Assembly and Operating Manual
PRG
Pneumatic Radial gripper

Translation of the original manual

Hand in hand for tomorrow

Imprint

Technical changes:
We reserve the right to make technical improvements.

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Dear Customer

Dear Customer,

Thank you for putting your trust in 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. We look forward to your challenging questions. We will find a solution!

Best regards,

Your SCHUNK team

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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 the safe, correct use of the product.

The manual is an integral part of the product and must be kept accessible by personnel at all times.

Personnel must have read and understood this manual before beginning any work. The observance of all safety notes in this manual is the precondition for all safe working.

Besides this manual, other documents which apply are those listed under ▸ 1.1.3 [🗋 6].

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

1.1.1 Illustration of safety notes

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

⚠ DANGER

Danger to individuals!

Ignoring a safety note such as this will certainly lead to irreversible injury and even death.

⚠ WARNING

Danger to individuals!

Ignoring a safety note such as this can lead to irreversible injury and even death.

⚠ CAUTION

Danger to individuals!

Non-observance can cause minor injuries.

NOTICE

Material damage!

Information about avoiding material damage.

1.1.2 Definition of Terms

The term "product" replaces the product name on the title page in this manual.

1.1.3 Applicable documents

- General terms and conditions *
- Catalog data sheet for the purchased product *
- Assembly and operating manuals for accessories *

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

1.1.4 Sizes

This manual applies to the following sizes:

- PRG 26
- PRG 34
- PRG 42
- PRG 52
- PRG 64
- PRG 80
- PRG 100
- PRG 125

1.1.5 Variants

This operating manual applies to the following variations:

- PRG without gripping force maintenance
- PRG with gripping force maintenance "O.D. gripping" (AS)
- PRG high-temperature (V/HT)

1.2 Warranty

If the product is used as intended, the warranty is valid for 24 months from the date of delivery from the production facility under the following conditions:

- Observance of the specified maintenance and lubrication intervals
- Observance of the ambient conditions and operating conditions

Parts touching the workpiece and wearing parts are not part of the warranty.

1.3 Scope of delivery

The scope of delivery includes:

- Pneumatic Radial gripper PRG
-
- Accessory pack

1.3.1 Accessories kit

Contents of the accessory kit:

- Centering sleeves (6x)
- from size 80: Centering sleeves (8x)
- Centering sleeves (8x)
- O-rings (4x)
- Locking screws (2x)

	ID number
26	5517554
26 High-temperature version (HT)	5517555
34	5517556
34 High-temperature version (HT)	5517557
42	5517558
42 High-temperature version (HT)	5517559
52	5517560
52 High-temperature version (HT)	5517561

	ID number
64	5517562
64 High-temperature version (HT)	5517563
80	5517564
80 High-temperature version (HT)	5517565
100	5517566
100 High-temperature version (HT)	5517567
125	5517568
125 High-temperature version (HT)	5517569

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

1.4 Accessories

A wide range of accessories is 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

Size	ID number
26	5521254
26 High-temperature version (HT)	5521255
34	5521256
34 High-temperature version (HT)	5521257
42	5521258
42 High-temperature version (HT)	5521259
52	5521260
52 High-temperature version (HT)	5521261
64	5521262
64 High-temperature version (HT)	5521263
80	5521264
80 High-temperature version (HT)	5521265
100	5521266
100 High-temperature version (HT)	5521267

Size	ID number
125	5521268
125 High-temperature version (HT)	5521269

Tab.: ID of the spare parts package "Seal kit"

contents of the sealing kit, ▶ 6.7 [🗋 47].

1.4.2 Mounting kit for proximity switch

	Mounting kit for	
	Proximity switch IN 40	Proximity switch IN 80
26	0303621	0304132
34	0303622	0304133
42	030623	0304134
52	0303624	0304135
64	0303625	0304136
80	-	0303626
100	-	0303627
125	-	0303628

Tab.: ID.-No. of the mounting kit

Contents of the mounting kit for proximity switches ▶ 6.7 [🗋 47].

2 Basic safety notes

2.1 Appropriate 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 [🗋 18].
- 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 use that exceeds or differs from the appropriate use is regarded as misuse.

2.2 Structural 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 and 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 gripper finger are sufficient in size for the workpiece.

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 only used within its defined application parameters, ▶ 3 [🗋 18].

2.6 Personnel qualification

Inadequate qualification of personnel

Work on the product by inadequately qualified personnel can lead to serious injuries and considerable material damage.

- Order all work to be performed only by appropriately qualified personnel.
- Personnel must have read and understood the complete manual before beginning any work on the product.
- Observe national accident prevention regulations and the general safety notes.

The following personnel qualifications are required for the various types of work on 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 have been instructed by the user regarding the tasks entrusted to them and the potential dangers of inappropriate behavior.

Manufacturer's service personnel

The manufacturer's service personnel have the specialized training, knowledge, and experience to perform the work entrusted to them and to recognize and avoid potential dangers.

2.7 Personal protective equipment

Use of personal protective equipment

Personal protective equipment serves to protect staff in the event of a danger that 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 manner of working by personnel

An incorrect manner of working can make the product unsafe and risk the danger of serious injuries and considerable material damages.

- 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. Products for special ambient conditions are excluded.
- Rectify malfunctions as soon as they occur.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention, and environmental protection regulations for the application field of the product.

2.9 Transport

Handling during transport

Incorrect handling during transport can make the product unsafe and risk serious injuries and considerable material damage.

- When handling heavy weights, use lifting equipment to lift the product and transport it by appropriate means.
- During transport and handling, secure the product to prevent it from falling.
- Do not walk under 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

Incorrect handling during disposal can make the product unsafe and risks serious injuries and considerable material and environmental harm.

- Follow local regulations on dispatching product components for recycling or orderly 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 can make the product unsafe and pose a risk of serious injuries and considerable material damage.

- Order all work to be performed only by appropriately qualified personnel.
- For all work, secure the product against accidental operation.
- Observe the relevant accident prevention regulations.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

Incorrect lifting of 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.

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

If the system still retains residual energy, serious injuries can be caused while working on 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 through

technical safety measures. The protection 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 commissioning 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 can trigger a shock reaction which may lead to injuries.

- The operator must ensure that all components and assembly groups are included in the local equipotential bonding in line with the applicable regulations.
- The equipotential bonding must be implemented by a specialist electrician in line with the applicable regulations while paying particular attention to the actual conditions in the working environment.
- The effectiveness of the equipotential bonding must be verified by 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 suitable protective measures to secure the danger zone.

⚠ WARNING

Risk of injury from sharp edges and corners!

Sharp edges and corners can cause cuts.

- Wear suitable protective equipment.

⚠ WARNING

Risk of injury due to sudden movements!

If the energy supply is switched on or if residual energy is still present in the system, this can cause components to move unexpectedly, which may result in serious injuries.

- Before starting any work on the product: Switch off the energy supply and secure against re-connection.
- Ensure 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!

Products that use spring force or have maintenance of gripping force contain parts that are under spring tension. This can cause components to move unexpectedly when being dismantled, which may result in serious injuries.

- Dismantle the product carefully.
- Ensure 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	2
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

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

Ambient conditions and operating conditions	
Ambient temperature [°C] min.	+5
Ambient temperature [°C] max.	+90
Ambient temperature [°C] max. (variant V/HT)	+130
IP rating*	20
Noise emission [dB(A)]	≤70

* For use in dirty ambient conditions (e.g. sprayed water, vapors, abrasion or processing dust) SCHUNK offers corresponding product options as standard. SCHUNK also offers customized solutions for special applications in dirty ambient conditions.

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

4 Assembly

4.1 Installing and connecting

⚠ WARNING

Risk of injury due to sudden movements!

If the energy supply is switched on or if residual energy is still present in the system, this can cause components to move unexpectedly, which may result in serious injuries.

- Before starting any work on the product: Switch off the energy supply and secure against re-connection.
- Ensure that no residual energy remains in the system.

NOTICE

Damage to the gripper possible!

Exceeding the maximum permissible finger weight or the permissible mass moment of inertia of the fingers can damage the gripper.

- Jaw movement must always be impact- and bounce-free.
- If necessary, provide sufficient throttling and/or damping.
- Observe the information in the catalog data sheet.

NOTE

- Observe the requirements for the compressed air supply, ▸ 3 [🗋 18].
- 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.

1. Check the flatness of the mounting surface, ▸ 4.2.1 [🗋 21].
2. Only open the required air connections (main connection or direct connection), ▸ 4.2.3 [🗋 25].

3. Connect the product via the hose-free direct connection.
   ⇨ Use O-rings from the accessory kit.
   ⇨ Seal main air connections which are not required with locking screws.
4. OR: Connect compressed air lines to the main air connections "A" and "B".
   ⇨ Screw in air connections (plug connections).
   OR: Screw on throttle valve in order to be able to perform sufficient throttling and/or damping.
5. Screw the product to the machine/system, ▸ 4.2.1 [🗋 21].
   ⇨ Use suitable connecting elements (adapter plates) if necessary.
   ⇨ Use centering sleeves from the enclosed accessory kit.
6. Secure the gripper fingers to the base jaws, ▸ 4.2.1 [🗋 21].
   ⇨ Use centering sleeves from the enclosed accessory kit.
7. Connect the sensor, see Sensor Assembly and Operating Manual.
8. Mount the sensor, ▸ 4.3 [🗋 27].

4.2 Connections

4.2.1 Mechanical connection

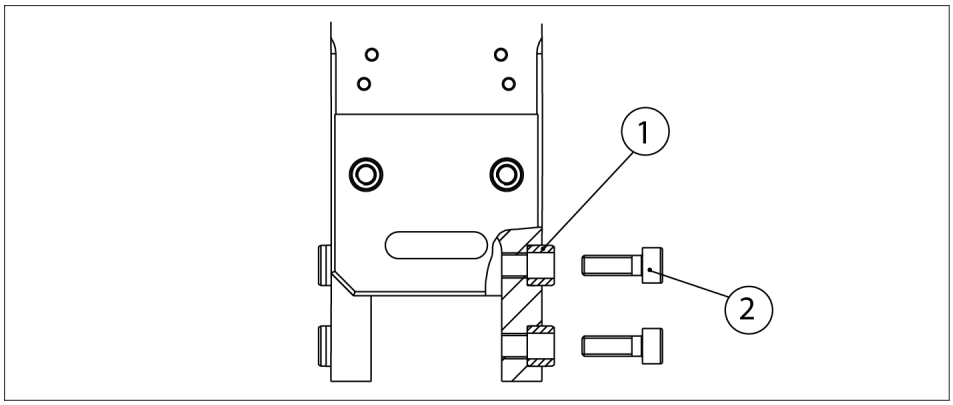
Evenness of the mounting surface

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



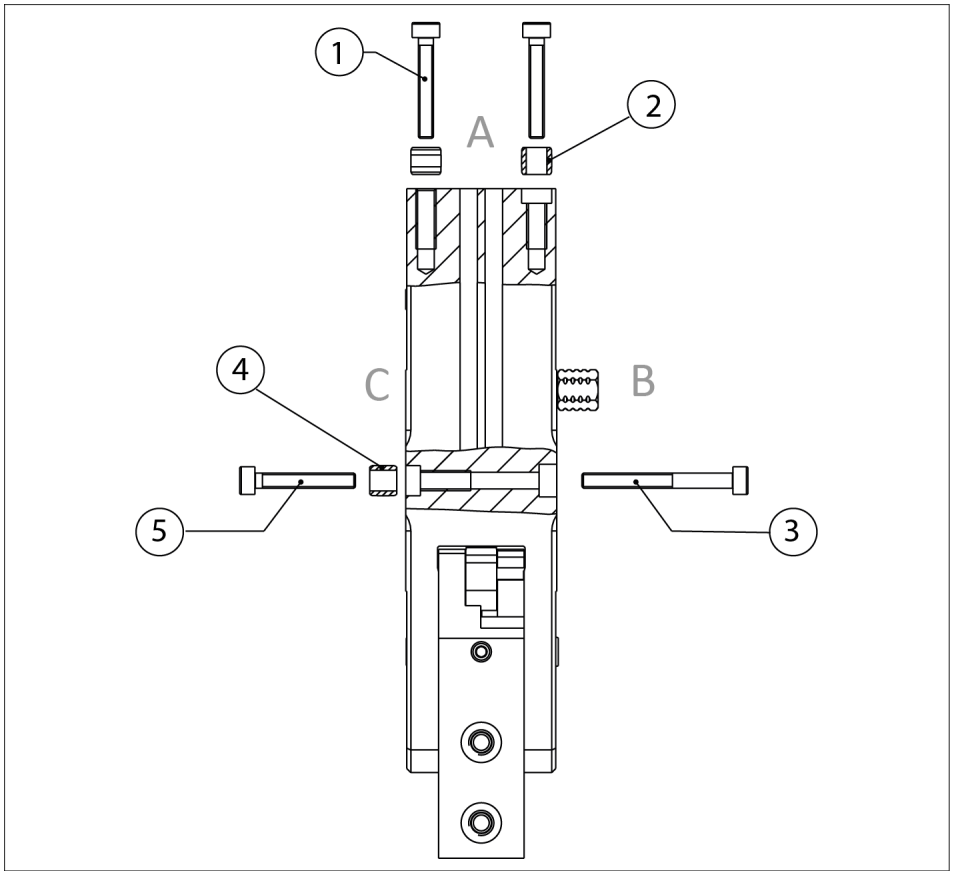
Connections at the base jaws

Size	① Centering sleeve	② *
26	Ø5 x 4.35	M3 / 6
34	Ø6 x 5.35	M4 / 7
42	Ø8 x 5.35	M5 / 8
52	Ø10 x 6.65	M6 /10
64	Ø12 x 6.65	M8 / 13
80	Ø14 x 8.6	M10 16
100	Ø16 x 8.6	M12 / 20
125	Ø22 x 13.6	M16 / 25

** 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

Connection side A

Size	① *	② Centering sleeve **
26	M3 / 7	Ø5 / 4.35
34	M3 / 7	Ø5 / 4.35
42	M4 / 12	Ø6 / 5.35
52	M5 / 12	Ø8 / 5.35
64	M5 / 15	Ø8 / 5.35
80	M6 / 16	Ø10 / 6.65
100	M8 / 20	Ø12 / 6.65
125	M8 / 22	Ø12 / 6.65

* Threads / maximum screw-in depth from stop face [mm]

** Diameter [mm] / height [mm] Contained in accessory pack.

Connection side B

Size	③	④ Centering sleeve *
26	M2.5	Ø5 / 4.35
34	M2.5	Ø5 / 4.35
42	M3	Ø6 / 5.35
52	M4	Ø8 / 5.35
64	M4	Ø8 / 5.35
80	M6	Ø12 / 6.65
100	M6	Ø12 / 6.65
125	M10	Ø16 / 8.6

* Diameter [mm] / height [mm]
Contained in accessory pack.

Connection side C

Size	⑤ *	④ Centering sleeve **
26	M3 / 10	Ø5 / 4.35
34	M3 / 10	Ø5 / 4.35
42	M4 / 12	Ø6 / 5.35
52	M5 / 18	Ø8 / 5.35
64	M5 / 18	Ø8 / 5.35
80	M8 / 20	Ø12 / 6.65
100	M8 / 22	Ø12 / 6.65
125	M12 / 24	Ø16 / 8.6

* Threads / maximum screw-in depth from stop face [mm]

** Diameter [mm] / height [mm]
Contained in accessory pack.

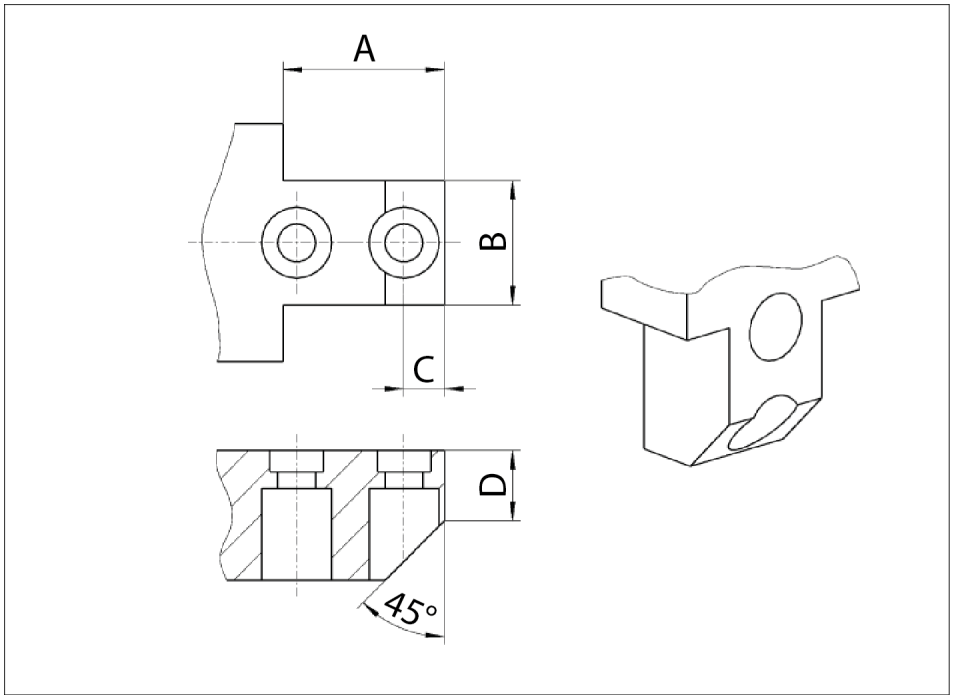
4.2.2 Gripper finger

The gripper fingers can only be mounted from the outside at the base jaws.

NOTICE

Damaging of the gripper, if the gripper fingers collide with the gripper!

In order to avoid a collision between gripper finger and housing, during opening and closing the gripper fingers, the dimensions A to D must be strictly adhered to.



Design example of an gripper finger

Size	A_{min} [mm]	B_{max} [mm]	C_{max} [mm]	D_{max} [mm]
26	10.0	11.5	3.7	6.5
34	11.0	14.0	5.0	9.0
42	14.0	16.5	6.5	12.0
52	16.0	20.5	8.0	14.0
64	24.0	24.5	15.0	18.0
80	16.0	29.5	12.0	18.5
100	20.0	35.5	15.0	22.0
125	30.0	43.5	19.0	27.0

4.2.3 Pneumatic connection

NOTICE

Observe the requirements for the air supply, ▶ 3 [🗋 18].

NOTICE

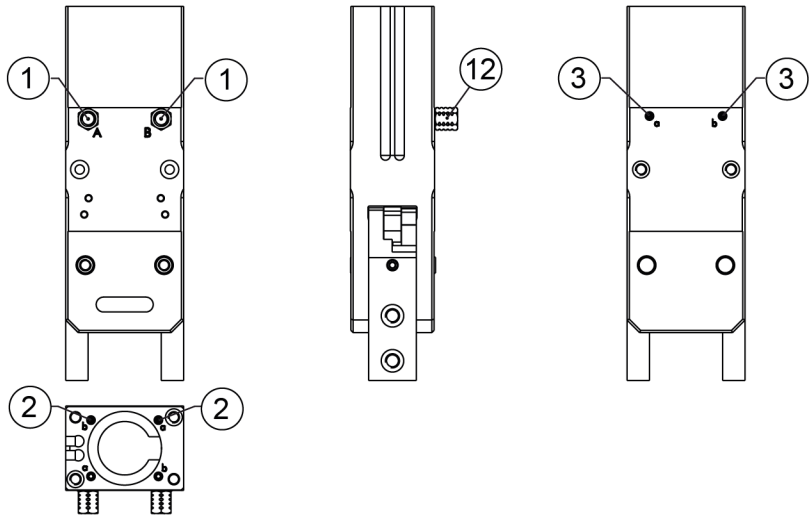
Damage to the gripper possible!

Exceeding the maximum permissible finger weight or the permissible mass moment of inertia of the fingers can damage the gripper.

- Jaw movement must always be impact- and bounce-free.
- If necessary, provide sufficient throttling and/or damping.
- Observe the information in the catalog data sheet.

NOTE

Permanent banjo fittings that have already been pre-assembled must not be removed.



1	Main connections (Hose connection) (A = open, B = close)
2	Hose-free direct connection at the base (a = open, b = close)
3	Hose-free direct connection at the side(a = open, b = close)
12	Banjo fitting

Tab.: Thread diameter of the air connections

Size	① Main connections	② Hose-free direct connection at the base	③ Hose-free direct connection at the side
26	M3 (2x)	M2.5 (2x)	M2.5 (2x)
34	M3 (2x)	M3 (2x)	M3 (2x)
42	M5 (2x)	M3 (2x)	M3 (2x)
52	M5 (2x)	M3 (2x)	M3 (2x)
64	M5 (2x)	M5 (2x)	M5 (2x)
80	G 1/8" (2x)	M3 (2x)	M3 (2x)
100	G 1/8" (2x)	M5 (2x)	M5 (2x)
125	G 1/8" (2x)	M5 (2x)	M5 (2x)

- 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.

In case of exceeding the maximum permissible weight per gripper finger:

- Attach additional throttle screw connections to the module.
- Adjust the opening and closing times depending on the mass moment of inertia of the gripper finger. (See swivel time diagram in the catalog))
- The swivel time can be set optimally by using adjustable throttles.
- Throttle in such a way that the jaw movement is without jerks and bounce.

Throttling is also necessary if the direct connections "a" and "b" are used:

- Attach throttle screw connections (12) to the connections of the adapter plates.
- The direct connections a and b (2) at the bottom are there twice. Only one of them may be pressurized, since otherwise the desired throttling effect is not reached.

4.3 Installing the sensors

NOTE

When mounting and connecting the sensors, observe the Sensor Assembly and Operating Manual.

The product is equipped for the use of sensors.

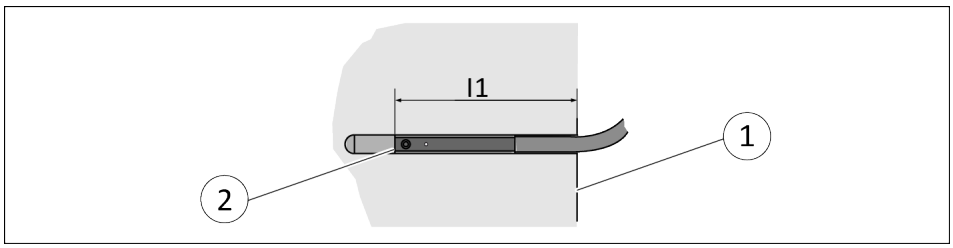
- For the exact type designations of suitable sensors, please see catalog datasheet and ▸ 4.3.1 [🗋 27].
- For technical data for the suitable sensors, see Assembly and Operating Manual and catalog data sheet.
  - The Assembly and Operating Manual and catalog data sheet are included in the scope of delivery for the sensors and are available at schunk.com.
- Information on handling sensors is available at schunk.com or from SCHUNK contact persons.

4.3.1 Overview of sensors

	IN 40	IN 80	MMS 22	RMS 22	RSS R1/ T2	MMS 22-PI1	MMS 22-PI2	MMS-P 22
26	✓	✓	✓	✓	✓	✓	✓	✓
34	✓	✓	✓	✓	✓	✓	✓	✓
42	✓	✓	✓	✓	✓	✓	✓	✓
52	✓	✓	✓	✓	✓	✓	✓	✓
64	✓	✓	✓	✓	✓	✓	✓	✓
80	⊘	✓	✓	⊘	⊘	✓	⊘	⊘
100	⊘	✓	✓	⊘	⊘	✓	⊘	⊘
125	⊘	✓	✓	⊘	⊘	✓	⊘	⊘

- See the catalog for exact type designations of compatible sensors.
-

4.3.2 Setting dimensions for magnetic switches



** Setting dimension l1, from product bottom edge (1) to front sensor (2)*

- Programmable magnetic switch MMS 22-PI1

- Programmable magnetic switch MMS 22-PI2
- Programmable magnetic switch MMS-P 22

Size -	[mm]
26 - 30	22.2
26 - 60	24.1
26 - 90	26.4
34 - 30	23.8
34 - 60	26.3
34 - 90	29.3
42 - 30	26.8
42 - 60	29.9
42 - 90	33.7
52 - 30	30.7
52 - 60	34.8
52 - 90	39.6
64 - 30	34.5
64 - 60	39.4
64 - 90	45.1

NOTE

The magnetic switch MMS 22-PI1 can be adjusted and taught in two ways.

- "Standard mode" allows for quick installation on the T-nut preset by SCHUNK in the groove or the defined setting dimension "l1."
- In "Optimal Mode", the sensor identifies the optimal position in the groove itself.
  SCHUNK recommends "Optimal Mode" for setting the sensors.

Further information on the installation of the sensor, ▸ 4.3.6 [🗋 35]

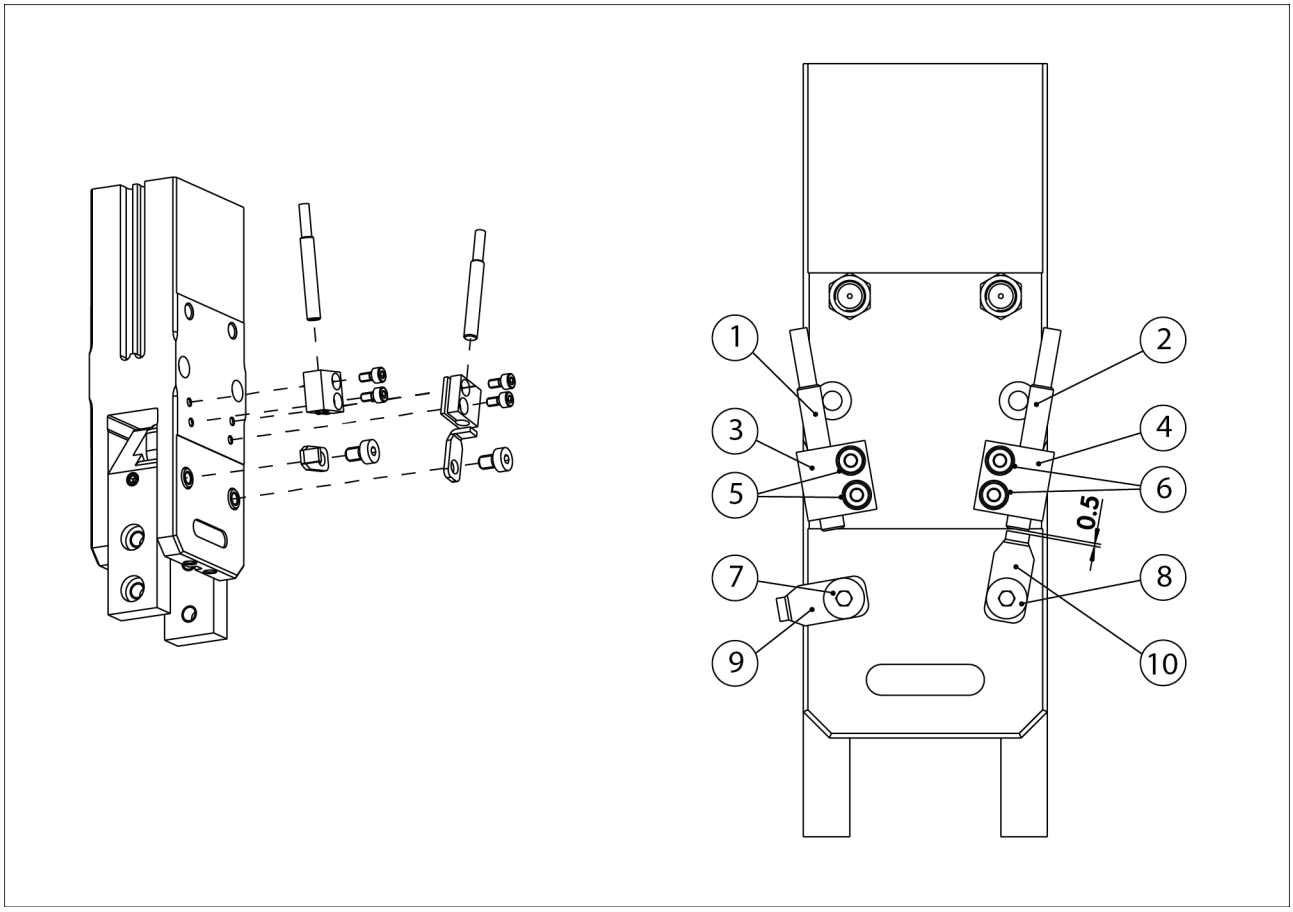
4.3.3 Inductive proximity switch IN 40

NOTE

The sensor can be used only for sizes 26–64

Mounting kit

To use the inductive sensor, the gripper has to be retrofitted with a special mounting kit. This mounting kit is available from SCHUNK for the models below.



Assembly IN 40

Assembly of the mounting kit IN40

1. asten brackets (3/4) with screws (5/6) to the housing.
2. Fasten the switch cams (9/10) with the screws (7/8) to the rotary bolt

Mounting of the proximity switch IN 40

The switching points of the "open" and "closed" positions must be set by the customer himself.

Gripper open:

1. Set the gripper to the „0pen“ position.
2. Carefully push proximity switch (1) into the bracket (3) until it touches the switch cam (9).
3. Pull the proximity switch approx 0.5 mm back.
4. Fasten the proximity switch by tightening the screws (5).
5. Set the gripper to the »0pen« position and test the function.

Gripper closed:

1. Set the gripper to the „Closed“ position.
2. Carefully push proximity switch (2) into the bracket (4) until it touches the switch cam (10).
3. Pull the proximity switch approx 0.5 mm back.
4. Fasten the proximity switch by tightening the screws (6).
5. Set the gripper to the »Closed« position and test the function.

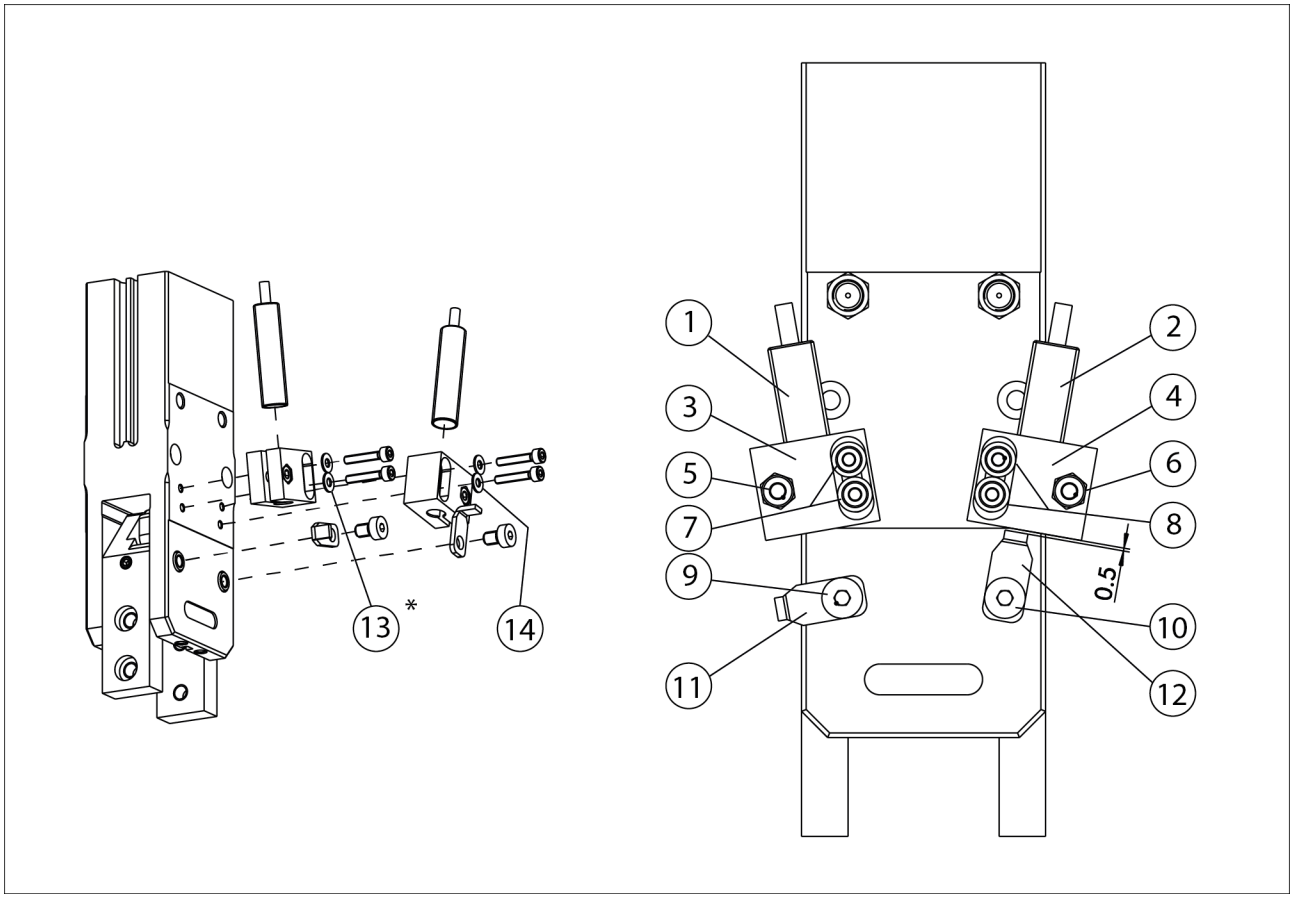
Part gripped (O.D. gripping):

1. Clamp the part to be gripped.
2. Loosen the screw (8).
3. Turn the switch cam (10) so that the lug is parallel to the bracket (4).
4. Fasten the switch cam by tightening the screw (8).
5. Carefully push proximity switch (2) into the bracket (4) until it touches the switch cam (10).
6. Pull the proximity switch approx 0.5 mm back.
7. Fasten the proximity switch by tightening the screws (6).
8. Test the function by opening the gripper and then closing it again.

4.3.4 Inductive proximity switch IN 80

Mounting kit

To use the inductive sensor, the gripper has to be retrofitted with a special mounting kit. This mounting kit is available from SCHUNK for the models below.



Assembly IN 80

Assembly of the mounting kit IN80 – PRG 26 to 64

1. Attach the screw and the nut (5/6) on the bracket (3/4).
2. Fasten brackets (3/4) with screws (7/8) and washers (13/14) to the housing.
3. Push the brackets down as far as pos sible (away from the rotary bolt).
4. Fasten the switch cams (11/12) with the screws (9/10) to the rotary bolt.

Assembly of the mounting kit IN80 – PRG 80 to 125

1. Attach the screw and the nut (5/6) on the bracket (3/4).
2. Fasten brackets (3/4) with the screws (7/8) to the housing.
3. Push the brackets down as far as possible (away from the rotary bolt).
4. Fasten the switch cams (11/12) with the screws (9/10) to the rotary bolt.

Mounting of the proximity switch IN 80

The switching points of the "open" and "closed" positions must be set by the customer himself.

Gripper open:

1. Set the gripper to the „Open“ position.
2. Push the proximity switch (1) to the stop of the bracket (3).
3. Fasten the proximity switch by tightening the screws (5) in the bracket.
4. Undo screws (7) and carefully push bracket 1 (3) to the switch cam until it touches the switch cam (11).
5. Pull the bracket approx 0.5 mm back.
6. Fasten the bracket by tightening the screw (7).
7. Set the gripper to the »Open« position and test the function.

Gripper closed:

1. Set the gripper to the „Closed“ position.
2. Push the proximity switch (2) to the stop of the bracket (4).
3. Fasten the proximity switch by tightening the screws (6) in the bracket.
4. Undo screws (8) and carefully push bracket (4) to the switch cam until it touches the switch cam (12).
5. Pull the bracket approx 0.5 mm back.
6. Fasten the bracket by tightening the screw (8).
7. Set the gripper to the »Closed« position and test the function.

Part gripped (O.D. gripping):

1. Clamp the part to be gripped.
2. Loosen the screw (9).
3. Turn the switch cam (11) so that the lug is parallel to the bracket (3).
4. Fasten the switch cam by tightening the screw (9).
5. Push the proximity switch (2) to the stop of the bracket (4)
6. Fasten the proximity switch by tightening the screws (6) in the bracket.
7. Undo screws (8) and carefully push bracket (4) to the switch cam until it touches the switch cam (12).
8. Pull the bracket approx 0.5 mm back.
9. Fasten the bracket by tightening the screw (8).
10. Test the function by opening the gripper and then closing it again.

4.3.5 Magnetic switch MMS 22 / RMS 22

NOTE

The sensor RMS 22 can be used only for sizes 26–64

NOTICE

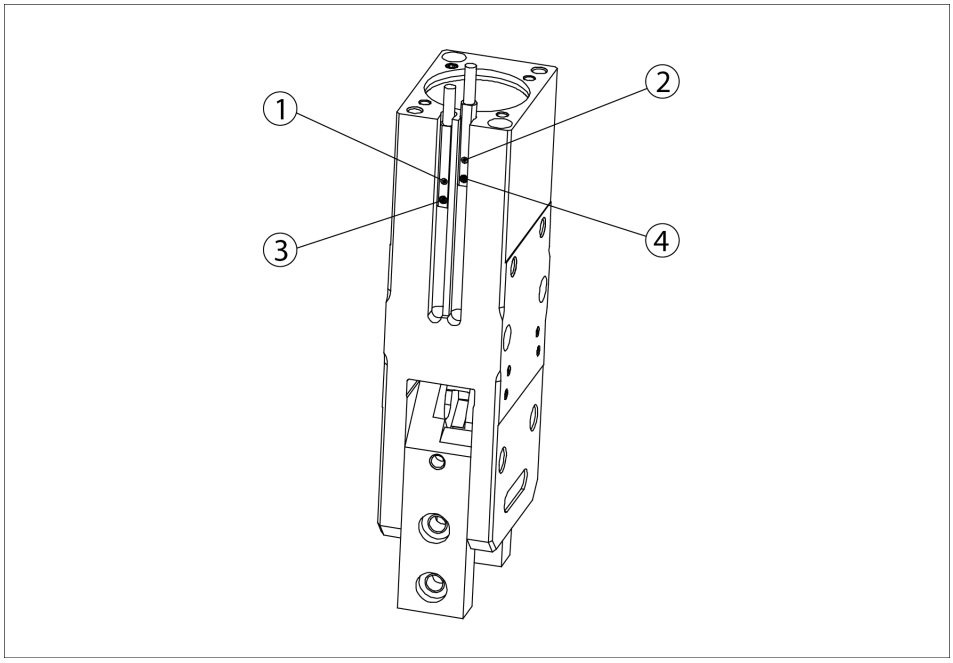
Material damage due to an incorrect tightening torque!

If the threaded pin is tightened with an incorrect tightening torque, the product may be damaged.

- Observe a maximum tightening torque of 10 Ncm for the set-screws.

The RMS sensors have a larger hysteresis than the MMS sensors. This means that short gripper strokes may not be able to be monitored with the RMS sensors.

Positioning the magnetic switch



Positioning of the magnetic switches

Gripper open:

1. Set the gripper to the „Open“ position.
2. Slide the magnetic switch 1 (1) into the groove (4) until it comes into contact with the housing.
3. Slide the magnetic switch 1 (1) slowly back until it switches.
4. By tightening the set screw (3), fix the magnetic switch 1 (1) in this position in the groove (4).
5. Test the function by closing the gripper and then opening it again.

Gripper closed:

1. Set the gripper to the „Closed“ position.
2. Slide the magnetic switch 2 (2) into the groove (4) in the direction of the center of the gripper until it switches.
3. By tightening the set screw (3), fix the magnetic switch 2 (2) in this position in the groove (4).
4. Test the function by opening the gripper and then closing it again.

Part gripped (O.D. gripping):

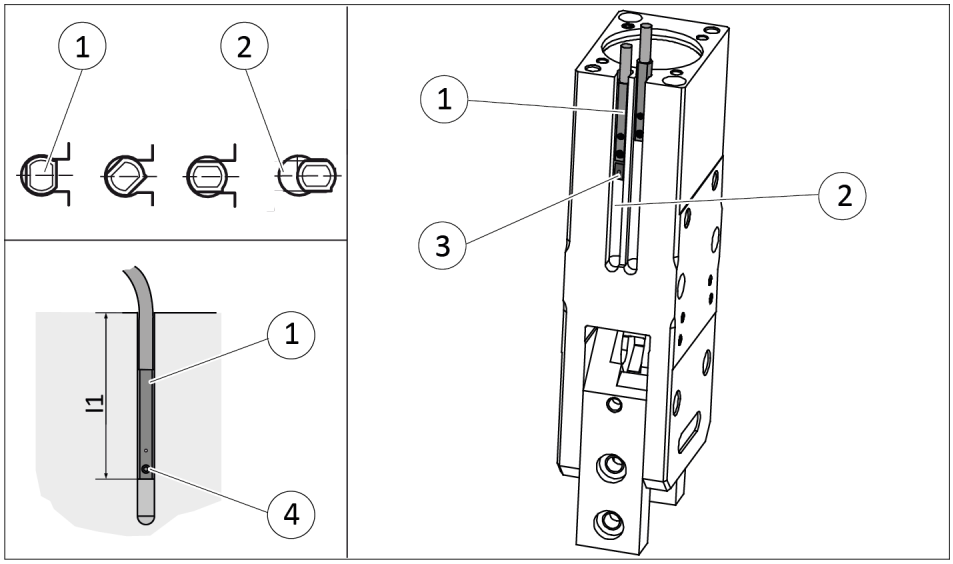
1. Clamp the part to be gripped.
2. Slide the magnetic switch 2 (2) into the groove (4) in the direction of the center of the gripper until it switches.
3. By tightening the set screw (3), fix the magnetic switch 2 (2) in this position in the groove (4).
4. Test the function by opening the gripper and then closing it again.

4.3.6 Mounting MMS 22-PI1 programmable magnetic switch

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximum tightening torque.



NOTE

The magnetic switch MMS 22-PI1 can be adjusted and taught in two ways.

- "Standard mode" allows for quick installation on the T-nut preset by SCHUNK in the groove or the defined setting dimension "l1."
- In "Optimal Mode", the sensor identifies the optimal position in the groove itself.
  SCHUNK recommends "Optimal Mode" for setting the sensors.

Setting the sensor in "Optimum mode" operating mode

1. Put product in the position in which it is to be set.
2. Hold teaching tool to the sensor 1 (1) until the sensor flashes.
3. Slide sensor 1 (1) into the groove (2), until the sensor 1 flashes rapidly.
   ⇨ The optimum position is displayed.
4. Secure the sensor 1 (1) using the set-screw (3).
   Tightening torque: 10 Ncm
5. Hold teaching tool to the sensor 1 (1) to confirm the position.
   ⇨ The sensor 1 (1) has been taught in.
6. Repeat steps for sensor 2.

Alternative for size 26 – 64, Set sensor in "Standard mode" operating mode

1. Turn sensor 1 (1) into the groove (2).
   OR: Slide the sensor 1 (1) into the groove (2) until the sensor 1 (1) stops at the T-nut (3).
2. Secure the sensor 1 (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor 1 (1), see Sensor Assembly and Operating Manual.
4. Repeat steps for sensor 2.

NOTE

If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ▸ 4.3.2 [🗋 27].

4.3.7 Mounting programmable MMS 22-PI2 magnetic switch

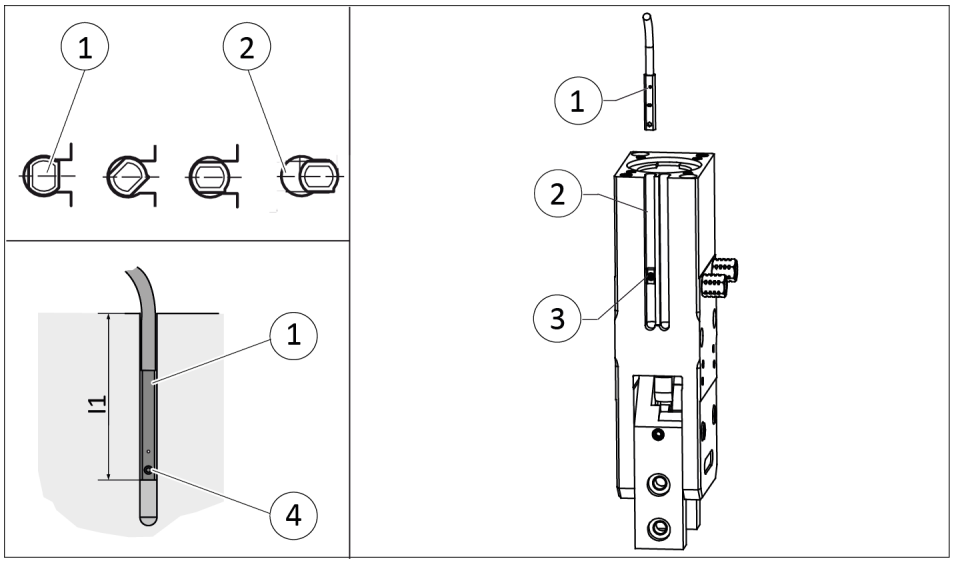
NOTE

The sensor can be used only for sizes 26–64

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximum tightening torque.



NOTE

If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ▸ 4.3.2 [🗋 27].

1. Turn the sensor (1) into the groove (2).
   OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Secure the sensor (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor (1), see Translation of Sensor Assembly and Operating Manual.

4.3.8 Programmable magnetic switch (MMS-P)

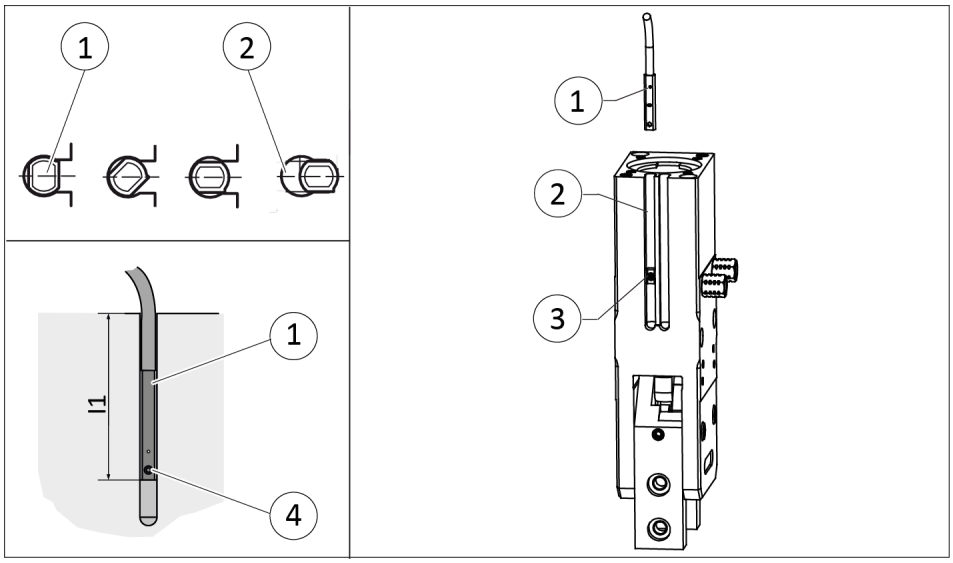
NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximum tightening torque.

NOTE

The sensor can be used only for sizes 26–64



1. Turn the sensor (1) into the groove (2).
   OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Secure the sensor (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor (1), see Translation of Sensor Assembly and Operating Manual.

5 Troubleshooting

5.1 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. ▶ 4.2.1 [🗋 21]
	Loosen the mounting screws of the product and actuate the product again.
Pressure drops below minimum.	Check air supply. ▶ 4.2.3 [🗋 25]
Compressed air lines switched.	Check compressed air lines. ▶ 4.2.3 [🗋 25]
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.

5.2 Product does not travel the entire stroke

Possible cause	Corrective action
Dirt deposits between cover and piston.	Clean and if necessary re-lubricate. ▶ 6 [🗋 41]
Pressure drops below minimum.	Check air supply., ▶ 4.2.3 [🗋 25]
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface. ▶ 4.2.1 [🗋 21]
Component part defective.	Send product with a SCHUNK repair order or dismantle product.

5.3 Product opens or closes abruptly

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product. ▶ 6 [🗋 41]
Compressed air lines blocked.	Check compressed air lines of damage.
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface.
Loading too large.	Check permissible weight and length of the gripper fingers. ▶ 4.2.1 [🗋 21]

5.4 Product opens with heavy impacts in the end position

Possible cause	Corrective action
Mass moment of inertia of the top jaw too great.	Use lighter gripper finger and attach the flow control couplings.

5.5 Gripping force gets weaker

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 [🗋 18]
Component part defective.	Replace component or send it to SCHUNK for repair.

5.6 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.

6 Maintenance

6.1 Notes

Original spare parts

Only use original SCHUNK spare parts when replacing wearing parts / spare 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.

6.2 Maintenance interval

NOTICE

Material damage due to hardened lubricants!

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

- Reduce maintenance interval accordingly.

Interval [Mio. cycles]	2

6.3 Lubricants/Lubrication points

During maintenance, treat all greasing areas with lubricant. Apply a thin film of lubricant using a lint-free cloth.

SCHUNK recommends the listed lubricants.

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

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.

6.4 Disassembly of PRG 26 – 64

6.4.1 Version without gripping force maintenance

Position of the item numbers▸ 6.7 [🗋 47]

⚠ WARNING

Risk of injury due to sudden movements!

If the energy supply is switched on or if residual energy is still present in the system, this can cause components to move unexpectedly, which may result in serious injuries.

- Before starting any work on the product: Switch off the energy supply and secure against re-connection.
- Ensure that no residual energy remains in the system.

1. Remove the compressed air hoses.
2. Remove circlip (18) for cover (4).
3. Pull the cover (4) out of the housing.
4. Unscrew and remove the screws (6).
5. Pull cylinder piston (5) out of the housing.
6. Loosen set-screw (20) in the base jaws (2x).
7. Remove rotary bolt (6) (2x).
8. Remove base jaws (2) (2x).
9. Pull piston rod (3) out of the housing.

6.4.2 Variant with gripping force maintenance “O.D. gripping”

Position of the item numbers▸ 6.7 [🗋 47]

⚠ WARNING

Risk of injury due to sudden movements!

If the energy supply is switched on or if residual energy is still present in the system, this can cause components to move unexpectedly, which may result in serious injuries.

- Before starting any work on the product: Switch off the energy supply and secure against re-connection.
- Ensure that no residual energy remains in the system.

⚠ WARNING

Risk of injury due to spring forces!

The cylinder piston is under spring tension.

- Carefully disassemble the product.

1. Remove the compressed air hoses.

⚠ WARNING

Risk of injury due to spring forces!

In case of defect, the screws (18) and the cover (4) can be under spring tension.

- **Carefully** disassemble the module.

2. Secure the cover by suitable means.
3. Remove circlip (18) for cover (4).
4. Carefully remove the cover safety.
5. Pull the cover (4) out of the housing.
6. Secure the cylinder piston by suitable means.
7. Unscrew and remove the screws (6).
8. Carefully remove the cylinder piston safety.
9. Pull cylinder piston (5) out of the housing.
10. Loosen set-screw (20) in the base jaws (2x).
11. Remove rotary bolt (6) (2x).
12. Remove base jaws (2) (2x).
13. Pull piston rod (3) out of the housing.

6.5 Disassembly of PRG 80–125

6.5.1 Version without gripping force maintenance

Position of the item numbers▸ 6.7 [🗋 47]

⚠ WARNING

Risk of injury due to sudden movements!

If the energy supply is switched on or if residual energy is still present in the system, this can cause components to move unexpectedly, which may result in serious injuries.

- Before starting any work on the product: Switch off the energy supply and secure against re-connection.
- Ensure that no residual energy remains in the system.

1. Remove the compressed air hoses.
2. Remove screws (18) for cover (4).
3. Remove the cover (4).
4. Unscrew and remove the screws (6).
5. Pull cylinder piston (5) out of the housing.
6. Loosen set-screw (20) in the base jaws (2x).
7. Remove rotary bolt (6) (2x).
8. Remove base jaws (2) (2x).
9. Pull piston rod (3) out of the housing.

6.5.2 Variant with gripping force maintenance “O.D. gripping”

Position of the item numbers▸ 6.7 [🗋 47]

⚠ WARNING

Risk of injury due to sudden movements!

If the energy supply is switched on or if residual energy is still present in the system, this can cause components to move unexpectedly, which may result in serious injuries.

- Before starting any work on the product: Switch off the energy supply and secure against re-connection.
- Ensure that no residual energy remains in the system.

⚠ WARNING

Risk of injury due to spring forces!

The cylinder piston is under spring tension.

- Carefully disassemble the product.

1. Remove the compressed air hoses.

⚠ WARNING

Risk of injury due to spring forces!

In case of defect, the screws (18) and the cover (4) can be under spring tension.

- **Carefully** disassemble the module.

2. Secure the cover by suitable means.
3. Remove screws (18) for cover (4) (4x).
4. Carefully remove the cover safety.
5. Pull the cover (4) out of the housing.
6. Secure the cylinder piston by suitable means.
7. Unscrew and remove the screws (6).
8. Carefully remove the cylinder piston safety.
9. Pull cylinder piston (5) out of the housing.
10. Loosen set-screw (20) in the base jaws (2x).
11. Remove rotary bolt (6) (2x).

6.6 Servicing and assembling the product

Maintenance

-
- Treat all greasing areas with lubricant.
  ▶ 6.3 [🗋 41]
- Oil or grease bare outside steel parts.
- Replace all wearing parts and seals.
  - Position of the wearing parts ▶ 6.7 [🗋 47]
  - Seal kit ▶ 1.4.1 [🗋 8]

Assembly

Assembly is done in the reverse order of disassembly. In doing so, observe the following:

-

6.6.1 Screw tightening torques

Position of the item numbers ▶ 6.7 [🗋 47]

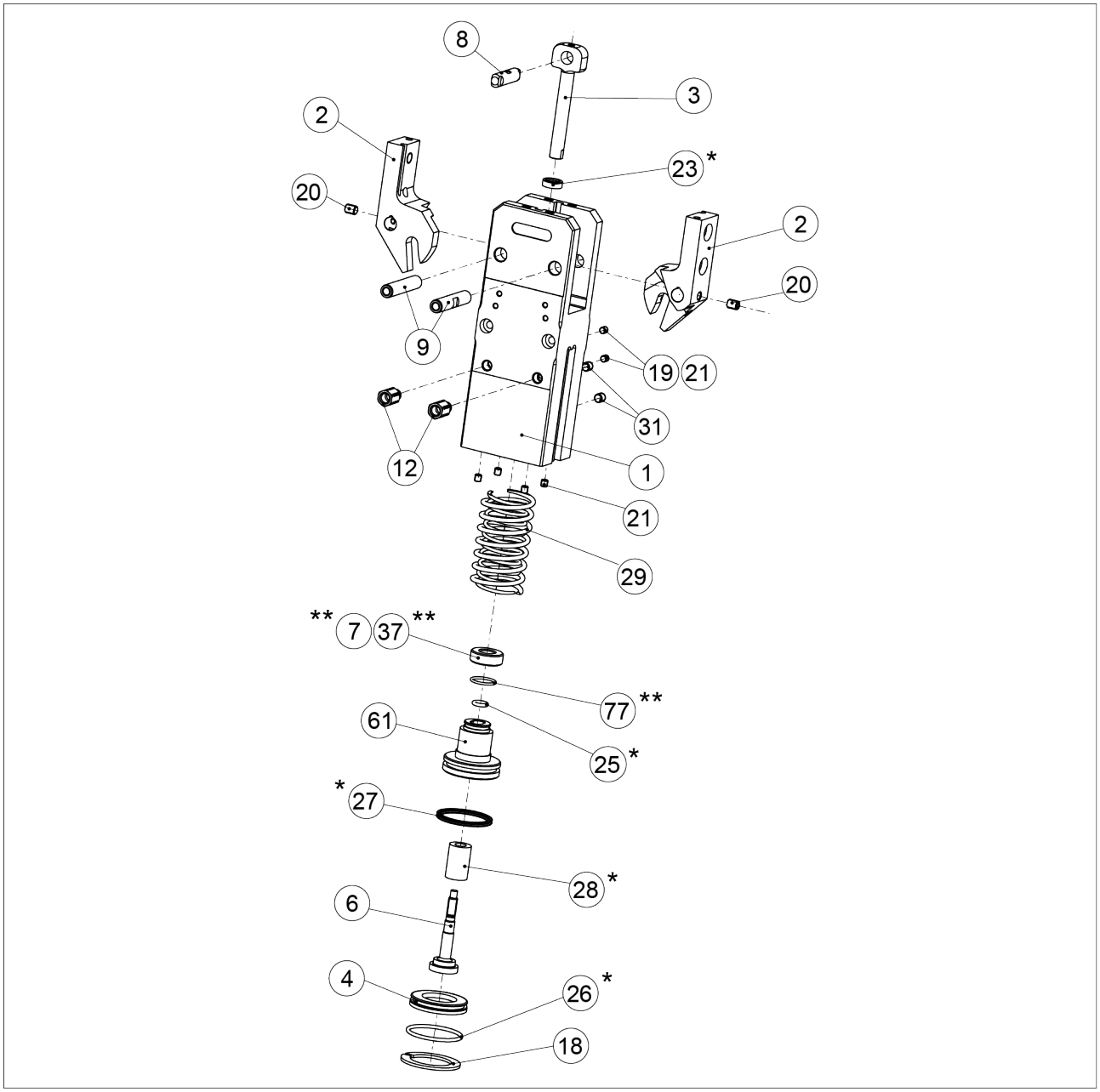
Size	Item 6	Item 18	Item 20
26	1.3	–	0.8
34	1.3	–	0.8
42	3.0	–	2.4
52	5.9	–	7.5
64	1.01	–	7.5
80	10.1	3.0	7.5
100	20.0	6.1	10.0
125	24.6	6.1	25.0

Tab.:

6.7 Drawings

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

6.7.1 Assembly drawing PRG 26-64

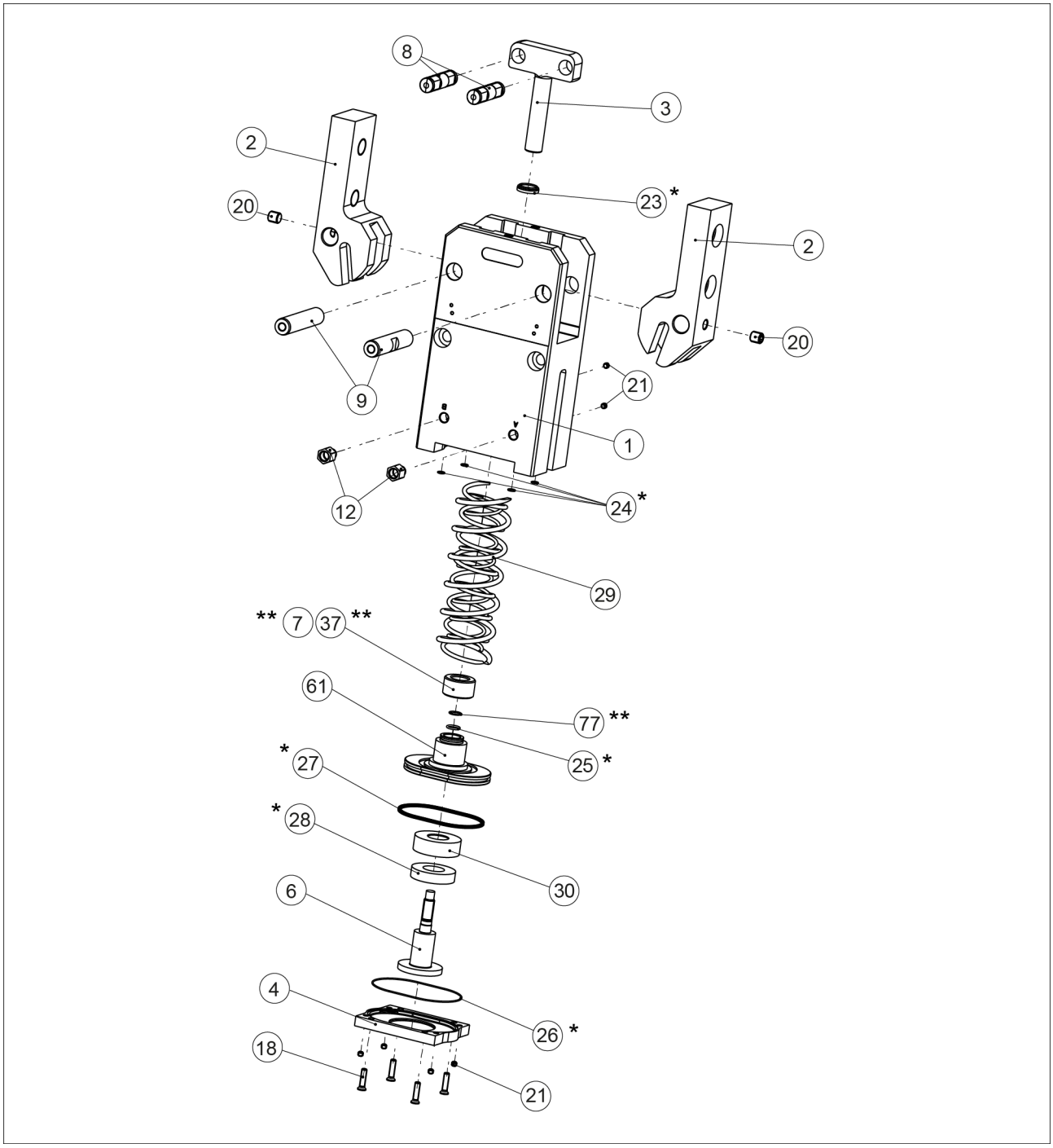


Assembly of the Types O.D.gripping / I.D. gripping / without gripping force maintenance

* Wearing part; replace during maintenance.
Included in the sealing kit. The sealing kit can only be ordered as a compete kit.

** Only for units with 30° or 60° opening angle

6.7.2 Assembly drawing PRG 80–125



Assembly of the Types O.D.gripping / I.D. gripping / without gripping force maintenance

* Wearing part; replace during maintenance.
Included in the sealing kit. The sealing kit can only be ordered as a compete kit.

** Only for units with 30° or 60° opening angle

7 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:	Pneumatic Radial gripper / PRG /pneumatic
ID number	0303651 ... 0303658, 0303661 ... 0303668, 0303671 ... 0303678, 0303681 ... 0303688, 0303691 ... 0303698, 0303701 ... 0303708, 39303651 ... 39303658, 39303661 ... 39303668, 39303671 ... 39303678, 39303681 ... 39303688, 39303691 ... 39303698, 39303701 ... 39303708

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 WalterAddress: refer to manufacturer's address

Signature: see original declaration

Lauffen/Neckar, April 2024

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

8 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 Radial gripper / PRG / pneumatic
ID number	0303651 ... 0303658, 0303661 ... 0303668, 0303671 ... 0303678, 0303681 ... 0303688, 0303691 ... 0303698, 0303701 ... 0303708, 39303651 ... 39303658, 39303661 ... 39303668, 39303671 ... 39303678, 39303681 ... 39303688, 39303691 ... 39303698, 39303701 ... 39303708

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, April 2024

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

9 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, April 2024

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

SCHUNK SE & Co. KG
Spanntechnik | Greiftechnik | Automatisierungstechnik

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