# T|E|N|D|O® E compact

## The Universal Hydraulic Expansion Toolholder


**Up to 300 % longer tool life**

– EN –

ZCC Cutting Tools Europe GmbH
your Partner | your Value

# TENDO® E compact

## The Universal Hydraulic Expansion Toolholder

Narrower tolerances, enormous cost pressure, better quality – TENDO E compact is the answer to growing demands in high-volume machining, which is no longer economically feasible with ER collets, heat-shrinking toolholders, Weldon mounts and lower-quality hydro expansion toolholders.

With the TENDO E compact hydro expansion toolholder, SCHUNK combines all high-performance parameters into a contemporary toolholder which satisfies and even exceeds all requirements.

TENDO E compact has an impressive price, which makes the switch from mechanical and thermal toolholders to significantly more precise TENDO quality an easy decision.


– Up to 300% longer tool life *
– Highest torques, now up to 2,000 Nm with dia. 32 mm in dry clamping conditions, 900 Nm with an oil tool shank
– Best surface finishes – no chatter marks
– Minimized noise emission
– Reduced tool costs
– Extremely fast tool change without peripheral equipment
– Long-lasting run-out and repeat accuracy < 0.003 mm

* Verified in a study by the wbk Institute of Production Technology at the Karlsruhe Institute of Technology (KIT).

## TENDO E compact

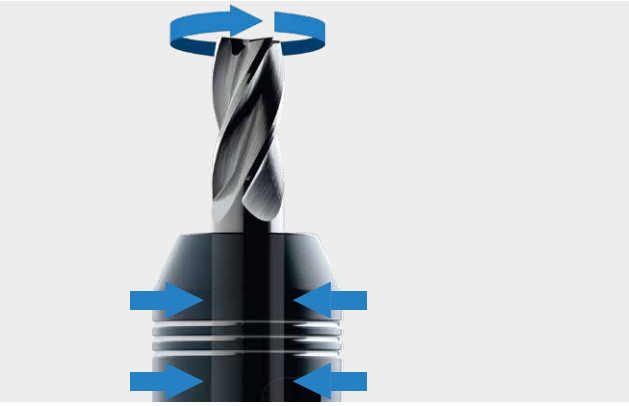


## Hydraulic Expansion Toolholder



## Accessories

# Your Benefits

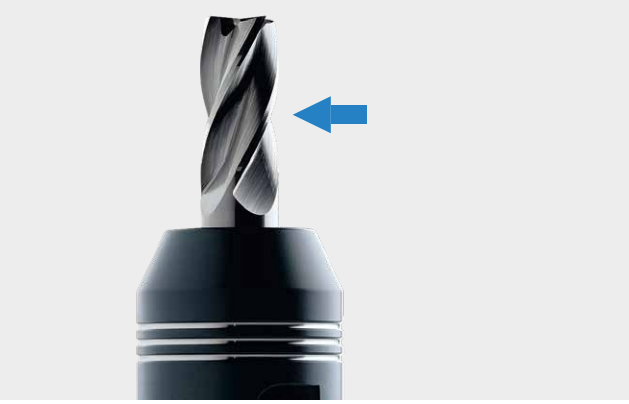


## High torque of up to 900 Nm (Ø 20) and 2,000 Nm (Ø 32) for highest volume machining

Due to the compact design, holding forces and a high torque transmission are guaranteed.

**YOUR BENEFITS**

Highest material removal rate.



## High radial rigidity for a better part geometry accuracy

The optimal radial rigidity resulting from a robust toolholder body, avoids lateral deflection during metal cutting.

**YOUR BENEFITS**

High part accuracy geometry at the workpiece and the highest material removal rates e.g. 400 $cm^3$/min (25 $in^3$/min) with 42CrM04 (4140)*.

* depending on the machine tool and the tool


## Permanent run-out accuracy of less than 0.003 mm – without any fluctuations

This assures best surface results due to a uniform cutting action and highest reproducibility.

**YOUR BENEFITS**

Safe and precise machining.

## Excellent vibration damping

The hydraulic system absorbs vibrations, assures smooth running, and the best workpiece surfaces.

**YOUR BENEFITS**

High surface quality, the machine spindle is protected from damage, and service life is increased.

## Tool change within seconds, micron-precise without peripheral equipment. Just screw to the dead stop

Easy handling. Turn in the actuation screw with an Allen key to the dead stop. The clamping results in a run-out accuracy of less than 0.003 mm without the need for additional peripheral equipment.

**YOUR BENEFITS**

Time savings due to reduced set-up times and no investment costs for additional clamping devices.

## All shaft types can be clamped

With TENDO E compact all customary tools (Ø 3 to 32 mm) with a smooth cylinder shank as well as recesses according to DIN 1835 Form B, E and DIN 6535 Form HB, HE can be clamped directly with or without intermediate sleeves.

**YOUR BENEFITS**

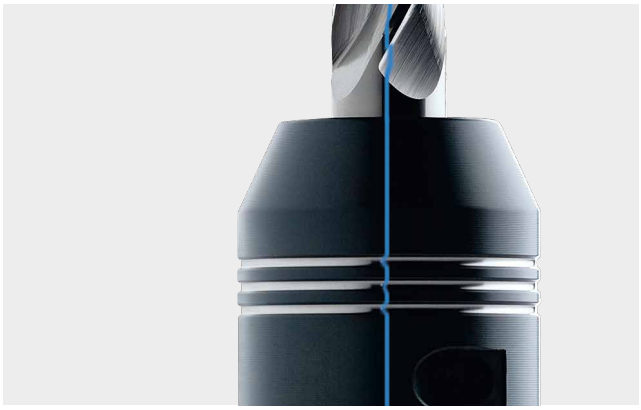
No additional costs for new tools.

## Suitable for HSC / HPC machining – precision-balanced as standard

With a balancing grade G2.5 at 25,000 rpm, the HSK-A 63 version for high speeds is perfectly suitable for HPC / HSC machining centers.

**YOUR BENEFITS**

Perfect for HSK high speed spindles.



## Maintenance-free

The sealed system of the TENDO E compact blocks the penetration of dirt, coolant, lubricants or chips. The clamping area will not be damaged and proper function is guaranteed.

**YOUR BENEFITS**

Maintenance-free and a long service life.

# In Comparison

| Characteristics | TENDO E compact | ER collet chucks | Weldon | Heat shrinking toolholders |
|---|---|---|---|---|
| **Run-out accuracy**<br>– Even cutting action<br>– Influences damping and balance grade<br>– Cost reduction | ++<br>0.003 mm<br>(measured at 2.5 x D permanent) | –<br>0.01 – 0.02 mm | –<br>0.01 – 0.02 mm | –<br>0.003 mm<br>(measured inside the bore hole) |
| **Process reliabilty**<br>– Permanent run-out accuracy | ++ | – | – | – |
| **Torque at Ø 20 mm**<br>– Highest volume machining<br>– Process reliability | ++<br>up to 900 Nm | ○<br>220 Nm | ++<br>Form-fit clamping | +<br>420 Nm |
| **Radial rigidity**<br>– Higher part geometry accuracy at the workpiece at rough machining<br>– Lower cost for remachining | ++ | – | ++ | – |
| **Damping**<br>– Increased tool service life<br>– Prevents the machine spindle from damage<br>– Lower costs – for remachining<br>– Avoiding chatter marks | ++ | ○ | – | – |
| **Flexible by using intermediate sleeves**<br>– Enlarged field of applications<br>– Cost reduction<br>– Higher clamping force at given shafts<br>– Peripheral cooling | ++ | ++<br>(Collet chucks) | – | – |
| **Clamping of all shafts**<br>(Weldon, Whistle Notch, …) | ++ | ++ | – | – |
| **Handling and Operability**<br>– No operator training necessary<br>– Avoids clamping errors<br>– Low set-up costs | ++ | + | + | – |
| **Resistant to dirt**<br>– No maintenance<br>– Lower costs | ++ | – | + | – |
| **Exact length pre-adjustment** | ++ | – | – | – |
| **Necessary peripheral equipments**<br>(regarding costs) | ++<br>Allen key | ○<br>Hook wrench + assembly device | ○<br>Allen key + assembly device | –<br>Induction unit |

++ very good + good ○ neutral – bad

**Summary: TENDO E compact combines all the performance parameters.**

# In Details

**1 The actuation screw**
The actuation piston is moved with the actuation screw and can be tightened to a dead stop without a torque wrench.

**2 The actuation piston**
The actuation piston compresses the hydraulic fluid into the chamber system.

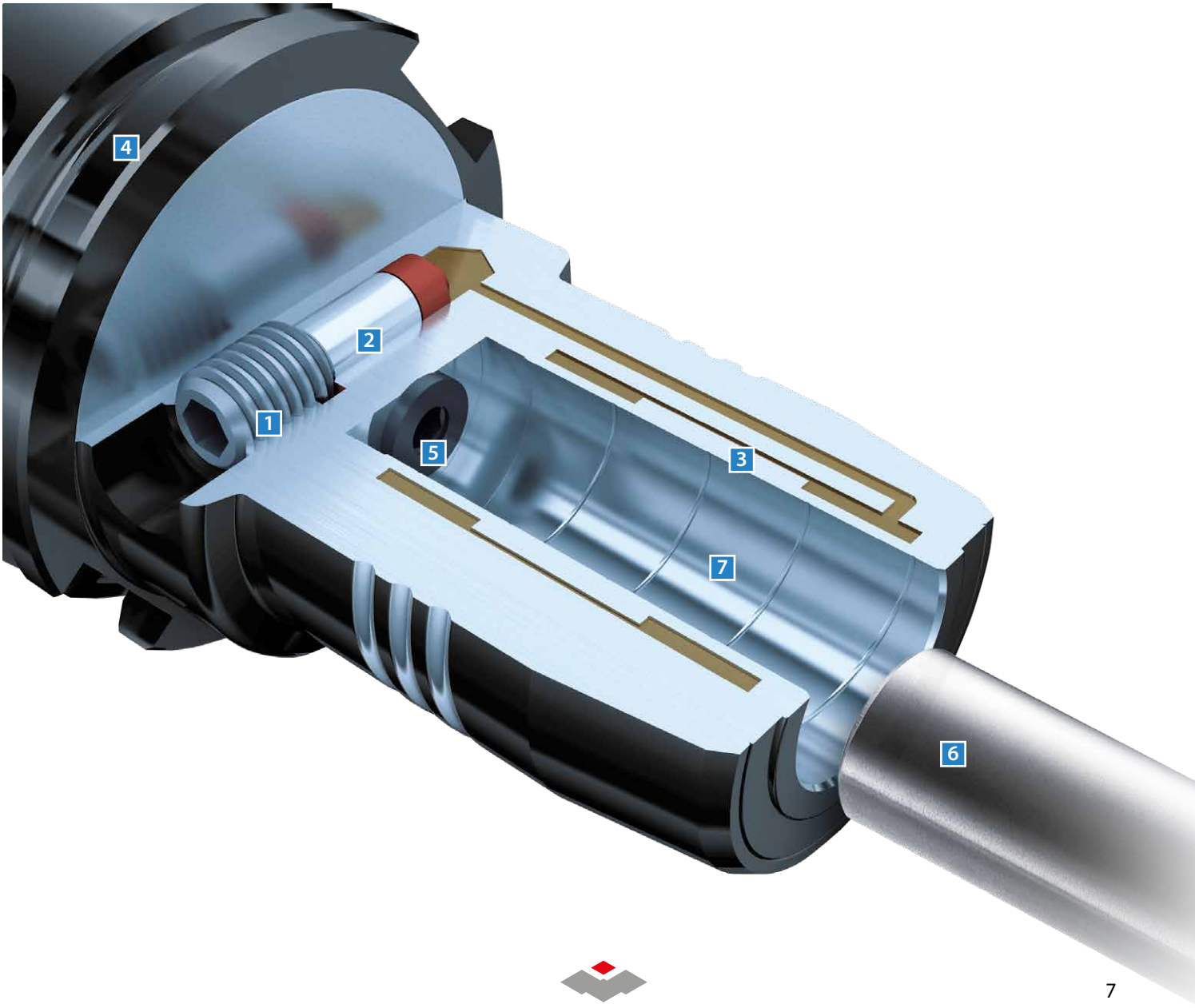
**3 The expansion sleeve and chamber system**
The expansion sleeve expands against the tool shank. This clamping process first centers the tool shank before fully clamping it over the whole surface. The chamber system fills with hydraulic fluid, exerting a damping effect on the clamped tool. Wear on the cutting edge of the tool is minimized, service life is increased by up to 40 %.

**4 The toolholder body**
The toolholder body includes the machine interface, e.g. HSK, SK, JIS-BT, CAT, etc.

**5 The length adjustment screw**
For fast and easy presetting.

**6 The tool**
The tool is clamped centrically to the center axis – highest run-out and repeat accuracy of less than 0.003 mm.

**7 The groove**
The enormous clamping pressure of the TENDO hydraulic expansion toolholder creates a displacement of oil, grease, or lubricant residues into the groove causing surfaces to remain dry.

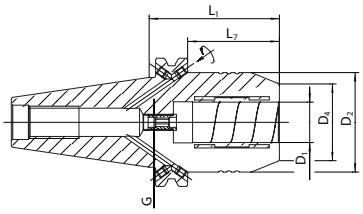


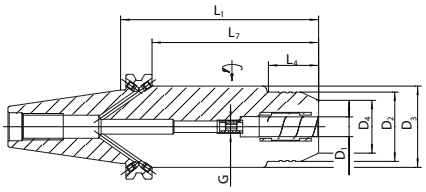
# Hydraulic Expansion Toolholder SK

## Hydraulic expansion toolholder TENDO EC SK

**DIN ISO 7388-1 AD/AF**

– Balancing grade G2.5 at 25,000 RPM
– Run-out accuracy < 0.003 mm at 2.5 x D
– With axial length adjustment




| Article | Dimensions [mm] | | | | | | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SK | $D_1$ | $D_2$ | $D_3$ | $D_4$ | $L_1$ | $L_4$ | $L_7$ | G | $M_{min}$ | |
| **0206414** | 40 | 12 | 42 | - | 32 | 50 | - | 31 | M8x1 | 110 | ● |
| **0206415** | 40 | 16 | 49.25 | - | 38 | 64.5 | - | 45.45 | M8x1 | 350 | ● |
| **0206416** | 40 | 20 | 49.25 | - | 38 | 64.5 | - | 45.5 | M8x1 | 520 | ● |
| | | | | | | | | | | | |
| **1320354** | 40 | 12 | 42 | 49.25 | 32 | 120 | 31 | 101 | M8x1 | 110 | ○ |
| **1320355** | 40 | 20 | 49.25 | - | 38 | 120 | - | 101 | M8x1 | 520 | ○ |
| | | | | | | | | | | | |
| **0206424** | 50 | 12 | 42 | - | 32 | 50 | - | 31 | M8x1 | 110 | ● |
| **0206426** | 50 | 20 | 49.25 | - | 38 | 64.5 | - | 45.5 | M8x1 | 520 | ● |
| **0206428** | 50 | 32 | 72 | - | 58.5 | 81 | - | 62 | M8x1 | 900 | ● |

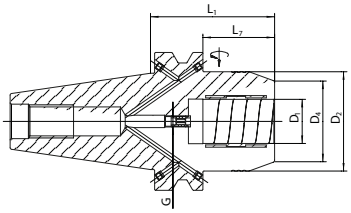
● Ex stock ○ On demand

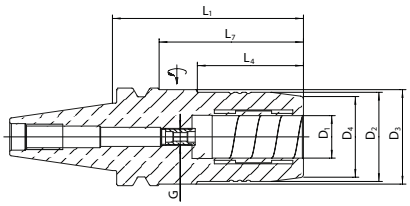
**$M_{min}$** = Guaranteed clamping force in Nm.

## Hydraulic expansion toolholder TENDO EC JIS-BT

**DIN ISO 7388 JD/JF**

– Balancing grade G2.5 at 25,000 RPM
– Run-out accuracy < 0.003 mm at 2.5 x D
– With axial length adjustment




| Article | Dimensions [mm] | | | | | | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | JIS-BT | $D_1$ | $D_2$ | $D_3$ | $D_4$ | $L_1$ | $L_4$ | $L_7$ | G | $M_{min}$ | |
| **0206554** | 30 | 12 | 42 | 44.5 | 32 | 69 | 32 | 47 | M8x1 | 110 | ○ |
| **20066124** | 30 | 16 | 42 | 44.5 | 38 | 90 | 50 | 68 | M8x1 | 350 | ○ |
| **0206556** | 30 | 20 | 42 | 44.5 | 38 | 90 | 50 | 68 | M8x1 | 400 | ○ |
| | | | | | | | | | | | |
| **0206434** | 40 | 12 | 42 | - | 32 | 58 | - | 31 | M8x1 | 110 | ● |
| **0206435** | 40 | 16 | 49.25 | - | 38 | 72.5 | - | 45.45 | M8x1 | 350 | ● |
| **0206436** | 40 | 20 | 49.25 | - | 38 | 72.5 | - | 45.5 | M8x1 | 520 | ● |
| | | | | | | | | | | | |
| **1320358** | 40 | 12 | 42 | - | 32 | 120 | - | 93 | M8x1 | 110 | ○ |
| **1320359** | 40 | 20 | 49.25 | - | 38 | 120 | - | 93 | M8x1 | 520 | ○ |
| | | | | | | | | | | | |
| **0206444** | 50 | 12 | 42 | - | 32 | 69 | - | 31 | M8x1 | 110 | ● |
| **0206446** | 50 | 20 | 49.25 | - | 38 | 83.5 | - | 45.5 | M8x1 | 520 | ● |
| **0206448** | 50 | 32 | 72 | - | 58.5 | 90 | - | 52 | M8x1 | 900 | ● |

● Ex stock ○ On demand

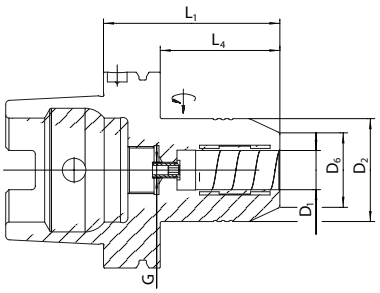
**Note:** Also available with DC (Dual Connect) interface on demand.

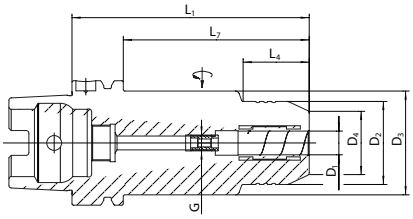
**$M_{min}$** = Guaranteed clamping force in Nm.

# Hydraulic Expansion Toolholder HSK-A

## Hydraulic expansion toolholder TENDO EC HSK-A **DIN ISO 12164-1**

– Balancing grade G2.5 at 25,000 RPM
– Run-out accuracy < 0.003 mm at 2.5 x D
– With axial length adjustment




| Article | Dimensions [mm] | | | | | | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | HSK-A | $D_1$ | $D_2$ | $D_3$ | $D_4$ | $L_1$ | $L_4$ | $L_7$ | G | $M_{min}$ | |
| **0206404** | 63 | 12 | 42 | 52.5 | 32 | 80 | 34 | 54 | M8x1 | 110 | ● |
| **0206405** | 63 | 16 | 52.5 | - | 38 | 80 | - | 54 | M8x1 | 350 | ● |
| **0206406** | 63 | 20 | 52.5 | - | 38 | 80 | - | 54 | M8x1 | 520 | ● |
| **0206456** | 63 | 3/4" | 53 | - | 38 | 80 | - | 54 | M8x1 | 520 | ○ |
| | | | | | | | | | | | |
| **1320352** | 63 | 12 | 42 | 52.5 | 32 | 120 | 34 | 94 | M8x1 | 110 | ○ |
| **1320353** | 63 | 20 | 52.5 | - | 38 | 120 | - | 94 | M8x1 | 520 | ○ |
| | | | | | | | | | | | |
| **1368215** | 100 | 16 | 52.5 | - | 38 | 90 | - | 61 | M8x1 | 350 | ○ |
| **0206566** | 100 | 20 | 52.5 | - | 38 | 90 | - | 61.05 | M8x1 | 520 | ● |
| **0206568** | 100 | 32 | 72 | - | 58.5 | 100 | - | 71.05 | M8x1 | 900 | ● |
| **1319625** | 100 | 1 1/4" | 72 | - | 58.5 | 100 | - | 71.05 | M8x1 | 900 | ○ |

● Ex stock ○ On demand

**$M_{min}$** = Guaranteed clamping force in Nm.

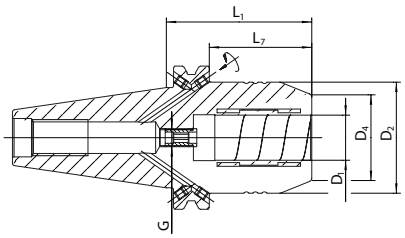
Accessories

| | | Article | Stock |
|---|---|---|---|
|  | **Coolant tubes HSK 63** | 9799133 | ● |
| | **Coolant tubes HSK 100** | 9799134 | ● |

## Hydraulic expansion toolholder TENDO EC CAT

**ASME B5.50**

– Balancing grade G2.5 at 25,000 RPM
– Run-out accuracy < 0.003 mm at 2.5 x D
– With axial length adjustment




| Article | Dimensions [mm] | | | | | | | Stock |
|---|---|---|---|---|---|---|---|---|
| | CAT | $D_1$ | $D_2$ | $D_4$ | $L_7$ | G | $M_{min}$ | |
| **0206486** | 40 | 20 | 49.25 | 38 | 45.45 | M8x1 | 520 | ○ |
| **0206466** | 40 | 3/4" | 49.25 | 38 | 45.45 | M8x1 | 520 | ○ |
| | | | | | | | | |
| **1000068** | 40 | 20 | 49 | 38 | 82.55 | M8x1 | 520 | ○ |
| **1000067** | 40 | 3/4" | 49 | 38 | 82.55 | M8x1 | 440 | ○ |
| | | | | | | | | |
| **0206498** | 50 | 32 | 72 | 58.5 | 61.95 | M8x1 | 900 | ○ |
| **0206478** | 50 | 1 1/4" | 72 | 58.5 | 61.95 | M8x1 | 900 | ○ |

● Ex stock ○ On demand

**Note:** Also available with DC (Dual Connect) interface on demand.

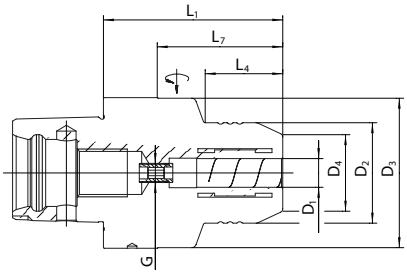
**$M_{min}$** = Guaranteed clamping force in Nm.

# Hydraulic Expansion Toolholder CAPTO

## Hydraulic expansion toolholder TENDO EC SCAPTO

**ISO 26623-1**

– Balancing grade G2.5 at 25,000 RPM
– Run-out accuracy < 0.003 mm at 2.5 x D
– With axial length adjustment




| Article | Dimensions [mm] | | | | | | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Capto | $D_1$ | $D_2$ | $D_3$ | $D_4$ | $L_1$ | $L_4$ | $L_7$ | G | $M_{min}$ | |
| **0206804** | C4 | 12 | 39.5 | - | 32 | 65 | - | 44 | M8x1 | 110 | ○ |
| **0206806** | C4 | 20 | 45.5 | - | 38 | 83 | - | 62.4 | M8x1 | 440 | ○ |
| **0206834** | C4 | 1/2" | 39.5 | - | 32 | 65 | - | 44 | M8x1 | 120 | ○ |
| **0206836** | C4 | 3/4" | 45.5 | - | 38 | 83 | - | 62.4 | M8x1 | 400 | ○ |
| | | | | | | | | | | | |
| **0206814** | C5 | 12 | 42 | 49.5 | 32 | 70 | 33 | 50 | M8x1 | 110 | ○ |
| **0206816** | C5 | 20 | 49.5 | - | 38 | 75 | - | 54 | M8x1 | 440 | ○ |
| **0206844** | C5 | 1/2" | 42 | 49.5 | 32 | 70 | 33 | 50 | M8x1 | 120 | ○ |
| **0206846** | C5 | 3/4" | 49.5 | - | 38 | 75 | - | 54 | M8x1 | 440 | ○ |
| | | | | | | | | | | | |
| **0206824** | C6 | 12 | 42 | 62.5 | 32 | 75 | 33 | 53 | M8x1 | 110 | ○ |
| **0206826** | C6 | 20 | 52.5 | 62.5 | 38 | 80 | 41 | 57.4 | M8x1 | 440 | ○ |
| **0206828** | C6 | 32 | 62.5 | - | 58.5 | 90 | - | 67 | M8x1 | 800 | ○ |
| **0206856** | C6 | 3/4" | 52.5 | 62.5 | 38 | 80 | 41 | 57.4 | M8x1 | 440 | ○ |
| **0206858** | C6 | 1 1/4" | 62.5 | - | 58.5 | 90 | - | 67 | M8x1 | 800 | ○ |
| | | | | | | | | | | | |
| **1320356** | C6 | 12 | 42 | 62.5 | 32 | 120 | 33 | 97.4 | M8x1 | 110 | ○ |
| **1320357** | C6 | 20 | 52.5 | 62.5 | 38 | 120 | 41 | 97.4 | M8x1 | 440 | ○ |

● Ex stock ○ On demand

**$M_{min}$** = Guaranteed clamping force in Nm.

# T|E|N|D|O® E compact

The Universal Hydraulic Expansion Toolholder


Up to **300 %** longer tool life*

**2.000 Nm**
torque with Ø 32 mm

## The ultimate solution

– **for all cutting tools**
– **for all applications:**
**milling (roughing, finishing), drilling, tapping, reaming**

*Verified in a study by the wbk Institute of Production Technology at the Karlsruhe Institute of Technology (KIT).

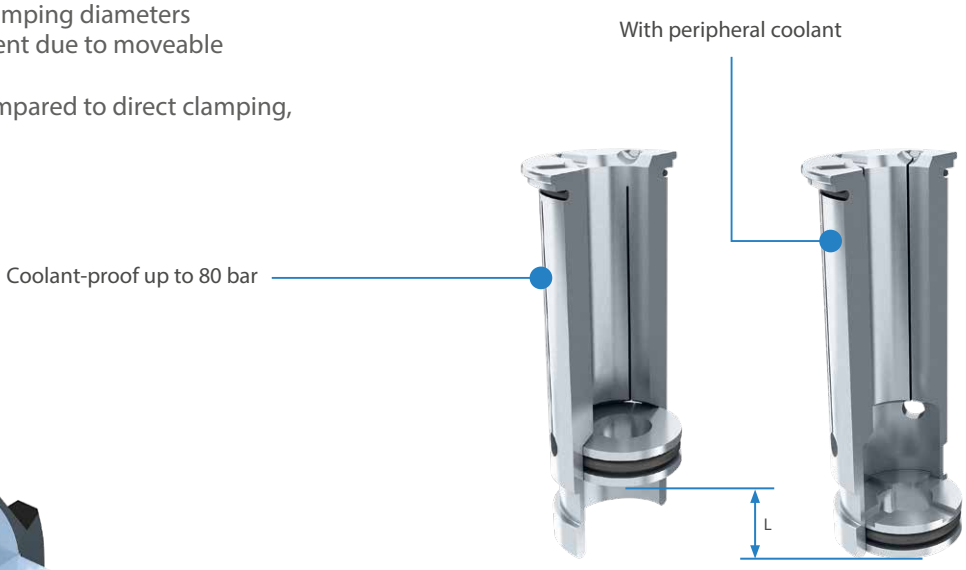
# Intermediate Sleeves GZB-S

## Flexible clamping areas due to intermediate sleeves

SCHUNK intermediate sleeves allow clamping of several, different shank diameters with just one toolholder. The universal intermediate sleeves GZB-S are available in two versions: sealed coolant-proof, and with innovative peripheral coolant channels. Both offer the unbeatable advantages of SCHUNK intermediate sleeves. And both can be used in the SCHUNK toolholding systems TENDO, TRIBOS, SINO-R, and all standard hydraulic expansion toolholding systems.

### YOUR BENEFITS

– Highest flexibility for optimal cost control: one toolholder for several clamping diameters
– Versatile length pre-adjustment due to moveable intermediate piece
– Increasing metal removal compared to direct clamping, due to a higher torque




The tool length L can be adjusted flexibly via a moveable intermediate piece.

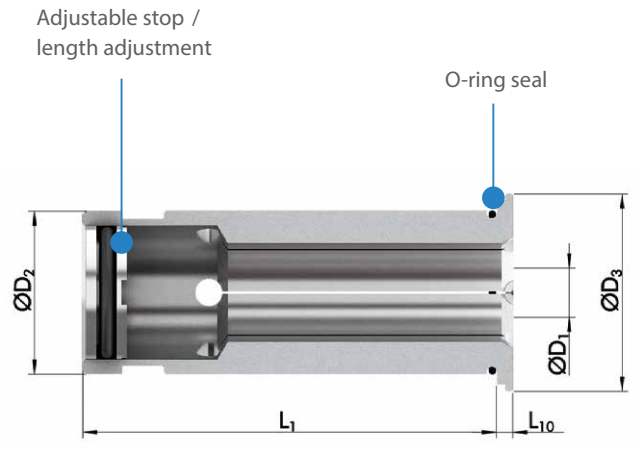
Optimized coolant emission:
GZB-S 20/16 for peripheral cooling
in a TENDO E compact.

**Product features:**
– Two versions: Coolant-proof up to 80 bar or with peripheral coolant
– Run-out accuracy of less than 3 microns
– Intermediate sleeves with peripheral coolant: 6 coolant slots with special nozzle geometry
– Intermediate sleeves are coolant-proof
– Additional sizes and special designs are available on request

**Systematic cooling with peripheral coolant channels**
Six coolant slots now make a difference with peripheral coolant. With their special nozzle geometry, they ensure optimal and directed supply of coolant to the blade.

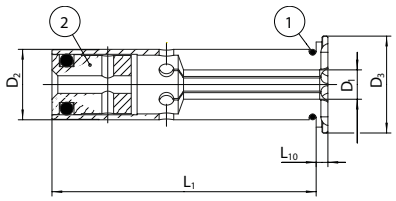
## YOUR BENEFITS WITH PERIPHERAL COOLANT CHANNELS

– Optimized collant emission
– Increase of the tool service life
– Optimal chip removal by systematic coolant rinsing
– Significantly improved machining results



## Intermediate sleeves coolant-proof

**GZB-S KD**




① O-ring seal ② Adjustable stop

| Article | Dimensions [mm] | | | | | Stock |
|---|---|---|---|---|---|---|
| | $D_1$ | $D_2$ | $D_3$ | $L_1$ | $L_{10}$ | |
| **0207910** | 3 | 12 | 16.5 | 45 | 2 | ● |
| **0207911** | 4 | 12 | 16.5 | 45 | 2 | ● |
| **0207912** | 5 | 12 | 16.5 | 45 | 2 | ● |
| **0207913** | 6 | 12 | 16.5 | 45 | 2 | ● |
| **0207915** | 8 | 12 | 16.5 | 45 | 2 | ● |
| **0207917** | 10 | 12 | 16.5 | 45 | 2 | ● |
| **0207921** | 4 | 20 | 24 | 50.5 | 2 | ● |
| **0207923** | 6 | 20 | 24 | 50.5 | 2 | ● |
| **0207925** | 8 | 20 | 24 | 50.5 | 2 | ● |
| **0207927** | 10 | 20 | 24 | 50.5 | 2 | ● |
| **0207929** | 12 | 20 | 24 | 50.5 | 2 | ● |
| **0207931** | 14 | 20 | 24 | 50.5 | 2 | ● |
| **0207933** | 16 | 20 | 24 | 50.5 | 2 | ● |
| **0207940** | 6 | 32 | 35.5 | 60.5 | 2 | ● |
| **0207941** | 8 | 32 | 35.5 | 60.5 | 2 | ● |
| **0207942** | 10 | 32 | 35.5 | 60.5 | 2 | ● |
| **0207943** | 12 | 32 | 35.5 | 60.5 | 2 | ● |
| **0207944** | 14 | 32 | 35.5 | 60.5 | 2 | ● |
| **0207945** | 16 | 32 | 35.5 | 60.5 | 2 | ● |
| **0207946** | 18 | 32 | 35.5 | 60.5 | 2 | ● |
| **0207947** | 20 | 32 | 35.5 | 60.5 | 2 | ● |
| **0207948** | 25 | 32 | 35.5 | 60.5 | 2 | ● |

● Ex stock ○ On demand

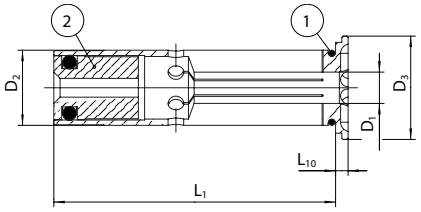
**Note:** For shaft tolerance h6 or better.

Accessories

| | | Article | Stock |
|---|---|---|---|
|  | **Sleeve remover** | 9937987 | ● |

## Intermediate sleeves with peripheral cooling

**GZB-S PK**




① O-ring seal ② Adjustable stop

| Article | Dimensions [mm] | | | | | Stock |
|---|---|---|---|---|---|---|
| | $D_1$ | $D_2$ | $D_3$ | $L_1$ | $L_{10}$ | |
| **0217910** | 3 | 12 | 16.5 | 45 | 2 | ● |
| **0217911** | 4 | 12 | 16.5 | 45 | 2 | ● |
| **0217913** | 6 | 12 | 16.5 | 45 | 2 | ● |
| **0217915** | 8 | 12 | 16.5 | 45 | 2 | ● |
| | | | | | | ● |
| **0217920** | 3 | 20 | 24 | 50.5 | 2 | ● |
| **0217921** | 4 | 20 | 24 | 50.5 | 2 | |
| **0217923** | 6 | 20 | 24 | 50.5 | 2 | ● |
| **0217925** | 8 | 20 | 24 | 50.5 | 2 | ● |
| **0217927** | 10 | 20 | 24 | 50.5 | 2 | ● |
| **0217929** | 12 | 20 | 24 | 50.5 | 2 | ● |
| **0217931** | 14 | 20 | 24 | 50.5 | 2 | ● |
| **0217933** | 16 | 20 | 24 | 50.5 | 2 | ● |
| | | | | | | ● |
| **0217940** | 6 | 32 | 35.5 | 60.5 | 2 | |
| **0217941** | 8 | 32 | 35.5 | 60.5 | 2 | ● |
| **0217942** | 10 | 32 | 35.5 | 60.5 | 2 | ● |
| **0217943** | 12 | 32 | 35.5 | 60.5 | 2 | ● |
| **0217944** | 14 | 32 | 35.5 | 60.5 | 2 | ● |
| **0217945** | 16 | 32 | 35.5 | 60.5 | 2 | ● |
| **0217946** | 18 | 32 | 35.5 | 60.5 | 2 | ● |
| **0217947** | 20 | 32 | 35.5 | 60.5 | 2 | ● |
| **0217948** | 25 | 32 | 35.5 | 60.5 | 2 | ● |

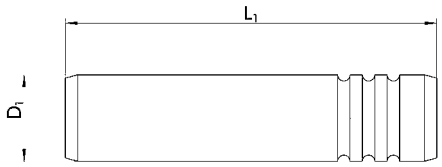
● Ex stock ○ On demand

**Note:** For shaft tolerance h6 or better.

Accessories

| | | Article | Stock |
|---|---|---|---|
|  | **Sleeve remover** | 9937987 | ● |

## Clamping force test piece TENDO




| Article | Dimensions [mm] | | Stock |
|---|---|---|---|
| | D | $L_1$ | |
| **0200020** | 6 | 50 | ○ |
| **0200021** | 8 | 50 | ○ |
| **0200022** | 10 | 60 | ○ |
| **0200023** | 12 | 60 | ○ |
| **0200024** | 14 | 60 | ○ |
| **0200025** | 16 | 70 | ○ |
| **0200026** | 18 | 70 | ○ |
| **0200027** | 20 | 80 | ○ |
| **0200028** | 25 | 80 | ○ |
| **0200029** | 32 | 80 | ○ |

● Ex stock ○ On demand

**Usage:** Insert the clamping force test piece into the cleaned holder and tighten the clamping screw until it reaches the stop. If the shaft cannot be removed by hand the specified minimum clamping force is present.

Accessories

| | | Article | Stock |
|---|---|---|---|
|  | **Storage case** | 200030 | ○ |


# Sensational!
# Milling at full speed!
# T|E|N|D|O® E compact

## Milling

TENDO E compact is the first hydro expansion toolholder that is suitable for difficult high-volume machining with up to 2,000 Nm torque with dia. 32 mm (in dry clamping conditions).

## Reaming

The outstanding vibration damping for best workpiece surfaces and long-lasting run-out for high dimensional accuracy.

## Drilling

Drilling – one of the traditional strengths of the TENDO family. Vibration damping and run-out accuracy < 0.003 mm are also the top features of TENDO E compact.

## Tapping

TENDO E compact is virtually predestined for tapping with its high torques and outstanding vibration damping.

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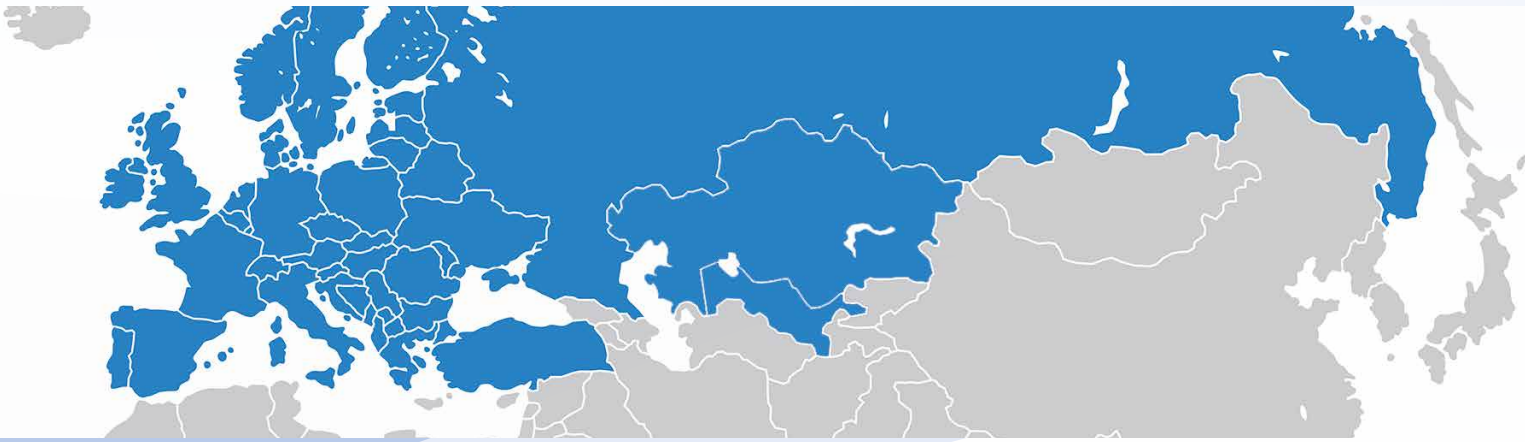
# TENDO® E compact

The Universal Hydraulic Expansion Toolholder

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