



Assembly and Operating Manual

SRH-plus-D

Pneumatic swivel unit

Translation of Original Operating
Manual

Imprint

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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 [7] 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 Applicable documents

- General terms of business *
- Catalog data sheet of the purchased product *
- Assembly and operating manuals of the accessories *

Die mit Stern (*) gekennzeichneten Unterlagen können unter [schunk.com/downloads](https://www.schunk.com/downloads) heruntergeladen werden.

1.1.4 Sizes

This operating manual applies to the following sizes:

- SRH-plus-D 20
- SRH-plus-D 25
- SRH-plus-D 30
- SRH-plus-D 35
- SRH-plus-D 40
- SRH-plus-D 50
- SRH-plus-D 60

1.1.5 Variants

This operating manual applies to the following variations:

- SRH-plus-D with electrical feed-through (EDF) and lateral cable outlet

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 specified maintenance and lubrication intervals
- 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

- Pneumatic swivel unit SRH-plus-D in the version ordered
- Assembly and Operating Manual
- Accessory pack

1.3.1 Accessory kit

SRH-plus-D						
20	25	30	35	40	50	60
5514982	5514986	5518654	5514990	5514994	5514998	5515002

Tab.: ID Accessory kit SRH-plus-D

Content of the accessories pack: ▶ 7.8 [44].

1.4 Accessories

A wide range of accessories are available for this product

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

1.4.1 Sealing kit

SRH-plus-D						
20	25	30	35	40	50	60
5521800	5521802	5521804	5521806	5521808	5521810	5521812

Tab.: ID Sealing kit SRH-plus-D

contents of the sealing kit, ▶ 7.8 [44].

2 Basic safety notes

2.1 Intended use

The product may only be used for swiveling permissible attachment parts or workpieces.

- The product may only be used within the scope of its technical data, ▶ 3 [17].
- When implementing and operating components in safety-related parts of the control systems, the basic safety principles in accordance with DIN EN ISO 13849-2 apply. The proven safety principles in accordance with DIN EN ISO 13849-2 also apply to categories 1, 2, 3 and 4.
- 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 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

Inappropriate use includes using the product as a cutting tool or drilling tool, for example.

- Any utilization that exceeds or differs from the appropriate use is regarded as misuse.

2.3 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.

2.4 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 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 [17].
- Make sure that the product is a sufficient size for the application.
- Make sure that the environment is free from splash water and vapors as well as from abrasion or processing dust. Exceptions are products that are designed especially for contaminated environments.

2.6 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.

2.7 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.

2.8 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.

2.9 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.

2.10 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.

2.11 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.

2.12 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.

2.12.1 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.

2.12.2 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.

2.12.3 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.

2.12.4 Protection against electric shock

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.

2.13 Notes on particular risks



⚠ 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 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.



⚠ WARNING

Risk of injury from sharp edges and corners!

Sharp edges and corners can cause cuts.

- Use 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 parts coming loose!

If the shock absorbers are faulty, the product can become damaged. Parts coming loose in this way can lead to injuries.

- Regularly check the components for wear and damage.



⚠ WARNING

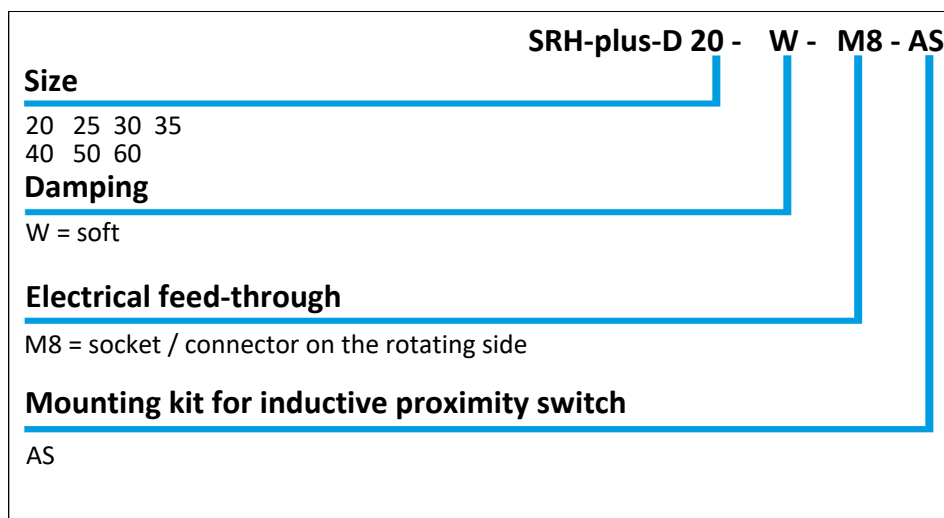
Risk of injury if the condition or behavior of the product is undefined!

Cutting off the compressed air supply in an uncontrolled manner could lead to undefined states and behavior. This may cause personal injury or material damage.

- The operator must define suitable emergency stop and restarting strategies.
 - ⇒ Emergency stop strategies: e.g. by means of controlled shut down
 - ⇒ Restarting strategies: e.g. using pressure build-up valves or suitable valve switching sequences

3 Technical data

3.1 Type key



Type key

3.2 Basic data

Designation	Value
Noise emission [dB(A)]	≤70
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:2010 [7:4:4]
Min. pressure [bar]	3
Max. pressure [bar]	8

Tab.: Basic data swivel unit

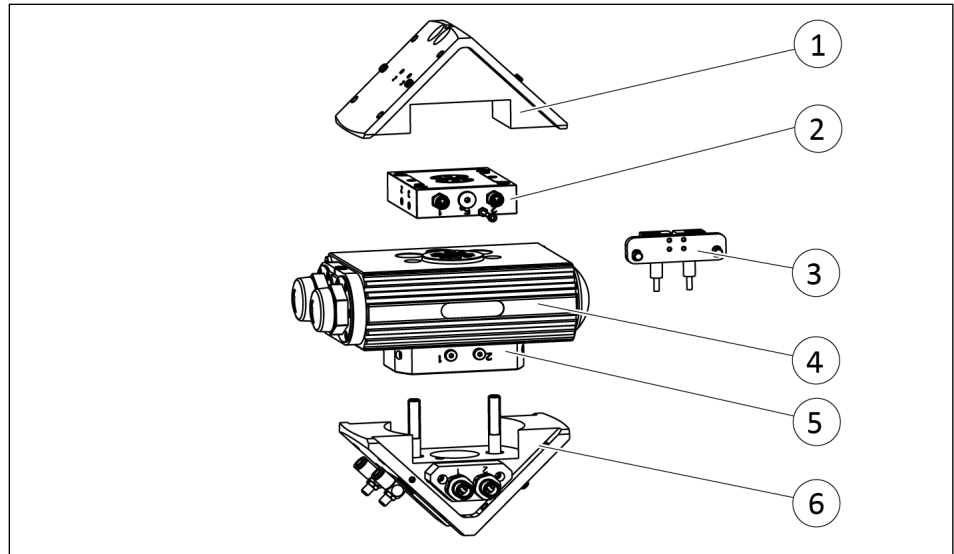
Designation	Value
Max. voltage [V]	24
Max. current per wire [A]	1

Tab.: Basic data EDF

More technical data is included in the catalog data sheet. Whichever is the latest version.

4 Design and description

4.1 Design



Overview SRH-plus-D

1	Swivel head
2	Distributor plate EDF
3	Sensor monitoring
4	Base unit SRU-plus
5	Fluid feed-through
6	Screw-on bracket with lateral cable outlet

4.2 Description

The product is a pneumatic swivel unit for fast loading and unloading tasks, with integrated fluid and electrical feed-through.

Fluid feed-through (MDF)

With the fluid feed-through, gasses, fluids and vacuums can be fed through without hoses.

Electrical feed-through (EDF)

With the electrical feed-through (EDF), sensor signals for monitoring the product can be reliably conducted and discharged via a lateral outlet.

Angle of rotation

The angle of rotation for the product is 180°.

5 Assembly and settings

5.1 Installing and connecting



⚠ 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 damage to the product!

If the end position is approached too hard, the product may be damaged.

- As a rule, a rotary movement must take place without impact and bouncing.
- To do this, carry out sufficient throttle and dampening.
- Observe specifications in the catalog data sheet.

CAUTION

Material damage due to opened exhaust air throttle valves!

If during first actuation the exhaust throttle valves are open, the product may move in an uncontrolled manner.

- Close the exhaust air throttle valves completely before applying pressure.

Overview

1. Screw the product to the machine/system, ▶ 5.2.1 [21].
 - ⇒ Use centering sleeves from the enclosed accessory pack.
 - ⇒ Observe the tightening torque for the mounting screws.
2. Screw the attachment part to the swivel head, ▶ 5.2.1 [21].
3. In the main air connections "A" and "B", screw in throttle valves and connect compressed air lines, ▶ 5.2.2 [23].
 - ⇒ In die Hauptluftanschlüsse "A" und "B" Verschlusschrauben einschrauben, ▶ 5.2.2 [23].
 - ⇒ In die Zuluftleitungen für die Luftanschlüsse "a" und "b" Drosselventile montieren.

- 4.** Check that all of the throttle valves are closed.
- 5.** Screw in locking screws in open and not required air connections where appropriate.
- 6.** Adjust the angle of rotation, ▶ 5.3.1 [📄 28].
- 7.** Adjust the swiveling speed, ▶ 5.3.2 [📄 29].
- 8.** Adjust shock absorber stroke, ▶ 5.3.3 [📄 30].
- 9.** Mount the sensor, ▶ 5.4 [📄 33].

5.2 Connections

5.2.1 Mechanical connection

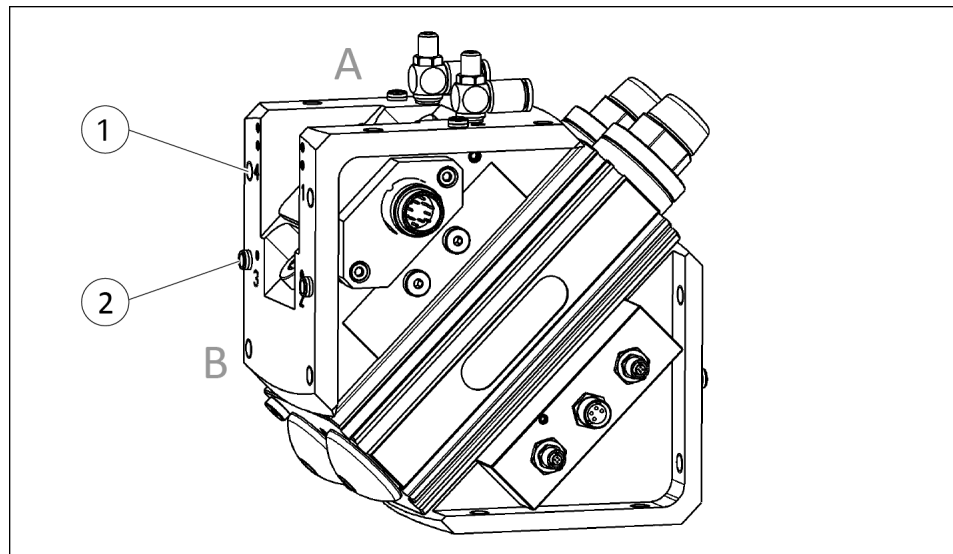
NOTE

For connection dimensions, see drawings in the catalog.

Connections on the screw-on bracket

The product can be assembled from two sides.

Centering sleeves for the mounting screws are included in the accessory kit.

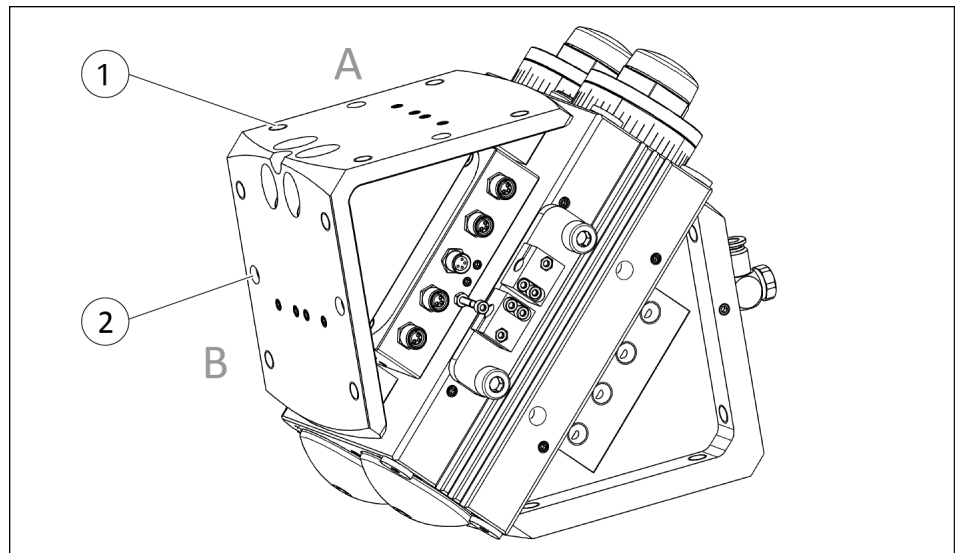


Assembly options

Item	Mounting	SRH-plus-D						
		20	25	30	35	40	50	60
1	Mounting screw (4 Piece)	M6	M6	M6	M6	M8	M10	M10
	Max. depth of engagement from locating surface [mm]	7	7	8.5	8.5	12	18	18
2	Centering sleeve (2 Piece)	Ø6	Ø6	Ø6	Ø6	Ø8	Ø10	Ø10

Connections on the swivel head

Two attachment parts can be mounted on the product.



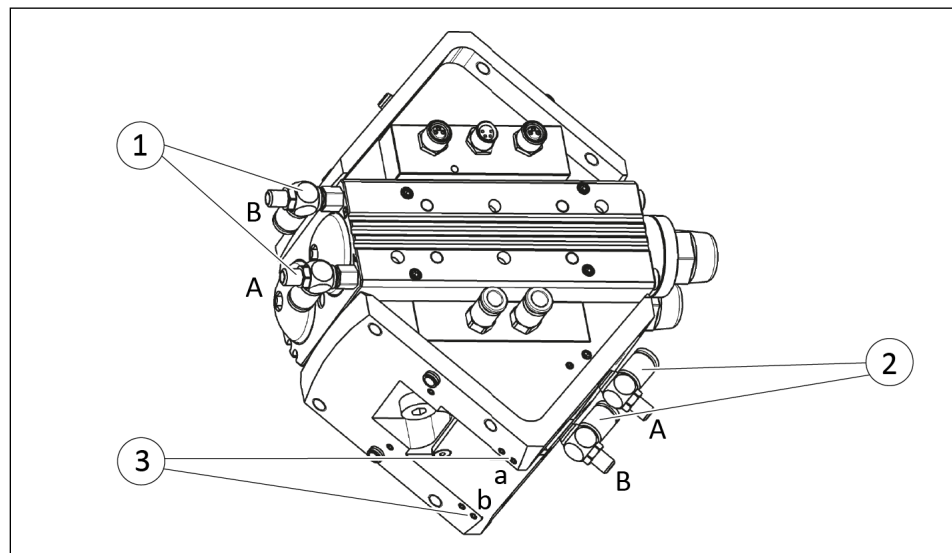
Connections for attachment part

Item	Mounting	SRH-plus-D						
		20	25	30	35	40	50	60
1	Mounting screw (4 Piece)	M6	M6	M6	M6	M8	M12	M12
	Max. depth of engagement from locating surface [mm]	5.5	5.5	5.5	6	8	10.5	10.5
2	Centering sleeve (2 Piece)	Ø6	Ø6	Ø6	Ø6	Ø8	Ø12	Ø12

5.2.2 Pneumatic connection

NOTE

- Observe the requirements for the compressed air supply, ▶ 3 [17].
- In case of compressed air loss (cutting off the energy line), the components lose their dynamic effects and do not remain in a secure position. However, the use of a SDV-P pressure maintenance valve is recommended in this case in order to maintain the dynamic effect for some time. Product variants are also offered with mechanical gripping force via springs, which also ensure a minimum clamping force in the event of a pressure drop.



Compressed air connections

Designation	Function
Hose-free direct connection	
a	swiveling 0° - 180°
b	swiveling 180° - 0°
Main air connections	
A	swiveling 0° - 180°
B	swiveling 180° - 0°

Dimensions

Item	Designation	20	25	30	35
1	Hose connection to swivel unit	M5/13	M5/13	M5/13	M5/13
2	Hose connection to screw-on bracket	M5/6	M5/6	M5/8	M5/6

Item	Designation	20	25	30	35
3	Direct connection to screw-on bracket	M3/6	M3/6	M4/6	M5/8

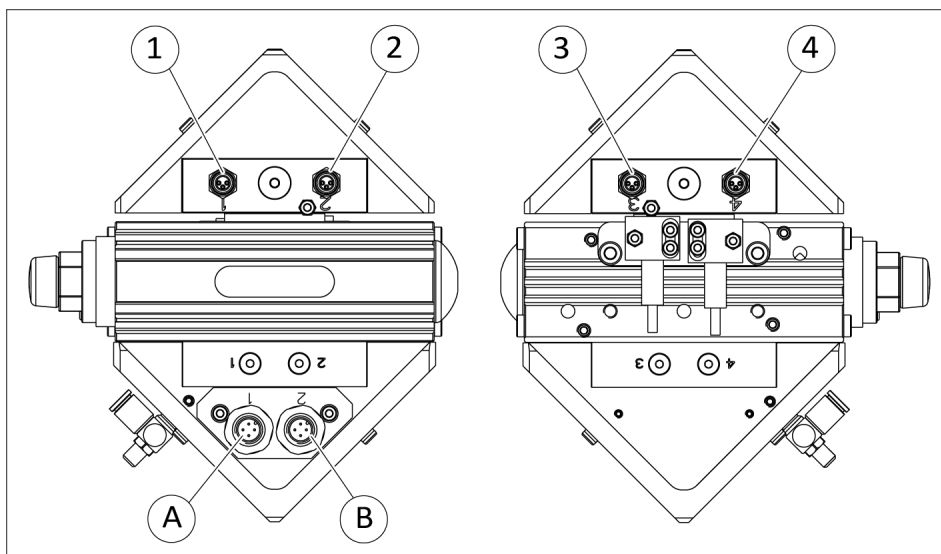
Tab.: Thread diameter and depth of engagement [mm] of the air connections

Item	Designation	40	50	60
1	Hose connection to swivel unit	G1/8" / 13	G1/8" / 13	G1/8" / 8
2	Hose connection to screw-on bracket	G1/8" / 6.5	G1/8" / 10	G1/8" / 8
3	Direct connection to screw-on bracket	M5/8	M5/8	M5/8

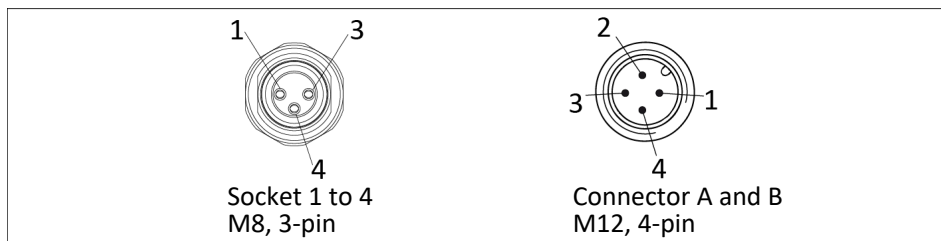
- Only open the air connections required.
- Seal those main air connections that are not needed using the locking screws from the accessory pack.
- For hose-free direct connections, use the O-rings from the accessory pack.
- Use throttle valve from the accessory pack for the main air connections.
- With hose-free direct connections, throttle valves must be fitted in front of the main air connections.

5.2.3 Electrical connection

Size 20-35



SRH-plus-D 20-35, Sleeve 1 to 4, Connector A, B

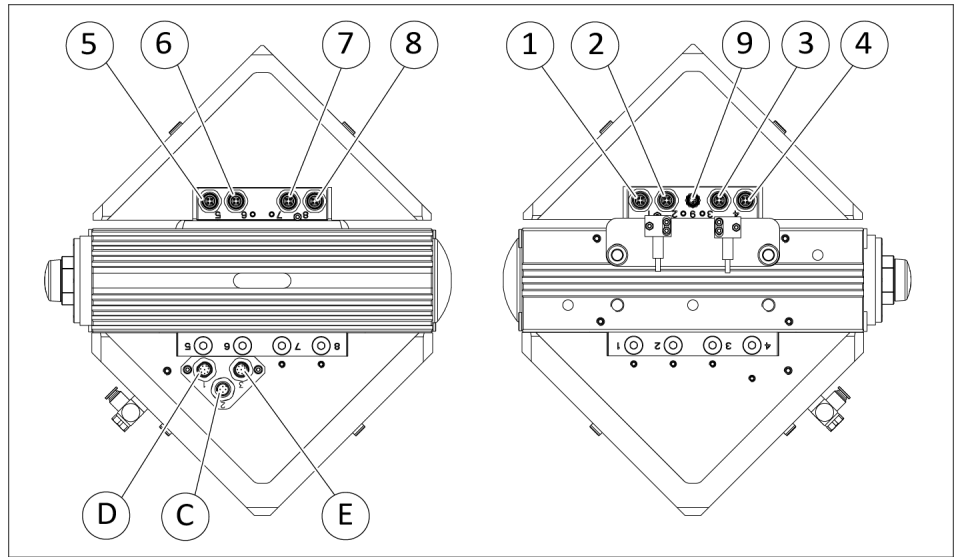


Pin assignment Sleeve 1 to 4, Connector A, B

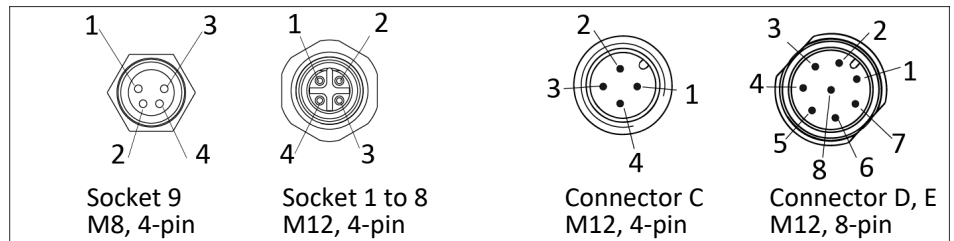
Pin	Pin allocation	
	Connector A	Connector B
1	+24 VDC	+24 VDC
2	Socket 1, Pin 4	Socket 2, Pin 4
3	GND	GND
4	Socket 4, Pin 4	Socket 3, Pin 4

Tab.: Pin allocation SRH-plus-D 20-35

Size 40-60



SRH-plus-D 40-60, Sleeve 1 to 9, Connector C, D, E



Pin assignment Sleeve 1 to 9, Connector C, D, E

Pin	Pin allocation		
	Connector D	Connector C	Connector E
1	+24 VDC	+24 VDC	+24 VDC
2	Socket 2, Pin 4	Socket 9, Pin 2	Socket 6, Pin 4
3	GND	GND	GND
4	Socket 1, Pin 4	Socket 9, Pin 4	Socket 5, Pin 4
5	Socket 3, Pin 4	-	Socket 7, Pin 4
6	Socket 4, Pin 4	-	Socket 8, Pin 4
7	-	-	-
8	-	-	-

Tab.: Pin allocation SRU-plus-D 40-60

5.3 Settings

CAUTION

Material damage due to erroneous settings!

If the end position is approached too hard, the product may be damaged.

- Adjust exhaust throttle valve and shock absorber so that the movement is braked smoothly.

For operation, the angle of rotation, the swiveling speed and the absorber stroke must be set.

The settings must always be configured under subsequent operational conditions. If the operating conditions change, e. g. weight of the workpiece, check that the movement decelerates smoothly. If necessary, readjust angle of rotation, swiveling speed and absorber stroke.

Angle of rotation

The angle of rotation is set in order to achieve a fine adjustment of the end positions.

If the end positions are adjusted, the swiveling speed and absorber stroke might also have to be readjusted.

Swiveling speed and absorber stroke

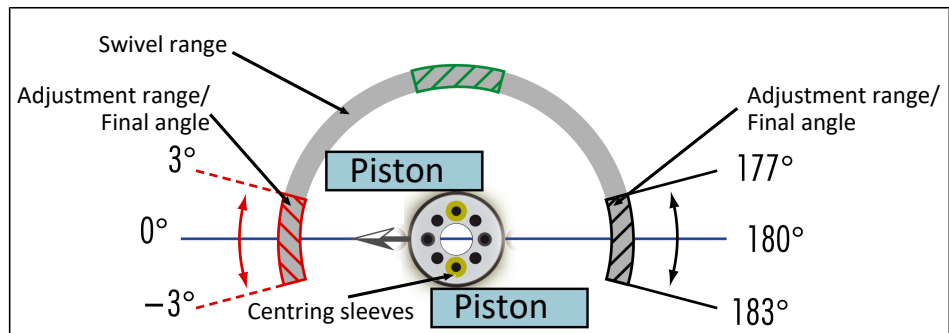
In order to ensure a smooth operating cycle for the respective operating conditions, swivel speed and absorber stroke must be attuned to one another, ▶ 5.3.4 [32].

Each end position is set separately. The position of the exhaust throttle valve and shock absorber may deviate from one another.

5.3.1 Adjust swivel angle

The angle of rotation is set in order to attain a fine adjustment of the end positions. The end positions can be adjusted by $\pm 3^\circ$.

Adjustment range



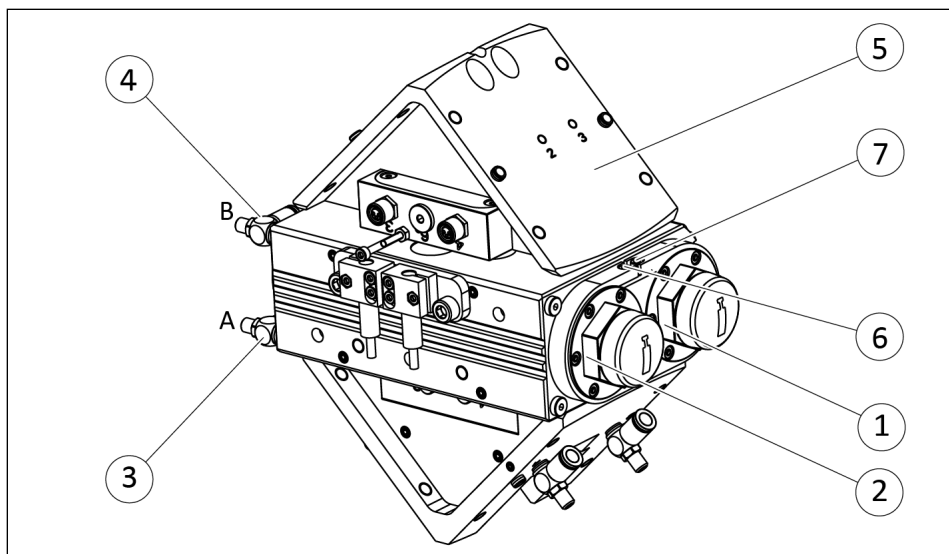
End position adjustability 3°

CAUTION

Material damage due to incorrect settings!

By incorrect setting of the swivel angle parts can come loose and the product may be damaged.

- Only trained staff may set the swivel angle.
- Before setting the swivel angle release pressure.



1. Loosen screw of the limiting sleeve (6) approx. one revolution.
2. Actuate air connection B (4).
3. Open the exhaust throttle valve at air connection A (3) until the swivel head (5) starts to move.
⇒ Swivel head swivels towards the end position.
4. Set the desired end position by twisting the stop B (2).
5. Check end position.

- ⇒ To do this, ventilate air connection *B* (4) and actuate it again, if necessary adjust end position.
- 6.** Tighten screw (6).
- 7.** Loosen screw (7) by approx. one revolution.
- 8.** Ventilating air connection *B* (4) and actuate air connection *A* (3).
- 9.** Open the exhaust throttle valve at air connection *B* (4) until the swivel head (5) starts to move.
 - ⇒ Swivel head swivels towards the end position.
- 10.** Set the desired end position by twisting the stop *A* (1).
- 11.** Check end position.
 - ⇒ To do this, ventilate air connection *A* (3) and actuate it again, if necessary adjust end position.
- 12.** Tighten screw (7).
 - ⇒ Tightening torque: SRH-plus-D 20-30: 1.2 Nm / SRH-plus-D 35-60: 2.1 Nm
- 13.** Swivel repeatedly to test the setting, readjust if necessary. If necessary, readjust the swiveling speed and absorber stroke.

5.3.2 Adjust swiveling speed

NOTE

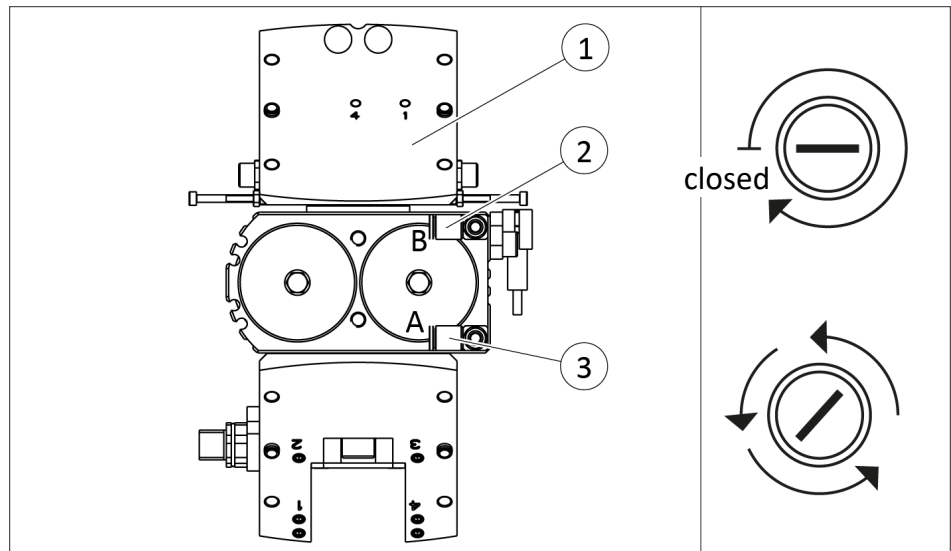
The optimal swiveling speed is achieved by adjusting the swiveling time on the exhaust air throttles and adjusting the absorber stroke. Schematic illustration of the optimal adjustment, ▶ 5.3.4 [📄 32].

CAUTION

Material damage due to too high swiveling speed!

If the swiveling speed is too high, the assembly will be decelerated abruptly by the shock absorber and will continue to oscillate until reaching the end position. This will overload the shock absorber and may cause damage to it.

- Adjust the swiveling speed in a way, that the movement decelerate smoothly in the end position.
-



1. Close both exhaust throttle valves completely.
2. **At air connection B (2):**
3. Actuate air connection A (3).
4. Open the exhaust throttle valve until the swivel head (1) starts to move.
 - ⇒ Swivel head swivels towards the end position.
5. Continue to open the exhaust throttle valve in increments until the movement decelerates smoothly.
6. If the swiveling speed is too high, the exhaust throttle valve must be closed again in increments until the optimum swiveling time is reached.
7. Swivel repeatedly to test the setting, readjust if necessary.
8. **At air connection B (2):**
Repeat the steps for the other end position.
9. Adjust the absorber stroke, ▶ 5.3.3 [□ 30].

5.3.3 Adjust absorber stroke

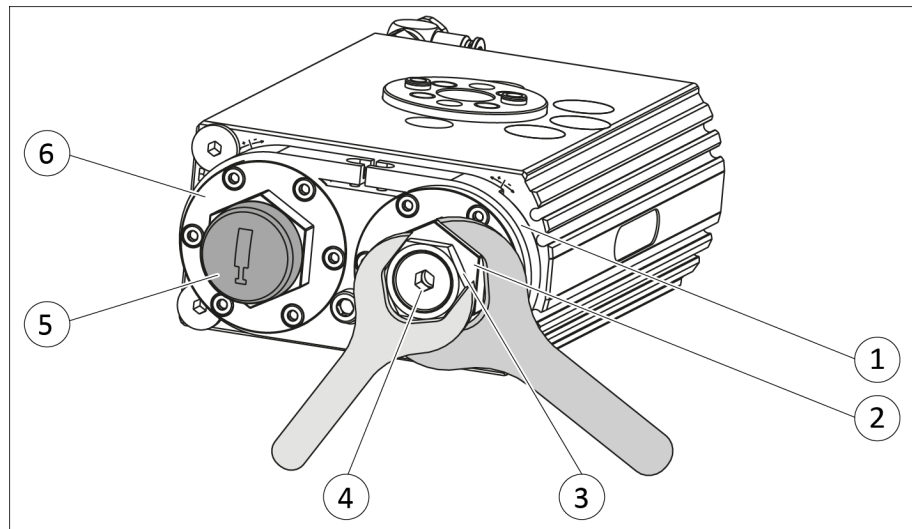
CAUTION

Material damage to the product possible!

If the maximum adjustment range of the absorber stroke is exceeded, this can cause leaks in the product.

- When setting the absorber stroke, adhere to the maximum adjustment range.

Designation	SRH-plus-D						
	20	25	30	35	40	50	60
Max. adjustment range [mm]	7.5	7.5	7.5	6.5	6.5	10.5	10.5



1. Check deceleration of the movement in the end positions.
 - ⇒ If the absorber stroke is too long, the end position is reached too slowly.
 - ⇒ If the absorber stroke is too short, the assembly impacts in the end position.
2. **On the first shock absorber (1):**
remove cover (5).
3. Fix back stop A (2) and loosen nut (3) on stop pin A (4).
4. Fix back stop A (2) and set stop pin A (4).

NOTE

If the absorber stroke is changed, the swivel speed might also need to be changed as well, so that the movement remains smooth, ► 5.3.2 [29].

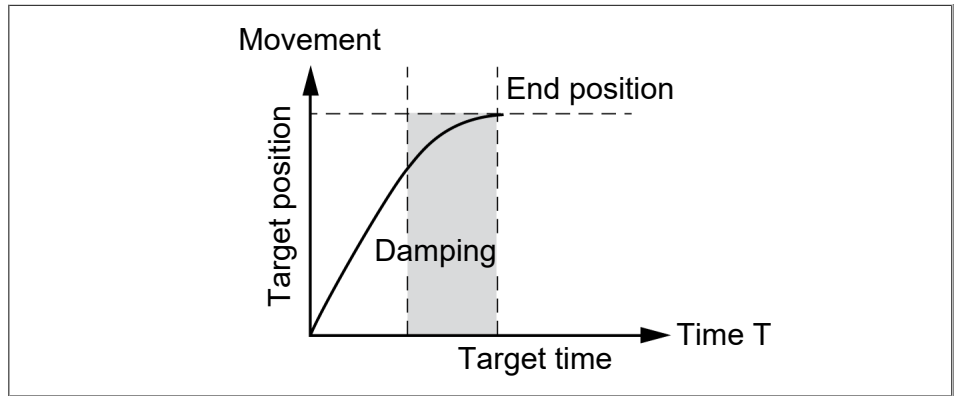
- ⇒ **IMPORTANT! If the stop pin is unscrewed too far, this may cause the rotary actuator to leak.**
By unscrewing stop pin A (4), the absorber stroke is reduced.
 - ⇒ By screwing in stop pin A (4), the absorber stroke is increased.
5. Fix stop pin A (4) and tighten bolt (3).
 6. Fix back stop A (2) and tighten bolt (3).
 7. Swivel repeatedly to test the setting, readjust if necessary.
 - ⇒ The end positions must be approached gently.
 8. Put on cover cap (4).
 9. **On the second shock absorber (6)**
Repeat the steps for the other end position.

NOTE

Depending on the loading condition, the settings for the two shock absorbers may deviate widely from each other.

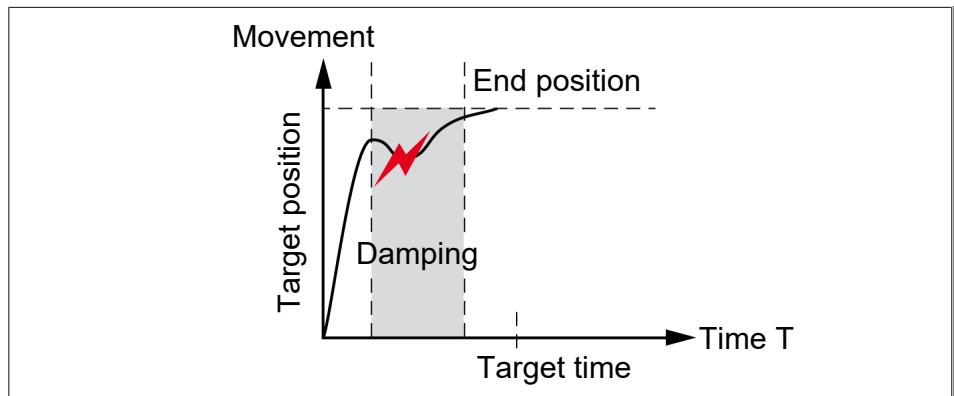
5.3.4 Diagram of swiveling movement

Optimal setting

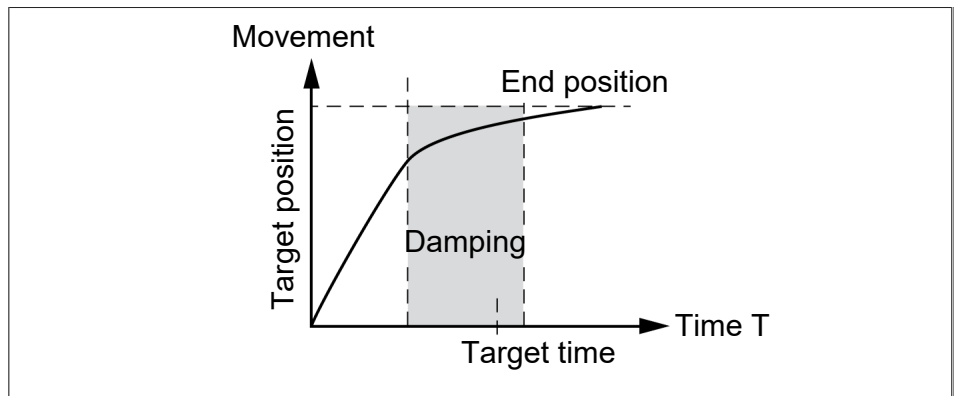


Swiveling speed and absorber stroke are optimal.

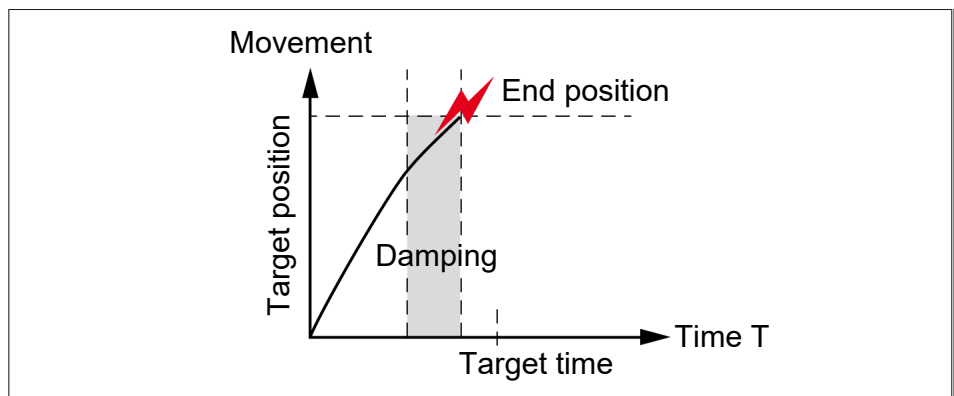
Erroneous adjustment



Swiveling speed too high. Assembly oscillates back.



Absorber stroke is too long. End position is reached too slowly.



Absorber stroke is too short. Assembly hits the end position.

5.4 Mounting the sensor

NOTE

Observe the assembly and operating manual of the sensor for mounting and connecting.

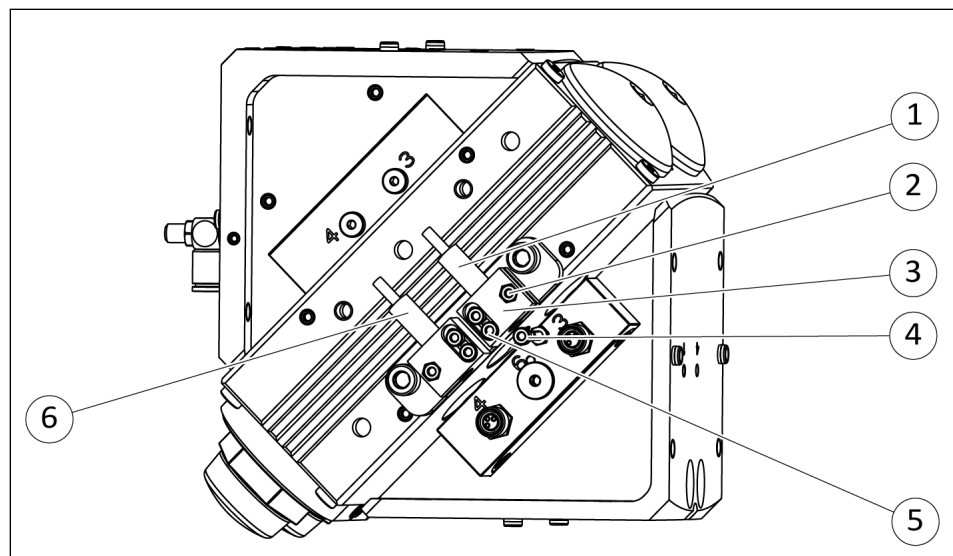
The product is prepared for the use of sensors.

- For the exact type designations of suitable sensors, please see catalog datasheet and ▶ 5.4.1 [33].
- For technical data for the suitable sensors, see assembly and operating manual and catalog datasheet.
 - The assembly and operating manual and catalog datasheet are included in the scope of delivery for the sensors and are available at schunk.com.
- Information on handling sensors is available at schunk.com or from SCHUNK contact persons.

5.4.1 Overview of sensors

Designation	SRH-plus-D						
	20	25	30	35	40	50	60
Inductive proximity switch IN 80	X	X	X	X	X	X	X

5.4.2 Assemble inductive proximity switch IN 80



Mounting kit for inductive proximity switch

NOTE

Holders (3) and screw (4) are pre-assembled at the factory.

- 1.** Connect sensor and secure cable, see Sensor Assembly and Operating Manual.
- 2.** Push sensors (1) and (6) up to the stop in the holders (3) and clamp them in this position with screws (2).
- 3.** Make sure that screw (4) is positioned centrally under the sensor.
- 4.** Loosen screws (5) on the holder (3). Adjust the holder (3) in such a way that sensor (1) responds. Re-tighten screws (5).
- 5.** Swivel the product by 180°.
- 6.** Adjust the holder of sensor (6) in the same way.
- 7.** Check the switching positions and test the function, re-adjust the position if necessary.

6 Troubleshooting

6.1 Product does not move smoothly to the end positions

Possible cause	Corrective action
Dampening stroke shifted.	Adjust absorber stroke. ▶ 5.3.3 [30]
Shock absorber defective.	Check or, if need be, replace the shock absorber. ▶ 7 [37]

6.2 Product does not travel through the rotating angle

Possible cause	Corrective action
Accumulation of dirt between stop / sleeve and pistons.	Clean and lubricate product. ▶ 7 [37]
End positions are adjusted incorrectly.	Adjust end position. ▶ 5.3.1 [28]
Pressure drops below minimum.	Check air supply. ▶ 5.2.2 [23]
Components have come loose e.g. due to overloading.	Send product with a SCHUNK repair order or dismantle product.
Shock absorber defective.	Check or, if need be, replace the shock absorber. ▶ 7 [37]

6.3 Product rotates jerkily

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product. ▶ 7 [37]
Compressed air lines blocked.	Check compressed air lines of damage.
Swiveling speed set too fast	Adjust swiveling speed ▶ 5.3.2 [29]

6.4 Product does not move

Possible cause	Corrective action
Component part defective.	Replace component or send it to SCHUNK for repair. Have Schunk check the application.
Pressure drops below minimum.	Check air supply. ▶ 5.2.2 [23]
Compressed air lines switched.	Check compressed air lines.

Possible cause	Corrective action
Unused air connections open.	Close unused air connections. ▶ 5.2.2 [23]
Both exhaust air throttle valves are closed.	Open one exhaust air throttle valve.
Proximity switch defective or set incorrect.	Adjust sensor or if necessary change sensor. ▶ 5.4 [33]

6.5 Torque is diminishing

Possible cause	Corrective action
Compressed air can escape.	Check seals, if necessary, disassemble the product and replace seals. ▶ 7.7 [43]
Too much grease in the mechanical movement space.	Clean and lubricate product. ▶ 7 [37]
Pressure drops below minimum.	Check air supply. ▶ 5.2.2 [23]

7 Maintenance



⚠ 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.

7.1 Notes

Original spare parts

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

7.2 Maintenance interval

CAUTION

Material damage due to hardening lubricants!

Lubricants harden more quickly at temperatures above 60°C, leading to possible product damage.

- Reduce the lubricant intervals accordingly.

All sizes

Interval	Maintenance work
daily	Visually inspect the function of the shock absorbers, ▶ 7.4.1 [□ 39].

Size 20 - 40

Interval [Mio. cycles]	Maintenance work
2	Clean all parts thoroughly, check for damage and wear, if necessary replace seals and wearing parts, ▶ 7.7 [□ 43].
2	Treat all grease areas with lubricant, ▶ 7.3 [□ 38].
2	Check that the shock absorbers are working, if necessary replace shock absorber, ▶ 7.6 [□ 42].

Size 50 - 60

Interval [Mio. cycles]	Maintenance work
1	Clean all parts thoroughly, check for damage and wear, if necessary replace seals and wearing parts, ▶ 7.7 [□ 43].
1	Treat all grease areas with lubricant, ▶ 7.3 [□ 38].

Interval [Mio. cycles]	Maintenance work
1	Check that the shock absorbers are working, if necessary replace shock absorber, ▶ 7.6 [42].

7.3 Lubricants/Lubrication points (basic lubrication)

During maintenance, treat all greased areas with lubricant. Thinly apply lubricant with a lint-free cloth. SCHUNK recommends the lubricants listed.

Lubricant point	Lubricant
The teeth and the pinion	SCHUNK grease 1
Seals and sealing surfaces	SCHUNK grease 1

Details on the SCHUNK lubricant designations are available at schunk.com/lubricants.

The product contains food-compliant lubricants as standard. Components such as rolling bearings, linear guides, or shock absorbers are not provided with food-compliant lubricants.

The requirements of standard EN 1672-2:2020 are not fully met.

NOTE

- Change contaminated food-compliant lubricant.
- Observe information in the safety data sheet from the lubricant manufacturer.

7.4 Inspect and set shock absorbers

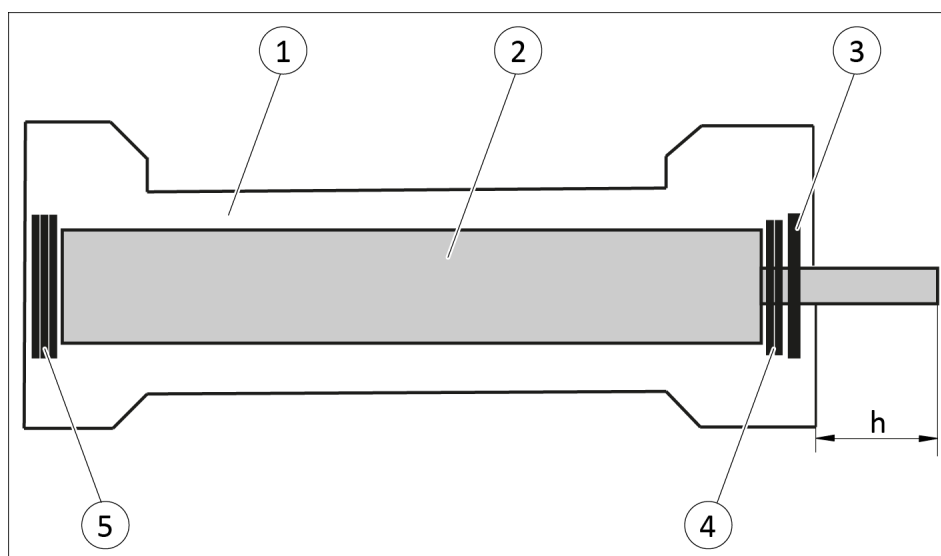
7.4.1 Inspect shock absorbers

The shock absorbers are specially tested and can only be acquired from SCHUNK. The shock absorbers have a limited lifespan, depending on the load.

- Regularly check that the shock absorbers are working.
 - ⇒ The shock absorber is working correctly if the product moves softly into the end positions when set correctly and the prescribed swiveling time is reached.

7.4.2 Set shock absorber overhang

For production reasons, shock absorbers may be of different sizes. If a shock absorber is exchanged, the new shock absorber with fitting disks must be set to the corresponding shock absorber overhang (h).

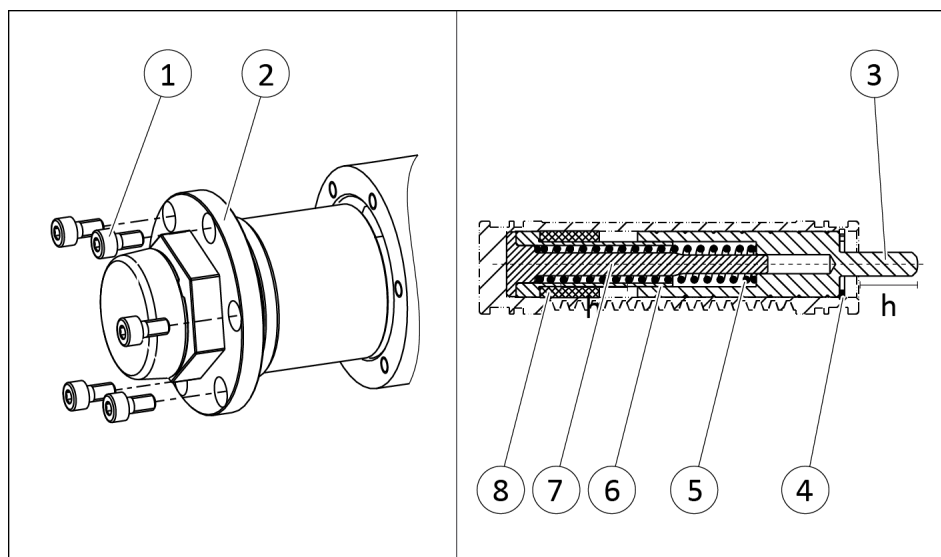


1. First set the shock absorber overhang (h) of the shock absorber (2) in the piston (1) with fitting disks (5) ▶ 7.4.3 [40].
2. After this, reduce the play of the shock absorber (2) to the safety ring (3) with fitting disks (4).
 - ⇒ The shock absorber (2) must be fitted in the pistons (1) as free from play as possible.

7.4.3 Shock absorber types and shock absorber overlap (h)

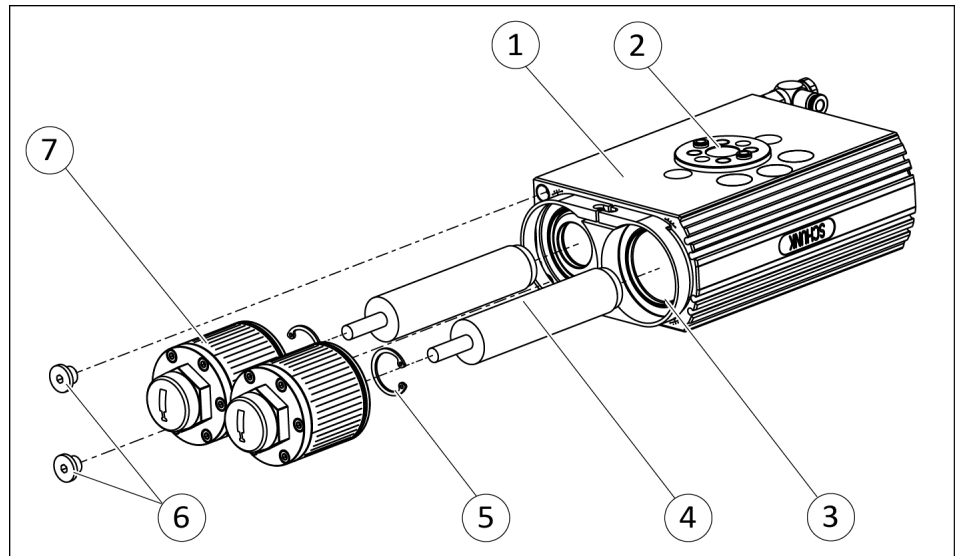
Size Ab- sorber variant	Shock absorber	Shock absorber overlap h [mm]	Tolerance [mm]
20 W	FED 14	4.6 (without spring)	-0.2
25 W	WP-M 0.4-266	14	-0.1
30 W	WP-M 0.6-466	19.5	-0.1
35 W	WP-M 0.6-366	19.5	-0.1
40 W	WP-M 1.0-266	22	-0.1
50 W	WP-M 1.0-266	22	-0.1
60 W	WP-M	---	±0.05

7.5 Servicing shock absorbers (absorber variant -W)



1. Undo the screws (1).
2. Pull off the stop cover (2).
3. Remove the safety ring (4) from the piston.
4. Pull out the piston rod (3) and remove the compression spring (5).
5. Pull out the piston (7) with the guide sleeve (6) and dampening ring (8).
6. Replace dampening ring (8).
7. Insert the piston (7) with the guide sleeve (6) and dampening ring (8) using the piston rod (3) as far as possible.
8. Check the shock absorber overlap (h),
 ▶ 7.4.3 [40].
 ⇒ If necessary, add or remove fitting disks on base side until the required absorber overlap (h) is reached.
9. Remove the piston rod (3).
10. Grease and insert the compression spring (5).
11. Grease the piston rod (3) inside and outside and insert it.
12. Mount the safety ring (4).
 ⇒ Pay attention to the correct installation position of the safety ring.
13. Mount the stop cover (2) with screws (1).

7.6 Changing shock absorbers (base unit)



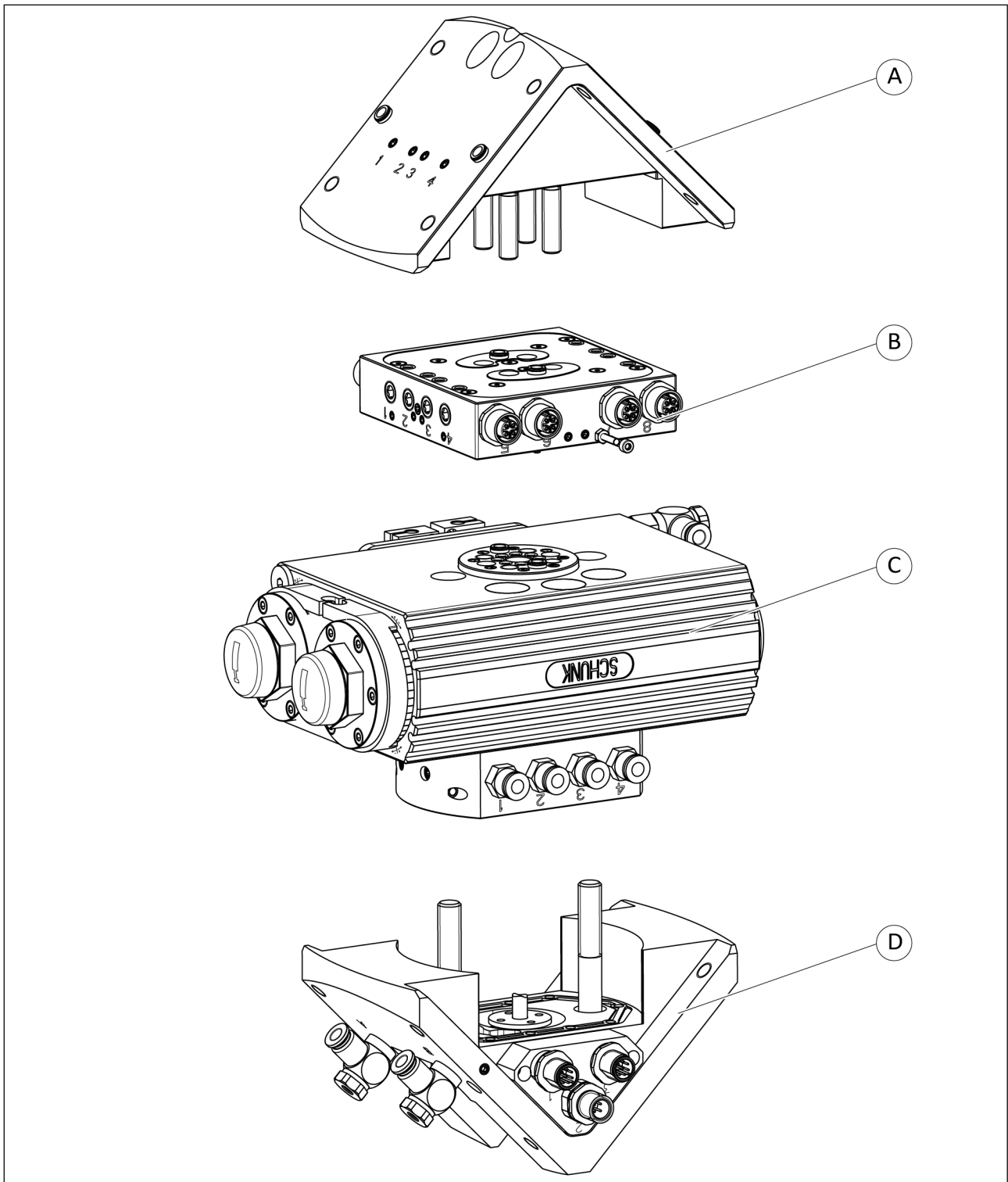
1. Ventilate rotary actuator.
2. Unscrew screws (6).
3. Turn pinion (2) to end position.
4. Remove stop cover (7).
5. Remove safety ring (5) on piston (3).
6. Pull out shock absorber (4) with fitting disks.
7. Insert new shock absorbers.
8. Set shock absorber overhang (h),
▶ 7.4.2 [□ 39].
9. Set safety ring (5) in the groove of the piston.
10. Turn pinion (2) to end position.
⇒ Piston (3) is retracted into the housing (1).
11. Screw on stop cover (7) again.
12. Proceed analogously for the second shock absorber.
13. If necessary, adjust the shock absorber, ▶ 5.3 [□ 27].

7.7 Dismantling and assembling swivel unit

Position of the item numbers: ▶ 7.8 [📄 44]

1. Ventilate rotary actuator.
2. Remove all air lines and energy lines.
3. Dismantle sensors if necessary.
4. Unscrew screws (201) and screw-on bracket (77).
5. Unscrew screw (202) and remove swivel head (4).
6. Unscrew screw (35) and remove both stop covers (3).
7. Remove curved cover (5).
8. Mark the installation position of the pinion (2/19) and the pistons (24).
9. Remove the protective cover (22)
10. Disassemble the safety ring (49) on the pinion (2/19).
11. Remove the flange (20).
12. Pull the pinion (2/19) out of the housing (1).
13. Assemble the swivel unit in reverse order.
 - ⇒ Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque.

7.8 Assembly drawing



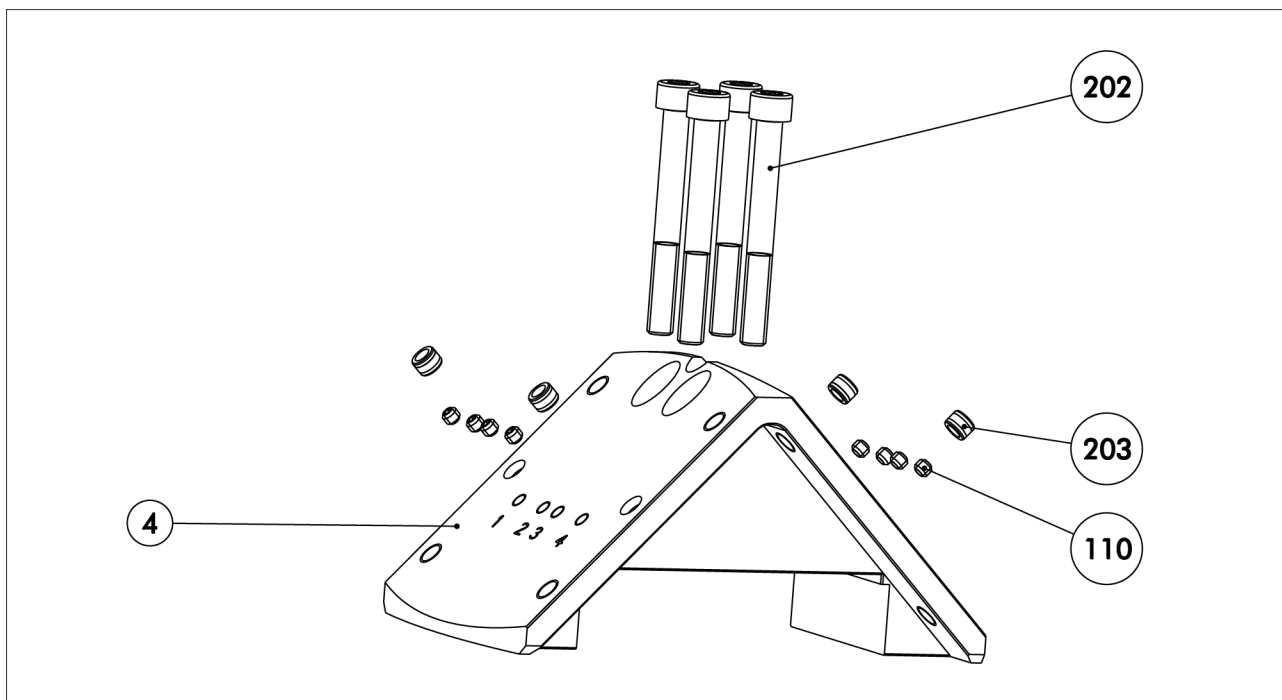
A ▶ 7.8.1 [45]

B ▶ 7.8.2 [46]

C ▶ 7.8.3 [48]

D ▶ 7.8.4 [50]

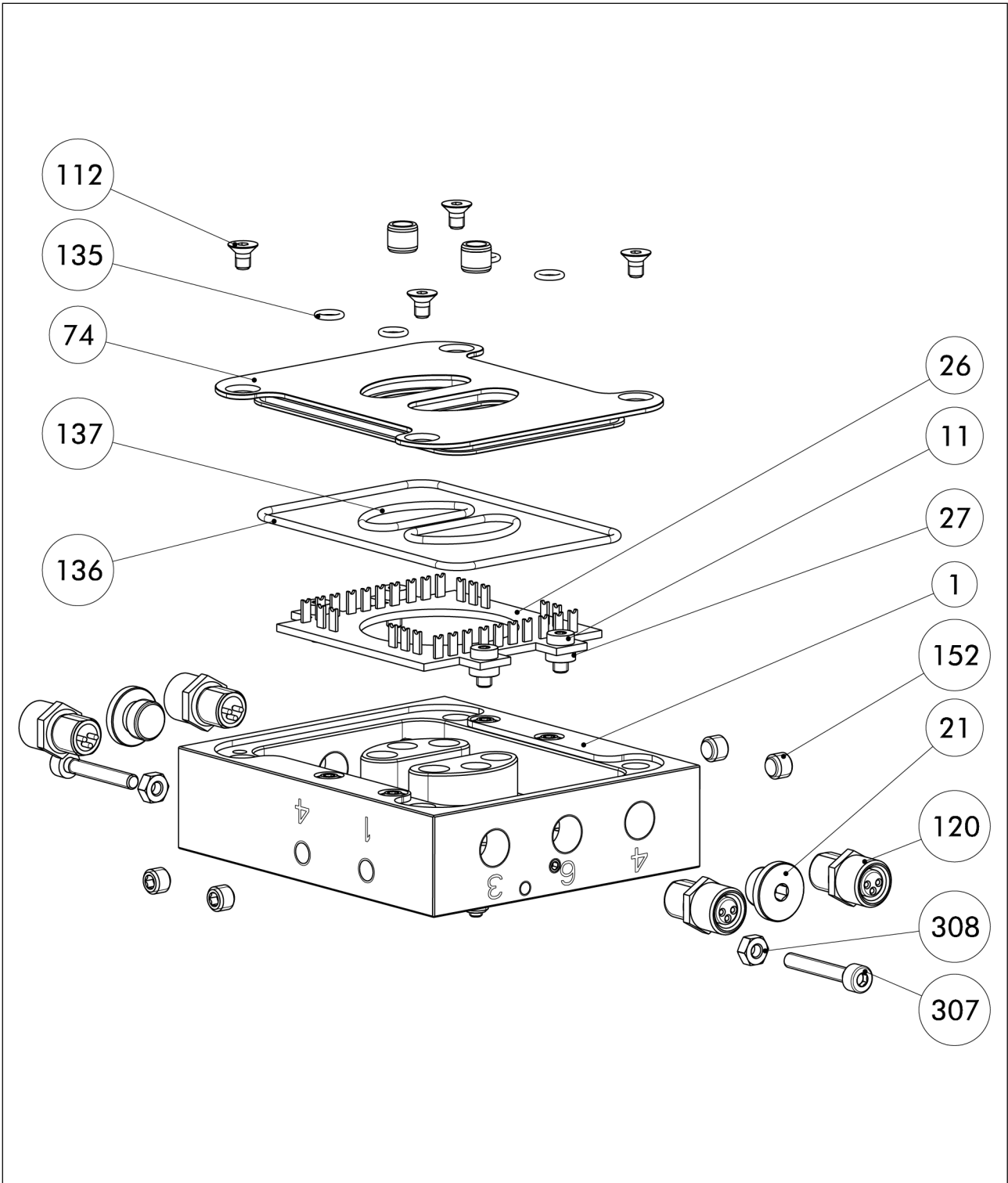
7.8.1 Swivel head



Swivel head

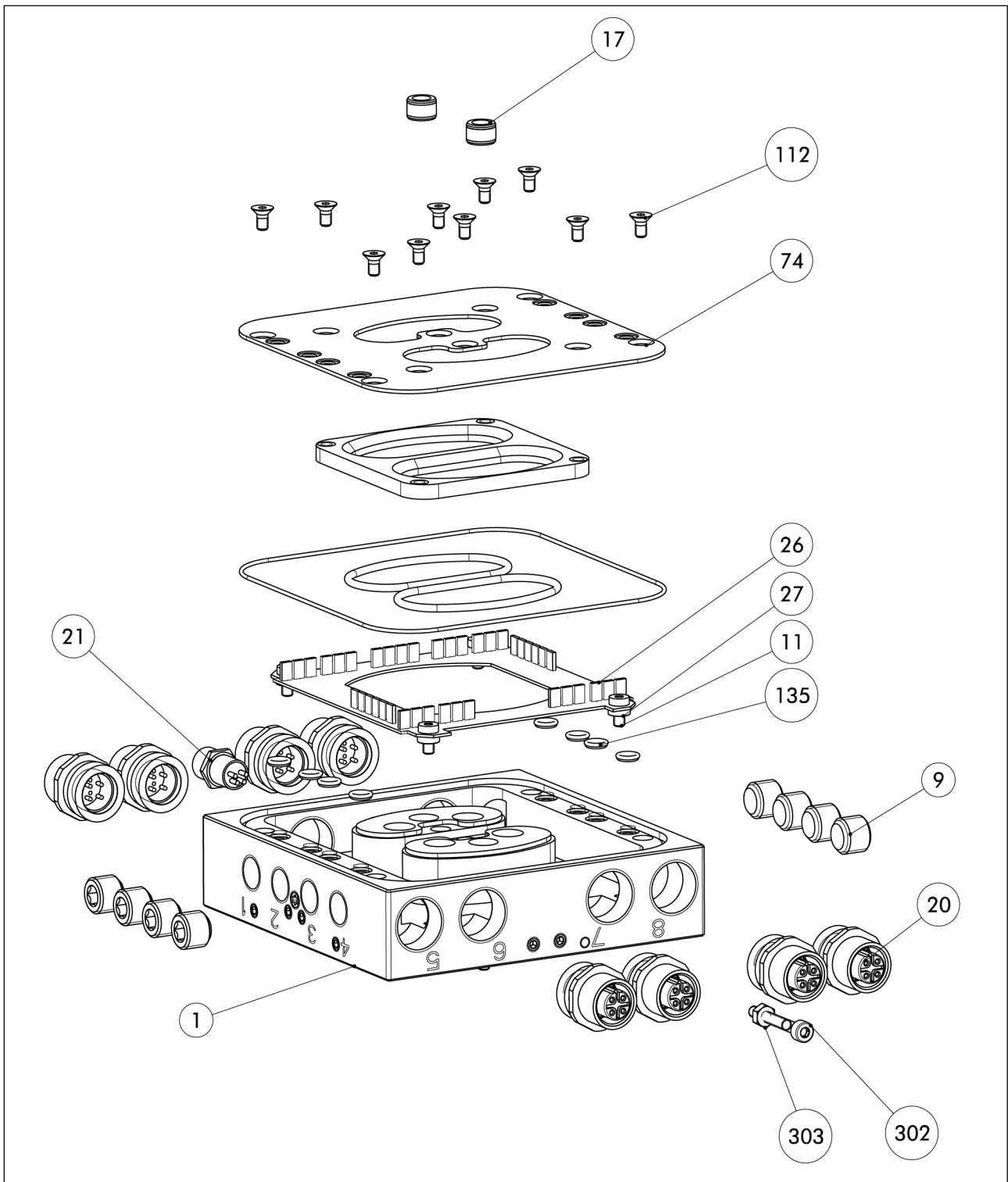
7.8.2 Distributor plate EDF

Size 20 – 35



Distributor plate with EDF 20-35

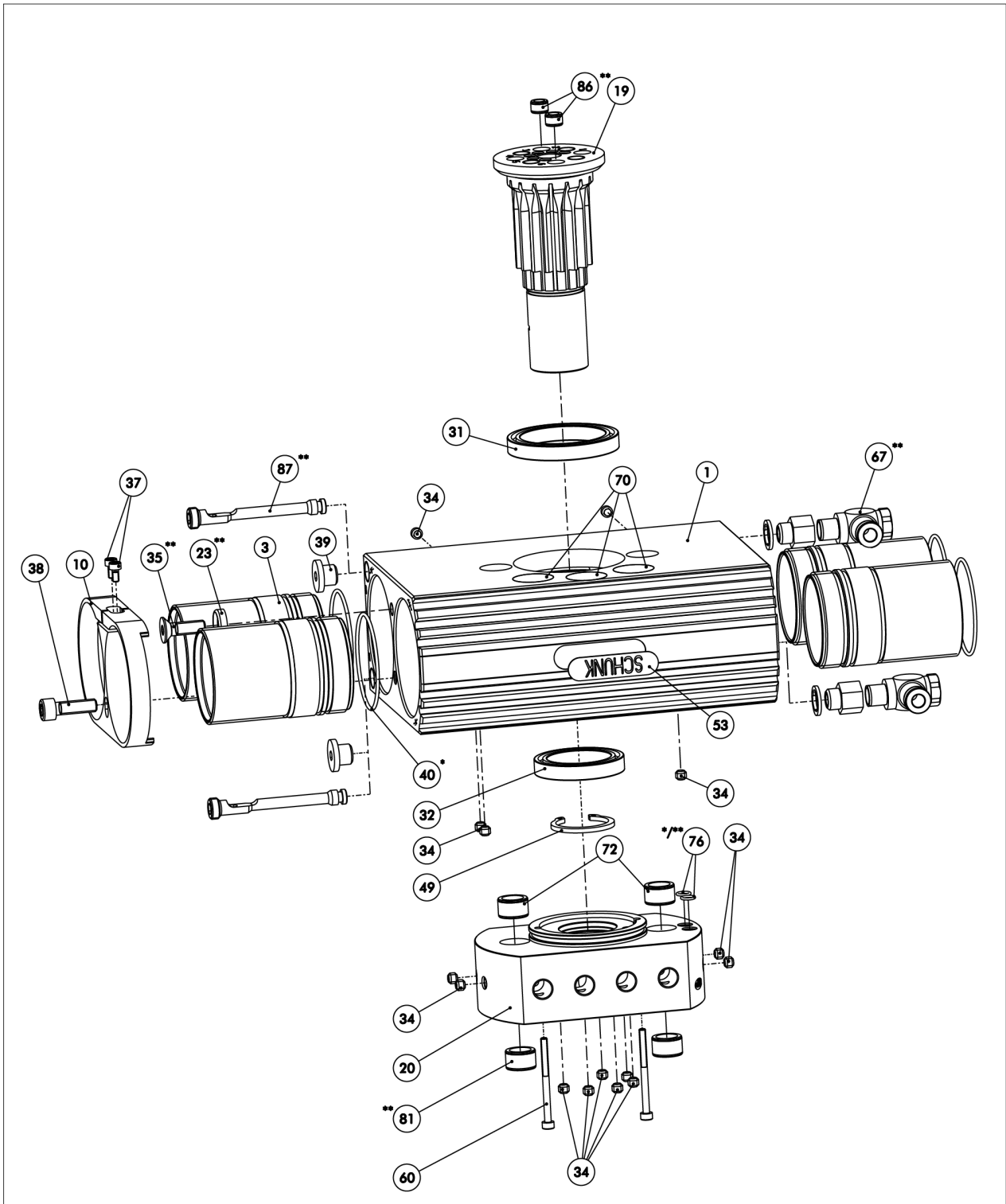
Size 40 – 60



Distributor plate with EDF 40-60

7.8.3 Base unit

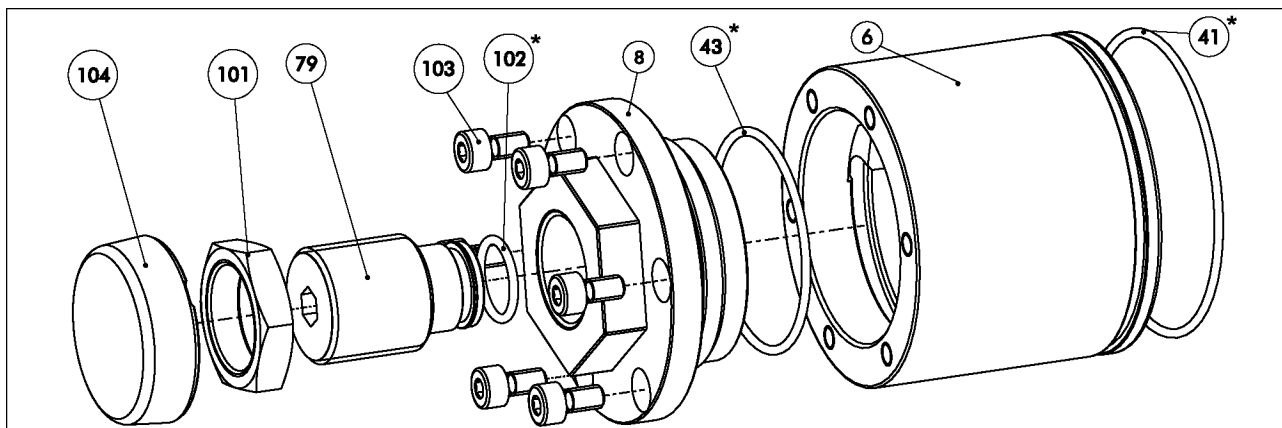
7.8.3.1 Basic components with fluid feed-through



* Contained in seal kit.

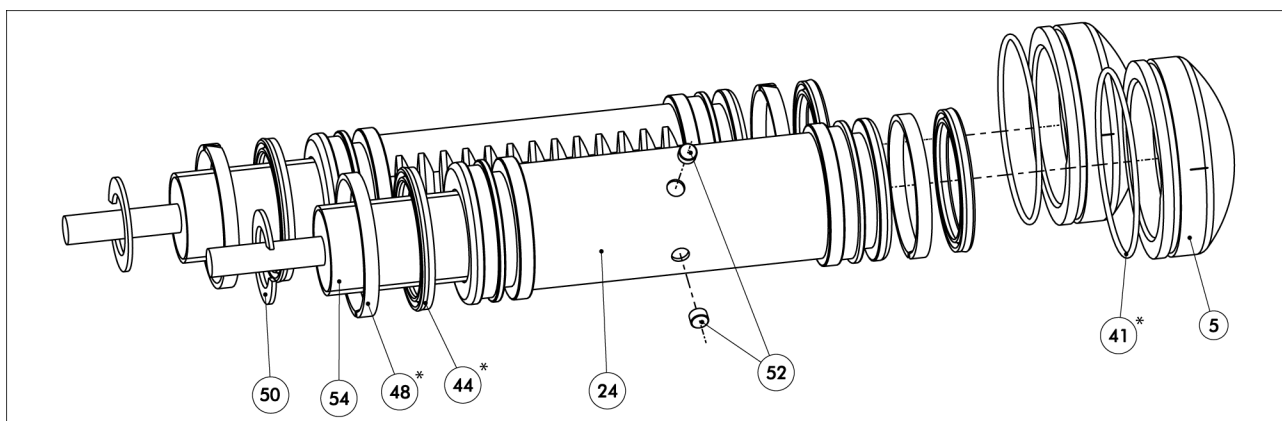
** Contained in accessory pack.

7.8.3.2 Anschlagseite Endlageneinstellbarkeit 3°



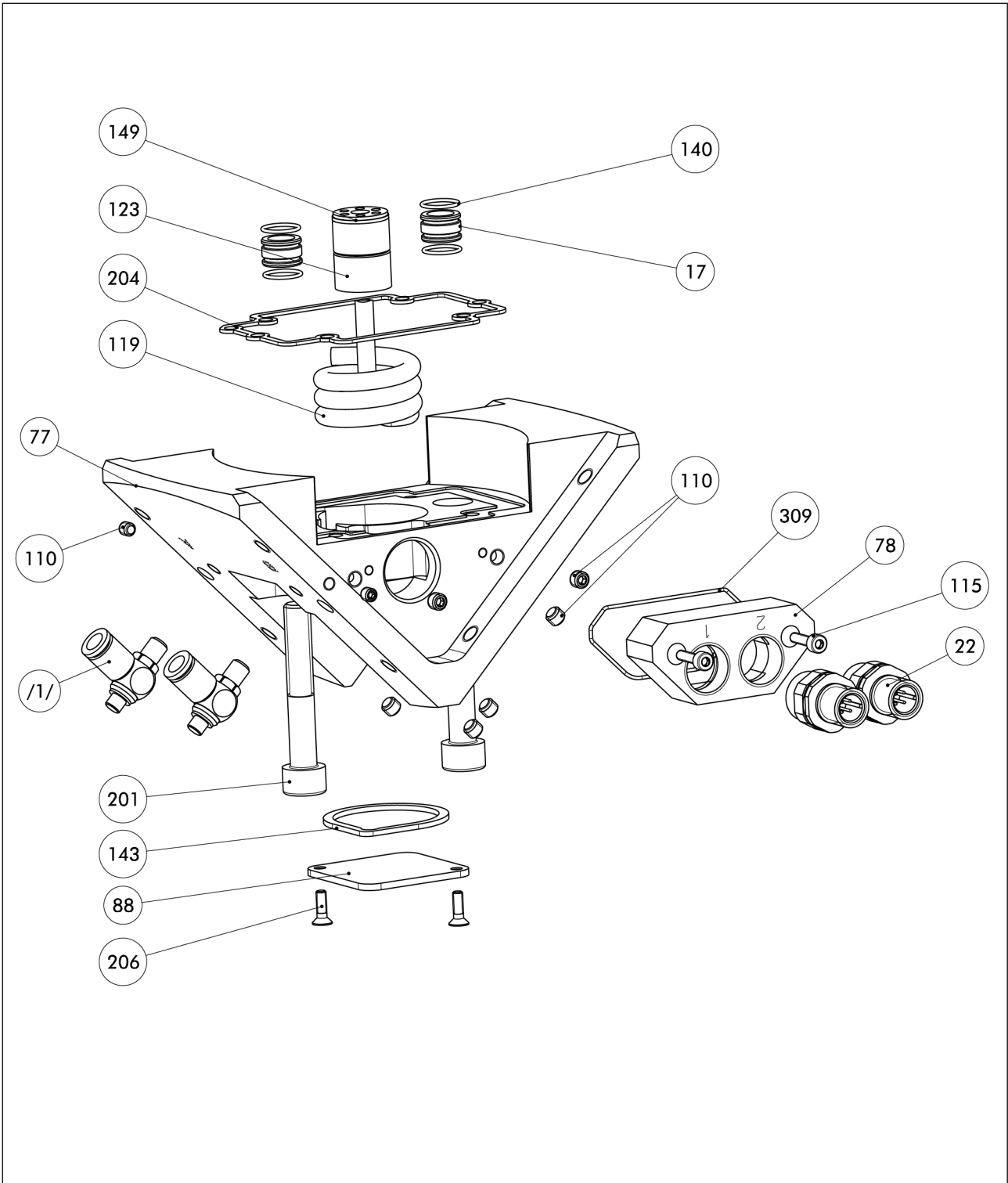
* Contained in seal kit.

7.8.3.3 Piston and cover basic unit



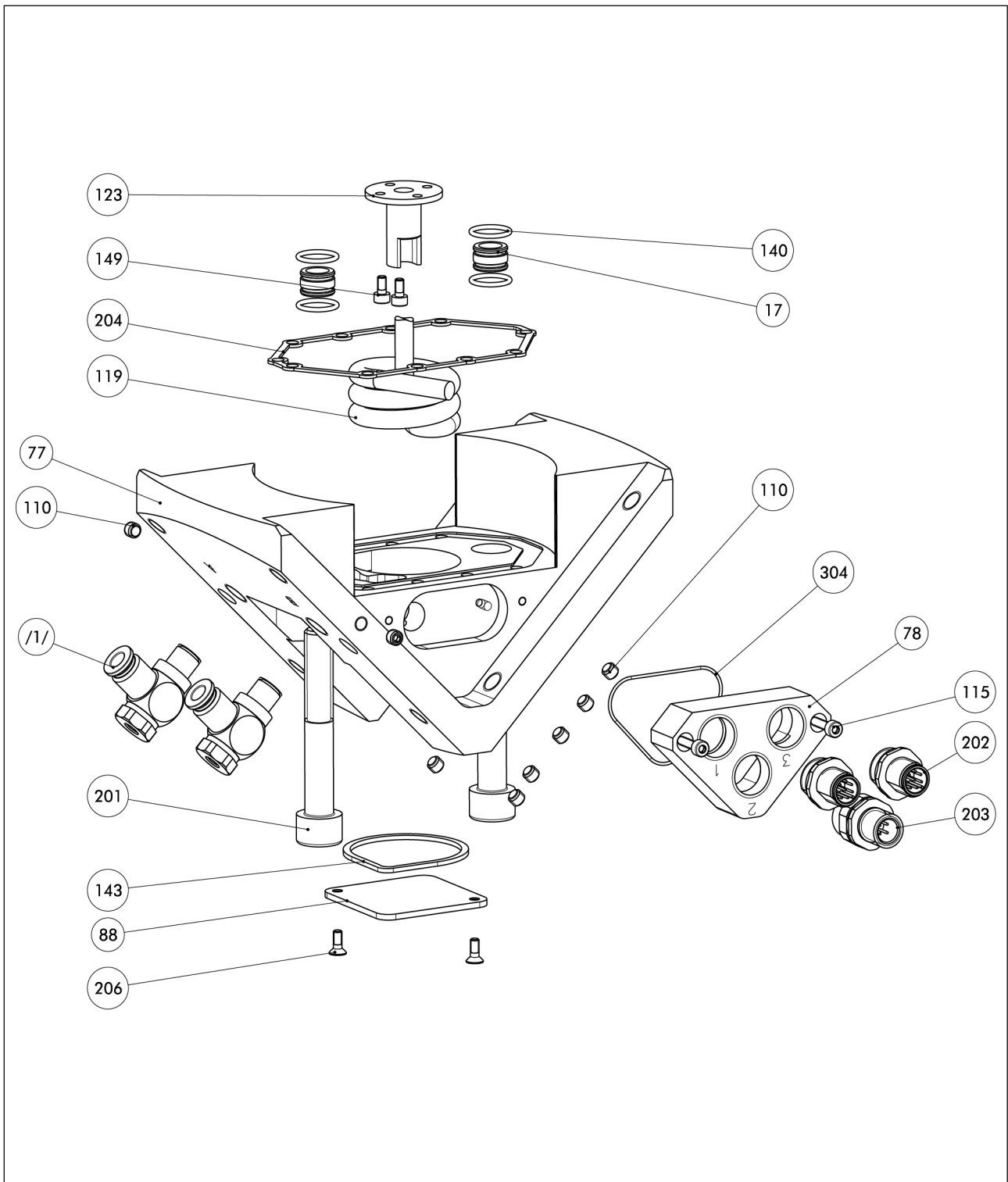
7.8.4 Screw-on bracket with lateral cable outlet

Size 20 – 35



Screw-on bracket with lateral cable outlet, size 20-35

Size 40 – 60



Screw-on bracket with lateral cable outlet, size 40-60

8 Translation of the original declaration of incorporation

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

Manufacturer/
Distributor SCHUNK SE & Co. KG
 Toolholding and Workholding | Gripping Technology | Automation
 Technology
 Bahnhofstr. 106 – 134
 D-74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation: Pneumatic swivel unit / SRH-plus-D /pneumatic
ID number 1393104,1393112, 1407400, 1407403, 1407404, 1407405, 1407409

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. 1.5.3, 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

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 2024

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

10 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

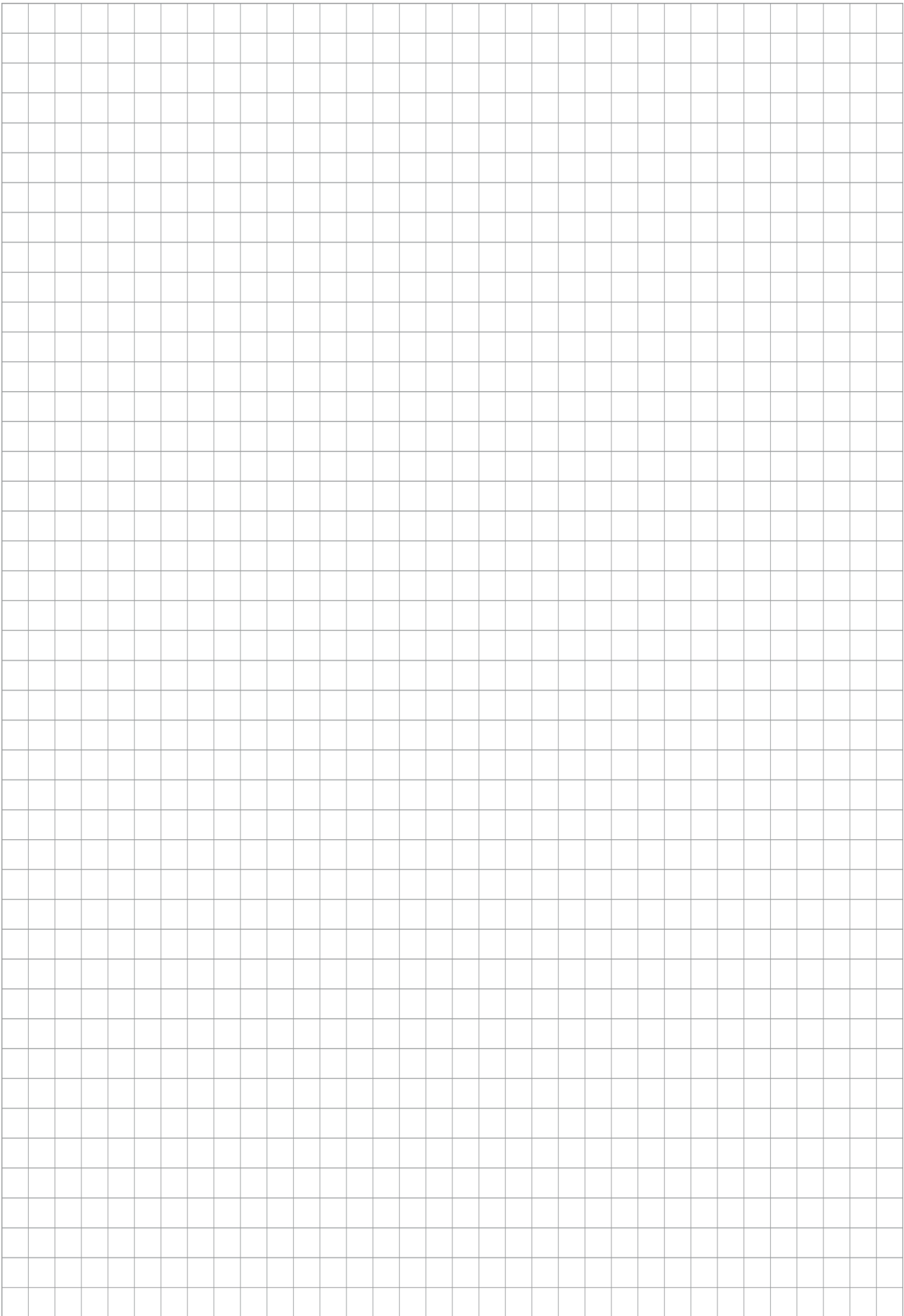
Products from SCHUNK fully comply with the regulations of Regulation (EC) No. 1907/2006 "concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)" and its amendment 2022/477. SCHUNK attaches great importance to completely avoiding chemicals of concern to humans and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

Signature: see original declaration

Lauffen/Neckar, February 2024

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





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