

# Assembly and Operating Manual

## RCE

Radially adjustable electric deburring,  
brushing and grinding spindle

Translation of Original Operating  
Manual

Hand in hand for tomorrow

## 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 ▶ 1.1.3 [ 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.

#### **NOTICE**

**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 Applicable documents

- General terms of business \*
- Catalog data sheet of the purchased product \*
- QR code slip for downloading the parameterization file \*
- Configuration software for initial setup of the electronic control unit \*\*
- Commissioning instructions for the electronic control unit \*\*

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

The documents labeled with two asterisks (\*\*) can be downloaded from the manufacturer's website.

#### For RCE 230:

- [bmr.gmbh/manuals](https://bmr.gmbh/manuals)
  - Search term "SFU 0156"
  - Search term "SFU 0200"

#### For RCE 710:

- [boschrexroth.com](https://boschrexroth.com)
  - Configuration software "Release IndraWorks Ds 15V16"
  - Commissioning instructions "HCS01"

## 1.2 Warranty

If the product is used as intended, the warranty is valid for 24 months from the ex-works delivery date under the following conditions:

- Observe the ambient conditions and operating conditions

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

## 1.3 Scope of delivery

The scope of delivery includes

- Radially adjustable electric deburring, brushing and grinding spindle RCE in the version ordered
- Safety information (product-specific instructions available online)
- Accessory pack

Content of the accessory pack:

RCE -230, cable integrated on spindle:

- 1x wrench (10 mm)
- 1x wrench (12 mm)

RCE -710:

- 1x wrench (13 mm)
- 1x wrench (11/16 mm)
- 1x cable set – included with ID 1525659 (RCE-710)
- 1x ER11 collet (8 mm)

## 1.4 Accessories

The following accessories are available for the product, which must be ordered separately:

- Adapter plate
- Profile follower
- Collets
- Electronic control unit

For information regarding which accessory articles can be used with the corresponding product variants, see catalog data sheet.

## 2 Basic safety notes

### 2.1 Intended use

The product is intended exclusively for machining workpieces with a robot.

- The product may only be used within the scope of its technical data, ▶ 3 [16].
- The product is intended for installation in a machine/ automated system or for attachment to a robot. The applicable guidelines for the machine/automated system must be observed and complied with.
- The product is intended for industrial and industry-oriented use. Its use outside enclosed spaces is only permitted if suitable protective measures are taken against outdoor exposure. The product is not suitable for use in salty air.
- Appropriate use of the product includes compliance with all instructions in this manual.
- Any utilization that exceeds or differs from the appropriate use is regarded as misuse.

### 2.2 Constructional 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.

### 2.3 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.

### 2.4 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 to the product's life span.

- Make sure that the product is used only in the context of its defined application parameters, ▶ 3 [16].

## 2.5 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.

## 2.6 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.
- Wear ear protection and safety goggles during the machining process.

## 2.7 Transport

### Handling during transport

Incorrect handling during transport can make the product unsafe and risk 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.

## 2.8 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.

## 2.9 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.

## 2.10 Fundamental dangers

### General

- Observe safety distances.
- Never deactivate safety installations.
- Install the provided protective product in the danger zone before switching on the product.
- Remove the energy supplies before installation, modification, maintenance, or adjustment work. Ensure there is no residual energy in the system.
- Do not move parts by hand while the energy supply is connected.
- Do not reach into the movement area of the product during operation.

### 2.10.1 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.

## 2.10.2 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.

## 2.10.3 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.

## 2.10.4 Protection against electric shock

### Work on electrical equipment

Touching live parts may result in death.

- Work on the electrical equipment may only be carried out by qualified electricians in accordance with the electrical engineering regulations.
- Lay electrical cables properly, e. g. in a cable duct or a cable bridge. Observe standards.

- Before connecting or disconnecting electrical cables, switch off the power supply and check that the cables are free of voltage. Secure the power supply against being switched on again.
- Before switching on the product, check that the protective earth conductor is correctly attached to all electrical components according to the wiring diagram.
- Check whether covers and protective devices are fitted to prevent contact with live components.
- Do not touch the product's terminals when the power supply is switched on.

### **Possible electrostatic energy**

Components or assembly groups may become electrostatically charged. When the electrostatic charge is touched, the discharge may trigger a shock reaction leading to injuries.

- The operator must ensure that all components and assembly groups are included in the local potential equalisation in accordance with the applicable regulations.
- While paying attention to the actual conditions of the working environment, the potential equalisation must be implemented by a specialist electrician according to the applicable regulations.
- The effectiveness of the potential equalisation must be verified by executing regular safety measurements.

## 2.11 Notes on particular risks



### **⚠ DANGER**

#### **Danger from electric voltage!**

Touching live parts may result in death.

- Switch off the power supply before any assembly, adjustment or maintenance work and secure against being switched on again.
- Only qualified electricians may perform electrical installations.
- Check if de-energized, ground it and hot-wire.
- Cover live parts.



### **⚠ DANGER**

#### **Risk of fatal injury from suspended loads!**

Falling loads can cause serious injuries and even death.

- Stand clear of suspended loads and do not step within their swiveling range.
- Never move loads without supervision.
- Do not leave suspended loads unattended.
- Wear suitable protective equipment.



### **⚠ WARNING**

#### **Risk of burns through contact with hot surfaces!**

Surfaces of components can heat up severely during operation. Skin contact with hot surfaces causes severe burns to the skin.

- For all work in the vicinity of hot surfaces, wear safety gloves.
- Before carrying out any work, make sure that all surfaces have cooled down to the ambient temperature.



### **⚠ WARNING**

#### **Risk of injury from objects falling and being ejected!**

Falling and ejected objects during operation can lead to serious injury or death.

- Take appropriate protective measures to secure the danger zone.

**⚠ 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****Risk of injury from flying chips and dirt particles**

During operation, flying chips and dirt particles can cause eye injuries.

- Always wear appropriate personal protective equipment, particularly protective goggles.
- Take suitable protective measures to secure the danger zone.

### 3 Technical data

#### 3.1 Basic data

Designation	RCE	
	230	710
Weight [kg]	1.7	5.35
Compensation angle radial X/Y [°]	±3	±1.8
Compensation path X/Y at the collet chuck [mm]		
Recommended	±3	±2.5
Max.	±7.1	±4.6
Compliance force [N] (radial)		
Min.	1.8	24.5
Max.	8.5	80
Nominal operating pressure [bar]	1-4.1	
Compensation air connection	2	
Air cooling connection		
Pressure medium	Compressed air (clean, dry, filtered (≤ 5 µm), oil-free)	
Collet type	ER 11	
<b>Motor operating data</b>		
Motor	electric, brushless	
Working speed [RPM]		
Min.	5.000	0
Max.	50.000	13.000
Power [W]	230	710
<b>Brush recommended data</b>		
Max. diameter [mm]	25	77
Max. length [mm]	50	75
<b>Cutter recommended data</b>		
Max. diameter [mm]	12	18
Max. length [mm]	50	50
<b>Ambient conditions and operating conditions</b>		
Designation	RCE	
	230	710
Ambient temperature [°C]		
Min.	5	5
Max.	40	60

### 3.2 Compensation force diagrams

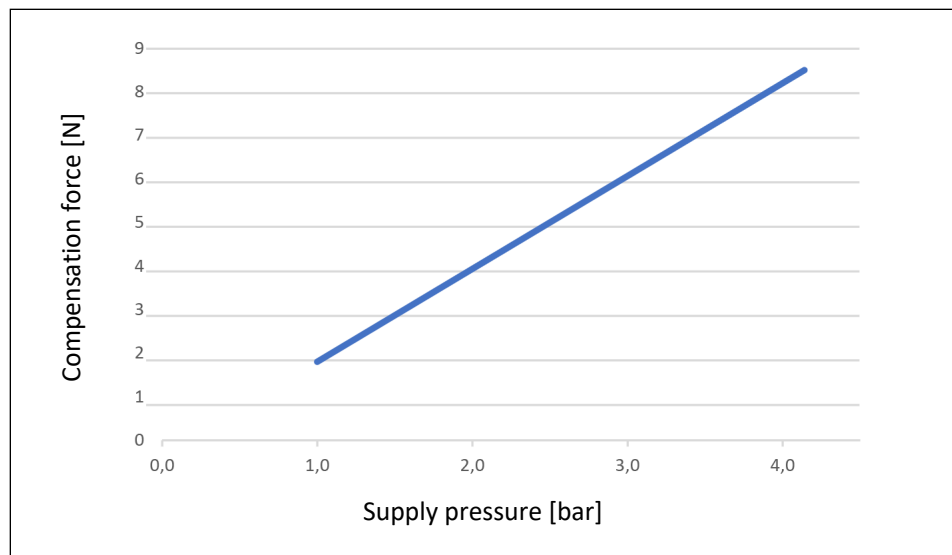
**NOTE**

The compliance force may vary from product to product and should be treated as a guide value only. The actual force characteristics depend on the installation position and the condition of the product. The compliance pressure should be selected depending on the material of the workpiece, the type of tool and the amount of material to be removed.

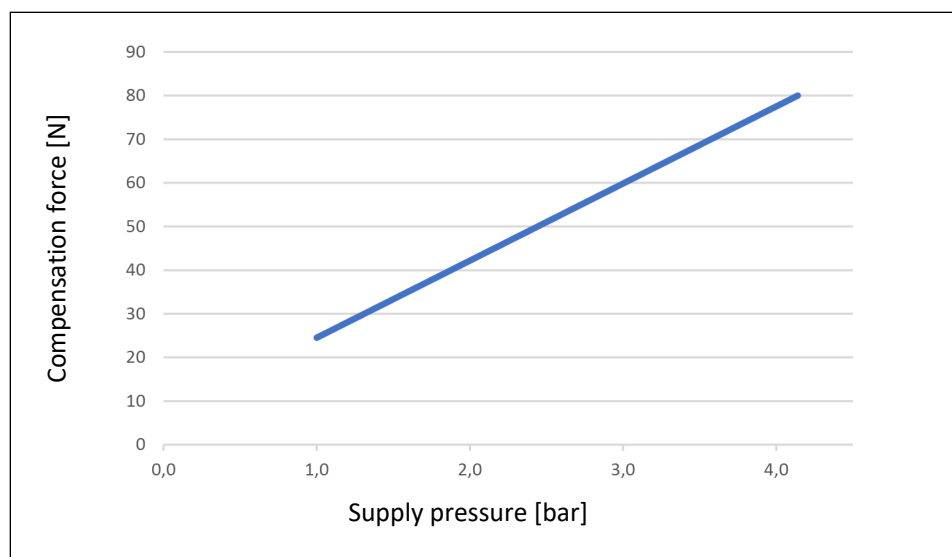
**NOTE**

The specified compliance force does not correspond to the actual values when the product is mounted horizontally.

**Compensation force**



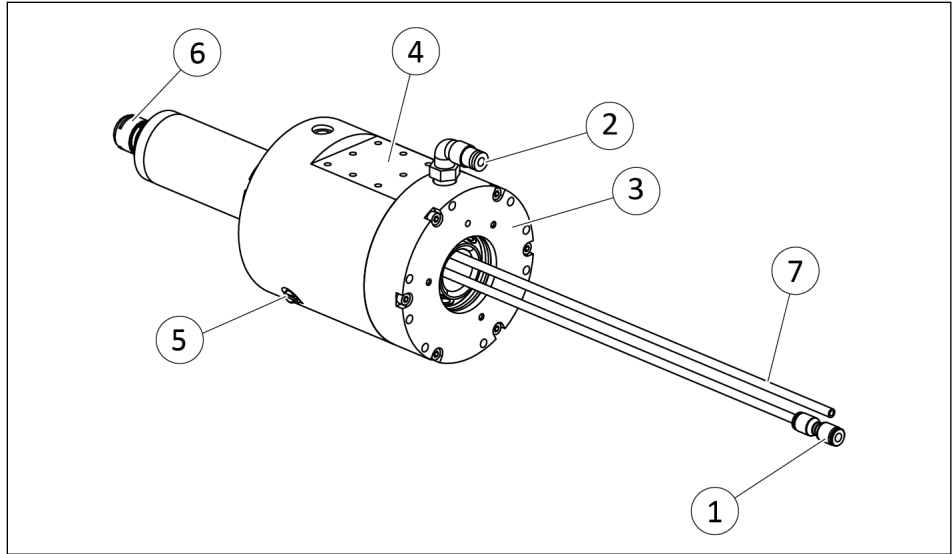
*RCE 230: Compensation force as a function of operating pressure*



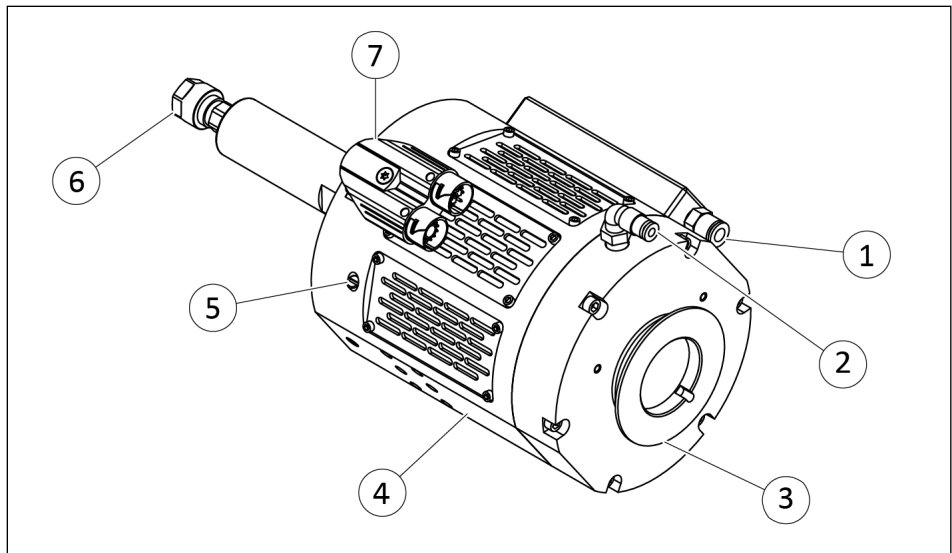
*RCE 710: Compensation force as a function of operating pressure*

## 4 Design and description

### 4.1 Design



RCE 230



RCE 710

- |   |                             |
|---|-----------------------------|
| 1 | Air cooling connection      |
| 2 | Compensation air connection |
| 3 | Axial Connection (axial)    |
| 4 | Axial Connection (radial)   |
| 5 | Axis fixation set screw     |
| 6 | Collet chuck                |
| 7 | Electrical connection       |

### 4.2 Description

Electric deburring spindle with radial compensation and adjustable speed of rotation for machining workpieces

## 5 Assembly and settings

### 5.1 Assembling and connecting



#### **⚠ WARNING**

##### **Risk of burns through contact with hot surfaces!**

Surfaces of components can heat up severely during operation. Skin contact with hot surfaces causes severe burns to the skin.

- For all work in the vicinity of hot surfaces, wear safety gloves.
- Before carrying out any work, make sure that all surfaces have cooled down to the ambient temperature.



#### **⚠ 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.

1. Check the evenness of the mounting surface, ▶ 5.2.1 [📄 19].
2. Connect compressed air supply, ▶ 5.2.2 [📄 21].
3. Attach the product to the robot, ▶ 5.2.1 [📄 19].
  - ⇒ If necessary, use appropriate connection elements (adapter plates).
  - ⇒ Observe the permissible depth of engagement.
4. Connect product to the electronic control unit, ▶ 5.2.3 [📄 23].
5. If necessary, adjust the axis fixation set screw, ▶ 5.3 [📄 25].
6. Start up the product, ▶ 6 [📄 26].

### 5.2 Connections

#### 5.2.1 Mechanical connection

#### **NOTICE**

##### **Damage to the cable outlet possible!**

When mounting axially, ensure that the cable outlet is not impaired by the mounting material.

### Evenness of the mounting surface

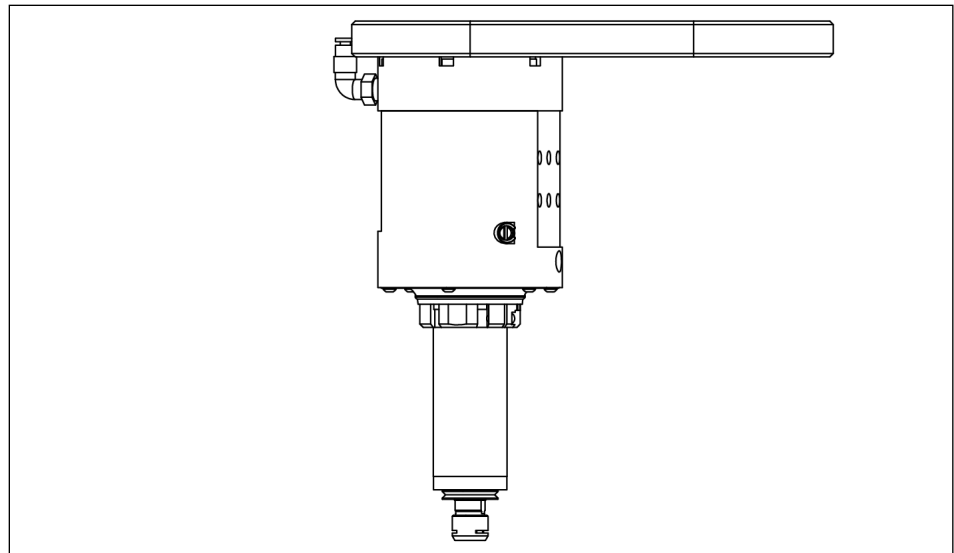
The values apply to the whole mounting surface to which the product is mounted.

Edge length	Permissible unevenness
< 100	< 0.02
> 100	< 0.05

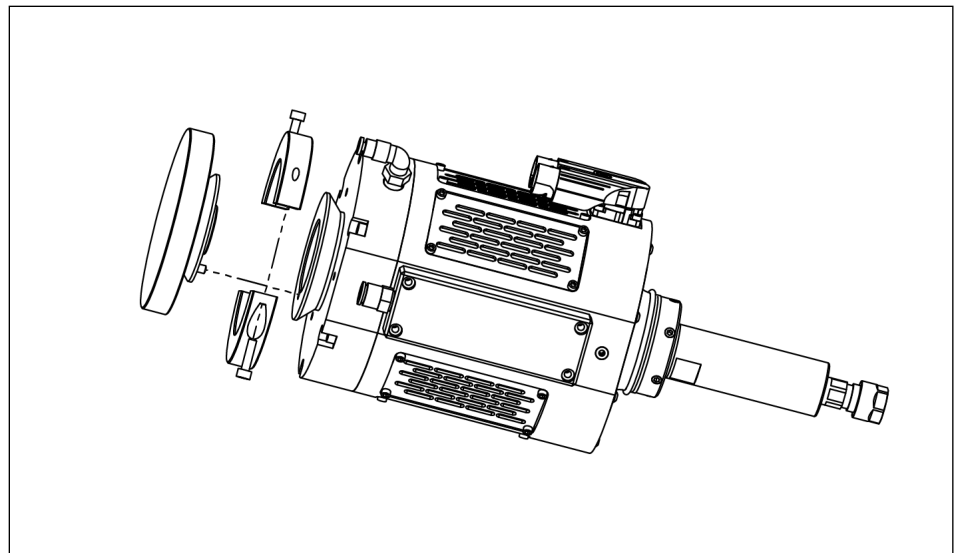
Tab.: Requirements for evenness of the mounting surface (Dimensions in mm)

The product can be assembled from two sides.

### Axial mounting

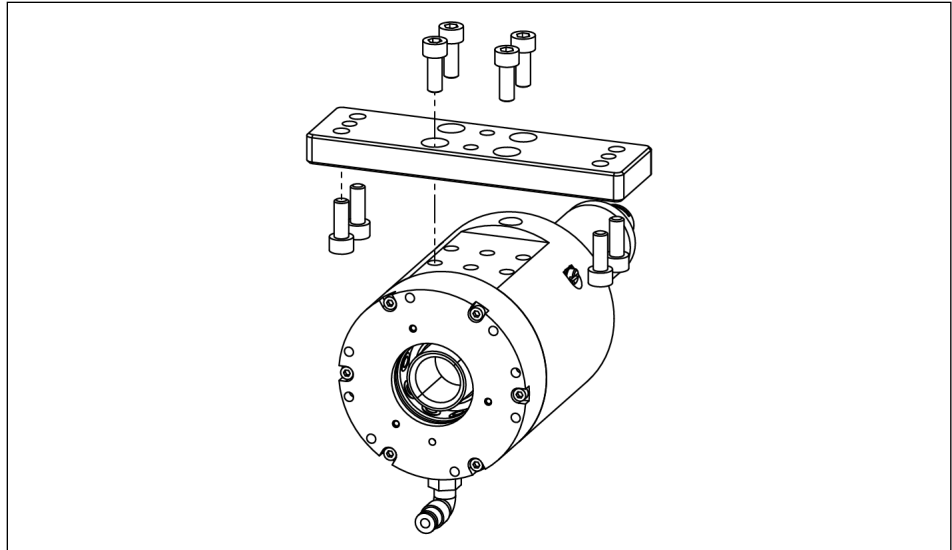


RCE 230 \*

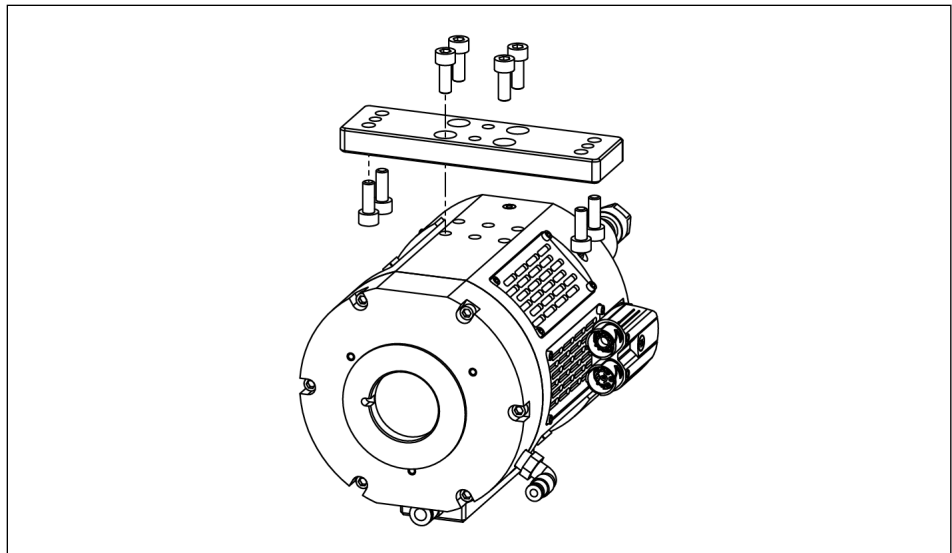


RCE 710 \*

## Radial mounting



RCE 230 \*



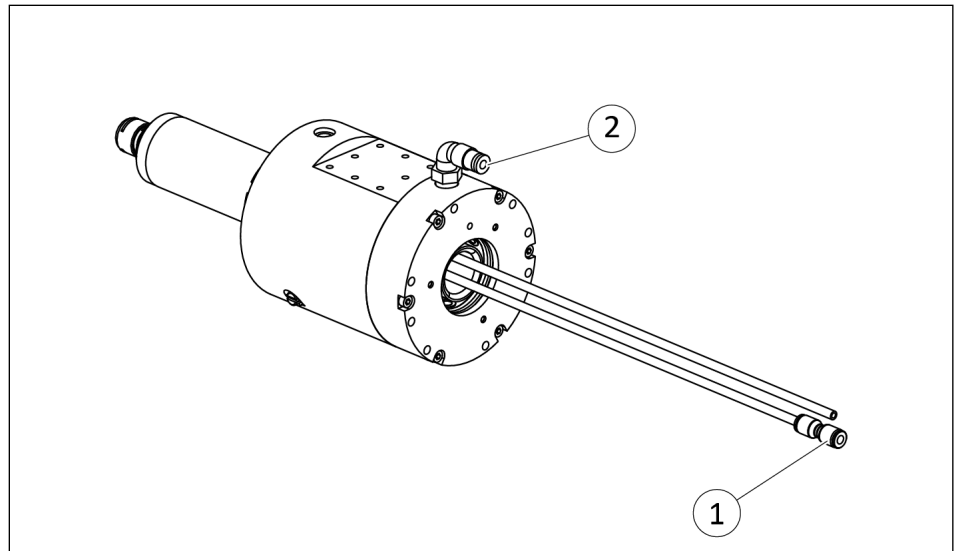
RCE 710 \*

- \* Mounting material is not included in the scope of delivery. (available from SCHUNK on request)

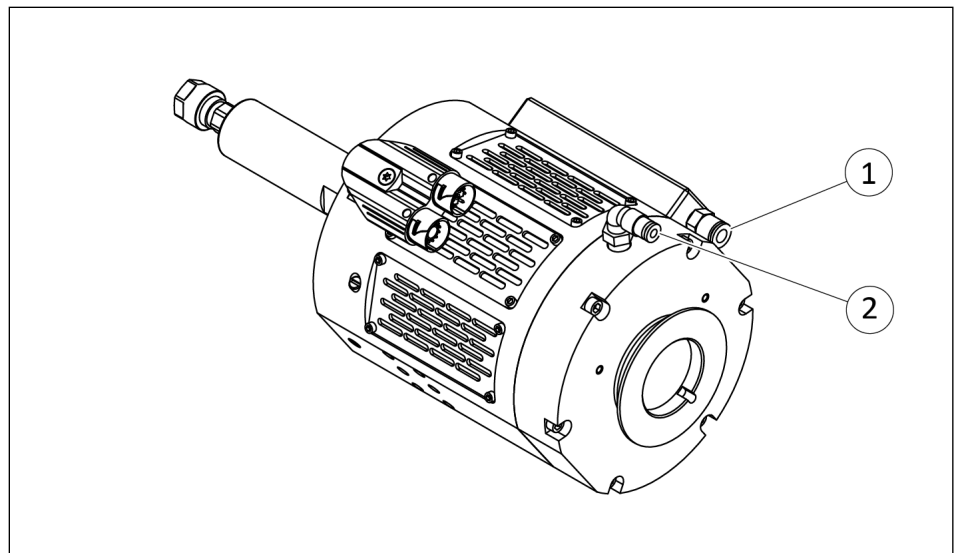
### 5.2.2 Pneumatic connection

#### NOTE

- Observe the requirements for the compressed air supply, ▶ 3 [16].
- **For air connection compensation:** For better regulation of the compressed air, use a regulator with air bleed screw.
- **For air cooling the motor and air purge:** The compressed air must first be applied before the spindle is activated and must only be switched off after the spindle has come to a standstill and has been removed from the workpiece.



RCE 230



RCE 710

- 1 Air cooling connection
- 2 Compensation air connection

Item	Mounting	RCE	
		230	710
1	NPT thread ["]	-	1/4
	Hose connection [mm]	4	6
2	NPT thread ["]	1/8	1/8
	Hose connection [mm]	4	4

### 5.2.3 Electrical connection

#### NOTICE

#### Damage due to faulty connection!

A faulty connection can cause damage to the product.

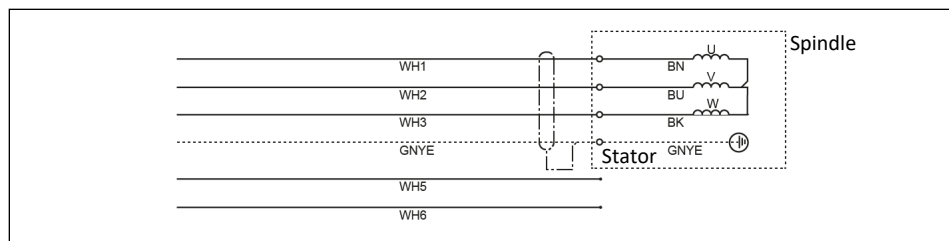
- Observe the pin allocation of the connecting terminals.
- Make sure that all components are grounded correctly.

The product can only be put into operation with an electronic control unit. The electronic control unit is available from SCHUNK as an accessory, ▶ 1.4 [ 7 ].

For commissioning, use the electronic control unit manual, ▶ 1.1.3 [ 6 ].

#### 5.2.3.1 RCE 230

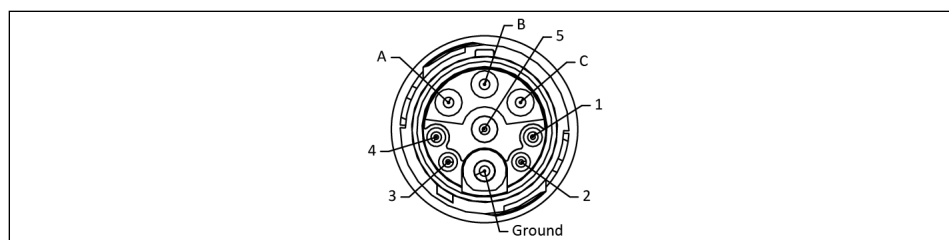
Cable with open wires strands



Wire strand	Signal
1	U
2	V
3	W
Green / Yellow	GND
5	n.c.
6	n.c.

#### 5.2.3.2 RCE 710

Motor connection power (orange)

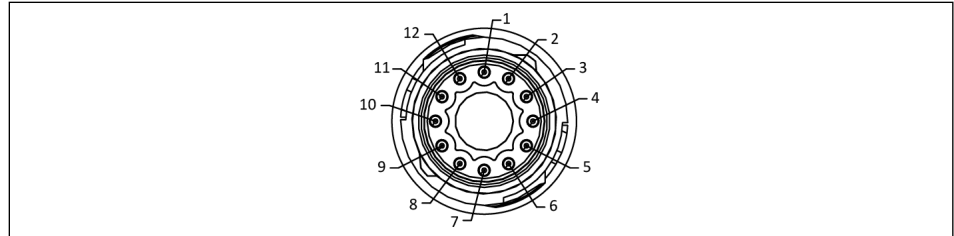


Pin	Signal
A	U
B	V
C	W
PE (Ground)	Earth
1	n.c.

**Motor connection  
signal (green)**

Pin	Signal
2	n.c.
3	n.c.
4	n.c.
5	n.c.

Tab.: 9-pin power connector



Pin	Signal
1	Encoder 1 (UV)
2	Encoder 2 (VW)
3	Encoder 3 (WU)
4	0 V
5	+5 to 24 VDC
6	Temperature sensor -
7	Temperature sensor +
8	n.c.
9	n.c.
10	n.c.
11	n.c.
12	n.c.

Tab.: 12-pin signal connector

### 5.3 Setting axis fixation

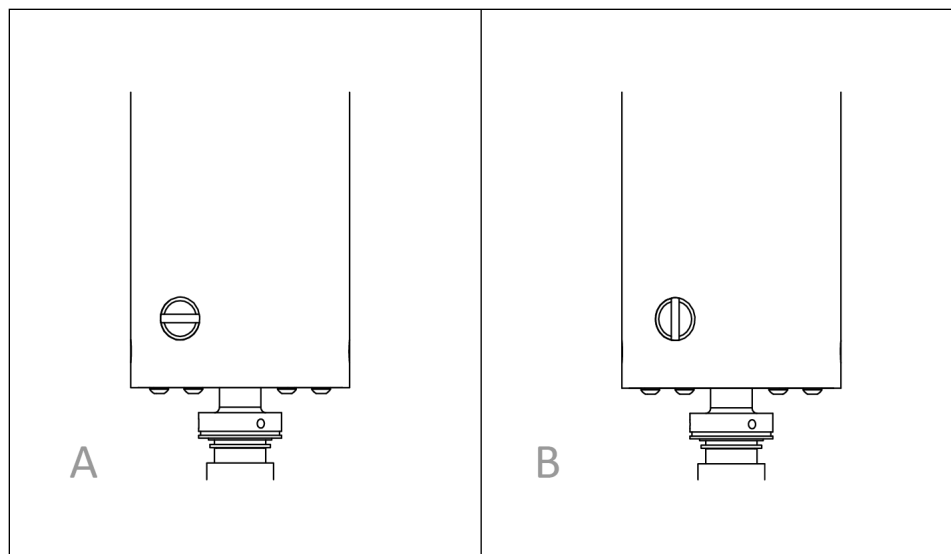
#### NOTICE

#### Risk of damage to the product!

A load along the Y-axis when using axis fixation will damage the compensation mechanism.

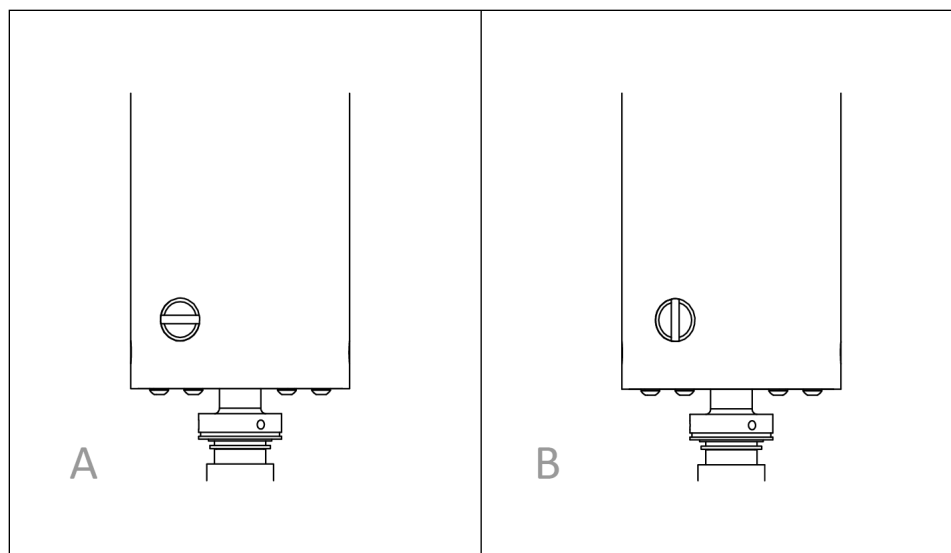
- When using a single-axis lock, only apply loads in the X direction.
- The product must always be vertical in relation to the edge of the workpiece. Orient the robot appropriately depending on the geometry of the workpiece.

#### RCE 230



A = Unlocked; B = Locked

#### RCE 710



A = Locked; B = Unlocked

1. Adjust the screw to the desired position:
  - ⇒ Unlocked = 360° compensation
  - ⇒ Locked = Compensation only in X-axis
2. Manually check ease of movement and possible directions of movement for correct function.

## 6 Start-up

### **NOTICE**

#### **Damage due to axial load!**

An axial load on the tool will result in a premature failure of the product.

- Avoid axial loads.
- Avoid loads running parallel to the rotary axis.
- When deburring flat edges, make sure that the tool does not come into contact with material underneath.
- Adjust the infeed so that no more than 30% of the diameter of the cutter is reached.
- When deburring bore holes, guide the cutter in a circular path along the edge of the bore hole. Do not carry out axial infeed (e.g. while lowering), as this will cause an axial force.

### **NOTICE**

#### **Damage to the spindle by coolant!**

When using with coolant, ensure that no coolant drips onto the spindle. Dry machining is recommended.

### **NOTICE**

#### **Possible damage to the tool and the tool bearing!**

If the tool quickly approaches the workpiece vertically, this will lead to an uneven machining result and premature wear of the bearing and tool.

- Adjust the process parameters precisely.

## 6.1 RCE 230

- Initial setup of the electronic control unit. The manufacturer's manual includes detailed step-by-step instructions, ▶ 1.1.3 [📄 6].

## 6.2 RCE 710

1. Scan the QR code and download the parameterization file from schunk.com, ▶ 1.1.3 [📄 6].
2. Play the parameterization file on the electronic control unit.
3. Download the configuration software from the manufacturer's website for the electronic control unit, ▶ 1.1.3 [📄 6].
4. Initial setup of the electronic control unit. The manufacturer's manual includes detailed step-by-step instructions, ▶ 1.1.3 [📄 6].

## 6.3 Start-up

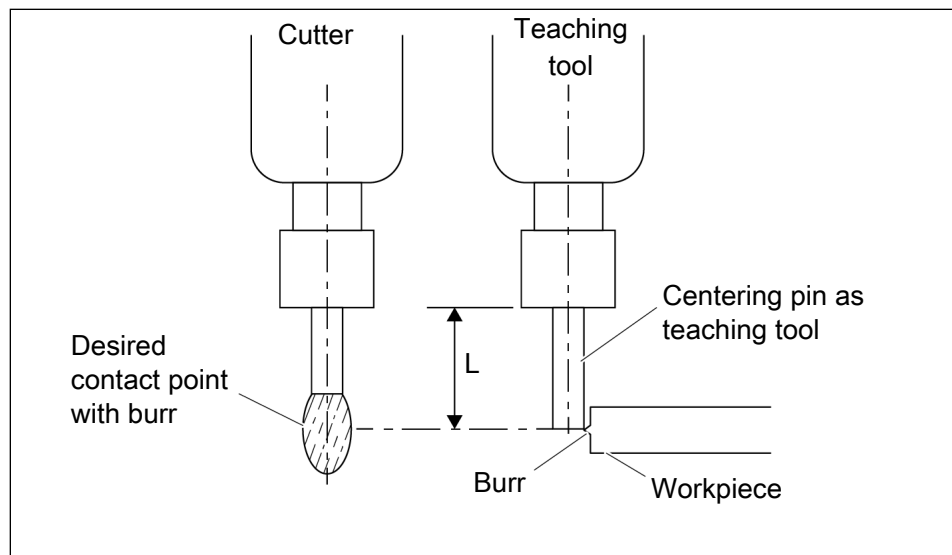
### NOTICE

#### Risk of damage to the product!

When deburring inner corners or inner radii, the product can be damaged if the cutter touches two edges simultaneously.

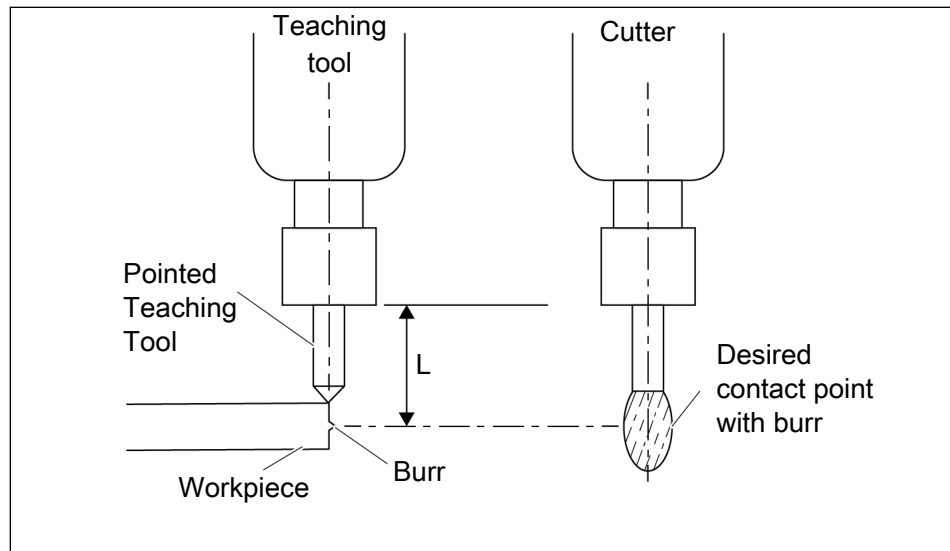
- During teach-in, make sure that the cutter never touches two edges simultaneously.
- The inner radius of a burr must never be less than 1.5 times the diameter of the desired cutter.
- After teach-in, increase the feed rate and ensure that the cutter is deflected but remains in contact with the workpiece surface.

#### Teach-in variant: Dowel Teaching Tool



- For the teach-in process, switch off the motor and apply 0.35 bar to the compensation air connection.
1. Insert a centering pin into the collet chuck instead of a cutter.
    - ⇒ The diameter of the centering pin corresponds to the shank diameter of the desired cutter.
    - ⇒ Adjust the edge of the centering pin flush with the burr on the workpiece.
    - ⇒ The diameter of the cutter is only so much larger than that of the centering pin so that the compensation of the product can compensate for this difference.
  2. Teach-in traverse paths.

### Teach-in variant: Pointed Teaching Tool



- For the teach-in process, switch off the motor and apply 0.35 bar to the compensation air connection.
- 1. Insert a specially machined centering pin for the application into the collet chuck instead of a cutter.
- 2. Use the center line of the centering pin as a guide and move along the edge of the workpiece.
- 3. Add offset manually or automatically to points on the robot path.
  - ⇒ The final correct path of the robot was set.

## 6.4 Teach the spindle for workpiece machining

- Product was completely assembled.
- 1. Adjust the robot control system so that the product approaches the workpiece slowly and at a shallow angle.
- 2. Adjust feed rate.
- 3. Ensure that the distance to the workpiece is correctly adjusted before each new machining operation.
- 4. Plan the robot path so that 50% of the compensation function of the product is used at the theoretical tool edge. This allows the product to use its flexibility to machine areas evenly despite different initial geometries without losing contact with the workpiece. If this is not possible, several machining passes may be necessary.
- 5. When using the axis fixation, always set the free compensation axis of the product perpendicular to the edge of the workpiece.

## 7 Troubleshooting

### 7.1 Tool wears out or breaks

Possible cause	Corrective action
Tool is not suitable for the workpiece.	Select the tool that matches the properties of the workpiece. Coat tool if necessary.
Too much material is being removed.	Check process parameters, reduce infeed, reduce air pressure for compensation, perform machining in several passes., ▶ 6 [ 26].
The load on the tool is too great because the product is moving too slowly.	Increase feed rate.
Compensation mechanism at the stop.	Readjust the offset, ▶ 6 [ 26].
High force on initial contact with workpiece.	Change the feed rate and/or angle when approaching the workpiece.
Strong compensation movement at corners.	Use climb milling, approach the workpiece at a more acute angle.

### 7.2 Tool rattles when deburring

Possible cause	Corrective action
Feed rate not set correctly.	Check process parameters, reduce infeed, reduce air pressure for compensation, perform machining in several passes., ▶ 6 [ 26].
Compliance pressure too low.	
Too much material is being removed.	
Tool is not suitable for the workpiece.	Select the tool that matches the properties of the workpiece.
Tool is worn out.	Change tool

### 7.3 Uneven deburring result

Possible cause	Corrective action
The pressure valve is defective.	Change pressure valve.
Ring cylinder assembly is damaged.	Check ring cylinder assembly for wear and replace if necessary, ▶ 8.6 [ 37]

## 7.4 Residue on the workpiece after deburring

Possible cause	Corrective action
Feed rate not set correctly.	Readjust feed rate.
Tool is worn out.	Change tool
Tool is not suitable for the workpiece.	Select the tool that matches the properties of the workpiece.
Too much material is being removed.	Check process parameters, reduce infeed, reduce air pressure for compensation, perform machining in several passes., ▶ 6 [ 26].
Workpiece is approached too fast or at an incorrect angle.	Check process parameters, reduce infeed, reduce air pressure for compensation, perform machining in several passes., ▶ 6 [ 26].
Tool clogging with material.	Use another tool, e.g. with fewer teeth.

## 7.5 Tool blocked during the milling process

Possible cause	Corrective action
Tool not mounted correctly.	Fasten the tool in the collet chuck.
Workpiece is approached too fast or at an incorrect angle.	Check process parameters, reduce infeed, reduce air pressure for compensation, perform machining in several passes., ▶ 6 [ 26].

## 8 Maintenance

### NOTICE

#### Material damage due to incorrect assembly and disassembly!

Incorrect disassembly and reassembly may cause damage to the product and/or accessories.

- SCHUNK recommends having the product and/or accessories checked and repaired by SCHUNK if necessary.

### 8.1 Notes



#### ⚠ WARNING

#### Risk of injury from electric shock due to contact with live parts!

- Before starting any work: Disconnect the power supply from the mains and secure against accidental switch-on.
- Work may only be performed by appropriately qualified personnel.

#### Original spare parts

Use only original spare parts of SCHUNK when replacing spare and wear parts.

### 8.2 Maintenance interval

Maintenance interval	Maintenance work
daily	Check cutter for damage and wear, replace if necessary, ▶ 8.3 [ 34].
weekly	Check spindle boot for damage and wear, replace if necessary, ▶ 8.4 [ 35]. Check the motor and compensation for smooth running, ▶ 8.5 [ 35].
as required	Change the ring cylinder assembly, ▶ 8.6 [ 37]. Send damaged products to SCHUNK for repair.

## 8.3 Changing the cutter



### ⚠ WARNING

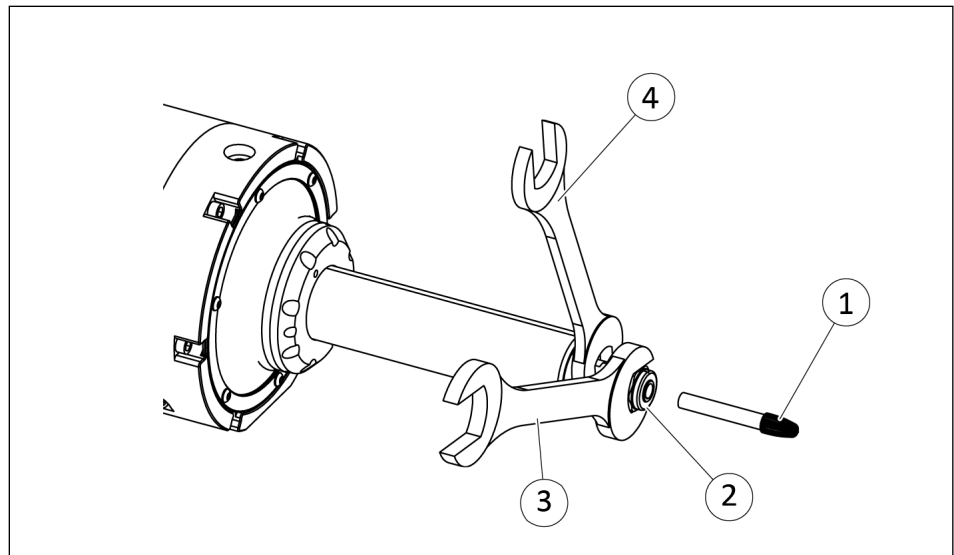
#### Risk of burns through contact with hot surfaces!

Surfaces of components can heat up severely during operation. Skin contact with hot surfaces causes severe burns to the skin.

- For all work in the vicinity of hot surfaces, wear safety gloves.
- Before carrying out any work, make sure that all surfaces have cooled down to the ambient temperature.

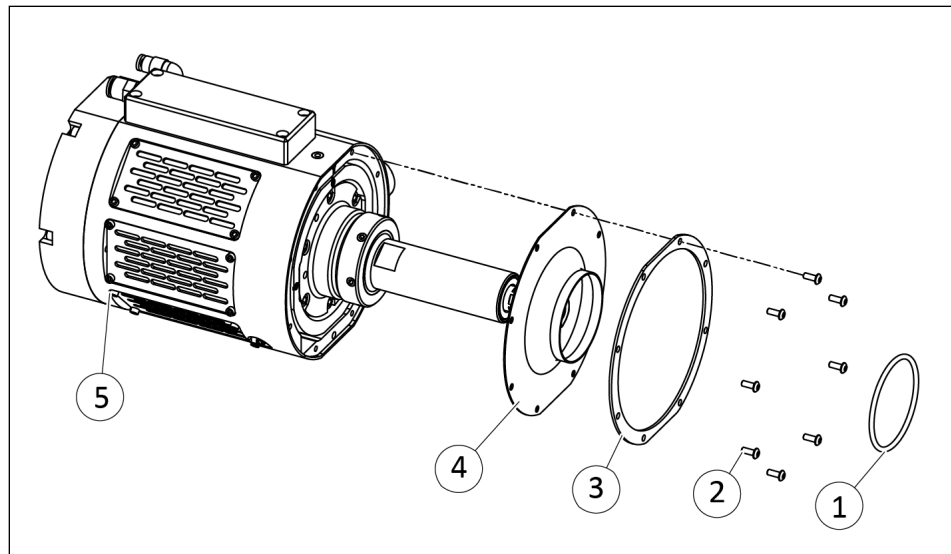
### NOTE

Information on the wrenches can be found in the chapter ▶ 1.3 [ 7].



1. Switch off the power supply and ensure that there is no residual energy in the system.
2. **When replacing with the same model:** Measure and note the length of the cutter beyond the clamping nut (2).
3. Use the smaller wrench from the accessory kit (4) to hold the collet holder.
4. Use the larger wrench from the accessory kit (3) to loosen the clamping nut anti-clockwise.
5. Pull the damaged cutter (1) out of the collet chuck.
6. **When replacing with the same model:** Measure the exposed part of the new cutter (1) with the data from step 2 and slide it into the collet chuck nut (2) accordingly.
7. Use the smaller wrench (4) to hold the collet holder.
8. Use the larger wrench (3) to tighten the clamping nut clockwise.

## 8.4 Changing the spindle boot



*Shown as an example on RCE 710*

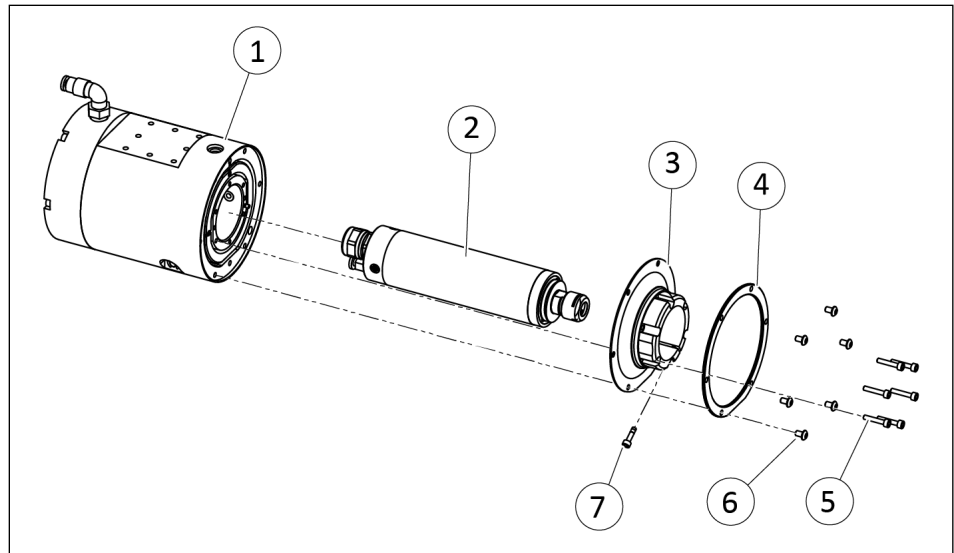
1. Switch off the power supply and ensure that there is no residual energy in the system.
2. Remove the O-ring (1).
3. Loosen the mounting screws (2) and remove the boot ring (3) from the main housing (5).
4. Remove the spindle boot (4).
5. Apply Loctite 222 threadlocker to the mounting screws (2).
6. Install the new spindle boot (4) and boot ring (3) on the main housing (5) using mounting screws (2).  
⇒ Carefully tighten the screws hand-tight.
7. Tighten O-ring (1) over the spindle boot (4).

## 8.5 Changing the motor

### NOTICE

#### **Risk of damage if disassembled incorrectly!**

Motor only with RCE 230 change yourself. For RCE Send the product to SCHUNK.



RCE-230: Motor change

### Removing damaged motor

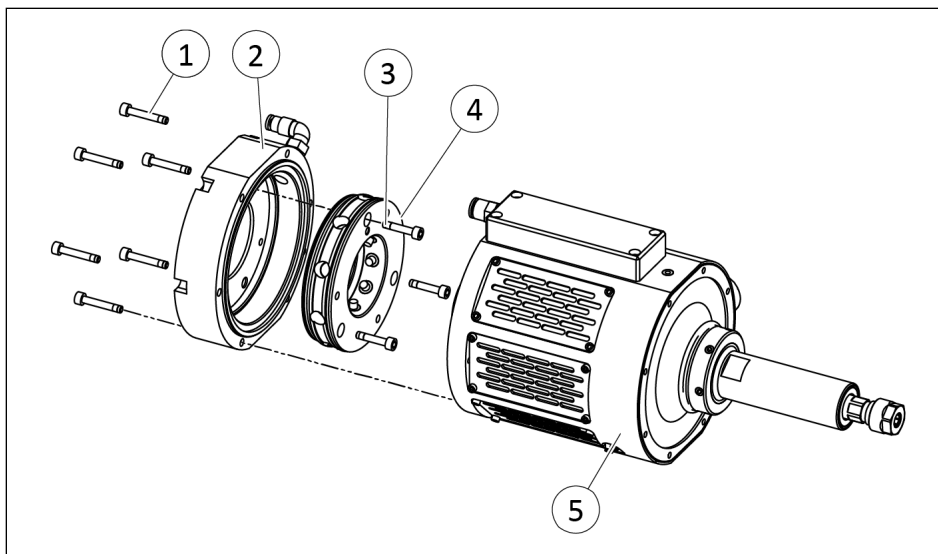
1. Remove the electrical connection cable. ▶ 5.2 [ 19].
2. Remove the compressed air hose.
3. Remove product from the system/machine.
4. Unscrew the motor air connection (5) on the rear side of the motor.
5. Loosen the mounting screws (6) and remove the collar ring (4) from the housing (1).
6. Loosen the mounting screws (5).
7. Loosen the mounting screw (7).
8. Remove the motor holder (3) from the housing (6).
9. Pull the motor (2) out of housing (1).
10. Remove the hose and connection cable from the motor.
11. Clean the interior of the housing (1).

### Inserting the new motor

1. Connect the hose and connection cable to the new motor.
2. Insert the new motor (2) into the housing (1) until the motor end protrudes from the housing.
3. Slide the motor holder (3) over the motor.
4. Align the centering pin in the motor holder so that it can be inserted in the cylinder hole provided.
5. Apply threadlocker to the mounting screws (5) and (6).
6. Lightly tighten the mounting screws (5).
7. Apply threadlocker to the mounting screw (7).
8. Tighten the mounting screw (7).  
⇒ Max. tightening torque: 1 Nm
9. Tighten the mounting screws (5).

- ⇒ Max. tightening torque: 1.4 Nm
- 10.** Tighten the mounting screws (6) hand-tight.
- 11.** Fasten the motor air connection (5) to the rear side of the motor and tighten it hand-tight.
- 12.** Connect all compressed air lines.
- 13.** Connect the electrical connection cable. ▶ 5.2 [19].
- 14.** Mount product onto the system/machine.

## 8.6 Changing the ring cylinder assembly

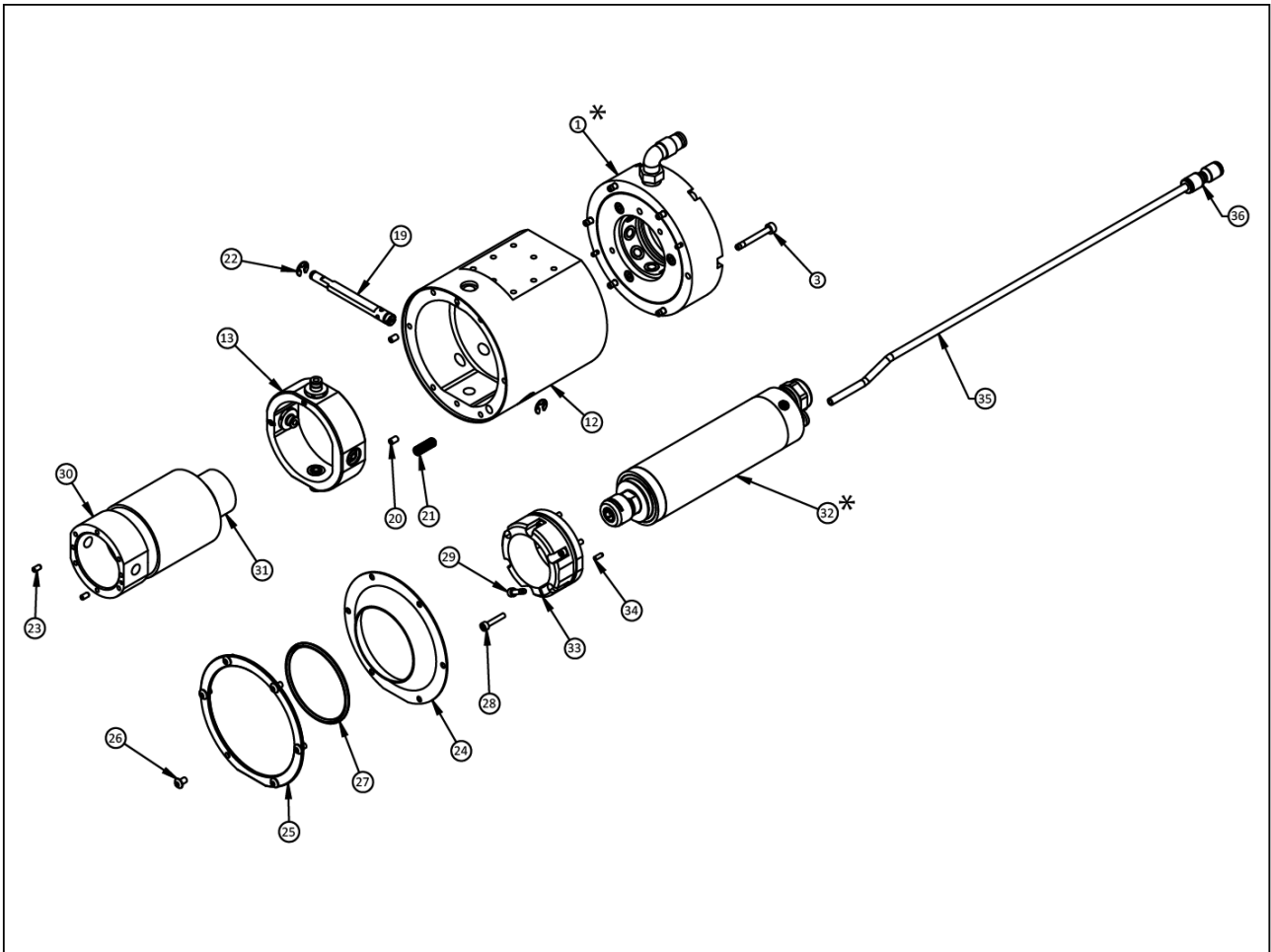


*Shown as an example on RCE 710*

- 1.** Switch off the power supply and ensure that there is no residual energy in the system.
- 2.** Loosen the mounting screws (1) and disassemble the main housing (2) from the rear housing assembly (5).
- 3.** Loosen the mounting screws (3) and disassemble the ring cylinder assembly (4).
- 4.** Lubricate the O-rings in the new ring cylinder assembly and the bore holes in the rear housing assembly.
- 5.** Align the new ring cylinder assembly (4) with the centering bore hole in the rear housing assembly (5) and slide it carefully into the rear housing assembly.
- 6.** Fasten the ring cylinder assembly (4) in the rear housing assembly (5) with mounting screws (3).
  - ⇒ Max. tightening torque: 1.4 Nm
- 7.** Place the main housing (2) on the rear housing assembly (5) and fasten with mounting screws (1).
  - ⇒ Max. tightening torque: 2.9 Nm

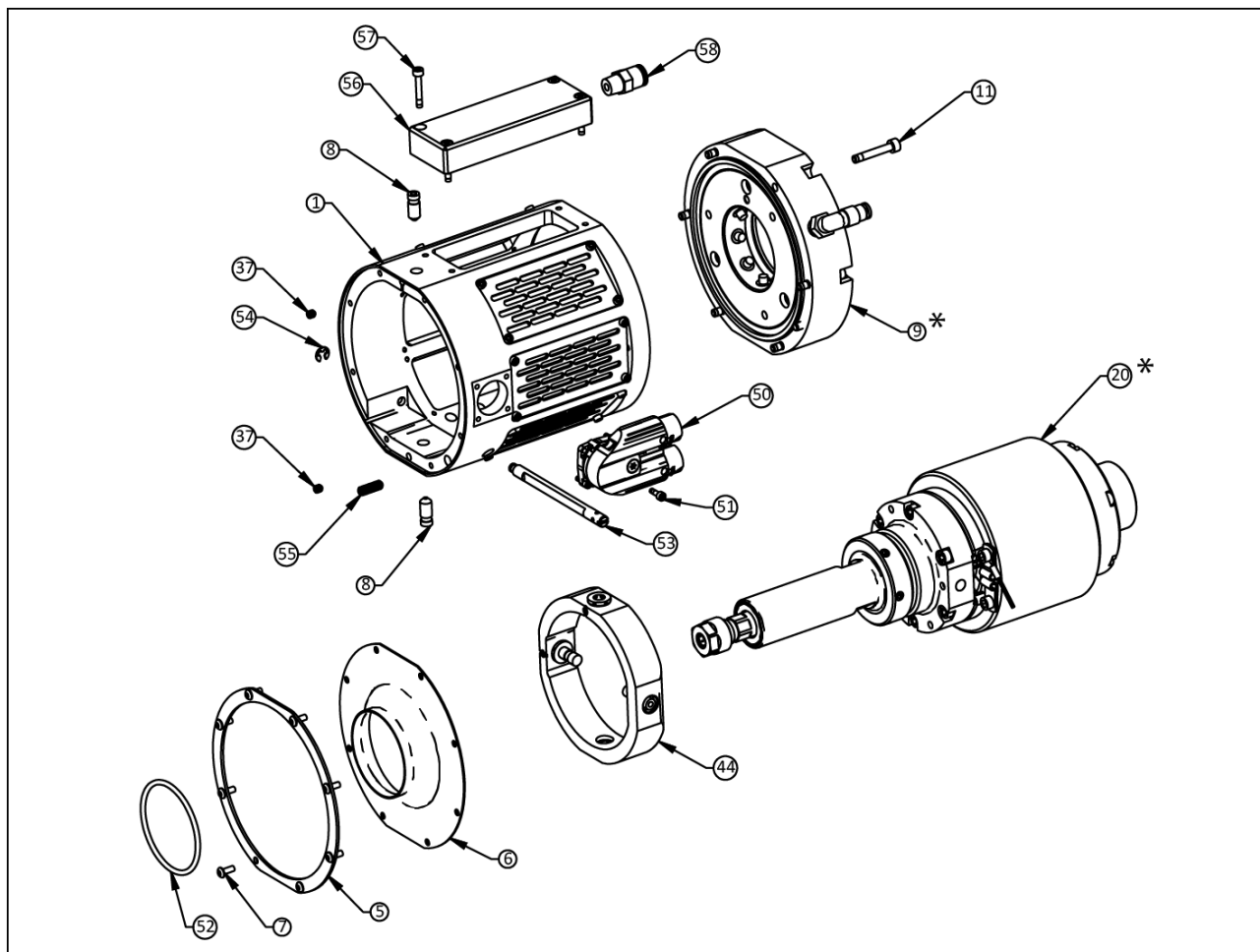
## 8.7 Assembly drawings

### 8.7.1 RCE 230



\* Wearing part, replace if necessary

### 8.7.2 RCE 710



\* Wearing part, replace if necessary

## 9 Translation of original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1 Section B.

Manufacturer/  
Distributor                      SCHUNK SE & Co. KG  
Spanntechnik | Greiftechnik | Automatisierungstechnik  
Bahnhofstr. 106 – 134  
D-74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation:              Radially adjustable electric deburring, brushing and grinding  
spindle / RCE / electric

ID number                              1521944, 1525659

meets the following basic occupational health and safety of the Machinery Directive 2006/42/EC:

No. 1.1.1, No. 1.1.2, No. 1.1.3, No. 1.1.5, No. 1.3.2, No. 1.5.1, No. 1.5.2; No. 1.5.4, No. 1.5.6, No. 1.5.8, No. 1.5.10, No. 1.5.11, No. 1.5.13

The partly completed machinery may not be put into operation until it has been confirmed that the machine into which the partly completed machinery is to be installed complies with the provisions of the Machinery Directive (2006/42/EC). The declaration shall be rendered invalid if modifications are made to the product.

Applied harmonized standards, especially:

EN ISO 12100:2010                      Safety of machinery – General principles for design –  
Risk assessment and risk reduction

EN ISO 10218–2:2011–07              Robots and robotic devices – Safety requirements – Part 2: Robot  
systems and integration

EN ISO 10218–1:2021–09 –              Robotics – Safety requirements – Part 1: Robots (ISO/DIS  
Draft                                      10218–1.2:2021)

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

Person authorized to compile the technical documentation:  
Stefanie Walter, Address: see manufacturer's address

*Signature: see original declaration*

Lauffen/Neckar, February 2025

Dr.–Ing. Manuel Baumeister,  
Head of Systems Engineering,  
Technology & Innovation

## 10 UKCA declaration of incorporation

in accordance with the Supply of Machinery (Safety) Regulations 2008.

Manufacturer/  
Distributor                      SCHUNK Intec Limited  
                                                 Clamping and gripping technology  
                                                 3 Drakes Mews, Crownhill  
                                                 MK8 0ER Milton Keynes

We hereby declare that on the date of the declaration the following partly completed machine complied with all basic safety and health regulations found in the "Supply of Machinery (Safety) Regulations 2008".

The declaration shall be rendered invalid if modifications are made to the product.

Product designation:              Radially adjustable electric deburring, brushing and grinding spindle / RCE / electric

ID number                              1521944, 1525659

The partly completed machine may not be put into operation until it has been confirmed that the machine into which the partly completed machine is to be installed complies with the provisions of the "Supply of Machinery (Safety) Regulations 2008".

Applied harmonized standards, especially:

EN ISO 12100:2010                      Safety of machinery – General principles for design – Risk assessment and risk reduction

EN ISO 10218–2:2011–07              Robots and robotic devices – Safety requirements – Part 2: Robot systems and integration

EN ISO 10218–1:2021–09 –              Robotics – Safety requirements – Part 1: Robots (ISO/DIS Draft 10218–1.2:2021)

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

Person authorized to compile the technical documentation:

Marcel Machado, address: refer to manufacturer's address

Lauffen/Neckar, February 2025



Dr.-Ing. Manuel Baumeister,  
Head of Systems Engineering,  
Technology & Innovation

## 11 Information on the RoHS Directive, REACH Regulation and Substances of Very High Concern (SVHC)

### RoHS Directive

SCHUNK products are classified as "large-scale stationary installations" or as "large-scale stationary industrial tools" within the meaning of Directive 2011/65/EU and its extension 2015/863/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)", or fulfill their intended function only as part of one. Therefore products from SCHUNK do not fall within the scope of the directive at this time.

### REACH Regulation

Products from SCHUNK fully comply with the regulations of Regulation (EC) No. 1907/2006 "concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)" and its amendment 2022/477. SCHUNK attaches great importance to completely avoiding chemicals of concern to humans and the environment wherever possible.

Only in rare exceptional cases do SCHUNK products contain SVHC substances on the candidate list with a mass content above 0.1%. In accordance with Article. 33 (1) of Regulation (EC) No. 1907/2006, SCHUNK complies with its duty to "communicate information on substances in articles" and lists the components concerned and the substances used in an overview that can be viewed at [schunk.com/SVHC](https://schunk.com/SVHC).

*Signature: see original declaration*

Lauffen/Neckar, February 2025

Dr.-Ing. Manuel Baumeister,  
Head of Systems Engineering,  
Technology & Innovation





**SCHUNK SE & Co. KG**  
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