Assembly and operating manual PGF

Two-jaw parallel gripper

Translation of the original manual

Hand in hand for tomorrow

Imprint

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

Document number: 389277

Version: 10.00 | 31/03/2025 | 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
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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 [🗋 6] are applicable.

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

1.1.1 Presentation of Warning Labels

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

⚠ DANGER

Dangers for persons!

Non-observance will inevitably cause irreversible injury or death.

⚠ WARNING

Dangers for persons!

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

⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

NOTICE

Material damage!

Information about avoiding material damage.

1.1.2 Applicable documents

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

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

1.1.3 Sizes

This operating manual applies to the following sizes:

- PGF 50
- PGF 64
- PGF 80
- PGF 100
- PGF 125

1.1.4 Variants

This operating manual applies to the following variations:

- PGF without gripping force maintenance
- PGF with gripping force maintenance "O.D. gripping" (AS)
- PGF with gripping force maintenance "I.D. gripping" (IS)

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

- Two-jaw parallel gripper PGF in the version ordered
- Safety information (product-specific instructions available online)
- Accessory pack

1.3.1 Accessories kit

Content of the accessory pack:

- 6 x Centering sleeves for mounting
- 2 x O-ring for hose-free direct connection
- 2 x screw plug for hose connection

Size	ID number
50	5510572
64	5510573
80	5510574
100	5510575
125	5510576

Tab.: ID.-No. of the accessory pack

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 Seal kit

contents of the sealing kit, ▸ 8 [🗋 38].

Size	ID number
50	370 838
64	370 839
80	370 840
100	370 841
125	370 842

Tab.: ID. No. spare part kit "Seal kit"

2 Basic safety notes

2.1 Intended use

The product is designed exclusively for gripping and temporarily holding workpieces or objects.

- The product may only be used within the scope of its technical data, ▸ 3 [🗋 16].
- The product is intended for installation in a machine/ automated system. The applicable guidelines for the machine/ automated system must be observed and complied with.
- The product is intended for industrial and industry-oriented use. Its use outside enclosed spaces is only permitted if suitable protective measures are taken against outdoor exposure. The product is not suitable for use in salty air.
- The product can be used within the permissible load limits and technical data for holding workpieces during simple machining operations, but is not a clamping device according to EN 1550:1997+A1:2008.
- Appropriate use of the product includes compliance with all instructions in this manual.
- Any utilization that exceeds or differs from the appropriate use is regarded as misuse.

2.2 Constructional changes

Implementation of structural changes

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

- Structural changes should only be made with the written approval of SCHUNK.

2.3 Spare parts

Use of unauthorized spare parts

Using unauthorized spare parts can endanger personnel and damage the product or cause it to malfunction.

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

2.4 Gripper fingers

Requirements of gripper fingers

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

- Execute the gripper fingers in such a way that the product reaches either the "open" or "closed" position in a de-energized state.
- Only change gripper fingers if no residual energy can be released.
- Make sure that the product and the top jaws are a sufficient size for the application.

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 [🗋 16].

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 from sharp edges and corners!

Sharp edges and corners can cause cuts.

- Use suitable protective equipment.

⚠ 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 crushing and impacts!

Serious injury could occur during movement of the base jaw, due to breakage or loosening of the gripper fingers or if the workpiece is lost.

- Wear suitable protective equipment.
- Do not reach into the open mechanism or the movement area of the product.

⚠ WARNING

Risk of injury due to spring forces!

Parts are under spring tension on products which clamp using spring force or which have gripping force maintenance. While disassembling components can move unexpectedly and cause serious injuries.

- Disassemble the product cautiously.
- Make sure that no residual energy remains in the system.

⚠ WARNING

Risk of injury from objects falling during energy supply failure

Products with a mechanical gripping force maintenance can, during energy supply failure, still move independently in the direction specified by the mechanical gripping force maintenance.

- Secure the end positions of the product with SCHUNK SDV-P pressure maintenance valves.

3 Technical data

Connection data	
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:2010 [7:4:4]
Nominal operating pressure [bar]	6
Minimum pressure [bar] without maintenance of gripping force	3.5
Minimum pressure [bar] with maintenance of gripping force	4
Maximum pressure [bar] without maintenance of gripping force	8
Maximum pressure [bar] with maintenance of gripping force	6.5

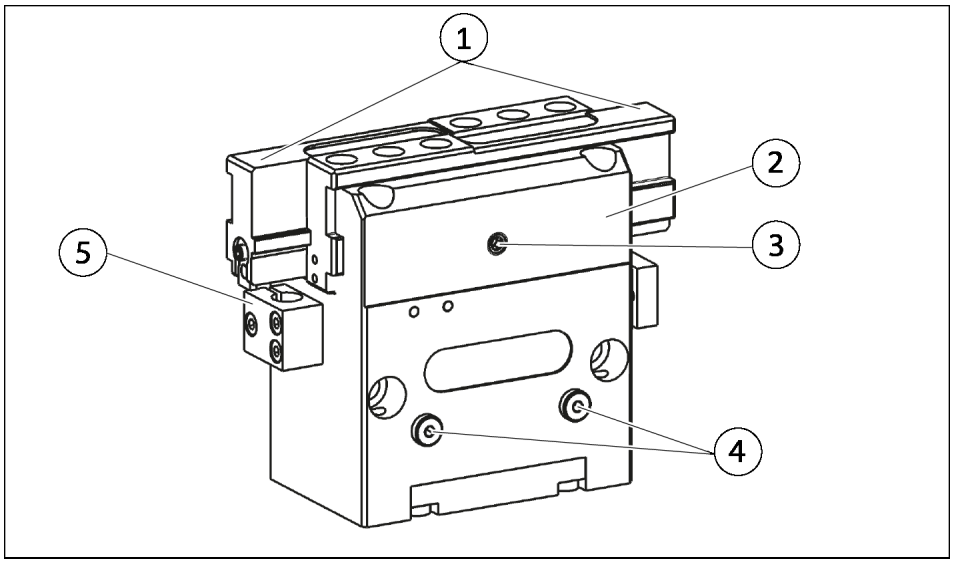
Ambient conditions and operating conditions

Designation	
Ambient temperature [°C] min. max.	 +5 +90
Protection class IP	40
Noise emission [dB(A)]	≤ 70

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

4 Design and description

4.1 Design



2-jaw -parallel gripper

1	Base jaw
2	Case
3	Lubrication nipple connection
4	Main compressed air connection
5	Holder for proximity sensor

4.2 Characterization

Universal parallel gripper with surface-guided base jaws.

5 Assembly

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.

NOTICE

Damage to the gripper is possible!

If the maximum permissible finger weight or the permissible mass moment of inertia of the fingers is exceeded, the gripper can be damaged.

- A jaw movement always has to be without jerks and bounce.
- You must therefore implement sufficient reduction and/or damping.
- Observe the information in the catalog data sheet.

1. Check the evenness of the mounting surface, ▸ 5.2.1 [🗋 19].
2. Connect the product via the hose-free direct connection, using only one pair of "a" and "b".
   Note: Two pairs of hose-free direct connection "a" and "b" available on the housing.
3. OR: Connect compressed air lines to the main air connections "A" and "B".
   - ⇨ Remove the locking screws.
   - ⇨ Screw in air connections (plug connections).
     OR: Screw on throttle valve in order to be able to perform sufficient throttling and/or damping.
4. Screw the product to the machine/system, ▸ 5.2.1 [🗋 19].
   - ⇨ If necessary, use appropriate connection elements (adapter plates).
   - ⇨ Observe permissible depth of engagement and if required strength class.
5. Secure the gripper fingers to the base jaws, ▸ 5.2.1 [🗋 19].
6. Connect the sensor, see assembly and operating manual of the sensor.
7. Mount the sensor, ▸ 5.3 [🗋 23].

5.2 Connections

5.2.1 Mechanical connection

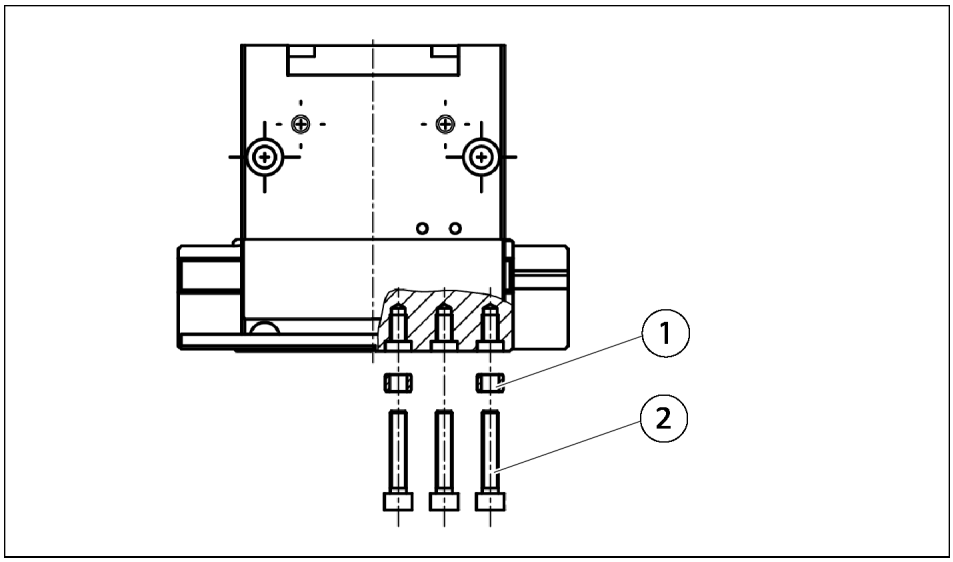
Evenness of the mounting surface

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

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

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

Connections at the base jaws



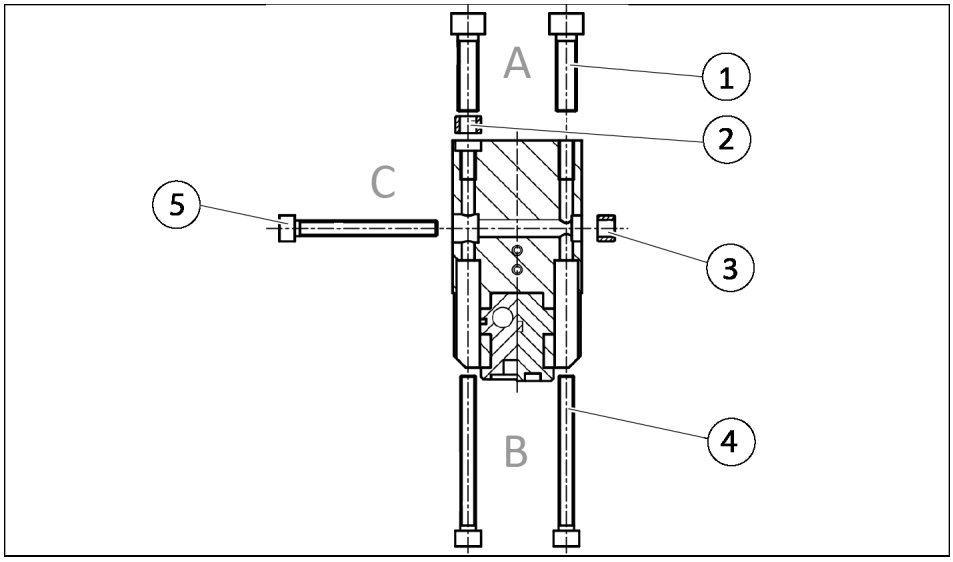
Connections at the base jaws

Size	① Centering sleeve	② Screws *
50	Ø 5	M3 / 8
64	Ø 6	M4 / 10
80	Ø 8	M5 / 11
100	Ø 10	M6 / 13
125	Ø 12	M8 / 16

** Thread / max. depth of engagement from locating surface [mm]*

Connections at the housing

The product can be mounted from three sides.



Connections at the housing

Side **A**

Size	① Screws *	② Centering sleeve
50	M4 / 10	Ø 6
64	M5 / 15	Ø 8
80	M6 / 15	Ø 10
100	M8 / 21	Ø 12
125	M8 / 21	Ø 12

** Thread / max. depth of engagement from locating surface [mm]*

Side **B**

Size	④ Screws	② Centering sleeve
50	M3	Ø 6
64	M4	Ø 8
80	M5	Ø 10
100	M6	Ø 12
125	M6	Ø 12

Side **C**

Size	⑤ Screws	③ Centering sleeve
50	M3	Ø 6
64	M5	Ø 8
80	M6	Ø 10
100	M8	Ø 12
125	M8	Ø 12

5.2.2 Pneumatic connection

NOTE

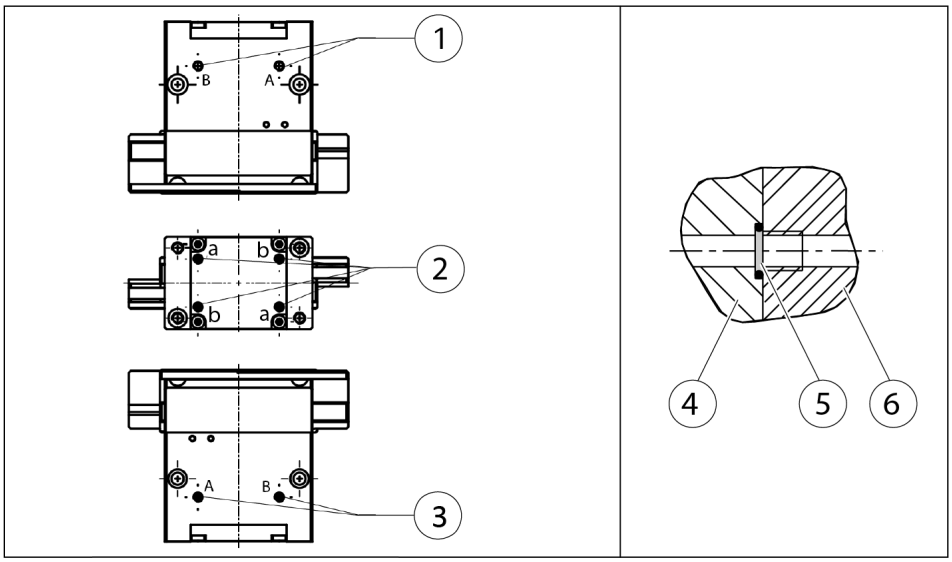
- Observe the requirements for the compressed air supply, ▶ 3 [🗋 16].
- In case of compressed air loss (cutting off the energy line), the components lose their dynamic effects and do not remain in a secure position. However, the use of a SDV-P pressure maintenance valve is recommended in this case in 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.

NOTICE

Damage to the gripper is possible!

If the maximum permissible finger weight or the permissible mass moment of inertia of the fingers is exceeded, the gripper can be damaged.

- A jaw movement always has to be without jerks and bounce.
- You must therefore implement sufficient reduction and/or damping.
- Observe the information in the catalog data sheet.



Pneumatic connection

Item	Connection
1	Main air connections (A = open, B = close)
2	Hose-free direct connection at the base (a = open, b = close)
3	Main air connections(A = open, B = close)
Hose-free direct connection	
4	Attachment
5	O ring
6	Product

Size	Main air connections *	Hose-free direct connection *
50	M5 / 5	M3 / 4
64	M5 / 6	M4 / 4.5
80	M5 / 7	M5 / 5.5
100	M5 / 10	M5 / 5.5
125	M5 / 8	M5 / 6

Tab.: Pneumatic connection dimensions

** Thread / max. depth of engagement from locating surface [mm]*

- Only open the required air connections.
- Seal those main air connections that are not needed using the locking screws from the accessory kit.
- For hose-free direct connection:
  - Use only one pair of "a" or "b".
  - Use O-rings from the accessory kit.

5.3 Mounting the sensor

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

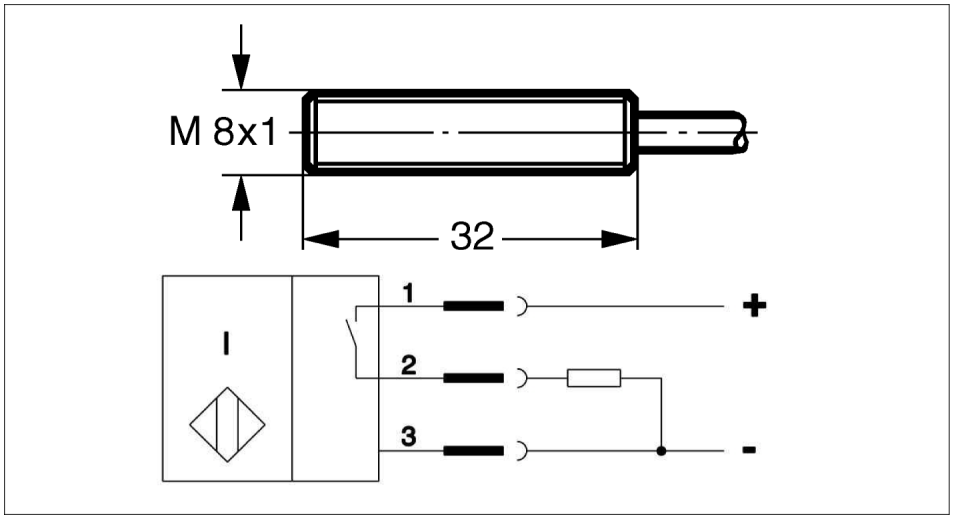
The product is prepared for the use of sensors.

- For the exact type designations of suitable sensors, please see catalog datasheet and ▸ 5.3.1 [🗋 23].
- 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.

5.3.1 Overview of sensors

Size	IN 80	FPS-S 13
50	✓	✓
64	✓	✓
80	✓	✓
100	✓	✓
125	✓	⊘

5.3.2 Inductive proximity switch IN 80



Connection example for IN 80

1 brown 2 black 3 blue

The inductive proximity switches used are equipped with reverse polarity protection and are short-circuit-proof.

Make sure that you handle the proximity switches properly:

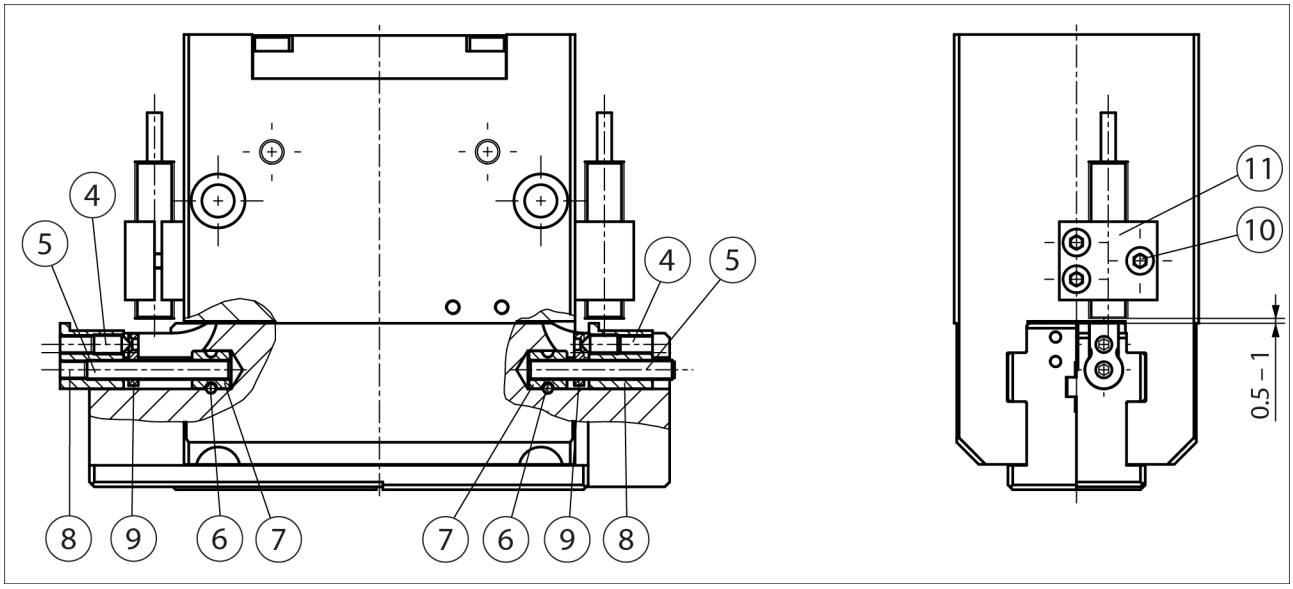
- Do not pull on the cable.
- Do not allow the sensor to dangle from the cable.
- Do not overtighten the mounting screw or mounting clip.
- Please adhere to a permitted bend radius of the cable. (☞ catalog)
- Avoid contact of the proximity switches with hard objects and with chemicals, in particular nitric acid, chromic acid and sulphuric acid.

The inductive proximity switches are electronic components, which can react sensitively to high-frequency interference or electromagnetic fields.

- Check to make sure that the cable is fastened and installed correctly. Provide for sufficient clearance to sources of high-frequency interference and their supply cables.
- Parallel switching of several sensor outputs of the same type (npn, pnp) is permissible, but does not increase the permissible load current.
- Note that the leakage current of the individual sensors (ca. 2 mA) is cumulative.

Assembly of the proximity switch

The switching points for the "open" and "closed" positions are set by SCHUNK in advance.



Gripper open:

1. Push proximity switch 1 (2) as far as possible into the bracket (11) until it touches the control cam (8).
2. Pull back proximity switch 1 (2) 0.5 – 1 mm.
3. Fasten the proximity switch by tightening the attachment screw (10).
4. Bring the gripper into »open« position.
5. Loosen the set-screw (4).
6. Turn the set-screw (4) back approx. one turn.
7. Push control cam 1 (8) over proximity switch 1 (2) from the outside until it switches by unscrewing the set-screw (5).
8. Clamp the set-screw (4) with the clamping piece (9).
9. Test the function.

Gripper closed:

1. Push proximity switch 2 (3) as far as possible into the bracket (11) until it touches the control cam (8).
2. Pull back proximity switch 2 (3) 0.5 – 1 mm.
3. Fasten the proximity switch by tightening the attachment screw (10).
4. Bring the gripper into »closed« position.
5. Loosen the set-screw (4).
6. Turn the set-screw (4) back approx. one turn.

7. Push control cam 2 (8) over proximity switch 2 (3) from the outside until it switches by unscrewing the set-screw (5).
8. Clamp the set-screw (4) with the clamping piece (9).
9. Test the function.

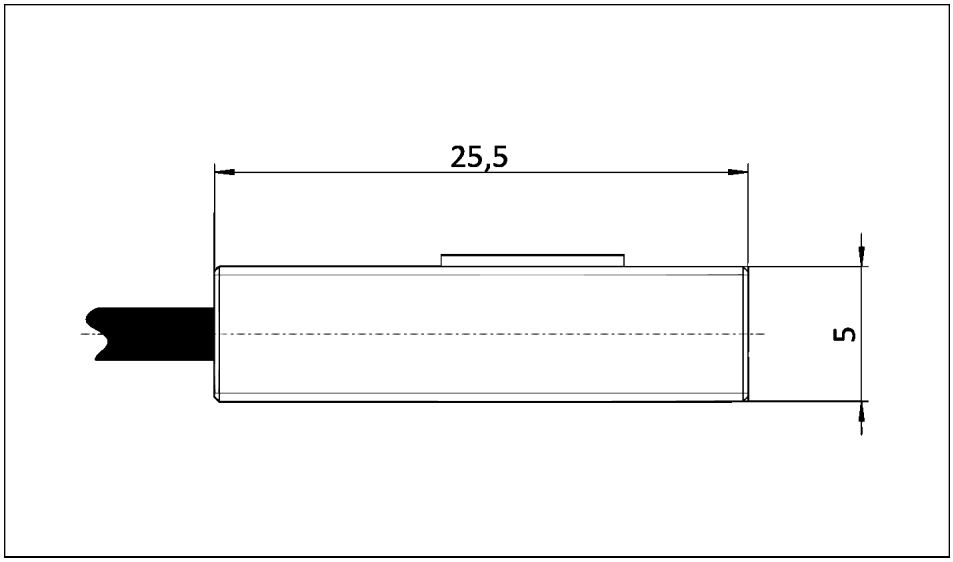
Part gripped (O.D. gripping):

1. Push proximity switch 2 (3) as far as possible into the bracket (11).
2. Pull back proximity switch 2 (3) 0.5 – 1 mm.
3. Clamp the part to be gripped.
4. Loosen the set-screw (4).
5. Turn the set-screw (4) back approx. one turn.
6. Push control cam 2 (8) over proximity switch 2 (3) from the outside until it switches by unscrewing the set-screw (5).
7. Clamp the set-screw (4) with the clamping piece (9).
8. Test the function.

Part gripped (I.D. gripping):

1. Push proximity switch 1 (2) as far as possible into the bracket (11).
2. Pull back proximity switch 1 (2) 0.5 – 1 mm.
3. Clamp the part to be gripped.
4. Loosen the set-screw (4).
5. Turn the set-screw (4) back approx. one turn.
6. Push control cam 1 (8) over proximity switch 1 (2) from the outside until it switches by unscrewing the set-screw (5).
7. Clamp the set-screw (4) with the clamping piece (9).
8. Test the function.

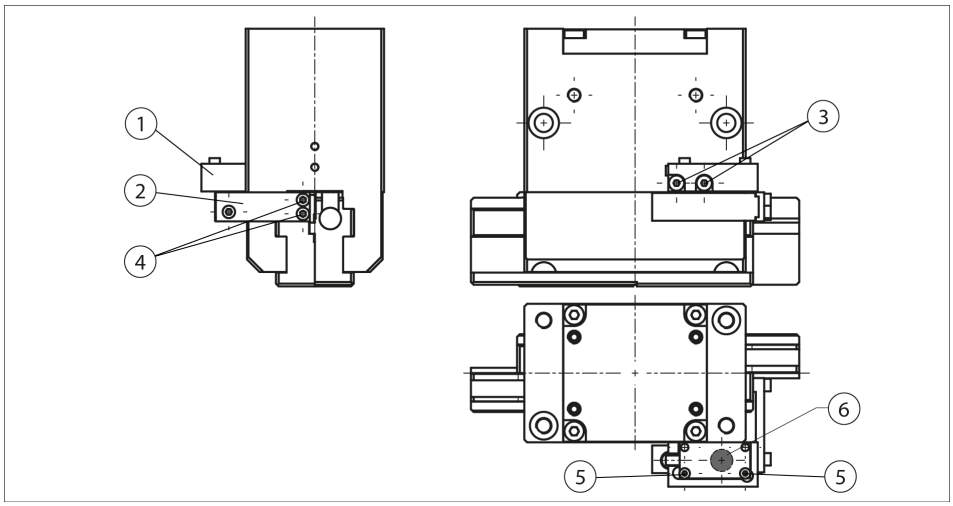
5.3.3 Flexible position sensor FPS-S 13



Flexible position sensor FPS-S 13

In order to use the flexible position sensor FPS-S13, the gripper must be equipped with a special mounting kit.

Mounting of the mounting kit



1. Attach the holder (1) to the housing with screws (3).

NOTICE

Damage due to excessive pulling force of the screws (5)!

Excessive clamping force can lead to damage to the holder (1).

- The maximum tensile and compressive force of the screws (5) of 1 Ncm must not be exceeded.

2. Position sensor with the circular elevation (6) in the recess in the holder (1).
3. Secure sensor with screws (5).
4. Mount the trip cam (2) to the base jaw with the screws (5) so that it lies above the holder (1).
5. Adjust the sensor, see mounting and operating manual of the sensor.

6 Troubleshooting

6.1 Product is not moving

Possible cause	Corrective action
Base jaws jam in housing, e.g. mounting surface is not sufficiently even.	Check the evenness of the mounting surface. ▸ 5.2.1 [🗋 19]
	Loosen the mounting screws of the product and actuate the product again.
Pressure drops below minimum.	Check air supply. ▸ 5.2.2 [🗋 21]
Compressed air lines switched.	Check compressed air lines. ▸ 5.2.2 [🗋 21]
Proximity switch defective or set incorrect.	Readjust or change sensor.
Unused air connections open.	Close unused air connections.
Flow control valve closed.	Open the flow control valve.
Component part defective.	Replace component or send it to SCHUNK for repair.

6.2 Product is not executing the complete stroke

Possible cause	Corrective action
Dirt deposits between cover and piston.	Clean and if necessary re-lubricate.
Dirt deposits between basic jaws and guidance.	Disassemble and clean the product.
Pressure drops below minimum.	Check air supply. ▸ 5.2.2 [🗋 21]
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface. ▸ 5.2.1 [🗋 19]
Component part defective.	Replace component or send it to SCHUNK for repair.

6.3 Product opens or closes abruptly

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product. ▸ 7 [🗋 30]
Compressed air lines blocked.	Check compressed air lines of damage.
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface.
One-way flow control valve is missing or adjustet incorrectly.	Install and adjust one-way flow control valve.
Loading too large.	Check permissible weight and length of the gripper fingers.

6.4 Gripping force is dropping

Possible cause	Corrective action
Compressed air can escape.	Check seals, if necessary, disassemble the product and replace seals.
Too much grease in the mechanical movement space.	Clean and lubricate product.
Pressure drops below minimum.	Check air supply. ▶ 3 [🗋 16]
Component part defective.	Replace component or send it to SCHUNK for repair.

6.5 Product does not achieve the opening and closing times

Possible cause	Corrective action
Compressed air lines are not installed optimally.	If present: Open the flow control couplings on the product to the maximum that the movement of the jaws occurs without bouncing and hitting.
	Check compressed air lines.
	Inner diameters of compressed air lines are of sufficient size in relation to compressed air consumption.
	Keep compressed air lines between the product and directional control valve as short as possible.
	Flow rate of valve is sufficiently large relative to the compressed air consumption.
	NOTICE! The throttle check valve must not be removed, even if the product has not reached the opening and closing times.
	If you still cannot achieve the open and close times in the latest catalog, we recommend the use of quick-air-vent-valves directly at the product.
Loading too large.	Check permissible weight and length of the gripper fingers.

7 Maintenance

7.1 Notes

Original spare parts

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

Replacement of the housing and base jaws

The base jaws and the guides in the housing are matched to each other. To replace these parts, send the product to SCHUNK with a repair order.

Maintenance of version with gripping force maintenance I.D. gripping and O.D. gripping

The pistons have to be aligned using an assembly device. Therefore we recommend to have the module serviced and the seals replaced by SCHUNK.

7.2 Maintenance and lubrication intervals

NOTICE

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]	2

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
Metallic sliding surfaces	SCHUNK grease 3
Seals and sealing surfaces	SCHUNK grease 1
Bore hole at the piston	SCHUNK grease 1

Depending on the load, the guides in the housing can also be relubricated via grease nipples.

Details regarding SCHUNK lubricant designations are available at **schunk.com/lubricants**.

The product contains food-compliant lubricants as standard.
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 Replace seal (variant without gripping force maintenance)

Position of the item numbers ▶ 8 [🗋 38]

⚠ WARNING

Risk of injury due to unexpected movements!

If the power supply is switched on or residual energy remains in the system, components can move unexpectedly and cause serious injuries.

- Before starting any work on the product: Switch off the power supply and secure against restarting.
- Make sure, that no residual energy remains in the system.

1. Remove the compressed air line.
2. Unscrew the screws (51) and remove the cover (5).
3. Loosen the piston (4) with a hexagon socket wrench.
4. Push the piston upwards out of the housing (1).
5. Push the diagonal pull (3) into the housing (1) up to the two cover plates (6).
6. Pull the base jaw (2) with the diagonal pull (3) out of the housing (1).

7.5 Replace seal (variant with gripping force maintenance "O.D. gripping")

Position of the item numbers ▶ 8 [🗋 38]

⚠ WARNING

Risk of injury due to spring forces!

The cover may be ejected due to the high spring forces.

- Dismantle the product carefully.

⚠ WARNING

Risk of injury due to spring forces!

The cylinder piston is under spring tension.

- Carefully disassemble the product.

1. Remove the compressed air line.
2. **WARNING! WARNING! Risk of injury due to spring forces! The cover is under spring tension. Carefully disassemble the module.** Clamp the module into the vise between the base jaws (2) and the cover (5) in such a manner to allow the four screws (51) to still be removed.
3. Unscrew the screws (51).
4. Open the vise carefully and remove the cover (9).
5. **WARNING! WARNING! Risk of injury due to spring forces! The cylinder piston is under spring tension. Carefully disassemble the module.**Clamp the module in the vise between the base jaws (2) and the housing (1) in such a manner to allow the piston (4) to still be released with a hexagon socket wrench.
6. Unscrew the piston (4) up to the vise jaw.
7. Carefully open the vise and repeatedly unscrew the piston (4) up to the vise jaw until it is completely unscrewed from the diagonal pull (3).
8. Push the diagonal pull (3) into the housing (1) up to the two cover plates (6).
9. Pull the base jaw (2) with the diagonal pull (3) out of the housing (1).

7.6 Replace seal (variant with gripping force maintenance "I.D. gripping")

Position of the item numbers ▶ 8 [🗋 38]

⚠ 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 due to spring forces!

The cover may be ejected due to the high spring forces.

- Dismantle the product carefully.

1. Remove the compressed air lines.
2. **WARNING! WARNING! Risk of injury due to spring forces! The cover is under spring tension. Carefully disassemble the module.** Clamp the module into the vise between the base jaws (2) and the cover (5) in such a manner to allow the four screws (51) to still be removed.
3. Unscrew the screws (51).
4. Open the vise carefully and remove the cover (5) and compression springs (40).
5. Loosen the piston (19) with a hexagon socket wrench and pull out the housing (1).
6. Push the diagonal pull (3) into the housing (1) up to the two cover plates (6).
7. Pull the base jaw (2) with the diagonal pull (3) out of the housing (1).

7.7 Product maintenance and assembly

Maintenance

- Clean all parts thoroughly and check for damage and wear.
- Treat all greased areas with lubricant.▸ 7.3 [🗋 31]
- Oil or grease bare external steel parts.
- Replace all wear parts / seals.
  - Position of the wearing parts ▸ 8 [🗋 38]
  - Seal kit ▸ 1.4.1 [🗋 7]

Assembly

Assembly takes place in the opposite order to disassembly. Observe the following:

- Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque.▸ 7.7.1 [🗋 35]
- For variants with O.D. maintenance of gripping force, use assembly devices to mount the piston ▸ 7.7.3 [🗋 37].

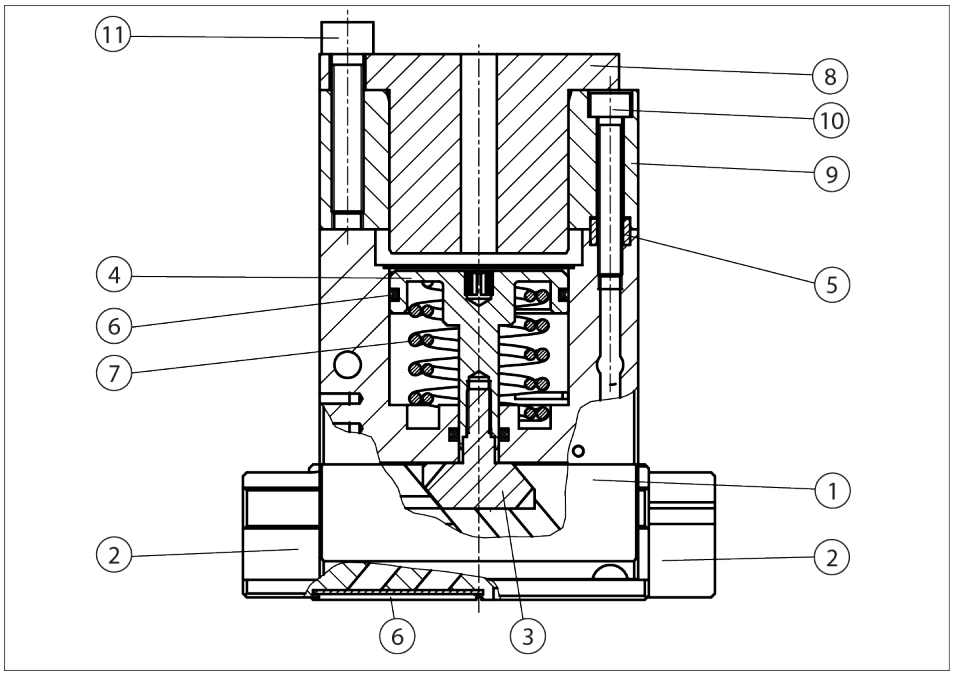
7.7.1 Tightening torque for screws

Position of the item numbers ▸ 8 [🗋 38]

Size	Item 4	Item 10	Item 51
50	4	4	1.1
64	7.5	7.5	1.1
80	10	10	2.6
100	20	20	5.1
125	30	30	8.8

Tab.: Tightening torque [Nm]

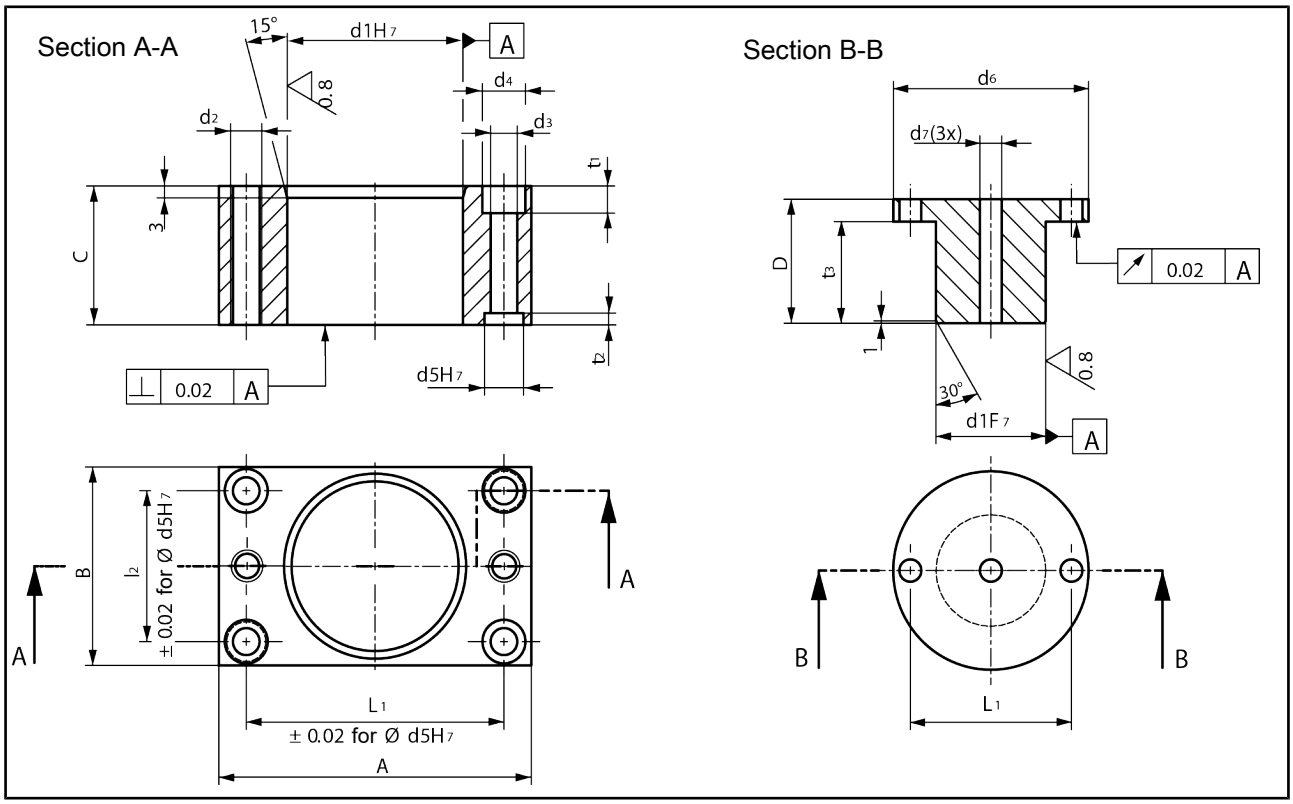
7.7.2 Assembly (variant with gripping force maintenance "O.D. gripping")



- Dimensions of the assembly device: ▸ 7.7.3 [🗋 37]
- Further position numbers not illustrated: ▸ 8 [🗋 38]

1. Insert the diagonal pull (3) between the two base jaws (2) so that it reaches both cover plates (6) and therefore completely disappears in the base jaws (2).
2. Push the base jaw (2) with the diagonal pull (3) into the housing (1).
3. Pull the base jaws (2) apart up to the limit stop.
4. Check whether the thread of the diagonal pull (3) protrudes into the piston rod bore hole of the housing (1).
5. Insert the centering sleeves (5).
6. Mount device 1 (9) with four screws 1 (10) on the housing (1).
7. Insert the springs (7) in the plane groove of the housing (1) intended for this purpose.
8. Push the piston (4) with the mounted seal (61) into the device 1 (9) until it rests on the springs.
9. Screw device 2 (8) with the two screws (2) evenly onto device 1 (9) until the piston (4) rests on the diagonal pull (3).
10. Press the base jaw (2) slightly while the piston (4) is screwed onto the diagonal pull (3) with a hexagon socket wrench.
11. Remove the devices (8) and (9) and continue to assembly the gripper in the reverse order of its disassembly.

7.7.3 Assembly device cylinder piston with gripping force maintenance



Tab.: Assembly device cylinder piston – Size in mm

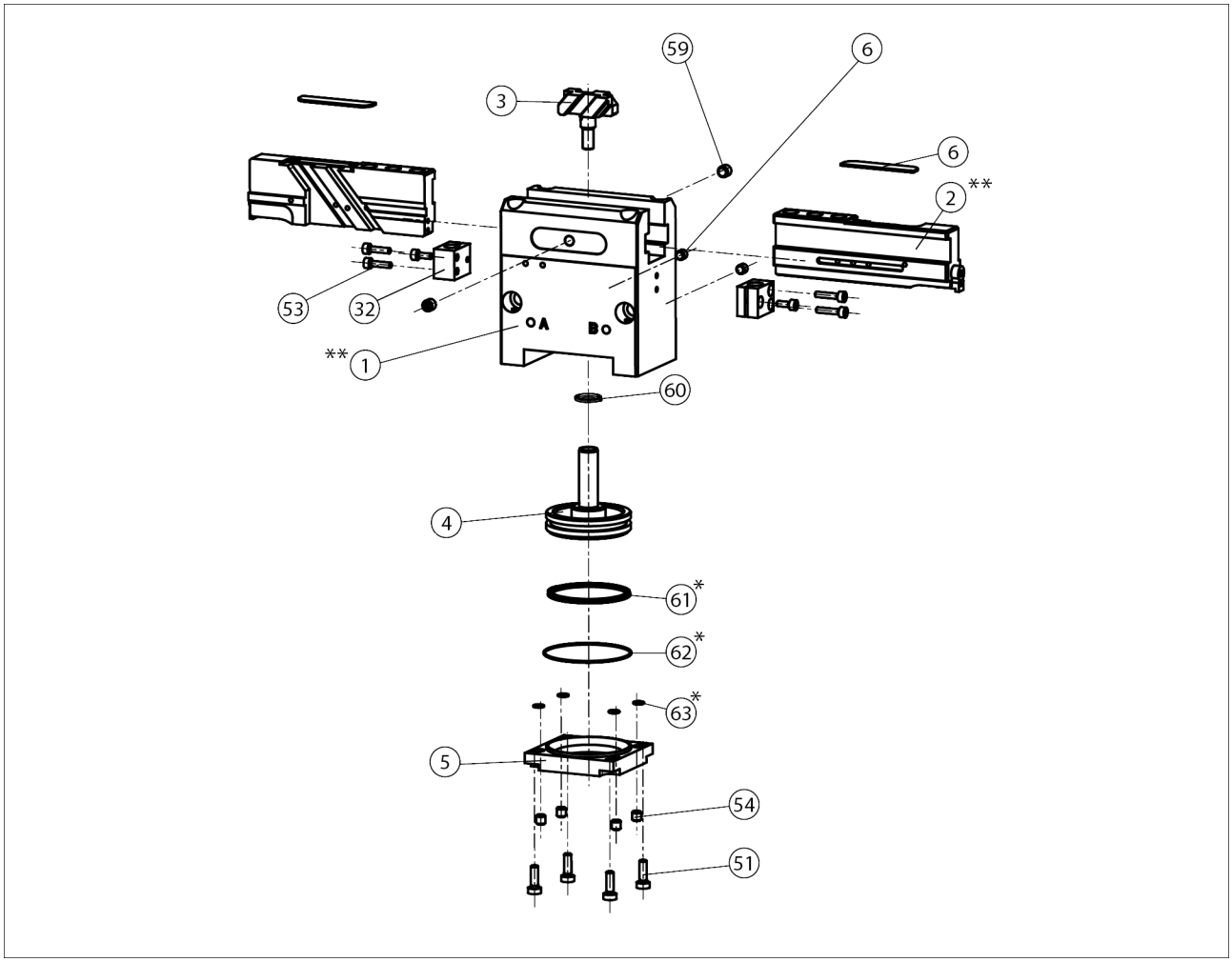
Size	A	B	C	D	l1	l2	d1	d2	d3	D4	D5	D6	D7	t1	t2	t3
50	50	38	28	30	42	27	30	M6	5	8	6	54	6.8	4.6	2.5	22
64	64	42	22	27	52	32	36	M6	5.5	10	8	64	6.8	5.7	2.5	18
80	80	50	35	50	66	38	45	M8	6.8	11	10	80	9	6.8	3	41
100	100	64	32	41.5	82	45	56	M10	8.5	15	12	100	11	9	3	32.5
125	125	80	56	70	100	56	72	M10	8.5	15	12	118	11	9	3	60

Size	Screw 1	Screw 2
50	M4 x 30	M6 x 35
64	M5 x 25	M6 x 30
80	M6 x 40	M6 x 40
100	M8 x 40	M8 x 50
125	M8 x 60	M10 x 65

Tab.: Screws for Assembly device

8 Assembly drawing

The following figures are example images.
They serve for illustration and assignment of the spare parts.
Variations are possible depending on size and variant.

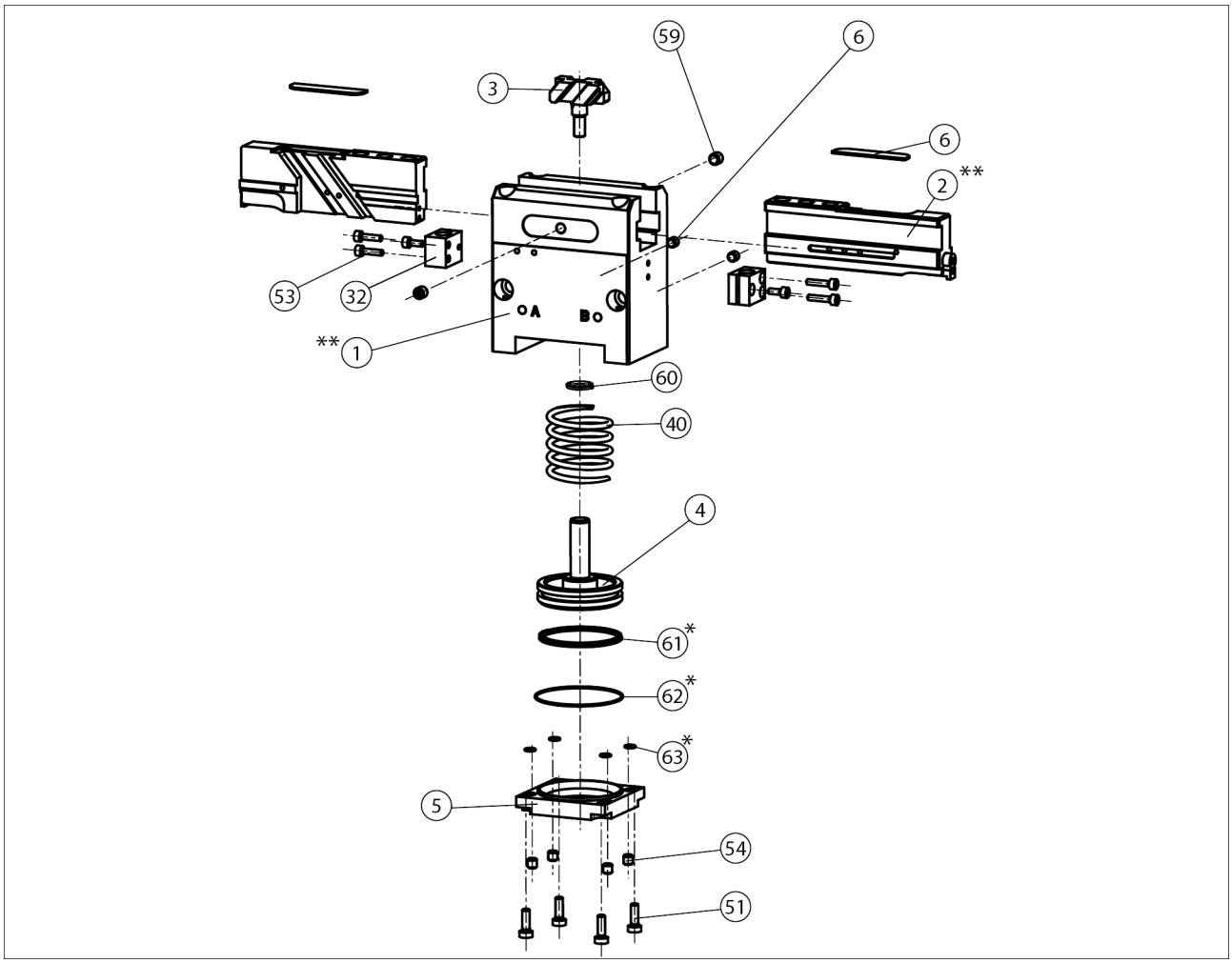


Assembly of the variant without maintenance of gripping force

* Wearing part, replace during maintenance.
Included in the seal kit. Seal kit can only be ordered completely.

** Positions are adapted to each other and can not be replaced by the customer.

(6) / (59) not for PGF 80 – 125

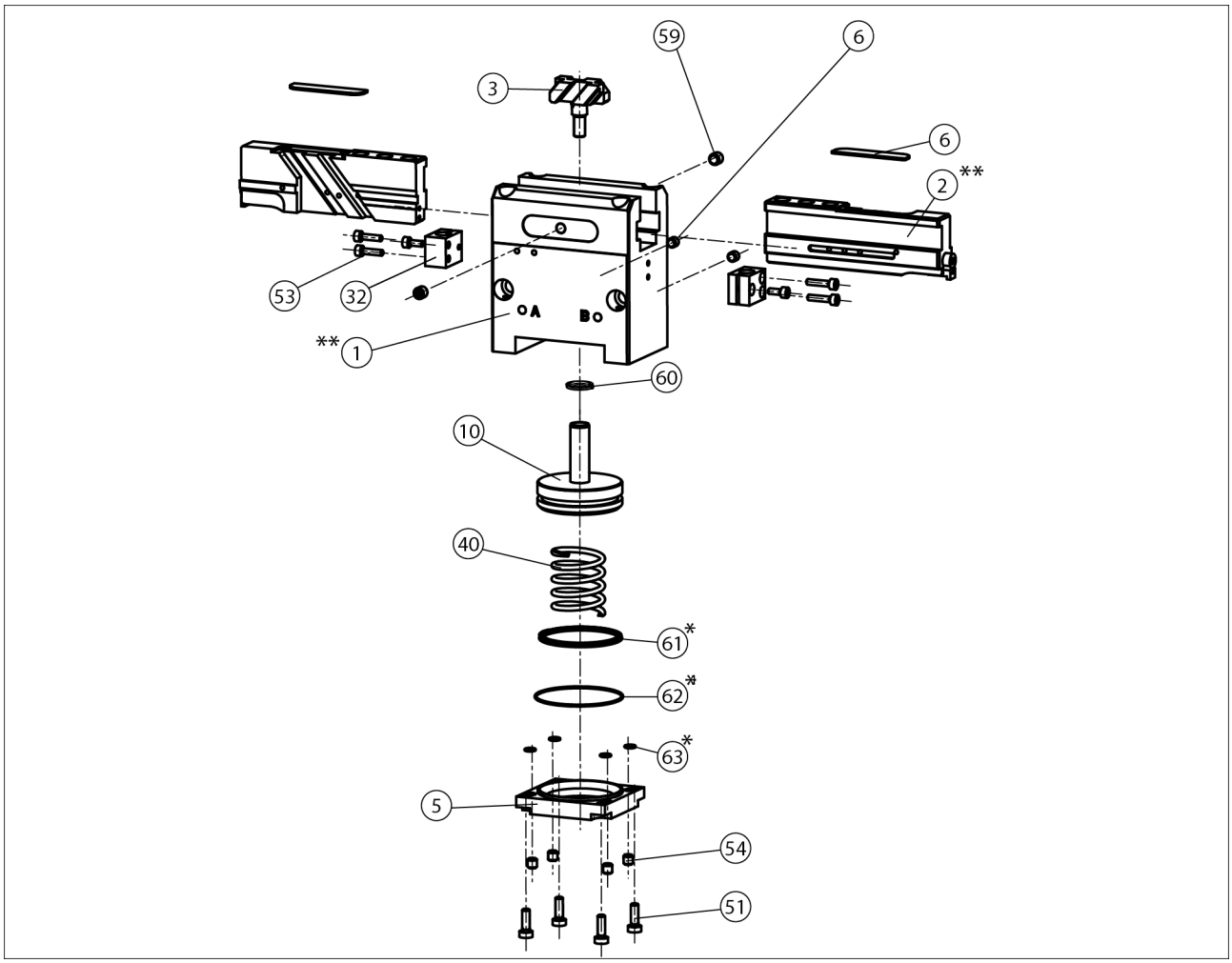


Assembly of the variant O.D. gripping

* Wearing part, replace during maintenance.
Included in the seal kit. Seal kit can only be ordered completely.

** Positions are adapted to each other and can not be replaced by the customer.

(6) / (59) not for PGF 80 – 125



Assembly of the variant I.D. gripping

* Wearing part, replace during maintenance.
Included in the seal kit. Seal kit can only be ordered completely.

** Positions are adapted to each other and can not be replaced by the customer.

(6) / (59) not for PGF 80 – 125

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 Spanntechnik | Greiftechnik | Automatisierungstechnik Bahnhofstr. 106 – 134 D–74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation:	Two-jaw parallel gripper / PGF /pneumatic
ID number	0340360 ... 0340392

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, March 2025

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

10 UKCA declaration of incorporation

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

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

We hereby declare that on the date of the declaration the following partly completed machine complied with all basic safety and health regulations found in the
"Supply of Machinery (Safety) Regulations 2008".
The declaration shall be rendered invalid if modifications are made to the product.

Product designation:	Two-jaw parallel gripper / PGF / pneumatic
ID number	0340360 ... 0340392

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, March 2025

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

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

RoHS Directive

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

REACH Regulation

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

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

Signature: see original declaration

Lauffen/Neckar, March 2025

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

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