



Assembly and operating manual

SINO R

Mechanical Toolholder

Translation of original operating
manual

Imprint

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Technical changes:

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

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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

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

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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.

In addition to these instructions, the documents listed under ▶ 1.1.4 [6] are applicable.

NOTE: The illustrations in this manual are intended to provide a basic understanding and may deviate from the actual version.

1.1.1 Presentation of Warning Labels

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



⚠ DANGER

Dangers for persons!

Non-observance will inevitably cause irreversible injury or death.



⚠ WARNING

Dangers for persons!

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



⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

CAUTION

Material damage!

Information about avoiding material damage.

1.1.2 Definition of Terms

The term "product" replaces the product name on the title page in this manual.

1.1.3 Symbol definition

The following symbols are used in this manual:

■ Prerequisite for an action

1. Action 1

2. Action 2

⇒ Intermediate results

⇒ Final results

▶ 1.1.3 [6]: chapter number and [page number] in hyperlinks

1.1.4 Applicable documents

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

The documents labeled with an asterisk (*) can be downloaded from [schunk.com](https://www.schunk.com).

1.2 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.

1.3 Scope of delivery

- Product
- Tool clamping technology safety information (ID 1561465)

1.4 Accessories

The following accessories for the product are available separately:

- SINO spanner wrench
- SINOclamp ring-shaped clamping key with freewheel technology
- Hexagon socket wrench for length adjustment
- GZB-S intermediate sleeve for clamping several different clamping diameters
- SINOmax sleeve remover for the removal of intermediate sleeves
- SCHUNK Vario or Mono Toolfix Mounting System
- Test shafts for checking the clamping force
- Cleaning brush for cleaning clamping diameters

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, ▶ 3 [📄 14].
- The product with HSK-F63 interface is intended for use on wood and plastic processing machines.

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 ▶ 3 [📄 14].
- The maintenance and storage instructions are not observed ▶ 7 [📄 29].
- The product is used with heat shrinking technology.
- The product is used in explosive environments.

2.3 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 ▶ 7 [29].
- 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.

2.4 Personnel qualification

Work conducted on and with the product by inadequately qualified personnel can lead to serious injuries and considerable material damage.

- Personnel must have read and understood the complete manual before beginning any work on the product.
- All work may only be performed by appropriately qualified personnel:
 - **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**
An instructed person has been instructed by the operator regarding the tasks entrusted to them and the potential dangers of inappropriate handling of the product.

Work on the product	Necessary qualification
Transport	Qualified personnel/ instructed person
Assembly/disassembly	Specialist personnel
Settings/functional testing	Specialist personnel
Operation	Qualified personnel/ instructed person
Maintenance/troubleshooting	Specialist personnel/ SCHUNK service personnel
Disposal	Specialist personnel/ SCHUNK service personnel

2.5 Personal protective equipment

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

- Observe the valid safety and accident prevention regulations and health & safety at work rules.
- When working on and with the product, wear the required personal protective equipment.
 - Always wear safety boots.
 - Wear close-fitting protective clothing and place a hairnet over long hair when dealing with moving components.
 - Wear protective gloves to guard against sharp edges and corners and rough surfaces.
 - Wear heat-resistant protective gloves when handling hot surfaces.
 - Wear protective gloves and safety goggles when handling hazardous substances.

2.6 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.
- Do not walk under suspended loads.
- Do not leave suspended loads unattended.
- Observe the assembly and operating manual specifications for transport.
- Use suitable assembly and transport devices*.
- Take precautions against pinching and crushing.

* Assembly and transportation devices must be able to carry at least twice the attached weight.

2.7 Constructional changes

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

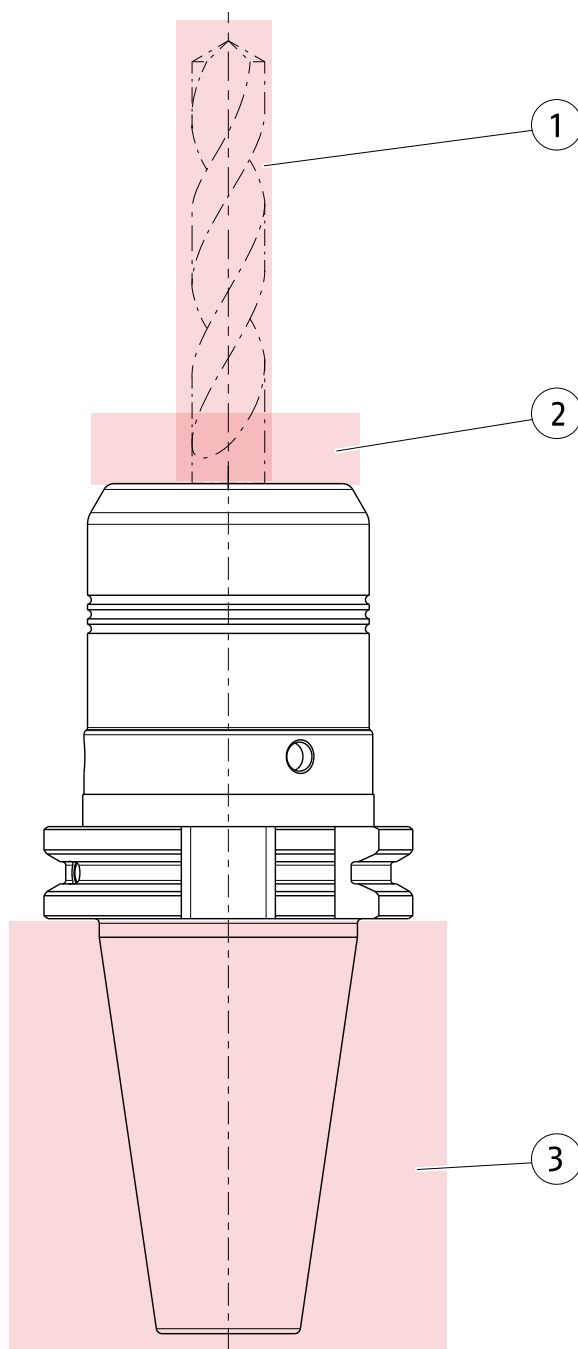
- Structural changes should only be made with the written approval of SCHUNK.
- Use only original spare parts and spares authorized by SCHUNK.

2.8 Behavior in case of malfunctions

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

- Immediately remove the product from operation and report the malfunction to the responsible departments/persons.
- Get appropriately qualified personnel ▶ 2.4 [10] to rectify the malfunction.
- Observe the information on troubleshooting in the assembly and operating manual.
- Faults not described in the assembly and operating manual may only be rectified after consultation with SCHUNK.
- After a malfunction, ensure that the product is able to function properly and no increased risks have arisen.
- Do not recommission the product until the malfunction has been rectified.

2.9 Hazardous points on the product



NOTE: Illustration may differ from the actual design.

Position	Danger when	Danger due to
1	Assembling/disassembling the product/clamping the tool	Cutting
2	Clamping the tool	Crushing risk
3	Assembling/disassembling the product	Crushing risk

3 Technical data

CAUTION! The following values may deviate for special products. The corresponding details on the enclosed approval drawing must be observed!

3.1 General data

Max. coolant pressure [bar]	80
Tool shank tolerance	h6
Adjustment travel of the length adjustment screw [mm]	10

NOTE: The min. transmittable torque applies to tool shank smallest dimension h6, tool shank oiled. Measured at room temperature. At higher operating temperatures, actual shank diameter and, depending on the lubrication condition, the transmittable torque may be higher.

The load limits of the spindle holder must be observed.

Clamping \emptyset [mm]	Min. transmittable torque [Nm]	Permissible radial force F [N] *
12	120	700
16	380	1450
20	450	2000
25	500	4500
32	800	6600

Clamping \emptyset [inch]	Min. transmittable torque [Nm]	Permissible radial force F [N] *
1/2	120	700
3/4	450	2000
1	500	4500
1 1/4	800	6600

* = with 2.5x clamping \emptyset , however max. 50 mm tool projecting length

3.2 Ambient conditions and operating conditions

Relative air humidity 20–80%

Range	Temperature [°C]
Operating temperature	+20 to +50
Max. unclamping temperature	25
Transport temperature	-10 to +50
Storage temperature	+10 to +30
Cleaning temperature	0 to +60
Test temperature clamping force control	+20 to +25
Maximum temperature, clamping without tool	+ 25

NOTE: The temperatures refer to the product.

3.3 Maximum RPM

The maximum RPM depends on the interface of the spindle and tool to be clamped.

Clamping Ø [mm]	Max. speed of rotation [RPM]
12	40,000
16	40,000
20	40,000
25	40,000
32	25,000

Clamping Ø [inch]	Max. speed of rotation [RPM]
1/2	40,000
3/4	40,000
1	40,000
1 1/4	25,000

3.4 Minimum clamping depth

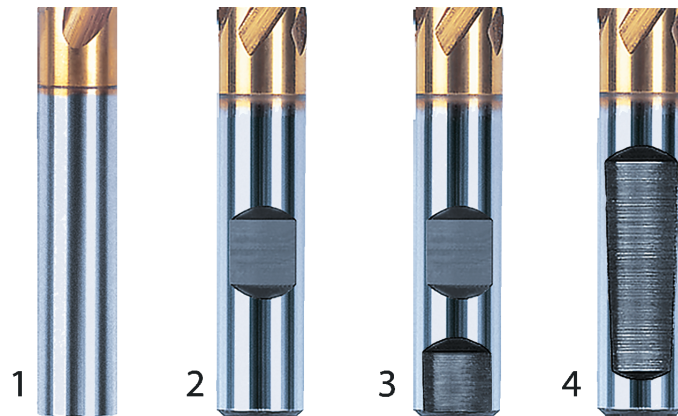
General

Clamping Ø [mm]	Minimum clamping depth [mm]
12	36
16	39
20	41
25	47
32	51
Clamping Ø [inch]	Minimum clamping depth [mm]
1/2	36
3/4	41
1	47
1 1/4	51

**HSK-F63 without
length adjustment
screw**

Clamping Ø [mm]	Minimum clamping depth [mm]
12	37
16	40
20	42
25	48
32	52
Clamping Ø [inch]	Minimum clamping depth [mm]
1/2	37
3/4	42
1	48

3.5 Usable tool 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 (up to \varnothing 20 mm)
3. Shank type according to DIN 1835-1 form B and DIN 6535 form HB (from \varnothing 25 mm)
4. Shank type according to DIN 1835-1 form E and DIN 6535 form HE

NOTE: Tool shanks with recesses (forms 2, 3 and 4) can impair the balancing grade and run-out accuracy of the overall system.

- Tool shanks with diameters not within tolerance range h6 cannot be fitted or else no transmittable torque is guaranteed.
- Tool shanks with projections/markings are difficult or impossible to fit and can impair the run-out accuracy of the overall system.

3.6 Further information on the product



*Data matrix
code*

For more information about the product, proceed as follows:

- using an internet-enabled smartphone or tablet, scan the data matrix code located on the product.

NOTE: A separate app may be required to scan the Data Matrix code.

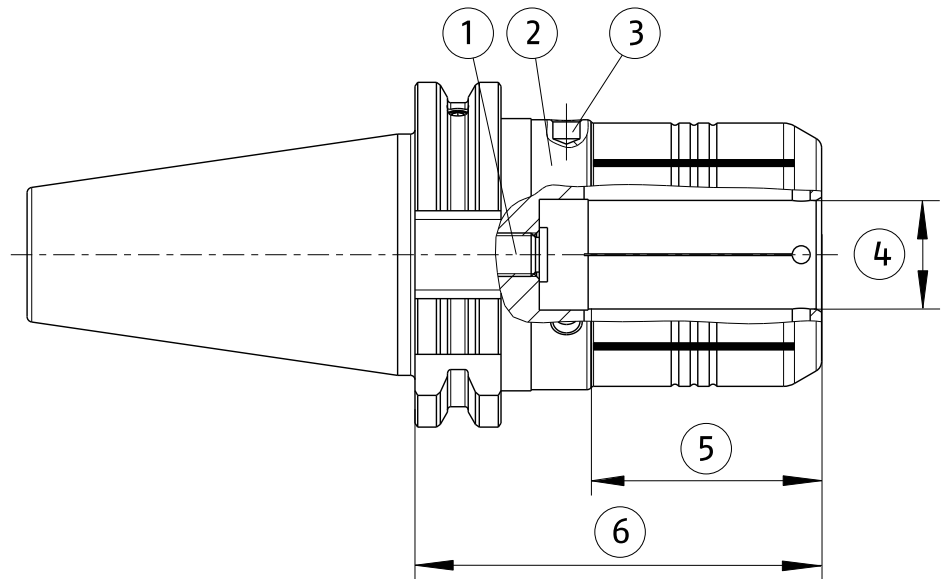
or:

- Open the website **schunk.com** and enter the 8-digit serial number ("SN:") located on the product in the search field.

For further information, visit schunk.com/serialisierung

4 Design and description

4.1 Design



NOTE: Illustration may differ from the actual design.

Position	Description
1	Length adjustment screw *
2	Clamping sleeve
3	Hole for spanner wrench
4	Clamping diameter
5	Minimum clamping depth
6	Projecting length L1

* Product with HSK-F63 mount has no length adjustment screw

4.2 Functional description

The product clamps by deforming the high-end elastomer pressure medium. The clamping sleeve is tightened to the stop using the spanner wrench or the ring-shaped clamping key. The high-end elastomer is tensioned against the expansion sleeve and clamps the tool.

5 Operation

5.1 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 when the product is rotating, due to the possibility of parts flying off!

- Comply with the technical data.
- Make sure the attachments and operating components present are installed and fitted correctly.
- Check the clamping force regularly.
- Take appropriate protective measures to secure danger zones.
- Wear suitable protective equipment.



⚠ WARNING

Risk of injury due to the tool being flung out if the speed of rotation is too high or not suitable!

- Comply with the technical data.
- Do not exceed the maximum speed.
- Reduce the speed of rotation appropriately for strongly protruding or balance-asymmetrical tools.
- Take appropriate protective measures to secure danger zones.
- Wear suitable protective equipment.



⚠ WARNING

Risk of injury due to hot surfaces!

Touching hot surfaces can cause burns.

- Before carrying out any work on the product, make sure that all surfaces have cooled down to the ambient temperature.
- Wear suitable protective equipment, especially protective gloves.



⚠ CAUTION

Risk of injury from tools with sharp edges!

Sharp edges on tools can cause cuts.

- Wear protective gloves when assembling the tool.



⚠ CAUTION

Risk of crushing and knocks during tool changes!

- Do not reach between the product and the tool when changing tools.
- Wear suitable protective equipment.

CAUTION

Risk of possible damage to the product!

If used other than as intended, the product may get damaged.

- Only actuate the clamping sleeves by hand.
- Do not exceed the max. unclamping temperature when unclamping the product.
- Observe the minimum clamping depth of the tool.
- The tool must be free of burrs and dirt on the shank.
- Do not adjust the tool length when the tool is clamped.

CAUTION

Do not completely unscrew the clamping sleeve!

Loss of necessary clamping force and precision.

5.2 Clamping the tool

CAUTION! The tools to be clamped must be deburred at the surfaces that come into contact with the product, may not have sharp contours and must be free of oil, grease and dirt.

The product must be unclamped in order to fit the tool ▶ 5.3 [14]. Initial tension inhibits loading and could damage the expansion sleeve.

When clamping the tool, observe the following points:

- The product may not be clamped above 25°C without a tool.
- Ensure that the product temperature does not exceed the "Max. Unclamping Temperature" ▶ 3 [14].
- Only clamp permissible tool shank types ▶ 3.5 [18].
- Do not combine multiple extensions (e.g. TENDO SVL).

NOTE: Load the product in a vertical position. This achieves the best concentricity values.



NOTE: Only SCHUNK wrenches may be used as clamping wrenches: for SINO-R with clamping $\varnothing 12$ to clamping $\varnothing 25$: spanner wrench with pin according to DIN 1810 B 45-50 – SCHUNK ID number 0208877, for SINO-R with clamping $\varnothing 32$: spanner wrench – SCHUNK ID number 0208879.

Alternatively, SCHUNK SINOclamp ring-shaped clamping key with freewheel technology or the SCHUNK Toolfix Vario or Mono Mounting System can be used for clamping.

For clamping, proceed as follows:

- 1.** Turn the clamping sleeve counterclockwise using a spanner wrench or ring-shaped clamping key.
NOTE: Approx. 1.5 rotations of the sleeve are required ▶ 5.3 [📄 25].
- 2.** If required, the tool length can be adjusted by screwing the integrated length adjustment screw in or out. Observe the adjustment travel of the length adjustment screw ▶ 3 [📄 14].
⇒ Product is unclamped.
- 3.** Join the tool to the minimum clamping depth or to the stop ▶ 3 [📄 14].
- 4.** Turn the clamping sleeve clockwise using a spanner wrench or ring-shaped clamping key until it reaches the stop, and tighten.
⇒ Product is clamped.

5.3 Unclamping the tool

CAUTION

Do not completely unscrew the clamping sleeve!

Loss of necessary clamping force and precision.

1. Disassemble the product ▶ 9 [📄 33].
2. Ensure that the product temperature does not exceed the "Max. Unclamping Temperature" ▶ 3 [📄 14].
3. Turn the clamping sleeve counterclockwise using a hook wrench or ring wrench.
NOTE: Approx. 1.5 rotations of the sleeve are required.
⇒ Product is unclamped.
4. Remove tool.

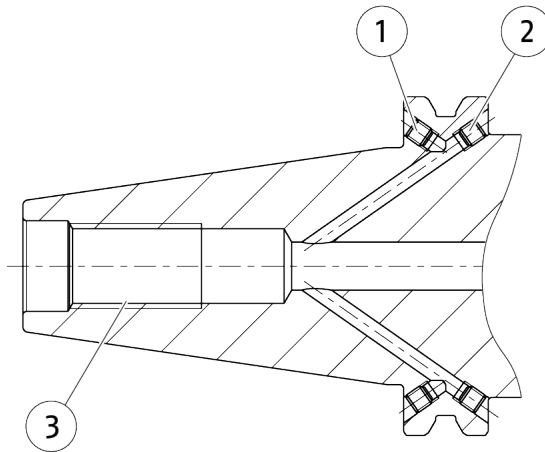
5.4 Changing the tool

1. Unclamp and remove the tool ▶ 5.3 [📄 25].
2. Join and clamp the new tool ▶ 5.2 [📄 23].

5.5 Coolant supply

The product is available in different variants. Depending on the holder for the machine interface, it is possible that the product:

- is equipped with a coolant supply via the collar. On delivery, this coolant supply is sealed with set-screws.
- is equipped with a centralized internal coolant supply. The coolant supply can be connected via the retention knob.



NOTE: Illustration may differ from the actual design.

Position	Description
1	Set-screw – access to the coolant supply
2	Set-screw – closure of the coolant supply *
3	Connection for centralized internal coolant supply

* if available

To connect the coolant supply via the collar, proceed as follows:

1. Unscrew and remove the set-screw (item 1).
2. Turn in the coolant supply.

NOTE: Set-screw (item 2) is used to close the hole and may not be unscrewed.

6 Assembly

6.1 Basic information



⚠ WARNING

Risk of injury due to incorrect assembly!

If assembled incorrectly, the product may be flung out during rotation, causing severe injuries.

- Regularly check the fastening of the product.
- Take suitable protective measures to secure the danger zone.
- Wear suitable protective equipment.



⚠ WARNING

Risk of injury if the product falls during transport, assembly or disassembly.

Due to the oily surface required to preserve it, the product can slip through your hands, resulting in injury.

- Take appropriate safety measures to prevent the product from falling.
- Only install the product on machines with the appropriate connection dimensions.
- Wear suitable protective equipment, especially safety gloves.



⚠ CAUTION

Risk of crushing, impact and cutting when assembling and disassembling the product!

- Do not reach between the product and machine.
- Wear suitable protective equipment, especially protective gloves and safety boots.

CAUTION

Risk of possible damage to the product!

- When transporting and handling the product, ensure that it is not damaged by knocks, impact, etc.

6.2 Assembly of the product

To ensure optimum machining results, the product must be positioned and secured precisely on the machine interface.

NOTE: Only install the product on machines with the appropriate connection dimensions. Observe the mounting instructions from the manufacturer of the machine interface.

IMPORTANT! Before the product is assembled, the tool must be fitted and clamped!

1. Clamping the tool ▶ 5.2 [📄 23].
2. Clean all interfaces on the product and machine.
3. Place the product on the machine interface in the correct position and fit it as far as the stop.
4. Clamp the product according to the specifications of the machine interface manufacturer.
5. 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!

7 Maintenance

7.1 Basic information



⚠ WARNING

Risk of injury due to sharp edges and rough or slippery surfaces!

- Wear suitable protective equipment, especially protective gloves.



⚠ CAUTION

Injury of the eyes by dirt particles

When cleaning with compressed air, the eyes may be injured by flying dirt particles.

- Wear suitable protective equipment, particularly protective goggles.

For trouble-free, long-lasting use, clean, maintain and check the functionality of the product regularly.

Repair work may only be carried out by SCHUNK!

If you have any questions regarding maintenance and servicing, our technical

customer service is available during our business hours:

Service telephone: +49-7133-103-2956

service.toolholder@de.schunk.com

7.2 Intervals and tasks

Operation	Interval period
Cleaning the clamping surface	after every clamping procedure
Cleaning the product	daily
Checking the clamping force	every 3 months or after 100 clamping operations
Lubricating the actuating thread	as required

The specified maintenance intervals are based on empirical data gathered by SCHUNK and are a recommendation. Depending on the ambient and operating conditions, as well as the clamping frequency of the product, the maintenance intervals need to be adapted and noted accordingly. For maintenance intervals with two or more specifications, the specification that applies first is valid.

7.2.1 Cleaning the clamping surface

1. Disassemble the product ▶ 9 [33].
2. Remove tool ▶ 5.3 [25].
3. Clean the clamping bore and the groove, if present, with a cleaning agent containing solvents.
4. Carefully remove any stubborn dirt with a suitable tool ▶ 1.4 [7].
5. Wipe the surfaces dry with a clean cloth.

7.2.2 Cleaning the product

1. Disassemble the product ▶ 9 [33].
2. Remove tool ▶ 5.3 [25].
3. Clean the entire product with compressed air.
4. Carefully remove any stubborn dirt with a suitable tool.
5. Wipe all surfaces dry with a clean cloth.
6. Check the product for deformation, damage or wear, in particular the surfaces that come in contact with the tool.
7. Lightly oil the entire surface of the product.

NOTE: Damage or wear can compromise the functioning of the product. If non-replaceable parts of the product are worn or damaged, return the product to SCHUNK for inspection.

7.2.3 Checking the clamping force

To check the clamping force, a corresponding test shaft ▶ 1.4 [7] is required.

IMPORTANT! Observe the specified temperature range for the clamping force check!

1. Disassemble the product ▶ 9 [33].
2. Remove tool ▶ 5.3 [25].
3. Insert the corresponding test shaft to the minimum clamping depth.
4. Turn the clamping sleeve counterclockwise using a spanner wrench or ring-shaped clamping key until it reaches the stop, and tighten.
5. The clamping force is no longer sufficient if the test shaft can be pulled out of the product easily using two fingers.

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

7.2.4 Lubricating the actuating thread



⚠ CAUTION

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

- Wear protective gloves.

To avoid wear to the actuating thread and to avoid high tightening torques, we recommend lubricating the actuating thread in accordance with the usage and ambient conditions. This is especially relevant in case of:

- high clamping frequency
- high operating temperature
- Intensive cleaning

For optimum lubrication of the actuating thread, we recommend the MOLYKOTE (R) BR2 PLUS-type copper paste from Dow Corning S.A.

CAUTION

Do not completely unscrew the clamping sleeve!

Loss of necessary clamping force and precision.

1. Disassemble the product ▶ 9 [📄 33].
2. Unclamp the product ▶ 5.3 [📄 25]
3. Remove tool ▶ 5.3 [📄 25].
4. Unscrew the clamping sleeve max. 1.5 sleeve turns.
5. Clean the actuating thread and check the thread flanks for damage.
6. Lubricate the actuating thread.
7. Turn the clamping sleeve counterclockwise until it reaches the stop, and tighten.
8. Check the clamping force ▶ 7.2.3 [📄 30].

8 Troubleshooting

Malfunction/ error	Possible cause	Solution(s)
Tool is not clamped	Clamping sleeve is not screwed in as far as the stop	Screw in the clamping sleeve as far as the stop
	Wear on the clamping diameter	Send the product to SCHUNK for inspection
Workpiece cannot be fitted		
Workpiece cannot be removed	Product is not completely unclamped	Unclamping the product ▶ 5.3 [25]
Insufficient run-out accuracy	Product is not correctly positioned on the machine interface	Clean the contact surfaces of the product and machine
	The tool shank has recesses	Use the tool shank without recesses
	Clamping sleeve was unscrewed too far	Send the product to SCHUNK for inspection

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

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

9 Disassembly

9.1 Basic information



⚠ WARNING

Risk of injury if the product falls during transport, assembly or disassembly.

Due to the oily surface required to preserve it, the product can slip through your hands, resulting in injury.

- Take appropriate safety measures to prevent the product from falling.
- Only install the product on machines with the appropriate connection dimensions.
- Wear suitable protective equipment, especially safety gloves.



⚠ CAUTION

Risk of crushing, impact and cutting when assembling and disassembling the product!

- Do not reach between the product and machine.
- Wear suitable protective equipment, especially protective gloves and safety boots.

CAUTION

Risk of possible damage to the product!

- When transporting and handling the product, ensure that it is not damaged by knocks, impact, etc.

9.2 Disassembly of the product

1. Secure the product against falling down.
2. Loosen connection to the machine interface. Observe the specifications of the machine manufacturer.
3. Remove the product.
4. If necessary, remove tool ▶ 5.3 [25].

NOTE: To avoid damage, only place the product on a clean and soft surface.

10 Storage

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

- Ensure that the product is in an unclamped state.
- Clean the product and lubricate it lightly.
- Only store the product in dry rooms.
- Protect the product from major temperature fluctuations.
- Comply with the storage temperature specified in the technical data.
- Store the product in a suitable transport container.

11 Disposal

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



SCHUNK SE & Co. KG
Toolholding and Workholding | Gripping Technology |
Automation Technology

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