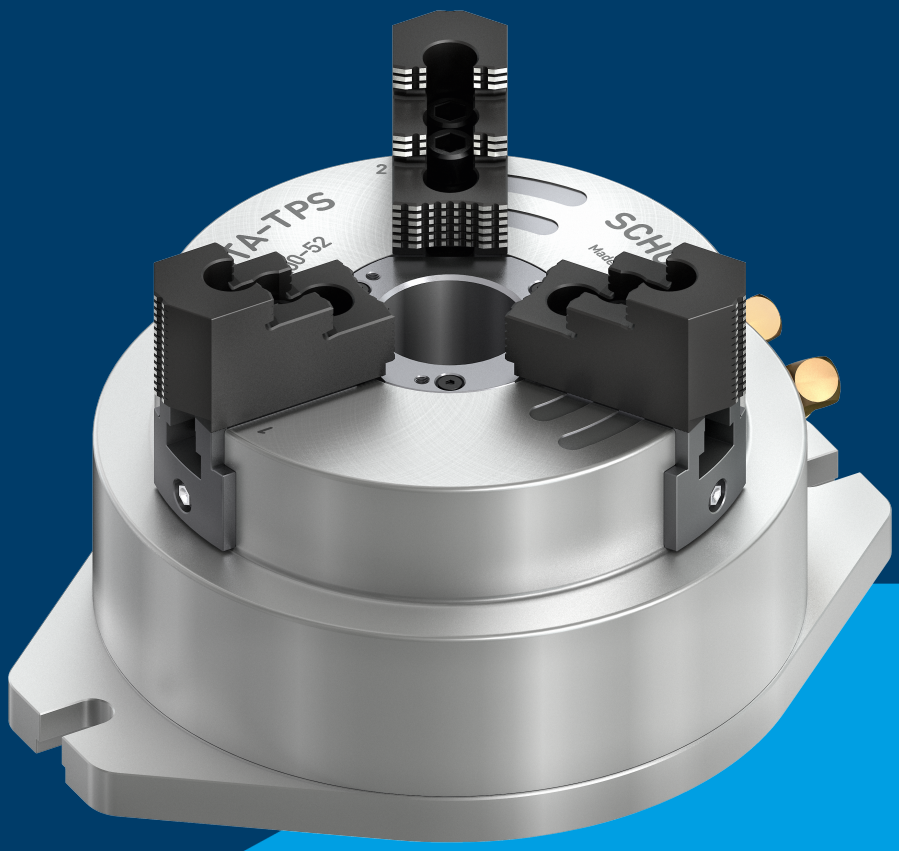

Power Chuck
ROTA TPS
Assembly and operating Manual

Hand in hand for tomorrow

Imprint

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

Document number: 0889145

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Dear Customer,

Thank you for trusting our products and our family-owned company, the leading technology supplier of robots and production machines.

Our team is always available to answer any questions on this product and other solutions. Ask us questions and challenge us. We will find a solution!

Best regards,

Your SCHUNK team

Customer Management

Tel. +49-7572-7614-1300
Fax +49-7572-7614-1039

cmm@de.schunk.com

Please read the operating manual in full and keep it close to the product.

Table of Contents

1 General

1.1 About this manual

This manual contains important information for the safe, correct use of the product.

It is an integral part of the product and must be kept accessible for personnel at all times.

Personnel must have read and understood this manual before beginning any work. The observance of all safety notes in this manual is a prerequisite to ensure safe work processes.

The illustrations are intended to provide a basic understanding and may deviate from the actual version.

Besides this manual, other documents which apply are those listed under ▸ 1.1.2 [🗋 6]

1.1.1 Illustration of warning notices

To make risks clear, the following signal words and symbols are used for safety notes.

⚠ DANGER

Denotes a hazard with a high degree of risk that, if not avoided, will result in death or serious injury.

⚠ WARNING

Denotes a hazard with a medium degree of risk that, if not avoided, could result in death or serious injury.

⚠ CAUTION

Denotes a hazard with a low degree of risk that, if not avoided, could result in a minor or moderate injury.

NOTICE

Information about avoiding material damage.

1.1.2 Applicable documents

- General Terms and Conditions *
- Catalog data sheet for the attached product *
- Technical data sheet for optional attachments *
- Approval drawings

Documents marked with a star (*) can be downloaded at **schunk.com**.

1.1.3 Sizes

This guide applies to the following sizes in all variants

ROTA power chuck

- Size TPS 125
- Size TPS 160
- Size TPS 200
- Size TPS 250
- Size TPS 315

1.2 Warranty

The warranty for standard products is 24 months from the date of delivery from the factory, or 50,000 cycles* for manually operated clamping devices and 500,000 cycles* for power operated clamping devices. For special clamping devices, it is 12 months from the date of delivery from the factory, assuming appropriate use in accordance with the following conditions:

- Observe the applicable documents, ▶ 1.1.2 [🗋 6]
- Observance of the ambient conditions and operating conditions, ▶ 2.5 [🗋 8]
- Observance of maintenance and lubrication intervals, ▶ 6.3 [🗋 20]

Parts touching the workpiece and wearing parts are not covered by the warranty.

* One cycle comprises one complete clamping procedure ("opening" and "closing").

1.3 Scope of delivery

1 **Power chuck** in the version ordered (without top jaws)
2 **Elbow unions**
2 **Straight fittings**
6 **T-nuts**
6 **Cylindrical screws** for top jaws
1 **Assembly tool**
1 **Assembly and Operating Manual**

only for TPS-Z:

6 Studs
6 Hexagon nuts

1.4 Accessories

(see catalog or data sheets when ordering separately)

- Top jaws
  (also available from SCHUNK in a workpiece-specific design)
- Gripping force maintenance device with pressure maintenance valve

2 Basic safety notes

Improper handling, assembly and maintenance of this product may result in risk to persons and equipment if this operating manual is not observed.

2.1 Appropriate use

- The product is used for clamping metal and plastic workpieces on machine tools.
- The product may only be used within the scope of its technical data.
- The product is designed to be set up on a machine table or machine pallets.
- The product is intended for industrial and commercial use.
- Appropriate use of the product includes compliance with all instructions in this manual.
- Use suitable top jaws with a suitable interface.
- Clamping workpieces with temperatures between 0°C and 100°C.
- The outer dimensions of the workpiece must be smaller than or at most equal to the outer diameter of the clamping device.
- The workpiece must not undergo plastic deformation while under clamping force (clamping indentations are permissible).

2.2 Inappropriate use

The product is not being used appropriately if:

- the product is used as a press or a punch, as a toolholder, as a lathe chuck, as a drill or as a cutting tool.
- the technical data specified are exceeded during usage.
- workpieces are not properly clamped, paying particular attention to the specified clamping forces.
- the top jaws are not mounted properly.
- the product is not being operated properly.
- the product is operated in the stroke end positions.
- the guideways are overloaded due to the chuck jaws being too high or the selected clamping point being too high.
- the product has been insufficiently maintained.
- the product is used for turning applications over 100 RPM without consulting SCHUNK.
- the product is brought into contact with aggressive media, especially acids.
- the product is used in abrasive blasting processes, especially sandblasting.

2.3 Structural changes

Implementation of structural changes

Modifications, changes or reworking, e.g. additional threads, holes, or safety devices, can damage the product or impair its functionality or safety.

- Structural changes should only be made with the written approval of SCHUNK.

2.4 Spare parts

Use of unauthorized spare parts

Using unauthorized spare parts can endanger personnel and damage the product or cause it to malfunction.

- Only use original spare parts and spares authorized by SCHUNK.

2.5 Ambient conditions and operating conditions

Required ambient conditions and operating conditions

Incorrect ambient and operating conditions can make the product unsafe, leading to the risk of serious injuries, considerable material damage and/or a significant reduction in the service life of the product

- Make sure that the product is only used within its defined application parameters.
- Ensure that the product is of a sufficient size for the application.
- Ensure that maintenance and lubricating intervals are observed.
- When machining, use only coolant emulsions with anti-rust properties.
- Depending on the operating conditions, the function must be checked after a certain period of operation.

2.6 Material limitations

The product is made of steel alloys, elastomers, aluminum alloys and brass. In addition, Microgleit LP 410 grease, Branotect anti-rust oil and Renolit HLT2 are incorporated into the product as auxiliary and operating materials. The safety data sheet for Microgleit LP 410 can be found at **www.schunk.com**.

2.7 Chuck Jaws

Requirements of the chuck jaws

When using chuck jaws, please observe the following rules:

- Change chuck jaws at a standstill and without a clamped workpiece.
- Do not use welded jaws.
- Design the chuck jaws to be as low as possible. The clamping point must be as close as possible to the housing. (clamping points at a greater distance cause higher surface pressures in the jaw guides and can significantly reduce the clamping force.)
- If the clamping point is at a greater distance from the housing, the operating pressure must be reduced.
- After a collision, the clamping device and the chuck jaws must be subjected to a crack detection test before being used again. Replace damaged parts with original SCHUNK spare parts.
- The chuck jaw mounting screws and if present, the T-nuts, must be replaced if there are signs of wear or damage. Only use screws of quality grade 12.9 in compliance with the specified tightening torques. For clamping devices with fine serration, the jaw mounting screws must be screwed into the holes closest to the clamping point.

2.8 Personnel qualifications

Inadequate qualification of personnel

Any work on the product by inadequately qualified personnel can lead to serious injuries and considerable material damage.

- All work must be performed by appropriately qualified personnel.
- Personnel must have read and understood the complete manual before beginning any work on the product.
- Observe country-specific accident prevention regulations and the general safety notes.

The following personnel qualifications are required for the various activities on the product:

Qualified electrician

Qualified electricians have the professional training, knowledge, and experience to work on electrical systems, to recognize and avoid potential dangers, and know the relevant standards and regulations.

Specialist personnel Specialist personnel have the specialized training, knowledge, and experience to perform the tasks entrusted to them, to recognize and avoid potential dangers, and know the relevant standards and regulations.

Instructed person Instructed persons have been instructed by the operator regarding the tasks entrusted to them and the potential dangers of inappropriate behavior.

Manufacturer's service personnel The manufacturer's service personnel have the specialized training, knowledge, and experience to perform the work entrusted to them and to recognize and avoid potential dangers.

2.9 Personal protective equipment

Use of personal protective equipment

Personal protective equipment serves to protect staff in the event of a danger that may interfere with their health or safety at work.

2.10 Transport

Handling during transport

Incorrect handling during transport can make the product unsafe and risks the danger of serious injuries and considerable material damage.

- During transport and handling, secure the product to prevent it from falling.
- Use the transport thread on the clamping device.

2.11 Protection during handling and assembly

Incorrect handling and assembly

Incorrect handling and assembly can make the product unsafe and can risk the danger of serious injuries and considerable material damage.

- All work must only be performed by appropriately qualified personnel.
- Secure the system against accidental operation during all work.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

2.12 Protection during commissioning and operation

Falling or violently ejected components

Falling and ejected components can lead to serious injury or death.

- Take suitable protective measures to secure the danger zone.

2.13 Notes on safe operation

Incorrect manner of working by personnel

An incorrect manner of working can make the product unsafe and risks serious injuries and considerable material damage.

- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. Products for special ambient conditions are excluded.
- Rectify malfunctions as soon as they occur.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention, and environmental protection regulations for the application field of the product.
- Do not start the machine spindle until the force has built up in the chuck jaw and clamping is complete in the permissible operating range.
- Unclamping may only occur once the machine spindle has come to a standstill.

IMPORTANT!

Following a longer shutdown period (more than 8 hours), always re-tension the clamping device in order to compensate for the setting properties of the clamping situation or possible pressure losses and the resulting loss of clamping force.

2.14 Disposal

Handling of disposal

Incorrect handling during disposal can make the product unsafe and risks serious injuries and considerable material and environmental harm.

- Follow local regulations on dispatching product components for recycling or proper disposal.

2.15 Fundamental dangers

General

- Disconnect power sources before installation, modification, maintenance, or calibration. Ensure that no residual energy remains in the system.
- Do not reach into the open mechanism or movement area of the product during operation.

2.16 Protection against dangerous movements

Unexpected movements

If the system still retains residual energy, serious injuries can be caused while working on the product.

- Switch off the energy supply, ensure that no residual energy remains and secure against inadvertent reactivation.
- Never rely merely on the response of the monitoring function to avert danger. Assume that the drive movement is faulty as long is the installed monitors are not effective, since the effect depends on the control and the current operating state of the drive.
- To avoid accidents and/or material damage, human access to the movement range of the machine must be restricted.

2.17 Notes on particular risks

⚠ WARNING

Risk of injury in the event of workpiece loss due to component failure on the product as a result of exceeding the technical data.

- The product is only allowed to be used within the scope of its technical data.

⚠ WARNING

Danger of crushing due to the chuck jaws moving to the workpiece during the clamping procedure when loading and unloading manually.

- Do not reach between the workpiece and the chuck jaw during the clamping procedure.
- Implement the safety functions according to the integrator's risk assessment.

⚠ WARNING

Risk of injury in the event of workpiece loss due to failure or pressure reduction.

- Implementing safety functions according to the integrator's risk assessment.
- Ensure stable pressure supply.
- Use pressure maintenance valves.

⚠ WARNING

Risk of injury from falling parts during transport, assembly and disassembly of the product and its accessories.

- Use suitable load handling equipment for transport.
- Do not linger in the danger zone.
- Wear protective equipment (protective shoes).

⚠ CAUTION

Ergonomic risk to the musculoskeletal system when lifting and transporting the product using manual force.

- Use load handling equipment for lifting and transporting.

⚠ CAUTION

Allergic reactions or irritation due to skin or eye contact with lubricants on the product.

- In case of foreseeable contact with lubricants on the product (e.g. when lubricating or cleaning),
- wear protective equipment (protective gloves, protective goggles).

⚠ CAUTION

Danger for the operating personnel in case of insufficient clamping force due to ejection or falling of the workpiece!

Due to settling behavior, the clamping force may decrease over time.

- Ensure that the clamping pressure is applied to the clamping device while the workpiece is being machined.
- Re-clamping of the workpiece with manual or pneumatic clamping devices.

3 Technical data

Actuation pressure [bar]	6
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:2010 [7:4:4]
Operating temperature [°C]	+ 5 to + 60
Noise emission [dB(A)]	≤ 70
Installation position	Any

ROTA TPS	125-26	160-38	200-52	250-68	315-90	315-105
Stroke per jaw [mm]	3	4.2	4.2	5	5	5
Max. clamping force* [kN]	22	39	68	105	140	80
Air consumption per double stroke [cm^3]	2200	4800	7800	13200	16400	10800
Closing/opening time at 6 bar [s]	0.35	0.39	0.85	0.89	1.2	1.5
Weight [kg]	12	23	34	60	82	72
Max. jaw stroke [mm]	40	40	54	70	76	70

* Clamping force is the arithmetic sum of the individual forces occurring at the chuck jaws at a distance of "H" at 6 bar.

A separate maintenance unit must be used for the air supply. The power chuck is designed for operation with dry compressed air. If oiled compressed air is used for operation, this must be done every time. For an air volume of 1000 liters, the compressed air should be prepared with 1 to 2 drops of oil .

4 Function and handling

Wedge-hook chucks are actuated using rotating closed-center or open-center hydraulic cylinders or via a static hydraulic cylinder. The axial tensile and pressure forces are converted to the radial jaw clamping force by the wedge hook angle in the piston and base jaws.

The clamping and opening path of the chuck jaws is determined by the hydraulic cylinder. The fine serration of the base jaws can be used to mount standard jaws as well as special jaws for complicated workpiece shapes. The top jaws are moved or changed in the open clamping position.

⚠ WARNING

Clamping further above the chuck surface results in lower clamping force.

If the workpiece is released in an uncontrolled manner, there is a risk of personal injury and damage to the system.

- Refer to the "Technical data" chapter!

4.1 Functional testing

Functional test

After installation of the chuck, its function must be checked prior to start-up. Make sure there are no leaks in the line system.

Two important points are:

- **Clamping force!** At max. actuating force/pressure, the clamping force specified for the chuck must be reached.
- **Stroke control** The stroke of the clamping piston must have a margin of safety at the front and back end positions. The machine tool must not start up until the clamping piston has passed through the safety margin Only limit switches that meet the requirements for safety limit switches specified in DIN EN 60204-1 may be used to monitor the clamping path.

If the chuck jaws are changed, adjust the stroke control to the new situation.

5 Mounting

5.1 Torques per screw

Tightening torques for mounting screws used to clamp the chuck on lathes or other suitable technical equipment (screw quality 10.9)

Screw size	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
Admissible torque M_A (Nm)	13	28	50	88	120	160	200	290	400	500	1050	1500

Tightening torques for mounting screws used to attach top jaws onto the chuck (screw quality 12.9)

Screw size	M6	M8	M10	M12	M14	M16	M20	M24
Max. admissible torque M_A (Nm)	16	30	50	70	130	150	220	450

5.2 Mounting in general

5.2.1 Pre-assembly measures

Carefully lift the product (e.g. using suitable lifting gear) from the packaging.

⚠ WARNING

Risk of injury due to unexpected movements!

If the power supply is switched on or residual energy remains in the system, components can move unexpectedly and cause serious injuries.

- Before starting any work on the product: Switch off the power supply and secure against restarting.
- Make sure, that no residual energy remains in the system.

⚠ CAUTION

Danger of injury due to sharp edges and rough or slippery surfaces

- Wear personal protective equipment, particularly protective gloves.

Check the delivery for completeness and for transport damage.

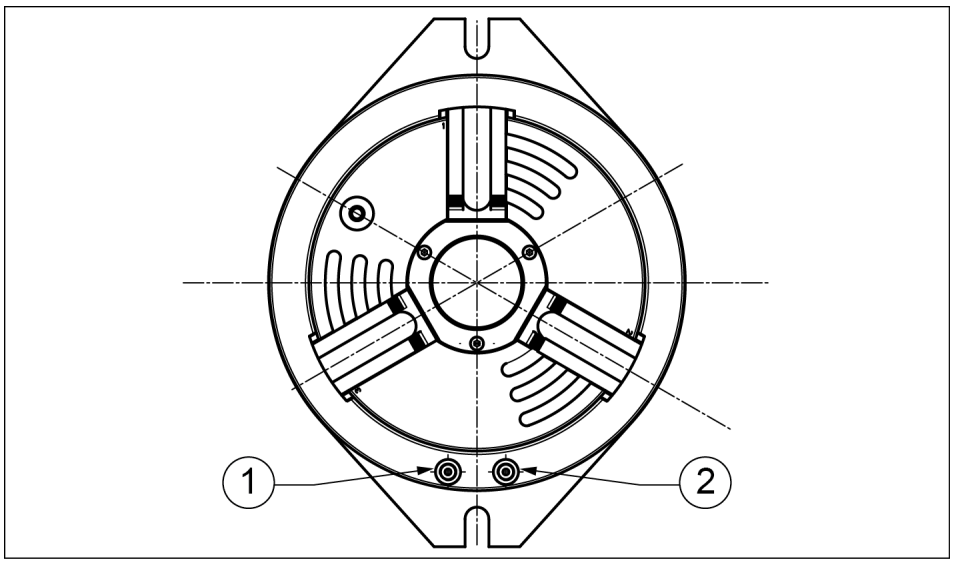
5.3 Assembly of the TPS on the machine table

Adjustment grooves are provided on both locating surfaces of all stationary, pneumatically operated power clamping units of type ROTA **TPS-K**, which enable mounting on the work table by means of T-nuts. The T-nuts must be made or ordered according to the width of the groove of the table.

Corresponding devices must be made by the customer for types ROTA **TPS-Z** which ensure secure mounting and enable adjustment of the power chucks.

5.4 Connection of the stationary 3-Jaw-Power-Chuck

ROTA TPS has 2 air connections for OPEN and CLOSED.



1	CLOSED	2	OPEN

Thread for air connections

- ROTA TPS 125 G1/8"
- ROTA TPS 200 G1/4"
- ROTA TPS 315 G1/4"
- ROTA TPS 160 G1/4"
- ROTA TPS 250 G1/4"

NOTICE

Always make sure the connections are tight, and protect the pneumatic hoses from hot chips and falling parts by using a suitable metal hose.

NOTICE

When actuating the clamping device (clamping or releasing), a short pause for ventilation must be maintained between each shifting operation. This ventilation pause must be at least 0.5 seconds, depending on the length of the hose. A 4/3 or 5/3-way valve is recommended for this purpose (center position depressurized).

5.5 Initial operation

Check whether the jaw guides and the piston of the ROTA TPS power chuck are sufficiently lubricated at the lubricating nipples embedded in the base jaws.
If required, lubricate the chuck with the base jaws retracted, by using LINOMAX plus special grease from SCHUNK.

NOTICE

An insufficiently lubricated chuck will result in a significantly reduced clamping force.

Turning, facing or skimming of the front-end power chuck is not permitted.
Drilling of the chuck on the front face side may be performed only after consulting the SCHUNK technical sales department.

5.6 Hardened Reversible Jaws and Soft Top Jaws

Fine serration of the base and top jaws is 1/16" x 90°. The adjusting stroke from tooth to tooth is approximately 1.6 mm.

NOTICE

It must be ensured that the top jaws are fixed on the fine serration in such a way that a maximum of 2/3 the jaw stroke is extended for clamping.

Hardened reversible jaws should only be used in sets in accordance with the packaging, as they are manufactured on the device in sets.

When installing and removing the reversible jaws numbered 1 – 3, make sure that the individual jaws are installed/removed on/from the base jaws with the same designation to ensure a high level of accuracy of the clamping center.

The fine serration of the base jaws and top jaws should always be cleaned when the top jaws are adjusted, because otherwise the true running accuracy will be reduced.

The screws of the hardened reversible jaws and soft top jaws must be tightened with the specified torque, ▸ 5.1 [🗋 16].

6 Maintenance

6.1 Lubrication

⚠ WARNING

Risk of injury through contact with lubricants!

Skin or eye contact with lubricants can cause irritation and allergic reactions.

- Avoid skin or eye contact with lubricants.
- Wear safety goggles and protective gloves.

To maintain the safe functioning and high quality of the chuck, it must be lubricated regularly at all lubrication points. For optimum grease distribution, the chuck must be lubricated in the lubricating position (▸ 6.2 [🗋 19]).

Depending on the operating conditions, the function and clamping force must be checked after a certain period of operation (▸ 6.3 [🗋 20]). Only perform the clamping force test with a calibrated clamping force tester (SCHUNK IFT). If the chuck is used over several clamping cycles in the short stroke range (< 50% clamping stroke), it is recommended to perform a empty stroke regularly to maintain the clamping force at a consistently high level.

Lubricate the chuck evenly in order to avoid large imbalances.

6.2 Lubricating position

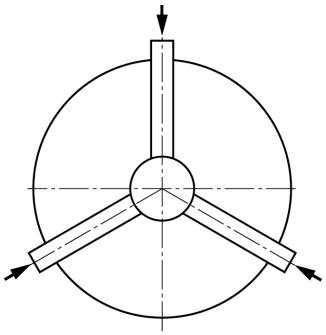


Fig. 1: Lubricating points

The following procedure should be followed to ensure optimum distribution of the lubricant:

- Open the chuck and move it to the outer end position.
- Lubricate the chuck at the 3 grease nipples (item 41) with LINOMAX plus.
- Perform several empty strokes over the entire travel range of the chuck.

6.3 Maintenance and lubrication plan

The specified intervals are guide values and must be adjusted by the operator depending on the ambient and operating conditions and the frequency of use of the clamping device used. To determine a suitable lubrication interval for the respective application, regular clamping force tests must be carried out. If only 80% of the maximum clamping force is reached, the clamping device must be lubricated. In accordance with VDI 3106, it must be ensured that sufficient clamping force is available for the application.

Maintenance task	Interval
Lubricate	Every 24 operating hours
Check clamping force	To be determined by the operator
Complete cleaning / disassembly	Annually / after 2500 operating hours

6.4 Control of thightness

NOTE:

Temperature fluctuations must be avoided during the leak test.

The following components are required to check for leaks: pressure gauge, shut-off valve and quick coupler.

The leak test should only be conducted when the chuck is in the "CLOSED" position.

Leak test sequence:

1. Seal the "OPEN" air connection so it is air-tight.
2. Connect the components to the open "CLOSED" air connection in the following order:
   pressure gauge – shut-off valve – coupling – supply line.
3. Pressurize the clamping system with compressed air until the pressure gauge displays 6 bar.
4. Disconnect the supply line.
5. Let the clamping system sit clamped for 24 hours.
6. After 24 hours, the clamping block is:
   sealed – if the pressure gauge indicates a pressure of ≥ 5.5 bar.
   leaking – if the pressure gauge indicates a pressure of < 5.5 bar.

If the clamping system is leaking, check the screws first (e.g. with Metaflux leak detection spray).

Seal any leaking screws.

Once the screws are sealed, the seals must be checked and replaced if necessary.

6.5 Disassembly and assembly

The item numbers specified for the corresponding individual components relate to chapter drawings.▸ 10 [🗋 27]

6.5.1 Disassembly and cleaning

1. On the chuck mount (item 7) with O-ring (item 48, 52), unscrew the hexagon socket screws (item 39) and screw 3 of these screws into the threaded extraction holes to push off the mount.
2. Loosen the radial set screw (item 34) in the fixing nut (item 40). The clamping by the copper bolt (item 33) slows down and the nut can be loosened with the enclosed assembly tool (item 80).
3. Screw three hexagon socket screws into the threaded holes of the piston cover (item 6) and force the piston cover (item 6) from the piston (item 3).
4. On the front side of the chuck, loosen the socket screws (item 36) of the sleeve (item 4) and pull out the sleeve (item 4) toward the front by lightly knocking from the back side of the chuck.
5. Remove the sealing disk (item 5) fastened by socket screws (item 37) and take out the O-ring (item 43).
6. The piston (item 3) can be pulled out of the chuck body (item 1) and the base jaws (item 2) can be pulled out of the base jaw guides inwardly through the piston bore hole of the chuck body. The base jaws (item 2) as well as the base jaw guides in the chuck body (item 1) and the hardened reversible jaws are numbered 1, 2, and 3. This ensures the same position, and thus the same true-running accuracy, is achieved during assembly.
7. Degrease and clean all parts and check them for damage.
8. Check all O-rings for possible damage and wear, replace them if necessary, grease with Renolit HLT 2 or a equivalent grease, and carefully reinstall them.
9. Lubricate the cylinder chamber of the chuck with oil.
   Jaw guides in the chuck body, base jaws and piston at the wedge hooks are greased with SCHUNK LINOMAX plus special grease.

6.5.2 Assembly

NOTE:
All parts of the ROTA TPS power chuck are smooth-running components. Therefore, do not strike the chuck hard with a hammer during assembly.

1. Insert the designated base jaws (item 2) into the corresponding guides, let the piston with the O-ring (item 47) engage in the splines of the base jaws (item 2) and insert the piston up to the end of the stroke.
2. Insert the O-ring (item 51) and sealing disk (item 5) with O-ring (item 50) and screw them securely and air-tight to the chuck body by means of the hexagon socket screws (item 37).
3. **ROTA TPS 160-38, ROTA TPS 200-52, ROTA TPS 250-68, ROTA TP 315-90:** Insert the piston cover with the O-ring (item 6, 53) and use the enclosed assembly tool (item 80) to mount the lock nut (item 40). Lock the nut radially with the copper bolt (item 33) and setscrew (item 34).
   ROTA TPS 125-26: Use the enclosed assembly tool (item 80) to assemble the lock nut (item 40). Securing the nut with safety cord (item 33).
   ROTA TPS 315-105: Assemble screws (item 40) and tighten alternately.
4. Put on the chuck mount with O-rings (item 48, 52) and fasten it with hexagon socket screws (item 39).
5. Insert the guide bushing (item 4) from the front side of the chuck and tightly fasten it with the screws (item 36).

7 Trouble shooting

7.1 The chuck jaws do not move

Possible cause	Corrective action
Air supply interrupted Connections mixed up.	Check compressed air lines.
Piston will not move: – Compressed air is not oiled. – Maintenance unit with oiler is too far from the chuck. – The seal in the cover is not properly inserted.	Install maintenance unit with oiler. Position the maintenance unit with oiler closer to the chuck. Check the seal in the cover and insert correctly .

7.2 The Clamping System does not move the full stroke?

Possible cause	Corrective action
Chips or dirt between guide bushing and base jaws.	Completely disassemble, clean and relubricate the chuck, ▶ 6.5 [🗋 21].

7.3 Clamping force getting weaker

Possible cause	Corrective action
The clamping system is leaking: – Connection and/or sealing screws leaking. – Seals damaged. – Steel guide rollers on sliding surfaces not greased.	Seal any leaking screws. Disassemble chuck and replace seals, ▶ 6.5 [🗋 21]. Lubricate the chuck with SCHUNK LINOMAX plus special grease at the base jaw lubrication nipples by means of a grease gun.

7.4 Clamping system movement jerky

Possible cause	Corrective action
Steel guide rollers on sliding surfaces not greased.	Lubricate the chuck with SCHUNK LINOMAX plus special grease at the base jaw lubrication nipples by means of a grease gun.

8 Storage

When storing the product for a longer period of time, observe the following points:

- Clean the product and lubricate it lightly.
- Store the product in a suitable transport container.
- Only store the product in dry rooms.
- Protect the product from major temperature fluctuations.

NOTE: Before recommissioning, clean the product and all attachments, check for damage, functionality and leaks.

9 Part lists

When ordering spare parts, it is essential to specify the type, size and, above all, the serial number of the chuck. **Seals, sealing elements, screw connections, springs, bearings, screws and wiper strips as well as parts that come into contact with the workpiece are not covered by the warranty.**

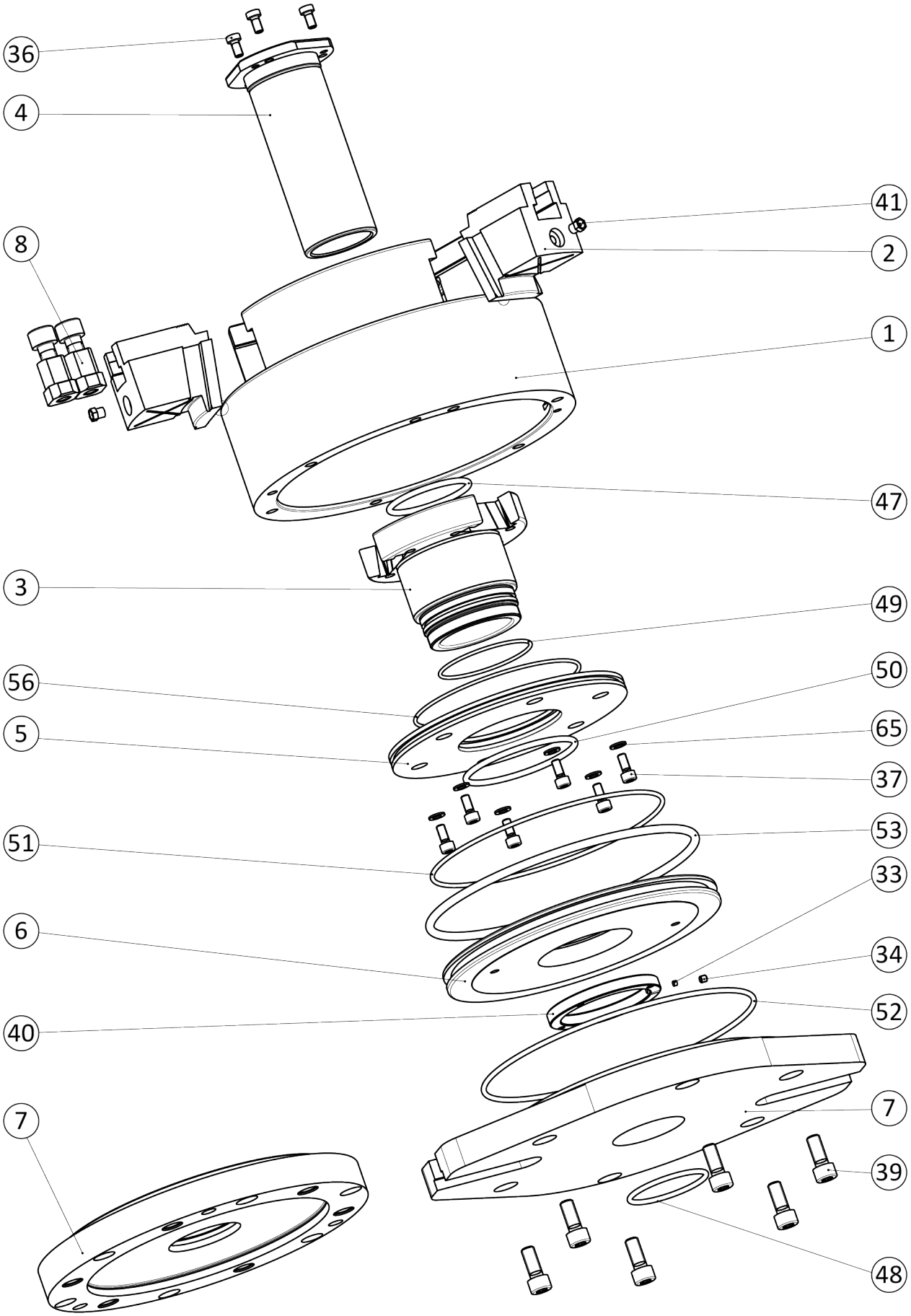
Item	Designation	Quantity	Note
1	Chuck body	1	
2	Base jaw	3	
3	Piston	1	
4	Bushing	1	
5	Sealing disk	1	
6	Piston cover	1	
7	Base plate	1	K
	Z-mount	1	Z
8	T-nut	6	
17	Sealing plug	1	125 / 200 / 315-90
	Sealing plug	5	250-Z
	Sealing plug	7	160
33	Safety lanyard	1	125
	Copper bolt	1	160 / 200 / 250 / 315-90
34	Set-screw	1	160 / 200 / 250 / 315-90
36	Screw 8.8	3	
37	Screw 10.9	3	125
	Screw 10.9	6	200 / 250 / 315
38	Screw 10.9	6	160
	Screw 10.9	12	315-105
39	Screw 10.9	6	125 / 160
	Screw 10.9	12	200 / 250 / 315-90
40	Locking nut	1	
	Screw 10.9	6	315-105
41	Funnel lubrication nipple	3	
43	Stud 8.8	6	Z
44	Hexagon nut	6	Z
45	Swivel fitting	2	
46	Straight screw connection	2	

Item	Designation	Quantity	Note
47	O-ring	1	**X**
48	O-ring	1	**X**
49	O-ring	1	**X**
50	O-ring	1	**X**
51	O-ring	1	**X**
52	O-ring	1	**X**
53	O-ring	1	**X**
54	O-ring	1	160 / 315-105 / **X**
65	Copper sealing ring	3	125 / **X**
	Copper sealing ring	6	160 / 200 / 250 / 315 / **X**
67	Fiber seal	4	**X**
80	Assembly tool	1	

Parts list key			
K	with base plate	Z	with cylindrical recess
125	for size 125	165	for size 165
200	for size 200	250	for size 250
315-90	for size 315-90	315-105	for size 315-105

Seals are wearing parts (**X**) and are recommended to be replaced during maintenance.

10 Drawing



11 Manufacturer certificate

Manufacturer / Distributor:	H.-D. SCHUNK GmbH & Co. Spanntechnik KG Lothringer Str. 23 D-88512 Mengen
Product:	Lathe chuck
Designation:	ROTA
Type designation:	NCK-S, TPS, TBS

Heinz-Dieter SCHUNK GmbH & Co. Spanntechnik KG certifies that the above-mentioned products, when used as intended and in compliance with the operating manual and the warnings on the product, are safe according to the national regulations and:

- a **risk assessment** has been carried out in accordance with ISO 12100:2010.
- an **operating manual** for the assembly instructions has been created in accordance with the contents of the Machinery Directive 2006/42/EC Annex I No. 1.7.4.2. and the contents of the provisions of Annex VI of the Machinery Directive 2006/42/EC.
- the relevant basic and proven safety principles of the Annexes of **ISO 13849-2:2012**, taking into account the requirements of the documentation have been observed for the component. The parameters, limitations, ambient conditions, characteristic values, etc. for proper operation are defined in the operating manual.
- an $MTTF_D$ value of 150 years can be estimated for mechanical components using the informative procedure in Table C.1 of ISO 13849-1:2015.
- **fault exclusion** against the fault "Unexpected release without pending release signal".
- the **fault exclusion** against the fault "Breakage during operation" in compliance with the parameters, limitations, ambient conditions, characteristic values and maintenance intervals, etc., specified in the operating manual.
- that internal bore diameters in the **pipe or control lines** are at least 2 mm for pneumatic clamping systems and at least 3 mm for hydraulic clamping systems

Harmonized Standards applied:

- **ISO 12100:2010** Safety of machinery - General principles for design - Risk assessment and risk reduction
- **EN 1550:1997+A1:2008** Machine-tools safety – Safety requirements for the design and construction of lathe chucks for the workpiece mount

Other related technical Standards and specifications:

- **ISO 702-1:2010-04** Machine tools – Connecting dimensions of spindle noses and lathe chucks – Part 1: front short-taper mount with screws
- **ISO 702-4:2010-04** Machine tools – Connecting dimensions of spindle noses and lathe chucks – Part 4: cylindrical mount
- **VDI 3106:2004-04** Determination of permissible RPM of lathe chucks (jaw chucks)

Mengen, 25th of April 2023

Signature: see original declaration

p.p. Philipp Schräder
Head of Development standard products

Signature: see original declaration

p.p. Alexander Koch
Head of Engineering Design special products

H.-D. SCHUNK GmbH & Co.
Spanntechnik KG

Lothringer Str. 23
D-88512 Mengen
Tel. +49-7572-7614-0
info@de.schunk.com
schunk.com

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