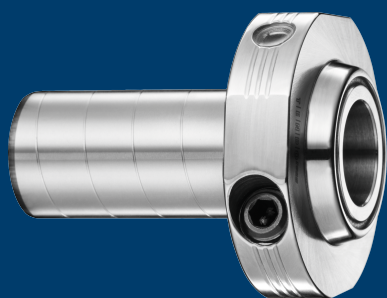


TENDO Turn DSE

Hydraulic expansion toolholder



Superior Clamping and Gripping



1 General

1.1 About this manual

This manual is part of the product and contains important information for safe and correct use. It must be kept accessible at all times. Personnel must have read and understood this manual before starting any work. All safety notes and the associated specifications in particular must be observed and complied with. Illustrations may differ from the actual design.

1.2 Applicable documents

– General terms of business

– Catalog data sheet of the purchased product

The other applicable documents can be downloaded from schunk.com.

1.3 Warranty

The warranty is valid for 24 months from the date of delivery from the production facility if the product is used as intended and in compliance with the prescribed operating data.

Wear parts and parts that come in contact with the tool or machine are not covered by the warranty.

1.4 Illustration of warnings

WARNING

Dangers for persons!

Non-observance can lead to irreversible injury and even death.

CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

NOTICE

Material damage!

Information about avoiding material damage.

1.5 Scope of delivery

- Product
- Assembly and Operating Manual

1.6 Accessories

The following accessories for the product are available separately:

- Test shaft for monitoring the expansion rate
- Allen key for operating the clamping screw
- Hexagon socket wrench for length adjustment
- GZB-S intermediate sleeves for clamping several different shank diameters
- GZB-S sleeve remover for removing intermediate sleeves

2 Basic safety notes

2.1 Appropriate use

- The product is used to clamp rotationally symmetric tools.
- The product is intended for industrial use.
- The product is intended for installation in a machine/automated system. The applicable guidelines for the machine/automated system must be observed and complied with.
- The product may only be used and operated within the scope of the technical data and the specifications in this manual, ► Chap. 3.

2.2 Inappropriate use

The product is not being used as intended if:

- The information in the technical data is not observed when using and operating the product ► Chap. 3.
- The maintenance and storage instructions are not observed ► Chap. 5.
- The product is used with heat shrinking technology.

2.3 Ambient conditions and operating conditions

The ambient and operating conditions must correspond or be adapted to the version of the product and the specifications in the technical data.

2.4 Structural changes, spare parts

Structural changes such as modification and reworking, e.g. additional threads, bore holes or attachments, may only be carried out with the written approval of SCHUNK. Only use original spare parts and spares authorized by SCHUNK.

2.5 Notes on safe operation

- The product must not be clamped without a tool above 25°C.
- Never combine multiple product extensions.
- Only use SCHUNK intermediate sleeves and always insert up to the fixed backstop point. The use of intermediate sleeves can reduce the transmittable torque.
- Long, projecting or heavy tools may only be clamped if the speed of rotation is reduced according to the ambient and operating conditions on site. The level of reduction is the responsibility of the operator and must ensure safe operation of the product.
- Maintain and service the product on a regular basis.
- Do not remove the air bleed screw (secured with pin or resin).
- All repair work must be performed by SCHUNK.
- The operational safety and function of the product must not be impaired by external influences.
- Follow the country-specific applicable safety, accident prevention, and environmental protection regulations for the application field of the product.
- Use mechanical screwdrivers only after approval by SCHUNK.

2.6 Personnel qualifications

- All operations may only be carried out by personnel that are qualified and instructed for the respective operation.
- Personnel qualifications must comply with the on-site country-specific requirements and laws.

2.7 Personal protective equipment

- When working on and with the product, follow the respective country-specific legal requirements for occupational health and safety, and wear the necessary personal protective equipment.
- Follow country-specific accident prevention regulations and the general safety notes.

2.8 Transport

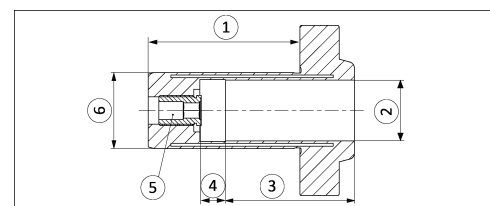
To avoid product damage, the transport and handling of the product must be adapted according to the version, weight and packaging of the product. If necessary, use additional aids.

3 Technical data

Operating temperature range [°C]	+20 ... +50
Test temperature for the clamping force control [°C]	+20 ... +25
Max. coolant pressure [bar]	80
Adjustment travel of the length adjustment [mm]	10
Max. speed of rotation [RPM]	10,000
Wrench size, clamping screw	A/F 5
Max. tightening torque of the clamping screw [Nm]	10 ... 12
Tolerance tool shank	h6

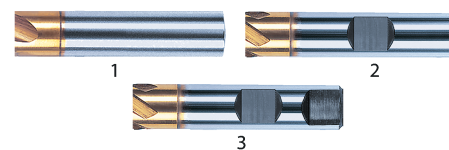
Clamping diameter D1/D2	12 / 20	20 / 25
Permissible transmittable torque [Nm]	65	220
Minimum clamping depth [mm]	33.5	42.5
Permissible radial force F on the product at 50 mm projecting length of the tool [N]	500	500
Revolutions of the clamping screw for pre-loading	1	3/4
Bore diameter, machine interface [mm]	20 H5	25 H5

The loading limits of the spindle holder must be observed.



- ① Product clamping depth
- ② Clamping diameter D1
- ③ Minimum clamping depth
- ④ Length-setting range
- ⑤ Length-setting screw
- ⑥ Clamping diameter D2

3.1 Permitted shank types



1. Shank type according to DIN 1835-1 form A and DIN 6535 form HA
2. Shank type according to DIN 1835-1 form B and DIN 6535 form HB (Ø up to 20 mm)
3. Shank type according to DIN 1835-1 form B and DIN 6535 form HB (Ø from 25 mm)

Tool shanks with reliefs (forms 2 and 3) can impair the balancing grade and concentricity of the overall system.

4 Operation

4.1 Basic information

WARNING

Risk of injury due to ejected parts!

The max. speed of rotation of the machine/automated system must be reduced when using long, projecting or heavy tools and with extensions.

WARNING

Risk of injury and material damage due to the expansion sleeve bursting!

If not used as intended, the expansion sleeve may burst. This can cause metal shards and oil to be ejected from the product under high pressure, resulting in serious injury.

- **Never heat the product in heat shrink devices; only perform a tool change using the integrated clamping screw.**
- Do not exceed the specified operating temperature.

CAUTION

Risk of injury from tools with sharp edges!

Sharp edges on tools can cause cuts.

- Wear protective gloves when assembling the tool.

NOTICE

Material damage due to burrs and dirt!

- The tool must be free of burrs and dirt at the shank.
- The machine interface must be free of burrs and dirt.

NOTICE

Material damage due to incorrect minimum clamping depth!

Too small a clamping depth of the tool leads to a loss of accuracy and torque on the product.

- Observe the minimum clamping depth of the tool.

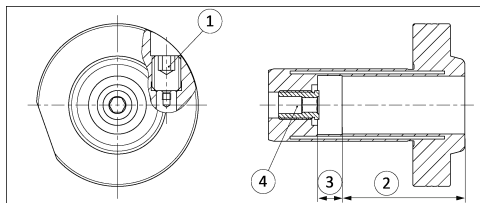
NOTICE

Potential impairment of the clamping function and damage to the product!

If the product is not used as intended, the clamping function may be impaired or the product may get damaged.

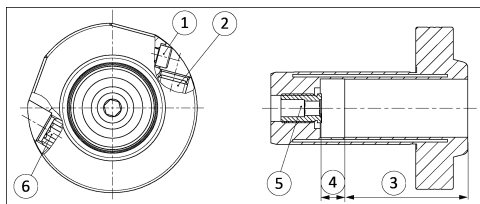
- Only operate the clamping screw by hand.
- Do not adjust the projecting lengths of the tool when the product is clamped.

4.2 Assembly of tool and product



TENDO Turn DSE with one clamping screw

- | | |
|--------------------------|------------------------|
| ① Clamping screw | ③ Length-setting range |
| ② Minimum clamping depth | ④ Length-setting screw |



TENDO Turn DSE with two clamping screws

- | | |
|--------------------------|------------------------|
| ① Locking screw | ④ Length-setting range |
| ② Clamping screw 2 | ⑤ Length-setting screw |
| ③ Minimum clamping depth | ⑥ Clamping screw 1 |

TENDO Turn DSE with one clamping screw

1. Unclamp the product by loosening the clamping screw.
NOTE: The clamping screw is not secured against falling out.
2. If required, the projecting lengths of the tool can be adjusted by screwing the integrated length-setting screw in or out. Observe the adjustment travel of the length-setting screw ▶ Chap. 3.
3. Insert the tool to the minimum clamping depth or stop.
4. Screw the clamping screw in by hand. Observe the specified revolution for pre-loading ▶ Chap. 3.
 - ✓ The tool is pre-loaded.
5. Position the product with pre-loaded tool correctly in the machine interface and fit up to the stop.
6. Screw the clamping screw in by hand until it reaches the stop. Observe the maximum specified tightening torque ▶ Chap. 3.
7. Check that the product is in the correct position and securely clamped in the machine.

IMPORTANT! Safe clamping of the product in the machine must be ensured!

NOTE: Always clamp the inner diameter first! Only after clamping the inner diameter is the outer diameter fully cylindrical.

TENDO Turn DSE with two clamping screws

1. Unclamp the product by loosening clamping screws 1 and 2.
NOTE: Clamping screw 1 is not secured against falling out.
2. If required, the projecting lengths of the tool can be adjusted by screwing the integrated length-setting screw in or out. Observe the adjustment travel of the length-setting screw ▶ Chap. 3.
3. Insert the tool to the minimum clamping depth or stop.
4. Screw clamping screw 1 in by hand until it reaches the stop. Observe the maximum specified tightening torque ▶ Chap. 3.
 - ✓ The tool is pre-loaded.
5. Position the product with pre-loaded tool correctly in the machine interface and fit up to the stop.
6. Screw clamping screw 2 in by hand until it reaches the stop. Observe the maximum specified tightening torque ▶ Chap. 3.
7. Check that the product is in the correct position and securely clamped in the machine.

IMPORTANT! Safe clamping of the product in the machine must be ensured!

NOTE: Always clamp the inner diameter first! Only after clamping the inner diameter is the outer diameter fully cylindrical.

4.3 Tool change

TENDO Turn DSE with one clamping screw

1. Carefully loosen the clamping screw until the product can be removed from the machine interface. **IMPORTANT! If the clamping screw is turned out too far, the tool is no longer pre-loaded!**
2. Remove the product from the machine interface.
3. Unclamp the product by fully loosening the clamping screw.
NOTE: The clamping screw is not secured against falling out!
4. Remove tool.
5. Mount new tool ▶ Chap. 4.2.

TENDO Turn DSE with two clamping screws

1. Unscrew clamping screw 2 until it reaches the stop.
2. Remove the product from the machine interface.
3. Unclamp the product by fully loosening clamping screw 1.
NOTE: Clamping screw 1 is not secured against falling out!
4. Remove tool.
5. Mount new tool ▶ Chap. 4.2.

5 Maintenance and storage

5.1 Cleaning the clamping bore

Clean the clamping bore during every tool change with a cleaning agent containing solvents and a cleaning brush.

5.2 Checking the clamping force

Check the clamping force before initial use, after approx. 100 tool changes and at least every 3 months.

1. Unclamp the product by loosening the clamping screw.
NOTE: The clamping screw is not secured against falling out!
2. Insert the test shaft to the minimum clamping depth.
3. Screw the clamping screw in by hand until it reaches the stop. Observe the maximum specified tightening torque ▶ Chap. 3.
4. The clamping force is no longer sufficient if the test shaft can be pulled out of the product with little effort using two fingers.

In this case, send the product to SCHUNK for inspection.

5.3 Lubricating the clamping screw

CAUTION

Allergic reactions if lubricating grease comes into contact with the skin.

- Wear protective gloves to lubricate the clamping screw.

It is necessary to adapt the cleaning and lubrication of the clamping screw to the ambient conditions. Especially in the case of high clamping frequencies, high operating temperatures, and abrasive dirt or dust. For optimum lubrication of the clamping screw, we recommend copper paste MOLYKOTE CU 7439. (100 g tube, ID 9247204).

1. Unscrew the clamping screw from the product.
IMPORTANT! The actuating piston underneath is not secured against falling out and must not be removed!
2. Clean the clamping screw and actuating thread and check for damage to the thread flanks. Replace if necessary.
3. Lubricate the clamping screw and actuating thread.
4. Screw the clamping screw into the product.
5. Check the clamping force ▶ Chap. 5.2.

5.4 Storage

- Lightly oil the entire surface of the product.
- Only store the product in an unclamped state and protected against corrosion.
- Store the product in a suitable transport container.
- Protect the product from excessive temperature fluctuations.

NOTE: Before recommissioning, clean the product and check for damage, functionality and tightness!

If you have any questions regarding maintenance and servicing, our technical after-sales service is available during our business hours:

Service telephone: +49-7133-103-2956
service.toolholder@de.schunk.com

6 Disposal

- Follow local regulations on dispatching product components for recycling or proper disposal.
- Alternatively, you can return the product to SCHUNK for correct disposal.

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Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

Document number: 0289036
Edition: 03.01 | 23/01/2023 | en

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