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## MODULAR BORING PROGRAM

|                                                          |    |
|----------------------------------------------------------|----|
| <u>MODULAR BORING SYSTEM &amp; COUPLING SYSTEM</u> ..... | 2  |
| <u>MODULAR BORING SYSTEM ADVANTAGES</u> .....            | 3  |
| <u>PRODUCT OVERVIEW</u> .....                            | 4  |
| <u>MODULAR BORING SYSTEM DESCRIPTION</u> .....           | 6  |
| <b>STANDARD BORING HEADS</b>                             |    |
| <u>ROUGH HEADS 75° APPROACH</u> .....                    | 8  |
| <u>ROUGH HEADS 90° APPROACH</u> .....                    | 11 |
| <u>FINISH HEADS 75° APPROACH</u> .....                   | 14 |
| <u>FINISH HEADS 90° APPROACH</u> .....                   | 17 |
| <u>MICRO BORING HEADS</u> .....                          | 20 |
| <u>ISO BORING BARS</u> .....                             | 21 |
| <u>INDEXABLE BORING BARS FOR A 042 016</u> .....         | 22 |
| <u>INDEXABLE STANDARD CARTRIDGES</u> .....               | 23 |
| <u>INDEXABLE SPECIAL CARTRIDGES</u> .....                | 24 |
| <b>ARBORS FOR BORING HEADS</b>                           |    |
| <u>MAS BT 403 - BT 30, 40, 45, 50</u> .....              | 25 |
| <u>DIN 69871 - AS 30, 40, 45, 50</u> .....               | 28 |
| <u>DIN 2080 - OTT 30, 40, 50</u> .....                   | 31 |
| <u>DIN 69893 - HSK 50, 63, 100</u> .....                 | 33 |
| <u>DIN 228 - MORSE 2, 3, 4</u> .....                     | 34 |
| <u>DIN 1806 - MORSE 5</u> .....                          | 35 |
| <u>DIN 1835 - WELDON 20, 25, 32, 40</u> .....            | 36 |
| <u>R8 (BRIDGEPORT)</u> .....                             | 37 |
| <b>ACCESSORIES</b>                                       |    |
| <u>EXTENSION PIECES</u> .....                            | 38 |
| <u>COOLANT-FEEDING EXTENSIONS</u> .....                  | 38 |
| <u>REDUCERS</u> .....                                    | 39 |
| <u>45° CHAMFERING HEADS</u> .....                        | 39 |
| <u>ADAPTORS</u> .....                                    | 40 |
| <b>SPARE PARTS</b>                                       |    |
| <u>ROUGH BORING HEADS</u> .....                          | 42 |
| <u>FINISH BORING HEADS</u> .....                         | 43 |
| <u>LARGE DIAMETER ROUGH BORING HEADS</u> .....           | 44 |
| <u>LARGE DIAMETER FINISH BORING HEADS</u> .....          | 45 |
| <u>ASSEMBLY SYSTEM FOR LARGE BORING HEADS</u> .....      | 46 |
| <u>BORING KITS (BOHRSTAR 54)</u> .....                   | 48 |
| <u>TOOL PRESETTERS &amp; TOOL LOCKING FIXTURE</u> .....  | 50 |
| <u>INSERTS &amp; INSERT SCREWS</u> .....                 | 52 |
| <u>NOMENCLATURE FOR INSERTS</u> .....                    | 53 |
| <u>APPLICATION HINTS</u> .....                           | 55 |
| <u>CUTTING DATA</u> .....                                | 56 |
| <u>EXAMPLES OF MACHINING</u> .....                       | 57 |

## MODULAR BORING SYSTEM

Pinzbohr boring system features a wide range of rough and finish boring heads covering diameters from 6 mm up to 500 mm.

There are three types of boring heads:

- 1) Rough boring heads (two inserts) with synchronized adjustment.
- 2) Finish boring heads (one insert) with graduated precision dial readout.
- 3) Micro adjustable boring heads (for small diameters) fitting indexable boring bars with also graduated precision dial readout.

All these boring heads are radially adjustable to machine different diameters.

Different arbor designs are available mating the most popular spindles. Extensions and reducers compliment the modular system to offer a complete flexibility across the range.

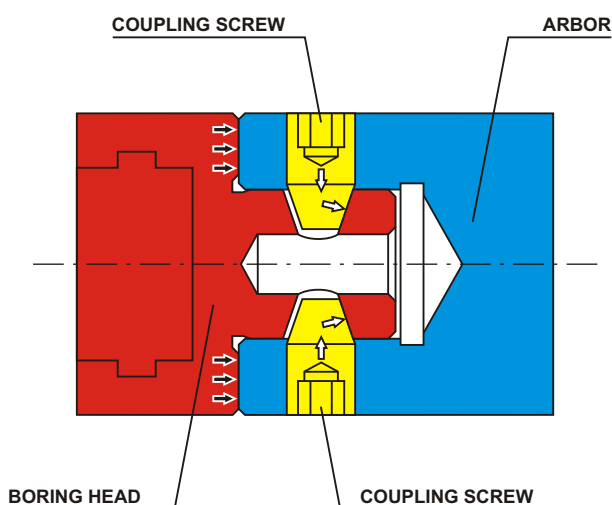
The system features a wide range of ISO standard insert pocket choices and indexable cartridges.

The taper screw design allows tools to be changed without removing from the spindle. Main components are manufactured from Nickel-Chrome alloy steel, heat treated to 58-60 HRC.

Precision ground slides ensure accuracy of adjustment throughout the heads working life.



## COUPLING SYSTEM



### HIGH RIGIDITY

By tightening the two coupling screws, high axial forces are developed in the tapered holes of the arbor. These axial forces preload the contact surface between the flange faces of the coupled components with high axial pressure for ample support against lateral loads. It can also dampen vibrations.

### POSITIVE TOOL ORIENTATION

The locating pin guarantees repeat positioning between components at all times.

**All arbors, extensions and reducers are shipped complete with coupling screws.**

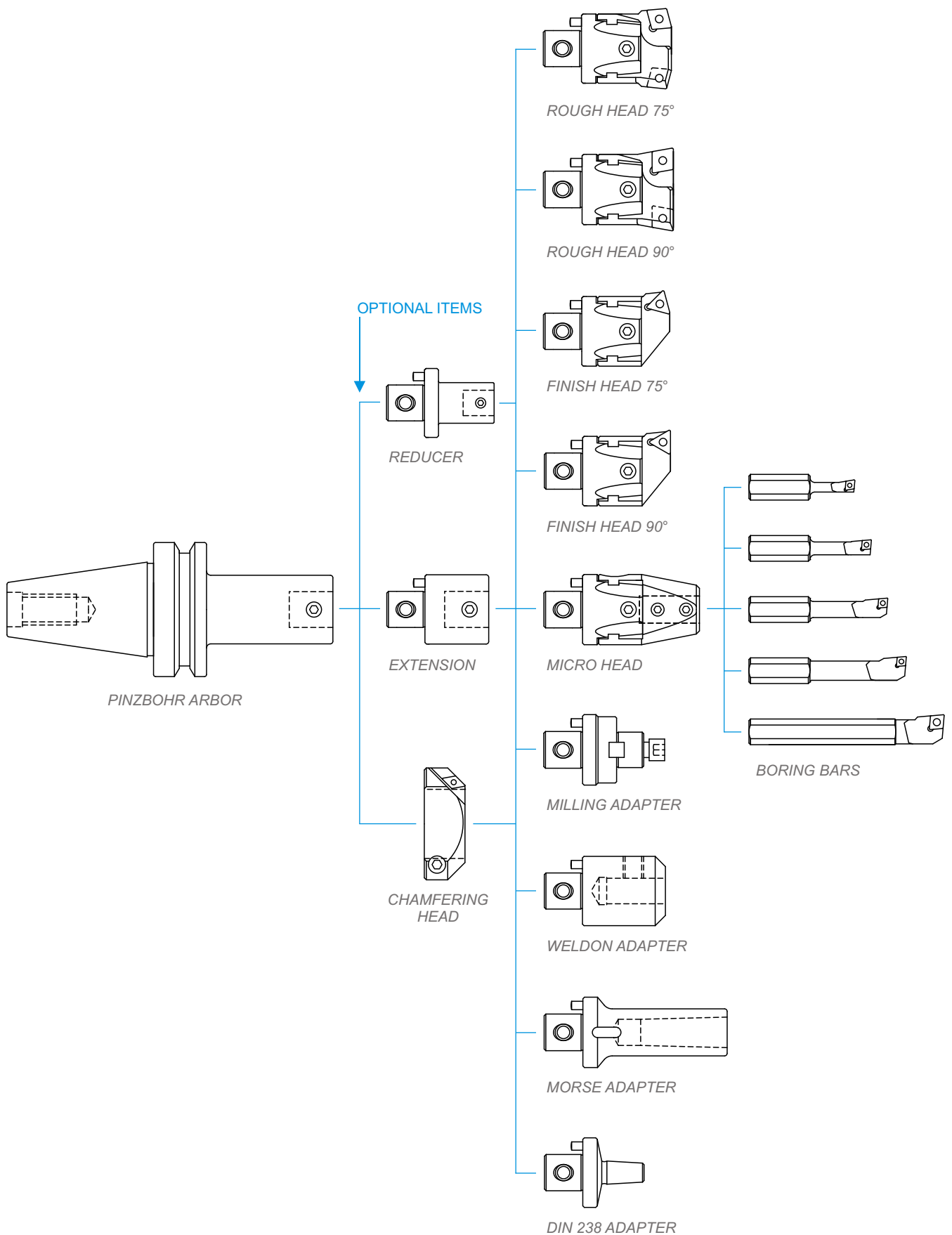
## ADVANTAGES

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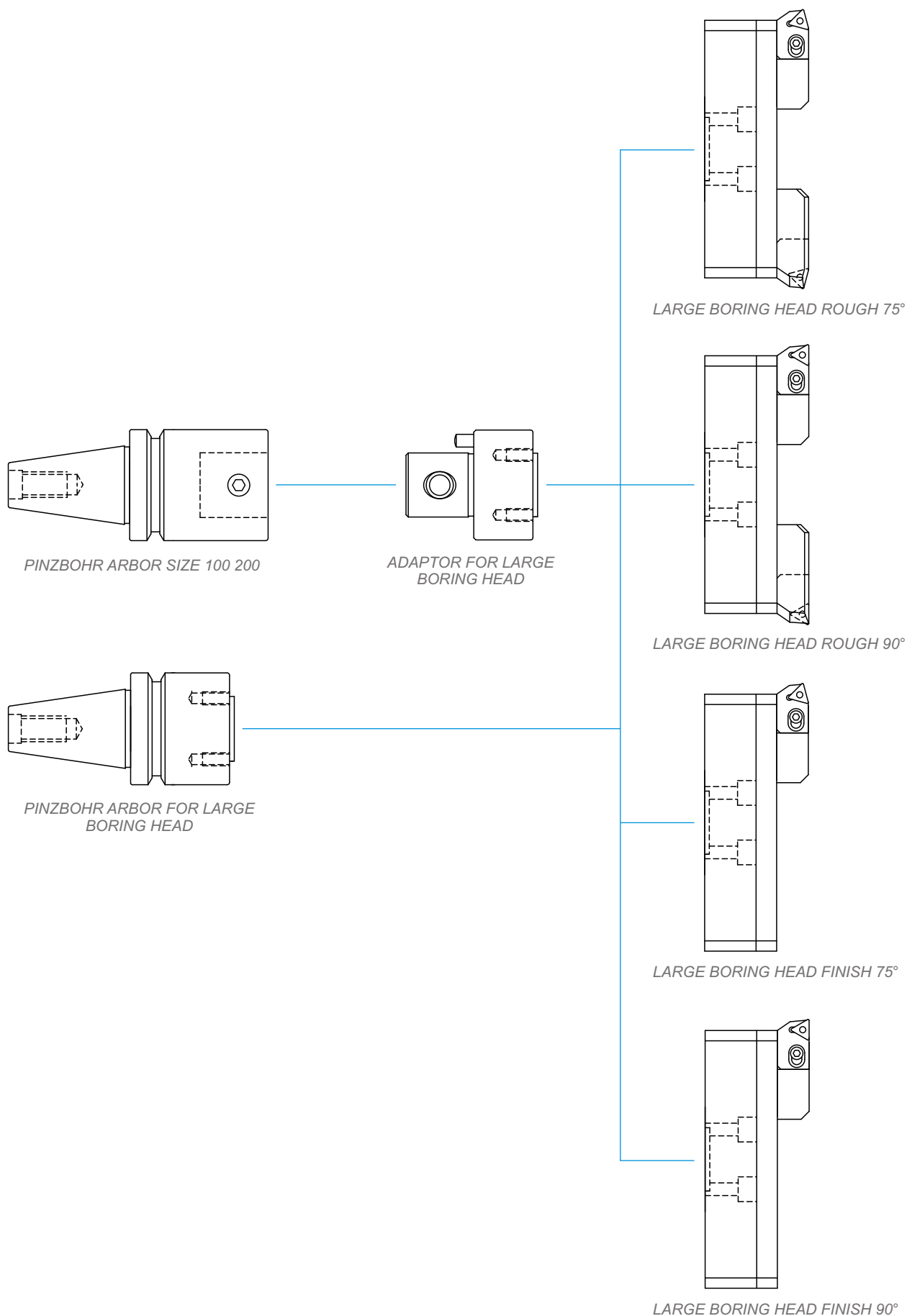
- Practical modular system: different types of boring heads with arbors, extensions, reducers allow price reduction when tooling up the machine.
- Wide range of diameters: 6 mm to 500 mm.
- High accuracy and rigidity: clamping with taper screws (coupling screws).
- Safety-set assembly: designed to prevent damaging the adjustment screw.
- Synchronized adjustment in rough boring heads (no need pre-setting slides with individual adjustment).
- Fine adjustment in finish boring heads: graduated dial and readout precision up to 0.002 mm on diameter.
- Cutting tool selection among a wide variety of insert geometries.
- Main components Nickel-Chrome alloy steel heat treated to 58-60 HRC.
- Ground components to ensure accurate production.



# PRODUCT OVERVIEW



# PRODUCT OVERVIEW

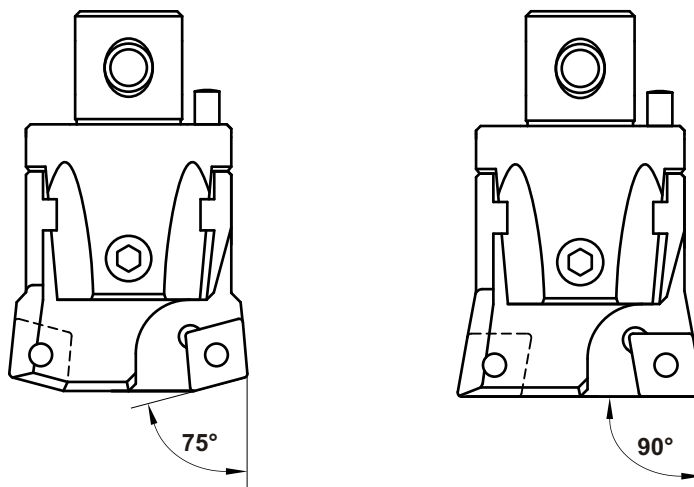


## MODULAR BORING SYSTEM DESCRIPTION

### ROUGH BORING HEADS

These boring heads with two cutting edges do have synchronized adjustment. This advantage means not to waste time in presetting the two cutting edges for a balanced cut (diameter adjustment can be set in the machine directly with a caliper).

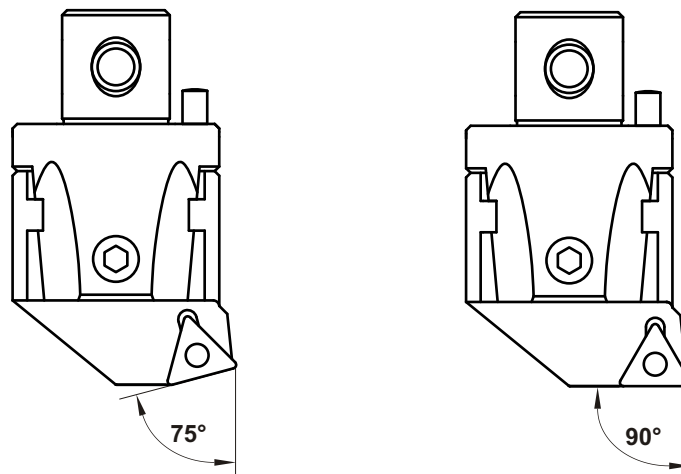
For diameters from 24 mm up to 220 mm, rough boring heads are available in two choices of angle approach: 75° & 90°. And feature various insert pocket geometries to choose.



### FINISH BORING HEADS

These adjustable boring heads do have a read out precision of 0.002 mm Ø.

For diameters from 24 mm up to 220 mm, finish boring heads are available in two choices of angle approach: 75° & 90°. And feature various insert pocket geometries to choose.

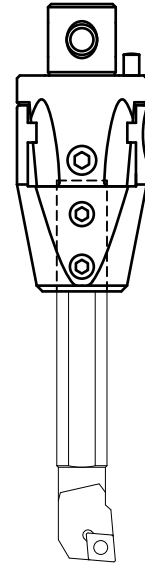


## MODULAR BORING SYSTEM DESCRIPTION

### MICRO BORING HEADS

MICRO boring heads are used in combination with indexable ISO boring bars; these units can produce bores down to 6 mm diameter and up to 38 mm diameter. MICRO boring heads fit the standard Pinzbohr arbors size 27, 32 and 42 (recommended in extra short execution).

Graduated dial and readout precision of 0.002 mm Ø.



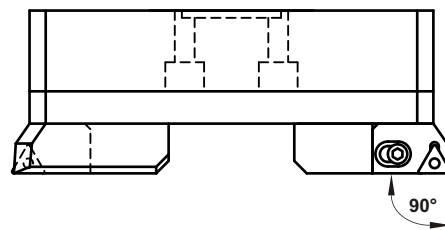
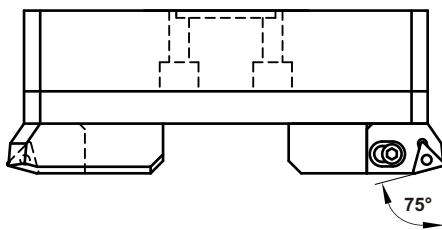
### LARGE DIAMETER BORING HEADS

These boring heads, either rough and finish do have graduated dial and readout precision of 0.002 mm Ø and a diameter range that goes from 220 mm up to 500 mm.

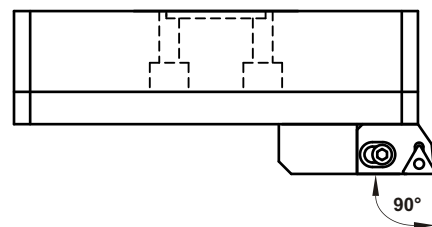
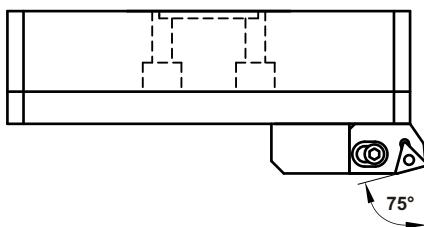
Four (4) facing coupling screws do the assembly of large diameter boring heads to its holder.

By using *ADT 100 050* adaptor it is possible to assemble large diameter boring heads to the standard size *100 200* Pinzbohr arbors to allow the use of longer arbors for deep boring applications.

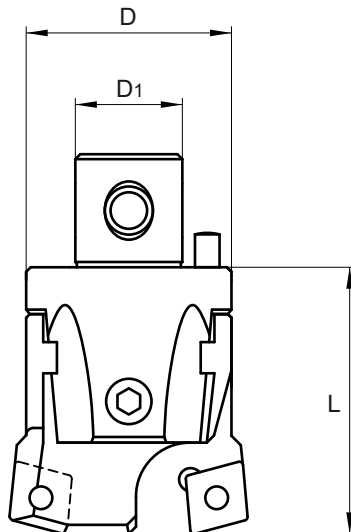
#### ROUGH BORING HEADS



#### FINISH BORING HEADS



## ROUGH HEADS 75° APPROACH



### INTEGRAL POCKET TYPE HEADS SYNCHRONIZED ADJUSTMENT



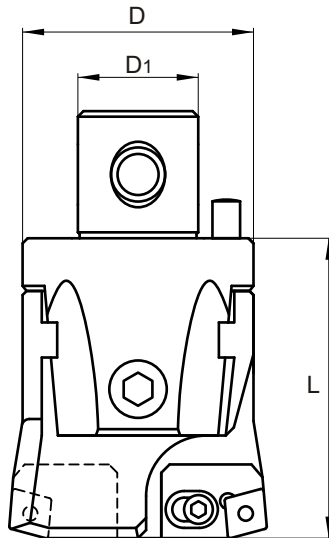
| SIZE | Bore Range |     | Dimension |     |    | Product Number       | Insert        | Torx Screw | Kg.   | Adj. Key<br>Torx Key<br>Locking Key |        |        |
|------|------------|-----|-----------|-----|----|----------------------|---------------|------------|-------|-------------------------------------|--------|--------|
|      | Min        | Max | øD        | øD1 | L  |                      |               |            |       |                                     |        |        |
| 22   | 24         | 30  | 22        | 12  | 34 | <b>D 02275 400</b>   | CC□□ 0602□□   | TT 400     | 0.100 | HK 020                              | TK 08  | HK 030 |
| 27   | 29         | 40  | 27        | 15  | 42 | <b>D 02775 401</b>   | CC□□ 0803□□   | TT 401     | 0.170 | HK 020                              | TK 10  | HK 040 |
|      | 29         | 40  | 27        | 15  | 42 | <b>D 02775 409</b>   | CC□□ 09T3□□   | TT 409     | 0.170 | HK 020                              | TK 15  | HK 040 |
| 32   | 39         | 50  | 32        | 20  | 45 | <b>D 03275 401</b>   | CC□□ 0803□□   | TT 401     | 0.270 | HK 025                              | TK 10  | HK 040 |
|      | 39         | 50  | 32        | 20  | 45 | <b>D 03275 409</b>   | CC□□ 09T3□□   | TT 409     | 0.270 | HK 025                              | TK 15  | HK 040 |
| 42   | 49         | 65  | 42        | 24  | 56 | <b>D 04275 300</b>   | TC□□ 16T3□□   | TT 300     | 0.550 | HK 030                              | TK 15  | HK 050 |
|      | 49         | 65  | 42        | 24  | 56 | <b>D 04275 402</b>   | CC□□ 1204□□   | TT 402     | 0.550 | HK 030                              | TK 20  | HK 050 |
|      | 53         | 65  | 42        | 24  | 56 | <b>D 04275 402 N</b> | CN□□ 1204□□ R | TT 402 N   | 0.550 | HK 030                              | HK 025 | HK 050 |
| 54   | 63         | 82  | 54        | 28  | 66 | <b>D 05475 300</b>   | TC□□ 16T3□□   | TT 300     | 1.080 | HK 030                              | TK 15  | HK 060 |
|      | 63         | 82  | 54        | 28  | 66 | <b>D 05475 402</b>   | CC□□ 1204□□   | TT 402     | 1.080 | HK 030                              | TK 20  | HK 060 |
|      | 63         | 82  | 54        | 28  | 66 | <b>D 05475 402 N</b> | CN□□ 1204□□ R | TT 402 N   | 1.080 | HK 030                              | HK 025 | HK 060 |

📄 NOMENCLATURE FOR INSERT SELECTION IN PAGE 53

🔧 TORX SCREW DETAILS IN PAGE 52



## ROUGH HEADS 75° APPROACH



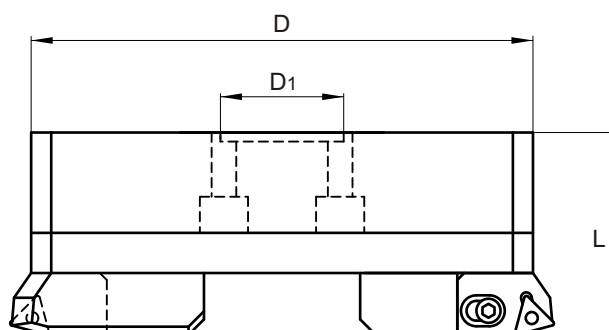
### CARTRIDGE TYPE HEADS SYNCHRONIZED ADJUSTMENT



| SIZE | Bore Range |     | Dimension |     |     | Product Number       | Cartridge    | Torx Screw | Kg.   | Adj. Key<br>Torx Key<br>Locking Key |        |        |
|------|------------|-----|-----------|-----|-----|----------------------|--------------|------------|-------|-------------------------------------|--------|--------|
|      | Min        | Max | øD        | øD1 | L   |                      |              |            |       |                                     |        |        |
| 68   | 80         | 102 | 68        | 36  | 86  | <b>D 06875 300</b>   | 2CT 75 300   | TT 409     | 2.180 | HK 040                              | TK 15  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | <b>D 06875 402</b>   | 2CT 75 402   | TT 116     | 2.180 | HK 040                              | TK 20  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | <b>D 06875 402 N</b> | 2CT 75 402 N | TT 402 N   | 2.180 | HK 040                              | HK 025 | HK 080 |
| 85   | 100        | 125 | 85        | 50  | 100 | <b>D 08575 300</b>   | 3CT 75 300   | TT 300     | 4.150 | HK 050                              | TK 15  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | <b>D 08575 402</b>   | 3CT 75 402   | TT 402     | 4.150 | HK 050                              | TK 20  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | <b>D 08575 402 N</b> | 3CT 75 402 N | TT 402 N   | 4.150 | HK 050                              | HK 025 | HK 080 |
| 100  | 125        | 160 | 110       | 60  | 100 | <b>D 10075 300</b>   | 3CT 75 300   | TT 300     | 6.580 | HK 050                              | TK 15  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | <b>D 10075 402</b>   | 3CT 75 402   | TT 402     | 6.580 | HK 050                              | TK 20  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | <b>D 10075 402 N</b> | 3CT 75 402 N | TT 402 N   | 6.580 | HK 050                              | HK 025 | HK 080 |
| 200  | 160        | 220 | 145       | 60  | 100 | <b>D 20075 300</b>   | 3CT 75 300   | TT 300     | 8.950 | HK 050                              | TK 15  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | <b>D 20075 402</b>   | 3CT 75 402   | TT 402     | 8.950 | HK 050                              | TK 20  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | <b>D 20075 402 N</b> | 3CT 75 402 N | TT 402 N   | 8.950 | HK 050                              | HK 025 | HK 080 |

📄 FULL CARTRIDGE INFORMATION (INCLUDING INSERT SIZE) IN PAGE 23

## ROUGH HEADS 75° APPROACH



ADJUSTING ACCURACY 0.002 mm Ø



**LARGE DIAMETER CARTRIDGE TYPE HEADS** SYNCHRONIZED ADJUSTMENT

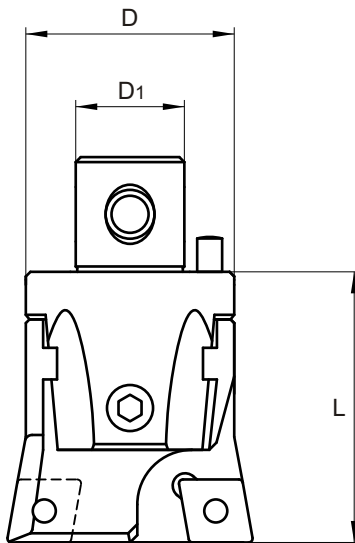


| SIZE | Bore Range |     | Dimension |     |    | Product Number       | Cartridge    | Torx Screw | Kg.    | Adj. Key<br>Torx Key<br>Locking Key |        |        |
|------|------------|-----|-----------|-----|----|----------------------|--------------|------------|--------|-------------------------------------|--------|--------|
|      | Min        | Max | øD        | øD1 | L  |                      |              |            |        |                                     |        |        |
| 300  | 220        | 320 | 202       | 60  | 90 | <b>D 30075 300</b>   | 3CT 75 300   | TT 300     | 9.370  | HK 050                              | TK 15  | HK 040 |
|      | 220        | 320 | 202       | 60  | 90 | <b>D 30075 402</b>   | 3CT 75 402   | TT 402     | 9.370  | HK 050                              | TK 20  | HK 040 |
|      | 220        | 320 | 202       | 60  | 90 | <b>D 30075 402 N</b> | 3CT 75 402 N | TT 402 N   | 9.370  | HK 050                              | HK 025 | HK 040 |
| 400  | 290        | 400 | 272       | 60  | 90 | <b>D 40075 300</b>   | 3CT 75 300   | TT 300     | 12.980 | HK 050                              | TK 15  | HK 040 |
|      | 290        | 400 | 272       | 60  | 90 | <b>D 40075 402</b>   | 3CT 75 402   | TT 402     | 12.980 | HK 050                              | TK 20  | HK 040 |
|      | 290        | 400 | 272       | 60  | 90 | <b>D 40075 402 N</b> | 3CT 75 402 N | TT 402 N   | 12.980 | HK 050                              | HK 025 | HK 040 |
| 500  | 370        | 500 | 352       | 60  | 90 | <b>D 50075 300</b>   | 3CT 75 300   | TT 300     | 16.740 | HK 050                              | TK 15  | HK 040 |
|      | 370        | 500 | 352       | 60  | 90 | <b>D 50075 402</b>   | 3CT 75 402   | TT 402     | 16.740 | HK 050                              | TK 20  | HK 040 |
|      | 370        | 500 | 352       | 60  | 90 | <b>D 50075 402 N</b> | 3CT 75 402 N | TT 402 N   | 16.740 | HK 050                              | HK 025 | HK 040 |

FULL CARTRIDGE INFORMATION (INCLUDING INSERT SIZE) IN PAGE 23

ARBOR ASSEMBLY SYSTEM FOR LARGE BORING HEADS IN PAGES 46 AND 47

## ROUGH HEADS 90° APPROACH



### INTEGRAL POCKET TYPE HEADS SYNCHRONIZED ADJUSTMENT

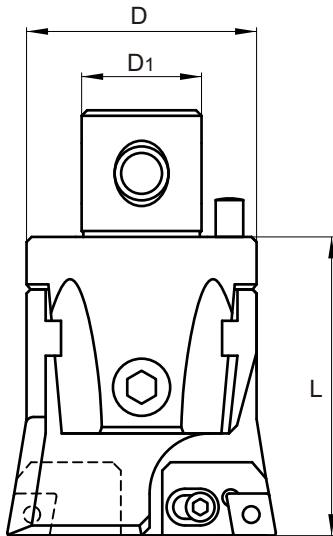


| SIZE | Bore Range |     | Dimension |     |    | Product Number       | Insert        | Torx Screw | Kg.   | Adj. Key<br>Torx Key<br>Locking Key |        |        |
|------|------------|-----|-----------|-----|----|----------------------|---------------|------------|-------|-------------------------------------|--------|--------|
|      | Min        | Max | øD        | øD1 | L  |                      |               |            |       |                                     |        |        |
| 22   | 24         | 30  | 22        | 12  | 34 | <b>D 02290 400</b>   | CC□□ 0602□□   | TT 400     | 0.100 | HK 020                              | TK 08  | HK 030 |
| 27   | 29         | 40  | 27        | 15  | 42 | <b>D 02790 401</b>   | CC□□ 0803□□   | TT 401     | 0.170 | HK 020                              | TK 10  | HK 040 |
|      | 29         | 40  | 27        | 15  | 42 | <b>D 02790 409</b>   | CC□□ 09T3□□   | TT 409     | 0.170 | HK 020                              | TK 15  | HK 040 |
| 32   | 39         | 50  | 32        | 20  | 45 | <b>D 03290 401</b>   | CC□□ 0803□□   | TT 401     | 0.270 | HK 025                              | TK 10  | HK 040 |
|      | 39         | 50  | 32        | 20  | 45 | <b>D 03290 409</b>   | CC□□ 09T3□□   | TT 409     | 0.270 | HK 025                              | TK 15  | HK 040 |
| 42   | 49         | 65  | 42        | 24  | 56 | <b>D 04290 300</b>   | TC□□ 16T3□□   | TT 300     | 0.550 | HK 030                              | TK 15  | HK 050 |
|      | 49         | 65  | 42        | 24  | 56 | <b>D 04290 402</b>   | CC□□ 1204□□   | TT 402     | 0.550 | HK 030                              | TK 20  | HK 050 |
|      | 53         | 65  | 42        | 24  | 56 | <b>D 04290 402 N</b> | CN□□ 1204□□ L | TT 402 N   | 0.550 | HK 030                              | HK 025 | HK 050 |
| 54   | 63         | 82  | 54        | 28  | 66 | <b>D 05490 300</b>   | TC□□ 16T3□□   | TT 300     | 1.080 | HK 030                              | TK 15  | HK 060 |
|      | 63         | 82  | 54        | 28  | 66 | <b>D 05490 402</b>   | CC□□ 1204□□   | TT 402     | 1.080 | HK 030                              | TK 20  | HK 060 |
|      | 63         | 82  | 54        | 28  | 66 | <b>D 05490 402 N</b> | CN□□ 1204□□ L | TT 402 N   | 1.080 | HK 030                              | HK 025 | HK 060 |

📄 NOMENCLATURE FOR INSERT SELECTION IN PAGE 53

🔧 TORX SCREW DETAILS IN PAGE 52

## ROUGH HEADS 90° APPROACH



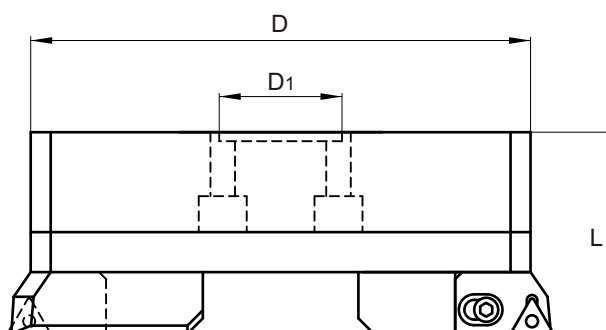
### CARTRIDGE TYPE HEADS SYNCHRONIZED ADJUSTMENT



| SIZE | Bore Range |     | Dimension |     |     | Product Number       | Cartridge    | Torx Screw | Kg.   | Adj. Key<br>Torx Key<br>Locking Key |        |        |
|------|------------|-----|-----------|-----|-----|----------------------|--------------|------------|-------|-------------------------------------|--------|--------|
|      | Min        | Max | øD        | øD1 | L   |                      |              |            |       |                                     |        |        |
| 68   | 80         | 102 | 68        | 36  | 86  | <b>D 06890 300</b>   | 2CT 90 300   | TT 409     | 2.180 | HK 040                              | TK 15  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | <b>D 06890 402</b>   | 2CT 90 402   | TT 116     | 2.180 | HK 040                              | TK 20  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | <b>D 06890 402 N</b> | 2CT 90 402 N | TT 402 N   | 2.180 | HK 040                              | HK 025 | HK 080 |
| 85   | 100        | 125 | 85        | 50  | 100 | <b>D 08590 300</b>   | 3CT 90 300   | TT 300     | 4.150 | HK 050                              | TK 15  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | <b>D 08590 402</b>   | 3CT 90 402   | TT 402     | 4.150 | HK 050                              | TK 20  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | <b>D 08590 402 N</b> | 3CT 90 402 N | TT 402 N   | 4.150 | HK 050                              | HK 025 | HK 080 |
| 100  | 125        | 160 | 110       | 60  | 100 | <b>D 10090 300</b>   | 3CT 90 300   | TT 300     | 6.580 | HK 050                              | TK 15  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | <b>D 10090 402</b>   | 3CT 90 402   | TT 402     | 6.580 | HK 050                              | TK 20  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | <b>D 10090 402 N</b> | 3CT 90 402 N | TT 402 N   | 6.580 | HK 050                              | HK 025 | HK 080 |
| 200  | 160        | 220 | 145       | 60  | 100 | <b>D 20090 300</b>   | 3CT 90 300   | TT 300     | 8.950 | HK 050                              | TK 15  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | <b>D 20090 402</b>   | 3CT 90 402   | TT 402     | 8.950 | HK 050                              | TK 20  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | <b>D 20090 402 N</b> | 3CT 90 402 N | TT 402 N   | 8.950 | HK 050                              | HK 025 | HK 080 |

 FULL CARTRIDGE INFORMATION (INCLUDING INSERT SIZE) IN PAGE 23

## ROUGH HEADS 90° APPROACH



ADJUSTING ACCURACY 0.002 mm Ø



**LARGE DIAMETER CARTRIDGE TYPE HEADS** SYNCHRONIZED ADJUSTMENT

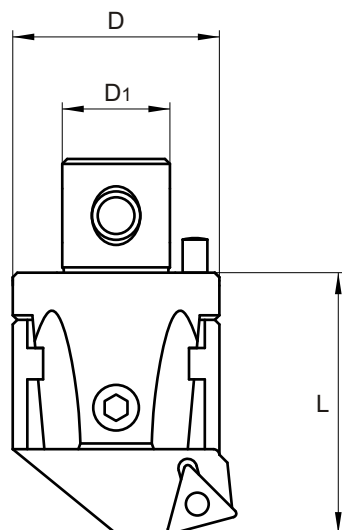


| SIZE | Bore Range |     | Dimension |     |    | Product Number       | Cartridge    | Torx Screw | Kg.    |          |          |             |
|------|------------|-----|-----------|-----|----|----------------------|--------------|------------|--------|----------|----------|-------------|
|      | Min        | Max | ØD        | ØD1 | L  |                      |              |            |        | Adj. Key | Torx Key | Locking Key |
| 300  | 220        | 320 | 202       | 60  | 90 | <b>D 30090 300</b>   | 3CT 90 300   | TT 300     | 9.370  | HK 050   | TK 15    | HK 040      |
|      | 220        | 320 | 202       | 60  | 90 | <b>D 30090 402</b>   | 3CT 90 402   | TT 402     | 9.370  | HK 050   | TK 20    | HK 040      |
|      | 220        | 320 | 202       | 60  | 90 | <b>D 30090 402 N</b> | 3CT 90 402 N | TT 402 N   | 9.370  | HK 050   | HK 025   | HK 040      |
| 400  | 290        | 400 | 272       | 60  | 90 | <b>D 40090 300</b>   | 3CT 90 300   | TT 300     | 12.980 | HK 050   | TK 15    | HK 040      |
|      | 290        | 400 | 272       | 60  | 90 | <b>D 40090 402</b>   | 3CT 90 402   | TT 402     | 12.980 | HK 050   | TK 20    | HK 040      |
|      | 290        | 400 | 272       | 60  | 90 | <b>D 40090 402 N</b> | 3CT 90 402 N | TT 402 N   | 12.980 | HK 050   | HK 025   | HK 040      |
| 500  | 370        | 500 | 352       | 60  | 90 | <b>D 50090 300</b>   | 3CT 90 300   | TT 300     | 16.740 | HK 050   | TK 15    | HK 040      |
|      | 370        | 500 | 352       | 60  | 90 | <b>D 50090 402</b>   | 3CT 90 402   | TT 402     | 16.740 | HK 050   | TK 20    | HK 040      |
|      | 370        | 500 | 352       | 60  | 90 | <b>D 50090 402 N</b> | 3CT 90 402 N | TT 402 N   | 16.740 | HK 050   | HK 025   | HK 040      |

FULL CARTRIDGE INFORMATION (INCLUDING INSERT SIZE) IN PAGE 23

ARBOR ASSEMBLY SYSTEM FOR LARGE BORING HEADS IN PAGES 46 AND 47

## FINISH HEADS 75° APPROACH



### INTEGRAL POCKET TYPE HEADS ADJUSTING ACCURACY 0.002 mm Ø

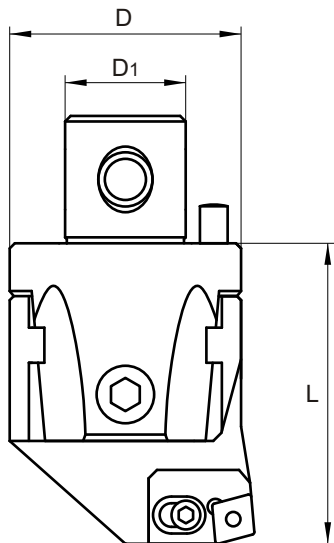


| SIZE | Bore Range |     | Dimension |     |    | Product Number | Insert          | Torx Screw | Kg.   | Adj. Key<br>Torx Key<br>Locking Key |       |        |
|------|------------|-----|-----------|-----|----|----------------|-----------------|------------|-------|-------------------------------------|-------|--------|
|      | Min        | Max | øD        | øD1 | L  |                |                 |            |       |                                     |       |        |
| 22   | 24         | 30  | 22        | 12  | 34 | A 02275 310    | TP □ □ 0902 □ □ | TT 400     | 0.100 | HK 020                              | TK 08 | HK 030 |
|      | 24         | 30  | 22        | 12  | 34 | A 02275 400    | CC □ □ 0602 □ □ | TT 400     | 0.100 | HK 020                              | TK 08 | HK 030 |
| 27   | 29         | 40  | 27        | 15  | 42 | A 02775 310    | TP □ □ 0902 □ □ | TT 400     | 0.160 | HK 020                              | TK 08 | HK 040 |
|      | 29         | 40  | 27        | 15  | 42 | A 02775 401    | CC □ □ 0803 □ □ | TT 401     | 0.160 | HK 020                              | TK 10 | HK 040 |
|      | 29         | 40  | 27        | 15  | 42 | A 02775 409    | CC □ □ 09T3 □ □ | TT 409     | 0.160 | HK 020                              | TK 15 | HK 040 |
| 32   | 39         | 50  | 32        | 20  | 45 | A 03275 310    | TP □ □ 0902 □ □ | TT 400     | 0.250 | HK 025                              | TK 08 | HK 040 |
|      | 39         | 50  | 32        | 20  | 45 | A 03275 401    | CC □ □ 0803 □ □ | TT 401     | 0.250 | HK 025                              | TK 10 | HK 040 |
|      | 39         | 50  | 32        | 20  | 45 | A 03275 409    | CC □ □ 09T3 □ □ | TT 409     | 0.250 | HK 025                              | TK 15 | HK 040 |
| 42   | 49         | 65  | 42        | 24  | 56 | A 04275 300    | TC □ □ 16T3 □ □ | TT 300     | 0.510 | HK 030                              | TK 15 | HK 050 |
|      | 49         | 65  | 42        | 24  | 56 | A 04275 311    | TP □ □ 1103 □ □ | TT 401     | 0.510 | HK 030                              | TK 10 | HK 050 |
| 54   | 63         | 82  | 54        | 28  | 66 | A 05475 300    | TC □ □ 16T3 □ □ | TT 300     | 1.020 | HK 030                              | TK 15 | HK 060 |
|      | 63         | 82  | 54        | 28  | 66 | A 05475 311    | TP □ □ 1103 □ □ | TT 401     | 1.020 | HK 030                              | TK 10 | HK 060 |

📄 NOMENCLATURE FOR INSERT SELECTION IN PAGE 53

🔧 TORX SCREW DETAILS IN PAGE 52

## FINISH HEADS 75° APPROACH



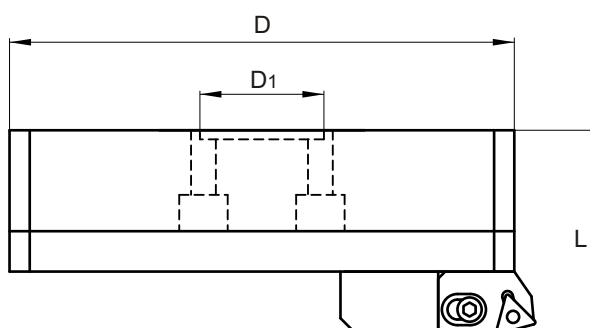
### CARTRIDGE TYPE HEADS ADJUSTING ACCURACY 0.002 mm Ø



| SIZE | Bore Range |     | Dimension |     |     | Product Number | Cartridge    | Torx Screw | Kg.   | Adj. Key<br>Torx Key<br>Locking Key |        |        |
|------|------------|-----|-----------|-----|-----|----------------|--------------|------------|-------|-------------------------------------|--------|--------|
|      | Min        | Max | øD        | øD1 | L   |                |              |            |       |                                     |        |        |
| 68   | 80         | 102 | 68        | 36  | 86  | A 06875 300    | 2CT 75 300   | TT 409     | 2.050 | HK 050                              | TK 15  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | A 06875 311    | 2CT 75 311   | TT 401     | 2.050 | HK 050                              | TK 10  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | A 06875 402    | 2CT 75 402   | TT 116     | 2.050 | HK 050                              | TK 20  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | A 06875 402 N  | 2CT 75 402 N | TT 402 N   | 2.050 | HK 050                              | HK 025 | HK 080 |
| 85   | 100        | 125 | 85        | 50  | 100 | A 08575 300    | 3CT 75 300   | TT 300     | 3.930 | HK 060                              | TK 15  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | A 08575 311    | 3CT 75 311   | TT 401     | 3.930 | HK 060                              | TK 10  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | A 08575 402    | 3CT 75 402   | TT 402     | 3.930 | HK 060                              | TK 20  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | A 08575 402 N  | 3CT 75 402 N | TT 402 N   | 3.930 | HK 060                              | HK 025 | HK 080 |
| 100  | 125        | 160 | 110       | 60  | 100 | A 10075 300    | 3CT 75 300   | TT 300     | 6.250 | HK 060                              | TK 15  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | A 10075 311    | 3CT 75 311   | TT 401     | 6.250 | HK 060                              | TK 10  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | A 10075 402    | 3CT 75 402   | TT 402     | 6.250 | HK 060                              | TK 20  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | A 10075 402 N  | 3CT 75 402 N | TT 402 N   | 6.250 | HK 060                              | HK 025 | HK 080 |
| 200  | 160        | 220 | 145       | 60  | 100 | A 20075 300    | 3CT 75 300   | TT 300     | 8.330 | HK 060                              | TK 15  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | A 20075 311    | 3CT 75 311   | TT 401     | 8.330 | HK 060                              | TK 10  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | A 20075 402    | 3CT 75 402   | TT 402     | 8.330 | HK 060                              | TK 20  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | A 20075 402 N  | 3CT 75 402 N | TT 402 N   | 8.330 | HK 060                              | HK 025 | HK 080 |

📄 FULL CARTRIDGE INFORMATION (INCLUDING INSERT SIZE) IN PAGE 23

## FINISH HEADS 75° APPROACH



### LARGE DIAMETER CARTRIDGE TYPE HEADS ADJUSTING ACCURACY 0.002 mm Ø



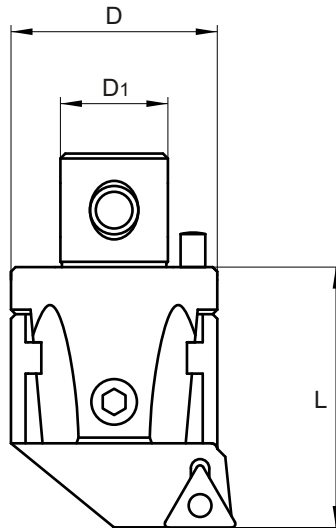
| SIZE | Bore Range |     | Dimension |     |    | Product Number | Cartridge    | Torx Screw | Kg.    |          |          |             |
|------|------------|-----|-----------|-----|----|----------------|--------------|------------|--------|----------|----------|-------------|
|      | Min        | Max | øD        | øD1 | L  |                |              |            |        | Adj. Key | Torx Key | Locking Key |
| 300  | 220        | 320 | 202       | 60  | 90 | A 30075 300    | 3CT 75 300   | TT 300     | 8.750  | HK 050   | TK 15    | HK 040      |
|      | 220        | 320 | 202       | 60  | 90 | A 30075 311    | 3CT 75 311   | TT 401     | 8.750  | HK 050   | TK 10    | HK 040      |
|      | 220        | 320 | 202       | 60  | 90 | A 30075 402    | 3CT 75 402   | TT 402     | 8.750  | HK 050   | TK 20    | HK 040      |
|      | 220        | 320 | 202       | 60  | 90 | A 30075 402 N  | 3CT 75 402 N | TT 402 N   | 8.750  | HK 050   | HK 025   | HK 040      |
| 400  | 290        | 400 | 272       | 60  | 90 | A 40075 300    | 3CT 75 300   | TT 300     | 12.200 | HK 050   | TK 15    | HK 040      |
|      | 290        | 400 | 272       | 60  | 90 | A 40075 311    | 3CT 75 311   | TT 401     | 12.200 | HK 050   | TK 10    | HK 040      |
|      | 290        | 400 | 272       | 60  | 90 | A 40075 402    | 3CT 75 402   | TT 402     | 12.200 | HK 050   | TK 20    | HK 040      |
|      | 290        | 400 | 272       | 60  | 90 | A 40075 402 N  | 3CT 75 402 N | TT 402 N   | 12.200 | HK 050   | HK 025   | HK 040      |
| 500  | 370        | 500 | 352       | 60  | 90 | A 50075 300    | 3CT 75 300   | TT 300     | 16.310 | HK 050   | TK 15    | HK 040      |
|      | 370        | 500 | 352       | 60  | 90 | A 50075 311    | 3CT 75 311   | TT 401     | 16.310 | HK 050   | TK 10    | HK 040      |
|      | 370        | 500 | 352       | 60  | 90 | A 50075 402    | 3CT 75 402   | TT 402     | 16.310 | HK 050   | TK 20    | HK 040      |
|      | 370        | 500 | 352       | 60  | 90 | A 50075 402 N  | 3CT 75 402 N | TT 402 N   | 16.310 | HK 050   | HK 025   | HK 040      |

FULL CARTRIDGE INFORMATION (INCLUDING INSERT SIZE) IN PAGE 23

ARBOR ASSEMBLY SYSTEM FOR LARGE BORING HEADS IN PAGES 46 AND 47



## FINISH HEADS 90° APPROACH



### INTEGRAL POCKET TYPE HEADS ADJUSTING ACCURACY 0.002 mm Ø

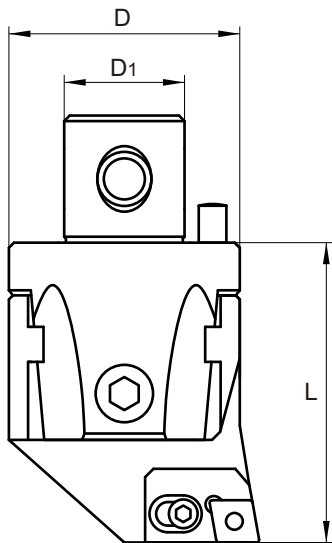


| SIZE | Bore Range |     | Dimension |     |    | Product Number | Insert        | Torx Screw | Kg.   | Adj. Key<br>Torx Key<br>Locking Key |        |        |
|------|------------|-----|-----------|-----|----|----------------|---------------|------------|-------|-------------------------------------|--------|--------|
|      | Min        | Max | øD        | øD1 | L  |                |               |            |       |                                     |        |        |
| 22   | 24         | 30  | 22        | 12  | 34 | A 02290 310    | TP□□ 0902□□   | TT 400     | 0.100 | HK 020                              | TK 08  | HK 030 |
|      | 24         | 30  | 22        | 12  | 34 | A 02290 400    | CC□□ 0602□□   | TT 400     | 0.100 | HK 020                              | TK 08  | HK 030 |
| 27   | 29         | 40  | 27        | 15  | 42 | A 02790 310    | TP□□ 0902□□   | TT 400     | 0.160 | HK 020                              | TK 08  | HK 040 |
|      | 29         | 40  | 27        | 15  | 42 | A 02790 401    | CC□□ 0803□□   | TT 401     | 0.160 | HK 020                              | TK 10  | HK 040 |
|      | 29         | 40  | 27        | 15  | 42 | A 02790 409    | CC□□ 09T3□□   | TT 409     | 0.160 | HK 020                              | TK 15  | HK 040 |
| 32   | 39         | 50  | 32        | 20  | 45 | A 03290 300    | TC□□ 16T3□□   | TT 409     | 0.250 | HK 025                              | TK 15  | HK 040 |
|      | 39         | 50  | 32        | 20  | 45 | A 03290 310    | TP□□ 0902□□   | TT 400     | 0.250 | HK 025                              | TK 08  | HK 040 |
|      | 39         | 50  | 32        | 20  | 45 | A 03290 401    | CC□□ 0803□□   | TT 401     | 0.250 | HK 025                              | TK 10  | HK 040 |
|      | 39         | 50  | 32        | 20  | 45 | A 03290 409    | CC□□ 09T3□□   | TT 409     | 0.250 | HK 025                              | TK 15  | HK 040 |
| 42   | 49         | 65  | 42        | 24  | 56 | A 04290 300    | TC□□ 16T3□□   | TT 300     | 0.510 | HK 030                              | TK 15  | HK 050 |
|      | 49         | 65  | 42        | 24  | 56 | A 04290 311    | TP□□ 1103□□   | TT 401     | 0.510 | HK 030                              | TK 10  | HK 050 |
|      | 49         | 65  | 42        | 24  | 56 | A 04290 402    | CC□□ 1204□□   | TT 402     | 0.510 | HK 030                              | TK 20  | HK 050 |
|      | 53         | 65  | 42        | 24  | 56 | A 04290 402 N  | CN□□ 1204□□ L | TT 402 N   | 0.510 | HK 030                              | HK 025 | HK 050 |
| 54   | 63         | 82  | 54        | 28  | 66 | A 05490 300    | TC□□ 16T3□□   | TT 300     | 1.020 | HK 030                              | TK 15  | HK 060 |
|      | 63         | 82  | 54        | 28  | 66 | A 05490 311    | TP□□ 1103□□   | TT 401     | 1.020 | HK 030                              | TK 10  | HK 060 |
|      | 63         | 82  | 54        | 28  | 66 | A 05490 402    | CC□□ 1204□□   | TT 402     | 1.020 | HK 030                              | TK 20  | HK 060 |
|      | 63         | 82  | 54        | 28  | 66 | A 05490 402 N  | CN□□ 1204□□ L | TT 402 N   | 1.020 | HK 030                              | HK 025 | HK 060 |

📄 NOMENCLATURE FOR INSERT SELECTION IN PAGE 53

🔧 TORX SCREW DETAILS IN PAGE 52

## FINISH HEADS 90° APPROACH



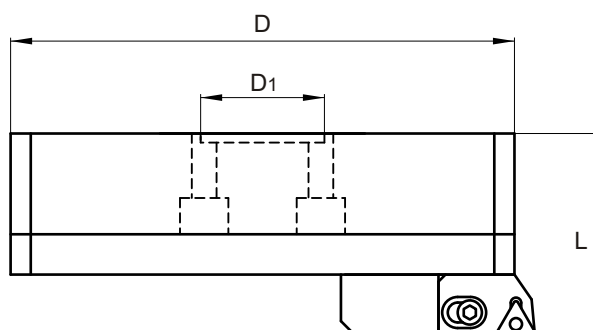
### CARTRIDGE TYPE HEADS ADJUSTING ACCURACY 0.002 mm Ø



| SIZE | Bore Range |     | Dimension |     |     | Product Number | Cartridge    | Torx Screw | Kg.   | Adj. Key<br>Torx Key<br>Locking Key |        |        |
|------|------------|-----|-----------|-----|-----|----------------|--------------|------------|-------|-------------------------------------|--------|--------|
|      | Min        | Max | øD        | øD1 | L   |                |              |            |       |                                     |        |        |
| 68   | 80         | 102 | 68        | 36  | 86  | A 06890 300    | 2CT 90 300   | TT 409     | 2.050 | HK 050                              | TK 15  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | A 06890 311    | 2CT 90 311   | TT 401     | 2.050 | HK 050                              | TK 10  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | A 06890 402    | 2CT 90 402   | TT 116     | 2.050 | HK 050                              | TK 20  | HK 080 |
|      | 80         | 102 | 68        | 36  | 86  | A 06890 402 N  | 2CT 90 402 N | TT 402 N   | 2.050 | HK 050                              | HK 025 | HK 080 |
| 85   | 100        | 125 | 85        | 50  | 100 | A 08590 300    | 3CT 90 300   | TT 300     | 3.930 | HK 060                              | TK 15  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | A 08590 311    | 3CT 90 311   | TT 401     | 3.930 | HK 060                              | TK 10  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | A 08590 402    | 3CT 90 402   | TT 402     | 3.930 | HK 060                              | TK 20  | HK 080 |
|      | 100        | 125 | 85        | 50  | 100 | A 08590 402 N  | 3CT 90 402 N | TT 402 N   | 3.930 | HK 060                              | HK 025 | HK 080 |
| 100  | 125        | 160 | 110       | 60  | 100 | A 10090 300    | 3CT 90 300   | TT 300     | 6.250 | HK 060                              | TK 15  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | A 10090 311    | 3CT 90 311   | TT 401     | 6.250 | HK 060                              | TK 10  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | A 10090 402    | 3CT 90 402   | TT 402     | 6.250 | HK 060                              | TK 20  | HK 080 |
|      | 125        | 160 | 110       | 60  | 100 | A 10090 402 N  | 3CT 90 402 N | TT 402 N   | 6.250 | HK 060                              | HK 025 | HK 080 |
| 200  | 160        | 220 | 145       | 60  | 100 | A 20090 300    | 3CT 90 300   | TT 300     | 8.330 | HK 060                              | TK 15  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | A 20090 311    | 3CT 90 311   | TT 401     | 8.330 | HK 060                              | TK 10  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | A 20090 402    | 3CT 90 402   | TT 402     | 8.330 | HK 060                              | TK 20  | HK 080 |
|      | 160        | 220 | 145       | 60  | 100 | A 20090 402 N  | 3CT 90 402 N | TT 402 N   | 8.330 | HK 060                              | HK 025 | HK 080 |

 FULL CARTRIDGE INFORMATION (INCLUDING INSERT SIZE) IN PAGE 23

## FINISH HEADS 90° APPROACH



### LARGE DIAMETER CARTRIDGE TYPE HEADS ADJUSTING ACCURACY 0.002 mm Ø

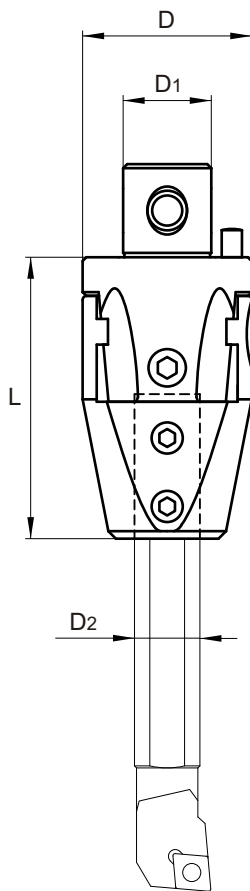


| SIZE | Bore Range |     | Dimension |     |    | Product Number | Cartridge    | Torx Screw | Kg.    |          |          |             |
|------|------------|-----|-----------|-----|----|----------------|--------------|------------|--------|----------|----------|-------------|
|      | Min        | Max | øD        | øD1 | L  |                |              |            |        | Adj. Key | Torx Key | Locking Key |
| 300  | 220        | 320 | 202       | 60  | 90 | A 30090 300    | 3CT 90 300   | TT 300     | 8.750  | HK 050   | TK 15    | HK 040      |
|      | 220        | 320 | 202       | 60  | 90 | A 30090 311    | 3CT 90 311   | TT 401     | 8.750  | HK 050   | TK 10    | HK 040      |
|      | 220        | 320 | 202       | 60  | 90 | A 30090 402    | 3CT 90 402   | TT 402     | 8.750  | HK 050   | TK 20    | HK 040      |
|      | 220        | 320 | 202       | 60  | 90 | A 30090 402 N  | 3CT 90 402 N | TT 402 N   | 8.750  | HK 050   | HK 025   | HK 040      |
| 400  | 290        | 400 | 272       | 60  | 90 | A 40090 300    | 3CT 90 300   | TT 300     | 12.200 | HK 050   | TK 15    | HK 040      |
|      | 290        | 400 | 272       | 60  | 90 | A 40090 311    | 3CT 90 311   | TT 401     | 12.200 | HK 050   | TK 10    | HK 040      |
|      | 290        | 400 | 272       | 60  | 90 | A 40090 402    | 3CT 90 402   | TT 402     | 12.200 | HK 050   | TK 20    | HK 040      |
|      | 290        | 400 | 272       | 60  | 90 | A 40090 402 N  | 3CT 90 402 N | TT 402 N   | 12.200 | HK 050   | HK 025   | HK 040      |
| 500  | 370        | 500 | 352       | 60  | 90 | A 50090 300    | 3CT 90 300   | TT 300     | 16.310 | HK 050   | TK 15    | HK 040      |
|      | 370        | 500 | 352       | 60  | 90 | A 50090 311    | 3CT 90 311   | TT 401     | 16.310 | HK 050   | TK 10    | HK 040      |
|      | 370        | 500 | 352       | 60  | 90 | A 50090 402    | 3CT 90 402   | TT 402     | 16.310 | HK 050   | TK 20    | HK 040      |
|      | 370        | 500 | 352       | 60  | 90 | A 50090 402 N  | 3CT 90 402 N | TT 402 N   | 16.310 | HK 050   | HK 025   | HK 040      |

FULL CARTRIDGE INFORMATION (INCLUDING INSERT SIZE) IN PAGE 23

ARBOR ASSEMBLY SYSTEM FOR LARGE BORING HEADS IN PAGES 46 AND 47

## MICRO BORING HEADS

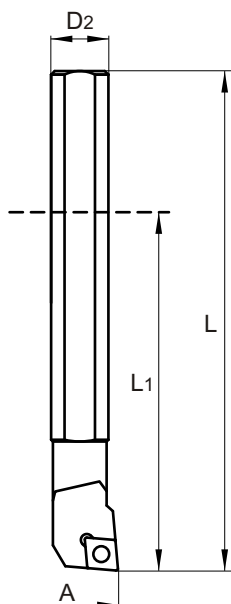


### HEADS FOR ISO BORING BARS ADJUSTING ACCURACY 0.002 mm Ø



| SIZE | Bore Range |     | Dimension |     |     |    | Product Number | Kg.   | Adj. Key<br>Locking Key |        |
|------|------------|-----|-----------|-----|-----|----|----------------|-------|-------------------------|--------|
|      | Min        | Max | øD        | øD1 | øD2 | L  |                |       |                         |        |
| 27   | 8          | 20  | 27        | 15  | 6   | 50 | A 027 006      | 0.210 | HK 020                  | HK 040 |
| 27   | 10         | 21  | 27        | 15  | 8   | 50 | A 027 008      | 0.200 | HK 020                  | HK 040 |
| 32   | 10         | 21  | 32        | 20  | 8   | 58 | A 032 008      | 0.330 | HK 025                  | HK 040 |
| 32   | 13         | 25  | 32        | 20  | 10  | 58 | A 032 010      | 0.330 | HK 025                  | HK 040 |
| 42   | 13         | 29  | 42        | 24  | 10  | 70 | A 042 010      | 0.660 | HK 030                  | HK 050 |
| 42   | 16         | 34  | 42        | 24  | 12  | 70 | A 042 012      | 0.660 | HK 030                  | HK 050 |
| 42   | 20         | 38  | 42        | 24  | 16  | 70 | A 042 016      | 0.630 | HK 030                  | HK 050 |

## ISO BORING BARS



### STEEL SHANK BORING BARS

| Dimension |    |     |    | ISO Boring bar       | Insert        | Torx Screw | Torx Key |
|-----------|----|-----|----|----------------------|---------------|------------|----------|
| øD2       | øA | L   | L1 |                      |               |            |          |
| 6         | 8  | 70  | 46 | <b>S06E SELPR 04</b> | EP□□ 0401□□ L | TT 102     | TK 06    |
| 6         | 8  | 70  | 46 | <b>S06E SELPR 05</b> | EP□□ 0502□□   | TT 106     | TK 07    |
| 8         | 10 | 80  | 50 | <b>S08F SCLCR 06</b> | CC□□ 0602□□   | TT 110     | TK 08    |
| 10        | 13 | 90  | 54 | <b>S10G SCLCR 06</b> | CC□□ 0602□□   | TT 400     | TK 08    |
| 12        | 16 | 100 | 64 | <b>S12H SCLCR 06</b> | CC□□ 0602□□   | TT 400     | TK 08    |
| 16        | 20 | 110 | 74 | <b>S16J SCLCR 09</b> | CC□□ 09T3□□   | TT 409     | TK 15    |
| 16        | 20 | 110 | 74 | <b>S16J STFCR 09</b> | TC□□ 0902□□   | TT 108     | TK 07    |
| 16        | 20 | 110 | 74 | <b>S16J STFCR 16</b> | TC□□ 16T3□□   | TT 409     | TK 15    |

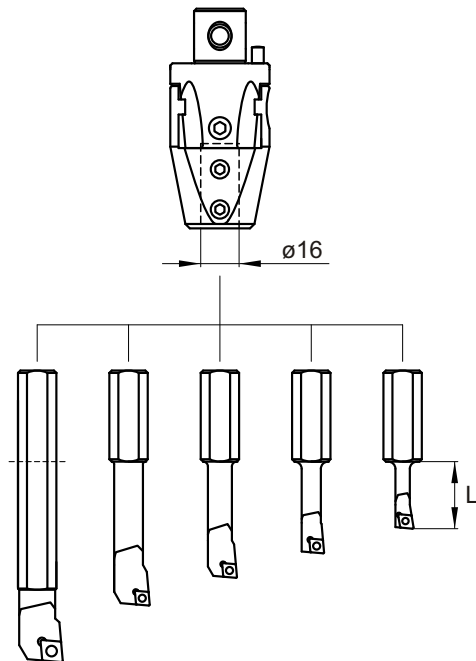
### CARBIDE SHANK BORING BARS

| Dimension |    |     |     | ISO Boring bar       | Insert        | Torx Screw | Torx Key |
|-----------|----|-----|-----|----------------------|---------------|------------|----------|
| øD2       | øA | L   | L1  |                      |               |            |          |
| 6         | 8  | 80  | 56  | <b>C06F SELPR 04</b> | EP□□ 0401□□ L | TT 102     | TK 06    |
| 8         | 10 | 90  | 60  | <b>C08G SCLCR 06</b> | CC□□ 0602□□   | TT 110     | TK 08    |
| 10        | 13 | 110 | 74  | <b>C10J SCLCR 06</b> | CC□□ 0602□□   | TT 400     | TK 08    |
| 12        | 16 | 125 | 89  | <b>C12K SCLCR 06</b> | CC□□ 0602□□   | TT 400     | TK 08    |
| 16        | 20 | 140 | 104 | <b>C16L SCLCR 09</b> | CC□□ 09T3□□   | TT 409     | TK 15    |

📄 NOMENCLATURE FOR INSERT SELECTION IN PAGE 53

🔧 TORX SCREW DETAILS IN PAGE 52

## INDEXABLE BORING BARS FOR A 042 016



### RHOMBIC INSERT

| Bore Range |     | L  | Product Number         | Insert        | Torx Screw | Torx Key |
|------------|-----|----|------------------------|---------------|------------|----------|
| Min        | Max |    |                        |               |            |          |
| 6          | 24  | 20 | <b>S05/16 SELPR 04</b> | EP□□ 0401□□ L | TT 100     | TK 06    |
| 8          | 26  | 25 | <b>S06/16 SELPR 04</b> | EP□□ 0401□□ L | TT 102     | TK 06    |
| 8          | 26  | 25 | <b>S06/16 SELPR 05</b> | EP□□ 0502□□   | TT 106     | TK 07    |
| 10         | 28  | 35 | <b>S08/16 SCLCR 06</b> | CC□□ 0602□□   | TT 110     | TK 08    |
| 13         | 31  | 45 | <b>S10/16 SCLCR 06</b> | CC□□ 0602□□   | TT 400     | TK 08    |
| 16         | 34  | 57 | <b>S12/16 SCLCR 06</b> | CC□□ 0602□□   | TT 400     | TK 08    |
| 20         | 38  | 73 | <b>S16/16 SCLCR 09</b> | CC□□ 09T3□□   | TT 409     | TK 15    |

### TRIANGULAR INSERT

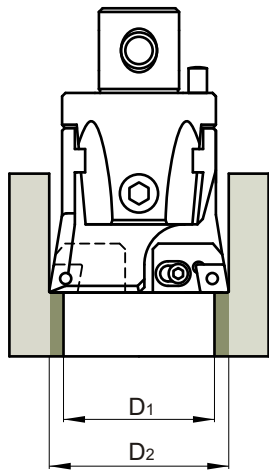
| Bore Range |     | L  | Product Number         | Insert      | Torx Screw | Torx Key |
|------------|-----|----|------------------------|-------------|------------|----------|
| Min        | Max |    |                        |             |            |          |
| 8          | 26  | 25 | <b>S06/16 STFCR 06</b> | TC□□ 06T1□□ | TT 104     | TK 06    |
| 10         | 28  | 35 | <b>S08/16 STFCR 06</b> | TC□□ 06T1□□ | TT 104     | TK 06    |
| 13         | 31  | 45 | <b>S10/16 STFCR 09</b> | TC□□ 0902□□ | TT 108     | TK 07    |
| 16         | 34  | 57 | <b>S12/16 STFCR 09</b> | TC□□ 0902□□ | TT 108     | TK 07    |
| 20         | 38  | 73 | <b>S16/16 STFCR 09</b> | TC□□ 0902□□ | TT 108     | TK 07    |
| 20         | 38  | 73 | <b>S16/16 STFCR 16</b> | TC□□ 16T3□□ | TT 409     | TK 15    |

📄 NOMENCLATURE FOR INSERT SELECTION IN PAGE 53

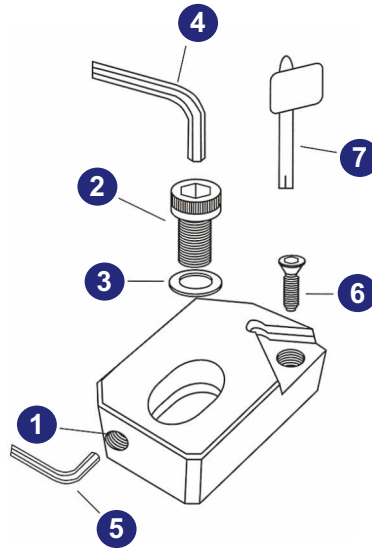
🔑 TORX SCREW DETAILS IN PAGE 52

# INDEXABLE STANDARD CARTRIDGES

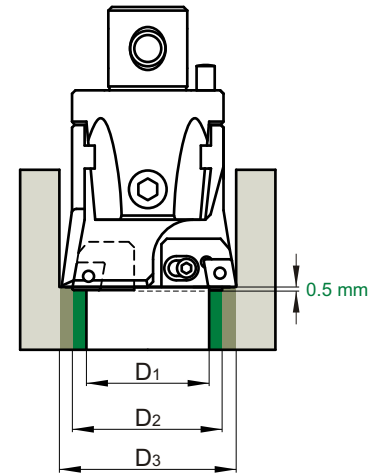
## SYMETRICAL BORING



2CT □□ □□ + 2CT □□ □□  
or  
3CT □□ □□ + 3CT □□ □□



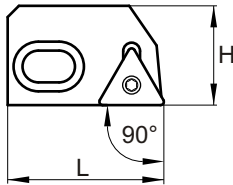
## STAGGERED BORING



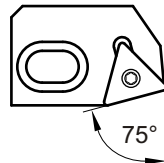
2CT □□ □□ S + 2CT □□ □□  
or  
3CT □□ □□ S + 3CT □□ □□

[STAGGERED CARTRIDGES IN NEXT PAGE](#)

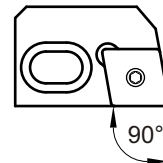
### TYPE 90 300



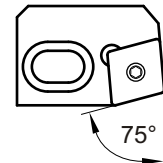
### TYPE 75 300



### TYPE 90 402



### TYPE 75 402



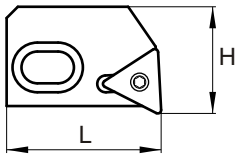
| Product Number | Dimension<br>H L | Kg.   | Insert        | 1        | 2        | 3        | 4      | 5      | 6        | 7      |
|----------------|------------------|-------|---------------|----------|----------|----------|--------|--------|----------|--------|
| 2CT 75 300     | 22.5 35          | 0.050 | TC□□ 16T3□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 409   | TK 15  |
| 2CT 75 311     | 22.5 35          | 0.050 | TP□□ 1103□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 401   | TK 10  |
| 2CT 75 402     | 22.5 35          | 0.050 | CC□□ 1204□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 116   | TK 20  |
| 2CT 75 402 N   | 22.5 35          | 0.070 | CN□□ 1204□□ R | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 402 N | HK 025 |
| 2CT 90 300     | 22.5 35          | 0.050 | TC□□ 16T3□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 409   | TK 15  |
| 2CT 90 311     | 22.5 35          | 0.050 | TP□□ 1103□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 401   | TK 10  |
| 2CT 90 402     | 22.5 35          | 0.050 | CC□□ 1204□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 116   | TK 20  |
| 2CT 90 402 N   | 22.5 35          | 0.070 | CN□□ 1204□□ L | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 402 N | HK 025 |
| 3CT 75 300     | 28 39            | 0.100 | TC□□ 16T3□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 300   | TK 15  |
| 3CT 75 311     | 28 39            | 0.100 | TP□□ 1103□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 401   | TK 10  |
| 3CT 75 402     | 28 39            | 0.100 | CC□□ 1204□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 402   | TK 20  |
| 3CT 75 402 N   | 28 39            | 0.120 | CN□□ 1204□□ R | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 402 N | HK 025 |
| 3CT 90 300     | 28 39            | 0.100 | TC□□ 16T3□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 300   | TK 15  |
| 3CT 90 311     | 28 39            | 0.100 | TP□□ 1103□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 401   | TK 10  |
| 3CT 90 402     | 28 39            | 0.100 | CC□□ 1204□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 402   | TK 20  |
| 3CT 90 402 N   | 28 39            | 0.120 | CN□□ 1204□□ L | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 402 N | HK 025 |

NOMENCLATURE FOR INSERT SELECTION IN PAGE 53

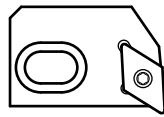
TORX SCREW DETAILS IN PAGE 52

## INDEXABLE SPECIAL CARTRIDGES

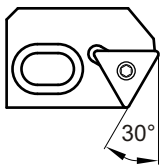
TYPE GR 300



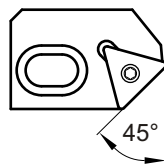
TYPE GR 411



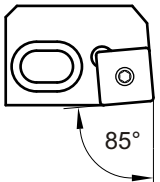
TYPE 30 300



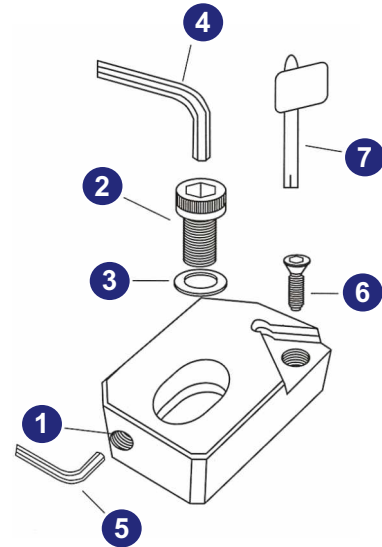
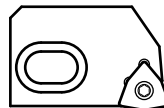
TYPE 45 300



TYPE 85 502



TYPE W06 / W08



| Product Number | Dimension<br>H L |    | Kg.   | Insert         | 1        | 2        | 3        | 4      | 5      | 6        | 7      |
|----------------|------------------|----|-------|----------------|----------|----------|----------|--------|--------|----------|--------|
| 2CT GR 300     | 25               | 36 | 0.050 | TC □□ 16T3□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 409   | TK 15  |
| 2CT GR 411     | 25               | 36 | 0.050 | DC □□ 11T3□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 409   | TK 15  |
| 2CT 30 300     | 22.5             | 35 | 0.050 | TC □□ 16T3□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 409   | TK 15  |
| 2CT 45 300     | 22.5             | 35 | 0.050 | TC □□ 16T3□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 409   | TK 15  |
| 2CT 85 502     | 22.5             | 35 | 0.050 | SC □□ 1204□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 116   | TK 20  |
| 2CT 90 W06     | 23.5             | 35 | 0.050 | WC □□ 06T3□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 112   | TK 09  |
| 2CT 90 W06 S   | 24               | 33 | 0.050 | WC □□ 06T3□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 112   | TK 09  |
| 2CT 90 300 S   | 23               | 33 | 0.050 | TC □□ 16T3□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 409   | TK 15  |
| 2CT 90 402 S   | 23               | 33 | 0.050 | CC □□ 1204□□   | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 116   | TK 20  |
| 2CT 90 402 N S | 23               | 33 | 0.070 | CN □□ 1204□□ L | D 068 29 | A 068 26 | D 068 28 | HK 050 | HK 020 | TT 402 N | HK 025 |
| 3CT GR 300     | 30               | 40 | 0.100 | TC □□ 16T3□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 300   | TK 15  |
| 3CT GR 411     | 30               | 40 | 0.100 | DC □□ 11T3□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 300   | TK 15  |
| 3CT 30 300     | 28               | 39 | 0.100 | TC □□ 16T3□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 300   | TK 15  |
| 3CT 45 300     | 28               | 39 | 0.100 | TC □□ 16T3□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 300   | TK 15  |
| 3CT 85 502     | 28               | 39 | 0.100 | SC □□ 1204□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 402   | TK 20  |
| 3CT 90 W08     | 29               | 39 | 0.100 | WC □□ 0804□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 114   | TK 15  |
| 3CT 90 W08 S   | 29.5             | 37 | 0.100 | WC □□ 0804□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 114   | TK 15  |
| 3CT 90 300 S   | 28.5             | 37 | 0.100 | TC □□ 16T3□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 300   | TK 15  |
| 3CT 90 402 S   | 28.5             | 37 | 0.100 | CC □□ 1204□□   | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 402   | TK 20  |
| 3CT 90 402 N S | 28.5             | 37 | 0.120 | CN □□ 1204□□ L | D 085 29 | D 085 27 | D 068 28 | HK 050 | HK 030 | TT 402 N | HK 025 |

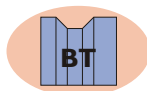
📄 NOMENCLATURE FOR INSERT SELECTION IN PAGE 53

🔧 TORX SCREW DETAILS IN PAGE 52



## ARBORS FOR BORING HEADS

### MAS BT 403

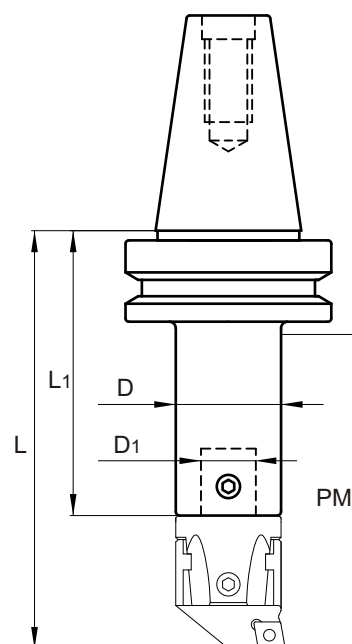


#### ISO 30

| SIZE | Dimension |     |     |    |     | Product Number | Kg.   | Coupling Screw |
|------|-----------|-----|-----|----|-----|----------------|-------|----------------|
|      | øD        | øD1 | L   | L1 | PM  |                |       |                |
| 22   | 22        | 12  | 125 | 91 | 100 | BT 330 022 100 | 0.650 | 22-68          |
| 27   | 27        | 15  | 77  | 35 | 55  | BT 330 027 055 | 0.480 | 27-610         |
|      | 27        | 15  | 125 | 83 | 100 | BT 330 027 100 | 0.700 | 27-610         |
| 32   | 32        | 20  | 83  | 38 | 60  | BT 330 032 060 | 0.490 | 32-810         |
|      | 32        | 20  | 125 | 80 | 100 | BT 330 032 100 | 0.760 | 32-810         |
| 42   | 42        | 24  | 100 | 44 | 75  | BT 330 042 075 | 0.590 | 42-1014        |

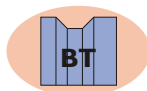
#### ISO 40

| SIZE       | Dimension |     |     |     |     | Product Number | Kg.   | Coupling Screw |
|------------|-----------|-----|-----|-----|-----|----------------|-------|----------------|
|            | øD        | øD1 | L   | L1  | PM  |                |       |                |
| 22         | 22        | 12  | 80  | 46  | 50  | BT 340 022 050 | 1.100 | 22-68          |
|            | 22        | 12  | 110 | 76  | 80  | BT 340 022 080 | 1.200 | 22-68          |
|            | 22        | 12  | 130 | 96  | 100 | BT 340 022 100 | 1.250 | 22-68          |
| 27         | 27        | 15  | 82  | 40  | 55  | BT 340 027 055 | 1.100 | 27-610         |
|            | 27        | 15  | 130 | 88  | 100 | BT 340 027 100 | 1.310 | 27-610         |
|            | 27        | 15  | 160 | 118 | 130 | BT 340 027 130 | 1.450 | 27-610         |
| 32         | 32        | 20  | 88  | 43  | 60  | BT 340 032 060 | 1.140 | 32-810         |
|            | 32        | 20  | 130 | 85  | 100 | BT 340 032 100 | 1.390 | 32-810         |
|            | 32        | 20  | 160 | 115 | 130 | BT 340 032 130 | 1.580 | 32-810         |
| 42         | 42        | 24  | 104 | 48  | 75  | BT 340 042 075 | 1.180 | 42-1014        |
|            | 42        | 24  | 190 | 134 | 160 | BT 340 042 160 | 2.120 | 42-1014        |
|            | 42        | 24  | 230 | 174 | 200 | BT 340 042 200 | 2.600 | 42-1014        |
| 54         | 54        | 28  | 120 | 54  | 90  | BT 340 054 090 | 1.350 | 54-1220        |
|            | 54        | 28  | 190 | 124 | 160 | BT 340 054 160 | 2.610 | 54-1220        |
|            | 54        | 28  | 230 | 164 | 200 | BT 340 054 200 | 3.370 | 54-1220        |
| 68         | 68        | 36  | 181 | 95  | 160 | BT 340 068 160 | 2.600 | 68-1624        |
|            | 68        | 36  | 221 | 135 | 200 | BT 340 068 200 | 3.760 | 68-1624        |
| 85         | 85        | 50  | 220 | 120 | 200 | BT 340 085 200 | 4.210 | 85-1630        |
| 100<br>200 | 100       | 60  | 220 | 120 | 200 | BT 340 100 200 | 4.910 | 100-2035       |



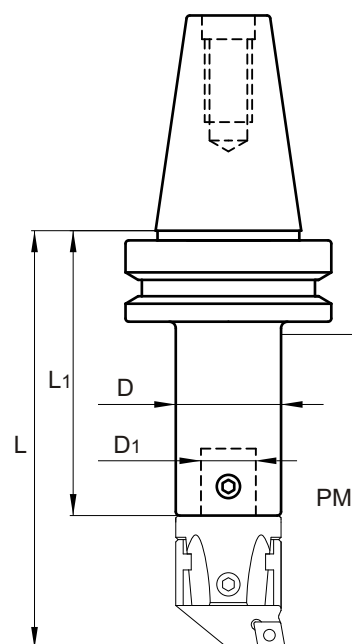
## ARBORS FOR BORING HEADS

### MAS BT 403



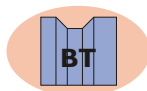
#### ISO 45 (UPON REQUEST)

| SIZE | Dimension |     |     |     |     | Product Number | Kg.    | Coupling Screw |
|------|-----------|-----|-----|-----|-----|----------------|--------|----------------|
|      | øD        | øD1 | L   | L1  | PM  |                |        |                |
| 22   | 22        | 12  | 116 | 82  | 80  | BT 345 022 080 | 2.550  | 22-68          |
|      | 22        | 12  | 136 | 102 | 100 | BT 345 022 100 | 2.610  | 22-68          |
| 27   | 27        | 15  | 88  | 46  | 55  | BT 345 027 055 | 2.550  | 27-610         |
|      | 27        | 15  | 136 | 94  | 100 | BT 345 027 100 | 2.750  | 27-610         |
|      | 27        | 15  | 166 | 124 | 130 | BT 345 027 130 | 2.800  | 27-610         |
| 32   | 32        | 20  | 94  | 49  | 60  | BT 345 032 060 | 2.550  | 32-810         |
|      | 32        | 20  | 166 | 121 | 130 | BT 345 032 130 | 2.950  | 32-810         |
|      | 32        | 20  | 196 | 151 | 160 | BT 345 032 160 | 3.200  | 32-810         |
| 42   | 42        | 24  | 110 | 54  | 75  | BT 345 042 075 | 2.650  | 42-1014        |
|      | 42        | 24  | 196 | 140 | 160 | BT 345 042 160 | 3.500  | 42-1014        |
|      | 42        | 24  | 236 | 180 | 200 | BT 345 042 200 | 4.000  | 42-1014        |
| 54   | 54        | 28  | 123 | 57  | 90  | BT 345 054 090 | 2.850  | 54-1220        |
|      | 54        | 28  | 196 | 130 | 160 | BT 345 054 160 | 4.100  | 54-1220        |
|      | 54        | 28  | 236 | 170 | 200 | BT 345 054 200 | 4.800  | 54-1220        |
| 68   | 68        | 36  | 237 | 151 | 200 | BT 345 068 200 | 5.550  | 68-1624        |
|      | 68        | 36  | 297 | 211 | 260 | BT 345 068 260 | 7.250  | 68-1624        |
| 85   | 85        | 50  | 236 | 136 | 200 | BT 345 085 200 | 6.100  | 85-1630        |
|      | 85        | 50  | 296 | 196 | 260 | BT 345 085 260 | 8.850  | 85-1630        |
|      | 85        | 50  | 356 | 256 | 320 | BT 345 085 320 | 11.650 | 85-1630        |



## ARBORS FOR BORING HEADS

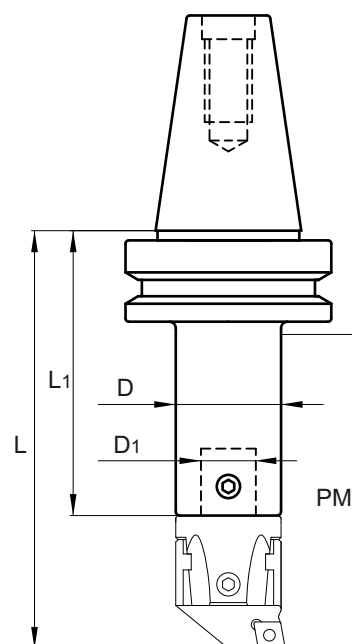
### MAS BT 403



#### ISO 50

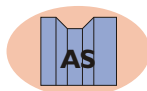
| SIZE              | Dimension |     |     |     |     | Product Number | Kg.    | Coupling Screw |
|-------------------|-----------|-----|-----|-----|-----|----------------|--------|----------------|
|                   | øD        | øD1 | L   | L1  | PM  |                |        |                |
| 22                | 22        | 12  | 121 | 87  | 80  | BT 350 022 080 | 3.980  | 22-68          |
|                   | 22        | 12  | 141 | 107 | 100 | BT 350 022 100 | 4.050  | 22-68          |
| 27                | 27        | 15  | 93  | 51  | 55  | BT 350 027 055 | 3.870  | 27-610         |
|                   | 27        | 15  | 141 | 99  | 100 | BT 350 027 100 | 4.080  | 27-610         |
|                   | 27        | 15  | 171 | 129 | 130 | BT 350 027 130 | 4.220  | 27-610         |
| 32                | 32        | 20  | 99  | 54  | 60  | BT 350 032 060 | 3.870  | 32-810         |
|                   | 32        | 20  | 171 | 126 | 130 | BT 350 032 130 | 4.340  | 32-810         |
|                   | 32        | 20  | 201 | 156 | 160 | BT 350 032 160 | 4.520  | 32-810         |
| 42                | 42        | 24  | 115 | 59  | 75  | BT 350 042 075 | 3.930  | 42-1014        |
|                   | 42        | 24  | 201 | 145 | 160 | BT 350 042 160 | 4.900  | 42-1014        |
|                   | 42        | 24  | 241 | 185 | 200 | BT 350 042 200 | 5.400  | 42-1014        |
| 54                | 54        | 28  | 131 | 65  | 90  | BT 350 054 090 | 4.110  | 54-1220        |
|                   | 54        | 28  | 201 | 135 | 160 | BT 350 054 160 | 5.400  | 54-1220        |
|                   | 54        | 28  | 241 | 175 | 200 | BT 350 054 200 | 6.100  | 54-1220        |
| 68                | 68        | 36  | 154 | 68  | 115 | BT 350 068 115 | 4.280  | 68-1624        |
|                   | 68        | 36  | 242 | 156 | 200 | BT 350 068 200 | 6.820  | 68-1624        |
|                   | 68        | 36  | 302 | 216 | 260 | BT 350 068 260 | 8.600  | 68-1624        |
| 85                | 85        | 50  | 242 | 142 | 200 | BT 350 085 200 | 7.520  | 85-1630        |
|                   | 85        | 50  | 302 | 202 | 260 | BT 350 085 260 | 10.270 | 85-1630        |
|                   | 85        | 50  | 362 | 262 | 320 | BT 350 085 320 | 13.080 | 85-1630        |
| 100<br>200        | 100       | 60  | 195 | 95  | 170 | BT 350 100 170 | 5.780  | 100-2035       |
|                   | 100       | 60  | 302 | 202 | 260 | BT 350 100 260 | 12.460 | 100-2035       |
|                   | 100       | 60  | 362 | 262 | 320 | BT 350 100 320 | 16.080 | 100-2035       |
| 300<br>400<br>500 | 100       | 60  | 160 | 70  | 125 | * BT 550 160   | 6.010  | TF 100         |

\* SEE PAGES 46 AND 47: ASSEMBLY SYSTEM FOR LARGE BORING HEADS



## ARBORS FOR BORING HEADS

**DIN 69871**

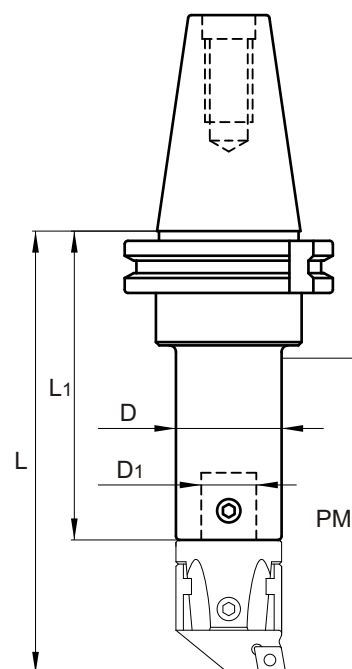


### ISO 30

| SIZE | Dimension |     |     |     |     | Product Number        | Kg.   | Coupling Screw |
|------|-----------|-----|-----|-----|-----|-----------------------|-------|----------------|
|      | øD        | øD1 | L   | L1  | PM  |                       |       |                |
| 22   | 22        | 12  | 138 | 104 | 100 | <b>AS 330 022 100</b> | 0.700 | 22-68          |
| 27   | 27        | 15  | 90  | 48  | 55  | <b>AS 330 027 055</b> | 0.560 | 27-610         |
|      | 27        | 15  | 138 | 96  | 100 | <b>AS 330 027 100</b> | 0.740 | 27-610         |
| 32   | 32        | 20  | 96  | 51  | 60  | <b>AS 330 032 060</b> | 0.580 | 32-810         |
|      | 32        | 20  | 138 | 93  | 100 | <b>AS 330 032 100</b> | 0.800 | 32-810         |

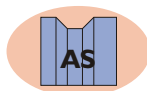
### ISO 40

| SIZE       | Dimension |     |     |     |     | Product Number        | Kg.   | Coupling Screw |
|------------|-----------|-----|-----|-----|-----|-----------------------|-------|----------------|
|            | øD        | øD1 | L   | L1  | PM  |                       |       |                |
| 22         | 22        | 12  | 118 | 84  | 80  | <b>AS 340 022 080</b> | 1.230 | 22-68          |
|            | 22        | 12  | 138 | 104 | 100 | <b>AS 340 022 100</b> | 1.300 | 22-68          |
| 27         | 27        | 15  | 90  | 48  | 55  | <b>AS 340 027 055</b> | 1.130 | 27-610         |
|            | 27        | 15  | 138 | 96  | 100 | <b>AS 340 027 100</b> | 1.350 | 27-610         |
|            | 27        | 15  | 168 | 126 | 130 | <b>AS 340 027 130</b> | 1.490 | 27-610         |
| 32         | 32        | 20  | 96  | 51  | 60  | <b>AS 340 032 060</b> | 1.140 | 32-810         |
|            | 32        | 20  | 138 | 93  | 100 | <b>AS 340 032 100</b> | 1.400 | 32-810         |
|            | 32        | 20  | 168 | 123 | 130 | <b>AS 340 032 130</b> | 1.590 | 32-810         |
| 42         | 42        | 24  | 112 | 56  | 75  | <b>AS 340 042 075</b> | 1.200 | 42-1014        |
|            | 42        | 24  | 182 | 126 | 160 | <b>AS 340 042 160</b> | 1.980 | 42-1014        |
|            | 42        | 24  | 222 | 166 | 200 | <b>AS 340 042 200</b> | 2.460 | 42-1014        |
| 54         | 54        | 28  | 142 | 76  | 120 | <b>AS 340 054 120</b> | 1.630 | 54-1220        |
|            | 54        | 28  | 182 | 116 | 160 | <b>AS 340 054 160</b> | 2.360 | 54-1220        |
|            | 54        | 28  | 222 | 156 | 200 | <b>AS 340 054 200</b> | 3.110 | 54-1220        |
| 68         | 68        | 36  | 183 | 97  | 160 | <b>AS 340 068 160</b> | 2.480 | 68-1624        |
|            | 68        | 36  | 223 | 137 | 200 | <b>AS 340 068 200</b> | 3.630 | 68-1624        |
| 85         | 85        | 50  | 224 | 124 | 200 | <b>AS 340 085 200</b> | 4.240 | 85-1630        |
| 100<br>200 | 100       | 60  | 224 | 124 | 200 | <b>AS 340 100 200</b> | 5.160 | 100-2035       |



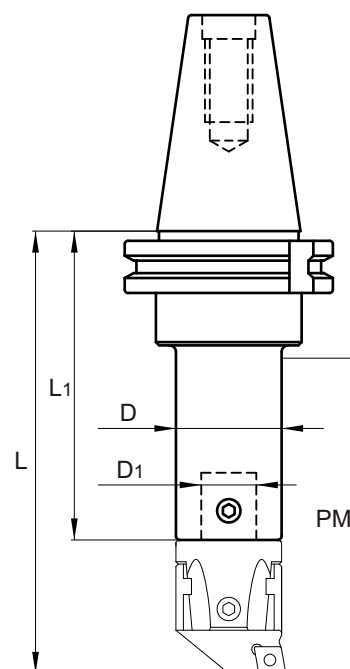
## ARBORS FOR BORING HEADS

**DIN 69871**



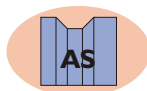
**ISO 45** (UPON REQUEST)

| SIZE | Dimension |     |     |     |     | Product Number        | Kg.   | Coupling Screw |
|------|-----------|-----|-----|-----|-----|-----------------------|-------|----------------|
|      | øD        | øD1 | L   | L1  | PM  |                       |       |                |
| 22   | 22        | 12  | 118 | 84  | 80  | <b>AS 345 022 080</b> | 2.250 | 22-68          |
|      | 22        | 12  | 138 | 104 | 100 | <b>AS 345 022 100</b> | 2.350 | 22-68          |
| 27   | 27        | 15  | 90  | 48  | 55  | <b>AS 345 027 055</b> | 2.010 | 27-610         |
|      | 27        | 15  | 138 | 96  | 100 | <b>AS 345 027 100</b> | 2.400 | 27-610         |
|      | 27        | 15  | 168 | 126 | 130 | <b>AS 345 027 130</b> | 2.600 | 27-610         |
| 32   | 32        | 20  | 96  | 51  | 60  | <b>AS 345 032 060</b> | 1.800 | 32-810         |
|      | 32        | 20  | 168 | 123 | 130 | <b>AS 345 032 130</b> | 2.850 | 32-810         |
|      | 32        | 20  | 198 | 153 | 160 | <b>AS 345 032 160</b> | 3.100 | 32-810         |
| 42   | 42        | 24  | 112 | 56  | 75  | <b>AS 345 042 075</b> | 2.100 | 42-1014        |
|      | 42        | 24  | 198 | 142 | 160 | <b>AS 345 042 160</b> | 3.000 | 42-1014        |
|      | 42        | 24  | 238 | 182 | 200 | <b>AS 345 042 200</b> | 3.300 | 42-1014        |
| 54   | 54        | 28  | 125 | 59  | 90  | <b>AS 345 054 090</b> | 2.400 | 54-1220        |
|      | 54        | 28  | 182 | 116 | 160 | <b>AS 345 054 160</b> | 3.900 | 54-1220        |
|      | 54        | 28  | 222 | 156 | 200 | <b>AS 345 054 200</b> | 4.650 | 54-1220        |
| 68   | 68        | 36  | 223 | 137 | 200 | <b>AS 345 068 200</b> | 4.800 | 68-1624        |
|      | 68        | 36  | 283 | 197 | 260 | <b>AS 345 068 260</b> | 6.650 | 68-1624        |
| 85   | 85        | 50  | 224 | 124 | 200 | <b>AS 345 085 200</b> | 5.400 | 85-1630        |
|      | 85        | 50  | 284 | 184 | 260 | <b>AS 345 085 260</b> | 8.150 | 85-1630        |
|      | 85        | 50  | 344 | 244 | 320 | <b>AS 345 085 320</b> | 8.900 | 85-1630        |



## ARBORS FOR BORING HEADS

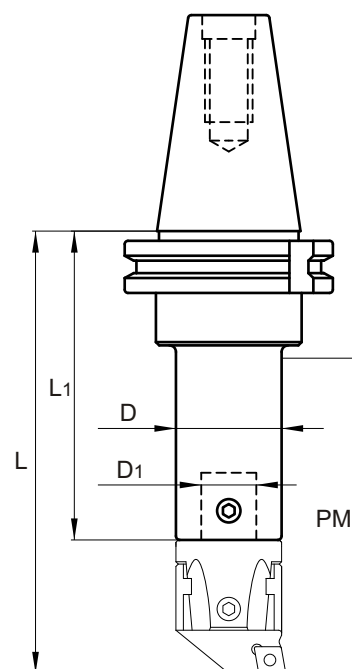
**DIN 69871**



**ISO 50**

| SIZE              | Dimension |     |     |     |     | Product Number        | Kg.    | Coupling Screw |
|-------------------|-----------|-----|-----|-----|-----|-----------------------|--------|----------------|
|                   | øD        | øD1 | L   | L1  | PM  |                       |        |                |
| 22                | 22        | 12  | 118 | 84  | 80  | <b>AS 350 022 080</b> | 3.450  | 22-68          |
|                   | 22        | 12  | 138 | 104 | 100 | <b>AS 350 022 100</b> | 3.500  | 22-68          |
| 27                | 27        | 15  | 90  | 48  | 55  | <b>AS 350 027 055</b> | 3.300  | 27-610         |
|                   | 27        | 15  | 138 | 96  | 100 | <b>AS 350 027 100</b> | 3.550  | 27-610         |
|                   | 27        | 15  | 168 | 126 | 130 | <b>AS 350 027 130</b> | 3.680  | 27-610         |
| 32                | 32        | 20  | 96  | 51  | 60  | <b>AS 350 032 060</b> | 3.310  | 32-810         |
|                   | 32        | 20  | 168 | 123 | 130 | <b>AS 350 032 130</b> | 3.790  | 32-810         |
|                   | 32        | 20  | 198 | 153 | 160 | <b>AS 350 032 160</b> | 3.980  | 32-810         |
| 42                | 42        | 24  | 112 | 56  | 75  | <b>AS 350 042 075</b> | 3.390  | 42-1014        |
|                   | 42        | 24  | 198 | 142 | 160 | <b>AS 350 042 160</b> | 4.360  | 42-1014        |
|                   | 42        | 24  | 238 | 182 | 200 | <b>AS 350 042 200</b> | 4.860  | 42-1014        |
| 54                | 54        | 28  | 128 | 62  | 90  | <b>AS 350 054 090</b> | 3.570  | 54-1220        |
|                   | 54        | 28  | 198 | 132 | 160 | <b>AS 350 054 160</b> | 4.850  | 54-1220        |
|                   | 54        | 28  | 238 | 172 | 200 | <b>AS 350 054 200</b> | 5.570  | 54-1220        |
| 68                | 68        | 36  | 151 | 65  | 115 | <b>AS 350 068 115</b> | 3.740  | 68-1624        |
|                   | 68        | 36  | 223 | 137 | 200 | <b>AS 350 068 200</b> | 5.800  | 68-1624        |
|                   | 68        | 36  | 283 | 197 | 260 | <b>AS 350 068 260</b> | 7.600  | 68-1624        |
| 85                | 85        | 50  | 224 | 124 | 200 | <b>AS 350 085 200</b> | 6.300  | 85-1630        |
|                   | 85        | 50  | 284 | 184 | 260 | <b>AS 350 085 260</b> | 9.040  | 85-1630        |
|                   | 85        | 50  | 344 | 244 | 320 | <b>AS 350 085 320</b> | 11.700 | 85-1630        |
| 100<br>200        | 100       | 60  | 214 | 114 | 190 | <b>AS 350 100 190</b> | 6.600  | 100-2035       |
|                   | 100       | 60  | 284 | 184 | 260 | <b>AS 350 100 260</b> | 11.000 | 100-2035       |
|                   | 100       | 60  | 344 | 244 | 320 | <b>AS 350 100 320</b> | 14.660 | 100-2035       |
| 300<br>400<br>500 | 100       | 60  | 160 | 70  | 125 | <b>* AS 550 160</b>   | 5.650  | TF 100         |

\* SEE PAGES 46 AND 47: ASSEMBLY SYSTEM FOR LARGE BORING HEADS



## ARBORS FOR BORING HEADS

**DIN 2080**

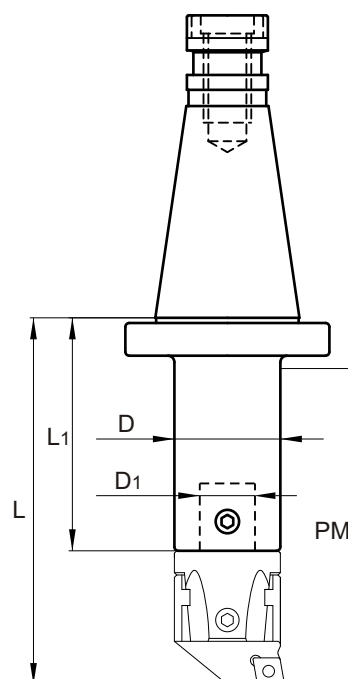
**OTT**

### ISO 30

| SIZE | Dimension |     |     |    |     | Product Number         | Kg.   | Coupling Screw |
|------|-----------|-----|-----|----|-----|------------------------|-------|----------------|
|      | øD        | øD1 | L   | L1 | PM  |                        |       |                |
| 22   | 22        | 12  | 113 | 79 | 100 | <b>OTT 330 022 100</b> | 0.570 | 22-68          |
| 27   | 27        | 15  | 65  | 23 | 55  | <b>OTT 330 027 055</b> | 0.490 | 27-610         |
|      | 27        | 15  | 113 | 71 | 100 | <b>OTT 330 027 100</b> | 0.630 | 27-610         |
| 32   | 32        | 20  | 71  | 26 | 60  | <b>OTT 330 032 060</b> | 0.420 | 32-810         |
|      | 32        | 20  | 113 | 68 | 100 | <b>OTT 330 032 100</b> | 0.680 | 32-810         |
| 42   | 42        | 24  | 87  | 31 | 75  | <b>OTT 330 042 075</b> | 0.510 | 42-1014        |

### ISO 40

| SIZE       | Dimension |     |     |     |     | Product Number         | Kg.   | Coupling Screw |
|------------|-----------|-----|-----|-----|-----|------------------------|-------|----------------|
|            | øD        | øD1 | L   | L1  | PM  |                        |       |                |
| 22         | 22        | 12  | 95  | 61  | 80  | <b>OTT 340 022 080</b> | 0.980 | 22-68          |
|            | 22        | 12  | 115 | 81  | 100 | <b>OTT 340 022 100</b> | 1.050 | 22-68          |
| 27         | 27        | 15  | 67  | 25  | 55  | <b>OTT 340 027 055</b> | 0.900 | 27-610         |
|            | 27        | 15  | 115 | 73  | 100 | <b>OTT 340 027 100</b> | 1.110 | 27-610         |
|            | 27        | 15  | 145 | 103 | 130 | <b>OTT 340 027 130</b> | 1.250 | 27-610         |
| 32         | 32        | 20  | 73  | 28  | 60  | <b>OTT 340 032 060</b> | 0.900 | 32-810         |
|            | 32        | 20  | 115 | 70  | 100 | <b>OTT 340 032 100</b> | 1.160 | 32-810         |
|            | 32        | 20  | 145 | 100 | 130 | <b>OTT 340 032 130</b> | 1.360 | 32-810         |
| 42         | 42        | 24  | 89  | 33  | 75  | <b>OTT 340 042 075</b> | 0.970 | 42-1014        |
|            | 42        | 24  | 175 | 119 | 160 | <b>OTT 340 042 160</b> | 1.910 | 42-1014        |
|            | 42        | 24  | 215 | 159 | 200 | <b>OTT 340 042 200</b> | 2.390 | 42-1014        |
| 54         | 54        | 28  | 105 | 39  | 90  | <b>OTT 340 054 090</b> | 1.100 | 54-1220        |
|            | 54        | 28  | 175 | 109 | 160 | <b>OTT 340 054 160</b> | 2.370 | 54-1220        |
|            | 54        | 28  | 215 | 149 | 200 | <b>OTT 340 054 200</b> | 3.140 | 54-1220        |
| 68         | 68        | 36  | 176 | 90  | 160 | <b>OTT 340 068 160</b> | 2.570 | 68-1624        |
|            | 68        | 36  | 216 | 130 | 200 | <b>OTT 340 068 200</b> | 3.730 | 68-1624        |
| 85         | 85        | 50  | 211 | 111 | 200 | <b>OTT 340 085 200</b> | 4.110 | 85-1630        |
| 100<br>200 | 100       | 60  | 211 | 111 | 200 | <b>OTT 340 100 200</b> | 5.010 | 100-2035       |



## ARBORS FOR BORING HEADS

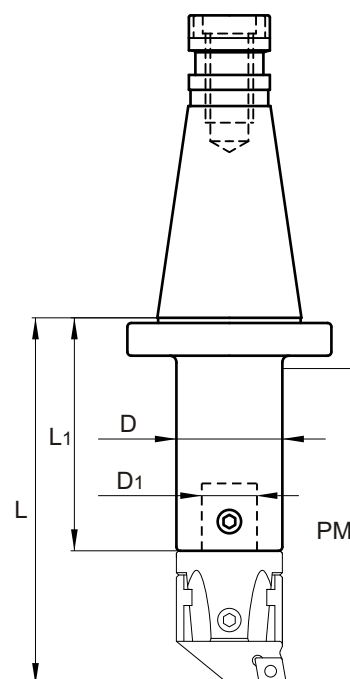
DIN 2080

OTT

ISO 50

| SIZE              | Dimension |     |     |     |     | Product Number  | Kg.    | Coupling Screw |
|-------------------|-----------|-----|-----|-----|-----|-----------------|--------|----------------|
|                   | øD        | øD1 | L   | L1  | PM  |                 |        |                |
| 22                | 22        | 12  | 99  | 65  | 80  | OTT 350 022 080 | 2.980  | 22-68          |
|                   | 22        | 12  | 119 | 85  | 100 | OTT 350 022 100 | 3.010  | 22-68          |
| 27                | 27        | 15  | 71  | 29  | 55  | OTT 350 027 055 | 2.930  | 27-610         |
|                   | 27        | 15  | 119 | 77  | 100 | OTT 350 027 100 | 3.090  | 27-610         |
|                   | 27        | 15  | 149 | 107 | 130 | OTT 350 027 130 | 3.200  | 27-610         |
| 32                | 32        | 20  | 77  | 32  | 60  | OTT 350 032 060 | 2.840  | 32-810         |
|                   | 32        | 20  | 149 | 104 | 130 | OTT 350 032 130 | 3.320  | 32-810         |
|                   | 32        | 20  | 179 | 134 | 160 | OTT 350 032 160 | 3.510  | 32-810         |
| 42                | 42        | 24  | 93  | 37  | 75  | OTT 350 042 075 | 2.920  | 42-1014        |
|                   | 42        | 24  | 179 | 123 | 160 | OTT 350 042 160 | 3.870  | 42-1014        |
|                   | 42        | 24  | 219 | 163 | 200 | OTT 350 042 200 | 4.380  | 42-1014        |
| 54                | 54        | 28  | 109 | 43  | 90  | OTT 350 054 090 | 3.100  | 54-1220        |
|                   | 54        | 28  | 179 | 113 | 160 | OTT 350 054 160 | 4.380  | 54-1220        |
|                   | 54        | 28  | 219 | 153 | 200 | OTT 350 054 200 | 5.100  | 54-1220        |
| 68                | 68        | 36  | 132 | 46  | 115 | OTT 350 068 115 | 3.290  | 68-1624        |
|                   | 68        | 36  | 220 | 134 | 200 | OTT 350 068 200 | 5.820  | 68-1624        |
|                   | 68        | 36  | 280 | 194 | 260 | OTT 350 068 260 | 7.590  | 68-1624        |
| 85                | 85        | 50  | 221 | 121 | 200 | OTT 350 085 200 | 6.500  | 85-1630        |
|                   | 85        | 50  | 281 | 181 | 260 | OTT 350 085 260 | 9.560  | 85-1630        |
|                   | 85        | 50  | 341 | 241 | 320 | OTT 350 085 320 | 11.840 | 85-1630        |
| 100<br>200        | 100       | 60  | 193 | 93  | 170 | OTT 350 100 170 | 5.680  | 100-2035       |
|                   | 100       | 60  | 281 | 181 | 260 | OTT 350 100 260 | 11.250 | 100-2035       |
|                   | 100       | 60  | 341 | 241 | 320 | OTT 350 100 320 | 15.100 | 100-2035       |
| 300<br>400<br>500 | 100       | 60  | 160 | 70  | 125 | * OTT 550 160   | 5.910  | TF 100         |

\* SEE PAGES 46 AND 47: ASSEMBLY SYSTEM FOR LARGE BORING HEADS





## ARBORS FOR BORING HEADS

**DIN 69893**



### HSK 50

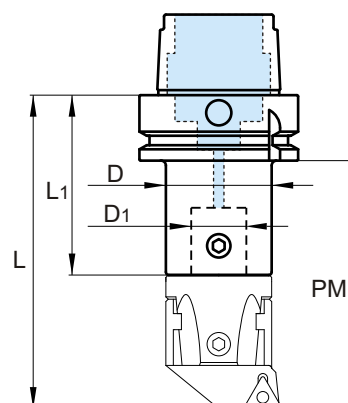
| SIZE | Dimension |     |     |    |    | Product Number   | Kg.   | Coupling Screw |
|------|-----------|-----|-----|----|----|------------------|-------|----------------|
|      | øD        | øD1 | L   | L1 | PM |                  |       |                |
| 22   | 22        | 12  | 81  | 47 | 55 | HSK 050A 022 055 | 0.490 | 22-68          |
| 27   | 27        | 15  | 91  | 49 | 65 | HSK 050A 027 065 | 0.570 | 27-610         |
| 32   | 32        | 20  | 101 | 56 | 75 | HSK 050A 032 075 | 0.660 | 32-810         |
| 42   | 42        | 24  | 116 | 60 | 90 | HSK 050A 042 090 | 0.730 | 42-1014        |

### HSK 63

| SIZE | Dimension |     |     |    |     | Product Number   | Kg.   | Coupling Screw |
|------|-----------|-----|-----|----|-----|------------------|-------|----------------|
|      | øD        | øD1 | L   | L1 | PM  |                  |       |                |
| 22   | 22        | 12  | 81  | 47 | 55  | HSK 063A 022 055 | 0.750 | 22-68          |
| 27   | 27        | 15  | 91  | 49 | 65  | HSK 063A 027 065 | 0.780 | 27-610         |
| 32   | 32        | 20  | 101 | 56 | 75  | HSK 063A 032 075 | 0.840 | 32-810         |
| 42   | 42        | 24  | 116 | 60 | 90  | HSK 063A 042 090 | 0.980 | 42-1014        |
| 54   | 54        | 28  | 136 | 70 | 110 | HSK 063A 054 110 | 1.300 | 54-1220        |
| 68   | 68        | 36  | 171 | 85 | 145 | HSK 063A 068 145 | 1.850 | 68-1624        |

### HSK 100

| SIZE | Dimension |     |     |     |     | Product Number   | Kg.   | Coupling Screw |
|------|-----------|-----|-----|-----|-----|------------------|-------|----------------|
|      | øD        | øD1 | L   | L1  | PM  |                  |       |                |
| 22   | 22        | 12  | 89  | 55  | 55  | HSK 100A 022 055 | 2.280 | 22-68          |
| 27   | 27        | 15  | 99  | 57  | 65  | HSK 100A 027 065 | 2.350 | 27-610         |
| 32   | 32        | 20  | 104 | 59  | 75  | HSK 100A 032 075 | 2.330 | 32-810         |
| 42   | 42        | 24  | 119 | 63  | 90  | HSK 100A 042 090 | 2.470 | 42-1014        |
| 54   | 54        | 28  | 139 | 73  | 110 | HSK 100A 054 110 | 2.800 | 54-1220        |
| 68   | 68        | 36  | 174 | 88  | 145 | HSK 100A 068 145 | 3.510 | 68-1624        |
| 85   | 85        | 50  | 194 | 94  | 165 | HSK 100A 085 165 | 4.150 | 85-1630        |
| 100  | 100       | 60  | 214 | 114 | 185 | HSK 100A 100 185 | 5.670 | 100-2035       |
| 200  | 100       | 60  | 170 | 80  | 140 | * HSK 550 160    | 5.240 | TF 100         |



\* SEE PAGES 46 AND 47: ASSEMBLY SYSTEM FOR LARGE BORING HEADS

## ARBORS FOR BORING HEADS

### DIN 228

### MORSE 2,3,4

#### MORSE 2

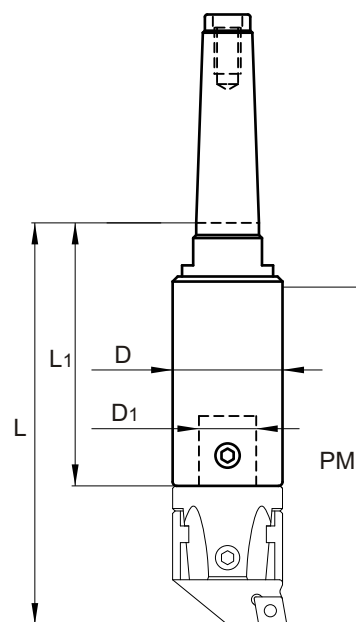
| SIZE | Dimension |     |     |    |     | Product Number | Kg.   | Coupling Screw |
|------|-----------|-----|-----|----|-----|----------------|-------|----------------|
|      | øD        | øD1 | L   | L1 | PM  |                |       |                |
| 22   | 22        | 12  | 105 | 71 | 80  | 302 022 080    | 0.370 | 22-68          |
| 27   | 27        | 15  | 73  | 31 | 55  | 302 027 055    | 0.200 | 27-610         |
|      | 27        | 15  | 128 | 83 | 100 | 302 027 100    | 0.480 | 27-610         |

#### MORSE 3

| SIZE | Dimension |     |     |     |     | Product Number | Kg.   | Coupling Screw |
|------|-----------|-----|-----|-----|-----|----------------|-------|----------------|
|      | øD        | øD1 | L   | L1  | PM  |                |       |                |
| 22   | 22        | 12  | 110 | 76  | 80  | 303 022 080    | 0.630 | 22-68          |
| 27   | 27        | 15  | 78  | 36  | 55  | 303 027 055    | 0.410 | 27-610         |
|      | 27        | 15  | 130 | 88  | 100 | 303 027 100    | 0.680 | 27-610         |
| 32   | 32        | 20  | 84  | 39  | 60  | 303 032 060    | 0.420 | 32-810         |
|      | 32        | 20  | 160 | 115 | 130 | 303 032 130    | 1.020 | 32-810         |
| 42   | 42        | 24  | 114 | 58  | 90  | 303 042 090    | 0.700 | 42-1014        |
|      | 42        | 24  | 160 | 104 | 130 | 303 042 130    | 1.250 | 42-1014        |

#### MORSE 4

| SIZE | Dimension |     |     |     |     | Product Number | Kg.   | Coupling Screw |
|------|-----------|-----|-----|-----|-----|----------------|-------|----------------|
|      | øD        | øD1 | L   | L1  | PM  |                |       |                |
| 22   | 22        | 12  | 136 | 102 | 100 | 304 022 100    | 1.080 | 22-68          |
|      | 22        | 12  | 166 | 132 | 130 | 304 022 130    | 1.170 | 22-68          |
| 27   | 27        | 15  | 82  | 40  | 55  | 304 027 055    | 0.800 | 27-610         |
|      | 27        | 15  | 137 | 95  | 100 | 304 027 100    | 1.080 | 27-610         |
|      | 27        | 15  | 167 | 125 | 130 | 304 027 130    | 1.240 | 27-610         |
| 32   | 32        | 20  | 88  | 43  | 60  | 304 032 060    | 0.810 | 32-810         |
|      | 32        | 20  | 166 | 121 | 130 | 304 032 130    | 1.380 | 32-810         |
|      | 32        | 20  | 196 | 151 | 160 | 304 032 160    | 1.570 | 32-810         |
| 42   | 42        | 24  | 104 | 48  | 75  | 304 042 075    | 0.870 | 42-1014        |
|      | 42        | 24  | 166 | 110 | 130 | 304 042 130    | 1.570 | 42-1014        |
|      | 42        | 24  | 196 | 140 | 160 | 304 042 160    | 1.970 | 42-1014        |
| 54   | 54        | 28  | 120 | 54  | 90  | 304 054 090    | 1.030 | 54-1220        |
|      | 54        | 28  | 196 | 130 | 160 | 304 054 160    | 2.450 | 54-1220        |
|      | 54        | 28  | 236 | 170 | 200 | 304 054 200    | 3.180 | 54-1220        |
| 68   | 68        | 36  | 235 | 149 | 200 | 304 068 200    | 3.870 | 68-1624        |
|      | 68        | 36  | 295 | 209 | 260 | 304 068 260    | 5.890 | 68-1624        |



## ARBORS FOR BORING HEADS

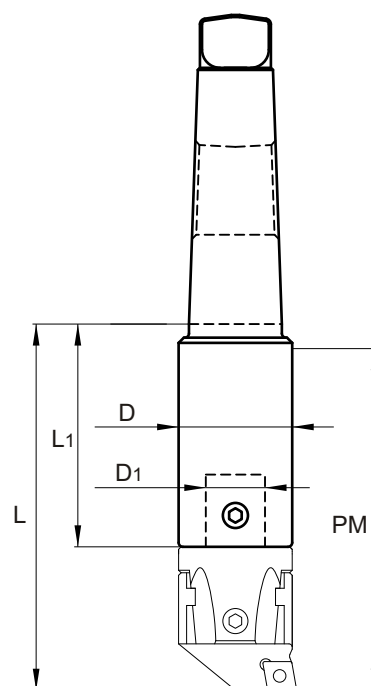
**DIN 1806**

**MORSE 5**

### MORSE 5

| SIZE              | Dimension |     |     |     |     | Product Number | Kg.    | Coupling Screw |
|-------------------|-----------|-----|-----|-----|-----|----------------|--------|----------------|
|                   | øD        | øD1 | L   | L1  | PM  |                |        |                |
| 22                | 22        | 12  | 112 | 78  | 100 | 305 022 100    | 1.680  | 22-68          |
|                   | 22        | 12  | 142 | 108 | 130 | 305 022 130    | 1.760  | 22-68          |
| 27                | 27        | 15  | 65  | 23  | 55  | 305 027 055    | 1.580  | 27-610         |
|                   | 27        | 15  | 113 | 71  | 100 | 305 027 100    | 1.720  | 27-610         |
|                   | 27        | 15  | 143 | 101 | 130 | 305 027 130    | 1.860  | 27-610         |
| 32                | 32        | 20  | 70  | 25  | 60  | 305 032 060    | 1.560  | 32-810         |
|                   | 32        | 20  | 143 | 98  | 130 | 305 032 130    | 1.970  | 32-810         |
|                   | 32        | 20  | 173 | 128 | 160 | 305 032 160    | 2.160  | 32-810         |
| 42                | 42        | 24  | 83  | 27  | 75  | 305 042 075    | 1.520  | 42-1014        |
|                   | 42        | 24  | 188 | 86  | 130 | 305 042 130    | 2.220  | 42-1014        |
|                   | 42        | 24  | 218 | 116 | 160 | 305 042 160    | 2.520  | 42-1014        |
| 54                | 54        | 28  | 172 | 106 | 160 | 305 054 160    | 3.040  | 54-1220        |
|                   | 54        | 28  | 212 | 146 | 200 | 305 054 200    | 3.770  | 54-1220        |
| 68                | 68        | 36  | 146 | 60  | 140 | 305 068 140    | 2.560  | 68-1624        |
|                   | 68        | 36  | 212 | 126 | 200 | 305 068 200    | 4.470  | 68-1624        |
|                   | 68        | 36  | 272 | 186 | 260 | 305 068 260    | 6.560  | 68-1624        |
| 85                | 85        | 50  | 216 | 116 | 200 | 305 085 200    | 5.400  | 85-1630        |
|                   | 85        | 50  | 276 | 176 | 260 | 305 085 260    | 8.450  | 85-1630        |
|                   | 85        | 50  | 336 | 236 | 320 | 305 085 320    | 10.810 | 85-1630        |
| 100<br>200        | 100       | 60  | 276 | 176 | 260 | 305 100 260    | 8.440  | 100-2035       |
|                   | 100       | 60  | 336 | 236 | 320 | 305 100 320    | 11.430 | 100-2035       |
| 300<br>400<br>500 | 100       | 60  | 146 | 56  | 140 | * 505 160      | 4.700  | TF 100         |

\* SEE PAGES 46 AND 47: ASSEMBLY SYSTEM FOR LARGE BORING HEADS



**NOTE:** MORSE 6 ARBORS CAN BE MANUFACTURED AS "SPECIAL" UPON REQUEST

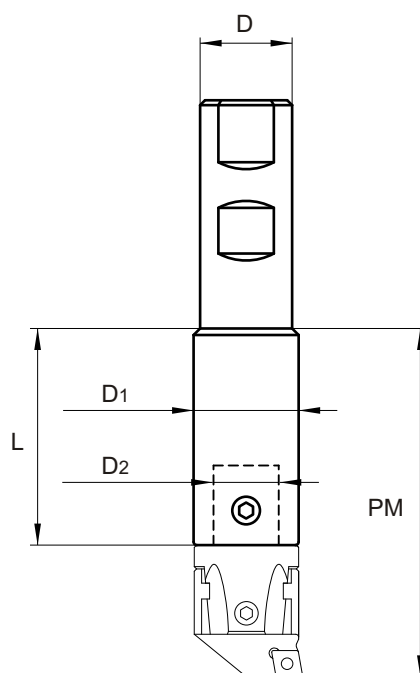
## ARBORS FOR BORING HEADS

**DIN 1835**

**WELDON**

**WELDON Ø20, Ø25, Ø32, Ø40**

| SIZE | Dimension |     |     |     |     | Product Number | Kg.   | Coupling Screw |
|------|-----------|-----|-----|-----|-----|----------------|-------|----------------|
|      | øD        | øD1 | øD2 | L   | PM  |                |       |                |
| 22   | 20        | 22  | 12  | 16  | 50  | B 020 022 050  | 0.170 | 22-68          |
|      | 20        | 22  | 12  | 70  | 100 | B 020 022 100  | 0.350 | 22-68          |
| 27   | 25        | 27  | 15  | 14  | 55  | B 025 027 055  | 0.260 | 27-610         |
|      | 25        | 27  | 15  | 58  | 100 | B 025 027 100  | 0.470 | 27-610         |
| 32   | 32        | 32  | 20  | 18  | 60  | B 032 032 060  | 0.440 | 32-810         |
|      | 32        | 32  | 20  | 58  | 100 | B 032 032 100  | 0.700 | 32-810         |
|      | 32        | 32  | 20  | 118 | 160 | B 032 032 160  | 1.150 | 32-810         |
| 42   | 32        | 42  | 24  | 40  | 90  | B 032 042 090  | 0.730 | 42-1014        |
| 42   | 40        | 42  | 24  | 36  | 90  | B 040 042 090  | 1.000 | 42-1014        |
|      | 40        | 42  | 24  | 106 | 160 | B 040 042 160  | 1.820 | 42-1014        |

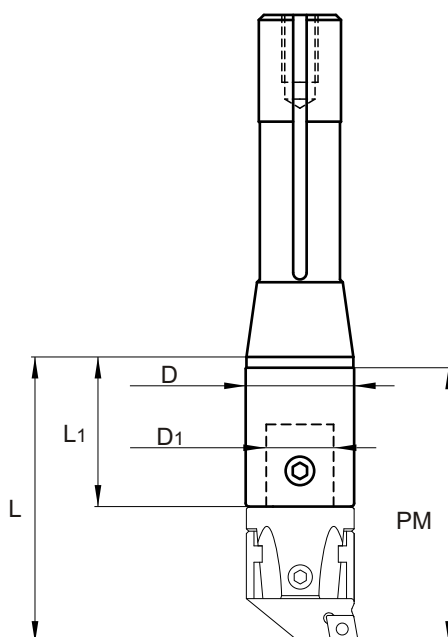


## ARBORS FOR BORING HEADS

### BRIDGEPORT

#### R8 HOLDERS

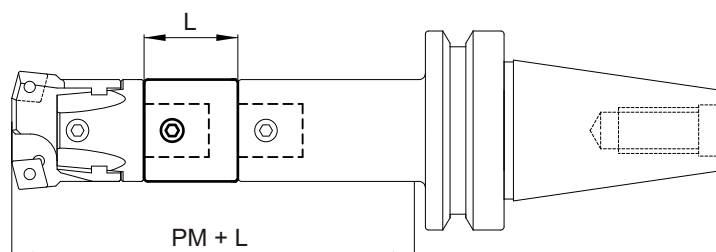
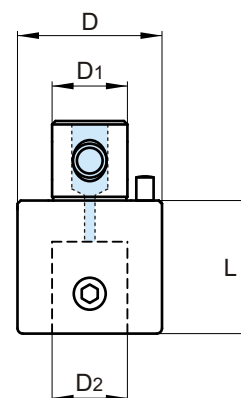
| SIZE | Dimension |     |     |    |     | Product Number    | Kg.   | Coupling Screw |
|------|-----------|-----|-----|----|-----|-------------------|-------|----------------|
|      | øD        | øD1 | L   | L1 | PM  |                   |       |                |
| 22   | 22        | 12  | 54  | 20 | 50  | <b>R8 022 050</b> | 0.490 | 22-68          |
| 27   | 27        | 15  | 64  | 22 | 60  | <b>R8 027 060</b> | 0.510 | 27-610         |
| 32   | 32        | 20  | 79  | 34 | 75  | <b>R8 032 075</b> | 0.590 | 32-810         |
| 42   | 42        | 24  | 95  | 39 | 90  | <b>R8 042 090</b> | 0.720 | 42-1014        |
| 54   | 54        | 28  | 114 | 48 | 110 | <b>R8 054 110</b> | 1.070 | 54-1220        |



## ACCESSORIES

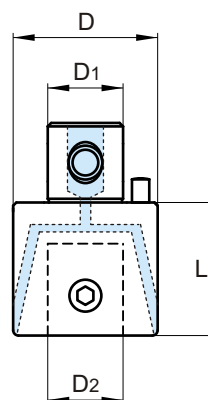
### EXTENSION PIECES

| SIZE       | Dimension |     |     |     | Product Number   | Kg.   | Coupling Screw |
|------------|-----------|-----|-----|-----|------------------|-------|----------------|
|            | øD        | øD1 | øD2 | L   |                  |       |                |
| 22         | 22        | 12  | 12  | 20  | <b>P 022 020</b> | 0.060 | 22-68          |
|            | 22        | 12  | 12  | 30  | <b>P 022 030</b> | 0.090 | 22-68          |
| 27         | 27        | 15  | 15  | 30  | <b>P 027 030</b> | 0.140 | 27-610         |
|            | 27        | 15  | 15  | 45  | <b>P 027 045</b> | 0.200 | 27-610         |
| 32         | 32        | 20  | 20  | 35  | <b>P 032 035</b> | 0.210 | 32-810         |
|            | 32        | 20  | 20  | 52  | <b>P 032 052</b> | 0.300 | 32-810         |
| 42         | 42        | 24  | 24  | 40  | <b>P 042 040</b> | 0.410 | 42-1014        |
|            | 42        | 24  | 24  | 60  | <b>P 042 060</b> | 0.620 | 42-1014        |
| 54         | 54        | 28  | 28  | 50  | <b>P 054 050</b> | 0.880 | 54-1220        |
|            | 54        | 28  | 28  | 75  | <b>P 054 075</b> | 1.320 | 54-1220        |
| 68         | 68        | 36  | 36  | 60  | <b>P 068 060</b> | 1.660 | 68-1624        |
|            | 68        | 36  | 36  | 90  | <b>P 068 090</b> | 2.480 | 68-1624        |
| 85         | 85        | 50  | 50  | 70  | <b>P 085 070</b> | 2.940 | 85-1630        |
|            | 85        | 50  | 50  | 105 | <b>P 085 105</b> | 4.420 | 85-1630        |
| 100<br>200 | 100       | 60  | 60  | 80  | <b>P 100 080</b> | 4.580 | 100-2035       |
|            | 100       | 60  | 60  | 120 | <b>P 100 120</b> | 7.060 | 100-2035       |



### COOLANT-FEEDING EXTENSIONS (PROVIDES FLOOD COOLANT)

| SIZE       | Dimension |     |     |    | Product Number     | Kg.   | Coupling Screw |
|------------|-----------|-----|-----|----|--------------------|-------|----------------|
|            | øD        | øD1 | øD2 | L  |                    |       |                |
| 22         | 22        | 12  | 12  | 30 | <b>P 022 030 R</b> | 0.090 | 22-68          |
| 27         | 27        | 15  | 15  | 30 | <b>P 027 030 R</b> | 0.140 | 27-610         |
| 32         | 32        | 20  | 20  | 35 | <b>P 032 035 R</b> | 0.210 | 32-810         |
| 42         | 42        | 24  | 24  | 40 | <b>P 042 040 R</b> | 0.410 | 42-1014        |
| 54         | 54        | 28  | 28  | 50 | <b>P 054 050 R</b> | 0.880 | 54-1220        |
| 68         | 68        | 36  | 36  | 60 | <b>P 068 060 R</b> | 1.660 | 68-1624        |
| 85         | 85        | 50  | 50  | 70 | <b>P 085 070 R</b> | 2.940 | 85-1630        |
| 100<br>200 | 100       | 60  | 60  | 80 | <b>P 100 080 R</b> | 4.580 | 100-2035       |



**NOTE:** Arbors to match with coolant-feeding extensions must be ordered by adding "R" at the end of the product number.

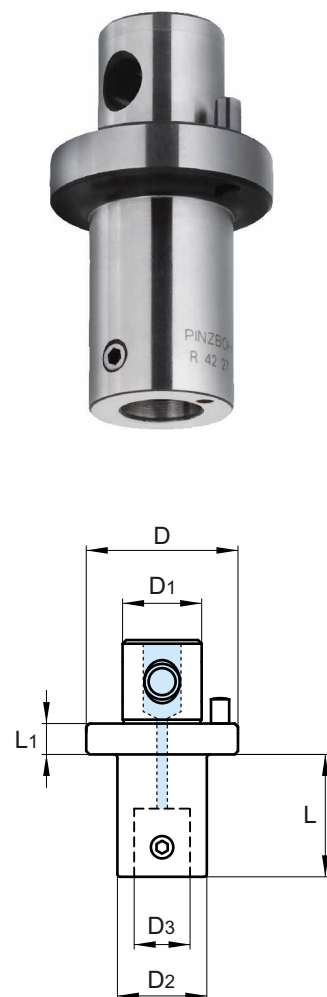
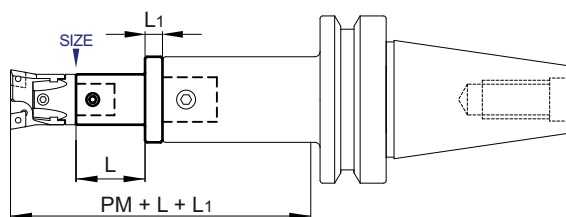
*Standard Execution:*  
BT 340 022 050

*Coolant Execution:*  
BT 340 022 050 R

## ACCESSORIES

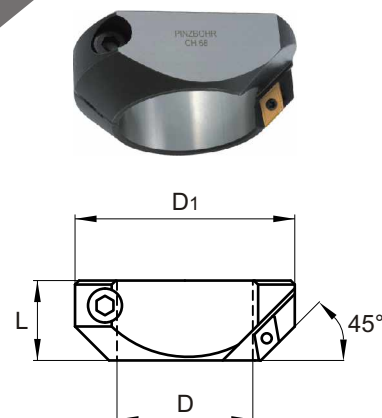
### REDUCERS

| SIZE | Dimension |     |     |     |    |    | Product Number | Kg.   | Coupling Screw |
|------|-----------|-----|-----|-----|----|----|----------------|-------|----------------|
|      | øD        | øD1 | øD2 | øD3 | L  | L1 |                |       |                |
| 22   | 27        | 15  | 22  | 12  | 26 | 10 | R 027 022 036  | 0.130 | 22-68          |
|      | 32        | 20  | 22  | 12  | 30 | 10 | R 032 022 040  | 0.180 | 22-68          |
|      | 42        | 24  | 22  | 12  | 48 | 10 | R 042 022 058  | 0.320 | 22-68          |
|      | 54        | 28  | 22  | 12  | 76 | 10 | R 054 022 086  | 0.510 | 22-68          |
|      | 68        | 36  | 22  | 12  | 90 | 12 | R 068 022 102  | 0.900 | 22-68          |
| 27   | 32        | 20  | 27  | 15  | 24 | 10 | R 032 027 034  | 0.190 | 27-610         |
|      | 42        | 24  | 27  | 15  | 40 | 10 | R 042 027 050  | 0.340 | 27-610         |
|      | 54        | 28  | 27  | 15  | 70 | 10 | R 054 027 080  | 0.640 | 27-610         |
|      | 68        | 36  | 27  | 15  | 83 | 12 | R 068 027 095  | 0.980 | 27-610         |
| 32   | 42        | 24  | 32  | 20  | 36 | 10 | R 042 032 046  | 0.360 | 32-810         |
|      | 54        | 28  | 32  | 20  | 66 | 10 | R 054 032 076  | 0.700 | 32-810         |
|      | 68        | 36  | 32  | 20  | 78 | 12 | R 068 032 090  | 1.090 | 32-810         |
| 42   | 54        | 28  | 42  | 24  | 60 | 10 | R 054 042 070  | 0.880 | 42-1014        |
|      | 68        | 36  | 42  | 24  | 70 | 12 | R 068 042 082  | 1.310 | 42-1014        |
|      | 85        | 50  | 42  | 24  | 83 | 12 | R 085 042 095  | 2.080 | 42-1014        |
| 54   | 68        | 36  | 54  | 28  | 60 | 12 | R 068 054 072  | 1.520 | 54-1220        |
|      | 85        | 50  | 54  | 28  | 78 | 12 | R 085 054 090  | 2.460 | 54-1220        |
| 68   | 85        | 50  | 68  | 36  | 88 | 12 | R 085 068 100  | 3.320 | 68-1624        |
| 85   | 100       | 60  | 85  | 50  | 88 | 12 | R 100 085 100  | 5.040 | 85-1630        |



### 45° CHAMFERING HEADS

| SIZE | Dimension |     |    | Product Number | Insert      | Torx Screw | Kg.   | Torx Key    |        |
|------|-----------|-----|----|----------------|-------------|------------|-------|-------------|--------|
|      | øD        | øD1 | L  |                |             |            |       | Locking Key |        |
| 22   | 22        | 43  | 24 | CH 022         | DC□□ 11T3□□ | TT 409     | 0.140 | TK 15       | HK 040 |
| 27   | 27        | 48  | 24 | CH 027         | DC□□ 11T3□□ | TT 409     | 0.160 | TK 15       | HK 040 |
| 32   | 32        | 62  | 30 | CH 032         | DC□□ 11T3□□ | TT 409     | 0.300 | TK 15       | HK 050 |
| 42   | 42        | 72  | 30 | CH 042         | DC□□ 11T3□□ | TT 409     | 0.400 | TK 15       | HK 050 |
| 54   | 54        | 94  | 40 | CH 054         | DC□□ 1504□□ | TT 402     | 0.910 | TK 20       | HK 060 |
| 68   | 68        | 110 | 40 | CH 068         | DC□□ 1504□□ | TT 402     | 1.230 | TK 20       | HK 080 |
| 85   | 85        | 145 | 55 | CH 085         | DC□□ 1504□□ | TT 402     | 2.700 | TK 20       | HK 100 |
| 100  | 100       | 170 | 60 | CH 100         | DC□□ 1504□□ | TT 402     | 4.140 | TK 20       | HK 140 |
| 200  | 100       | 200 | 60 | CH 200         | DC□□ 1504□□ | TT 402     | 5.800 | TK 20       | HK 140 |

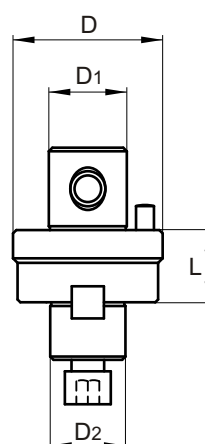


## ACCESSORIES

### ADAPTORS

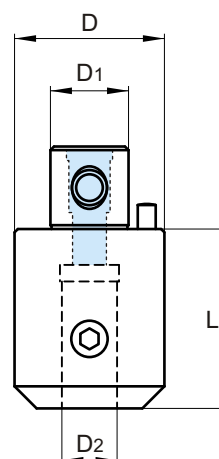
#### MILLING CUTTER HOLDER

| SIZE | Dimension |     |     |    | Product Number | Kg.   |
|------|-----------|-----|-----|----|----------------|-------|
|      | øD        | øD1 | øD2 | L  |                |       |
| 42   | 42        | 24  | 16  | 14 | ADM 042 016    | 0.230 |
|      | 42        | 24  | 22  | 12 | ADM 042 022    | 0.280 |
| 54   | 54        | 28  | 16  | 30 | ADM 054 016    | 0.600 |
|      | 54        | 28  | 22  | 28 | ADM 054 022    | 0.660 |
|      | 54        | 28  | 27  | 18 | ADM 054 027    | 0.720 |
| 68   | 68        | 36  | 16  | 25 | ADM 068 016    | 0.930 |
|      | 68        | 36  | 22  | 23 | ADM 068 022    | 0.870 |
|      | 68        | 36  | 27  | 21 | ADM 068 027    | 0.900 |
|      | 68        | 36  | 32  | 26 | ADM 068 032    | 0.950 |
| 85   | 85        | 50  | 32  | 25 | ADM 085 032    | 1.850 |
|      | 85        | 50  | 40  | 30 | ADM 085 040    | 2.250 |



#### WELDON

| SIZE | Dimension |     |     |    | Product Number | Kg.   |
|------|-----------|-----|-----|----|----------------|-------|
|      | øD        | øD1 | øD2 | L  |                |       |
| 42   | 42        | 24  | 6   | 35 | ADM 042 W06    | 0.250 |
|      | 42        | 24  | 8   | 35 | ADM 042 W08    | 0.270 |
|      | 42        | 24  | 10  | 38 | ADM 042 W10    | 0.360 |
|      | 42        | 24  | 12  | 55 | ADM 042 W12    | 0.620 |
|      | 48        | 24  | 16  | 60 | ADM 042 W16    | 0.830 |
|      | 52        | 24  | 20  | 65 | ADM 042 W20    | 0.990 |
| 54   | 54        | 28  | 16  | 60 | ADM 054 W16    | 0.950 |
|      | 54        | 28  | 20  | 65 | ADM 054 W20    | 1.160 |
|      | 54        | 28  | 25  | 70 | ADM 054 W25    | 1.650 |



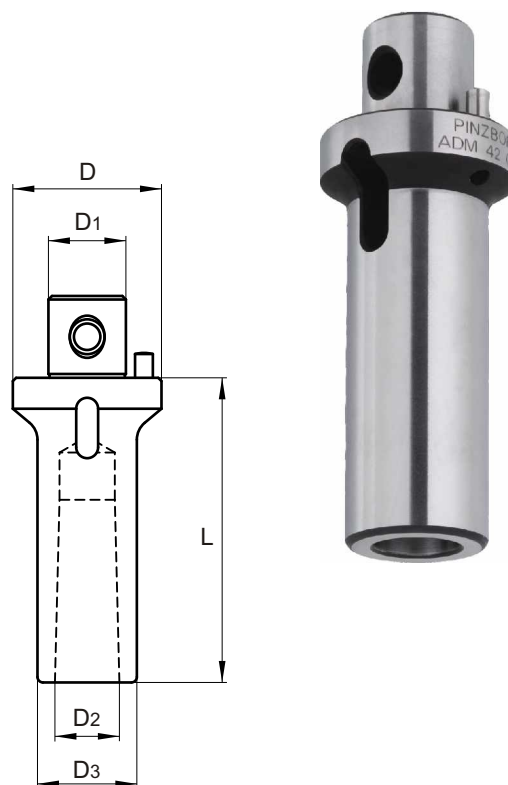


## ACCESSORIES

### ADAPTORS

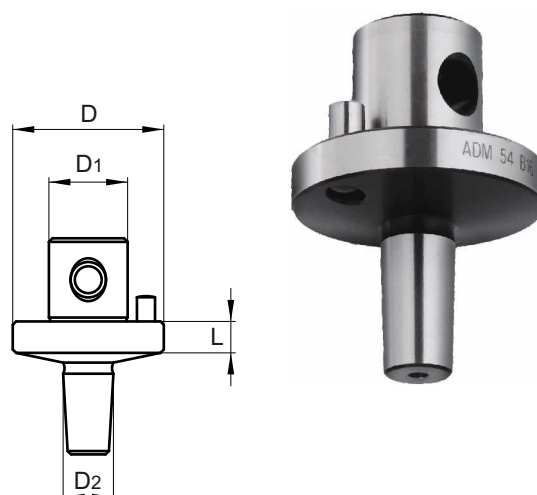
#### MORSE

| SIZE | Dimension |     |        |     |     | Product Number     | Kg.   |
|------|-----------|-----|--------|-----|-----|--------------------|-------|
|      | øD        | øD1 | øD2    | øD3 | L   |                    |       |
| 42   | 42        | 24  | 17.780 | 30  | 90  | <b>ADM 042 CM2</b> | 0.650 |
|      | 42        | 24  | 23.825 | 36  | 110 | <b>ADM 042 CM3</b> | 0.810 |
| 54   | 54        | 28  | 17.780 | 30  | 90  | <b>ADM 054 CM2</b> | 0.730 |
|      | 54        | 28  | 23.825 | 36  | 110 | <b>ADM 054 CM3</b> | 0.920 |



#### DIN 238 (FOR DRILL CHUCKS)

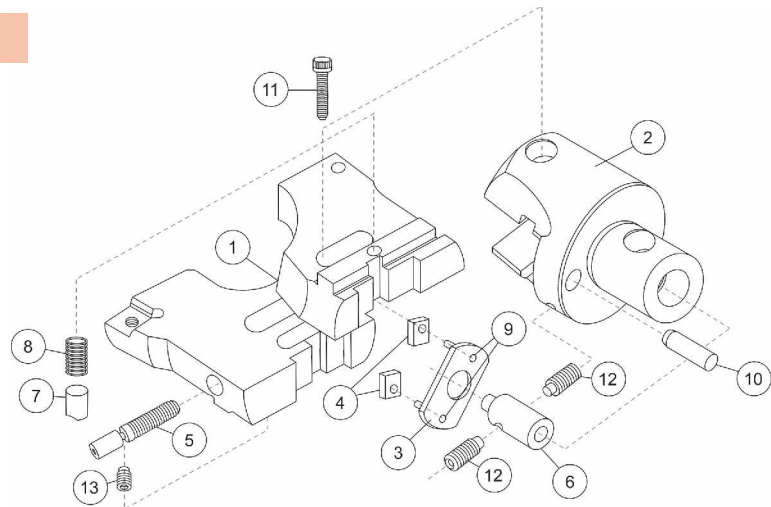
| SIZE | Dimension |     |        |    | Product Number     | Kg.   |
|------|-----------|-----|--------|----|--------------------|-------|
|      | øD        | øD1 | øD2    | L  |                    |       |
| 42   | 42        | 24  | 12.065 | 8  | <b>ADM 042 B12</b> | 0.220 |
| 54   | 54        | 28  | 12.065 | 10 | <b>ADM 054 B12</b> | 0.440 |
|      | 54        | 28  | 15.733 | 10 | <b>ADM 054 B16</b> | 0.400 |
| 68   | 68        | 36  | 15.733 | 12 | <b>ADM 068 B16</b> | 0.770 |



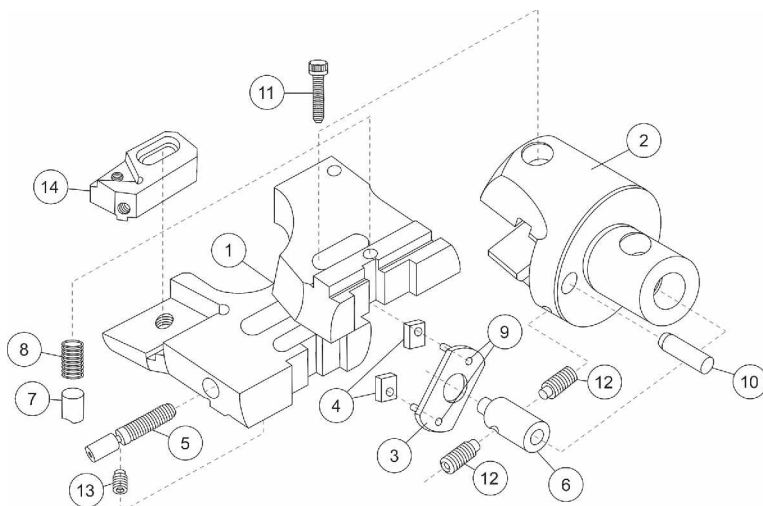
# SPARE PARTS

## ROUGH BORING HEADS

### INTEGRAL POCKET TYPE



| SIZE | Boring Head | 1<br>(set of slides) | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       | 13       |
|------|-------------|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 22   | D 02275 □□□ | D 02275 01 □□□       | D 022 03 | D 022 04 | -        | D 022 06 | D 022 07 | D 022 08 | D 022 09 | D 022 19 | D 022 20 | D 022 21 | D 022 22 | D 022 23 |
|      | D 02290 □□□ | D 02290 01 □□□       |          |          |          |          |          |          |          |          |          |          |          |          |
| 27   | D 02775 □□□ | D 02775 01 □□□       | D 027 03 | D 027 04 | -        | D 027 06 |          |          | D 027 09 |          | D 027 20 | D 027 21 | D 027 22 | D 027 23 |
|      | D 02790 □□□ | D 02790 01 □□□       |          |          |          |          |          |          |          |          |          |          |          |          |
| 32   | D 03275 □□□ | D 03275 01 □□□       | D 032 03 | D 032 04 | -        | D 032 06 | D 032 07 | D 032 08 | D 032 09 | D 032 19 | D 032 20 | D 032 21 | D 032 22 | D 032 23 |
|      | D 03290 □□□ | D 03290 01 □□□       |          |          |          |          |          |          |          |          |          |          |          |          |
| 42   | D 04275 □□□ | D 04275 01 □□□       | D 042 03 | D 042 04 | D 042 05 | D 042 06 | D 042 07 | D 042 08 | D 042 09 | D 022 20 | D 042 20 | D 042 21 | D 042 22 | D 042 23 |
|      | D 04290 □□□ | D 04290 01 □□□       |          |          |          |          |          |          |          |          |          |          |          |          |
| 54   | D 05475 □□□ | D 05475 01 □□□       | D 054 03 | D 054 04 |          | D 054 06 | D 054 07 | D 054 08 |          |          | D 054 20 | D 054 21 | D 054 22 |          |
|      | D 05490 □□□ | D 05490 01 □□□       |          |          |          |          |          |          |          |          |          |          |          |          |



### CARTRIDGE TYPE

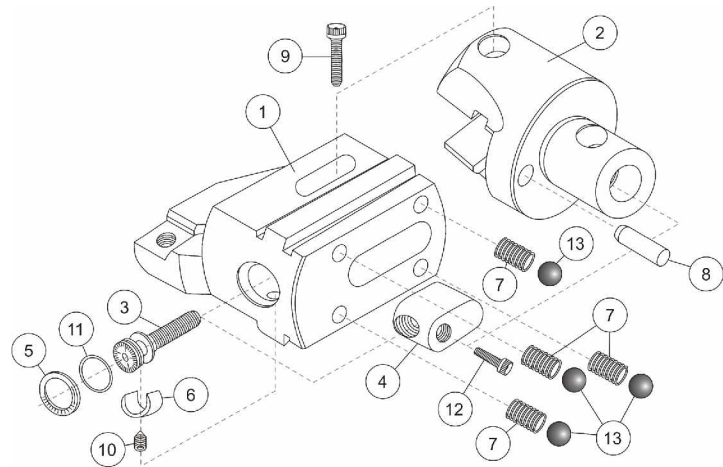
| SIZE | Boring Head | 14         |
|------|-------------|------------|
| 68   | D 068□□ □□□ | 2CT □□ □□□ |
| 85   | D 085□□ □□□ | 3CT □□ □□□ |
| 100  | D 100□□ □□□ | 3CT □□ □□□ |
| 200  | D 200□□ □□□ | 3CT □□ □□□ |

| SIZE | Boring Head | 1<br><small>(set of slides)</small> | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       | 13       |
|------|-------------|-------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 68   | D 068□□ □□□ | D 06800 01 2CT                      | D 068 03 | D 068 04 | D 068 05 | D 068 06 | D 068 07 | D 068 08 | D 068 09 | D 068 19 | D 068 20 | D 068 21 | D 068 22 | D 068 23 |
| 85   | D 085□□ □□□ | D 08500 01 3CT                      | D 085 03 | D 085 04 | D 085 05 | D 085 06 | D 085 07 | D 085 08 | D 085 09 | D 085 19 | D 085 20 | D 085 21 | D 085 22 | D 085 23 |
| 100  | D 100□□ □□□ | D 10000 01 3CT                      | D 100 03 | D 100 04 |          | D 100 06 | D 100 07 | D 100 08 |          |          | D 100 20 | D 100 21 |          |          |
| 200  | D 200□□ □□□ | D 20000 01 3CT                      | D 200 03 |          |          | D 200 06 |          |          |          |          |          |          |          |          |

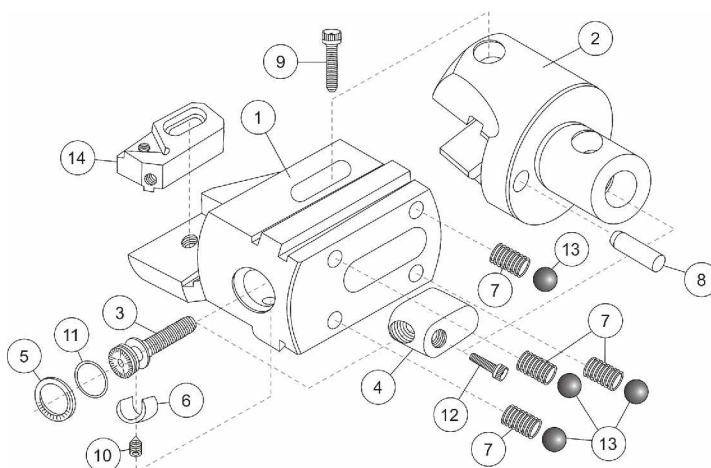
# SPARE PARTS

## FINISH BORING HEADS

### INTEGRAL POCKET TYPE



| SIZE | Boring Head                | 1                                | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       | 13       |
|------|----------------------------|----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 22   | A 02275 □□□<br>A 02290 □□□ | A 02275 02 □□□<br>A 02290 02 □□□ | A 022 03 | A 022 13 |          |          |          | A 022 17 | D 022 20 | D 022 21 | D 022 23 |          | A 022 26 | A 022 30 |
| 27   | A 02775 □□□<br>A 02790 □□□ | A 02775 02 □□□<br>A 02790 02 □□□ | A 027 03 | A 027 13 |          | A 022 15 | A 022 16 |          | D 027 20 | D 027 21 | D 027 23 | A 022 25 | A 027 26 |          |
| 32   | A 03275 □□□<br>A 03290 □□□ | A 03275 02 □□□<br>A 03290 02 □□□ | A 032 03 | A 032 13 | A 032 14 | A 032 15 | A 032 16 |          | D 032 20 | D 032 21 | D 032 23 |          | A 032 26 | A 027 30 |
| 42   | A 04275 □□□<br>A 04290 □□□ | A 04275 02 □□□<br>A 04290 02 □□□ | A 042 03 | A 042 13 | A 042 14 |          |          | A 042 17 | D 042 20 | D 042 21 |          |          |          | A 042 30 |
| 54   | A 05475 □□□<br>A 05490 □□□ | A 05475 02 □□□<br>A 05490 02 □□□ | A 054 03 | A 054 13 | A 054 14 | A 042 15 | A 042 16 |          | D 042 09 | D 054 20 | D 054 21 | D 042 23 | A 042 25 | A 042 26 |
|      |                            |                                  |          |          |          |          |          |          |          |          |          |          |          | A 054 30 |



### CARTRIDGE TYPE

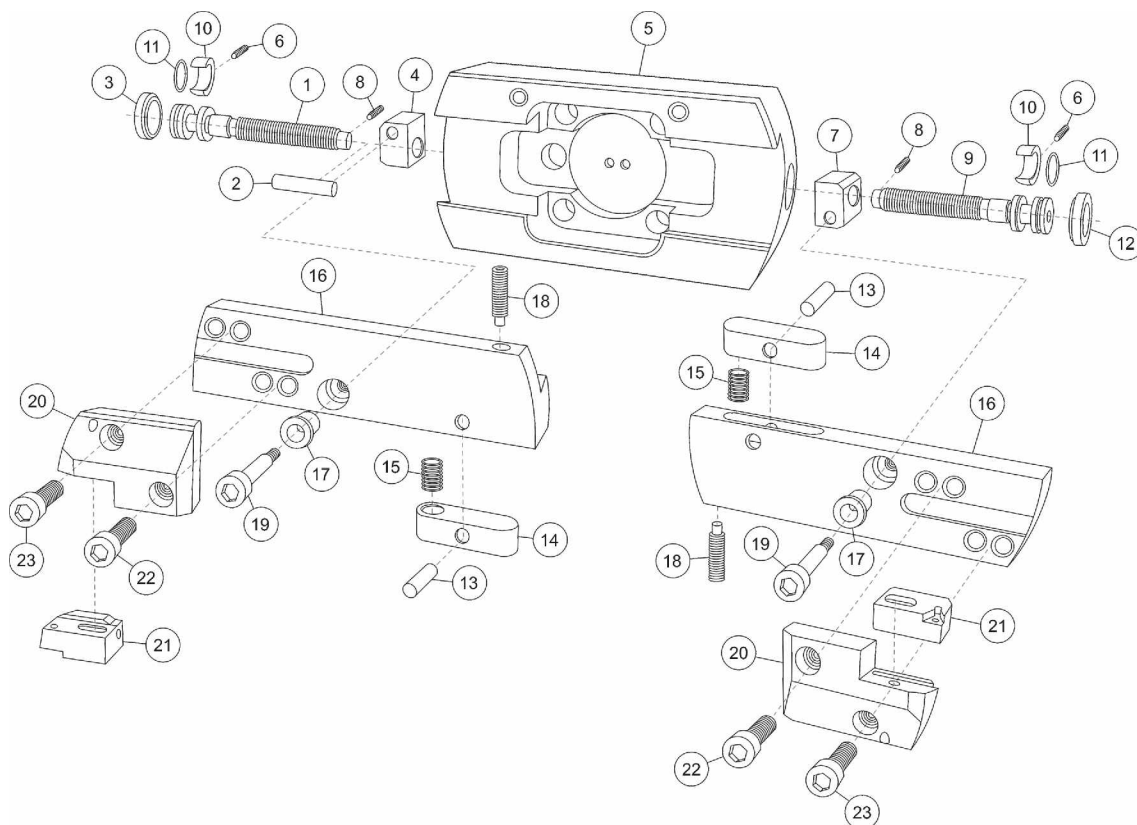
| SIZE | Boring Head | 14         |
|------|-------------|------------|
| 68   | A 068□□ □□□ | 2CT □□ □□□ |
| 85   | A 085□□ □□□ | 3CT □□ □□□ |
| 100  | A 100□□ □□□ | 3CT □□ □□□ |
| 200  | A 200□□ □□□ | 3CT □□ □□□ |

| SIZE | Boring Head | 1              | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       | 13       |
|------|-------------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 68   | A 068□□ □□□ | A 06800 02 2CT | A 068 03 | A 068 13 | A 068 14 | A 068 15 | A 068 16 | A 068 17 | D 068 20 | D 068 21 | D 068 23 | A 068 25 | A 068 26 | A 068 30 |
| 85   | A 085□□ □□□ | A 08500 02 3CT | A 085 03 | A 085 13 |          |          |          |          | D 085 20 | D 085 21 |          |          |          |          |
| 100  | A 100□□ □□□ | A 10000 02 3CT | A 100 03 |          | A 085 14 | A 085 15 | A 085 16 | D 085 09 |          |          | D 085 23 | A 085 25 | A 085 26 | A 085 30 |
| 200  | A 200□□ □□□ | A 20000 02 3CT | A 200 03 | A 200 13 |          |          |          |          | D 100 20 | D 100 21 |          |          |          |          |

## SPARE PARTS

### LARGE BORING HEADS

#### ROUGHING

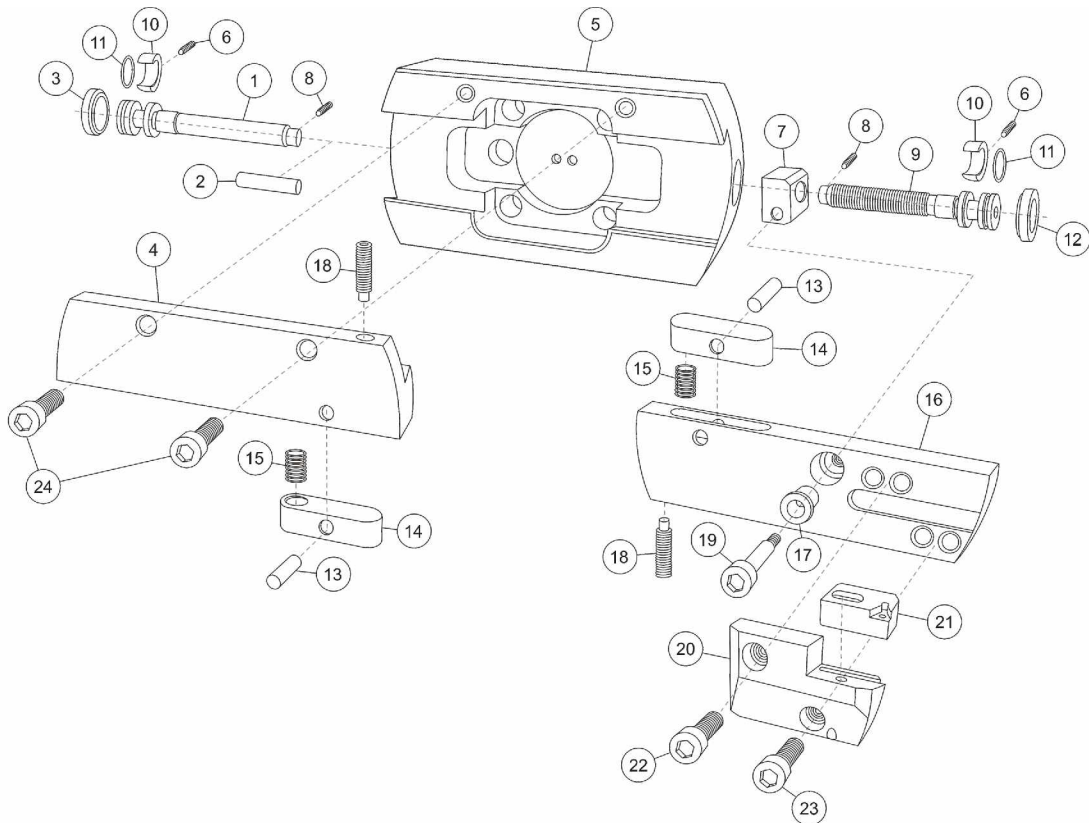


| SIZE | Boring Head | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       | 13       | 14       | 15       | 16       | 17       | 18       | 19       | 20       | 21         | 22       | 23       |
|------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------|----------|----------|
| 300  | D 300□□ □□□ | D 300 51 | D 300 66 | A 068 15 | D 300 55 | D 300 03 | D 068 23 | D 300 54 | D 300 65 | D 300 50 | A 068 16 | A 068 25 | D 300 15 | D 300 60 | D 300 56 | D 300 59 | D 300 01 | D 300 62 | D 300 58 | D 300 57 | D 300 49 | 3CT □□ □□□ | D 300 61 | D 300 67 |
| 400  | D 400□□ □□□ | D 400 51 | D 300 66 | A 068 15 | D 300 55 | D 400 03 | D 068 23 | D 300 54 | D 300 65 | D 400 50 | A 068 16 | A 068 25 | D 300 15 | D 300 60 | D 300 56 | D 300 59 | D 400 01 | D 300 62 | D 300 58 | D 300 57 | D 300 49 | 3CT □□ □□□ | D 300 61 | D 300 67 |
| 500  | D 500□□ □□□ | D 500 51 | D 300 66 | A 068 15 | D 300 55 | D 500 03 | D 068 23 | D 300 54 | D 300 65 | D 500 50 | A 068 16 | A 068 25 | D 300 15 | D 300 60 | D 300 56 | D 300 59 | D 500 01 | D 300 62 | D 300 58 | D 300 57 | D 300 49 | 3CT □□ □□□ | D 300 61 | D 300 67 |

# SPARE PARTS

## LARGE BORING HEADS

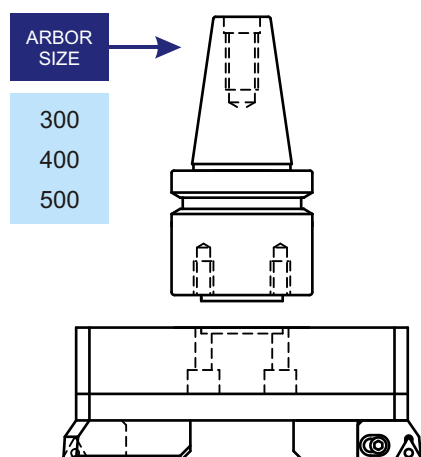
### FINISHING



| SIZE | Boring Head | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       | 13       | 14       | 15       | 16       | 17       | 18       | 19       | 20       | 21         | 22       | 23       | 24       |
|------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------|----------|----------|----------|
| 300  | A 300□□ □□□ | A 300 52 | D 300 66 | A 068 15 | A 300 02 | D 300 03 | D 068 23 | D 300 54 | D 300 65 | D 300 50 | A 068 16 | A 068 25 | D 300 15 | D 300 60 | D 300 56 | D 300 59 | D 300 01 | D 300 62 | D 300 58 | D 300 57 | D 300 49 | 3CT □□ □□□ | D 300 61 | D 300 67 | A 300 63 |
| 400  | A 400□□ □□□ | A 400 52 | D 300 66 | A 068 15 | A 400 02 | D 400 03 | D 068 23 | D 300 54 | D 300 65 | D 400 50 | A 068 16 | A 068 25 | D 300 15 | D 300 60 | D 300 56 | D 300 59 | D 400 01 | D 300 62 | D 300 58 | D 300 57 | D 300 49 | 3CT □□ □□□ | D 300 61 | D 300 67 | A 300 63 |
| 500  | A 500□□ □□□ | A 500 52 | D 300 66 | A 068 15 | A 500 02 | D 500 03 | D 068 23 | D 300 54 | D 300 65 | D 500 50 | A 068 16 | A 068 25 | D 300 15 | D 300 60 | D 300 56 | D 300 59 | D 500 01 | D 300 62 | D 300 58 | D 300 57 | D 300 49 | 3CT □□ □□□ | D 300 61 | D 300 67 | A 300 63 |

## ASSEMBLY SYSTEM FOR LARGE BORING HEADS

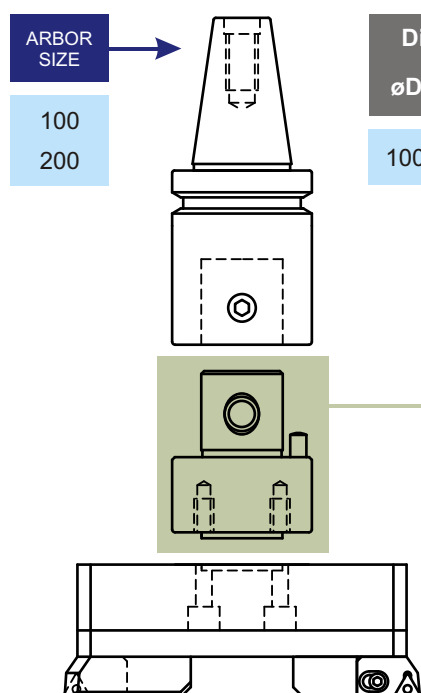
### ARBORS FOR LARGE BORING HEADS



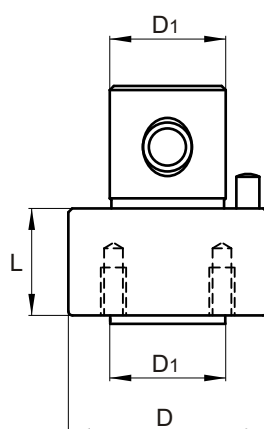
| Product Number | Coupling Screws |
|----------------|-----------------|
| BT 550 160     | TF 100          |
| AS 550 160     |                 |
| OTT 550 160    |                 |
| HSK 550 160    |                 |
| 505 160        |                 |



### ADAPTOR FOR SIZE 100 200 STANDARD PINZBOHR ARBORS



| Dimension |     |    | Product Number | Kg.   | Coupling Screws |
|-----------|-----|----|----------------|-------|-----------------|
| øD        | øD1 | L  |                |       |                 |
| 100       | 60  | 50 | ADT 100 050    | 4.360 | TF 100          |



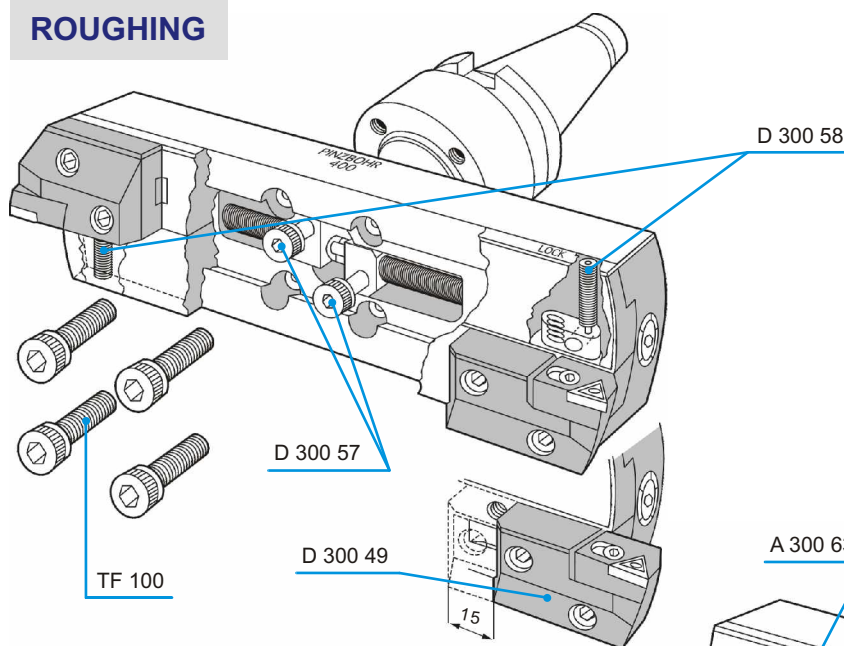


## ASSEMBLY SYSTEM FOR LARGE BORING HEADS

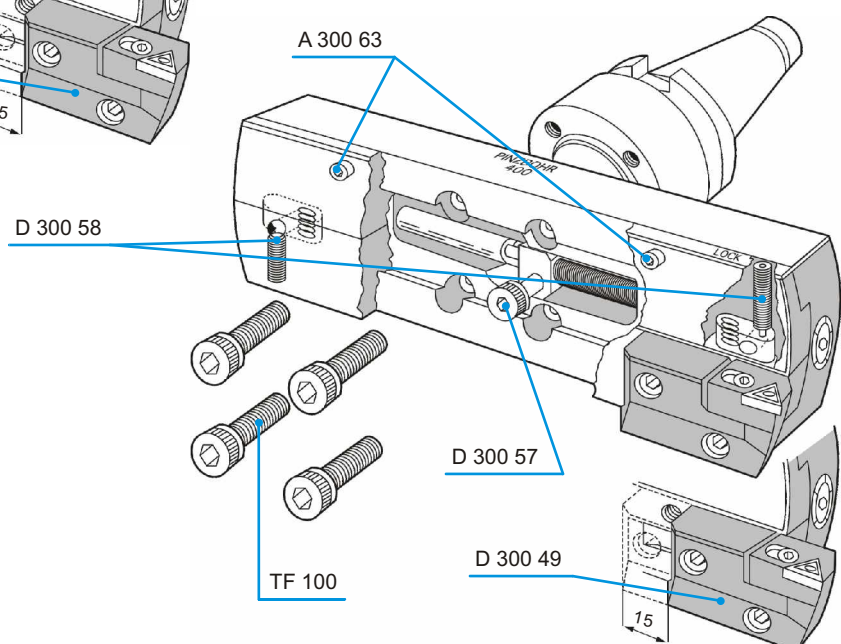
### INSTRUCTIONS OF USE AND ASSEMBLY ON ARBOR OR ADAPTOR FOR LARGE DIAMETER BORING HEADS

1. Loosen both slide locking screws *D 300 58*.
2. Remove nut clamp screw/s *D 300 57* (one in finish boring heads, two in rough boring heads).
3. On finish boring heads only, remove fixed slide screws *A 300 63*.
4. Move the slides outwards until the four counterbored bolt holes of the *TF 100* screws located in the body are completely exposed.
5. Place the arbor or adaptor on the back side of the boring head and fix it with the four *TF 100* screws.
6. Move the slides inwards to its original position.
7. Insert nut clamp screw/s *D 300 57* (one in finish boring heads, two in rough boring heads) with care not to tighten in excess due to the fact that the nut is made of bronze and its M6 thread could be damaged.
8. Adjust the boring head to the required diameter and tighten both slide locking screws *D 300 58* considering that, in order to achieve the full boring range, cartridge base *D 300 49* has two possible positions spaced 15 mm among them.

#### ROUGHING



#### FINISHING



## BORING KITS

# Bohrstar 54



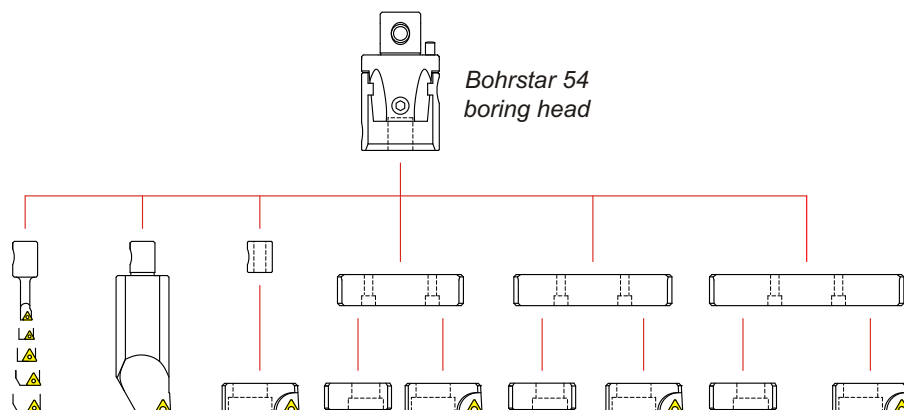
**BORING KITS** from  $\varnothing 6$  mm up to 210 mm



FOR PRECISE INFORMATION SEE OUR **BOHRSTAR 54** CATALOG



## BORING KITS

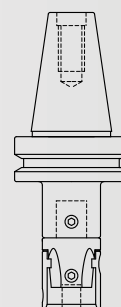


|      |         |      |       |       |       |       |
|------|---------|------|-------|-------|-------|-------|
| From | Ø 6 / 8 | Ø 38 | Ø 56  | Ø 85  | Ø 125 | Ø 165 |
| To   | Ø 43    | Ø 59 | Ø 100 | Ø 130 | Ø 170 | Ø 210 |

| Range       |  | Components | Ordering Number                                      |
|-------------|--|------------|------------------------------------------------------|
| Ø 8 ~ Ø 210 |  |            | <b>BS 54 KIT T 8-210</b><br><b>BS 54 KIT R 8-210</b> |
| Ø 8 ~ Ø 170 |  |            | <b>BS 54 KIT T 8-170</b><br><b>BS 54 KIT R 8-170</b> |
| Ø 8 ~ Ø 100 |  |            | <b>BS 54 KIT T 8-100</b><br><b>BS 54 KIT R 8-100</b> |
| Ø 8 ~ Ø 43  |  |            | <b>BS 54 KIT T 8-043</b><br><b>BS 54 KIT R 8-043</b> |
| Ø 6 ~ Ø 210 |  |            | <b>BS 54 KIT R 6-210</b>                             |
| Ø 6 ~ Ø 170 |  |            | <b>BS 54 KIT R 6-170</b>                             |
| Ø 6 ~ Ø 100 |  |            | <b>BS 54 KIT R 6-100</b>                             |
| Ø 6 ~ Ø 43  |  |            | <b>BS 54 KIT R 6-043</b>                             |

### Features

- Several hole solutions with only one boring head.
- Rhombic or triangular kit insert choice.
- Bohrstar 54 boring head readout precision of 0.002 mm Ø.
- Bohrstar 54 boring head matches with all arbors and accessories size 54 shown on this main catalog.



FOR PRECISE INFORMATION SEE OUR **BOHRSTAR 54** CATALOG

## TOOL PRESETTERS

### DIGITAL DISPLAY INTEGRATED OPTICAL SYSTEM

**ADI**

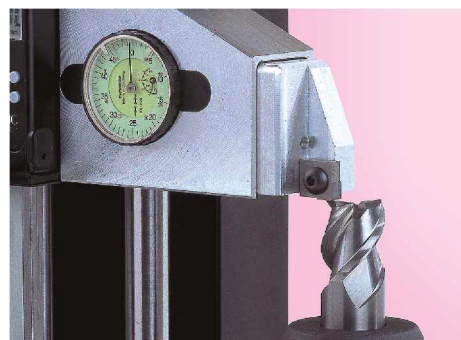
|                         | ADI 1  | ADI 2  |
|-------------------------|--------|--------|
| <b>Taper Style</b>      | ISO 40 | ISO 50 |
| <b>Maximum Diameter</b> | 230    | 300    |
| <b>Maximum Height</b>   | 300    | 400    |



**BWT**

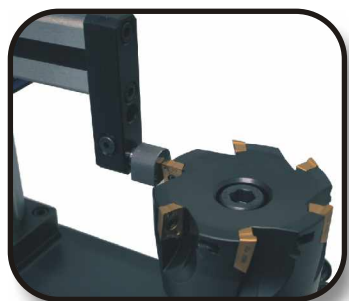
### DIGITAL DISPLAY PRECISION DIAL INDICATOR

|                         | BWT A  | BWT B  |
|-------------------------|--------|--------|
| <b>Taper Style</b>      | ISO 40 | ISO 50 |
| <b>Maximum Diameter</b> | 230    | 300    |
| <b>Maximum Height</b>   | 300    | 400    |



FOR ADDITIONAL INFORMATION THERE IS A SPECIFIC CATALOG

## TOOL PRESETTERS



### TWO DIGITAL DISPLAYS

| TPR              | 302    | 402    |
|------------------|--------|--------|
| Taper Style      | ISO 40 | ISO 50 |
| Maximum Diameter | 200    | 300    |
| Maximum Height   | 300    | 400    |

FOR ADDITIONAL INFORMATION THERE IS A SPECIFIC CATALOG

## TOOL LOCKING FIXTURE

### TLF 40

|             |                 |
|-------------|-----------------|
| Taper Style | ISO 40          |
| Dimensions  | 120 x 150 x 120 |
| Kg.         | 0,550           |

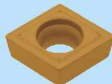
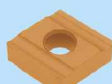


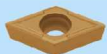
Mounted on a work table a strong gripping power on the taper enables assembling and disassembling cutting tools and pull studs.

- Horizontal and vertical taper position.
- Hard polyamide, fiber reinforced, prevents tool damages.
- 4 positioning magnets enable the right adhesion in horizontal position.



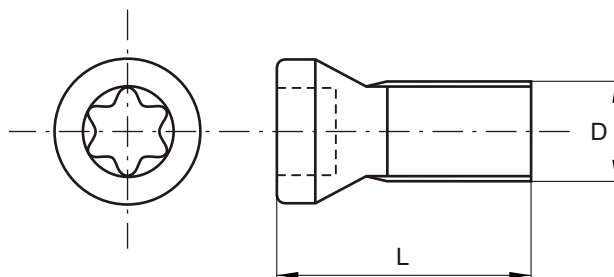
## INSERTS

| Shape                                                                             | Pinzbohr code                                        | ISO code                                                 |
|-----------------------------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------|
|  | <b>300</b><br><b>306</b><br><b>309</b>               | TC□□ 16T3□□<br>TC□□ 06T1□□<br>TC□□ 0902□□                |
|  | <b>310</b><br><b>311</b>                             | TP□□ 0902□□<br>TP□□ 1103□□                               |
|  | <b>400</b><br><b>401</b><br><b>402</b><br><b>409</b> | CC□□ 0602□□<br>CC□□ 0803□□<br>CC□□ 1204□□<br>CC□□ 09T3□□ |
|  | <b>402 N</b>                                         | CN□□ 1204□□                                              |

| Shape                                                                              | Pinzbohr code            | ISO code                     |
|------------------------------------------------------------------------------------|--------------------------|------------------------------|
|   | <b>404</b><br><b>405</b> | EP□□ 0401□□ L<br>EP□□ 0502□□ |
|  | <b>411</b><br><b>415</b> | DC□□ 11T3 □□<br>DC□□ 1504□□  |
|   | <b>502</b><br><b>509</b> | SC□□ 1204□□<br>SC□□ 09T3□□   |
|   | <b>W06</b><br><b>W08</b> | WC□□ 06T3□□<br>WC□□ 0804□□   |

## INSERT SCREWS

| Torx Screw      | Dimension<br>D x L | Torx Key |
|-----------------|--------------------|----------|
| <b>TT 100</b>   | M2X3.3             | TK 06    |
| <b>TT 102</b>   | M2X4               | TK 06    |
| <b>TT 104</b>   | M2X4.9             | TK 06    |
| <b>TT 106</b>   | M2.2X5.6           | TK 07    |
| <b>TT 108</b>   | M2.2X6.4           | TK 07    |
| <b>TT 110</b>   | M2.5X4.8           | TK 08    |
| <b>TT 112</b>   | M3.5X8.5           | TK 09    |
| <b>TT 114</b>   | M4X8.8             | TK 15    |
| <b>TT 116</b>   | M5X9.5             | TK 20    |
| <b>TT 300</b>   | M4X15              | TK 15    |
| <b>TT 400</b>   | M2.5X6             | TK 08    |
| <b>TT 401</b>   | M3X7.6             | TK 10    |
| <b>TT 402</b>   | M5X13              | TK 20    |
| <b>TT 402 N</b> | M6.3X13.2          | HK 025 ● |
| <b>TT 409</b>   | M4X8.5             | TK 15    |



● HEXAGONAL KEY

# NOMENCLATURE FOR INSERTS

| 1                                                                                                                                                                   |                    | Shape                |                            |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------|----------------------------|---|
| C                                                                                                                                                                   | D                  | E                    | K                          | L |
| R                                                                                                                                                                   | S                  | T                    | V                          | W |
| <div>Example:</div> <div><div>1</div><div>C</div></div> <div><div>2</div><div>C</div></div> <div><div>3</div><div>M</div></div> <div><div>4</div><div>T</div></div> |                    |                      |                            |   |
| 2                                                                                                                                                                   |                    | Relief angle         |                            |   |
| <div></div>                                                                                                                                                         |                    |                      |                            |   |
| A                                                                                                                                                                   | 3°                 |                      |                            |   |
| B                                                                                                                                                                   | 5°                 |                      |                            |   |
| C                                                                                                                                                                   | 7°                 |                      |                            |   |
| D                                                                                                                                                                   | 15°                |                      |                            |   |
| E                                                                                                                                                                   | 20°                |                      |                            |   |
| F                                                                                                                                                                   | 25°                |                      |                            |   |
| G                                                                                                                                                                   | 30°                |                      |                            |   |
| N                                                                                                                                                                   | 0°                 |                      |                            |   |
| P                                                                                                                                                                   | 11°                |                      |                            |   |
| O                                                                                                                                                                   | Others             |                      |                            |   |
| 3                                                                                                                                                                   |                    | Tolerance (mm)       |                            |   |
| Symbol                                                                                                                                                              | Corner height<br>m | Thickness<br>s       | Inscribed circle<br>ød     |   |
| A                                                                                                                                                                   | ± 0.005            | ± 0.025              | ± 0.025                    |   |
| F                                                                                                                                                                   |                    |                      | ± 0.013                    |   |
| C                                                                                                                                                                   | ± 0.013            |                      | ± 0.025                    |   |
| H                                                                                                                                                                   |                    |                      | ± 0.013                    |   |
| E                                                                                                                                                                   | ± 0.025            | ± 0.13               | ± 0.025                    |   |
| G                                                                                                                                                                   |                    |                      |                            |   |
| J                                                                                                                                                                   | ± 0.005            | ± 0.025              | ± 0.05 ~ ± 0.15            |   |
| K                                                                                                                                                                   | ± 0.013            |                      |                            |   |
| L                                                                                                                                                                   | ± 0.025            |                      |                            |   |
| M                                                                                                                                                                   | ± 0.08 ~ ± 0.18    | ± 0.13               |                            |   |
| N                                                                                                                                                                   |                    | ± 0.025              |                            |   |
| U                                                                                                                                                                   | ± 0.13 ~ ± 0.38    | ± 0.13               | ± 0.08 ~ ± 0.25            |   |
| <div><div></div><div></div><div></div><div></div></div>                                                                                                             |                    |                      |                            |   |
| 4                                                                                                                                                                   |                    | Chipbreaker and hole |                            |   |
| A                                                                                                                                                                   | F                  | G                    | H                          | M |
| N                                                                                                                                                                   | P                  | Q                    | R                          | T |
| U                                                                                                                                                                   | W                  | X                    | Others (particular design) |   |
| <div></div>                                                                                                                                                         |                    |                      |                            |   |

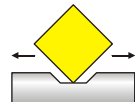
# NOMENCLATURE FOR INSERTS

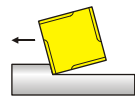
| 6                                                                                                 | Thickness |
|---------------------------------------------------------------------------------------------------|-----------|
| Positive insert  |           |
| Negative insert  |           |
| Symbol                                                                                            | s (mm)    |
| 01                                                                                                | 1.59      |
| 02                                                                                                | 2.38      |
| T2                                                                                                | 2.78      |
| 03                                                                                                | 3.18      |
| T3                                                                                                | 3.97      |
| 04                                                                                                | 4.76      |
| 05                                                                                                | 5.56      |
| 06                                                                                                | 6.35      |
| 07                                                                                                | 7.94      |
| 09                                                                                                | 9.52      |

| 7                                                                                 | Corner radius |
|-----------------------------------------------------------------------------------|---------------|
|  |               |
| Symbol                                                                            | r (mm)        |
| 01                                                                                | 0 ~ 0.1       |
| 02                                                                                | 0.2           |
| 04                                                                                | 0.4           |
| 08                                                                                | 0.8           |
| 12                                                                                | 1.2           |
| 16                                                                                | 1.6           |
| 20                                                                                | 2.0           |
| 24                                                                                | 2.4           |
| 28                                                                                | 2.8           |
| 32                                                                                | 3.2           |

Optional

R 

N 

L 

| 10                                                 | Chipbreaker |
|----------------------------------------------------|-------------|
| Optional                                           |             |
| Supplementary symbol specific to the manufacturer. |             |
| Identification of chipbreaker.                     |             |

5

12

6

04

7

08

8

-

9

-

10

PS

5

Cutting edge length / Inscribed circle

| Cutting edge length Symbol                                                          |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | Inscribed circle Ø (mm) |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|
|  |  |  |  |  |  |  |                         |
| 03                                                                                  | 04                                                                                  |                                                                                     | 03                                                                                  | 06                                                                                  |                                                                                     |                                                                                     | 3.97                    |
| 04                                                                                  | 05                                                                                  |                                                                                     | 04                                                                                  | 08                                                                                  | 08                                                                                  |                                                                                     | 4.76                    |
|                                                                                     |                                                                                     | 05                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 5                       |
| 05                                                                                  | 06                                                                                  |                                                                                     | 05                                                                                  | 09                                                                                  |                                                                                     | 03                                                                                  | 5.56                    |
|                                                                                     |                                                                                     | 06                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 6                       |
| 06                                                                                  | 07                                                                                  |                                                                                     | 06                                                                                  | 11                                                                                  | 11                                                                                  | 04                                                                                  | 6.35                    |
| 08                                                                                  | 09                                                                                  |                                                                                     | 07                                                                                  | 13                                                                                  |                                                                                     | 05                                                                                  | 7.94                    |
|                                                                                     |                                                                                     | 08                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 8                       |
| 09                                                                                  | 11                                                                                  | 09                                                                                  | 09                                                                                  | 16                                                                                  | 16                                                                                  | 06                                                                                  | 9.525                   |
|                                                                                     | 12                                                                                  | 10                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 10                      |
|                                                                                     |                                                                                     | 12                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 12                      |
| 12                                                                                  | 15                                                                                  | 12                                                                                  | 12                                                                                  | 22                                                                                  | 22                                                                                  | 08                                                                                  | 12.7                    |
| 16                                                                                  | 19                                                                                  | 15                                                                                  | 15                                                                                  | 27                                                                                  | 27                                                                                  | 10                                                                                  | 15.875                  |
|                                                                                     |                                                                                     | 16                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 16                      |
| 19                                                                                  | 23                                                                                  | 19                                                                                  | 19                                                                                  | 33                                                                                  | 33                                                                                  | 13                                                                                  | 19.05                   |
|                                                                                     |                                                                                     | 20                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 20                      |
| 22                                                                                  | 27                                                                                  |                                                                                     | 22                                                                                  | 38                                                                                  |                                                                                     |                                                                                     | 22.225                  |
|                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 25                      |
| 25                                                                                  | 31                                                                                  | 25                                                                                  | 25                                                                                  | 44                                                                                  | 44                                                                                  | 17                                                                                  | 25.4                    |
| 32                                                                                  | 38                                                                                  | 31                                                                                  | 31                                                                                  | 54                                                                                  | 54                                                                                  | 21                                                                                  | 31.75                   |
|                                                                                     |                                                                                     | 32                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 32                      |

8

Cutting edge

Optional

F 

E 

T 

S 

## APPLICATION HINTS

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### **SPEEDS AND FEEDS**

Ultimate or optimum speeds and feeds will depend upon material, machine and setup conditions, as well as tool overhang.

### **BORING DEPTH - TOOL OVERHANG FOR ROUGHING AND FINISHING**

Under conditions suited for carbide tooling depths of 5x Ø for rough boring and 3x Ø for finish boring are achievable. With the increasing overhang, the mechanical stability of the tool body decreases. Overlength tools will have a tendency for deflections as well as harmonic (high pitch) chatter. Harmonic chatter can cause movement of adjusting components inside the boring head leading to off-size or tapered holes.

In many cases the high pitch harmonic chatter can be dampened by increasing the feed and (or) lowering the cutting speed.

Please note that the cutting behavior will also change with the amount of slide block (insert holder) extension from the boring head requiring adjustments regarding speeds and feeds.

### **BORING DEPTH - TOOL OVERHANG FOR MICRO BORING HEADS**

The maximum boring depth with steel boring bars should not exceed 5x bar diameter and 7x bar diameter with solid carbide bars. We recommend to shorten the bars to the shortest overhang necessary according to the required boring depth.

### **ROUGH BORING HEAD 75° vs. 90°**

The 75° rough boring head should be used whenever a lot of stock is being removed and no square shoulder is required inside of blind or stepped hole. The 75° lead has a tendency to self-center to the pre-existing hole and therefore cut very stable. If this pre-existing hole, is off-center, shifted or off-angle then it is recommended to use the 90° boring head since the 90° lead angle will have less tendency to follow the pre-existing hole.

### **AMOUNT OF STOCK REMOVAL**

The maximum stock removal for rough boring may have to be decreased on very tough materials, extended overhangs as well as for extended slide blocks.

### **INSERT CORNER RADIUS**

For heavy duty roughing applications the largest available corner radius should be selected unless otherwise specified. For finish boring with very little stock removal the smallest available corner radius is most advantageous to minimize lateral tool deflection. This can be especially important on applications involving long overhangs.

### **4 CUTTING EDGES PER INSERT**

The 80° diamond shaped insert provides normally for two cutting edges. However, all four cutting edges can be used if a 75° and a 90° rough boring head within the same size range is utilized. The same is possible between a 75° rough boring head and a 90° finish boring head.

## CUTTING DATA

| Material                    | Finish boring (with single insert) |                                 |                        |                                 | Rough boring (with double inserts) |                                 |                        |                                           |
|-----------------------------|------------------------------------|---------------------------------|------------------------|---------------------------------|------------------------------------|---------------------------------|------------------------|-------------------------------------------|
|                             | Diameter                           | Cutting speed<br>v <sub>c</sub> | Feed<br>f <sub>z</sub> | Cutting depth<br>a <sub>p</sub> | Diameter                           | Cutting speed<br>v <sub>c</sub> | Feed<br>f <sub>z</sub> | Max. Cutting depth<br>a <sub>p</sub> max. |
| CARBON STEEL                | 6 - 30                             | 110 - 140                       | 0.05 - 0.15            | 0.05 - 0.30                     | 24 - 30                            | 110 - 140                       | 0.15 - 0.25            | 4.2                                       |
|                             | 29 - 40                            | 115 - 150                       |                        | 0.06 - 0.35                     | 29 - 40                            | 105 - 140                       | 0.15 - 0.30            | 5.7                                       |
|                             | 39 - 50                            |                                 | 39 - 50                |                                 | 105 - 150                          | 0.20 - 0.30                     | 6.3                    |                                           |
|                             | 49 - 102                           |                                 | 0.10 - 0.20            | 49 - 102                        |                                    | 0.25 - 0.35                     |                        |                                           |
|                             | 100 - 220                          |                                 |                        | 0.07 - 0.50                     |                                    | 100 - 220                       |                        | 0.30 - 0.40                               |
|                             | 220 - 500                          |                                 |                        |                                 |                                    | 220 - 500                       |                        |                                           |
| STEEL ALLOYS                | 6 - 30                             | 100 - 130                       | 0.05 - 0.15            | 0.05 - 0.30                     | 24 - 30                            | 90 - 120                        | 0.15 - 0.25            | 4.2                                       |
|                             | 29 - 40                            | 110 - 140                       |                        | 100 - 130                       | 29 - 40                            | 0.15 - 0.30                     | 5.7                    |                                           |
|                             | 39 - 50                            | 110 - 150                       | 0.06 - 0.35            |                                 | 39 - 50                            | 0.20 - 0.30                     | 6.3                    |                                           |
|                             | 49 - 102                           |                                 |                        |                                 | 0.10 - 0.20                        | 49 - 102                        |                        | 0.25 - 0.35                               |
|                             | 100 - 220                          |                                 | 0.07 - 0.50            |                                 |                                    | 100 - 220                       |                        | 0.30 - 0.40                               |
|                             | 220 - 500                          |                                 |                        |                                 |                                    | 220 - 500                       |                        |                                           |
| STAINLESS STEEL             | 6 - 30                             | 70 - 110                        | 0.07 - 0.15            | 0.12 - 0.35                     | 24 - 30                            | 69 - 90                         | 0.12 - 0.20            | 4.2                                       |
|                             | 29 - 40                            | 80 - 110                        |                        | 0.20 - 0.50                     | 29 - 40                            | 70 - 100                        | 0.15 - 0.25            | 5.7                                       |
|                             | 39 - 50                            |                                 | 0.10 - 0.20            |                                 | 39 - 50                            |                                 | 0.20 - 0.30            | 6.3                                       |
|                             | 49 - 102                           |                                 |                        | 0.12 - 0.20                     | 49 - 102                           |                                 | 0.25 - 0.35            |                                           |
|                             | 100 - 220                          |                                 |                        |                                 | 100 - 220                          |                                 |                        |                                           |
|                             | 220 - 500                          |                                 | 220 - 500              |                                 |                                    |                                 |                        |                                           |
| CAST IRON                   | 6 - 30                             | 70 - 110                        | 0.07 - 0.15            | 0.12 - 0.35                     | 24 - 30                            | 60 - 110                        | 0.20 - 0.30            | 4.2                                       |
|                             | 29 - 40                            | 80 - 115                        |                        | 0.20 - 0.50                     | 29 - 40                            |                                 | 0.25 - 0.35            | 5.7                                       |
|                             | 39 - 50                            |                                 | 0.12 - 0.20            |                                 | 39 - 50                            |                                 | 0.30 - 0.40            | 6.3                                       |
|                             | 49 - 102                           |                                 |                        | 0.25 - 0.75                     | 49 - 102                           |                                 | 0.30 - 0.45            |                                           |
|                             | 100 - 220                          |                                 |                        |                                 | 100 - 220                          |                                 |                        |                                           |
|                             | 220 - 500                          |                                 |                        |                                 | 220 - 500                          |                                 |                        |                                           |
| ALUMINIUM, ALUMINIUM ALLOYS | 6 - 30                             | 150 - 300                       | 0.05 - 0.15            | 0.12 - 0.35                     | 24 - 30                            | 120 - 300                       | 0.20 - 0.30            | 4.2                                       |
|                             | 29 - 40                            | 150 - 360                       | 0.10 - 0.20            |                                 | 29 - 40                            | 150 - 370                       | 0.25 - 0.35            | 5.7                                       |
|                             | 39 - 50                            |                                 |                        | 0.20 - 0.50                     | 39 - 50                            |                                 | 0.30 - 0.40            | 6.3                                       |
|                             | 49 - 102                           |                                 | 0.10 - 0.25            |                                 | 49 - 102                           |                                 | 0.30 - 0.45            |                                           |
|                             | 100 - 220                          |                                 |                        |                                 | 0.25 - 0.75                        |                                 | 100 - 220              |                                           |
|                             | 220 - 500                          |                                 |                        |                                 |                                    | 220 - 500                       |                        |                                           |
| TITANIUM                    | 6 - 30                             | 30 - 40                         | 0.07 - 0.15            | 0.12 - 0.35                     | 24 - 30                            | 25 - 35                         | 0.12 - 0.20            | 4.2                                       |
|                             | 29 - 40                            | 30 - 45                         |                        | 0.20 - 0.50                     | 29 - 40                            | 30 - 40                         | 0.15 - 0.25            | 5.7                                       |
|                             | 39 - 50                            |                                 | 0.10 - 0.20            |                                 | 39 - 50                            |                                 | 0.20 - 0.30            | 6.3                                       |
|                             | 49 - 102                           |                                 |                        | 0.25 - 0.75                     | 49 - 102                           |                                 | 0.20 - 0.35            |                                           |
|                             | 100 - 220                          |                                 |                        |                                 | 100 - 220                          |                                 |                        |                                           |
|                             | 220 - 500                          |                                 |                        |                                 | 220 - 500                          |                                 |                        |                                           |
| HARDENED ALLOYS             | 6 - 30                             | 30 - 40                         | 0.07 - 0.15            | 0.12 - 0.35                     | 24 - 30                            | 25 - 35                         | 0.12 - 0.20            | 4.2                                       |
|                             | 29 - 40                            | 30 - 45                         |                        | 0.20 - 0.50                     | 29 - 40                            | 30 - 40                         | 0.15 - 0.25            | 5.7                                       |
|                             | 39 - 50                            |                                 | 0.10 - 0.20            |                                 | 39 - 50                            |                                 | 0.20 - 0.30            | 6.3                                       |
|                             | 49 - 102                           |                                 |                        | 0.25 - 0.75                     | 49 - 102                           |                                 | 0.20 - 0.35            |                                           |
|                             | 100 - 220                          |                                 |                        |                                 | 100 - 220                          |                                 |                        |                                           |
|                             | 220 - 500                          |                                 |                        |                                 | 220 - 500                          |                                 |                        |                                           |

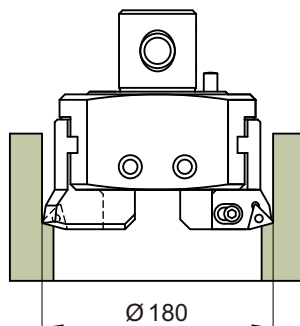


## EXAMPLES OF MACHINING

### ROUGH BORING

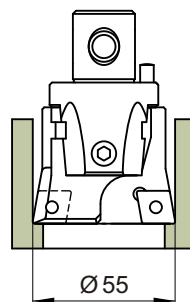
#### THROUGH HOLE

Material: 42 Cr Mo 4  
 Boring head: D 20075 300  
 Arbor: BT 350 100 260  
 Insert: TCMT 16T308  
 Cutting speed: 120 m/min  
 Cutting depth: 5 mm  
 Feed: 0.25 mm/rev  
 Boring depth: 200 mm  
 Coolant



#### BLIND HOLE

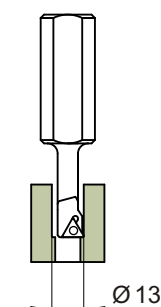
Material: Ck 45  
 Boring head: D 04290 402 N  
 Arbor: BT 350 042 160  
 Insert: CNMG 120408  
 Cutting speed: 110 m/min  
 Cutting depth: 3 mm  
 Feed: 0.3 mm/rev  
 Boring depth: 120 mm  
 Coolant



### FINISH BORING

#### FINISH BORING SMALL DIAMETER

Material: Al Si 8 Cu 3  
 Boring head: A 042 016 + S10/16 STFCR 09  
 Arbor: BT 350 042 075  
 Insert: TCMT 090202  
 Cutting speed: 120 m/min  
 Cutting depth: 0.2 mm  
 Feed: 0.08 mm/rev  
 Boring depth: 14 mm  
 Coolant



#### FINISH BORING

Material: St 37.3  
 Boring head: A 03290 409  
 Arbor: BT 350 032 130  
 Insert: CCGT 09T304  
 Cutting speed: 140 m/min  
 Cutting depth: 0.2 mm  
 Feed: 0.1 mm/rev  
 Boring depth: 70 mm  
 Coolant

