 0.9 | 1 | 25.5 | 24.7 | 25.6 | 28.8 | 6 | LN*U03... |
| HXN03R040MM16-06-C | 40 | M16 | 63 | 40 | 22 | 1 | 0.9 | 1 | 33.6 | 32.8 | 33.7 | 28.8 | 6 | LN*U03... |

*z = No. of inserts

# TUNGFREC SHOULDER MILLING CUTTERS

## • INSERTS WITH UNIQUE V-SHAPED BOTTOM FOR MAXIMUM RIGIDITY

The use of unique V shaped bottom inserts enables the cutter to have higher tool rigidity and carry a greater number of inserts compared with conventional milling cutters.

## 2 PROMOS FOR 2 INSERT SIZES

### -04 INSERT PROMO

**BUY 10** inserts per pocket
up to max 50 inserts
AND
**GET 1** cutter

**FREE** of charge!
Promo code: TG143

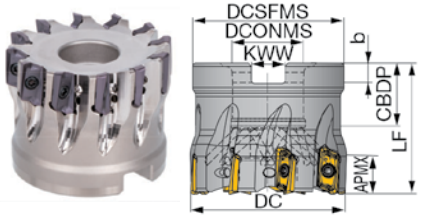
### -12 INSERT PROMO

**BUY 10** inserts per pocket
AND
**GET 1** cutter
Maximum purchase of 50 inserts required

**FREE** of charge!
Promo code: TG117

## FACE MILLS

High-end square shoulder mill
- With coolant holes




**TPAV12** - DIMENSIONS SHOWN IN INCHES

* z = No. of inserts

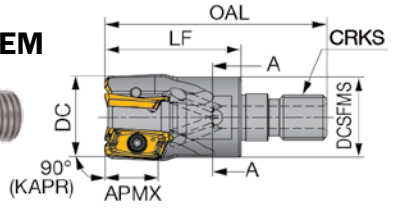
| PART#: | APMX | DC | DCSFMS | DCONMS | CBDP | LF | KWW | z* | INSERT |
|---|---|---|---|---|---|---|---|---|---|
| TPAV12U2.00B0.75R12 | 0.453 | 2.000 | 1.772 | 0.750 | 0.750 | 1.575 | 0.315 | 12 | AVM/GT12... |

**TPAV12** - DIMENSIONS SHOWN IN MM

| PART#: | APMX | DC | DCSFMS | DCONMS | CBDP | LF | KWW | z* | INSERT |
|---|---|---|---|---|---|---|---|---|---|
| TPAV12M050B22.0R08 | 11.5 | 50 | 47 | 22 | 20 | 40 | 10.4 | 8 | AVM/GT12... |
| TPAV12M050B22.0R12 | 11.5 | 50 | 47 | 22 | 20 | 40 | 10.4 | 12 | AVM/GT12... |
| TPAV12M063B22.0R08 | 11.5 | 63 | 47 | 22 | 20 | 40 | 10.4 | 8 | AVM/GT12... |
| TPAV12M063B22.0R14 | 11.5 | 63 | 47 | 22 | 20 | 40 | 10.4 | 14 | AVM/GT12... |

## MODULAR MILL FITS TUNGFLEX SYSTEM

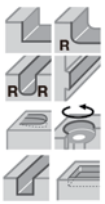
- With coolant holes




**HPAV12-M** - DIMENSIONS SHOWN IN MM

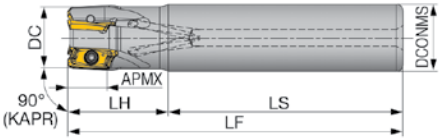
* z = No. of inserts

| PART#: | DC | z* | OAL | LF | H | DCSFMS | CRKS |
|---|---|---|---|---|---|---|---|
| HPAV12M016M08R02 | 16 | 2 | 42 | 25 | 10 | 14.5 | M8 |
| HPAV12M016M08R03 | 16 | 3 | 42 | 25 | 10 | 14.5 | M8 |
| HPAV12M020M10R03 | 20 | 3 | 49 | 30 | 15 | 17.8 | M10 |
| HPAV12M020M10R04 | 20 | 4 | 49 | 30 | 15 | 17.8 | M10 |
| HPAV12M025M12R04 | 25 | 4 | 57 | 35 | 17 | 23 | M12 |
| HPAV12M025M12R06 | 25 | 6 | 57 | 35 | 17 | 23 | M12 |
| HPAV12M032M16R06 | 32 | 6 | 63 | 40 | 22 | 28.8 | M16 |
| HPAV12M032M16R08 | 32 | 8 | 63 | 40 | 22 | 28.8 | M16 |
| HPAV12M040M16R06 | 40 | 6 | 63 | 40 | 22 | 28.8 | M16 |
| HPAV12M040M16R08 | 40 | 8 | 63 | 40 | 22 | 28.8 | M16 |



## INDEXABLE END-MILLS

High-end square shoulder endmill
- With coolant holes




**EPAV04** - Small diameters (sizes in mm)

| PART#: | DC | DCONMS | APMX | LS | LH | LF | z* | Insert |
|---|---|---|---|---|---|---|---|---|
| EPAV04M006C06.0R01 | 6 | 6 | 4 | 48 | 12 | 60 | 1 | AVMT04... |
| EPAV04M008C08.0R02 | 8 | 8 | 4 | 48 | 12 | 60 | 2 | AVMT04... |
| EPAV04M008C08.0R02L | 8 | 8 | 4 | 60 | 20 | 80 | 2 | AVMT04... |
| EPAV04M010C10.0R02 | 10 | 10 | 4 | 60 | 20 | 80 | 2 | AVMT04... |
| EPAV04M010C10.0R03 | 10 | 10 | 4 | 60 | 20 | 80 | 3 | AVMT04... |
| EPAV04M010C10.0R02L | 10 | 10 | 4 | 65 | 35 | 100 | 2 | AVMT04... |
| EPAV04M012C12.0R03 | 12 | 12 | 4 | 60 | 20 | 80 | 3 | AVMT04... |
| EPAV04M012C12.0R04 | 12 | 12 | 4 | 60 | 20 | 80 | 4 | AVMT04... |
| EPAV04M012C12.0R03L | 12 | 12 | 4 | 85 | 35 | 120 | 3 | AVMT04... |
| EPAV04M016C16.0R04 | 16 | 16 | 4 | 70 | 20 | 90 | 4 | AVMT04... |
| EPAV04M016C16.0R05 | 16 | 16 | 4 | 70 | 20 | 90 | 5 | AVMT04... |
| EPAV04M016C16.0R04L | 16 | 16 | 4 | 105 | 35 | 140 | 4 | AVMT04... |

* z = No. of inserts

**EPAV12** - Standard sizes - Inch

| PART#: | APMX | DC | DCONMS | LS | LH | LF | WT (lb) | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|
| EPAV12U0.62W0.62R03 | 0.453 | 0.625 | 0.625 | 1.906 | 1.000 | 2.906 | 0.220 | 3 | AVM/GT12... |
| EPAV12U0.75W0.75R04 | 0.453 | 0.750 | 0.750 | 2.031 | 1.250 | 3.281 | 0.330 | 4 | AVM/GT12... |
| EPAV12U1.00W1.00R06 | 0.453 | 1.000 | 1.000 | 2.281 | 1.500 | 3.781 | 0.710 | 6 | AVM/GT12... |
| EPAV12U1.25W1.25R08 | 0.453 | 1.250 | 1.250 | 2.281 | 1.500 | 3.781 | 1.150 | 8 | AVM/GT12... |
| EPAV12U0.62C0.62R02L | 0.453 | 0.625 | 0.625 | 4.250 | 1.500 | 5.750 | 0.440 | 2 | AVM/GT12... |
| EPAV12U0.75C0.75R03L | 0.453 | 0.750 | 0.750 | 5.250 | 2.000 | 7.250 | 0.790 | 3 | AVM/GT12... |
| EPAV12U1.00C1.00R03L | 0.453 | 1.000 | 1.000 | 5.750 | 2.750 | 8.500 | 1.650 | 3 | AVM/GT12... |
| EPAV12U1.25C1.25R03L | 0.453 | 1.25 | 1.250 | 7.000 | 3.000 | 10.000 | 3.150 | 3 | AVM/GT12... |

* z = No. of inserts  Clamping screw: CSPB=2.5S  Wrench: 3-8D

## INSERTS

AV...04
AV...12

**AVMT□-MM**
Single-sided, insert with 2 cutting edges for general purpose

**AVGT□-AM**
Single-sided, insert with 2 cutting edges for non-ferrous materials

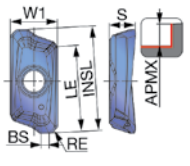
### CARBIDE GRADE APPLICATION

★ First choice
☆ Second choice

| | | Coated | | | | | Carbide |
|---|---|---|---|---|---|---|---|
| | | AH120 | AH130 | AH3225 | T1215 | T3225 | KS05F |
| P | Steel | | ★ | ★ | | ☆ | |
| M | Stainless | | ★ | ★ | | ☆ | |
| K | Cast iron | ★ | | | ☆ | | |
| N | Non-ferrous | | | | | | ★ |
| S | Superalloys | ★ | ★ | ★ | | | |
| H | Hard Materials | ★ | | | | | |

(1) For AV...04 use AH120. For AV...06, use AH130.
For AV...12 use AH120 or AH3225.

| PART#: | W1 | INSL | S | BS | LE | RE | APMX |
|---|---|---|---|---|---|---|---|
| AVMT040204PPER-MM | 0.138 | 0.238 | 0.083 | 0.039 | 0.173 | 0.016 | 0.157 |
| AVMT040208PPER-MM | 0.138 | 0.238 | 0.083 | 0.024 | 0.173 | 0.031 | 0.157 |
| AVMT120404PDER-MM | 0.260 | 0.559 | 0.142 | 0.059 | 0.465 | 0.016 | 0.453 |
| AVMT120408PDER-MM | 0.260 | 0.559 | 0.142 | 0.043 | 0.465 | 0.031 | 0.453 |
| AVMT120412PDER-MM | 0.260 | 0.559 | 0.142 | 0.028 | 0.465 | 0.047 | 0.453 |
| AVMT120416PDER-MM | 0.260 | 0.559 | 0.142 | 0.012 | 0.465 | 0.063 | 0.453 |
| AVMT120420PDER-MM | 0.260 | 0.500 | 0.134 | 0.047 | 0.437 | 0.079 | 0.413 |
| AVMT120430PDER-MM | 0.260 | 0.500 | 0.134 | 0.008 | 0.437 | 0.118 | 0.413 |
| AVGT120404PDFR-AM | 0.260 | 0.559 | 0.142 | 0.059 | 0.465 | 0.016 | 0.453 |
| AVGT120408PDFR-AM | 0.260 | 0.559 | 0.142 | 0.043 | 0.465 | 0.031 | 0.453 |



# TUNG-TRI

**BUY 10** inserts per pocket
AND
**GET 1** cutter
Maximum purchase of 50 inserts required

**FREE** of charge!
Promo code: TG115

INCLUDED IN THE PROMO

**TOMT04-MM**
Single-sided, 3 cornered insert with MM chipbreaker

EPA04...

**Insert:**
**TOMT04-MM (AH3225, AH8015, AH120)**
Max.ap = 3.5 mm (.138")
RE = 0.4, 0.8mm (.0157", .0315")

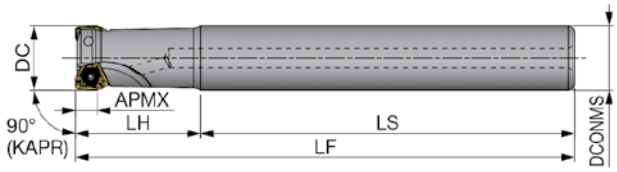
**CUTTERS:**
**EPA04R... (Short type)**
DC = ø8 ~ ø25mm
**EPA04R**L... (Long type)**
DC = ø10 ~ ø25mm

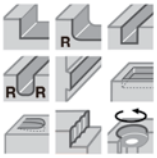
# EXTREMELY COST-EFFICIENT SHOULDER MILL SERIES UNVEILS CUTTERS IN SMALLER DIAMETERS THAN EVER BEFORE

Tung-Tri 04 boasts an innovative insert geometry, featuring a super high rake for a small diameter cutter, which significantly reduces cutting forces while eliminating chatter and edge chipping.


## EPA04 High precision square shoulder endmill WITH COOLANT HOLES

DIMENSIONS SHOWN IN MM




GAMP: Rake angle axial = +12.1" - +12.2"
GAMF: Rake angle radial = -14.2°~ -18.3°

| PART#: | APMX | DC | z* | DCONMS | LS | LH | LF | WT (kg) | Insert |
|---|---|---|---|---|---|---|---|---|---|
| EPA04R008M08.0-01 | 3.5 | 8 | 1 | 8 | 48 | 12 | 60 | 0.02 | TOMT04... |
| EPA04R010M10.0-02 | 3.5 | 10 | 2 | 10 | 60 | 20 | 80 | 0.04 | TOMT04... |
| EPA04R010M10.0-02L | 3.5 | 10 | 2 | 10 | 65 | 35 | 100 | 0.05 | TOMT04... |
| EPA04R012M12.0-02 | 3.5 | 12 | 2 | 12 | 60 | 20 | 80 | 0.06 | TOMT04... |
| EPA04R012M12.0-03 | 3.5 | 12 | 3 | 12 | 60 | 20 | 80 | 0.06 | TOMT04... |
| EPA04R012M12.0-02L | 3.5 | 12 | 2 | 12 | 85 | 35 | 120 | 0.09 | TOMT04... |
| EPA04R016M16.0-03 | 3.5 | 16 | 3 | 16 | 70 | 20 | 90 | 0.12 | TOMT04... |
| EPA04R016M16.0-04 | 3.5 | 16 | 4 | 16 | 70 | 20 | 90 | 0.12 | TOMT04... |
| EPA04R016M16.0-03L | 3.5 | 16 | 3 | 16 | 105 | 35 | 140 | 0.19 | TOMT04... |
| EPA04R020M20.0-04 | 3.5 | 20 | 4 | 20 | 70 | 30 | 100 | 0.21 | TOMT04... |
| EPA04R020M20.0-05 | 3.5 | 20 | 5 | 20 | 70 | 30 | 100 | 0.21 | TOMT04... |
| EPA04R020M20.0-04L | 3.5 | 20 | 4 | 20 | 165 | 35 | 200 | 0.44 | TOMT04... |
| EPA04R025M25.0-05 | 3.5 | 25 | 5 | 25 | 80 | 35 | 115 | 0.39 | TOMT04... |
| EPA04R025M25.0-06 | 3.5 | 25 | 6 | 25 | 80 | 35 | 115 | 0.39 | TOMT04... |
| EPA04R025M25.0-04L | 3.5 | 25 | 4 | 25 | 160 | 40 | 200 | 0.7 | TOMT04... |

* z = No. of inserts

**SPARE PARTS**

| Designation | Clamping screw | Wrench |
|---|---|---|
| EPA04R008M08.0-01 | CSPB-1.8L3.3 | IP-6DB |
| EPA04R010 - 025... | CSPB-1.8L3.6 | IP-6DB |

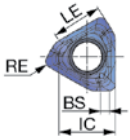
*Recommended clamping torque (N·m) : CSPB-1.8L3.3/CSPB-1.8L3.6 = 0.5

**CARBIDE GRADE APPLICATION**

★ First choice
☆ Second choice

| | | AH3225 | AH120 | AH8015 |
|---|---|---|---|---|
| P | Steel | ★ | ☆ | |
| M | Stainless | ★ | | |
| K | Cast iron | | ★ | |
| N | Non-ferrous | | | |
| S | Superalloys | ★ | | ★ |
| H | Hard Materials | | | ★ |

## INSERTS TOMT-MM





APMX = MAX DEPTH OF CUT

| PART#: | IC | S | BS | APMX | RE | LE |
|---|---|---|---|---|---|---|
| TOMT040204PXER-MM | 4 | 2.2 | 0.6 | 3.5 | 0.4 | 3.6 |
| TOMT040208PXER-MM | 4 | 2.2 | 0.2 | 3.5 | 0.8 | 3.6 |

## STANDARD CUTTING CONDITIONS

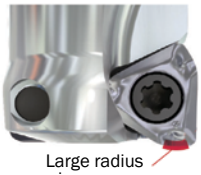
| ISO | Workpiece materials | | Hardness | Grades | Cutting speed vc (m/min) | Feed per tooth fz (mm/t) |
|---|---|---|---|---|---|---|
| P | Low carbon steel SS400, S15C , etc. E275A, C15E4, etc. | | - 200 HB | AH3225 | 100 - 250 | 0.05 - 0.12 |
| | Carbon steel and alloy steel S55C, SCM440, etc. C55, 42CrMo4, etc. | | - 300 HB | AH3225 | 100 - 230 | 0.05 - 0.12 |
| | Prehardened steel NAK80, PX5, etc. | | 30 - 40 HRC | AH3225 | 100 - 180 | 0.05 - 0.1 |
| M | Stainless steel SUS304, etc. X5CrNi18-9, etc. | | - | AH3225 | 90 - 200 | 0.05 - 0.1 |
| K | Grey cast iron FC250, etc. 250, etc., GG25, etc. | | 150 - 250 HB | AH120 | 100 - 300 | 0.05 - 0.12 |
| | Ductile cast iron FCD450, etc. 450-10S, etc., GGG45, etc. | | 150 - 250 HB | AH120 | 100 - 200 | 0.05 - 0.12 |
| S | Titanium alloys Ti-6Al-4V, etc. | | - | AH3225 | 20 - 60 | 0.04 - 0.07 |
| | Heat-resistant alloys Inconel 718, etc. | | - | AH8015 | 20 - 40 | 0.04 - 0.07 |
| H | Hardened steel | SKD61, etc. X40CrMoV5-1, etc. | 40 - 50 HRC | AH8015 | 50 - 150 | 0.04 - 0.07 |
| | | SKD11, etc. X153CrMoV12, etc. | 50 - 60 HRC | AH8015 | 40 - 70 | 0.04 - 0.07 |

## TUNG-TRI 04

Lighter cutting and better chip control of broader application range

**12° rake**
Light cutting geometry with high rake angle

Large wiper radius provides improved surface quality



Large radius wiper

## GRADES

### AH3225 P M S

- Nano multi-layer coating technology with three major properties for optimal cutting edge integrity
- Increased resistance to wear, fracture, oxidation, built-up edge, and delamination

### AH120 P K

- PVD grade with a well-balanced wear and fracture resistance
- Ideal for general machining of steel and stainless steel

### AH8015 H S

- Incorporates a hard coating layer and carbide substrate
- Strong resistance to wear, heat, and built-up edge, ideal for machining hard or difficult materials

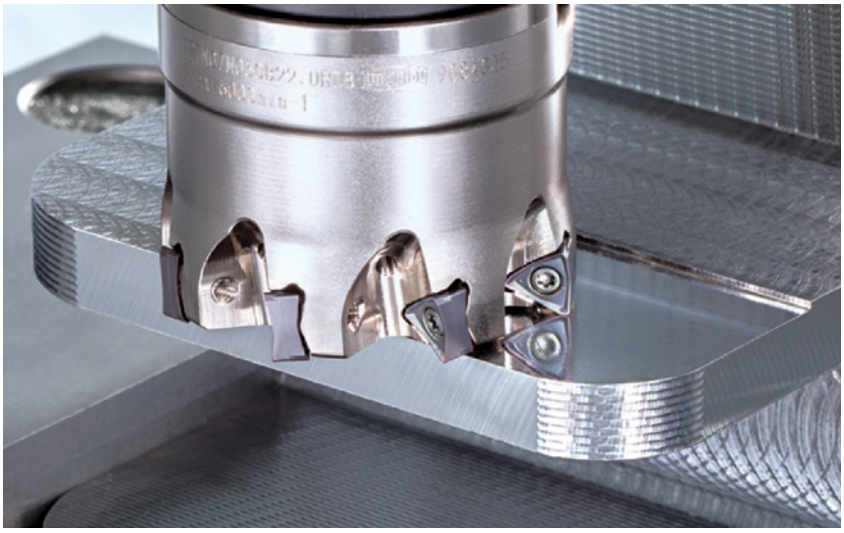
# MILLING CUTTERS WITH DOUBLE SIDED TRIANGULAR INSERTS

- The insert features 6 cutting edges with cutting edge full usable length for larger depth of cut up to 0.433" (11 mm)

# LATEST AH3225 GRADE *MAXIMIZES YOUR PRODUCTIVITY AND PROFITS IN SHOULDER MILLING*

**BUY 10** inserts per pocket
up to max 50 inserts
AND
**GET 1** cutter

**FREE** of charge!
Promo code: TG144



**Inserts**

**TNMU07**-MJ**
APMX = 0.256" (6.5 mm)
**TNMU12**-MJ/NMJ**
APMX = 0.433" (11 mm)
**TNMU12**R**-MJ**
APMX = 0.433" (11 mm)
**TNGU12**R**-MJ**
APMX = 0.433" (11 mm)
**Grade:**
**AH3225**

**Face Milling Cutters**

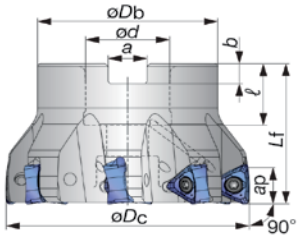
**TPTN07...**
DC = ø2.00" (ø40, ø50) mm
**TPTN12...**
DC = ø2.00" - ø5.00" (ø50 - ø125 mm)

**Indexable Milling Cutters**

**EPTN07...** (Short type)
DC = ø0.75" - ø1.25" (ø18 - ø32 mm)
**EPTN07**L** (Long type)
DC = ø0.787", ø1.00" (ø20, ø25 mm)
**EPTN12...**
DC = ø1.25" - ø1.50" (ø32, ø40 mm)

## 90° FACE MILLS

**TPTN**




### TPTN07 (USE INSERT: TNMU070308PER-MJ)

| PART # | Dc | d | MAX. ap | Db | Lf | ℓ | a | b | INSERT |
|---|---|---|---|---|---|---|---|---|---|
| TPTN07U2.00B0.75R08 | 2.000 | .750 | .256 | 1.850 | 1.575 | .750 | .315 | .197 | TNMU120708PER-MJ |

When using corner radius R0.4 (0.0157") inserts, add 0.22 mm (0.0087") to the LF and LH dimensions.

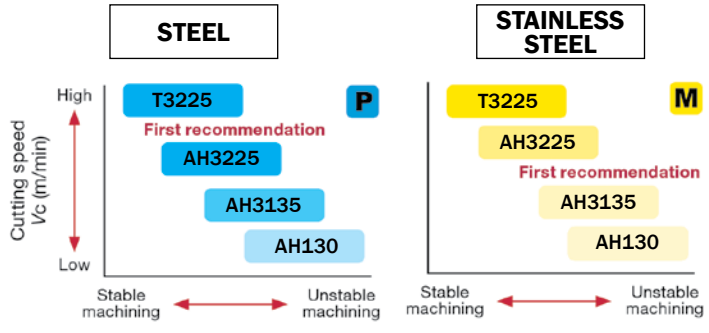
### TPTN12 (USE INSERT: TNMU120708PER-MJ)

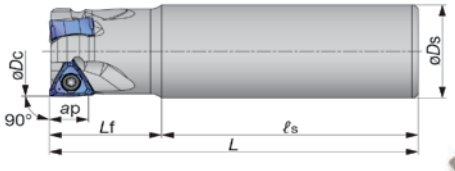
| PART # | Dc | d | MAX. ap | Db | Lf | ℓ | a | b | INSERT | z |
|---|---|---|---|---|---|---|---|---|---|---|
| TPTN12U2.00B0.75R05 | 2.000 | 0.750 | 0.433 | 1.850 | 1.575 | 0.750 | 0.315 | 0.197 | TN U12 | 5 |
| TPTN12U2.50B0.75R06 | 2.500 | | | | | | | | | 6 |
| TPTN12U3.00B1.00R08 | 3.000 | 1.000 | | 2.835 | 1.969 | 1.024 | 0.374 | 0.236 | | 8 |
| TPTN12U4.00B1.50R10 | 4.000 | 1.500 | | 3.150 | | 1.181 | 0.626 | 0.394 | | 10 |
| TPTN12U5.00B1.50R12 | 5.000 | | | | 2.480 | | | | | 12 |

**Chipbreaker edge geometries:**

**MJ:** General chipbreaker for all materials
**NMJ:** Cutting edge with chip splitter suitable for long overhang application

## GRADE APPLICATION





## ETPN 90° INDEXABLE END MILLS

### EPTN07 (USE INSERT: TNMU070308PER-MJ)

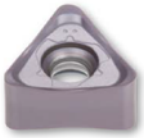
| PART # | Dc | d | MAX. ap | Ls | Lf | L | z | INSERT |
|---|---|---|---|---|---|---|---|---|
| EPTN07U0.75C0.75R02 | .7500 | .750 | .256 | 2.500 | 1.000 | 3.500 | 2 | TNMU070308PER-MJ |
| EPTN07U0.75C0.75R02L | .7500 | .750 | .256 | 4.750 | 1.670 | 6.420 | 2 | |
| EPTN07U1.00C1.00R03 | 1.0000 | 1.000 | .256 | 3.000 | 1.500 | 4.500 | 3 | |
| EPTN07U1.00C1.00R03L | 1.0000 | 1.000 | .256 | 5.700 | 3.000 | 8.700 | 3 | |
| EPTN07U1.00C1.00R04 | 1.0000 | 1.000 | .256 | 3.000 | 1.500 | 4.500 | 4 | |
| EPTN07U1.25C1.25R04 | 1.2500 | 1.250 | .256 | 3.000 | 1.500 | 4.500 | 4 | |
| EPTN07U1.25C1.25R05 | 1.2500 | 1.250 | .256 | 3.000 | 1.500 | 4.500 | 5 | |
| EPTN07U1.50C1.25R06 | 1.5000 | 1.250 | .256 | 2.250 | 2.250 | 4.500 | 6 | |

When using corner radius R0.4 (0.0157") inserts, add 0.22 mm (0.0087") to the L and Lf dimensions.

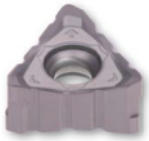
### EPTN12 (USE INSERT: TNMU120708PER-MJ)

| PART # | Dc | Ds | MAX. ap | ls | Lf | L | lb | INSERT | z |
|---|---|---|---|---|---|---|---|---|---|
| EPTN12U1.25C1.25R03N | 1.25 | 1.25 | 0.433 | 3.0 | 1.5 | 4.5 | 1.56 | TN U12 | 3 |
| EPTN12U1.50C1.25R04N | 1.50 | | | | | | 1.78 | | 4 |

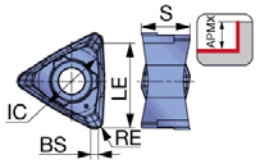
## INSERTS FOR TPTN & EPTN CUTTERS



TNMU-R-MJ



TNMU12-NMJ




| PART # | RE | APMX | LE | IC | S | BS | fz (min) | fz (max) | Tough ⟷ Hard Grade & Vc |
|---|---|---|---|---|---|---|---|---|---|
| TNMU070304PER-MJ | .0157 | .256 | .256 | .224 | .161 | .024 | .0030 | .0079 | AH3135 AH120 AH3225 |
| TNMU070308PER-MJ | .0314 | .256 | .256 | .224 | .161 | .024 | .0030 | .0079 | AH3135 AH120 AH3225 |
| TNGU120708PER-MJ | .0314 | .433 | .472 | .375 | .277 | .046 | .0031 | .0118 | AH3135 AH120 AH3225 T1215 |
| TNMU1207R16PER-MJ | .0629 | .433 | .472 | .375 | .271 | --- | .0031 | .0118 | AH3135 AH120 AH3225 |
| TNMU1207R20PER-MJ | .0787 | .433 | .472 | .375 | .265 | --- | .0031 | .0118 | AH3135 AH120 AH3225 T1215 |
| TNMU120708PER-NMJ | .0314 | .433 | .472 | .375 | .280 | .046 | .0031 | .0055 | AH3135 AH120 AH3225 |

Tungaloy

# ALL-ROUND CUTTER WITH CENTER CUTTING CAPABILITY FOR ULTIMATE MACHINING VERSATILITY — FROM SHOULDER MILLING TO HOLE MAKING

ADD high cost-per-edge economy with four-edged inserts

**BUY 10** inserts per pocket
AND
**GET 1** cutter

**FREE** of charge!
Promo code: TG146

**Insert:**
**LXMU08/10/12-MM**
APMX =0.276" - 0.433" (7 - 11 mm)
**Grades:**
**AH3225**
**AH8015**
**AH120**

LXMU**-MM
Four total cutting edges for highest insert economy

**Shank type:**
**EVLX08/10/12...** (Short type)
DC = ø0.625" - ø1.00" (ø16 - ø25 mm)
**EVLX08/10/12**L** (Long type)
DC = ø0.625" - ø1.00" (ø16 - ø26 mm)

EVLX...

**Modular type:**
**HVLX08/10/12...**
DC = ø16 - ø25 mm

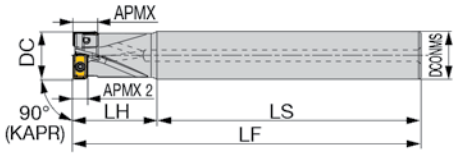
HVLX...

## THE ULTIMATE MULTI-PURPOSE MILLING CUTTER

• DRILLING • SQUARE SHOULDER MILLING • COUNTERBORING
• SLOTTING • PLUNGING • HELICAL INTERPOLATION

DOMULTIREC

**CENTER CUTTING MULTI-FUNCTION MILLING CUTTER WITH COOLANT HOLE**

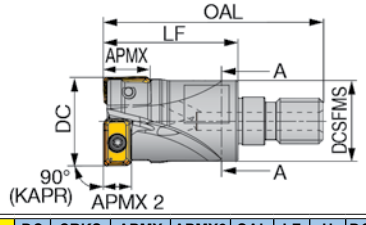



**EVLX08/10/12**

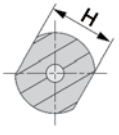
| PART#: | DC | DCONMS | APMX | APMX2 | LS | LH | LF | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|
| EVLX08U0.62W0.62R02 | 0.625 | 0.625 | 0.276 | 0.157 | 1.910 | 1.250 | 3.160 | 2 | LXMU08... |
| EVLX08U0.62C0.62R02L | 0.625 | 0.625 | 0.276 | 0.157 | 5.000 | 2.000 | 7.000 | 2 | LXMU08... |
| EVLX10U0.787W0.75R02 | 0.787 | 0.750 | 0.354 | 0.157 | 2.030 | 1.380 | 3.410 | 2 | LXMU10... |
| EVLX10U0.787C0.75R02L | 0.787 | 0.750 | 0.354 | 0.157 | 5.000 | 2.380 | 7.380 | 2 | LXMU10... |
| EVLX12U1.00W1.00R02 | 1.000 | 1.000 | 0.433 | 0.236 | 2.280 | 1.750 | 4.030 | 2 | LXMU12... |
| EVLX12U1.00C1.00R02L | 1.000 | 1.000 | 0.433 | 0.236 | 6.000 | 3.000 | 9.000 | 2 | LXMU12... |

**HVLX08/10/12-M**
Multi-function endmill, modular type (TungFlex)

DIMENSIONS ARE SHOWN IN MM



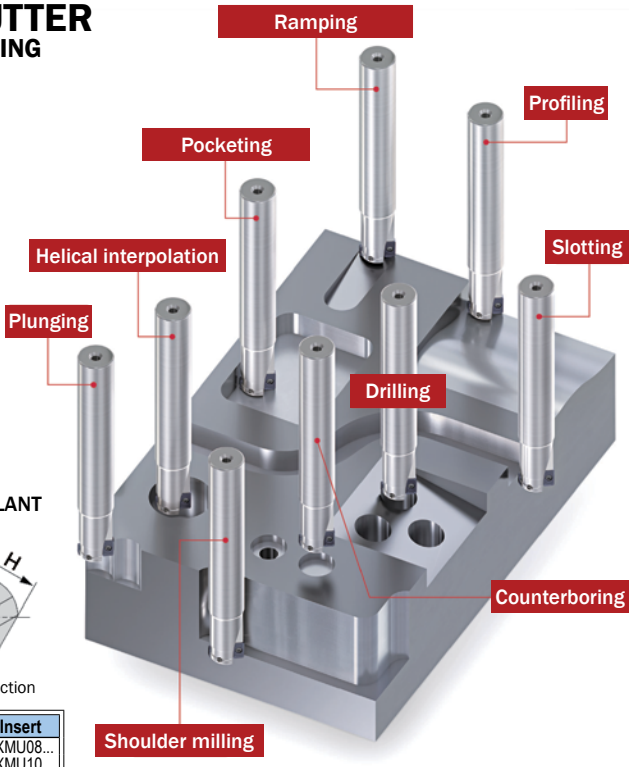

WITH COOLANT HOLE




A-A cross section

**INSERTS**
LXMU08
LXMU10
LXMU12

| PART#: | DC | CRKS | APMX | APMX2 | OAL | LF | H | DCSFMS | z* | Insert |
|---|---|---|---|---|---|---|---|---|---|---|
| HVLX08M016M08R02 | 16 | M8 | 7 | 4 | 42 | 25 | 10 | 14.5 | 2 | LXMU08... |
| HVLX10M020M10R02 | 20 | M10 | 9 | 4 | 49 | 30 | 15 | 17.8 | 2 | LXMU10... |
| HVLX12M025M12R02 | 25 | M12 | 11 | 6 | 57 | 35 | 17 | 23 | 2 | LXMU12... |



# DRILLMEISTER INTERCHANGEABLE HEAD DRILL SYSTEM

- Excellent cutting performance and tool life due to new head geometries and innovative grade AH9130
- Tool change time is significantly reduced with simple and easy clamping system.

## PROMO FOR DMC & DMP HEADS
### (SEE FOLLOWING PAGES FOR HEADS)

**DMC** Self centering point and double margins ensure excellent hole diameter accuracy and roundness

**DMP** General purpose for various materials and machining operations

**BUY 4** drill heads AND **GET 1** drill body of up to 3.5xD at — **50%** additional discount! Promo code: TG121 (1.5xD) Promo code: TG118 (3.5xD)

**BUY 6** drill heads AND **GET 1** drill body of up to 6xD at — **50%** additional discount! Promo code: TG119

**BUY 8** drill heads AND **GET 1** drill body of up to 8xD at — **50%** additional discount! Promo code: TG120

## HOLDERS ALSO AVAILABLE:

① With cylindrical shank: TID-R

② Straight flute: TID-C

TID-F... TID-R... TIDC...

## PROMO FOR DMH & DMF HEADS
### (SEE FOLLOWING PAGES FOR HEADS)

**DMF** Flat geometry head

**DMH** High strength cutting edge

**BUY 4** drill heads AND **GET 1** drill body of 1.5xD at — **50%** additional discount! Promo code: TG152

**BUY 4** drill heads AND **GET 1** drill body of 3-3.5xD at — **50%** additional discount! Promo code: TG153

**BUY 6** drill heads AND **GET 1** drill body of 5-6xD at — **50%** additional discount! Promo code: TG154

**BUY 8** drill heads AND **GET 1** drill body of 8xD at — **50%** additional discount! Promo code: TG155

DRILLMEISTER

## INTERCHANGEABLE HEAD DRILL SYSTEM

1.5xD

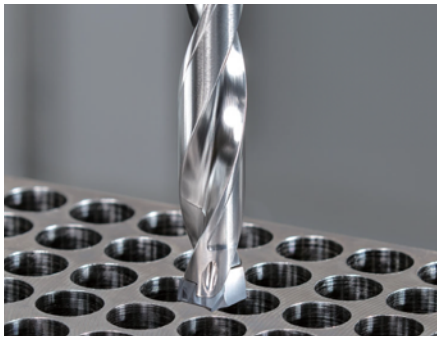
3xD

5xD

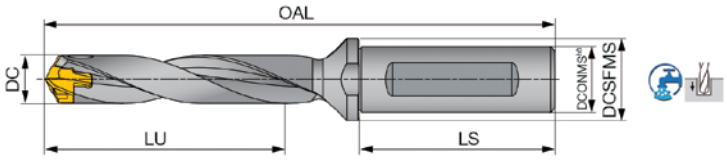
8xD

- Excellent cutting performance and tool life due to new head geometries and innovative grade AH9130
- Tool change time is significantly reduced with simple and easy clamping system.

**NOTE: METRIC SIZES SHOWN ON NEXT PAGE**

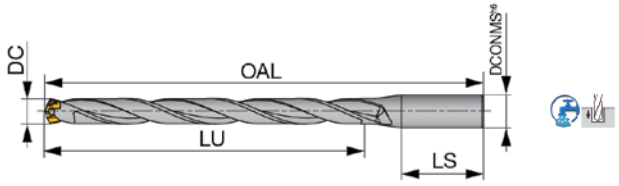


## TIDU-F FLANGED DRILLS - INCH SIZES




## TIDU-R CYLINDRICAL SHANK - INCH SIZES

12xD




| DIA. | 1.5xD | | | 3xD | | 5xD | | 8xD | | DCONMS | DCSFMS | LS | Pocket Size | Head | 12xD | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DC | PART#: | LU | OAL | LU | OAL | LU | OAL | LU | OAL | | | | | | PART#: | LU | OAL |
| 0.394 - 0.409 | TIDU0394F0625** | 0.591 | 3.118 | 1.181 | 3.709 | 1.969 | 4.496 | 3.150 | 5.677 | 0.625 | 0.787 | 1.890 | 10 | DM*100 - DM*104 | TIDU0394R0625-12 | 4.803 | 7.244 |
| 0.413 - 0.429 | TIDU0413F0625** | | | 1.260 | 3.768 | 2.087 | 4.594 | 3.307 | 5.835 | 0.625 | 0.787 | 1.890 | 10 | DM*105 - DM*109 | TIDU0413R0625-12 | 5.039 | 7.480 |
| 0.433 - 0.449 | TIDU0433F0625** | 0.669 | 3.193 | 1.299 | 3.843 | 2.165 | 4.709 | 3.465 | 6.008 | 0.625 | 0.787 | 1.890 | 11 | DM*110 - DM*114 | TIDU0433R0625-12 | 5.276 | 7.717 |
| 0.453 - 0.469 | TIDU0453F0625** | | | 1.378 | 3.902 | 2.283 | 4.807 | 3.622 | 6.165 | 0.625 | 0.787 | 1.890 | 11 | DM*115 - DM*119 | | | |
| 0.472 - 0.488 | TIDU0472F0625** | 0.709 | 3.268 | 1.417 | 3.976 | 2.362 | 4.921 | 3.780 | 6.339 | 0.625 | 0.787 | 1.890 | 12 | DM*120 - DM*124 | TIDU0472R0625-12 | 5.669 | 8.228 |
| 0.492 - 0.508 | TIDU0492F0625** | | | 1.457 | 4.035 | 2.441 | 5.020 | 3.937 | 6.496 | 0.625 | 0.787 | 1.890 | 12 | DM*125 - DM*129 | TIDU0492R0625-12 | 5.906 | 8.465 |
| 0.512 - 0.528 | TIDU0512F0625** | 0.787 | 3.350 | 1.535 | 4.118 | 2.559 | 5.142 | 4.094 | 6.677 | 0.625 | 0.787 | 1.890 | 13 | DM*130 - DM*134 | TIDU0512R0625-12 | 6.142 | 8.701 |
| 0.532 - 0.547 | TIDU0532F0625** | | | 1.614 | 4.177 | 2.677 | 5.240 | 4.252 | 6.835 | 0.625 | 0.787 | 1.890 | 13 | DM*135 - DM*139 | TIDU0532R0625-12 | 6.378 | 8.937 |
| 0.551 - 0.567 | TIDU0551F0625** | 0.827 | 3.508 | 1.654 | 4.335 | 2.756 | 5.440 | 4.409 | 7.091 | 0.625 | 0.787 | 1.890 | 14 | DM*140 - DM*144 | TIDU0551R0625-12 | 6.614 | 9.291 |
| 0.571 - 0.587 | TIDU0571F0625** | | | 1.732 | 4.394 | 2.874 | 5.539 | 4.567 | 7.252 | 0.625 | 0.787 | 1.890 | 14 | DM*145 - DM*149 | TIDU0571R0625-12 | 6.850 | 9.528 |
| 0.591 - 0.626 | TIDU0591F0750** | 0.906 | 3.787 | 1.772 | 4.673 | 2.953 | 5.854 | 4.724 | 7.626 | 0.750 | 0.984 | 1.969 | 15 | DM*150 - DM*159 | TIDU0591R0750-12 | 7.087 | 10.000 |
| 0.630 - 0.665 | TIDU0630F0750** | 0.945 | 3.909 | 1.890 | 4.854 | 3.150 | 6.114 | 5.039 | 8.004 | 0.750 | 0.984 | 1.969 | 16 | DM*160 - DM*169 | TIDU0630R0750-12 | 7.559 | 10.512 |
| 0.669 - 0.705 | TIDU0669F0750** | 1.024 | 4.031 | 2.008 | 5.035 | 3.346 | 6.374 | 5.354 | 8.382 | 0.750 | 0.984 | 1.969 | 17 | DM*170 - DM*179 | TIDU0669R0750-12 | 8.031 | 11.063 |
| 0.709 - 0.744 | TIDU0709F1000** | 1.063 | 4.390 | 2.126 | 5.453 | 3.543 | 6.870 | 5.669 | 8.996 | 1.000 | 1.260 | 2.205 | 18 | DM*180 - DM*189 | TIDU0709R1000-12 | 8.504 | 11.811 |
| 0.748 - 0.783 | TIDU0748F1000** | 1.142 | 4.508 | 2.244 | 5.630 | 3.740 | 7.126 | 5.984 | 9.370 | 1.000 | 1.260 | 2.205 | 19 | DM*190 - DM*199 | TIDU0748R1000-12 | 8.976 | 12.362 |
| 0.787 - 0.823 | TIDU0787F1000** | 1.181 | 4.630 | 2.362 | 5.811 | 3.937 | 7.386 | 6.299 | 9.748 | 1.000 | 1.260 | 2.205 | 20 | DMP200 - DMP209 | TIDU0787R1000-12 | 9.449 | 12.874 |
| 0.827 - 0.862 | TIDU0827F1000** | 1.240 | 4.752 | 2.480 | 5.992 | 4.134 | 7.646 | 6.614 | 10.126 | 1.000 | 1.260 | 2.205 | 21 | DMP210 - DMP219 | TIDU0827R1000-12 | 9.921 | 13.425 |
| 0.866 - 0.902 | TIDU0866F1000** | 1.299 | 4.874 | 2.598 | 6.173 | 4.331 | 7.906 | 6.929 | 10.504 | 1.000 | 1.260 | 2.205 | 22 | DMP220 - DMP229 | TIDU0866R1000-12 | 10.394 | 13.976 |
| 0.906 - 0.941 | TIDU0906F1250** | 1.358 | 5.150 | 2.718 | 6.508 | 4.528 | 8.319 | 7.244 | 11.035 | 1.250 | 1.654 | 2.362 | 23 | DMP230 - DMP239 | | | |
| 0.945 - 0.980 | TIDU0945F1250** | 1.417 | 5.272 | 2.835 | 6.689 | 4.724 | 8.579 | 7.559 | 11.413 | 1.250 | 1.654 | 2.362 | 24 | DMP240 - DMP249 | | | |
| 0.984 - 1.020 | TIDU0984F1250** | 1.476 | 5.394 | 2.953 | 6.870 | 4.921 | 8.839 | 7.874 | 11.791 | 1.250 | 1.654 | 2.362 | 25 | DMP250 - DMP259 | | | |

NOTE: The 12xD drills have cylindrical shanks. All others have weldon shanks.

** Add 1.5 for 1.5xD, 3 for 3xD, 5 for 5xD, 8 for 8xD. Note: LU values shown for DMP heads * P, C, F, H, N

Bass Tool & Supply, Inc.
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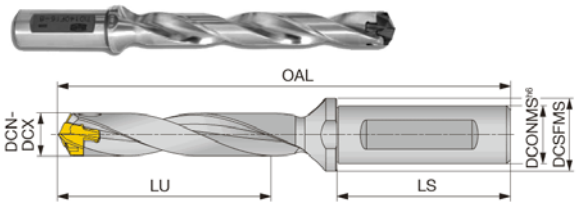
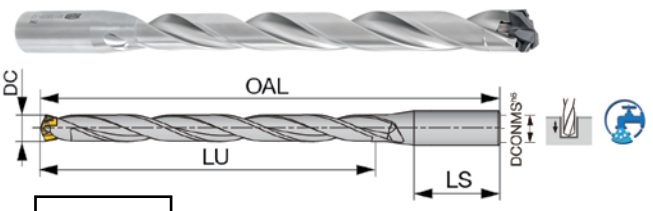
Toll Free
800-442-0042

# DRILLS WITH EXCHANGEABLE HEADS

- Quick head indexing on the machine reduces setup time and machine downtime.

## METRIC SIZES



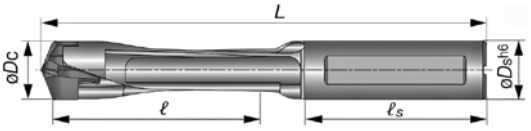

## TID-F FLANGED SHANK 1.5xD 3xD 5xD 8xD

## TID-R CYLINDRICAL SHANK 12xD

| DIA. | 1.5xD | | | 3xD | | 5xD | | 8xD | | DCONMS | DCSFMS | LS | Pocket Size | Head | 12xD | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DC | PART#: | LU | OAL | LU | OAL | LU | OAL | LU | OAL | | | | | | PART#: | LU | OAL |
| 6 - 6.4 | TID060F12-** | 10 | 68 | 19 | 77 | 31 | 89 | – | – | 12 | 16 | 45 | 6 | DM*060-DM*064 | – | – | – |
| 6.5 - 6.9 | TID065F12-** | 11 | 69.1 | 21 | 78.8 | 34 | 91.8 | – | – | 12 | 16 | 45 | 6.5 | DM*065-DM*069 | – | – | – |
| 7 - 7.4 | TID070F12-** | 12 | 70.1 | 22 | 80.6 | 36 | 94.6 | 57 | 115.6 | 12 | 16 | 45 | 7 | DM*070-DM*074 | – | – | – |
| 7.5 - 7.9 | TID075F12-** | 13 | 70.9 | 24 | 82.1 | 39 | 97.1 | 61 | 119.6 | 12 | 16 | 45 | 7 | DM*075-DM*079 | – | – | – |
| 8 - 8.4 | TID080F12-** | 14 | 72.4 | 26 | 84.4 | 42 | 100.4 | 66 | 124.4 | 12 | 16 | 45 | 8 | DM*080-DM*084 | TID080R12-12 | 98 | 156.4 |
| 8.5 - 8.9 | TID085F12-** | – | – | 28 | 85.9 | 45 | 102.9 | 70 | 128.4 | 12 | 16 | 45 | 8 | DM*085-DM*089 | TID085R12-12 | 104 | 162.4 |
| 9 - 9.4 | TID090F12-** | 16 | 74.3 | 29 | 87.8 | 47 | 105.8 | 74 | 132.8 | 12 | 16 | 45 | 9 | DM*090-DM*094 | TID090R12-12 | 110 | 168.8 |
| 9.5 - 9.9 | TID095F12-** | – | – | 31 | 89.3 | 50 | 108.3 | 78 | 136.8 | 12 | 16 | 45 | 9 | DM*095-DM*099 | TID095R12-12 | 116 | 174.8 |
| 10 - 10.4 | TID100F16-** | 17 | 79.2 | 32 | 94.2 | 52 | 114.2 | 82 | 144.2 | 16 | 20 | 48 | 10 | DM*100 - DM*104 | TID100R16-12 | 122 | 184.2 |
| 10.5 - 10.9 | TID105F16-** | – | – | 34 | 95.7 | 55 | 116.7 | 86 | 148.2 | 16 | 20 | 48 | 10 | DM*105 - DM*109 | TID105R16-12 | 128 | 190.2 |
| 11 - 11.4 | TID110F16-** | 19 | 81.1 | 35 | 97.6 | 57 | 119.6 | 90 | 152.6 | 16 | 20 | 48 | 11 | DM*110 - DM*114 | TID110R16-12 | 134 | 196.6 |
| 11.5 - 11.9 | TID115F16-** | – | – | 37 | 99.1 | 60 | 122.1 | 94 | 156.6 | 16 | 20 | 48 | 11 | DM*115 - DM*119 | TID115R16-12 | 140 | 202 |
| 12 - 12.4 | TID120F16-** | 20 | 83 | 38 | 101 | 62 | 125 | 98 | 161 | 16 | 20 | 48 | 12 | DM*120 - DM*124 | TID120R16-12 | 146 | 209 |
| 12.5 - 12.9 | TID125F16-** | – | – | 39 | 102.5 | 64 | 127.5 | 102 | 165 | 16 | 20 | 48 | 12 | DM*125 - DM*129 | TID125R16-12 | 152 | 215 |
| 13 - 13.4 | TID130F16-** | 22 | 85.1 | 41 | 104.6 | 67 | 130.6 | 106 | 169.6 | 16 | 20 | 48 | 13 | DM*130 - DM*134 | TID130R16-12 | 158 | 221.6 |
| 13.5 - 13.9 | TID135F16-** | – | – | 44 | 106.1 | 71 | 133.1 | 111 | 173.6 | 16 | 20 | 48 | 13 | DM*135 - DM*139 | TID135R16-12 | 165 | 227.6 |
| 14 - 14.4 | TID140F16-** | 24 | 89.1 | 45 | 110.1 | 73 | 138.2 | 115 | 180.1 | 16 | 20 | 48 | 14 | DM*140 - DM*144 | TID140R16-12 | 171 | 236.2 |
| 14.5 - 14.9 | TID145F16-** | – | – | 47 | 111.6 | 76 | 140.7 | 119 | 184.2 | 16 | 20 | 48 | 14 | DM*145 - DM*149 | TID145R16-12 | 177 | 242.2 |
| 15 - 15.9 | TID150F20-** | 26 | 96.2 | 48 | 118.7 | 78 | 148.7 | 123 | 193.7 | 20 | 25 | 50 | 15 | DM*150 - DM*159 | TID150R20-12 | 183 | 253.7 |
| 16 - 16.9 | TID160F20-** | 27 | 99.3 | 51 | 123.3 | 83 | 155.3 | 131 | 203.3 | 20 | 25 | 50 | 16 | DM*160 - DM*169 | TID160R20-12 | 195 | 267.3 |
| 17 - 17.9 | TID170F20-** | 29 | 102.4 | 54 | 127.9 | 88 | 161.9 | 139 | 212.9 | 20 | 25 | 50 | 17 | DM*170 - DM*179 | TID170R20-12 | 207 | 280.9 |
| 18 - 18.9 | TID180F25-** | 30 | 111.5 | 57 | 138.5 | 93 | 174.5 | 147 | 228.5 | 25 | 32 | 56 | 18 | DM*180 - DM*189 | TID180R25-12 | 219 | 300.5 |
| 19 - 19.9 | TID190F25-** | 33 | 114.5 | 61 | 143 | 99 | 181 | 156 | 238 | 25 | 32 | 56 | 19 | DM*190 - DM*199 | TID190R25-12 | 232 | 314 |
| 20 - 20.9 | TID200F25-** | 34 | 117.6 | 64 | 147.6 | 104 | 187.6 | 164 | 247.6 | 25 | 32 | 56 | 20 | DM*200 - DM*209 | TID200R25-12 | 244 | 327.6 |
| 21 - 21.9 | TID210F25-** | 36 | 120.7 | 67 | 152.2 | 109 | 194.2 | 172 | 257.2 | 25 | 32 | 56 | 21 | DM*210 - DM*219 | TID210R25-12 | 256 | 341.2 |
| 22 - 22.9 | TID220F25-** | 37 | 123.8 | 70 | 156.8 | 114 | 200.8 | 180 | 266.8 | 25 | 32 | 56 | 22 | DM*220 - DM*229 | TID220R25-12 | 267 | 354.8 |
| 23 - 23.9 | TID230F32-** | 39 | 130.8 | 73 | 165.3 | 119 | 211.3 | 188 | 280.3 | 32 | 42 | 60 | 23 | DM*230 - DM*239 | TID230R32-12 | 276 | 372.3 |
| 24 - 24.9 | TID240F32-** | 40 | 133.9 | 76 | 169.9 | 124 | 217.9 | 196 | 289.9 | 32 | 42 | 60 | 24 | DM*240 - DM*249 | TID240R32-12 | 288 | 385.9 |
| 25 - 25.9 | TID250F32-** | 43 | 137 | 80 | 174.5 | 130 | 224.5 | 205 | 299.5 | 32 | 42 | 60 | 25 | DM*250 - DM*259 | TID250R32-12 | 300 | 399.5 |

* P, C, F, H, N  ** Enter 1.5 FOR 1.5xD, 3 for 3xD, 5 for 5xD, 8 for 8xD.
Note: An overall length (OAL) differs for when the DMP insert is mounted and when the DMC is mounted. The tables show OAL when DMP insert is mounted.

## TIDC




### STRAIGHT TYPE DRILLS (NO FLANGE)

- Suitable for using with chamfering holders (shown on the right)

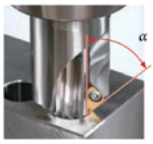
3xD 5xD

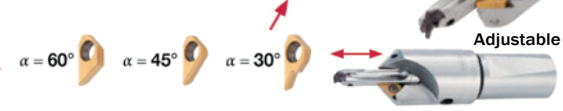
| L/D | PART # | Dc | Ds | ℓ | ℓs | L | POCKET SIZE | DRILLING HEAD |
|---|---|---|---|---|---|---|---|---|
| 3xD | TIDC075C8-3 | 7.5 - 7.9 | 8 | 23 | 36 | 70.1 | 7 | DMP075-DMP079 |
| | TIDC080C8-3 | 8 - 8.4 | | 24 | | 70.6 | 8 | DMP080-DMP084 |
| | TIDC085C9-3 | 8.5 - 8.9 | 9 | 26 | | 72.8 | | DMP085-DMP089 |
| | TIDC090C9-3 | 9 - 9.4 | | 27 | | 74.7 | 9 | DMP090-DMP094 |
| | TIDC095C10-3 | 9.5 - 9.9 | 10 | 29 | | 76.2 | | DMP095-DMP099 |
| | TIDC100C10-3 | 10.0 - 10.4 | | 30.0 | 43 | 85.0 | 10 | DMP100 - DMP104 |
| | TIDC105C11-3 | 10.5 - 10.9 | 11 | 31.5 | | 87.1 | | DMP105 - DMP109 |
| | TIDC110C11-3 | 11.0 - 11.4 | | 33.0 | | 89.2 | 11 | DMP110 - DMP114 |
| | TIDC115C12-3 | 11.5 - 11.9 | 12 | 34.5 | | 91.3 | | DMP115 - DMP119 |
| | TIDC120C12-3 | 12.0 - 12.4 | | 36.0 | | 95.0 | 12 | DMP120 - DMP124 |
| | TIDC125C13-3 | 12.5 - 12.9 | 13 | 37.5 | | 95.5 | | DMP125 - DMP129 |
| | TIDC130C13-3 | 13.0 - 13.4 | | 39.0 | | 99.6 | 13 | DMP130 - DMP134 |
| | TIDC135C14-3 | 13.5 - 13.9 | 14 | 40.5 | | 101.7 | | DMP135 - DMP139 |
| | TIDC140C14-3 | 14.0 - 14.4 | | 42.0 | 45 | 103.8 | 14 | DMP140 - DMP144 |
| | TIDC145C15-3 | 14.5 - 14.9 | 15 | 43.5 | | 105.9 | | DMP145 - DMP149 |
| | TIDC150C15-3 | 15.0 - 15.9 | | 45.0 | | 108.0 | 15 | DMP150 - DMP159 |
| | TIDC160C16-3 | 16.0 - 16.9 | 16 | 48.0 | | 117.7 | 16 | DMP160 - DMP169 |
| | TIDC170C17-3 | 17.0 - 17.9 | 17 | 51.0 | 48 | 119.4 | 17 | DMP170 - DMP179 |
| | TIDC180C18-3 | 18.0 - 18.9 | 18 | 54.0 | | 123.8 | 18 | DMP180 - DMP189 |
| | TIDC190C19-3 | 19.0 - 19.9 | 19 | 57.0 | 54 | 132.2 | 19 | DMP190 - DMP199 |
| 5xD | TIDC075C8-5 | 7.5 - 7.9 | 8 | 38 | 36 | 85.1 | 7 | DMP075-DMP079 |
| | TIDC080C8-5 | 8 - 8.4 | | 40 | | 92.3 | 8 | DMP080-DMP084 |
| | TIDC085C9-5 | 8.5 - 8.9 | 9 | 43 | | 89.8 | | DMP085-DMP089 |
| | TIDC090C9-5 | 9 - 9.4 | | 45 | | 92.7 | 9 | DMP090-DMP094 |
| | TIDC095C10-5 | 9.5 - 9.9 | 10 | 48 | | 95.2 | | DMP095-DMP099 |
| | TIDC100C10-5 | 10.0 - 10.4 | | 50.0 | 43 | 105.0 | 10 | DMP100 - DMP104 |
| | TIDC105C11-5 | 10.5 - 10.9 | 11 | 52.5 | | 108.1 | | DMP105 - DMP109 |
| | TIDC110C11-5 | 11.0 - 11.4 | | 55.0 | | 111.2 | 11 | DMP110 - DMP114 |
| | TIDC115C12-5 | 11.5 - 11.9 | 12 | 57.5 | | 114.3 | | DMP115 - DMP119 |
| | TIDC120C12-5 | 12.0 - 12.4 | | 60.0 | | 119.0 | 12 | DMP120 - DMP124 |
| | TIDC125C13-5 | 12.5 - 12.9 | 13 | 62.5 | | 120.5 | | DMP125 - DMP129 |
| | TIDC130C13-5 | 13.0 - 13.4 | | 65.0 | | 125.6 | 13 | DMP130 - DMP134 |
| | TIDC135C14-5 | 13.5 - 13.9 | 14 | 67.5 | | 128.7 | | DMP135 - DMP139 |
| | TIDC140C14-5 | 14.0 - 14.4 | | 70.0 | 45 | 131.8 | 14 | DMP140 - DMP144 |
| | TIDC145C15-5 | 14.5 - 14.9 | 15 | 72.5 | | 134.9 | | DMP145 - DMP149 |
| | TIDC150C15-5 | 15.0 - 15.9 | | 75.0 | | 138.0 | 15 | DMP150 - DMP159 |
| | TIDC160C16-5 | 16.0 - 16.9 | 16 | 80.0 | | 149.7 | 16 | DMP160 - DMP169 |
| | TIDC170C17-5 | 17.0 - 17.9 | 17 | 85.0 | 48 | 153.4 | 17 | DMP170 - DMP179 |
| | TIDC180C18-5 | 18.0 - 18.9 | 18 | 90.0 | | 159.6 | 18 | DMP180 - DMP189 |
| | TIDC190C19-5 | 19.0 - 19.9 | 19 | 95.0 | 54 | 170.2 | 19 | DMP190 - DMP199 |

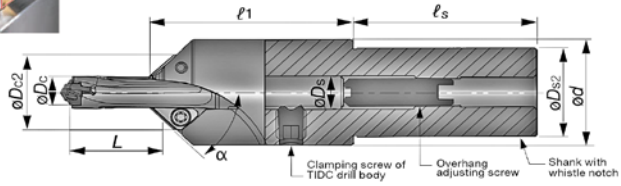
## TIDCF

### CHAMFERING HOLDERS 30°, 45°, & 60°

- Used with TIDC drills combining drilling and chamfering with 3 types of inserts in chamfering angle 30°, 45°, and 60°.
- Drilling and chamfering in one shot



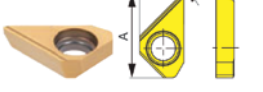



| PART # | Dc | $Ds_2$ | d | $Dc_2$ | $\ell_1$ | ℓs | L*L/D = 3 | L* L/D = 5 | DRILLING BODY |
|---|---|---|---|---|---|---|---|---|---|
| TIDCF080-W20 | 7.5 - 7.9 | 20 | 25 | 18.8 | 47.4 | 50 | 12.6 - 24 | 17.3 - 38 | TIDC075C8-... |
| TIDCF080-W20 | 8.0 - 8.4 | 20 | 25 | 18.8 | 47.4 | 50 | 13.5 - 24.6 | 24.7 - 45 | TIDC080C8-... |
| TIDCF090-W20 | 8.5 - 8.9 | 20 | 25 | 19.8 | 47.4 | 50 | 12.6 - 26.2 | 18.5 - 43 | TIDC085C9-... |
| TIDCF090-W20 | 9.0 - 9.4 | 20 | 25 | 19.8 | 47.4 | 50 | 13 - 29.2 | 22.9 - 46.8 | TIDC090C9-... |
| TIDCF100-W32 | 9.5 - 9.9 | 32 | 38 | 24.9 | 67.3 | 60 | 12.9 - 27.8 | 26 - 47 | TIDC095C10-... |
| TIDCF100-W32 | 10.0 - 10.4 | 32 | 38 | 24.9 | 67.3 | 60 | 14.5 - 31.8 | 31.7 - 51.8 | TIDC100C10-... |
| TIDCF110-W32 | 10.5 - 10.9 | 32 | 38 | 25.9 | 67.3 | 60 | 15.7 - 33.3 | 31.2 - 54.2 | TIDC105C11-... |
| TIDCF110-W32 | 11.0 - 11.4 | 32 | 38 | 25.9 | 67.3 | 60 | 16.2 - 35.3 | 34.1 - 57.3 | TIDC110C11-... |
| TIDCF120-W32 | 11.5 - 11.9 | 32 | 38 | 26.9 | 67.3 | 60 | 15.1 - 36.7 | 33.8 - 59.4 | TIDC115C12-... |
| TIDCF120-W32 | 12.0 - 12.4 | 32 | 38 | 26.9 | 67.3 | 60 | 16.5 - 37.7 | 36.6 - 61.6 | TIDC120C12-... |
| TIDCF130-W32 | 12.5 - 12.9 | 32 | 38 | 27.9 | 67.3 | 60 | 16.1 - 39.6 | 39.7 - 64.8 | TIDC125C13-... |
| TIDCF130-W32 | 13.0 - 13.4 | 32 | 38 | 27.9 | 67.3 | 60 | 17.5 - 41.5 | 42.7 - 68.0 | TIDC130C13-... |
| TIDCF140-W32 | 13.5 - 13.9 | 32 | 38 | 28.4 | 67.3 | 60 | 17.7 - 42.9 | 41.4 - 70.3 | TIDC135C14-... |
| TIDCF140-W32 | 14.0 - 14.4 | 32 | 38 | 28.4 | 67.3 | 60 | 18.1 - 45.0 | 44.8 - 73.1 | TIDC140C14-... |
| TIDCF150-W32 | 14.5 - 14.9 | 32 | 38 | 29.4 | 67.3 | 60 | 19.2 - 44.6 | 44.0 - 73.9 | TIDC145C15-... |
| TIDCF150-W32 | 15.0 - 15.9 | 32 | 38 | 29.4 | 67.3 | 60 | 19.7 - 47.4 | 47.6 - 80.7 | TIDC150C15-... |
| TIDCF160-W32 | 16.0 - 16.9 | 32 | 38 | 30.4 | 67.3 | 60 | 19.5 - 55.3 | 57.0 - 87.5 | TIDC160C16-... |
| TIDCF170-W32 | 17.0 - 17.9 | 32 | 38 | 31.4 | 67.3 | 60 | 21.4 - 54.9 | 55.9 - 88.5 | TIDC170C17-... |
| TIDCF180-W32 | 18.0 - 18.9 | 32 | 38 | 32.4 | 67.3 | 60 | 24.2 - 65.2 | 60.0 - 93.0 | TIDC180C18-... |
| TIDCF190-W32 | 19.0 - 19.9 | 32 | 38 | 33.4 | 75.0 | 60 | 28.5 - 62.3 | 67.0 - 100.0 | TIDC190C19-... |

L* is the dimension when using 45° chamfering insert

### CHAMFERING INSERTS



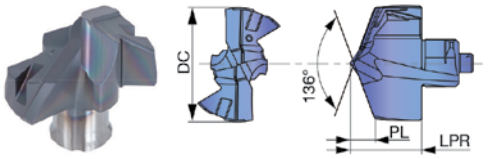

| CHAMFERING ANGLE α | PART # | A | B | T | MAX. WIDTH OF CHAMFER** |
|---|---|---|---|---|---|
| 30° | XHGT090300-30A | 16 | 8.8 | 3.3 | 1.5 |
| 45° | XHGR090300-45A | | | | 6.0 |
| 60° | XHGR090300-60A | | | | 3.5 |

**Please reduce the feed rate to half when chamfering over 60% of maximum width of chamfer

# DRILL HEADS FOR TID-F DRILL BODIES

## DMC DRILL HEADS

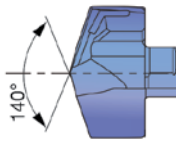
* Promotion applicable for DMC and DMP heads only in grade AH9130




**DMC**
Self centering point and double margins ensure excellent hole diameter accuracy and roundness

**DMP**
General purpose for various materials and machining operations

## DMP HEAD




| PART#: | DC (in) | DC (mm) | PL (mm) | Pocket size | Body |
|---|---|---|---|---|---|
| DMC060 | 0.236 | 6.0 | 1.24 | 6 | TID*060* |
| DMC061 | 0.240 | 6.1 | 1.26 | 6 | TID*060* |
| DMC062 | 0.244 | 6.2 | 1.28 | 6 | TID*060* |
| DMC063 | 0.248 | 6.3 | 1.3 | 6 | TID*060* |
| DMC064 | 0.252 | 6.4 | 1.32 | 6 | TID*060* |
| DMC065 | 0.256 | 6.5 | 1.33 | 6.5 | TID*065* |
| DMC066• | 0.260 | 6.6 | 1.35 | 6.5 | TID*065* |
| DMC067 | 0.264 | 6.7 | 1.37 | 6.5 | TID*065* |
| DMC068 | 0.268 | 6.8 | 1.39 | 6.5 | TID*065* |
| DMC069 | 0.272 | 6.9 | 1.41 | 6.5 | TID*065* |
| DMC070 | 0.276 | 7.0 | 1.48 | 7 | TID*070* |
| DMC071 | 0.280 | 7.1 | 1.5 | 7 | TID*070* |
| DMC072 | 0.283 | 7.2 | 1.52 | 7 | TID*070* |
| DMC073 | 0.287 | 7.3 | 1.54 | 7 | TID*070* |
| DMC074 | 0.291 | 7.4 | 1.56 | 7 | TID*070* |
| DMC075• | 0.295 | 7.5 | 1.58 | 7 | TID*075* |
| DMC076 | 0.299 | 7.6 | 1.6 | 7 | TID*075* |
| DMC077 | 0.303 | 7.7 | 1.62 | 7 | TID*075* |
| DMC078 | 0.307 | 7.8 | 1.64 | 7 | TID*075* |
| DMC079 | 0.311 | 7.9 | 1.66 | 7 | TID*075* |
| DMC080• | 0.315 | 8.0 | 1.62 | 8 | TID*080* |
| DMC081 | 0.319 | 8.1 | 1.64 | 8 | TID*080* |
| DMC082 | 0.323 | 8.2 | 1.66 | 8 | TID*080* |
| DMC083 | 0.327 | 8.3 | 1.68 | 8 | TID*080* |
| DMC084 | 0.331 | 8.4 | 1.7 | 8 | TID*080* |
| DMC085• | 0.335 | 8.5 | 1.72 | 8 | TID*085* |
| DMC086 | 0.339 | 8.6 | 1.74 | 8 | TID*085* |
| DMC087 | 0.343 | 8.7 | 1.76 | 8 | TID*085* |
| DMC088 | 0.346 | 8.8 | 1.78 | 8 | TID*085* |
| DMC089 | 0.350 | 8.9 | 1.8 | 8 | TID*085* |

| PART#: | DC (in) | DC (mm) | PL (mm) | Pocket size | Body |
|---|---|---|---|---|---|
| DMC090• | 0.354 | 9.0 | 1.91 | 9 | TID*090* |
| DMC091 | 0.358 | 9.1 | 1.93 | 9 | TID*090* |
| DMC092 | 0.362 | 9.2 | 1.95 | 9 | TID*090* |
| DMC093 | 0.366 | 9.3 | 1.97 | 9 | TID*090* |
| DMC094 | 0.370 | 9.4 | 1.99 | 9 | TID*090* |
| DMC095• | 0.374 | 9.5 | 2.01 | 9 | TID*095* |
| DMC096 | 0.378 | 9.6 | 2.03 | 9 | TID*095* |
| DMC097 | 0.382 | 9.7 | 2.05 | 9 | TID*095* |
| DMC098 | 0.386 | 9.8 | 2.07 | 9 | TID*095* |
| DMC099 | 0.390 | 9.9 | 2.09 | 9 | TID*095* |
| DMC100• | 0.394 | 10 | 2.09 | 10 | TID*100* |
| DMC101 | 0.398 | 10.1 | 2.11 | 10 | TID*100* |
| DMC102 | 0.402 | 10.2 | 2.13 | 10 | TID*100* |
| DMC103• | 0.406 | 10.3 | 2.15 | 10 | TID*100* |
| DMC104• | 0.409 | 10.4 | 2.17 | 10 | TID*100* |
| DMC105• | 0.413 | 10.5 | 2.19 | 10 | TID*105* |
| DMC106• | 0.417 | 10.6 | 2.21 | 10 | TID*105* |
| DMC107 | 0.421 | 10.7 | 2.23 | 10 | TID*105* |
| DMC108• | 0.425 | 10.8 | 2.25 | 10 | TID*105* |
| DMC109 | 0.429 | 10.9 | 2.27 | 10 | TID*105* |
| DMC110• | 0.433 | 11 | 2.32 | 11 | TID*110* |
| DMC111• | 0.437 | 11.1 | 2.34 | 11 | TID*110* |
| DMC112• | 0.441 | 11.2 | 2.36 | 11 | TID*110* |
| DMC113• | 0.445 | 11.3 | 2.38 | 11 | TID*110* |
| DMC114 | 0.449 | 11.4 | 2.4 | 11 | TID*110* |
| DMC115• | 0.453 | 11.5 | 2.42 | 11 | TID*115* |
| DMC116 | 0.457 | 11.6 | 2.44 | 11 | TID*115* |
| DMC117• | 0.461 | 11.7 | 2.46 | 11 | TID*115* |
| DMC118 | 0.465 | 11.8 | 2.48 | 11 | TID*115* |
| DMC119 | 0.469 | 11.9 | 2.5 | 11 | TID*115* |

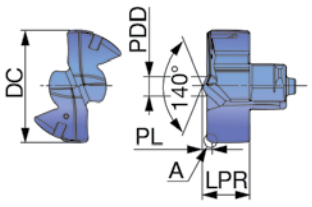
| PART#: | DC (in) | DC (mm) | PL (mm) | Pocket size | Body |
|---|---|---|---|---|---|
| DMC120• | 0.472 | 12 | 2.45 | 12 | TID*120* |
| DMC121• | 0.476 | 12.1 | 2.47 | 12 | TID*120* |
| DMC122• | 0.480 | 12.2 | 2.49 | 12 | TID*120* |
| DMC123• | 0.484 | 12.3 | 2.51 | 12 | TID*120* |
| DMC124• | 0.488 | 12.4 | 2.53 | 12 | TID*120* |
| DMC125• | 0.492 | 12.5 | 2.55 | 12 | TID*125* |
| DMC126• | 0.496 | 12.6 | 2.57 | 12 | TID*125* |
| DMC127• | 0.500 | 12.7 | 2.59 | 12 | TID*125* |
| DMC128• | 0.504 | 12.8 | 2.61 | 12 | TID*125* |
| DMC129 | 0.508 | 12.9 | 2.63 | 12 | TID*125* |
| DMC130• | 0.512 | 13 | 2.71 | 13 | TID*130* |
| DMC131 | 0.516 | 13.1 | 2.73 | 13 | TID*130* |
| DMC132 | 0.520 | 13.2 | 2.75 | 13 | TID*130* |
| DMC133• | 0.524 | 13.3 | 2.77 | 13 | TID*130* |
| DMC134 | 0.528 | 13.4 | 2.79 | 13 | TID*130* |
| DMC135• | 0.531 | 13.5 | 2.81 | 13 | TID*135* |
| DMC136 | 0.535 | 13.6 | 2.83 | 13 | TID*135* |
| DMC137• | 0.539 | 13.7 | 2.85 | 13 | TID*135* |
| DMC138• | 0.543 | 13.8 | 2.87 | 13 | TID*135* |
| DMC139• | 0.547 | 13.9 | 2.89 | 13 | TID*135* |
| DMC140• | 0.551 | 14 | 2.93 | 14 | TID*140* |
| DMC141• | 0.555 | 14.1 | 2.95 | 14 | TID*140* |
| DMC142• | 0.559 | 14.2 | 2.97 | 14 | TID*140* |
| DMC143• | 0.563 | 14.3 | 2.99 | 14 | TID*140* |
| DMC144• | 0.567 | 14.4 | 3.01 | 14 | TID*140* |
| DMC145• | 0.571 | 14.5 | 3.03 | 14 | TID*145* |
| DMC146• | 0.575 | 14.6 | 3.05 | 14 | TID*145* |
| DMC147 | 0.579 | 14.7 | 3.07 | 14 | TID*145* |
| DMC148 | 0.583 | 14.8 | 3.09 | 14 | TID*145* |
| DMC149 | 0.587 | 14.9 | 3.11 | 14 | TID*145* |

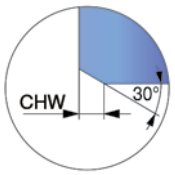
| PART#: | DC (in) | DC (mm) | PL (mm) | Pocket size | Body |
|---|---|---|---|---|---|
| DMC150• | 0.591 | 15 | 3.18 | 15 | TID*150* |
| DMC151• | 0.594 | 15.1 | 3.2 | 15 | TID*150* |
| DMC152• | 0.598 | 15.2 | 3.22 | 15 | TID*150* |
| DMC153• | 0.602 | 15.3 | 3.24 | 15 | TID*150* |
| DMC154 | 0.606 | 15.4 | 3.26 | 15 | TID*150* |
| DMC155• | 0.610 | 15.5 | 3.28 | 15 | TID*150* |
| DMC156• | 0.614 | 15.6 | 3.3 | 15 | TID*150* |
| DMC157• | 0.618 | 15.7 | 3.32 | 15 | TID*150* |
| DMC158• | 0.622 | 15.8 | 3.34 | 15 | TID*150* |
| DMC159 | 0.626 | 15.9 | 3.36 | 15 | TID*150* |
| DMC160• | 0.630 | 16 | 3.39 | 16 | TID*160* |
| DMC161• | 0.634 | 16.1 | 3.41 | 16 | TID*160* |
| DMC162 | 0.638 | 16.2 | 3.43 | 16 | TID*160* |
| DMC163• | 0.642 | 16.3 | 3.45 | 16 | TID*160* |
| DMC164 | 0.646 | 16.4 | 3.47 | 16 | TID*160* |
| DMC165• | 0.650 | 16.5 | 3.49 | 16 | TID*160* |
| DMC166• | 0.654 | 16.6 | 3.51 | 16 | TID*160* |
| DMC167 | 0.657 | 16.7 | 3.53 | 16 | TID*160* |
| DMC168 | 0.661 | 16.8 | 3.55 | 16 | TID*160* |
| DMC169 | 0.665 | 16.9 | 3.57 | 16 | TID*160* |
| DMC170• | 0.669 | 17 | 3.57 | 17 | TID*170* |
| DMC171 | 0.673 | 17.1 | 3.59 | 17 | TID*170* |
| DMC172 | 0.677 | 17.2 | 3.61 | 17 | TID*170* |
| DMC173 | 0.681 | 17.3 | 3.63 | 17 | TID*170* |
| DMC174 | 0.685 | 17.4 | 3.65 | 17 | TID*170* |
| DMC175• | 0.689 | 17.5 | 3.67 | 17 | TID*170* |
| DMC176• | 0.693 | 17.6 | 3.69 | 17 | TID*170* |
| DMC177 | 0.697 | 17.7 | 3.71 | 17 | TID*170* |
| DMC178• | 0.701 | 17.8 | 3.73 | 17 | TID*170* |
| DMC179• | 0.705 | 17.9 | 3.75 | 17 | TID*170* |

| PART#: | DC (in) | DC (mm) | PL (mm) | Pocket size | Body |
|---|---|---|---|---|---|
| DMC180• | 0.709 | 18 | 3.78 | 18 | TID*180* |
| DMC181 | 0.713 | 18.1 | 3.8 | 18 | TID*180* |
| DMC182 | 0.717 | 18.2 | 3.82 | 18 | TID*180* |
| DMC183• | 0.720 | 18.3 | 3.84 | 18 | TID*180* |
| DMC184 | 0.724 | 18.4 | 3.86 | 18 | TID*180* |
| DMC185• | 0.728 | 18.5 | 3.88 | 18 | TID*180* |
| DMC186 | 0.732 | 18.6 | 3.9 | 18 | TID*180* |
| DMC187 | 0.736 | 18.7 | 3.92 | 18 | TID*180* |
| DMC188 | 0.740 | 18.8 | 3.94 | 18 | TID*180* |
| DMC189 | 0.744 | 18.9 | 3.96 | 18 | TID*180* |
| DMC190• | 0.748 | 19 | 3.99 | 19 | TID*190* |
| DMC191 | 0.752 | 19.1 | 4.01 | 19 | TID*190* |
| DMC192 | 0.756 | 19.2 | 4.03 | 19 | TID*190* |
| DMC1927 | 0.759 | 19.27 | 4.04 | 19 | TID*190* |
| DMC193• | 0.760 | 19.3 | 4.05 | 19 | TID*190* |
| DMC194• | 0.764 | 19.4 | 4.07 | 19 | TID*190* |
| DMC195• | 0.768 | 19.5 | 4.09 | 19 | TID*190* |
| DMC196 | 0.772 | 19.6 | 4.11 | 19 | TID*190* |
| DMC197 | 0.776 | 19.7 | 4.13 | 19 | TID*190* |
| DMC198• | 0.780 | 19.8 | 4.15 | 19 | TID*190* |
| DMC199 | 0.783 | 19.9 | 4.17 | 19 | TID*190* |
| DMC200• | 0.787 | 20.0 | 4.2 | 20 | TID*200* |
| DMC205• | 0.807 | 20.5 | 4.31 | 20 | TID*200* |
| DMC210• | 0.827 | 21.0 | 4.41 | 21 | TID*210* |
| DMC211 | 0.831 | 21.1 | 4.42 | 21 | TID*210* |
| DMC215 | 0.846 | 21.5 | 4.52 | 21 | TID*210* |
| DMC217 | 0.854 | 21.7 | 4.54 | 21 | -11- |
| DMC218 | 0.858 | 21.8 | 4.56 | 21 | -11- |
| DMC220• | 0.866 | 22.0 | 4.62 | 22 | TID*220* |
| DMC221 | 0.870 | 22.1 | 4.62 | 22 | TID*220* |
| DMC223 | 0.878 | 22.3 | 4.66 | 22 | -11- |
| DMC225 | 0.886 | 22.5 | 4.72 | 22 | TID*220* |
| DMC230 | 0.906 | 23.0 | 4.83 | 23 | TID*230* |
| DMC235 | 0.925 | 23.5 | 4.93 | 23 | TID*230* |
| DMC240• | 0.945 | 24.0 | 5.04 | 24 | TID*240* |
| DMC245 | 0.965 | 24.5 | 5.14 | 24 | TID*240* |
| DMC250• | 0.984 | 25.0 | 5.25 | 25 | TID*250* |
| DMC253 | 0.996 | 25.3 | 5.34 | 25 | TID*250* |
| DMC255 | 1.004 | 25.5 | 5.35 | 25 | TID*250* |
| DMC2567 | 1.011 | 25.67 | 5.39 | 25 | TID*250* |
| DMC259 | 1.019 | 25.9 | 5.46 | 25 | -11- |

* Add grade: -AH9130
* Items with (•) next to them are available in DMP style. The DMP heads have a 140° drill point.

## DMF Flat geometry head



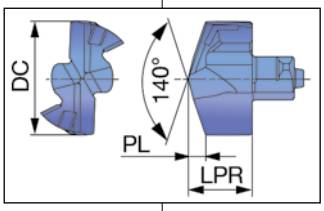




Detail in A

| PART# | DC (in) | DC (mm) | LPR | CHW | PL | PDD | Body |
|---|---|---|---|---|---|---|---|
| DMF060-AH9130 | 0.236 | 6 | 3.01 | 0.4 | 0.61 | 1.15 | TID*060... |
| DMF065-AH9130 | 0.256 | 6.5 | 3.28 | 0.4 | 0.68 | 1.54 | TID*065... |
| DMF068-AH9130 | 0.268 | 6.8 | 3.28 | 0.4 | 0.68 | 1.54 | TID*065... |
| DMF070-AH9130 | 0.276 | 7 | 3.58 | 0.4 | 0.68 | 1.54 | TID*070... |
| DMF075-AH9130 | 0.295 | 7.5 | 3.58 | 0.4 | 0.68 | 1.54 | TID*075... |
| DMF080-AH9130 | 0.315 | 8 | 4.39 | 0.7 | 1.09 | 2.44 | TID*080... |
| DMF081-AH9130 | 0.319 | 8.1 | 4.39 | 0.7 | 1.09 | 2.44 | TID*080... |
| DMF085-AH9130 | 0.335 | 8.5 | 4.39 | 0.7 | 1.09 | 2.44 | TID*085... |
| DMF086-AH9130 | 0.339 | 8.6 | 4.39 | 0.7 | 1.09 | 2.44 | TID*085... |
| DMF087-AH9130 | 0.343 | 8.7 | 4.39 | 0.7 | 1.09 | 2.44 | TID*085... |
| DMF088-AH9130 | 0.346 | 8.8 | 4.39 | 0.7 | 1.09 | 2.44 | TID*085... |
| DMF090-AH9130 | 0.354 | 9 | 4.61 | 0.7 | 1.11 | 2.55 | TID*090... |
| DMF095-AH9130 | 0.374 | 9.5 | 4.61 | 0.7 | 1.11 | 2.55 | TID*095... |
| DMF100-AH9130 | 0.394 | 10 | 4.72 | 0.7 | 1.17 | 2.89 | TID*100... |
| DMF101-AH9130 | 0.398 | 10.1 | 4.72 | 0.7 | 1.17 | 2.89 | TID*100... |
| DMF103-AH9130 | 0.406 | 10.3 | 4.72 | 0.7 | 1.17 | 2.89 | TID*100... |
| DMF104-AH9130 | 0.409 | 10.4 | 4.72 | 0.7 | 1.17 | 2.89 | TID*100... |
| DMF105-AH9130 | 0.413 | 10.5 | 4.72 | 0.7 | 1.17 | 2.89 | TID*105... |
| DMF106-AH9130 | 0.417 | 10.6 | 4.72 | 0.7 | 1.17 | 2.89 | TID*105... |
| DMF107-AH9130 | 0.421 | 10.7 | 4.72 | 0.7 | 1.17 | 2.89 | TID*105... |
| DMF108-AH9130 | 0.425 | 10.8 | 4.72 | 0.7 | 1.17 | 2.89 | TID*105... |
| DMF110-AH9130 | 0.433 | 11 | 4.9 | 0.7 | 1.25 | 2.98 | TID*110... |
| DMF115-AH9130 | 0.453 | 11.5 | 4.9 | 0.7 | 1.25 | 2.98 | TID*115... |
| DMF117-AH9130 | 0.461 | 11.7 | 4.9 | 0.7 | 1.25 | 2.98 | TID*115... |
| DMF120-AH9130 | 0.472 | 12 | 5.21 | 0.7 | 1.26 | 3.13 | TID*120... |
| DMF121-AH9130 | 0.476 | 12.1 | 5.21 | 0.7 | 1.26 | 3.13 | TID*120... |
| DMF122-AH9130 | 0.480 | 12.2 | 5.21 | 0.7 | 1.26 | 3.13 | TID*120... |
| DMF123-AH9130 | 0.484 | 12.3 | 5.21 | 0.7 | 1.26 | 3.13 | TID*120... |
| DMF124-AH9130 | 0.488 | 12.4 | 5.21 | 0.7 | 1.26 | 3.13 | TID*120... |
| DMF125-AH9130 | 0.492 | 12.5 | 5.21 | 0.7 | 1.26 | 3.13 | TID*125... |
| DMF126-AH9130 | 0.496 | 12.6 | 5.21 | 0.7 | 1.26 | 3.13 | TID*125... |
| DMF127-AH9130 | 0.500 | 12.7 | 5.21 | 0.7 | 1.26 | 3.13 | TID*125... |
| DMF130-AH9130 | 0.512 | 13 | 5.53 | 0.7 | 1.28 | 3.52 | TID*130... |
| DMF131-AH9130 | 0.516 | 13.1 | 5.53 | 0.7 | 1.28 | 3.52 | TID*130... |
| DMF133-AH9130 | 0.524 | 13.3 | 5.53 | 0.7 | 1.28 | 3.52 | TID*130... |
| DMF135-AH9130 | 0.531 | 13.5 | 5.53 | 0.7 | 1.28 | 3.52 | TID*135... |
| DMF137-AH9130 | 0.539 | 13.7 | 5.53 | 0.7 | 1.28 | 3.52 | TID*135... |
| DMF138-AH9130 | 0.543 | 13.8 | 5.53 | 0.7 | 1.28 | 3.52 | TID*135... |

| PART# | DC (in) | DC (mm) | LPR | CHW | PL | PDD | Body |
|---|---|---|---|---|---|---|---|
| DMF139-AH9130 | 0.547 | 13.9 | 5.53 | 0.7 | 1.28 | 3.52 | TID*135... |
| DMF140-AH9130 | 0.551 | 14 | 5.96 | 0.7 | 1.31 | 3.81 | TID*140... |
| DMF141-AH9130 | 0.555 | 14.1 | 5.96 | 0.7 | 1.31 | 3.81 | TID*140... |
| DMF142-AH9130 | 0.559 | 14.2 | 5.96 | 0.7 | 1.31 | 3.81 | TID*140... |
| DMF143-AH9130 | 0.563 | 14.3 | 5.96 | 0.7 | 1.31 | 3.81 | TID*140... |
| DMF144-AH9130 | 0.567 | 14.4 | 5.96 | 0.7 | 1.31 | 3.81 | TID*140... |
| DMF145-AH9130 | 0.571 | 14.5 | 5.96 | 0.7 | 1.31 | 3.81 | TID*145... |
| DMF150-AH9130 | 0.591 | 15 | 6.43 | 0.7 | 1.35 | 4.24 | TID*150... |
| DMF152-AH9130 | 0.598 | 15.2 | 6.43 | 0.7 | 1.35 | 4.24 | TID*150... |
| DMF155-AH9130 | 0.610 | 15.5 | 6.43 | 0.7 | 1.35 | 4.24 | TID*150... |
| DMF157-AH9130 | 0.618 | 15.7 | 6.43 | 0.7 | 1.35 | 4.24 | TID*150... |
| DMF158-AH9130 | 0.622 | 15.8 | 6.43 | 0.7 | 1.35 | 4.24 | TID*150... |
| DMF160-AH9130 | 0.630 | 16 | 6.84 | 0.7 | 1.39 | 4.06 | TID*160... |
| DMF161-AH9130 | 0.634 | 16.1 | 6.84 | 0.7 | 1.39 | 4.06 | TID*160... |
| DMF165-AH9130 | 0.650 | 16.5 | 6.84 | 0.7 | 1.39 | 4.06 | TID*160... |
| DMF167-AH9130 | 0.657 | 16.7 | 6.84 | 0.7 | 1.39 | 4.06 | TID*160... |
| DMF170-AH9130 | 0.669 | 17 | 7.15 | 0.7 | 1.4 | 4.14 | TID*170... |
| DMF175-AH9130 | 0.689 | 17.5 | 7.15 | 0.7 | 1.4 | 4.14 | TID*170... |
| DMF179-AH9130 | 0.705 | 17.9 | 7.15 | 0.7 | 1.4 | 4.14 | TID*170... |
| DMF180-AH9130 | 0.709 | 18 | 7.45 | 0.7 | 1.42 | 4.16 | TID*180... |
| DMF185-AH9130 | 0.728 | 18.5 | 7.45 | 0.7 | 1.42 | 4.16 | TID*180... |
| DMF190-AH9130 | 0.748 | 19 | 7.79 | 0.7 | 1.44 | 4.25 | TID*190... |
| DMF195-AH9130 | 0.768 | 19.5 | 7.79 | 0.7 | 1.44 | 4.25 | TID*190... |
| DMF198-AH9130 | 0.780 | 19.8 | 7.79 | 0.7 | 1.44 | 4.25 | TID*190... |
| DMF200-AH9130 | 0.787 | 20 | 10.19 | 0.7 | 1.77 | 6.56 | TID*200... |
| DMF205-AH9130 | 0.807 | 20.5 | 10.19 | 0.7 | 1.77 | 6.56 | TID*200... |
| DMF210-AH9130 | 0.827 | 21 | 10.63 | 0.7 | 1.79 | 6.92 | TID*210... |
| DMF215-AH9130 | 0.846 | 21.5 | 10.63 | 0.7 | 1.79 | 6.92 | TID*210... |
| DMF218-AH9130 | 0.858 | 21.8 | 10.63 | 0.7 | 1.79 | 6.92 | TID*210... |
| DMF220-AH9130 | 0.866 | 22 | 10.97 | 0.7 | 1.81 | 7.13 | TID*220... |
| DMF225-AH9130 | 0.886 | 22.5 | 10.97 | 0.7 | 1.81 | 7.13 | TID*220... |
| DMF230-AH9130 | 0.906 | 23 | 11.41 | 0.7 | 1.83 | 7.42 | TID*230... |
| DMF235-AH9130 | 0.925 | 23.5 | 11.41 | 0.7 | 1.83 | 7.42 | TID*230... |
| DMF240-AH9130 | 0.945 | 24 | 11.87 | 0.7 | 1.86 | 7.45 | TID*240... |
| DMF245-AH9130 | 0.965 | 24.5 | 11.87 | 0.7 | 1.86 | 7.45 | TID*240... |
| DMF250-AH9130 | 0.984 | 25 | 12.35 | 0.7 | 1.9 | 7.54 | TID*250... |
| DMF254-AH9130 | 1.000 | 25.4 | 12.35 | 0.7 | 1.9 | 7.54 | TID*250... |
| DMF255-AH9130 | 1.004 | 25.5 | 12.35 | 0.7 | 1.9 | 7.54 | TID*250... |
| DMF259-AH9130 | 1.020 | 25.9 | 12.35 | 0.7 | 1.9 | 7.54 | TID*250... |

## DMH High strength cutting edge




| PART# | DC (in) | DC (mm) | LPR | PL | Body |
|---|---|---|---|---|---|
| DMH100-AH9130 | 0.394 | 10 | 6.05 | 1.47 | TID*100... |
| DMH103-AH9130 | 0.406 | 10.3 | 6.05 | 1.52 | TID*100... |
| DMH105-AH9130 | 0.413 | 10.5 | 6.05 | 1.56 | TID*105... |
| DMH108-AH9130 | 0.425 | 10.8 | 6.05 | 1.62 | TID*105... |
| DMH110-AH9130 | 0.433 | 11 | 6.45 | 1.67 | TID*110... |
| DMH115-AH9130 | 0.453 | 11.5 | 6.45 | 1.76 | TID*115... |
| DMH120-AH9130 | 0.472 | 12 | 6.8 | 1.82 | TID*120... |
| DMH125-AH9130 | 0.492 | 12.5 | 6.8 | 1.91 | TID*125... |
| DMH126-AH9130 | 0.496 | 12.6 | 6.8 | 1.93 | TID*125... |
| DMH130-AH9130 | 0.512 | 13 | 7.4 | 1.96 | TID*130... |
| DMH133-AH9130 | 0.524 | 13.3 | 7.4 | 2.01 | TID*130... |
| DMH135-AH9130 | 0.531 | 13.5 | 7.4 | 2.05 | TID*135... |
| DMH137-AH9130 | 0.539 | 13.7 | 7.4 | 2.09 | TID*135... |
| DMH138-AH9130 | 0.543 | 13.8 | 7.4 | 2.11 | TID*135... |
| DMH139-AH9130 | 0.547 | 13.9 | 7.4 | 2.12 | TID*135... |
| DMH140-AH9130 | 0.551 | 14 | 7.95 | 2.12 | TID*140... |
| DMH142-AH9130 | 0.559 | 14.2 | 7.95 | 2.16 | TID*140... |
| DMH145-AH9130 | 0.571 | 14.5 | 7.95 | 2.21 | TID*145... |
| DMH150-AH9130 | 0.591 | 15 | 8.53 | 2.27 | TID*150... |
| DMH152-AH9130 | 0.598 | 15.2 | 8.53 | 2.31 | TID*150... |
| DMH155-AH9130 | 0.610 | 15.5 | 8.53 | 2.36 | TID*150... |
| DMH160-AH9130 | 0.630 | 16 | 9.1 | 2.42 | TID*160... |
| DMH165-AH9130 | 0.650 | 16.5 | 9.1 | 2.51 | TID*160... |
| DMH170-AH9130 | 0.669 | 17 | 9.7 | 2.59 | TID*170... |
| DMH175-AH9130 | 0.689 | 17.5 | 9.7 | 2.68 | TID*170... |
| DMH180-AH9130 | 0.709 | 18 | 10.3 | 2.73 | TID*180... |
| DMH185-AH9130 | 0.728 | 18.5 | 10.3 | 2.82 | TID*180... |
| DMH190-AH9130 | 0.748 | 19 | 10.8 | 2.88 | TID*190... |
| DMH194-AH9130 | 0.764 | 19.4 | 10.8 | 2.95 | TID*190... |
| DMH195-AH9130 | 0.768 | 19.5 | 10.8 | 2.97 | TID*190... |

## DMN Non-ferrous metals

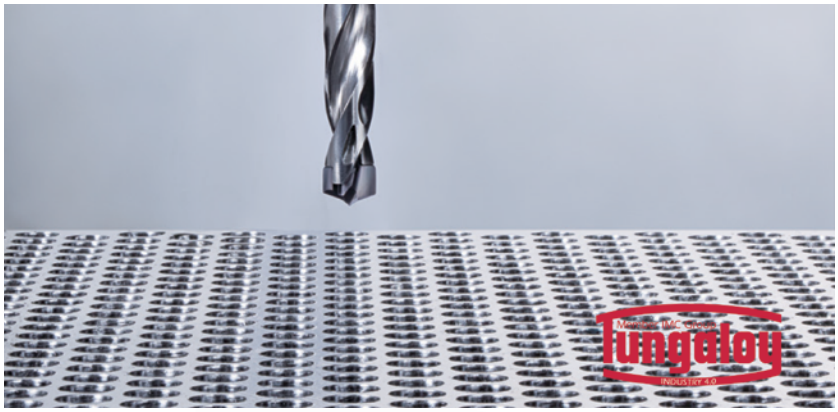
| PART# | DC (in) | DC (mm) | LPR | PL | Body |
|---|---|---|---|---|---|
| DMN100-KS15F | 0.394 | 10 | 6.05 | 1.47 | TID*100... |
| DMN102-KS15F | 0.402 | 10.2 | 6.05 | 1.51 | TID*100... |
| DMN105-KS15F | 0.413 | 10.5 | 6.05 | 1.56 | TID*105... |
| DMN108-KS15F | 0.425 | 10.8 | 6.05 | 1.62 | TID*105... |
| DMN110-KS15F | 0.433 | 11 | 6.45 | 1.67 | TID*110... |
| DMN115-KS15F | 0.453 | 11.5 | 6.45 | 1.76 | TID*115... |
| DMN120-KS15F | 0.472 | 12 | 6.8 | 1.82 | TID*120... |
| DMN123-KS15F | 0.484 | 12.3 | 6.8 | 1.87 | TID*120... |
| DMN125-KS15F | 0.492 | 12.5 | 6.8 | 1.91 | TID*125... |
| DMN126-KS15F | 0.496 | 12.6 | 6.8 | 1.93 | TID*125... |
| DMN127-KS15F | 0.500 | 12.7 | 6.8 | 1.95 | TID*125... |
| DMN130-KS15F | 0.512 | 13 | 7.4 | 1.96 | TID*130... |
| DMN135-KS15F | 0.531 | 13.5 | 7.4 | 2.05 | TID*135... |
| DMN138-KS15F | 0.543 | 13.8 | 7.4 | 2.11 | TID*135... |
| DMN140-KS15F | 0.551 | 14 | 7.95 | 2.12 | TID*140... |
| DMN142-KS15F | 0.559 | 14.2 | 7.95 | 2.16 | TID*140... |
| DMN145-KS15F | 0.571 | 14.5 | 7.95 | 2.21 | TID*145... |
| DMN150-KS15F | 0.591 | 15 | 8.53 | 2.27 | TID*150... |
| DMN152-KS15F | 0.598 | 15.2 | 8.53 | 2.31 | TID*150... |
| DMN155-KS15F | 0.610 | 15.5 | 8.53 | 2.36 | TID*150... |
| DMN158-KS15F | 0.622 | 15.8 | 8.53 | 2.42 | TID*150... |
| DMN159-KS15F | 0.626 | 15.9 | 8.53 | 2.43 | TID*150... |
| DMN160-KS15F | 0.630 | 16 | 9.1 | 2.42 | TID*160... |
| DMN163-KS15F | 0.642 | 16.3 | 9.1 | 2.47 | TID*160... |
| DMN165-KS15F | 0.650 | 16.5 | 9.1 | 2.51 | TID*160... |
| DMN170-KS15F | 0.669 | 17 | 9.7 | 2.59 | TID*170... |
| DMN175-KS15F | 0.689 | 17.5 | 9.7 | 2.68 | TID*170... |
| DMN180-KS15F | 0.709 | 18 | 10.3 | 2.73 | TID*180... |
| DMN185-KS15F | 0.728 | 18.5 | 10.3 | 2.82 | TID*180... |
| DMN190-KS15F | 0.748 | 19 | 10.8 | 2.88 | TID*190... |
| DMN195-KS15F | 0.768 | 19.5 | 10.8 | 2.97 | TID*190... |

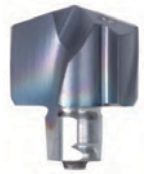
**BASS TOOL & SUPPLY, INC.**
2300 Fairway Park Dr.
Houston, TX 77092

# Tungaloy ADDMASTER DRILL — WORLD'S SMALLEST EXCHANGEABLE HEAD DRILLS

**BUY 4** drill heads
AND
**GET 1** drill body of 3xD at
**50%** additional discount!
Promo code: TG150

**BUY 6** heads
AND
**GET 1** drill body of 5xD at
**50%** additional discount!
Promo code: TG151



**DMC**
High precision drilling head with quick centering cutting edge style

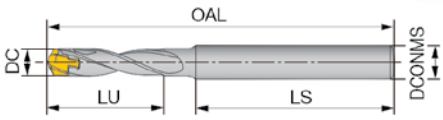
**DMP**
General purpose drilling head ideal for various drilling applications

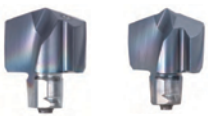
TID-R...

**Drill body:**
**TID-R...**
L/D = 3xD & 5xD
DC = ø0.157 - ø0.232" (ø4 - ø5.9mm)

- Through-coolant capability allows superior chip evacuation and long and predictable tool life.
- Provides even better hole tolerances than solid drills.
- Two types of drill heads are available.

**3xD** **5xD**



DMP DMC

## DRILL BODIES

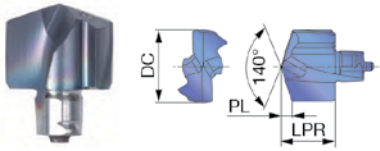
| Length Ratio | PART # | DC | DCONMS | LU | LS | OAL DMP | OAL DMC | Pocket Size | Head |
|---|---|---|---|---|---|---|---|---|---|
| 3xD | TID040R06-3** | 0.157 - 0.173 | 0.236 | 0.497 | 1.378 | 2.272 | 2.288 | 4 | DM*040 - DM*044 |
| | TID045R06-3 | 0.177 - 0.193 | 0.236 | 0.557 | 1.378 | 2.348 | 2.359 | 4.5 | DM*045 - DM*049 |
| | TID050R06-3 | 0.197 - 0.213 | 0.236 | 0.619 | 1.378 | 2.415 | 2.433 | 5 | DM*050 - DM*054 |
| | TID055R06-3 | 0.217 - 0.232 | 0.236 | 0.681 | 1.378 | 2.520 | 2.532 | 5.5 | DM*055 - DM*059 |
| 5xD | TID040R06-5** | 0.157 - 0.173 | 0.236 | 0.812 | 1.378 | 2.587 | 2.603 | 4 | DM*040 - DM*044 |
| | TID045R06-5 | 0.177 - 0.193 | 0.236 | 0.912 | 1.378 | 2.703 | 2.713 | 4.5 | DM*045 - DM*049 |
| | TID050R06-5 | 0.197 - 0.213 | 0.236 | 1.013 | 1.378 | 2.807 | 2.820 | 5 | DM*050 - DM*054 |
| | TID055R06-5 | 0.217 - 0.232 | 0.236 | 1.115 | 1.378 | 2.919 | 2.932 | 5.5 | DM*055 - DM*059 |

| Tool diameter (inch) | Hole diameter tolerance* |
|---|---|
| ø0.157" - ø0.232" | +0.002" / 0 |

* Just for reference

- The overall length (OAL) differs based on each head geometry.
- When using the drill at a higher feed rate, make sure to provide an axial support by placing the overhang adjusting screw at the drill shank end in the tool holder. This will prevent high thrust force from pushing the drill back into the holder during drilling.
- When axially adjusting the shank inside the holder to obtain a required drill overhang, make sure the shank length remaining inside the holder does not come short of the minimum clamping length (LSCN) specified by the holder supplier.

## DMP General purpose drill head



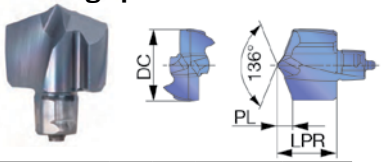

| Tool diameter (inch) | Hole diameter tolerance* |
|---|---|
| ø0.157" - ø0.232" | +0.0007" / 0 |

| Tool diameter (mm) | Hole diameter tolerance* |
|---|---|
| ø4 - ø5.9 | +0.018 / 0 |

| PART# | DC (in) | DC (mm) | LPR (mm) | PL (mm) | Body |
|---|---|---|---|---|---|
| DMP040-AH725 | 0.157 | 4 | 3.1 | 0.62 | TID*040... |
| DMP041-AH725 | 0.161 | 4.1 | 3.1 | 0.64 | TID*040... |
| DMP042-AH725 | 0.165 | 4.2 | 3.1 | 0.66 | TID*040... |
| DMP043-AH725 | 0.169 | 4.3 | 3.1 | 0.67 | TID*040... |
| DMP044-AH725 | 0.173 | 4.4 | 3.1 | 0.69 | TID*040... |
| DMP045-AH725 | 0.177 | 4.5 | 3.55 | 0.66 | TID*045... |
| DMP046-AH725 | 0.181 | 4.6 | 3.55 | 0.68 | TID*045... |
| DMP047-AH725 | 0.185 | 4.7 | 3.55 | 0.70 | TID*045... |
| DMP048-AH725 | 0.189 | 4.8 | 3.55 | 0.71 | TID*045... |
| DMP049-AH725 | 0.193 | 4.9 | 3.55 | 0.73 | TID*045... |

| PART# | DC (in) | DC (mm) | LPR (mm) | PL (mm) | Body |
|---|---|---|---|---|---|
| DMP050-AH725 | 0.197 | 5 | 3.7 | 0.73 | TID*050... |
| DMP051-AH725 | 0.201 | 5.1 | 3.7 | 0.75 | TID*050... |
| DMP052-AH725 | 0.205 | 5.2 | 3.7 | 0.77 | TID*050... |
| DMP053-AH725 | 0.209 | 5.3 | 3.7 | 0.78 | TID*050... |
| DMP054-AH725 | 0.213 | 5.4 | 3.7 | 0.8 | TID*050... |
| DMP055-AH725 | 0.217 | 5.5 | 3.85 | 0.81 | TID*055... |
| DMP056-AH725 | 0.220 | 5.6 | 3.85 | 0.83 | TID*055... |
| DMP057-AH725 | 0.224 | 5.7 | 3.85 | 0.85 | TID*055... |
| DMP058-AH725 | 0.228 | 5.8 | 3.85 | 0.86 | TID*055... |
| DMP059-AH725 | 0.232 | 5.9 | 3.85 | 0.88 | TID*055... |

## DMC High precision drill head




| Tool diameter (inch) | Hole diameter tolerance* |
|---|---|
| ø0.157" - ø0.232" | +0.0007" / 0 |

| Tool diameter (mm) | Hole diameter tolerance* |
|---|---|
| ø4 - ø5.9 | +0.018 / 0 |

| PART# | DC (in) | DC (mm) | LPR (mm) | PL (mm) | Body |
|---|---|---|---|---|---|
| DMC040-AH9130 | 0.157 | 4 | 3.51 | 0.86 | TID*040... |
| DMC041-AH9130 | 0.161 | 4.1 | 3.51 | 0.88 | TID*040... |
| DMC042-AH9130 | 0.165 | 4.2 | 3.51 | 0.9 | TID*040... |
| DMC043-AH9130 | 0.169 | 4.3 | 3.51 | 0.92 | TID*040... |
| DMC044-AH9130 | 0.173 | 4.4 | 3.51 | 0.94 | TID*040... |
| DMC045-AH9130 | 0.177 | 4.5 | 3.81 | 0.97 | TID*045... |
| DMC046-AH9130 | 0.181 | 4.6 | 3.81 | 0.99 | TID*045... |
| DMC047-AH9130 | 0.185 | 4.7 | 3.81 | 1.01 | TID*045... |
| DMC048-AH9130 | 0.189 | 4.8 | 3.81 | 1.03 | TID*045... |
| DMC049-AH9130 | 0.193 | 4.9 | 3.81 | 1.05 | TID*045... |

| PART# | DC (in) | DC (mm) | LPR (mm) | PL (mm) | Body |
|---|---|---|---|---|---|
| DMC050-AH9130 | 0.197 | 5 | 4.14 | 1.09 | TID*050... |
| DMC051-AH9130 | 0.201 | 5.1 | 4.14 | 1.11 | TID*050... |
| DMC052-AH9130 | 0.205 | 5.2 | 4.14 | 1.13 | TID*050... |
| DMC053-AH9130 | 0.209 | 5.3 | 4.14 | 1.15 | TID*050... |
| DMC054-AH9130 | 0.213 | 5.4 | 4.14 | 1.17 | TID*050... |
| DMC055-AH9130 | 0.217 | 5.5 | 4.17 | 1.22 | TID*055... |
| DMC056-AH9130 | 0.220 | 5.6 | 4.17 | 1.24 | TID*055... |
| DMC057-AH9130 | 0.224 | 5.7 | 4.17 | 1.26 | TID*055... |
| DMC058-AH9130 | 0.228 | 5.8 | 4.17 | 1.28 | TID*055... |
| DMC059-AH9130 | 0.232 | 5.9 | 4.17 | 1.3 | TID*055... |