

Stationary 3-Jaw-Power-Chuck ROTA TPS-K, ROTA TPS-Z

Assembly and operating Manual



Imprint

Copyright:

This manual is protected by copyright. The author is SCHUNK GmbH & Co. KG. All rights reserved. Any reproduction, processing, distribution (making available to third parties), translation or other usage - even excerpts - of the manual is especially prohibited and requires our written approval.

Technical changes:

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

Document number: 0889145

Version: 03.00 |19/09/2018|en

© H.-D. SCHUNK GmbH & Co.

All rights reserved.

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

H.-D. SCHUNK GmbH & Co.

Spanntechnik KG

Lothringer Str. 23

D-88512 Mengen

Tel. +49-7572-7614-0

Fax +49-7572-7614-1099

info@de.schunk.com

schunk.com

Table of contents

1	General	5
1.1	About this manual	5
1.1.1	Presentation of Warning Labels.....	5
1.1.2	Applicable documents.....	6
1.1.3	Sizes.....	6
1.2	Warranty.....	6
1.3	Scope of delivery	6
1.4	Accessories	6
2	Basic safety notes	7
2.1	Intended use.....	7
2.2	Not intended use.....	7
2.3	Constructional changes	7
2.4	Spare parts.....	8
2.5	Chuck jaws	8
2.6	Environmental and operating conditions.....	8
2.7	Personnel qualification.....	9
2.8	Personal protective equipment.....	10
2.9	Notes on safe operation.....	10
2.10	Transport	10
2.11	Malfunctions.....	11
2.12	Disposal.....	11
2.13	Fundamental dangers.....	11
2.13.1	Protection during handling and assembly	12
2.13.2	Protection during commissioning and operation	12
2.13.3	Protection against dangerous movements.....	12
2.13.4	Notes on particular risks	13
3	Technical data	16
4	Torques per screw	17
5	Functional testing	17
6	Maintenance	18
6.1	Pre-assembly measures.....	18
6.2	Connection of the stationary 3-Jaw-Power-Chuck.....	18
6.3	Assembly of the TPS on the machine table.....	19
7	Commissioning and maintenance	20
7.1	Initial operation	20

Table of contents

7.2	Hardened Reversible Jaws and Soft Top Jaws.....	20
7.3	Maintenance and Lubrication	21
7.4	Control of tightness	21
7.5	Disassembly and assembly	22
7.5.1	Disassembly and cleaning	22
7.5.2	Assembly	23
8	Trouble shooting	25
8.1	The chuck jaws do not move	25
8.2	The Clamping System does not move the full stroke?.....	25
8.3	Clamping force getting weaker	25
8.4	Clamping system movement jerky	25
9	Spare parts	26
10	Drawing.....	27
11	Translation of original declaration of incorporation	28

1 General

1.1 About this manual

This manual contains important information for a safe and appropriate use of the product.

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





Before starting work, the personnel must have read and understood this operating manual. Prerequisite for safe working is the observance of all safety instructions in this manual.

Illustrations in this manual are provided for basic understanding and may differ from the actual product design.

In addition to these instructions, the documents listed under [\(☞ 1.1.2, Page 6\)](#) are applicable.

1.1.1 Presentation of Warning Labels

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

	<p>⚠ DANGER</p> <p>Danger for persons! Non-observance will inevitably cause irreversible injury or death.</p>
	<p>⚠ WARNING</p> <p>Dangers for persons! Non-observance can lead to irreversible injury and even death.</p>
	<p>⚠ CAUTION</p> <p>Dangers for persons! Non-observance can cause minor injuries.</p>
	<p>NOTICE</p> <p>Material damage! Information about avoiding material damage.</p>

1.1.2 Applicable documents

- General terms of business*
- Catalog data sheet of the purchased product *

The documents marked with an asterisk (*) can be downloaded on our homepage **schunk.com**

1.1.3 Sizes

This operating manual applies to the following sizes:

- ROTA TPS 125-26; 160-38; 200-52; 250-68; 315-90; 315-105

1.2 Warranty

The warranty period is 24 months after delivery date from factory or 300 000 cycles*, if it is used as intended, under the following conditions:

- Observe the applicable documents ([👉 1.1.2, Page 6](#))
- Observe the ambient conditions and operating conditions, ([👉 2.6, Page 8](#))
- Observe the specified maintenance and lubrication intervals, ([👉 7, Page 20](#))

Parts touching the workpiece and wear parts are not included in the warranty.

* A cycle consists of a complete clamping process ("Open" and "Close").

1.3 Scope of delivery

stationary 3-jaw chuck ROTA TPS (without top jaws)

- 2 Elbow unions
- 2 Straight fittings
- 6 T-nuts
- 6 Cylindrical screws for top jaws
- 1 Assembly tool

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

2.1 Intended use

This product is intended for clamping workpieces on machine tools and other suitable technical devices.

- The product may only be used within the scope of its technical data, ([☞ 3, Page 16](#)).
- The product is intended for industrial and industry-oriented use.
- Appropriate use of the product includes compliance with all instructions in this manual.

2.2 Not intended use

The power chuck for stationary use/application is not being used as intended if, for example:

- It is used as a lathe chuck.
- It is used as a press, a punch, a chuck, a load-handling device or as lifting equipment.
- It is used in working environments that are not permissible.
- Workpieces are not clamped properly, paying particular attention to the clamping forces specified by the manufacturer.
- People work on machines or technical equipment that do not comply with the EC Machinery Directive 2006/42/EC, disregarding the applicable safety regulations.
- The technical data specified by the manufacturer for using the chuck are exceeded.

2.3 Constructional changes

Implementation of structural changes

By conversions, changes, and reworking, e.g. additional threads, holes, or safety devices can impair the functioning or safety of the product or damage it.

- 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.

- Use only original spare parts or spares authorized by SCHUNK.

2.5 Chuck jaws

Requirements of the chuck jaws

Stored energy can make the product unsafe and risk the danger of serious injuries and considerable material damage.

- Only replace chuck jaws if no residual energy can be released.
- Do not use welded jaws.
- The chuck jaws should be designed to be as light and as low as possible. The clamping point must be as close as possible to the chuck face (clamping points at a greater distance lead to greater surface pressure in the jaw guidance and can significantly reduce the clamping force).
- Screw the jaw mounting bolts into the bore holes furthest apart.
- After a collision, the lathe chuck and the chuck jaws must be subjected to a crack test before being used again. Damaged parts must be replaced with original SCHUNK spare parts.
- Replace the chuck jaw mounting bolts if there are signs of wear or damage. Only use bolts with a quality of 12.9.

2.6 Environmental 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 to the product's life span.

- Make sure that the product is used only in the context of its defined application parameters, ([☞ 3, Page 16](#)).
- Make sure that the product is a sufficient size for the application.
- Only use high-quality cooling emulsions with anti-corrosive additives during processing.
- Lubricating intervals must be adhered to ([☞ 7.3, Page 21](#)).

2.7 Personnel qualification

Inadequate qualifications of the personnel

If the personnel working with the product is not sufficiently qualified, the result may be serious injuries and significant property damage.

- All work may only be performed by qualified personnel.
- Before working with the product, the personnel must have read and understood the complete assembly and operating manual.
- Observe the national safety regulations and rules and general safety instructions.

The following personal qualifications are necessary for the various activities related to the product:

- Trained electrician** Due to their technical training, knowledge and experience, trained electricians are able to work on electrical systems, recognize and avoid possible dangers and know the relevant standards and regulations.
- Qualified personnel** Due to its technical training, knowledge and experience, qualified personnel is able to perform the delegated tasks, recognize and avoid possible dangers and knows the relevant standards and regulations.
- Instructed person** Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.
- Service personnel of the manufacturer** Due to its technical training, knowledge and experience, service personnel of the manufacturer is able to perform the delegated tasks and to recognize and avoid possible dangers.

2.8 Personal protective equipment

Use of personal protective equipment

Personal protective equipment serves to protect staff against danger which may interfere with their health or safety at work.

- When working on and with the product, observe the occupational health and safety regulations and wear the required personal protective equipment.
- Observe the valid safety and accident prevention regulations.
- Wear protective gloves to guard against sharp edges and corners or rough surfaces.
- Wear heat-resistant protective gloves when handling hot surfaces.
- Wear protective gloves and safety goggles when handling hazardous substances.
- Wear close-fitting protective clothing and also wear long hair in a hairnet when dealing with moving components.

2.9 Notes on safe operation

Incorrect handling of the personnel

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Avoid any manner of working that may interfere with the function and operational safety of the product.
- Use the product as intended.
- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. This does not apply to products that are designed for special environments.
- Eliminate any malfunction immediately.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention and environmental protection regulations regarding the product's application field.

2.10 Transport

Handling during transport

Incorrect handling during transport may impair the product's safety and cause serious injuries and considerable material damage.

- When handling heavy weights, use lifting equipment to lift the product and transport it by appropriate means.
- Secure the product against falling during transportation and handling.
- Stand clear of suspended loads.

2.11 Malfunctions

Behavior in case of malfunctions

- Immediately remove the product from operation and report the malfunction to the responsible departments/persons.
- Order appropriately trained personnel to rectify the malfunction.
- Do not recommission the product until the malfunction has been rectified.
- Test the product after a malfunction to establish whether it still functions properly and no increased risks have arisen.

2.12 Disposal

Handling of disposal

The incorrect handling of disposal may impair the product's safety and cause serious injuries as well as considerable material and environmental harm.

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

2.13 Fundamental dangers

General

- Observe safety distances.
- Never deactivate safety devices.
- Before commissioning the product, take appropriate protective measures to secure the danger zone.
- Disconnect power sources before installation, modification, maintenance, or calibration. Ensure that no residual energy remains in the system.
- If the energy supply is connected, do not move any parts by hand.
- Do not reach into the open mechanism or movement area of the product during operation.

2.13.1 Protection during handling and assembly

Incorrect handling and assembly

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Have all work carried out by appropriately qualified personnel.
- For all work, secure the product against accidental operation.
- Observe the relevant accident prevention rules.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

Incorrect lifting of loads

Falling loads may cause serious injuries and even death.

- Stand clear of suspended loads and do not step into their swiveling range.
- Never move loads without supervision.
- Do not leave suspended loads unattended.

2.13.2 Protection during commissioning and operation

Falling or violently ejected components

Falling and violently ejected components can cause serious injuries and even death.

- Take appropriate protective measures to secure the danger zone.
- Never step into the danger zone during operation.

2.13.3 Protection against dangerous movements

Unexpected movements

Residual energy in the system may cause serious injuries while working with the product.

- Switch off the energy supply, ensure that no residual energy remains and secure against inadvertent reactivation.
- Never rely solely on the response of the monitoring function to avert danger. Until the installed monitors become effective, it must be assumed that the drive movement is faulty, with its action being dependent on the control unit and the current operating condition of the drive. Perform maintenance work, modifications, and attachments outside the danger zone defined by the movement range.
- To avoid accidents and/or material damage, human access to the movement range of the machine must be restricted.

Limit/prevent accidental access for people in this area due through technical safety measures. The protective cover and protective fence must be rigid enough to withstand the maximum possible movement energy. EMERGENCY STOP switches must be easily and quickly accessible. Before starting up the machine or automated system, check that the EMERGENCY STOP system is working. Prevent operation of the machine if this protective equipment does not function correctly.

2.13.4 Notes on particular risks



DANGER

Risk of fatal injury to operating personnel due to the workpiece falling down or being flung out in the event of a power failure

In the event of a power failure, the lathe chuck's clamping force may fail immediately and the workpiece may be released in an uncontrolled manner. This poses a risk of death or injury to the operating personnel and can result in serious damage to the automated system.

- The machine manufacturer and the operator of the machine must carry out and document a hazard assessment and risk analysis to ensure that suitable measures are taken to maintain the lathe chuck's clamping force until the machine comes to a standstill and the workpiece can be secured (e.g. using a crane or suitable lifting equipment).
- The machines and equipment must fulfill the minimum requirements of the EC Machinery Directive; specifically, they must have effective technical measures to protect against potential mechanical hazards.



! DANGER

Possible risk of fatal injury to operating personnel if a jaw breaks or if the lathe chuck fails because the technical data have been exceeded and a workpiece is released or parts fly off

- The technical data specified by the manufacturer for using the lathe chuck must never be exceeded.
- The lathe chuck may only be used on machines and facilities that fulfill the minimum requirements of the EC Machinery Directive; specifically, they must have effective technical measures to protect against possible mechanical hazards.



! WARNING

Risk of injury due to dropping the chuck during transport, installation or removal.

- Take special care in the danger zone when transporting, installing or removing the chuck.
- Note the relevant load securing regulations for working safely with cranes, ground conveyors, lifting gear and load-handling equipment.



! CAUTION

Danger of slipping and falling in case of dirty environment where the chuck is used (e.g. by cooling lubricants or oil).

- Ensure that the working environment is clean before starting assembly and installation work.
- Wear suitable safety shoes.
- Follow the safety and accident-prevention regulations when operating the chuck, especially when working with machine tools and other technical equipment.



⚠ CAUTION

Danger of limbs being crushed by opening and closing of the chuck jaws during manual loading and unloading or when replacing moving parts.

- Do not reach between the jaws.
- Wear safety gloves.
- Observe the safety and accident prevention regulations during operation of the chuck, especially in connection with machining centers and other technical equipment.



⚠ CAUTION

Risk of burns due to workpieces with high temperatures.

- Wear protective gloves when removing the workpieces.
- Automatic loading is preferred.



⚠ CAUTION

Risk of damage due to incorrect choice of clamping position for chuck jaws on workpiece.

If an incorrect clamping position is chosen for the chuck jaws on workpiece, the base and top jaws may become damaged.

- The T-nuts for connecting the top jaws to the base jaws must not protrude beyond the base jaws in the radial direction.
- The diameter of the workpiece may not be bigger than the chuck diameter.



⚠ CAUTION

Danger from noise generation

Physical and mental stress by noise generation during the working process.

- Wear hearing protection.

3 Technical data

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

ROTA TPS	125-26 / K	125-26 / Z	160-38 / K	160-38 / Z
ID no.	0816127	0816126	0816137	0816136
Stroke per jaw [mm]	3	3	4.2	4.2
Max. clamping force* [kN]	22	22	39	39
Air consumption per double stroke [cm ³]	2200	2200	4800	4800
Closing/opening time at 6 bar [s]	0.35	0.35	0.39	0.39
Weight [kg]	12	12	23	23
Max. jaw stroke [mm]	40	40	40	40

ROTA TPS	200-52 / K	200-52 / Z	250-68 / K	250-68 / Z
ID no.	0816147	0816146	0816157	0816156
Stroke per jaw [mm]	4.2	4.2	5	5
Max. clamping force* [kN]	68	68	105	105
Air consumption per double stroke [cm ³]	7800	7800	13200	13200
Closing/opening time at 6 bar [s]	0.85	0.85	0.89	0.89
Weight [kg]	34	34	60	60
Max. jaw stroke [mm]	54	54	70	70

ROTA TPS	315-90 / K	315-90 / Z	315-105 / K	315-105 / Z
ID no.	0816167	0816166	88000779	88000785
Stroke per jaw [mm]	5	5	5	5
Max. clamping force* [kN]	140	140	80	80
Air consumption per double stroke [cm ³]	16400	16400	10800	10800
Closing/opening time at 6 bar [s]	1.2	1.2	1.5	1.5
Weight [kg]	82	82	72	72
Max. jaw stroke [mm]	76	76	70	70

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

4 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 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.

6 Maintenance

	NOTICE
	<p>The power supply must be switched off during assembly and connection of the clamping system.</p>

6.1 Pre-assembly measures

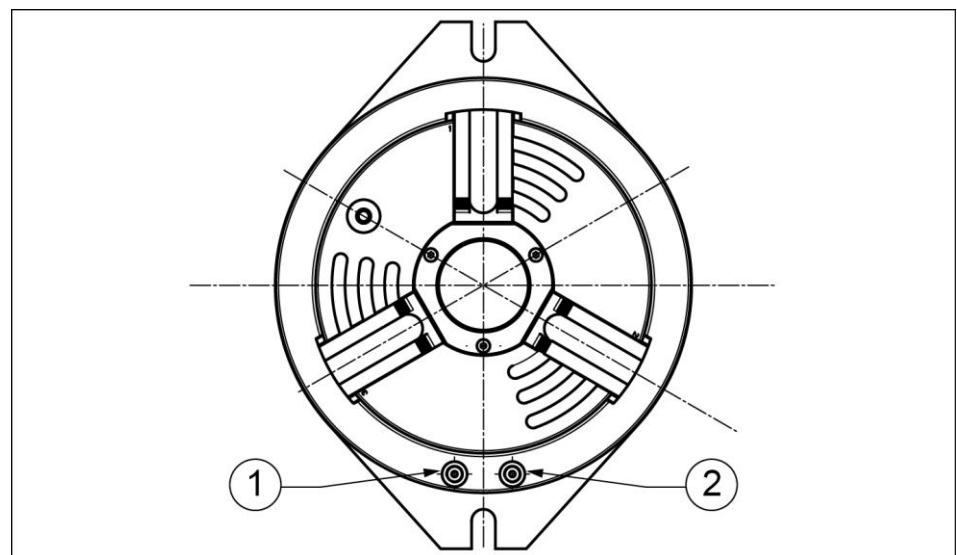
Carefully lift the product (e.g. using suitable lifting gear) from the packaging.

	CAUTION
	<p>Danger of injury due to sharp edges and rough or slippery surfaces Use personal protective gear, especially safety gloves.</p>

Check the delivery for completeness and for transport damage.

6.2 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 160	G1/4"
ROTA TPS 200	G1/4"	ROTA TPS 250	G1/4"
ROTA TPS 315	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).

6.3 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.

7 Commissioning and maintenance

7.1 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 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.

7.2 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. 1 set of hardened reversible jaws is normally ordered for a power chuck.

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.

7.3 Maintenance and Lubrication

- A maintenance unit consisting of filter, water separator and oiler should be connected upstream of the power chuck. The air enriched with oil supplies all sliding parts of the cylinder chamber with an oil film. Check the oil level of the oil tank on a daily basis and refill if necessary. If the oil consumption is too low, i.e. if the oil level does not visibly drop over a period of 2 to 3 days, the oil adjustment screw must be opened slightly. Depending on the accumulation of condensation, the condensation drain screw must be opened occasionally.

The uniform clamping force, accuracy, and life span of a chuck depend greatly on regular cleaning and sufficient lubrication. Rust, scale, casting dust, and chips produce friction and reduce motion.

- The chuck must be lubricated with SCHUNK LINOMAX special grease at the base jaw lubrication nipples by means of a grease gun after every 20 – 30 operating hours. The chuck should be actuated two to three times here without a workpiece to achieve optimum grease distribution by means of the completely extended jaw stroke.
- 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.

Even though there is optimum sealing provided by the hardened guide bushing in the through-hole and by the closed base jaws, foreign matter, such as dust, scale, casting dust, and fine chips can penetrate into the chuck. In addition, the coolant also washes away the lubricant of the chuck.

- The chuck must be completely disassembled, cleaned and relubricated from time to time. When doing this, replace the sealing rings if necessary. ([👉 7.5, Page 22](#))
The time until complete maintenance depends on the presence of dirt and the clamping frequency, so a generally applicable rule cannot be provided.

7.4 Control of tightness

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.

7.5 Disassembly and assembly

The item numbers specified for the corresponding individual components relate to chapter drawings. ([👉 10, Page 27](#))

7.5.1 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 special grease.

7.5.2 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).

8 Trouble shooting

8.1 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.

8.2 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. (👉 7.5, Page 22)

8.3 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 . (👉 7.5, Page 22) Lubricate the chuck with SCHUNK LINO MAX special grease at the base jaw lubrication nipples by means of a grease gun.

8.4 Clamping system movement jerky

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

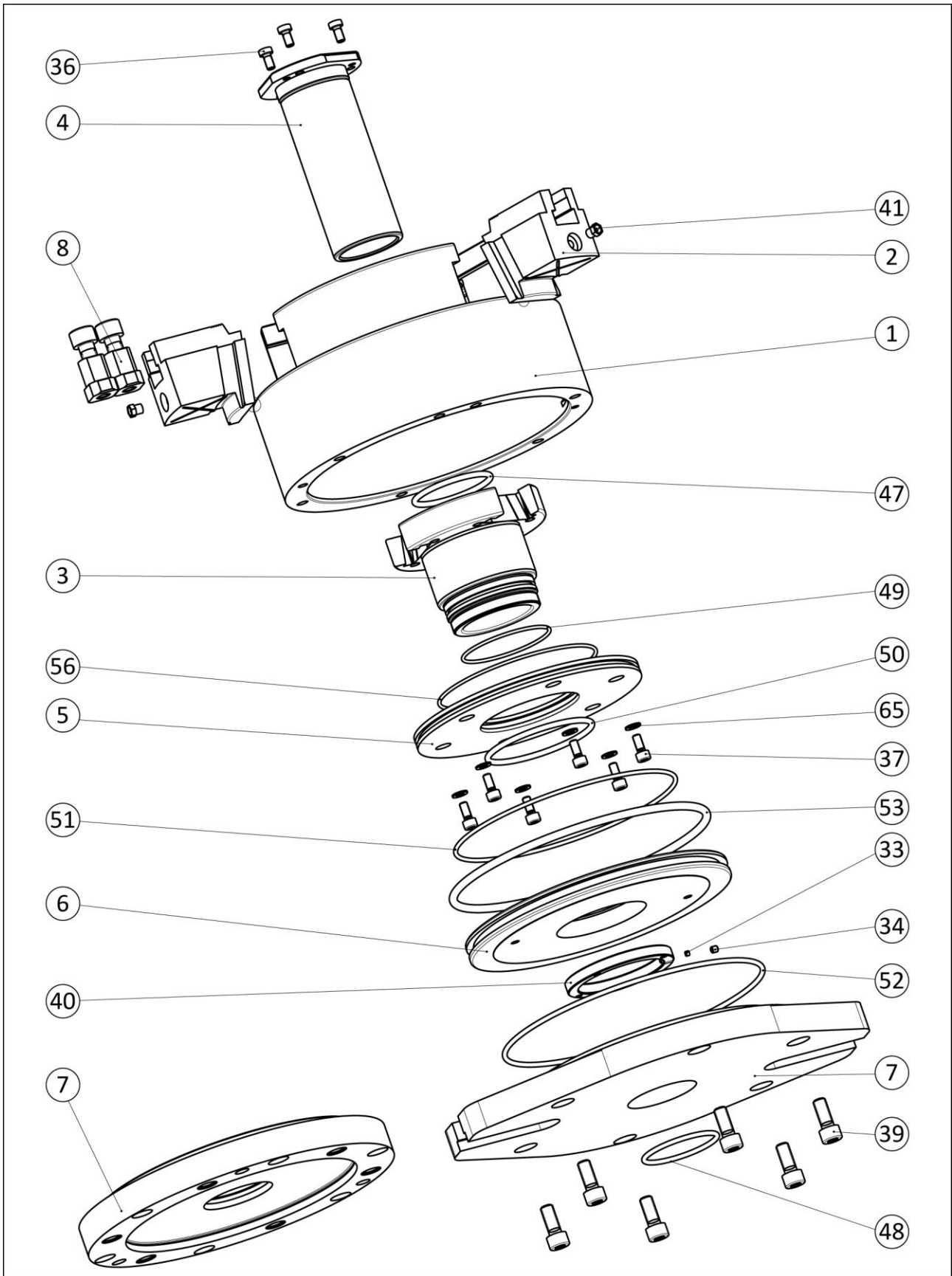
9 Spare parts

When ordering spare parts, it is imperative to specify the type, size and above all the serial no. of the chuck.

Seals, sealing elements, screw connections, springs, bearings, screws and wiper bars plus parts coming into contact with the workpiece are not covered by the warranty.

Item	Designation
1	Chuck body
2	Base jaw
3	Piston
4	Bushing
5	Sealing disk
6	Piston cover
7	Bracket plate/Z-mount
8	T-nut
17	Sealing plug
33	Copper bolts Safety lanyard (TPS 125)
34	Set-screw, DIN EN ISO 34827
36	Screws, DIN EN ISO 7984
37	Screws, DIN EN ISO 4762
39	Screws, DIN EN ISO 4762
40	Locking nut Screws (ROTA TP 315-105)
41	Funnel lubrication nipple
43	Stud DIN 938 8.8 (Z-version)
44	Hexagon nut DIN 934-10 (Z-version)
45	Swivel fitting
46	Straight screw connection
47	O-ring
48	O-ring
49	O-ring
50	O-ring
51	O-ring
52	O-ring
53	O-ring
65	Copper sealing ring DIN 7603
67	Fiber seal
80	Assembly tool

10 Drawing



11 Translation of original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1.B of the European Parliament and of the Council on machinery.

Manufacturer/ Distributor H.-D. SCHUNK GmbH & Co. Spanntechnik KG
Lothringer Str. 23
D-88512 Mengen

We hereby declare that the following product:

Product designation: Stationary 3-jaw chuck ROTA TPS-K, ROTA TPS-Z
ID number 0816127, 0816126, 0816137, 0816136, 0816147, 0816146,
0816157, 0816156, 0816167, 0816166, 88000779, 88000785

meets the applicable basic requirements of the **Machinery Directive (2006/42/EC)**.

The partly completed machine may not be put into operation until conformity of the machine into which the partly completed machine is to be installed with the provisions of the Machinery Directive (2006/42/EC) is confirmed.

Applied harmonized standards, especially:

EN ISO 12100:2010 Safety of machinery - General principles for design -
Risk assessment and risk reduction
DIN EN 1550 Machine-tools safety – Safety requirements for the design and
constructions of workholding chucks
DIN 55028 Machine-tools – holding fixtures for clamping devices

The manufacturer agrees to forward on demand the special technical documents for the partly completed machine to state offices.

The special technical documents according to Annex VII, Part B, belonging to the partly completed machine have been created.

Person responsible for documentation: Mr. Alexander Koch, Adress: see adress of the manufacturer

Signature: see original declaration

Mengen, February 2018

p.p. Alexander Koch; Director for Development / Design