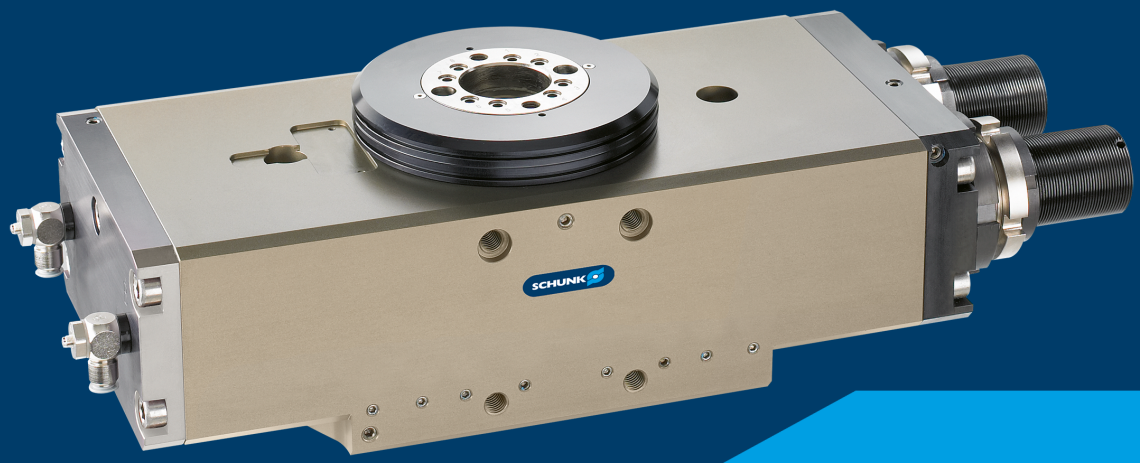


Assembly and Operating Manual SRU-plus 63

Pneumatic swivel unit

Translation of Original Operating Manual

Hand in hand for tomorrow

Imprint

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

Document number: 389445

Version: 06.00 | 12/06/2024 | en

Dear Customer,

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

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

Best regards,

Your SCHUNK team

Customer Management
Tel. +49-7133-103-2503
Fax +49-7133-103-2189
cmg@de.schunk.com

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

Table of Contents

1 General

1.1 About this manual

This manual contains important information for 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 ▸ 1.1.2 [🗋 5] 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 Applicable documents

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

The documents labeled with an asterisk (*) can be downloaded from **schunk.com**.

1.1.3 Sizes

This operating manual applies to the following sizes:

- SRU-plus 63

1.1.4 Variants

This operating manual applies to the following variations:

- SRU-plus 63 Angle of rotation 90° left
- SRU-plus 63 Angle of rotation 90° right
- SRU-plus 63 Angle of rotation 180°

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 SRU-plus 63 in the version ordered
- Accessory pack
  - ID: 5511038

1.4 Accessories

- Sealing kit
  - ID: 0370702

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.

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 [🗋 15].
- 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

It is not intended use if the product is used, for example, as a pressing tool, stamping tool, lifting gear, guide for tools, cutting tool, clamping device or a drilling tool.

- 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 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 [🗋 15].

- 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.

2.5 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.

2.6 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

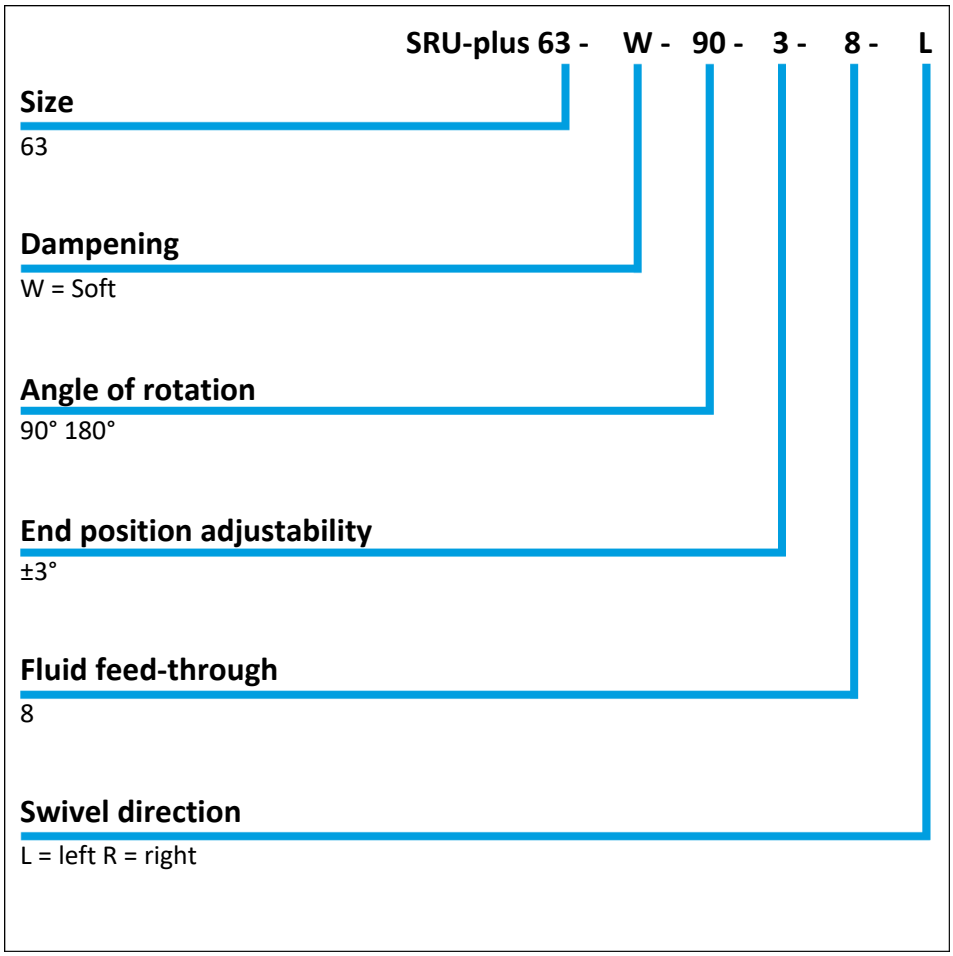
Risk of injury if the condition or behavior of the product is undefined!

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

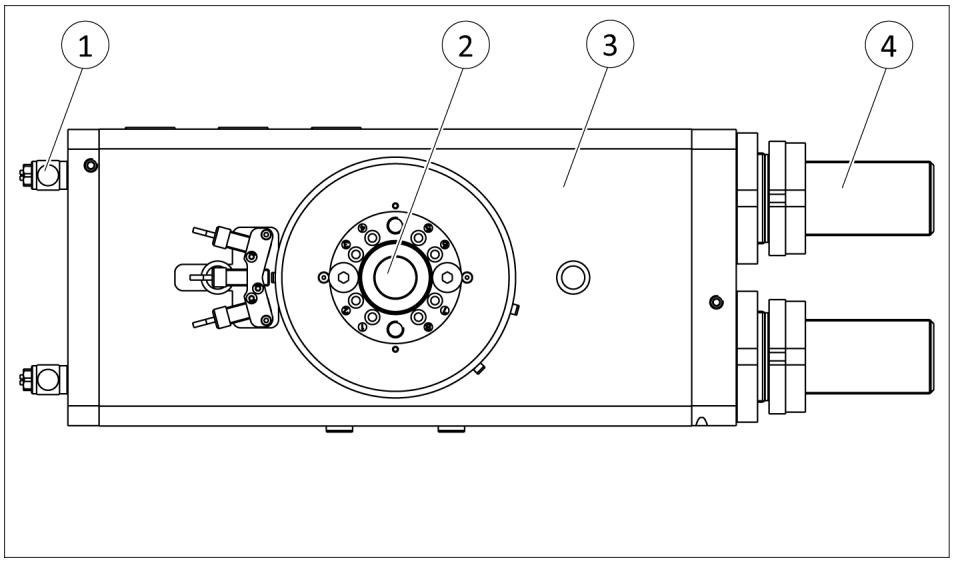
Designation	Value
Noise emission [dB(A)]	≤70
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:2010 [7:4:4]
Min. pressure [bar]	4.5
Max. pressure [bar]	8

The catalog data sheet contains diagrams for designing the maximum permissible mass moment of inertia.
The SCHUNK contact person provides support for designing further applications.

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

4 Design and description

4.1 Structure



1	Throttle valve	3	Housing
2	Pinion	4	Shock absorber

4.2 Description

The product is a pneumatic rotary actuator for rotating and swiveling movements.

5 Assembly

5.1 Installing and connecting

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.

1. Screw on the swivel unit, ▸ 5.2.1 [🗋 18].
   - ⇨ Use centering sleeves.
   - ⇨ Observe the tightening torque for the mounting screws, see tightening torques table.

NOTE

If the supplied fitting screws are not used, use screws and centering sleeves.

2. Screw assembly onto the pinion using two fitting screws and two mounting screws, ▸ 5.2.1 [🗋 18].
3. In air connections "A" and "B", screw in exhaust air throttle valves and connect compressed air lines.
   Or with hose-free direct connection:
   Screw locking screws into swivel unit air connections "A" and "B", ▸ 5.2.2 [🗋 19].
   Install the exhaust air throttle valve upstream of the air connections "A" and "B" of the direct connection.
4. Screw in locking screws in open and not required air connections where appropriate.
5. Actuate air connection "A" or "B".

6. Open both exhaust air throttle valves until the pinion starts to move, approx. half a turn.
7. Adjust angle of rotation, ▸ 5.3.1 [🗋 22].
8. Adjust swiveling speed, ▸ 5.3.2 [🗋 23].
9. Adjust absorber stroke, ▸ 5.3.3 [🗋 25].
10. Mount sensor if necessary, ▸ 5.4 [🗋 26].

5.2 Connections

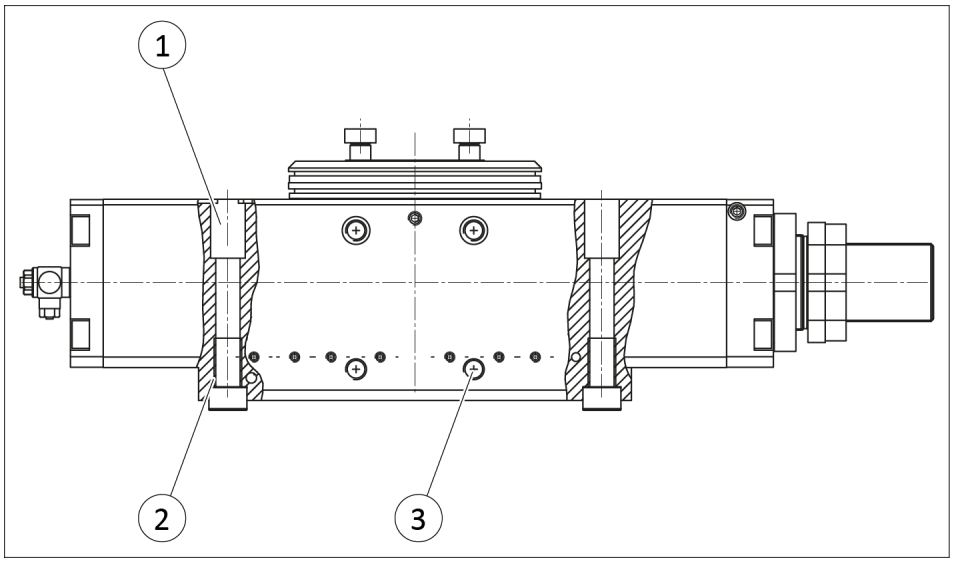
5.2.1 Mechanical connection

Connections on the housing

The product can be assembled from three sides.

- On the side of the apparatus via threaded holes
- On the attachment part side via through-bores
- On the side via threaded holes

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



Assembly interface

1	Through-bore Assembly on attachment part side	3	Thread mounting at side
2	Thread mounting on apparatus side		

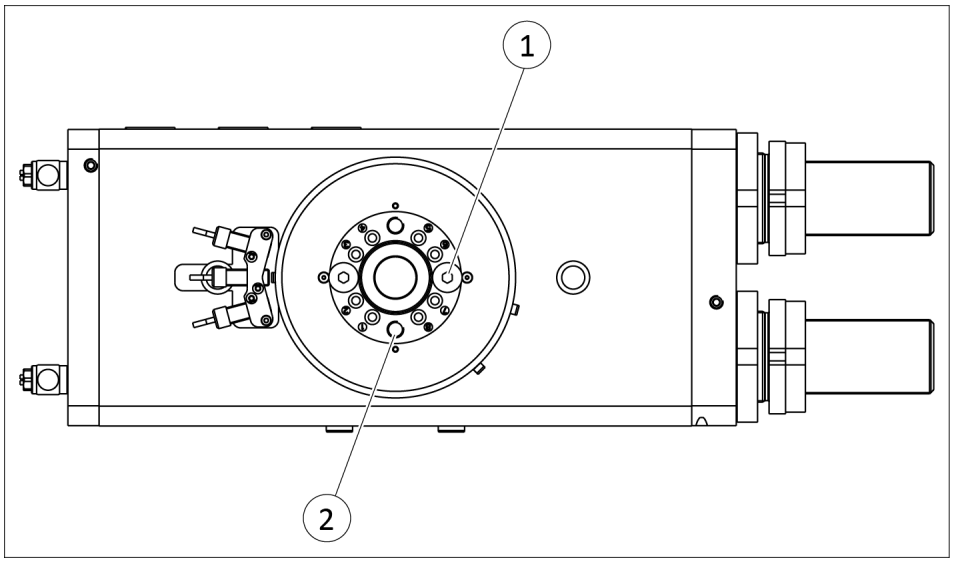
Item	Mounting	SRU-plus 63
assembly on attachment part side		
1	Screw	M12
	Centering sleeve	Ø 22
assembly on apparatus side		
2	Screw	M16

Item	Mounting	SRU-plus 63
	Max. depth of engagement from locating surface [mm]	
	Centering sleeve	Ø 22
assembly at side		
3	Screw	M12
	Max. depth of engagement from locating surface [mm]	
	Centering sleeve	Ø 16

Thread	Strength class		
	8.8	10.9	12.9
M12	85	120	150
M14	130	200	230
M16	210	310	360

Tab.: Tightening torque [Nm]

Connections on pinion



Attachment part mounting interface

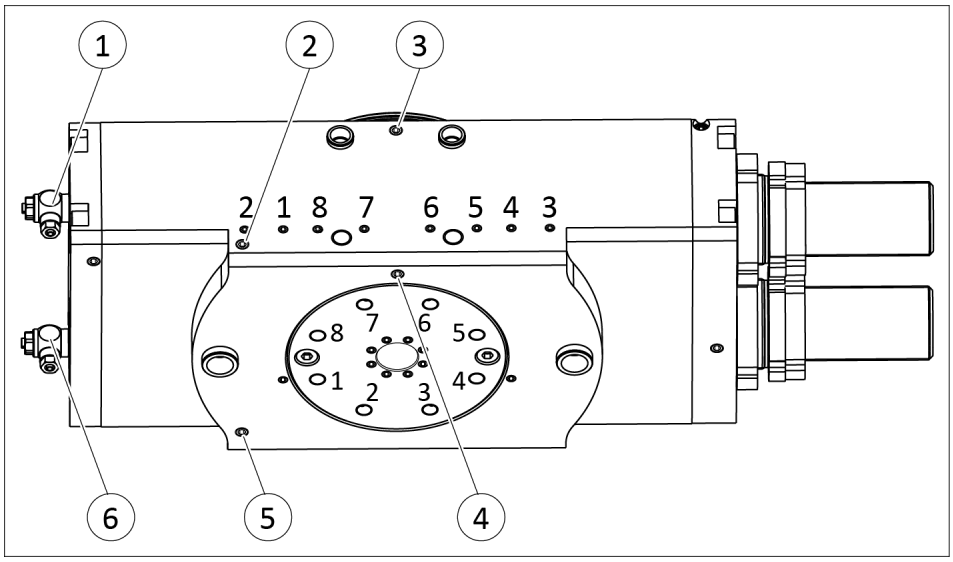
Fitting screws (1) and mounting screws (2) are included in the accessory kit. If the fitting screws from the accessory kit are not used, additional centering sleeves must be used with the screws.

Designation	SRU-plus 63 63
Fitting screw	M10
Screw	M10

5.2.2 Pneumatic connection

NOTE

Observe the requirements for the compressed air supply, ▶ 3 [🗋 15].



Air connection

1	Air connection "B"	4	Air connection "B", apparatus-side direct connection
2	Air connection "A", direct connection at side	5	Air connection "A", apparatus-side direct connection
3	Air connection "B", direct connection at side	6	Air connection "A"

- 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.

5.3 Settings

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

If the operating conditions change, e.g. the 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 attain fine adjustment of the end positions.

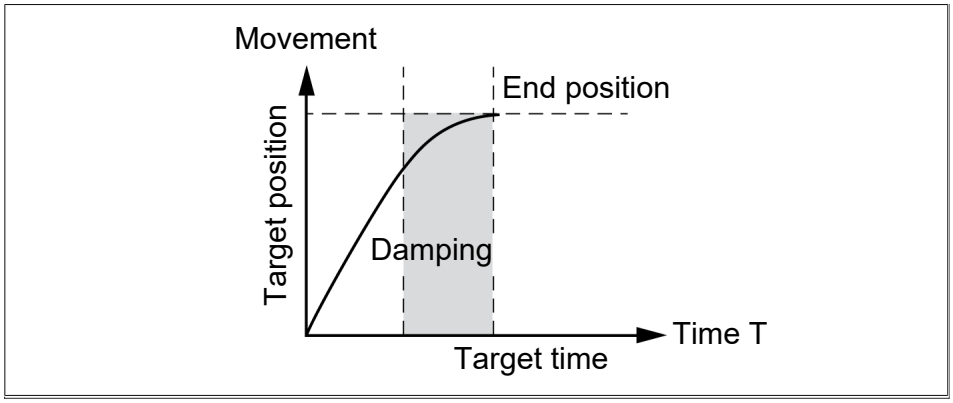
The end positions can be configured by ±3°. If the end positions are adjusted, the swiveling speed and absorber stroke might also have to be readjusted.

Swiveling speed and absorber stroke

The swiveling speed and absorber stroke are adjusted to ensure a harmonious motion sequence for the operating conditions. Swiveling speed and absorber stroke must always be set in relation to each other, since both settings are dependent on each other.

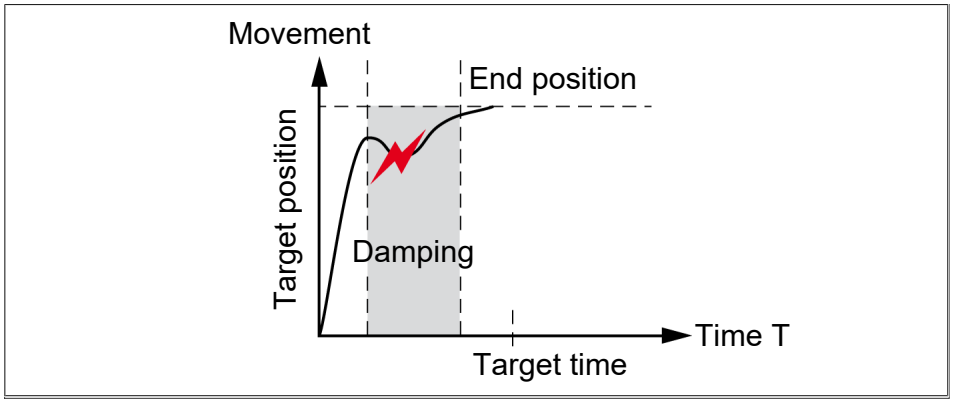
Each end position is set separately. The positions of the exhaust air throttle valve and shock absorber may differ depending on the load.

Optimum setting

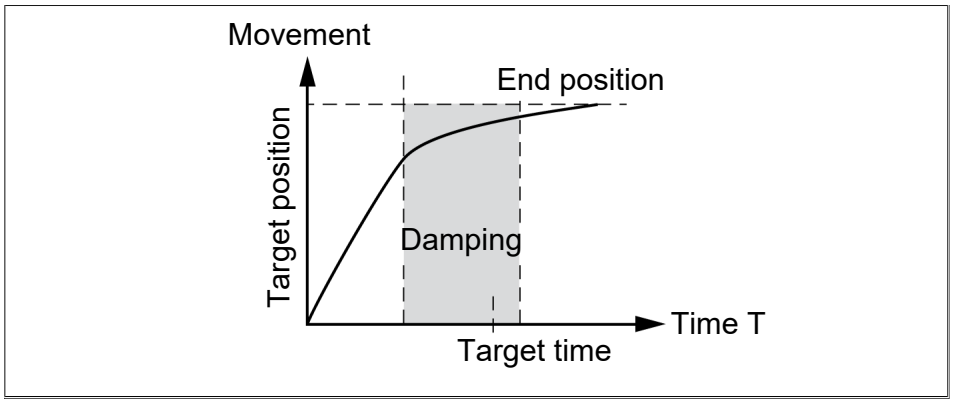


Swiveling speed and absorber stroke are optimum.

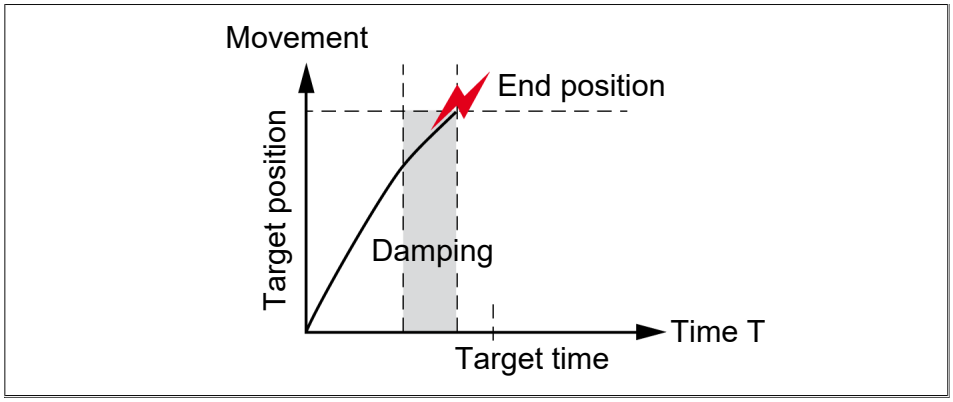
Erroneous adjustment



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.

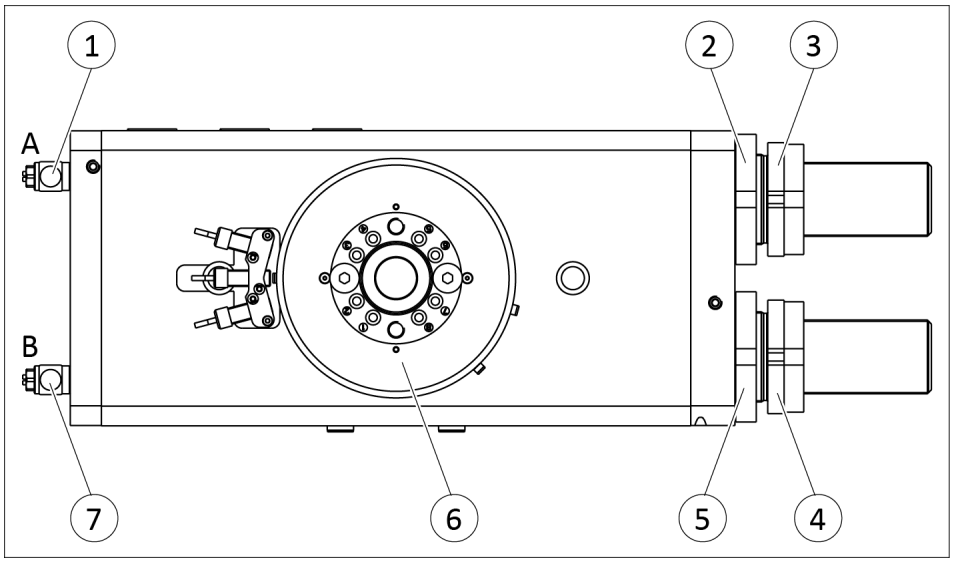
5.3.1 Adjusting the angle of rotation

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 stuff may set the swivel angle.
- Before setting the swivel angle release pressure.



1. Close exhaust air throttle valves completely at both air connections "A" (1) and "B" (7).
2. Actuate air connection "A" (1).
3. Open the exhaust air throttle valve at air connection "B" (1) until the pinion (6) begins to move.
   ⇨ The assembly swivels into the end position.
4. Detach lock nut (5) opposite air connection "A" (7).
5. Set end position "B" via the adjusting sleeve (4).
6. Tighten lock nut (5) opposite air connection "A" (7).
7. Check end position "B".
   ⇨ To do this, ventilate air connection "A" (1) and actuate it again, if necessary readjust the end position.
8. Ventilate air connection "A" (1) and actuate air connection "B" (7).
9. Open exhaust air throttle valve on air connection "A" (7) until the pinion (6) starts to move.
   ⇨ The assembly swivels into the end position.
10. Detach lock nut (2) opposite air connection "B" (1).
11. Set end position "A" via the adjusting sleeve (3).
12. Tighten lock nut (2) opposite air connection "B" (1).
13. Check end position "A".
    ⇨ To do this, ventilate air connection "B" (7) and actuate it again, if necessary readjust the end position.

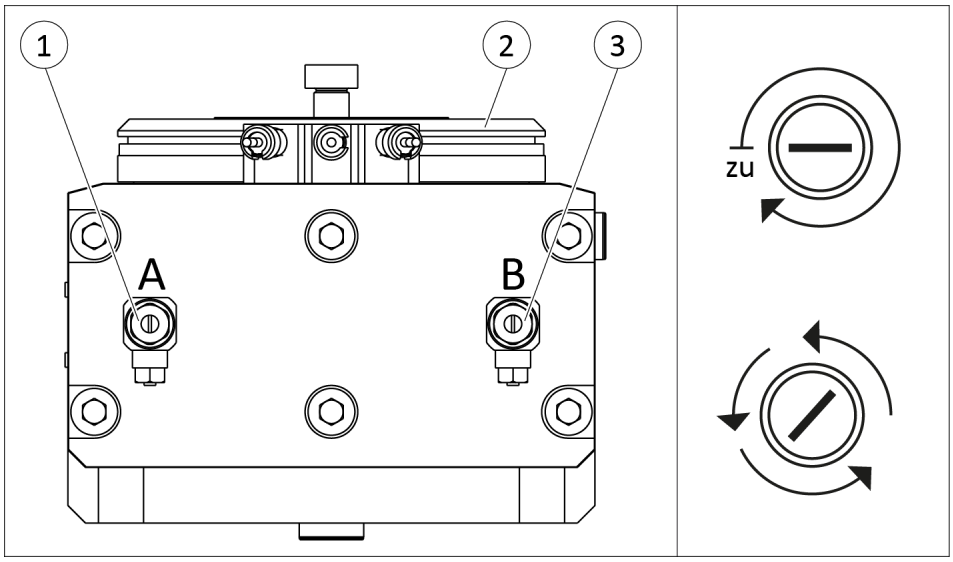
5.3.2 Adjusting the swiveling speed

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. **Air connection "A" (1):**
   Close exhaust air throttle valve at air connection "B" completely.
2. Actuate air connection "A" (1).
3. Open the exhaust air throttle valve at air connection "B" until the pinion (2) begins to move.
   ⇨ The assembly swivels into end position "B".
4. Continue to open the exhaust air throttle valve at air connection "B" incrementally until the movement decelerates smoothly.
5. If the swiveling speed is too high, the exhaust air throttle valve at air connection "B" must be closed again incrementally, until the optimum swiveling time is reached.
6. Swivel repeatedly to test the setting, readjust if necessary.
7. **Air connection "B" (3):**
   Repeat the steps for end position "A".

NOTE

Further adjustment of the movement is carried out via the absorber stroke, ▸ 5.3.3 [🗋 25].

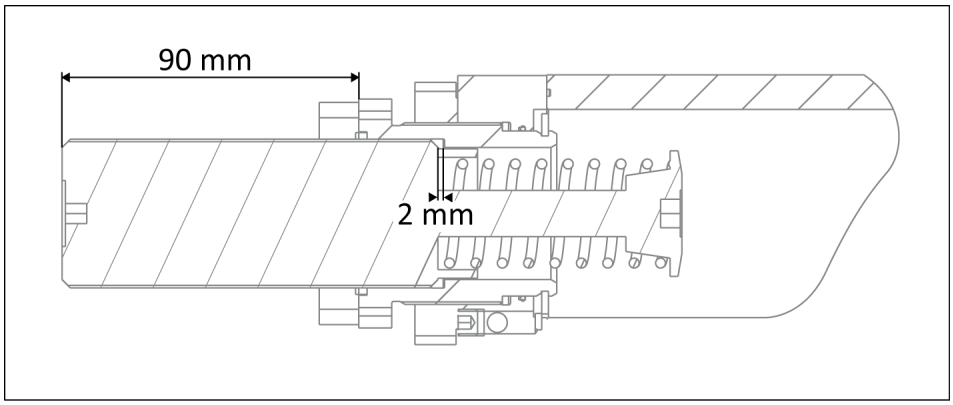
5.3.3 Adjusting absorber stroke

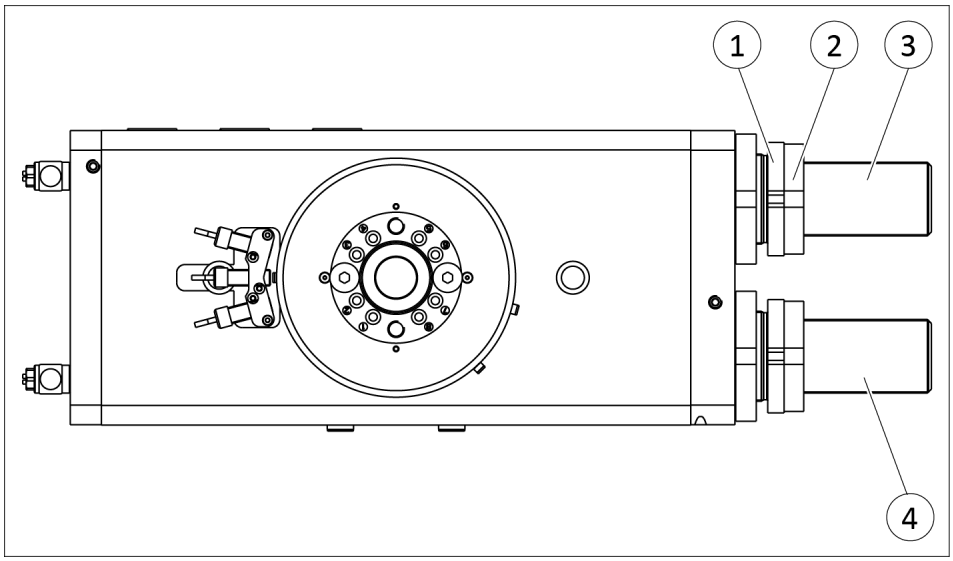
CAUTION

Material damage due to erroneous settings!

When delivered, the product is set to the maximum absorber stroke. If the maximum absorber stroke is exceeded and the shock absorber is screwed in to the stop, damage to the product may occur.

- Never screw in the shock absorber to the stop.
- Do not exceed the maximum permitted depth of engagement of the shock absorber of 90 mm.
- Do not set the absorber stroke too short, the movement must decelerate harmoniously.





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. **At the first shock absorber (3):**
   Fix the adjusting sleeve (1) with the spanner wrench (included in the accessory kit) and detach the lock nut (2).
3. Adjust the absorber stroke with the shock absorber (3), ▸ 5.3 [🗋 21].
   ⇨ Unscrew the shock absorber (3); the absorber stroke is reduced.
   ⇨ Screw in the shock absorber (3); the absorber stroke is increased.
4. Fix the adjusting sleeve (2) with the spanner wrench and tighten the lock nut (3).

NOTE
If the absorber stroke is changed, the swiveling speed might also need to be changed as well, so that the movement remains smooth, ▸ 5.3.2 [🗋 23].

5. Swivel repeatedly to test the setting, readjust if necessary.
   ⇨ The end positions must be approached gently.
6. **On the second shock absorber (4):**
   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.

5.4 Mounting the sensor

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

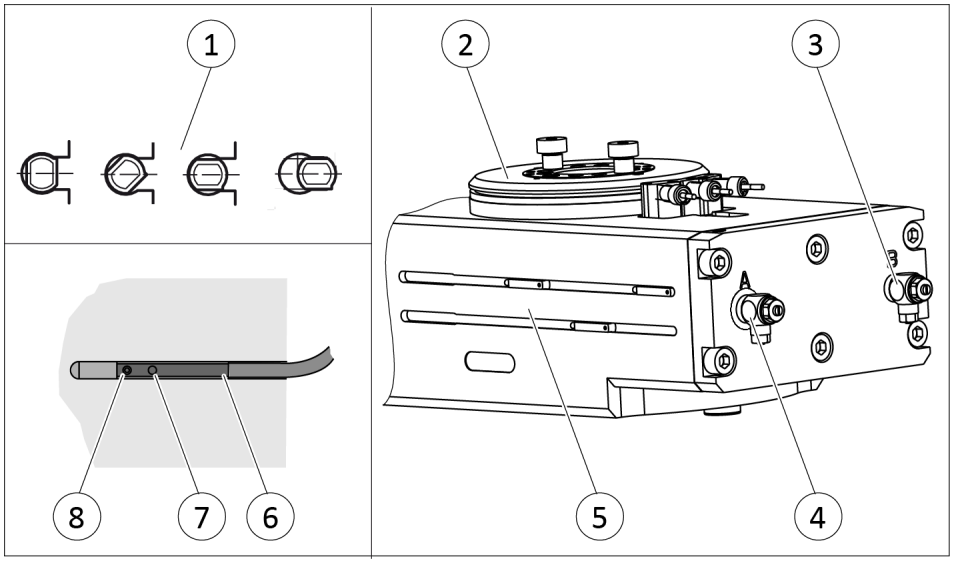
The product is prepared for the use of sensors.

- For the exact type designations of suitable sensors, please see catalog datasheet and ▸ 5.4.1 [🗋 27].
- 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	SRU-plus 63 63
Magnetic switch MMS 30	X
Inductive proximity switch IN 80	X

5.4.2 Mounting MMS 30 magnetic switch



1. Connect sensor and secure cable, see the Sensor Assembly and Operating Manual.
2. Actuate air connection "A" (4), until the pinion (2) begins to move.
   ⇨ The assembly swivels into the end position.
3. Slide the first sensor (6) into a groove (5).
   OR: screw (1) the sensor (6) into a groove (5).
4. Slide sensor (6) until it switches and the LED (7) illuminates.
5. Tighten set screw (8).
   ⇨ Tightening torque: 10 Ncm
6. Ventilate air connection "A" (4).
7. Actuate air connection "B" (3), until the pinion (2) begins to move.
   ⇨ The assembly swivels into the end position.
8. Slide the second sensor (6) into the other groove (5).
   Or: screw the sensor (6) into the other groove (5).
9. Slide sensor (6) until it switches and the LED (7) illuminates.
10. Tighten set screw (8).
    ⇨ Tightening torque: 10 Ncm
11. Check switching positions, reset if necessary.

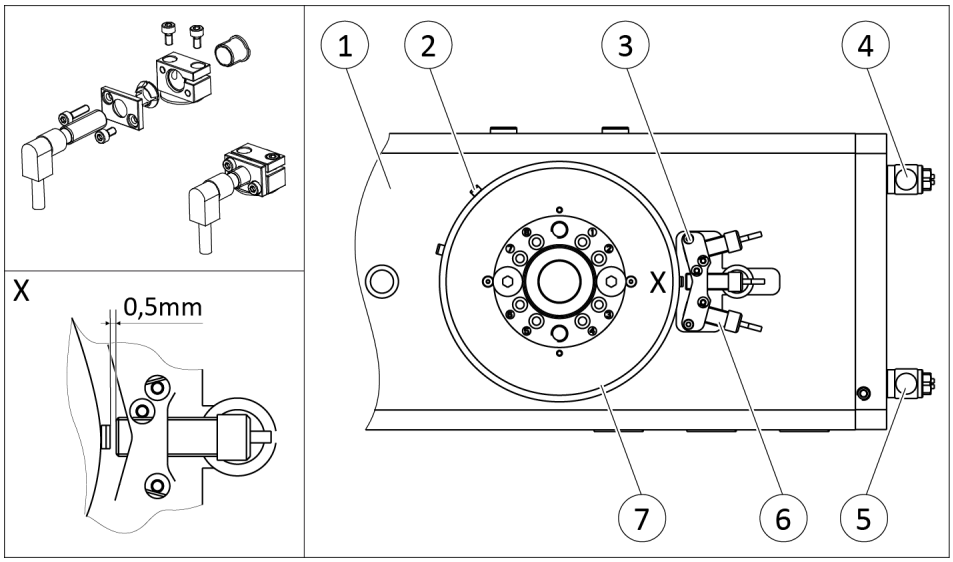
5.4.3 Mounting inductive proximity switch IN 80

CAUTION

Material damage to the product or sensor possible!

If the fast clamping sleeve is inserted too far into the sensor bracket, the switch cam and the sensor may collide during swiveling.

- Do not insert the fast clamping sleeve too far into the sensor bracket.
- Pay attention to the distance between fast clamping sleeve and switch cam.



1. Connect sensor and secure cable, see the Sensor Assembly and Operating Manual.
2. Mount the sensor holder (3) for the sensor.
3. Push the fast clamping sleeves (6) into the sensor holder (3) and tighten them by hand with the set-screw.
   ⇨ Distance of the fast clamping sleeve (6) to the switching cam (2): 0.5 mm
4. Screw on both switching cams (2) only so far that they can still be moved.
   OR, if both switching cams are mounted:
   Loosen the setscrews on both switching cams (2) until the switching cams (2) can be moved.
5. Actuate air connection "A" (5), until the pinion (7) begins to move.
   ⇨ The assembly swivels into the end position.
6. Push the first switching cam (2) until the first sensor switches.
7. Ventilate air connections "A" (5) and "B" (4).

8. Move pinion (7) manually and tighten the switching cam (2) by hand.
9. Actuate air connection "B" (4), until the pinion (7) begins to move.
   ⇨ The assembly swivels into the end position.
10. Push the second switching cam (2) until the second sensor switches.
11. Ventilate air connections "A" (5) and "B" (4).
12. Move pinion (7) manually and tighten the switching cam (2) by hand.
13. Check switching positions, reset if necessary.

6 Start-up

NOTE
Before commissioning, the swivel unit must be adjusted, ▸ 5.3 [🗋 21].

If both exhaust air throttle valves are closed, no movement of the pinion is possible.

Move to basic setting 180° (end position B)

- Actuate air connection "A", pinion begins to move.

⇨ Assembly swivels in clockwise direction until it reaches the end position "B".

Move to basic setting 0° (end position A)

- Actuate air connection "B", pinion begins to move.

⇨ Assembly swivels until it reaches the end position "A".

7 Troubleshooting

7.1 Product does not move smoothly to the end positions

Possible cause	Corrective action
Dampening stroke shifted.	Adjust absorber stroke. ▸ 5.3.3 [🗋 25]
Shock absorber defective.	Check or, if need be, replace the shock absorber. ▸ 8 [🗋 33]

7.2 Product does not travel through the rotating angle

Possible cause	Corrective action
Accumulation of dirt between stop / sleeve and pistons.	Clean and lubricate product. ▸ 8 [🗋 33]
End positions are adjusted incorrectly.	Adjust end position. ▸ 5.3.1 [🗋 22]
Pressure drops below minimum.	Check air supply. ▸ 5.2.2 [🗋 19]
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. ▸ 8 [🗋 33]

7.3 Product rotates jerkily

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product. ▸ 8 [🗋 33]
Compressed air lines blocked.	Check compressed air lines of damage.
Swiveling speed set too fast	Adjust swiveling speed ▸ 5.3.2 [🗋 23]

7.4 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 [🗋 19]
Compressed air lines switched.	Check compressed air lines.
Unused air connections open.	Close unused air connections. ▸ 5.2.2 [🗋 19]
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 [🗋 26]

7.5 Torque is diminishing

Possible cause	Corrective action
Compressed air can escape.	Check seals, if necessary, disassemble the product and replace seals. ▸ 8.5 [🗋 37]
Too much grease in the mechanical movement space.	Clean and lubricate product. ▸ 8 [🗋 33]
Pressure drops below minimum.	Check air supply. ▸ 5.2.2 [🗋 19]

8 Maintenance

8.1 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.

Interval [Mio. cycles] for SRU-plus 63	Maintenance work
daily	Visually inspect the function of the shock absorbers ▶ 8.3 [🗋 34]

Interval [Mio. cycles] for SRU-plus 63	Maintenance work
1	Clean all parts thoroughly, check for damage and wear, if necessary replace seals and wearing parts, ▶ 8.5 [🗋 37].
1	Treat all grease areas with lubricant, ▶ 8.2 [🗋 34].
1	Check that the shock absorbers are working, if necessary replace shock absorber ▶ 8.4 [🗋 35]

8.2 Lubricants/Lubrication points (basic lubrication)

⚠ WARNING

Risk of injury due to contact with lubricants!

Lubricant may cause irritation and allergic reactions if it contacts the skin or eyes.

- Avoid contact between lubricant and skin or eyes.
- Wear safety goggles and protective gloves.
- Observe information on the safety data sheet of the lubricant.

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	Rivolta F.L.G. GT-2
All seals	Rivolta F.L.G. GT-2

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.

8.3 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.

- Regulary 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.

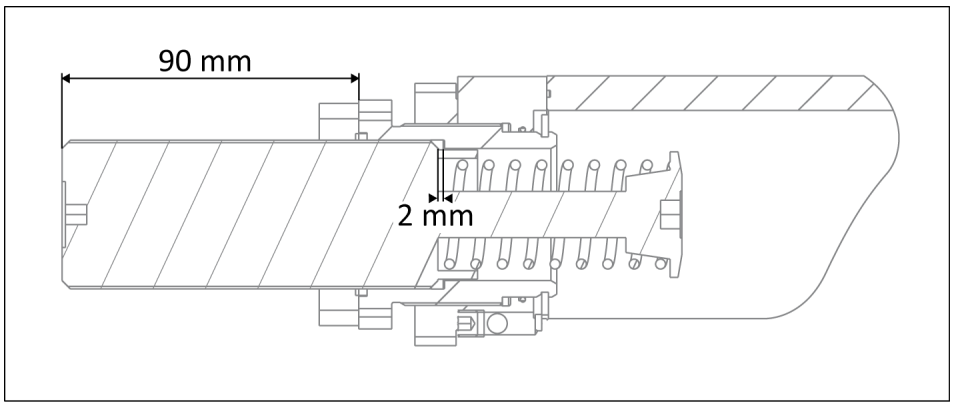
8.4 Replacing the shock absorber

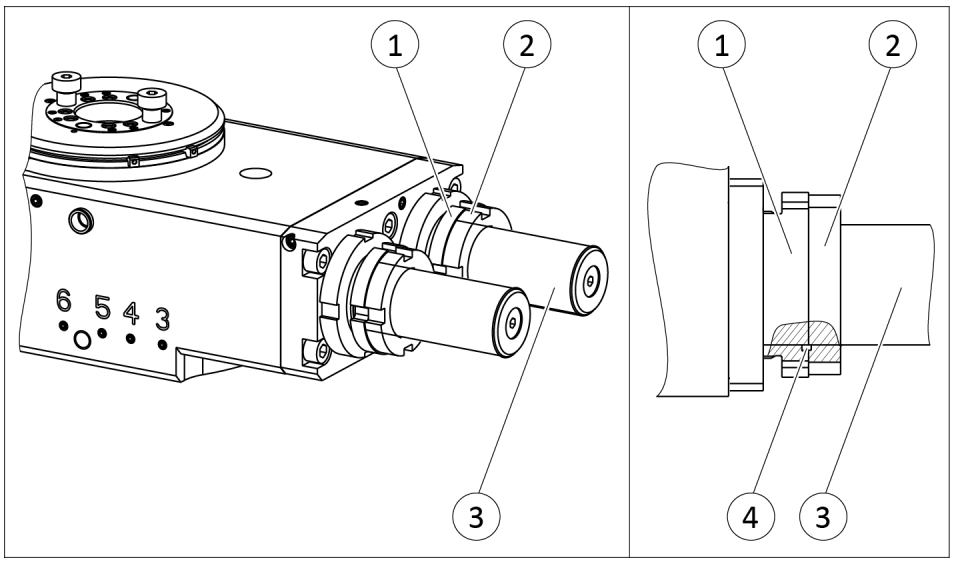
CAUTION

Material damage due to erroneous settings!

When delivered, the product is set to the maximum absorber stroke. If the maximum absorber stroke is exceeded and the shock absorber is screwed in to the stop, damage to the product may occur.

- Never screw in the shock absorber to the stop.
- Do not exceed the maximum permitted depth of engagement of the shock absorber of 90 mm.
- Do not set the absorber stroke too short, the movement must decelerate harmoniously.

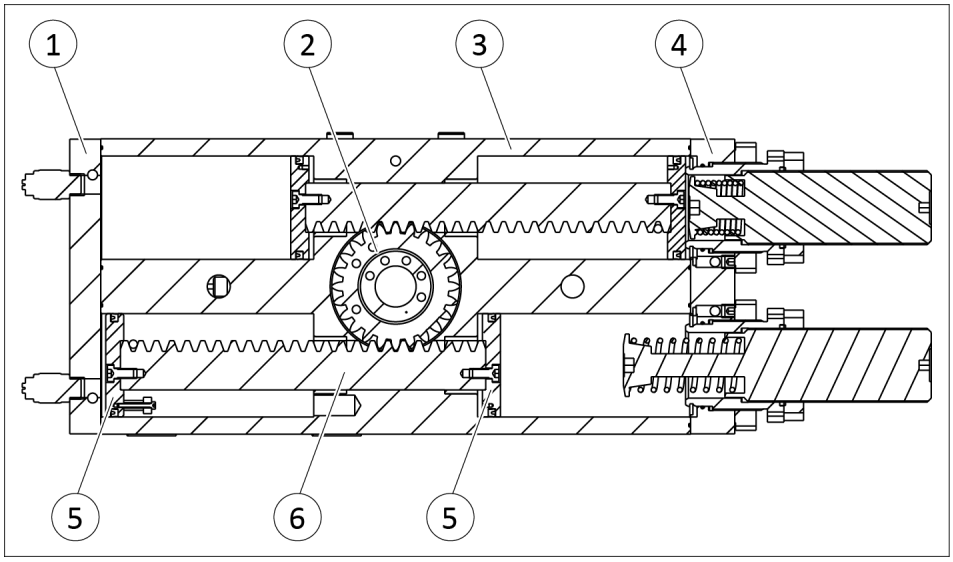




1. Fix the adjusting sleeve (1) with a spanner wrench (included in the accessory kit) and unscrew the lock nut (2).
2. Unscrew the shock absorber (3) from the adjusting sleeve (1).
3. Mount the O-ring (4) on the new shock absorber (3).
4. Screw the lock nut (2) onto the shock absorber (3).
5. Screw the new shock absorber (3) into the adjusting sleeve (1).

6. Adjust absorber stroke, ▸ 5.3.3 [🗋 25].
7. Fix the adjusting sleeve (1) with a spanner wrench and tighten the lock nut (2).
8. Swivel repeatedly to test the setting, readjust if necessary.

8.5 Dismantling and assembling the swivel unit



Dismantling the swivel unit

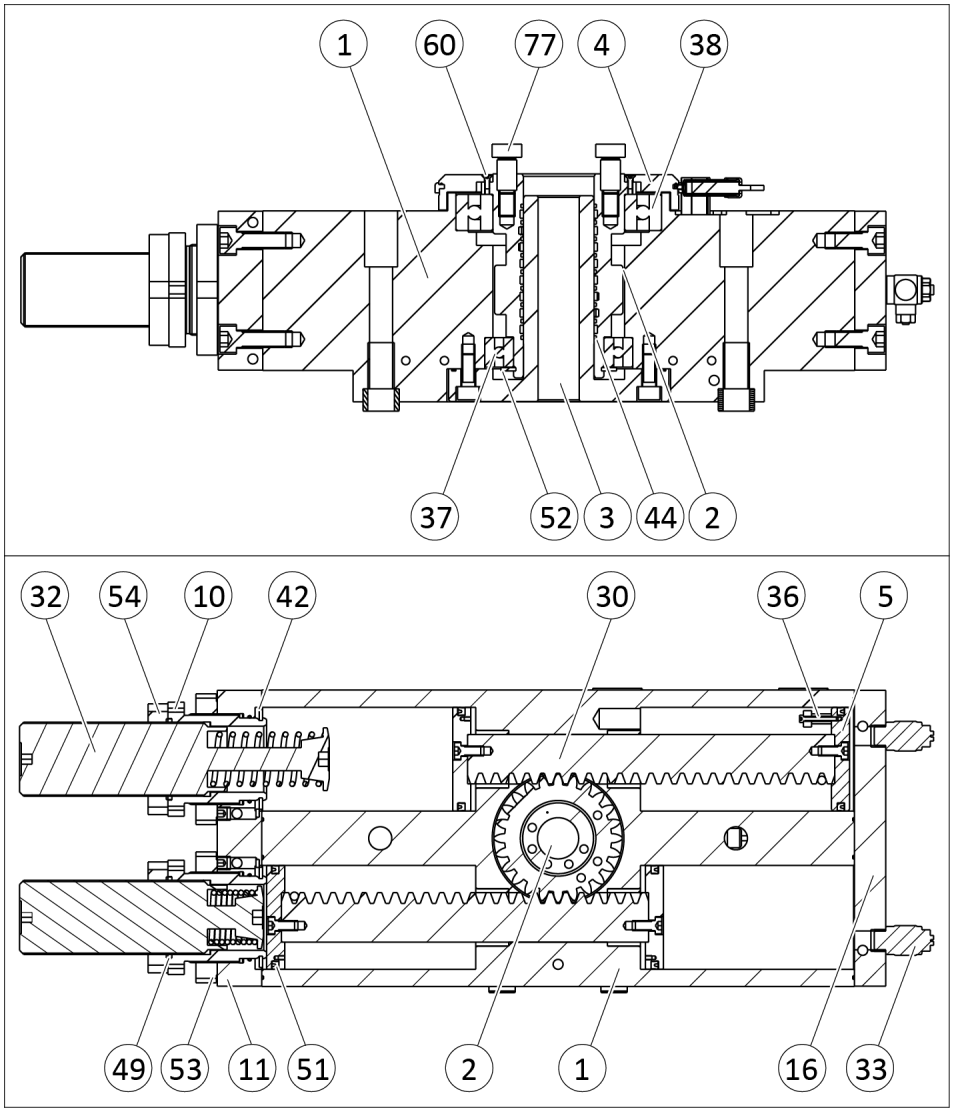
- The swivel unit is dismantled from the machine/automated system.

1. Unscrew and remove cover (1) and cover (4).
2. Mark the installation position of piston (6), pinion (2) and fluid feed-through.
3. Unscrew the pinion (2) and push it out of the housing (3).
4. Unscrew one piston (5) from the gear rack (6).
5. Push the gear rack (6) in the direction of the screwed-on piston (5) out of the housing (3).
6. Remove all seals.

Assembling the swivel unit

1. Push the gear rack (6) in the direction of the unscrewed piston (5) into the housing (3).
2. Mount the piston (5) on the gear rack (6).
   ⇨ Pay attention to the marking and correct installation position.
3. Slide the pinion (2) into the housing (2) and screw it on and mount the fluid feed-through.
   ⇨ Pay attention to the marking and correct installation position.
4. Screw on cover (1) and cover (4).
5. Secure all screws and nuts with Loctite No. 243.

8.6 Assembly drawing



1	Housing	37	Deep groove ball bearing
2	Pinion	38	Deep groove ball bearing
3	Distributor flange	42	O-ring*
4	Cam retainer ring	44	O-ring*
5	Piston	49	O-ring**
10	Adjusting sleeve	51	Safety ring*
11	Cover	52	Safety ring
16	Cover A	53	Lock nut
30	Gear rack	54	Lock nut
32	Shock absorber*	60	Countersunk screw
33	Throttle valve***	77	Fitting screw***
36	Ring magnet		

* Renew wearing parts during maintenance: not included in the sealing kit

** Renew wearing parts during maintenance: order sealing kit.

*** Contained in accessory kit.

9 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 / SRU-plus 63 /pneumatic
ID number	0354801; 0354841; 0354851

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, October 2023

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:	Pneumatic swivel unit / SRU-plus 63 / pneumatic
ID number	0354801; 0354841; 0354851

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

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, October 2023

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**.

Signature: see original declaration

Lauffen/Neckar, October 2023

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

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