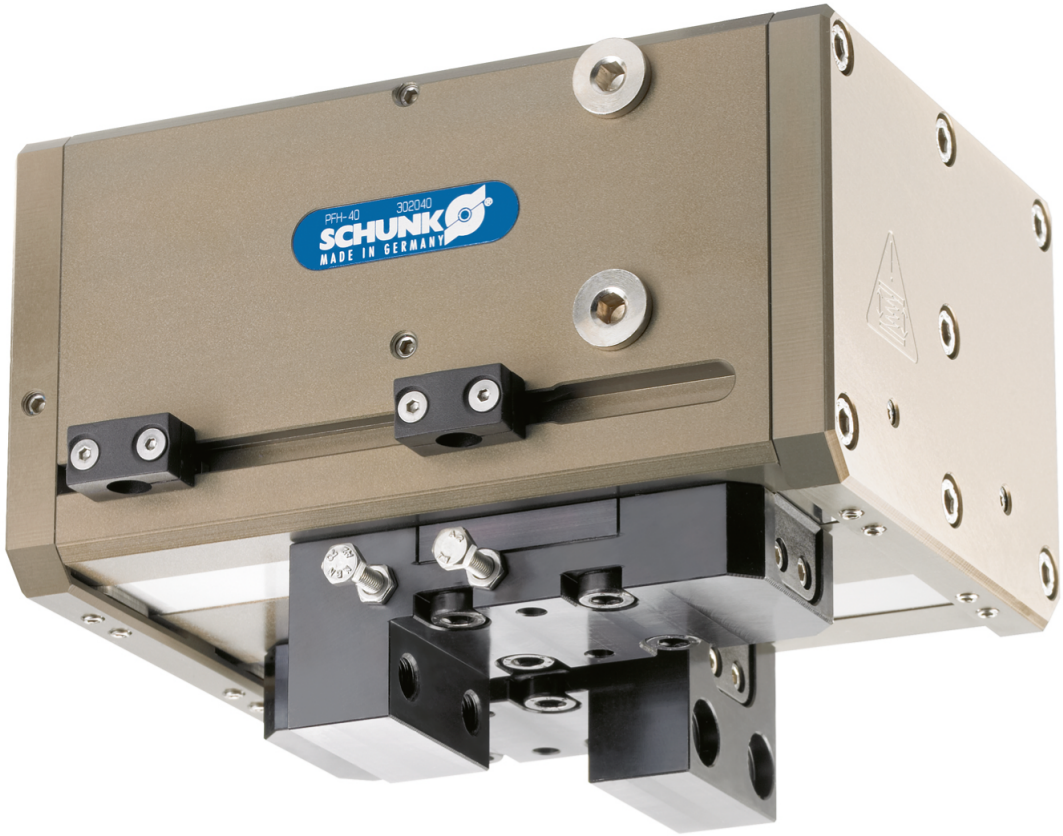
Assembly and Operating Manual

PFH 30-50

2-Finger-Parallel-Gripper



Superior Clamping and Gripping

SCHUNK®

Imprint

Technical changes:

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

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Dear Customer,

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

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

Best regards,

Your SCHUNK team

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1 About this manual

This instruction is an integral part of the product and contains important information for a safe and proper assembly, commissioning, operation, maintenance and help for easier trouble shooting.

Before using the product, read and note the instructions, especially the chapter "Basic safety notes".

1.1 Presentation of Warning Labels

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

⚠ DANGER

Danger 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.

1.2 Variants

This operating manual applies to the following variations:

- PFHwithout gripping force maintenance
- PFHwith gripping force maintenanceO.D. gripping
- PFHwith gripping force maintenanceI.D. gripping
- PFHHigh-temperature (HT)

1.3 Applicable documents

- General terms of business*
- Catalog data sheet of the purchased product *
- Assembly and operating manual of the gripper *

The documents marked with an asterisk (*) can be downloaded on our homepage **schunk.com**

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, Technical Data [▶ 14].
- 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/system. The applicable guidelines 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 Environmental 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. See also Environmental and operating conditions [▶ 7].

- Make sure that the product and the top jaws are a sufficient size for the application.
- Ensure that maintenance and lubrication intervals are observed, Maintenance [▶ 26].

2.4 Product safety

Dangers arise from the product, if:

- the product is not used in accordance with its intended purpose.
- the product is not installed or maintained properly.
- the safety and installation notes are not observed.

Avoid any manner of working that may interfere with the function and operational safety of the product.

Wear protective equipment.

NOTE

More information is contained in the relevant chapters.

2.5 Personnel qualification

Inadequate qualifications of the personnel

If the personnel working with the product is not sufficiently qualified, the result may be serious injuries and significant property damage.

- All work may only be performed by qualified personnel.
- Before working with the product, the personnel must have read and understood the complete assembly and operating manual.
- Observe the national safety regulations and rules and general safety instructions.

The following personal qualifications are necessary for the various activities related to the product:

Trained electrician	Due to their technical training, knowledge and experience, trained electricians are able to work on electrical systems, recognize and avoid possible dangers and know the relevant standards and regulations.
Qualified personnel	Due to its technical training, knowledge and experience, qualified personnel is able to perform the delegated tasks, recognize and avoid possible dangers and knows the relevant standards and regulations.
Instructed person	Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.
Service personnel of the manufacturer	Due to its technical training, knowledge and experience, service personnel of the manufacturer is able to perform the delegated tasks and to recognize and avoid possible dangers.

2.6 Using personal protective equipment

When using this product, observe the relevant industrial safety regulations and use the personal protective equipment (PPE) required!

- Use protective gloves, safety shoes and safety goggles..
- Observe safe distances.

2.7 Notes on particular risks

Generally valid:

- Remove the energy supplies before installation, modification, maintenance, or adjustment work.
- Make sure that no residual energy remains in the system.
- Do not move parts by hand when the energy supply is connected.
- Do not reach into the open mechanism or the movement area of the module.
- Perform maintenance, modifications, and additions outside of the danger zone.
- For all work, secure the unit against accidental operation.
- Take a precautionary approach by maintenance and disassembly.
- Only specially trained staff should disassemble the module.

⚠ CAUTION

Possible risk of injury due to electrostatic energy!

Components or assembly groups may become electrostatically charged. When touched, the electrostatic discharge can trigger a startle response, which can result in injuries.

- The operator must ensure that all components and assembly groups are included in the local equipotential bonding in line with the applicable regulations.

NOTE

- The equipotential bonding must be installed by a specialist electrician in line with the applicable regulations, paying particular attention to the actual conditions in the working environment.
- The effectiveness of the equipotential bonding must be verified by a specialist electrician through regular safety measurements.

⚠ 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.

⚠ 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.

2.7.1 Variant gripping force maintenance

⚠ 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.

⚠ WARNING

Risk of injury due to uncontrolled movements!

While disassembling uncontrolled movements of the gripper's individual parts of grippers with gripping force maintenance may cause serious injuries.

- Switch off the energy supply.
- Ensure there is no residual energy in the system.
- Disassemble the gripper carefully.

3 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.

4 Scope of delivery

The scope of delivery includes

- 2-Finger-Parallel-GripperPFHin the version ordered
- Enclosed pack

5 Accessories

A wide range of accessories are available for this product

- 2 Top jaws
- Sensors, if required , if required with extension cord Sensors [▶ 13]

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

5.1 Sensors

Overview of the compatible sensors

Designation	Type
electronic Magnetic switch	INS 30/S
Inductive proximity switches	INW 80/S
Inductive proximity switches	INK 120/S
Flexible Position Sensor	FPS

- Exact type designation of the compatible sensors see catalog.
- Information on handling sensors is available at schunk.com or from SCHUNK contact persons.

6 Technical Data

Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:7 4 4
Nominal working pressure [bar]	6
Min. pressure [bar] without gripping force maintenance with gripping force maintenance	 2 5
Max. pressure [bar] without gripping force maintenance with gripping force maintenance	 8 6,5
Min. ambient temperature [°C]	-10
Max. ambient temperature [°C]	90
IP rating	41
Noise emission [dB(A)]	≤ 70

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

7 Assembly

7.1 Mechanical connection

Evenness of the mounting surface

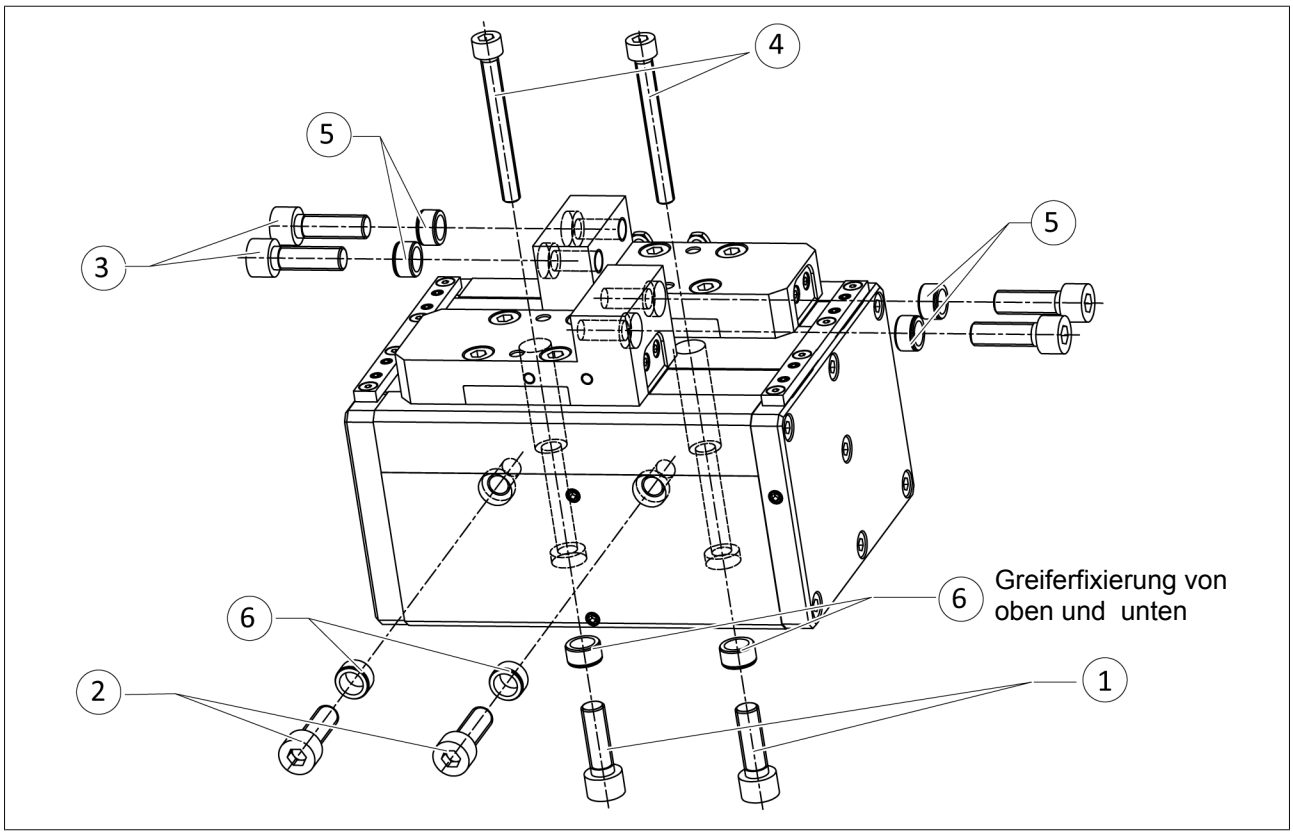
The values apply to the whole mounting surface to which the product is mounted.

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

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

Mounting

The product can be mounted from the bottom or on the side.



Item	Designation	PFH		
		30	40	50
1	Gripper fastening from the bottom Max. screw-in depth [mm]	20 mm	20 mm	20 mm
2	Lateral gripper fastening Max. screw-in depth [mm]	10 mm	14 mm	15 mm
3	Finger fastening Max. screw-in depth [mm]	18 mm	20 mm	25 mm
4	Gripper fastening from the top	-	-	-

The centering sleeves (5/6) which are required for fixing the gripper, are always enclosed in the enclosed pack.

NOTICE

The gripper will be damaged if you exceed the maximum depth of engagement for the mounting screws.

It is mandatory that you observe the maximum depths of engagement for gripper attachment on base side.

7.2 Air connection

NOTICE

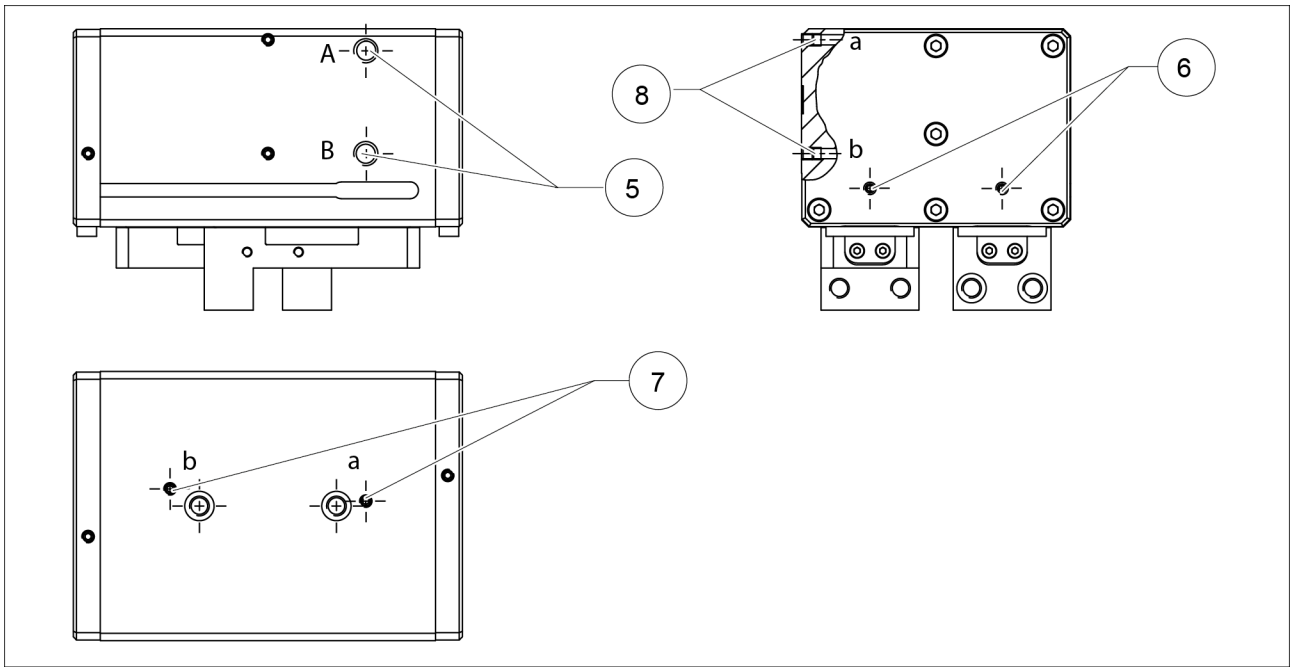
Damage to the gripper is possible!

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 diagrams and information in the catalog data sheet.

NOTE

- Observe the requirements for the compressed air supply, Technical Data [▶ 14].
- 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.



Luftanschlüsse

Thread diameter of the air connections

Item	Connection	PFH 30	PFH 40	PFH 50
5	Hose connection (A = open, B = close)	G 1/8“	G 1/8“	G 1/8“
6	Air purge connection	M5	M5	M5
7	Hose-free direct connection at the base (a = open, b = close)	M5	M5	M5
8	Hose-free direct connection at the side (a = open, b = close)	M5	M5	M5

- Open only the air connections that are needed.
- Close unused main air connections using the screw plugs from the enclosed pack.
- For a hose-free direction connection, use the O-rings from the enclosed pack.

7.3 Mounting the sensor

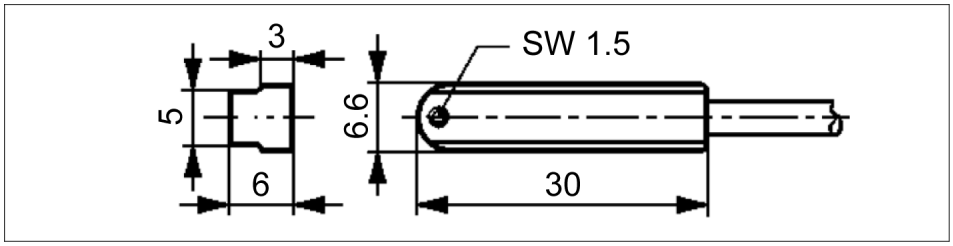
NOTE

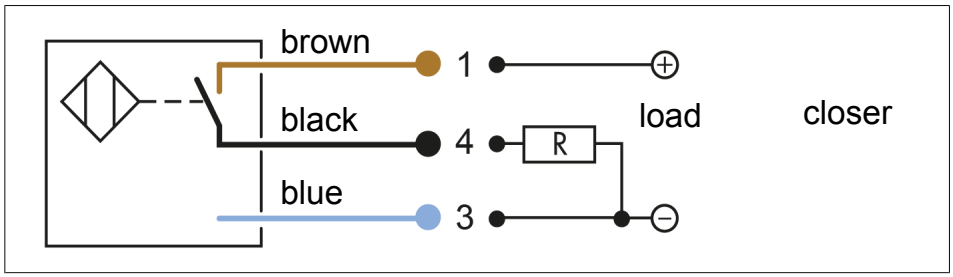
Observe the assembly and operating manual of the sensor for mounting and connecting.

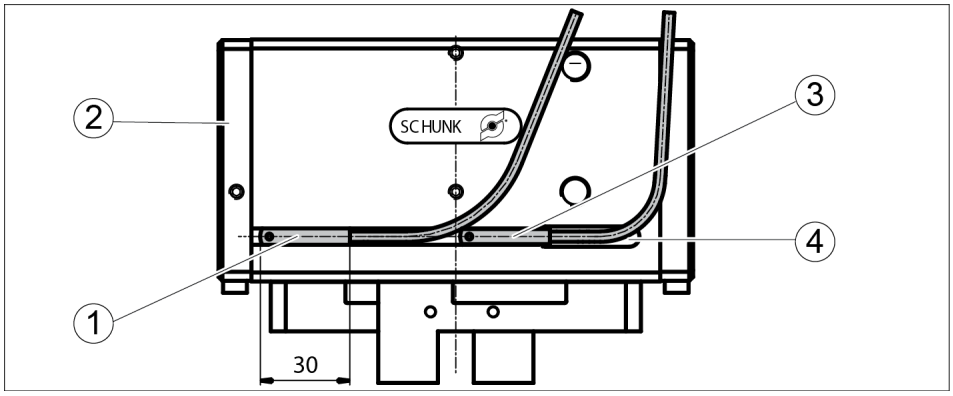
The product is prepared for the use of sensors.

- For the exact type designations of suitable sensors, please see catalog datasheet and Link Übersicht Sensoren.
- 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.

7.3.1 Magnetic switch MMS 30/S







NOTICE

The max. torque for the threaded pins is 30 Ncm.

Gripper open:

- Switch the gripper to the "open" position.
- Slide the magnetic switch 1 (1) through the undercut (4) in the T-Nut, until it contacts the cover plate (2).
- Slide the magnetic switch slowly back again until it switches.
- Fix the magnetic switch in this position, by thightening the setscrew in the T-nut until it jams.
- Control function by closing and opening the gripper.

Gripper closed:

- Switch the gripper onto ”closed“ position.
- Slide the magnetic switch 2 (3) through the undercut (4) in the T-nut, until it contacts its first switching point.
- Fix the magnetic switch in this position, by thightening the setscrew in the T-nut until it jams.
- Control function by opening and closing the gripper.

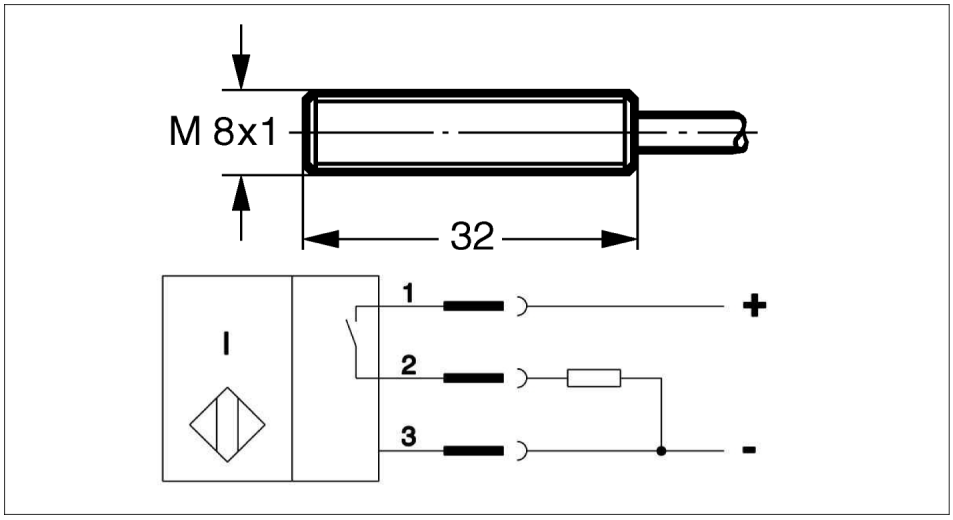
Part gripped (O.D. gripping):

- Clamp the part to be gripped.
- Continue as described under"Gripper closed" from point 2 to 4.

Part gripped (I.D. gripping)

- Clamp the part to be gripped.
- Continue as described under"Gripper open" from point 2 to 4.

7.3.2 Inductive proximity switch INW 80/S



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.

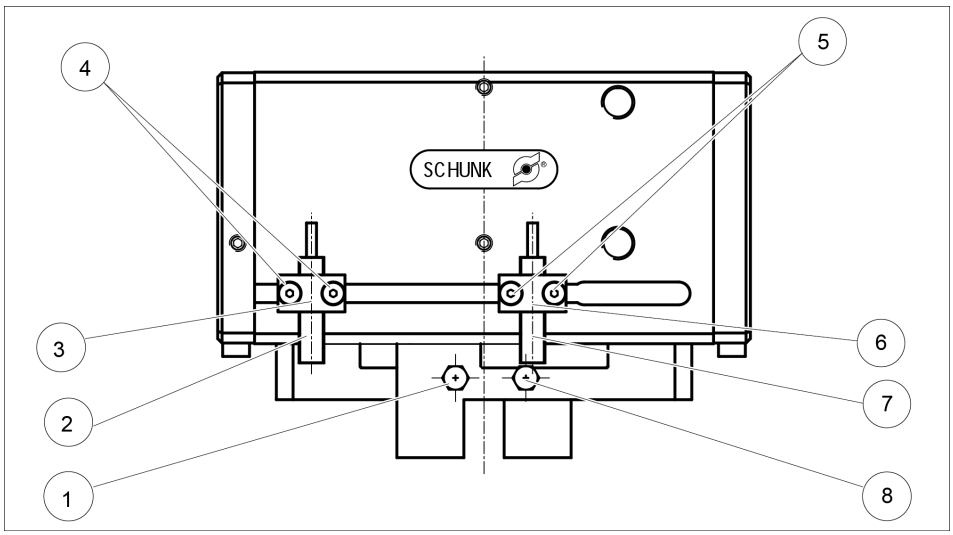
Make sure that you handle the proximity switches properly:

- 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



NOTE

By moving laterally, the sensitivity of the switching point may be adjusted more precise.

Gripper open:

- Switch the gripper into the "open" position.
- Slide the proximity switch (2) carefully into the bracket (3) until the sensing distance between proximity switch and monitoring screw (1) is 0.5 mm.
- Fix the proximity switch in this position by thightening the screws (5).
- Connect the proximity switch and contol function by opening and closing the gripper.

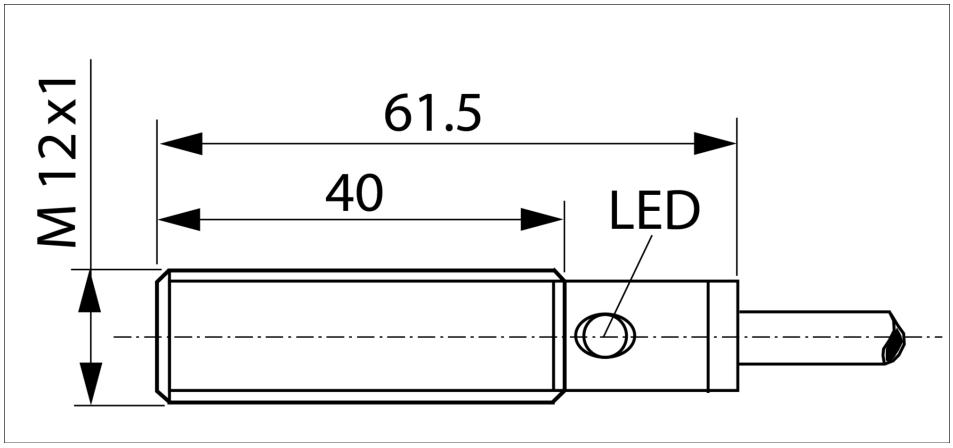
Gripper closed:

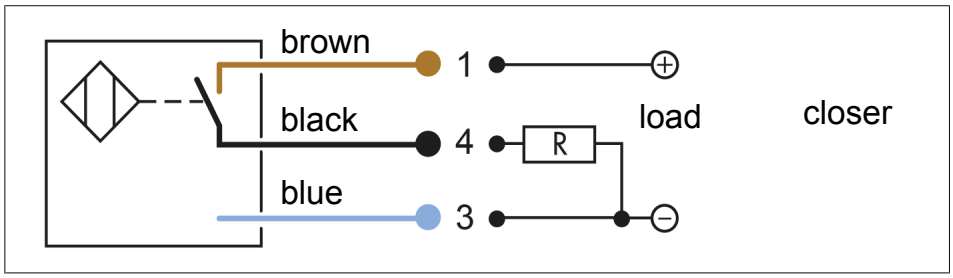
- Switch the gripper into ”closed“ position.
- Slide the proximity switch (7) carefully into the bracket (6) until the sensing distance between proximity switch and monitoring screw (8) is 0.5 mm.
- Fix the proximity switch in this position by thightening the screws (5).
- Connect the proximity switch and contol function by opening and closing the gripper.

Part gripped:

- Mount the proximity switch with a sensing distance of 0,5 mm as previously described.
- Clamp the part to be gripped.
- Loosen the screws (4 or 5) so that the bracket (3 or 6) may be moved together with the proximity switch (2 for I.D.- or 5 for O.D.gripping), until it switches.
- Slide the bracket together with the proximity switch below the monitoring screw (1 for I.D.-, or 6 for O.D.-gripping), until it switches.
- Control function by actuating the gripper and then the workpiece to be gripped, again.

7.3.3 Inductive proximity switch IN 5/S





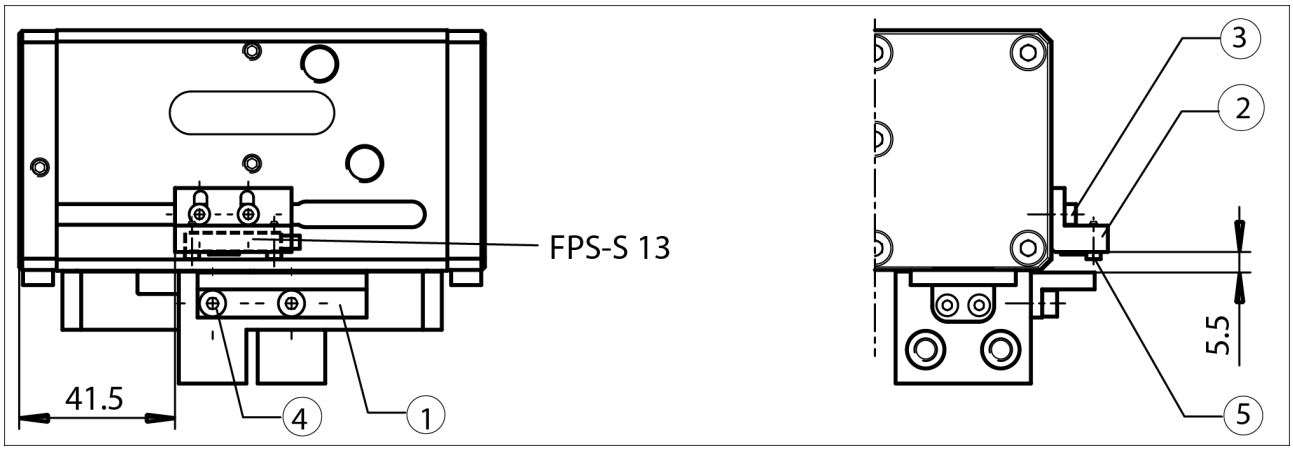
Sensing distance: 2 mm

For being able to use the proximity switch type INK 120/S, the gripper has to be equipped with a special attachment set.This attachment set is also available at SCHUNK.

Attachment set of stroke control with inductive proximity switches INK 120 / S:

Designation	ID number
HG - PFH 30	0300743
HG – PFH 40 / PFH 50	0300744

7.3.4 Flexible Positioning sensor FPS onto the Type PFH 30



1	Switching cam with mounted magnet	2	Bracket
3	Cylinder crews M3 x 8	4	Cylinder crews M4 x 6
5	Cylinder crews M2 x 8		

Type	ID number
AS – PFH 30	0301733

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

Assembly and adjustment of the sensor FPS: See separate operating manual.

8 Troubleshooting

8.1 Modul does not move?

Possible cause	Corrective action
Base jaws jam in housing, e.g. mounting surface is not sufficiently even.	Check the evenness of the mounting surface. Mechanical connection [▶ 15] Loosen the mounting screws of the product and actuate the product again.
Pressure drops below minimum.	Check air supply. Air connection [▶ 16]
Compressed air lines switched.	Check compressed air lines.
Proximity switch defective or set incorrect.	Readjust or change sensor.
Unused air connections open.	Close unused air connections.
Component part defective.	Replace component or send it to SCHUNK for repair.

8.2 The module does not travel through the entire stroke?

Possible cause	Corrective action
Dirt deposits between basic jaws and guidance.	Disassemble and clean the product.
Pressure drops below minimum.	Check air supply. Air connection [▶ 16]
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface. Mechanical connection [▶ 15]

8.3 Module opens or closes abruptly?

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product. Maintenance [▶ 26]
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface.

8.4 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. Maintenance [▶ 26]
Pressure drops below minimum.	Check air supply. Link Pneumatischer Anschluss
Component part defective.	Replace component or send it to SCHUNK for repair.

8.5 Module 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. If, despite optimum air connections, the opening and closing times specified in the catalogue are not achieved, SCHUNK recommends the use of quick-air-vent-valves directly at the product.

9 Maintenance

9.1 Notes

Original spare parts

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

9.2 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.

Size	30 - 50
Interval [Mio. cycles]	2

9.3 Lubricants/Lubrication points (basic lubrication)

SCHUNK recommends the lubricants listed.

During maintenance, treat all greased areas with lubricant. Thinly apply lubricant with a lint-free cloth.

Lubricant point	Lubricant
Metallic sliding surfaces	microGLEIT GP 360
All seals	Renolit HLT 2
Bore hole at the piston	Renolit HLT 2

9.4 Disassembly of the module

9.4.1 Version without gripping force maintenance device

Position of the item numbers Assembly drawing [▶ 33]

- Remove all air feedings.
- Unscrew the screws (29). Draw off the guiding strip (3) together with the cyl. pins (44) now.
- Remove the cyl. pins (44), the screws (35) and the strip (13) out of the guiding strip (3).
- Turn the set-screws (38) back and remove the cover strips (42).
- Remove the screws (32) and take off the cover plate (8).
- Remove all screws (32) and take the piston (4) out of the housing.
- After removal of the screws (46) take out the drivers (7), the piston rod (5) and the assembly group consisting of the toothed rod (2), intermediate piece (12) and the pressure strip (18) out of the housing (1).
- Remove the type lables by means of a screw driver or any similar auxilliary.
- Draw back the set-screws (9) back by 3 mm and take the sleeves (6) out of the housing (1).

✓ The gripper can be maintained now Servicing the module [▶ 30].

9.4.2 Version with gripping force maintenance device for O.D. gripping

Position of the item numbers Assembly drawing [▶ 33]

- Remove all air feedings.
- Unscrew the screws (29). Draw off the guiding strip (3) together with the cyl. pins (44) now.
- Remove the cyl. pins (44), the screws (35) and the strip (13) out of the guiding strip (3).
- Turn the set-screws (38) back and remove the cover strips (42).

⚠ WARNING

Risk of injury due to spring forces.

In case of version for O.D. gripping the cover plates (8) are spring-tensioned (F 210 N).

Carefully disassemble the module.

- Remove the screws (32) except for the 4 pieces at the edges of the cover plates (8). Clamp the gripper between the cover plates, in a way onto the vice, so that the remaining screws (32) can be also removed. Next, carefully unclamp the springs.
- Remove the springs (43).
- Remove the screws (31) and take the piston (4) out of the housing (1).
- After removal of the screws (46) take out the drivers (7), piston rods (5) and the assembly groups consisting of toothed rod (2), intermediate piece (12) and the pressure strip (18) from the housing (1).
- Remove the type lable by means of a screw driver or any similary auxilliary.
- Turn back the set-screws (39) 3 mm back and take out the bushing (6) from the housing (1).

✓ The gripper can be maintained nowServicing the module [▶ 30].

9.4.3 Version with gripping force maintenance device for I.D. gripping

- Remove all air feedings.
- Unscrew the screws (29). Draw off the guiding strip (3) together with the cyl. pins (44) now.
- Remove the cyl. pins (44), the screws (35) and the strip (13) out of the guiding strip (3).
- Turn the set-screws (38) back and remove the cover strips (42).

⚠ WARNING

Risk of injury due to spring forces.

In case of version for O.D. gripping the cover plates (8) are spring-tensioned (F 210 N).

- **Carefully** disassemble the module.

- Remove the screws (32) except for the 4 pieces at the edges of the cover plates (8). Clamp the gripper between the cover plates in a way into the vice, that the remaining 4 screws (32) can also be removed. Then, carefully open the vice.

⚠ WARNING

Risk of injury due to spring forces.

In case of the version for I.D. gripping, the piston (4) is spring-tensioned (F ≤ 210 N).

- **Carefully** disassemble the module.

- Clamp the gripper between the piston (4) and the housing (1) in a way into the vice, that the remaining screws (31) can also be removed. Carefully unclamp the springs.
- Take the piston (4) and the springs (43) out of the housing (1).
- After removal of the screws (46) take out the drivers (7), piston rods (5) and the assembly groups consisting of toothed rod (2), intermediate piece (12) and the pressure strip (18) from the housing (1).
- Remove the type lable by means of a screw driver or any similary auxilliary.
- Turn back the set-screws (39) 3 mm back and take out the bushing (6) from the housing (1).

✓ The gripper can be maintained now Servicing the module [▶ 30].

9.5 Servicing the module

- Clean all parts thoroughly and check for damage and wear.
- Replace all wear parts / seals.
- The seals are in the enclosed sealing kit. Seal kit [▶ 34]
- Treat all greased areas with lubricant.Lubricants/Lubrication points (basic lubrication) [▶ 26]
- Oil or grease bare external steel parts.
- For version PFH 40 with gripping force maintenance for I.D., mount the cylinder piston by using two assembly devices. Mounting devices [▶ 32]

9.6 Assembling the module

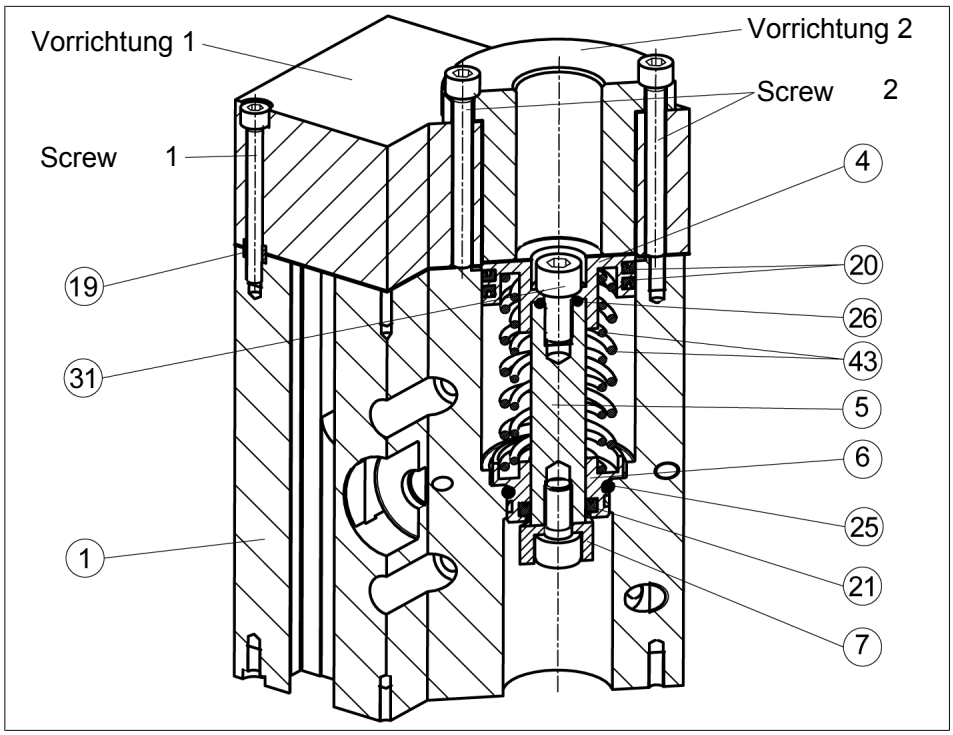
Assembly takes place in the opposite order to disassembly. Observe the following:

- Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque.Tightening torques for screws [▶ 32]

Version PFH 40 I.D. gripping

NOTE

For version PFH 40 with gripping force maintenance for I.D.gripping (Ident.-No.302 042), mount the cylinder piston by using assembly devices.Mounting devices [▶ 32]

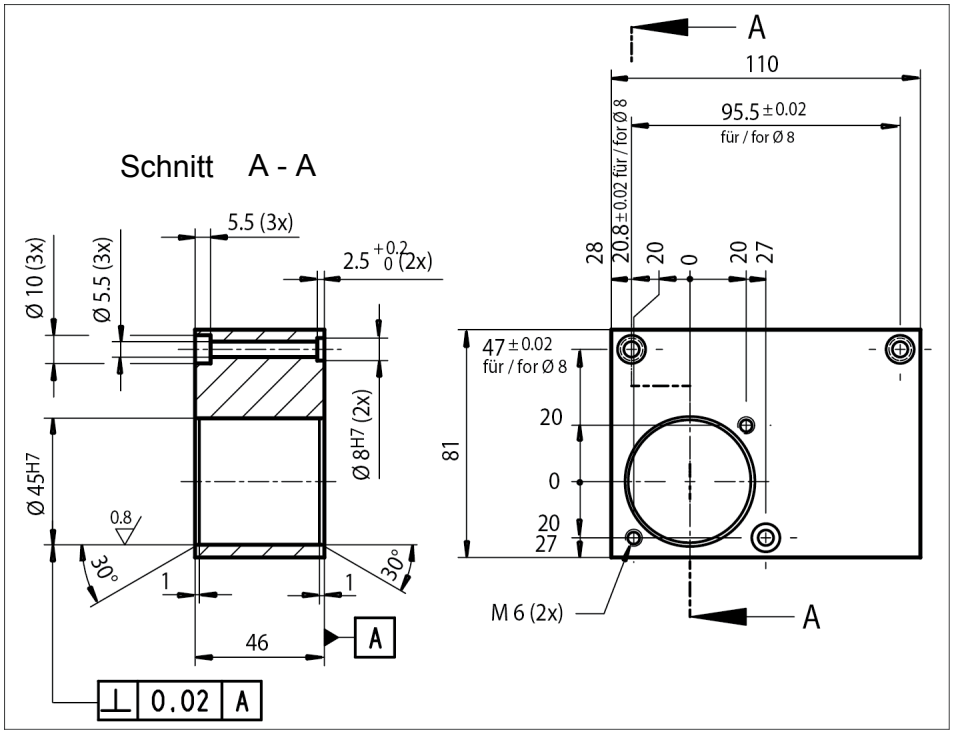


1. Assemble the bushings (6) together with the seals (21 / 25) and fix them with the set-screws (39).
2. Slide the piston rod (5) and the assembly groups, consisting of the toothed rod (2), intermediate piece (12) and the pressure strip (18), into the housing (1) and combine them by mounting the drivers (7).
3. Locate the springs (43) into the provided undercuts of the bushing (7).
4. Insert the centering bushing (19) and mount the device 1 with screw 1 (3 pieces) onto the housing.
5. Locate the O-ring (26) into the undercut of the piston rod (5) and place the piston (4) carefully with the mounted seals (20) into the device's bore, until it contacts the pressure springs (43).
6. Put device 2 onto the piston (4) and screw the two devices with screws 2 evenly.
7. Mount the screw (31) and disassemble the two devices.

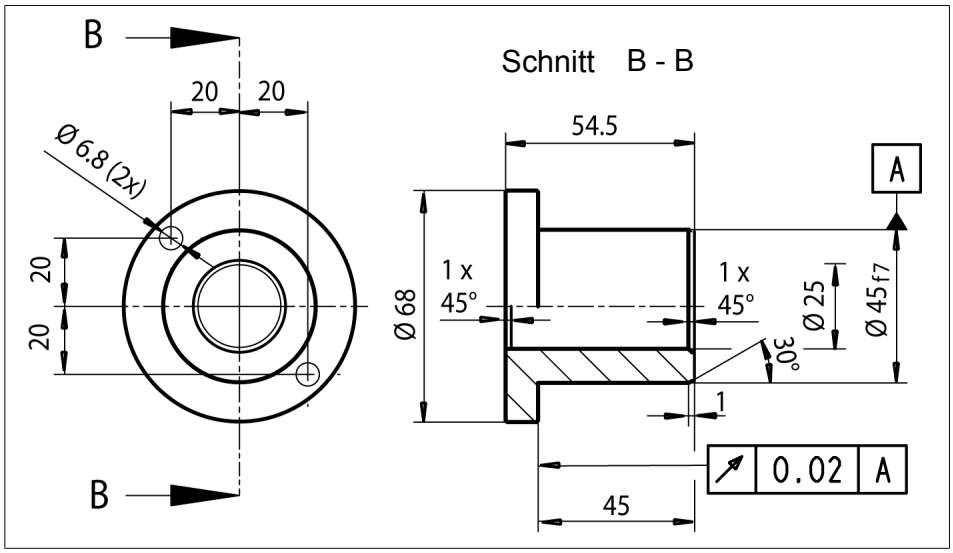
Repeat this procedure from point 3 to 7 for mounting the opposing piston.

Further assembly is done in reverse order as described under "Disassembly of the grippers" Disassembly of the module [▶ 27].

9.6.1 Mounting devices



Device 1



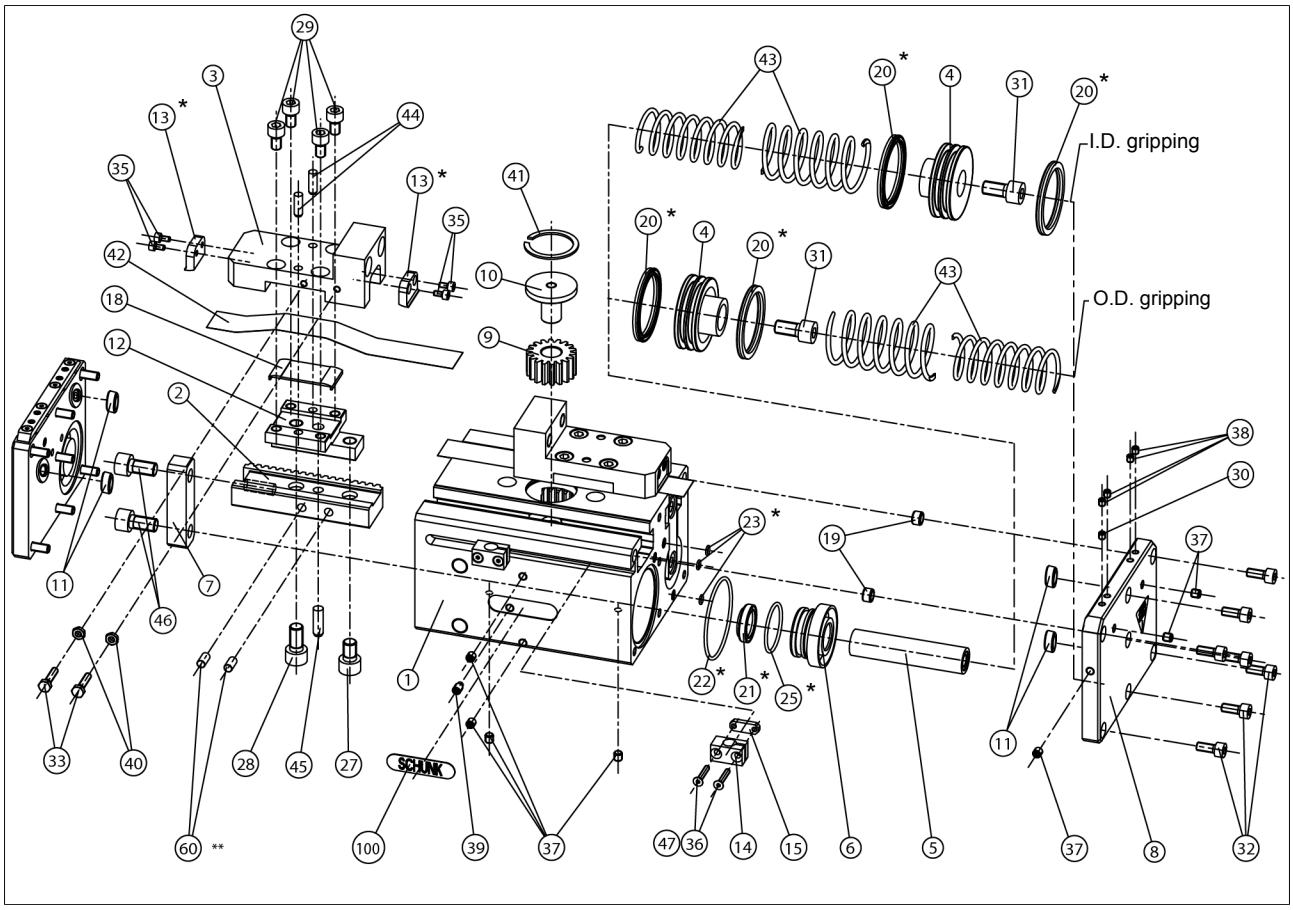
Device 2

9.6.2 Tightening torques for screws

Type	Item 27/28	Item 29	Item 31	Item 32	Item 46
PFH 30 / PFH 30-60	17 Nm	6.1 Nm	17 Nm	6.1 Nm	17 Nm
PFH 40 / PFH 40-80	41 Nm	10.4 Nm	41 Nm	6.1 Nm	41 Nm
PFH 50 / PFH 50-100	83 Nm	25.5 Nm	83 Nm	6.1 Nm	60 Nm

10 Assembly drawing

The following figure is an example image.
It serves for illustration and assignment of the spare parts.
Variations are possible depending on size and variant.



Assembly drawing

*	Wearing part, replace during maintenance. Included in the seal kit. Seal kit can only be ordered completely.
**	not applicable for PFH 30

11 Seal kit

ID.-No. of the seal kit

Seal kit for	ID number
PFH 30	0370759
PFH 40	0370760
PFH 50	0370761

Contents of the sealing kit, Assembly drawing [▶ 33].

12 Accesories kit

Content of the accessory pack:

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

ID.-No. of the accessory pack

Accessory pack for	ID number
PFH 30	5510357
PFH 40	5510358
PFH40 High-temperature (HT)	395510358
PFH 50	5510359
PFH50 High-temperature (HT)	395510359

Content of the accessories pack: Assembly drawing [▶ 33].

13 Translation of original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1.B of the European Parliament and of the Council on machinery.

Manufacturer/ Distributor	SCHUNK GmbH & Co. KG Spann- und Greiftechnik Bahnhofstr. 106 – 134 D-74348 Lauffen/Neckar

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 directive 2006/42/EC of the European Parliament and of the Council on machinery. The declaration is rendered invalid if modifications are made to the product.

Product designation:	2-Finger-Parallel-Gripper / PFH 30-50 /
ID number	0302030 ...0302053

The partly completed machine may not be put into operation until conformity of the machine into which the partly completed machine is to be installed with the provisions of the Machinery Directive (2006/42/EC) is confirmed.

Applied harmonized standards, especially:

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

The manufacturer agrees to forward on demand the relevant technical documentation for the partly completed machinery in electronic form to national authorities.

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

Person authorized to compile the technical documentation:
Robert Leuthner, Address: see manufacturer's address

Signature: see original declaration

Lauffen/Neckar, January 2019

p.p. Ralf Winkler,
Manager for development
of gripping system components

14 Annex to Declaration of Incorporation

according 2006/42/EG, Annex II, No. 1 B

1.Description of the essential health and safety requirements pursuant to 2006/42/EC, Annex I that are applicable and that have been fulfilled with:

Product designation	2-Finger-Parallel-Gripper
Type designation	PFH
ID number	0302030 ...0302053

To be provided by the System Integrator for the overall machine			⇓
Fulfilled for the scope of the partly completed machine		⇓	
Not relevant	⇓		

1.1	**Essential Requirements**			
1.1.1	Definitions		X	
1.1.2	Principles of safety integration		X	
1.1.3	Materials and products		X	
1.1.4	Lighting		X	
1.1.5	Design of machinery to facilitate its handling		X	
1.1.6	Ergonomics		X	
1.1.7	Operating positions			X
1.1.8	Seating			X

1.2	**Control Systems**			
1.2.1	Safety and reliability of control systems		X	
1.2.2	Control devices		X	
1.2.3	Starting		X	
1.2.4	Stopping		X	
1.2.4.1	Normal stop		X	
1.2.4.2	Operational stop		X	
1.2.4.3	Emergency stop		X	
1.2.4.4	Assembly of machinery		X	
1.2.5	Selection of control or operating modes		X	
1.2.6	Failure of the power supply			X

1.3	**Protection against mechanical hazards**			
1.3.1	Risk of loss of stability			X
1.3.2	Risk of break-up during operation			X
1.3.3	Risks due to falling or ejected objects			X
1.3.4	Risks due to surfaces, edges or angles		X	

1.3	Protection against mechanical hazards			
1.3.5	Risks related to combined machinery			X
1.3.6	Risks related to variations in operating conditions			X
1.3.7	Risks related to moving parts		X	
1.3.8	Choice of protection against risks arising from moving parts			X
1.3.8.1	Moving transmission parts		X	
1.3.8.2	Moving parts involved in the process			X
1.3.9	Risks of uncontrolled movements			X

1.4	Required characteristics of guards and protective devices			
1.4.1	General requirements			X
1.4.2	Special requirements for guards			X
1.4.2.1	Fixed guards			X
1.4.2.2	Interlocking movable guards			X
1.4.2.3	Adjustable guards restricting access			X
1.4.3	Special requirements for protective devices			X

1.5	Risks due to other hazards			
1.5.1	Electricity supply		X	
1.5.2	Static electricity		X	
1.5.3	Energy supply other than electricity		X	
1.5.4	Errors of fitting		X	
1.5.5	Extreme temperatures			X
1.5.6	Fire			X
1.5.7	Explosion			X
1.5.8	Noise			X
1.5.9	Vibrations			X
1.5.10	Radiation	X		
1.5.11	External radiation	X		
1.5.12	Laser radiation	X		
1.5.13	Emissions of hazardous materials and substances			X
1.5.14	Risk of being trapped in a machine	X		
1.5.15	Risk of slipping, tripping or falling	X		
1.5.16	Lightning			X

1.6	Maintenance			
1.6.1	Machinery maintenance		X	
1.6.2	Access to operating positions and servicing points		X	
1.6.3	Isolation of energy sources		X	
1.6.4	Operator intervention		X	
1.6.5	Cleaning of internal parts		X	

1.7	Information			
1.7.1	Information and warnings on the machinery		X	
1.7.1.1	Information and information devices		X	
1.7.1.2	Warning devices		X	
1.7.2	Warning of residual risks		X	
1.7.3	Marking of machinery	X		
1.7.4	Instructions	X		
1.7.4.1	General principles for the drafting of instructions	X		
1.7.4.2	Contents of the instructions	X		
1.7.4.3	Sales literature	X		

	The classification from Annex 1 is to be supplemented from here forward.			
2	Supplementary essential health and safety requirements for certain categories of machinery			X
2.1	Foodstuffs machinery and machinery for cosmetics or pharmaceutical products			X
2.2	Portable hand-held and/or guided machinery			X
2.2.1	Portable fixing and other impact machinery			X
2.3	Machinery for working wood and material with similar physical characteristics			X
3	Supplementary essential health and safety requirements to offset hazards due to the mobility of machinery		X	
4	Supplementary essential health and safety requirements to offset hazards due to lifting operations		X	
5	Supplementary essential health and safety requirements for machinery intended for underground work			X
6	Supplementary essential health and safety requirements for machinery presenting particular hazards due to the lifting of persons		X	

Notes