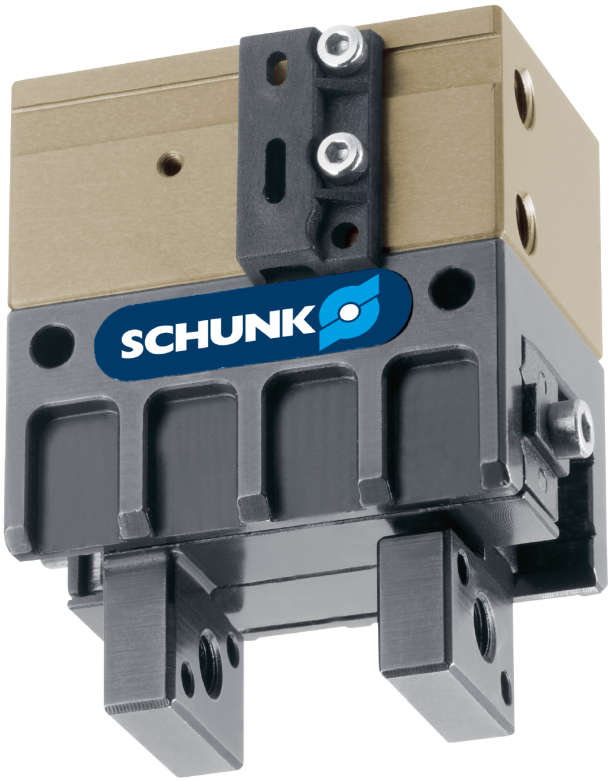
Assembly and operating manual MPG-plus

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

Customer Management

Tel. +49-7133-103-2503
Fax +49-7133-103-2189

cmg@de.schunk.com

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

Table of Contents

1 General

1.1 About this manual

This manual contains important information for a safe and appropriate use of the product.

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

Before starting work, the personnel must have read and understood this operating manual. Prerequisite for safe working is the observance of all safety instructions in this manual.

In addition to these instructions, the documents listed under ▸ 1.1.2 [🗋 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

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.

1.1.2 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**.

1.1.3 Sizes

This operating manual applies to the following sizes:

- MPG-plus 10
- MPG-plus 12
- MPG-plus 16
- MPG-plus 20
- MPG-plus 25
- MPG-plus 32
- MPG-plus 40
- MPG-plus 50
- MPG-plus 64

1.1.4 Variants

This operating manual applies to the following variations:

- MPG-plus without gripping force maintenance
- MPG-plus with gripping force maintenance "O.D. gripping" (AS)
- MPG-plus with gripping force maintenance "I.D. gripping" (IS)
- MPG-plus high-temperature (V/HT)
- MPG-plus precision (P)
- MPG-plus with protective cover (HUE)

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

- 2-finger parallel gripper MPG-plus in the version ordered
- Assembly and Operating Manual
- Accessory pack

1.3.1 Accessory pack

Content of the accessory pack:

- 2 x centering sleeves for mounting
- 2 x O-rings for hose-free direct connection
- 2 x locking screws for hose connections (not for MPG-plus 16)
- 2 x set-screws (MPG-plus 16 only)

ID.-No. of the accessory pack

Size	ID number		
	MPG-plus	MPG-plus high-temperature (V/HT)	in addition for MPG-plus with protective cover
MPG-plus 10	1382755	-	-
MPG-plus 12	1382763	-	-
MPG-plus 16	5522565	395522565	-
MPG-plus 20	5522566	395522566	-
MPG-plus 25	5510172	1004432	1465771
MPG-plus 32	5510173	-	1465770
MPG-plus 40	5510173	-	1465759
MPG-plus 50 / 64	5510591	-	-

1.4 Accessories

A wide range of accessories are available for this product

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

1.4.1 Sealing kit

ID.-No. of the seal kit

Size	ID number	
	MPG-plus	MPG-plus high-temperature (V/HT)
MPG-plus 10	5516927	-
MPG-plus 12	5516928	-
MPG-plus 16	5522567	-
MPG-plus 20	5522568	-
MPG-plus 25	5520765	5522352
MPG-plus 32	5520766	5522353
MPG-plus 40	5520767	5522354
MPG-plus 50	5520768	5522355
MPG-plus 64	5520769	5522356

Contents of the sealing kit, ▶ 7.6 [🗋 53].

1.4.2 Spare parts packages

Spare parts packages allow for the maintenance and repair of individual components. For information on the range of the spare parts packages, see www.schunk.com > Service.

The following spare parts packages are available for this product:

- Spare part package "Protective cover"

ID. No. spare part kit "Protective cover"

Spare part kit for "Protective cover"	ID number
MPG-plus 25	1466542
MPG-plus 32	1466544
MPG-plus 40	1466546

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 [🗋 17].
- 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

By conversions, changes, and reworking, e.g. additional threads, holes, or safety devices can impair the functioning or safety of the product or damage it.

- 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 [🗋 17].
- Perform a compatibility test before product comes into contact with chemicals or special chemical cleaning agents.
- Plastics (such as those on the protective cover or sensor holder) can age more quickly under certain non-natural lighting conditions. This can affect the life span of the product and also its dynamic properties. In such cases, the inspection and maintenance cycles of the product should be increased and, if necessary, affected parts should be replaced in good time.

2.6 Personnel qualification

Inadequate qualifications of the personnel

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

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

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

Trained electrician Due to their technical training, knowledge and experience, trained electricians are able to work on electrical systems, recognize and avoid possible dangers and know the relevant standards and regulations.

Qualified personnel Due to its technical training, knowledge and experience, qualified personnel is able to perform the delegated tasks, recognize and avoid possible dangers and knows the relevant standards and regulations.

Instructed person Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.

Service personnel of the manufacturer Due to its technical training, knowledge and experience, service personnel of the manufacturer is able to perform the delegated tasks and to recognize and avoid possible dangers.

2.7 Personal protective equipment

Use of personal protective equipment

Personal protective equipment serves to protect staff against danger which may interfere with their health or safety at work.

- When working on and with the product, observe the occupational health and safety regulations and wear the required personal protective equipment.
- Observe the valid safety and accident prevention regulations.
- Wear protective gloves to guard against sharp edges and corners or rough surfaces.
- Wear heat-resistant protective gloves when handling hot surfaces.
- Wear protective gloves and safety goggles when handling hazardous substances.
- Wear close-fitting protective clothing and also wear long hair in a hairnet when dealing with moving components.

2.8 Notes on safe operation

Incorrect handling of the personnel

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Avoid any manner of working that may interfere with the function and operational safety of the product.
- Use the product as intended.
- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. This does not apply to products that are designed for special environments.
- Eliminate any malfunction immediately.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention and environmental protection regulations regarding the product's application field.

2.9 Transport

Handling during transport

Incorrect handling during transport may impair the product's safety and cause serious injuries and considerable material damage.

- When handling heavy weights, use lifting equipment to lift the product and transport it by appropriate means.
- Secure the product against falling during transportation and handling.
- Stand clear of suspended loads.

2.10 Malfunctions

Behavior in case of malfunctions

- Immediately remove the product from operation and report the malfunction to the responsible departments/persons.
- Order appropriately trained personnel to rectify the malfunction.
- Do not recommission the product until the malfunction has been rectified.
- Test the product after a malfunction to establish whether it still functions properly and no increased risks have arisen.

2.11 Disposal

Handling of disposal

The incorrect handling of disposal may impair the product's safety and cause serious injuries as well as considerable material and environmental harm.

- Follow local regulations on dispatching product components for recycling or proper disposal.

2.12 Fundamental dangers

General

- Observe safety distances.
- Never deactivate safety devices.
- Before commissioning the product, take appropriate protective measures to secure the danger zone.
- Disconnect power sources before installation, modification, maintenance, or calibration. Ensure that no residual energy remains in the system.
- If the energy supply is connected, do not move any parts by hand.
- Do not reach into the open mechanism or movement area of the product during operation.

2.12.1 Protection during handling and assembly

Incorrect handling and assembly

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Have all work carried out by appropriately qualified personnel.
- For all work, secure the product against accidental operation.
- Observe the relevant accident prevention rules.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

Incorrect lifting of loads

Falling loads may cause serious injuries and even death.

- Stand clear of suspended loads and do not step into their swiveling range.
- Never move loads without supervision.
- Do not leave suspended loads unattended.

2.12.2 Protection during commissioning and operation

Falling or violently ejected components

Falling and violently ejected components can cause serious injuries and even death.

- Take appropriate protective measures to secure the danger zone.
- Never step into the danger zone during operation.

2.12.3 Protection against dangerous movements

Unexpected movements

Residual energy in the system may cause serious injuries while working with the product.

- Switch off the energy supply, ensure that no residual energy remains and secure against inadvertent reactivation.
- Never rely solely on the response of the monitoring function to avert danger. Until the installed monitors become effective, it must be assumed that the drive movement is faulty, with its action being dependent on the control unit and the current operating condition of the drive. Perform maintenance work, modifications, and attachments outside the danger zone defined by the movement range.
- To avoid accidents and/or material damage, human access to the movement range of the machine must be restricted. Limit/ prevent accidental access for people in this area due through technical safety measures. The protective cover and protective fence must be rigid enough to withstand the maximum possible movement energy. EMERGENCY STOP switches must be easily and quickly accessible. Before starting up the machine or automated system, check that the EMERGENCY STOP system is working. Prevent operation of the machine if this protective equipment does not function correctly.

2.12.4 Protection against electric shock

Possible electrostatic energy

Components or assembly groups may become electrostatically charged. When the electrostatic charge is touched, the discharge may trigger a shock reaction leading to injuries.

- The operator must ensure that all components and assembly groups are included in the local potential equalisation in accordance with the applicable regulations.
- While paying attention to the actual conditions of the working environment, the potential equalisation must be implemented by a specialist electrician according to the applicable regulations.
- The effectiveness of the potential equalisation must be verified by executing regular safety measurements.

2.13 Notes on particular risks

⚠ DANGER

Risk of fatal injury from suspended loads!

Falling loads can cause serious injuries and even death.

- Stand clear of suspended loads and do not step within their swiveling range.
- Never move loads without supervision.
- Do not leave suspended loads unattended.
- Wear suitable protective equipment.

⚠ WARNING

Risk of injury from objects falling and being ejected!

Falling and ejected objects during operation can lead to serious injury or death.

- Take appropriate protective measures to secure the danger zone.

⚠ WARNING

Risk of injury due to unexpected movements!

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

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

⚠ WARNING

Risk of injury from 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 from sharp edges and corners!

Sharp edges and corners can cause cuts.

- Use suitable protective equipment.

⚠ 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

3.1 Basic data

Connection data

Designation	MPG-plus	
	10 - 12	16 – 64
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	3 -	2.5 4.0
Max. pressure [bar] without gripping force maintenance with gripping force maintenance	6 -	8.0 6.5

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

Ambient conditions and operating conditions

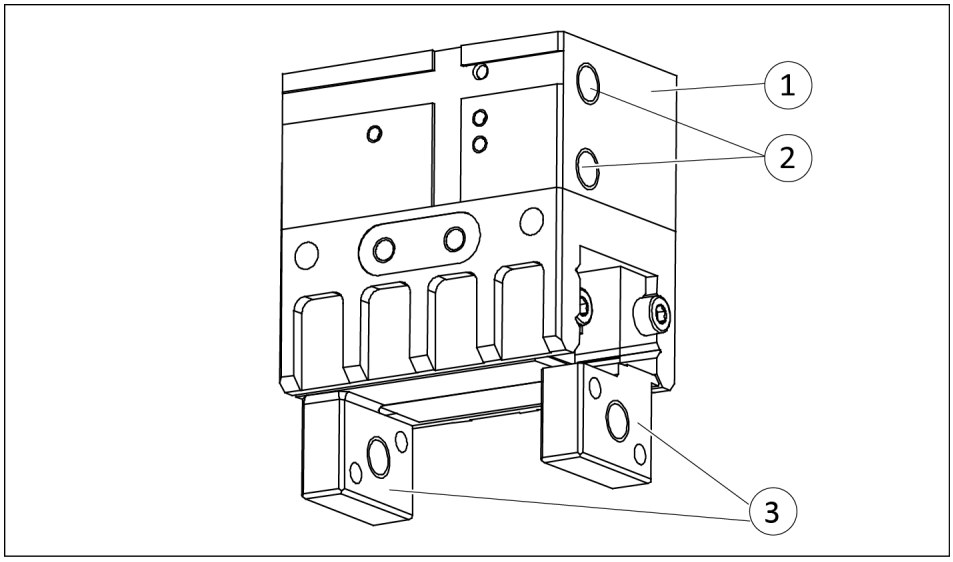
Designation	MPG-plus
Ambient temperature [°C] min. max.	 +5 +90
Protection class IP *	30
Air purity class according to DIN EN ISO 14644-1:2015	6 **
Noise emission [dB(A)]	≤70

* 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.

** When using the product in a cleanroom, please note that grease may leak from moving parts, especially the base jaws and their guides.

4 Design and description

4.1 Configuration



2-finger parallel gripper

1	Housing
2	Main air connections
3	Base jaws

4.2 Description

2-finger parallel gripper with smooth roller guides on the base jaws

5 Assembly and settings

5.1 Assembly and connection

⚠ 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.

NOTE

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

1. Check the evenness of the mounting surface, ▸ 5.2.1 [🗋 20].
2. Only open the required air connections (main connection or direct connection), ▸ 5.2.2 [🗋 22].
3. Connect the product via the hose-free direct connection.
   - ✓ Use O-rings from the accessory pack.
   - ✓ Seal main air connections which are not required with locking screws.

4. OR: Connect compressed air lines to the main air connections, ▶ 5.2.2 [🗋 22].
   ✓ 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, ▶ 5.2.1 [🗋 20].
   ✓ If necessary, use appropriate connection elements (adapter plates).
   ✓ Observe the maximal tightening torque, admissible screw-in depth and, if necessary, strength class.
6. Secure the gripper fingers to the base jaws, ▶ 5.2.1 [🗋 20].
7. Connect the sensor, see assembly and operating manual of the sensor.
8. 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.

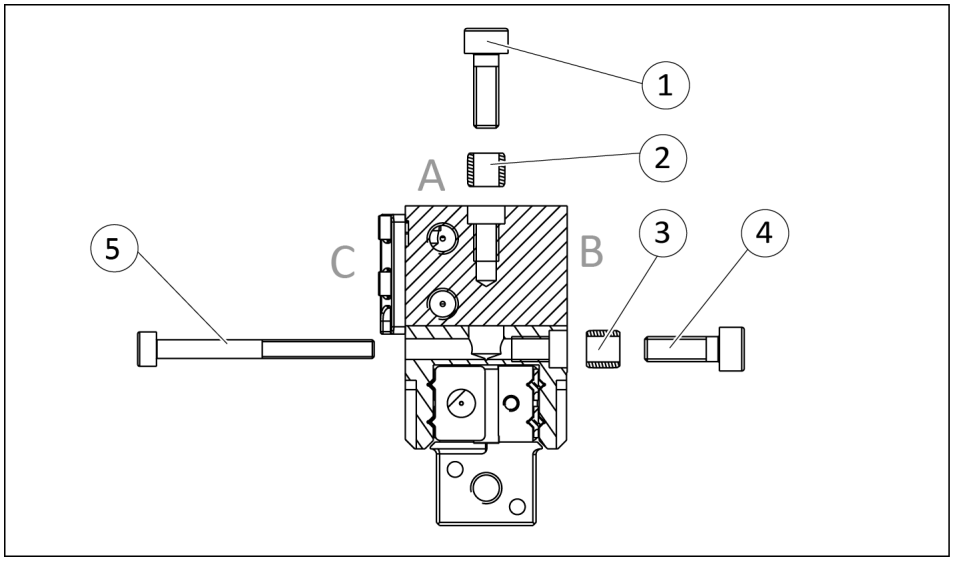
Requirements for evenness of the mounting surface (Dimensions in mm)

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

Connections at the housing

The product can be assembled from three sides. On the variant with a protective cover, the screw-on options B and C are omitted.

When selecting the fastening screws, observe the values prescribed by SCHUNK, see following table.



Assembly options

Item	Mounting	MPG-plus 10	12	16	20	25	32	40	50	64
Side **A**										
1	Mounting screw	M 1.2	M 1.6	M2	M 2.5	M3	M4	M4	M5	M5
	Max. depth of engagement from locating surface [mm]	2.2	2.3	4	5.5	7.4	8.9	8.9	10.9	10.9
2	Centering sleeve	Ø2	Ø2.5	Ø3	Ø4	Ø5	Ø6	Ø6	Ø8	Ø8
Side **B**										
4	Mounting screw	M 1.2	M 1.6	M2	M 2.5	M3	M4	M4	M5	M5
	Max. depth of engagement from locating surface [mm]	2.2	3.1	4	6	6.9	8.9	8.9	10.4	10.4
3	Centering sleeve	Ø2	Ø2.5	Ø3	Ø4	Ø5	Ø6	Ø6	Ø8	Ø8
Side **C**										
5	Mounting screw	-	-	M 1.6	M2	M 2.5	M3	M3	M4	M4
	Mounting screw according to standard	DIN EN ISO 4762 Max. strength class 8.8								
3	Centering sleeve	Ø2	Ø2.5	Ø3	Ø4	Ø5	Ø6	Ø6	Ø8	Ø8

Connections at the base jaws

Designation	MPG-plus 10	12	16	20	25	32	40	50	64
Thread in base jaws	-	-	M3	M4	M4	M5	M5	M6	M8
Bore hole for fastening screws	Ø1.6	Ø2	-	-	-	-	-	-	-
Max. depth of engagement from locating surface [mm]	-	-	3	3.5	4	5	6	8	10
Max. tightening torque of the mounting screws [Nm] for variant with protective cover	-	-	1.2	2.1	3.1 2.2	6.1 4.3	6.1 4.3	10	25
Fitting bore for centering pin [mm]	-	-	1.5	1.5	1.5	2	2.5	3	4

5.2.2 Pneumatic connection

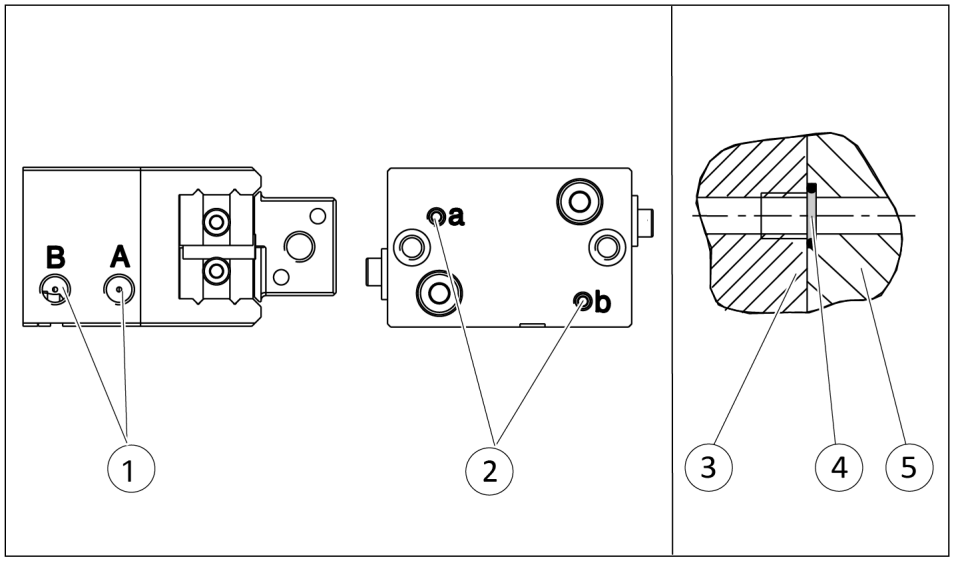
NOTE

Only for variants with protective cover

- When connecting the main air connections, stretch the cover on the side of the connections slightly and pull it over the frame. After screwing on the hose connections, pull the cover back into position over the frame.
- In the case of a retrofit, install the air connections after the frame but before the cover, ▶ 7.5 [🗋 50].

NOTE

Only use carbide bits to remove the bottom grub screws.



Compressed air connections

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

Item	Mounting	MPG-plus								
		10	12	16	20	25	32	40	50	64
1	Thread in the main air connections	*	*	*	M3	M3	M5	M5	M5	M5
	Max. depth of engagement [mm]	-	-	-	3	3	4.5	5	5	5
2	Thread in Hose-free direct connection	-	-	M 2.5	M 2.5	M3	M3	M3	M3	M3

* For this size, the hose clips are pre-assembled at the factory and the compressed air hoses prescribed by SCHUNK must be used, see catalog data sheet. Procedure for leaking compressed air connection, see section "Troubleshooting".

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 [🗋 24].
- 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

Designation	MPG-plus								
	10	12	16	20	25	32	40	50	64
Programmable magnetic switch MMS 22-PI2	–	–	–	–	X	X	X	X	X
Inductive proximity switch IN 30	X	X	X	–	–	–	–	–	–
Inductive proximity switch IN 40 *	–	–	–	X	X	X	X	X	X
Magnetic switch MMS 22-IOL	–	–	–	–	X	X	X	X	X
Analog magnetic switch MMS 22-A-10V	–	–	–	–	X	X	X	X	X
Programmable magnetic switch MMS-P 22	–	–	–	–	X	X	X	X	X
Flexible position sensor FPS on FPS-S 13	–	–	–	Special housing variant			X	X	X
Flexible position sensor FPS on MMS 22-A-5V	–	–	–	–	X	X	X	X	X
Inductive proximity switch IN 5	–	–	–	–	X	X	X	X	X

* On the variant with a protective cover, only the inductive proximity switch IN 40 can be used.

5.3.2 Switch-off hysteresis for magnetic switches

Sensors MMS 22, MMS 22-PI1, MMS 22-PI2 and MMS-P 22

The smallest detectable difference in stroke is defined in the following table:

The smallest detectable difference in stroke based on the nominal stroke

For products with X mm nominal stroke per jaw	Min. query range per jaw/ min. queried stroke difference per jaw
X ≤ 5 mm	30 % of the nominal stroke per jaw
X > 5 mm to X ≤ 10 mm	20 % of the nominal stroke per jaw
X > 10 mm	10 % of the nominal stroke per jaw

Example: Product with 7 mm nominal stroke per jaw

7 mm * 20% = 1.4 mm

5.3.3 Mounting programmable magnetic switch MMS-PI2

NOTICE

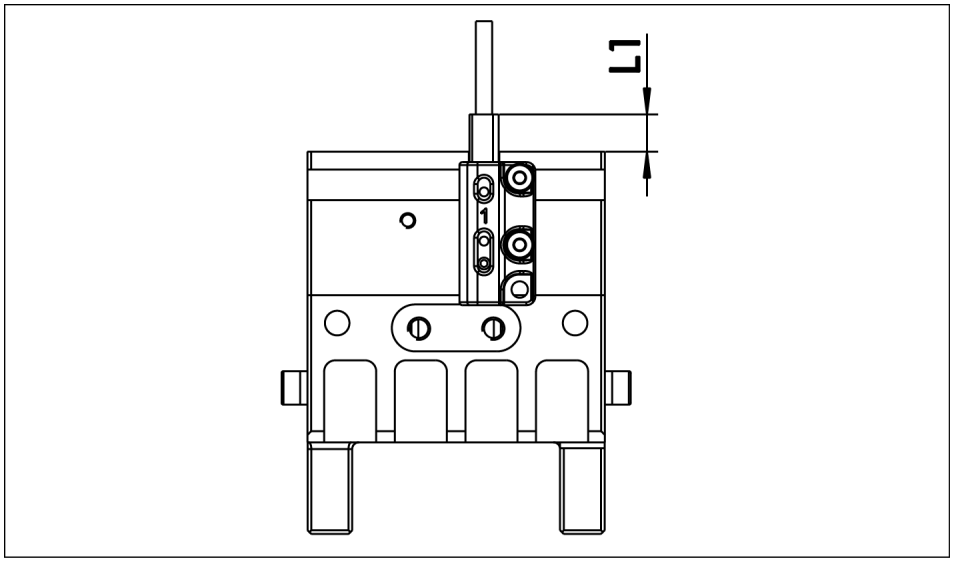
Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.

5.3.3.1 Size MPG-Plus 25 / 25 IS – 50

For these sizes, a vertically mounted bracket is standard.

1. Loosen screws on the bracket.
2. Slide sensor into the bracket as far as the stop.
3. Tighten screws on the bracket.
4. Secure the sensor using the set-screw.
   Tightening torque: 5 Ncm
5. Check the projection of sensor L1, see table "Setting dimensions".
6. Adjust sensor, see Assembly and Operating Manual for the sensor.



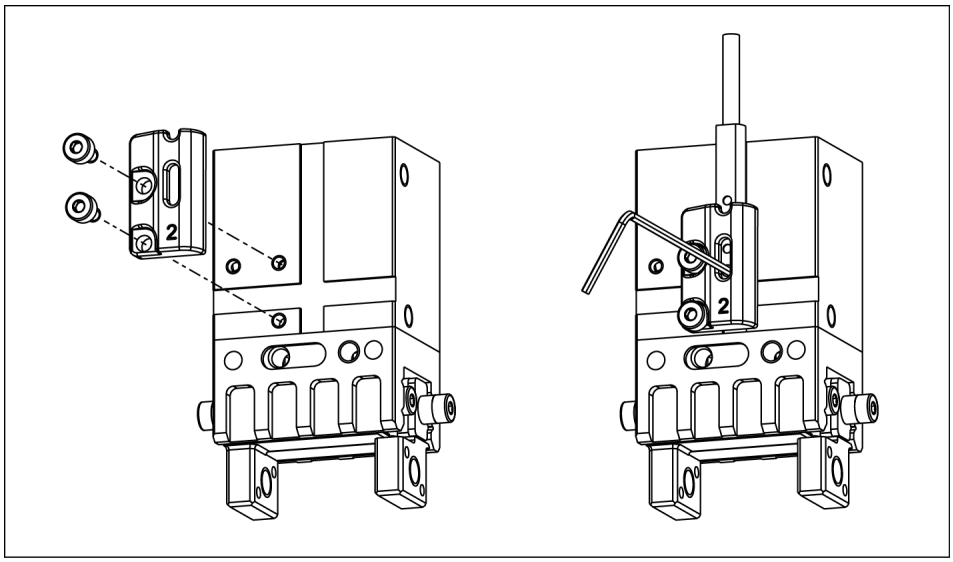
Projection of the mounted sensor

Setting dimensions

Size	L1 [mm]	Size	L1 [mm]
MPG-plus 25	8.8	MPG-plus 40	5.0
MPG-plus 25-AS	2.0	MPG-plus 40-AS	-17.5
MPG-plus 25-IS	8.2	MPG-plus 40-IS	3.4
MPG-plus 32	5.8	MPG-plus 50	4.3
MPG-plus 32-AS	-7.3	MPG-plus 50-AS	-14.8
MPG-plus 32-IS	2.0	MPG-plus 50-IS	4.0

5.3.3.2 Size MPG-plus 25 AS

For the variant "O.D. gripping" (AS) of the size 25 a special bracket must be mounted.

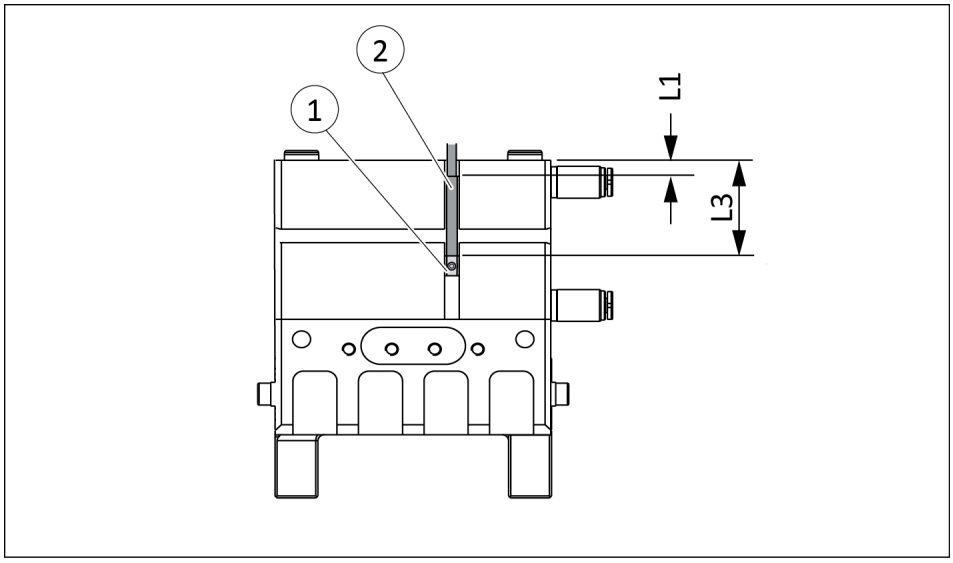


1. Remove the bracket that is mounted as standard.
2. Secure the special bracket. Tighten screws only slightly.
3. Slide sensor into the bracket as far as the stop.
4. Tighten screws on the bracket.
5. Secure the sensor using the set-screw.
   Tightening torque: 5 Ncm
6. Check the projection of sensor L1, see table "Setting dimensions".
7. Adjust sensor, see Assembly and Operating Manual for the sensor.

5.3.3.3 Size MPG-plus 64

For this size, there is no bracket necessary. The sensor is fastened in the gripper's vertical slot. Fastening the sensor in the horizontal slot is not possible.

1. If there is a slot nut (1), move the slot nut to dimension L3 (see tabe "adjustment dimensions"). Move the sensor (2) into the slot up to the stop.
   OR: If there is no slot nut (1), move the sensor (2) into the slot and adjust it to distance L3 (see table "adjustment dimensions").
2. Fasten the senor using a threaded pin.
   Tightening torque: 10 Ncm
3. Adjust the sensor, see assembly and operating manual of the sensor.



Adjustment dimensions of slot nuts and the sensor for MPG-plus 64

L1	Protrusion of the sensor
L3	Distance of housing to front side of the sensor

Adjustment dimensions

Size	L1 [mm]	L3 [mm]
MPG-plus 64	-3.1	-25
MPG-plus 64 IS	1.2	-20.8
MPG-plus 64 AS	-18.0	-40

5.3.4 Mounting inductive proximity switches IN 30, IN 40

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.

NOTICE

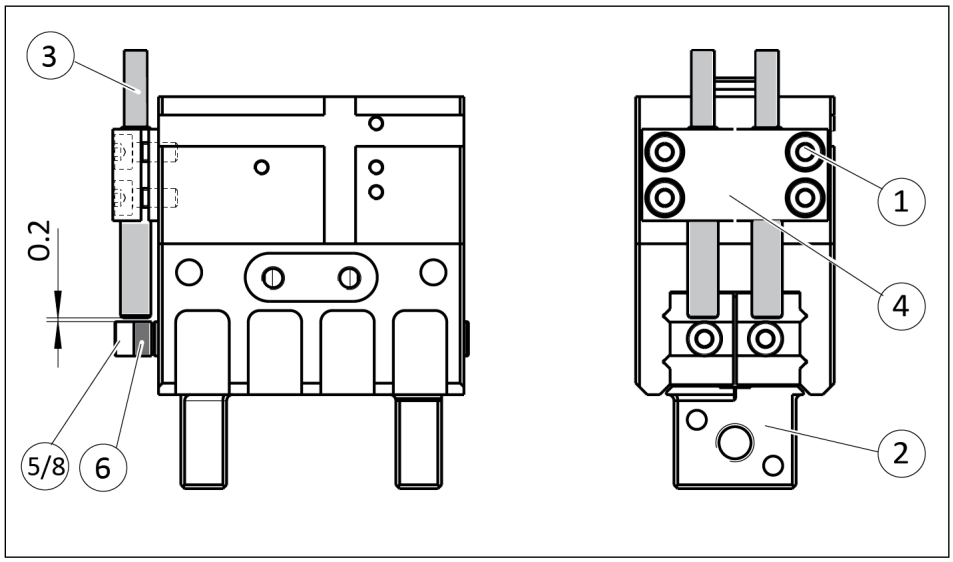
Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.

NOTE

The sensors are dampened by the screw heads.

- For sizes MPG-plus 25 – 64; a spacer sleeve is also used to monitor the "part gripped" position.
- For sizes MPG-plus 10 – 20; it is not possible to monitor the "part gripped" position.



"Part gripped" monitoring illustration

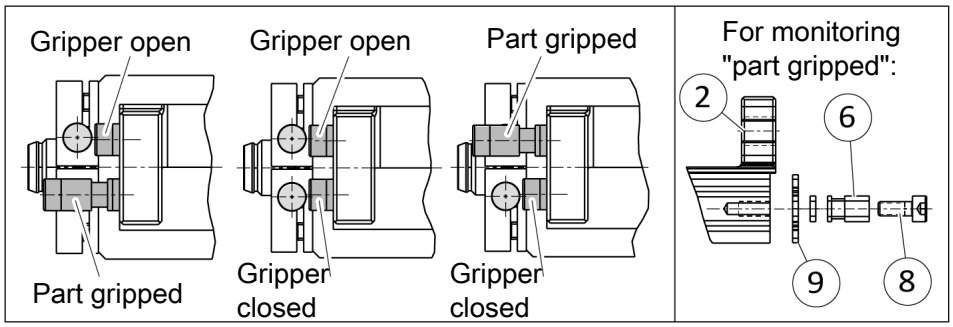
1. **For monitoring "opened" or "closed"**: leave screw (5) in the base jaw (2).
2. **For monitoring "part gripped":** remove screw (5).
   Remove the screw (8) and spacer sleeve (6) from the accessory kit.
   Fasten screw (8), spacer sleeve (6) and – if available – washer (9) to the base jaw (2).
   For tightening torque, see following table.
3. Secure (4) holder. Tighten screws (1) only slightly.

Designation	MPG-plus								
	10	12	16	20	25	32	40	50	64
Maximum tightening torque for the screw (item 5 and item 8) [Ncm]	3.7	11	16	34	34	68	68	68	120

Adjustment

NOTE

For sizes MPG-plus 10 – 20, it is not possible to monitor the "Part gripped" position.



1. Bring gripper into the position in which it is to be set.
2. Slide sensor (3) into the holder (4) and set a distance of 0.2 mm to the screw head.
3. Tighten the screws (1).
   Tightening torque:
   MPG-plus 10 – 16: 10 Ncm,
   MPG-plus 20 – 64: 12.5 Ncm
4. Monitor "opened", "closed" or "part gripped" positions and test the function.

5.3.5 For variant with protective cover: Mount inductive proximity switch IN 40

Mounting in existing frames

The sensors are mounted in the existing frame for mounting the protective cover. For this purpose, the corresponding cylindrical pins must be removed, ▶ 7.5 [🗋 50].

NOTICE

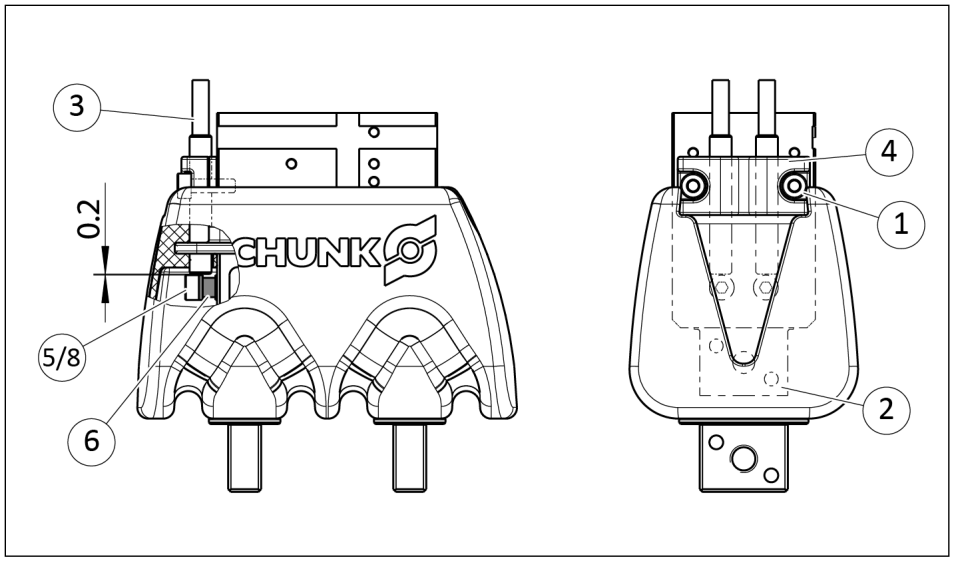
Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.

NOTE

The sensors are dampened by the screw heads.

- A spacer sleeve is also used to monitor the "part gripped" position.

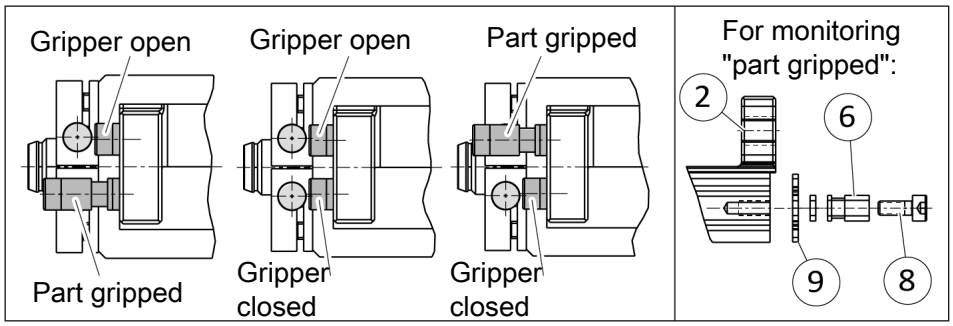


"Part gripped" monitoring illustration

1. **For monitoring "opened" or "closed"**: leave screw (5) in the base jaw (2).
2. **For monitoring "part gripped"**: remove screw (5).
   Remove the spacer sleeve (6) and screw (8) from the accessory kit.
   Fasten screw (8), spacer sleeve (6) and – if available – washer (9) to the base jaw (2).
   For tightening torque, see following table.
3. Tighten screws (1) slightly.

Designation	MPG-plus		
	25	32	40
Maximum tightening torque for the screw (item 5 and item 8) [Ncm]	34	68	68

Adjustment



1. Bring gripper into the position in which it is to be set.
2. Slide sensor (3) into the frame (4) and set a distance of 0.2 mm to the screw head.
3. Tighten the screws (1).
   Tightening torque: 6 Ncm
4. Monitor the "opened", "closed" or "part gripped" positions and test the function.

5.3.6 Mounting the magnetic switch MMS 22-IOL

NOTICE

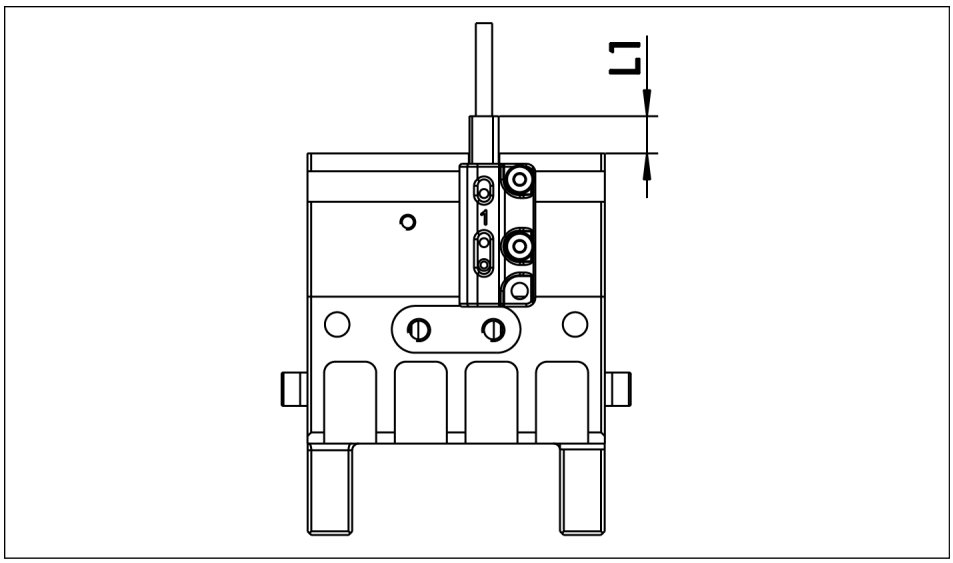
Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.

5.3.6.1 Size MPG-plus 25 – 50

With these sizes, a vertically mounted bracket is standard. A horizontally mounted sensor is not possible.

1. Loosen screws on the bracket.
2. Slide sensor into the bracket as far as the stop.
3. Tighten screws on the bracket.
4. Secure the sensor using the set-screw.
   Tightening torque: 5 Ncm
5. Check the projection of sensor L1, see table "Setting dimensions".
6. Adjust sensor, see Assembly and Operating Manual for the sensor.



Projection of the sensor to be mounted

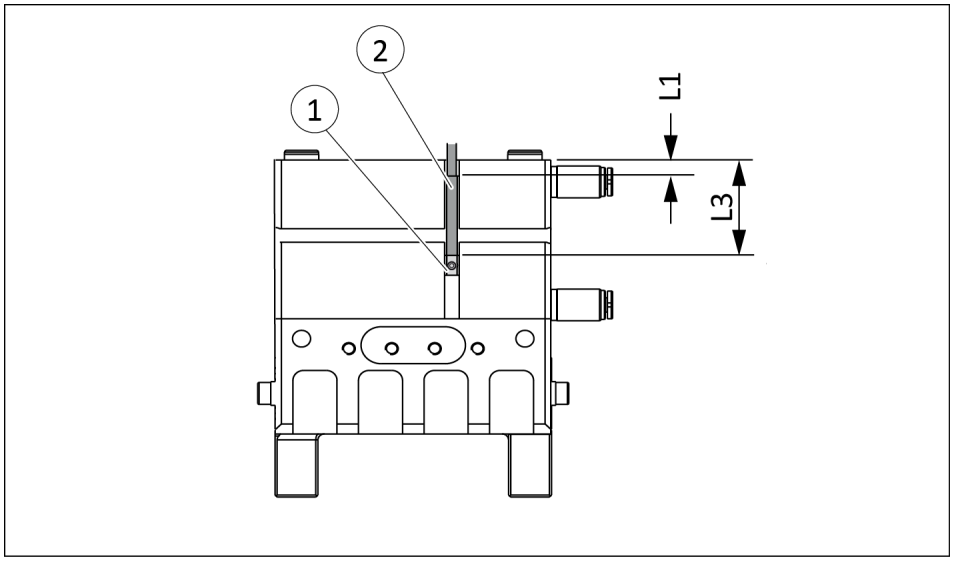
Setting dimensions

Size	L1 [mm]	Size	L1 [mm]
MPG-plus 25	8.8	MPG-plus 40	5.0
MPG-plus 25-AS	-4.0	MPG-plus 40-AS	-17.5
MPG-plus 25-IS	8.2	MPG-plus 40-IS	3.4
MPG-plus 32	5.8	MPG-plus 50	4.3
MPG-plus 32-AS	-7.3	MPG-plus 50-AS	-14.8
MPG-plus 32-IS	2.0	MPG-plus 50-IS	4.0

5.3.6.2 Size MPG-plus 64

For these sizes no holder is necessary, but the sensor is secured in the vertical groove of the gripper. Mounting the sensor in the horizontal groove is not possible.

1. If a T-nut (1) is available, set the T-nut to dimension L3, see table "Setting dimensions". Slide sensor (2) to the stop in the groove.
   OR: If no T-nut (1) is available, slide the sensor (2) into the groove and adjust distance L3, see table "Setting dimensions".
2. Secure the sensor using the set-screw.
   Tightening torque: 10 Ncm
3. Adjust sensor, see Assembly and Operating Manual for the sensor.



Setting dimensions for the T-nuts and sensors for MPG-plus 64

L1	Projection of the sensor
L3	Distance of the housing to the front of the sensor

Setting dimensions

Size	L1 [mm]	L3 [mm]
MPG-plus 64	-3.1	-25.1
MPG-plus 64 IS	1.2	-20.8
MPG-plus 64 AS	-18.0	-40

5.3.7 Analog magnetic sensor MMS 22-A

NOTICE

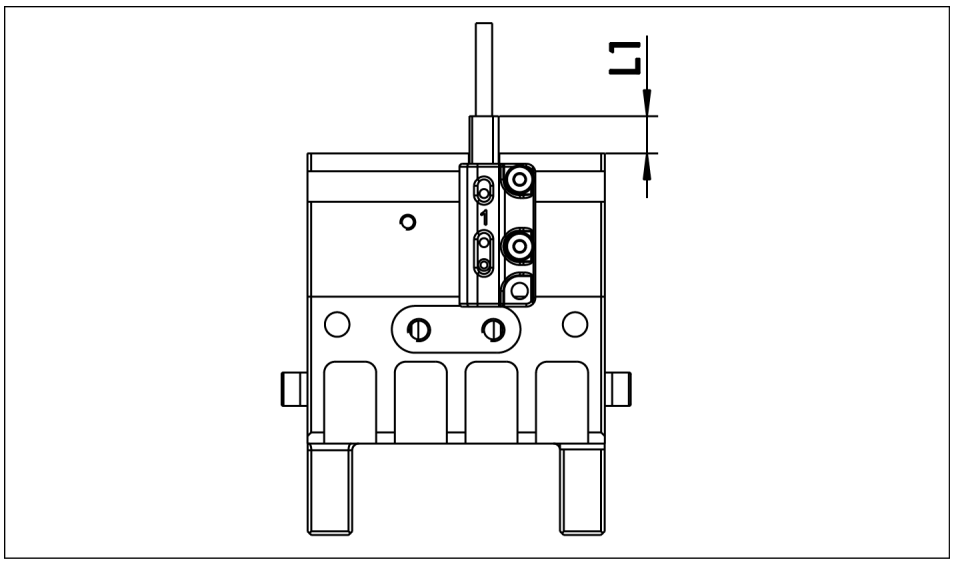
Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.

5.3.7.1 Size MPG-plus 25 – 50

With these sizes, a vertically mounted bracket is standard. A horizontally mounted sensor is not possible.

1. Loosen screws on the bracket.
2. Slide sensor into the bracket as far as the stop.
3. Tighten screws on the bracket.
4. Secure the sensor using the set-screw.
   Tightening torque: 5 Ncm
5. Check the projection of sensor L1, see table "Setting dimensions".
6. Adjust sensor, see Assembly and Operating Manual for the sensor.



Projection of the sensor to be mounted

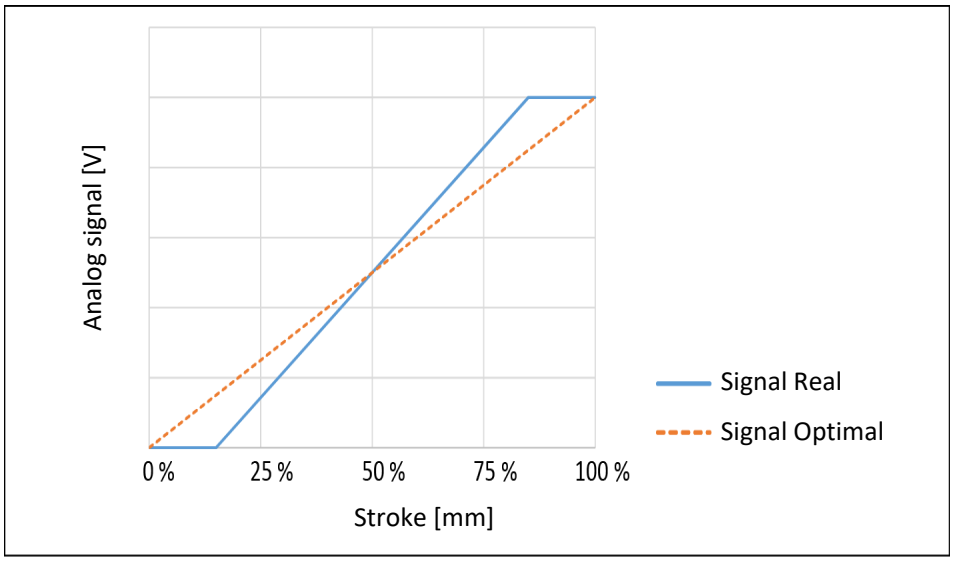
Setting dimensions

Size	L1 [mm]	Size	L1 [mm]
MPG-plus 25	8.8	MPG-plus 40	5.0
MPG-plus 25-AS	-4.0	MPG-plus 40-AS	-17.5
MPG-plus 25-IS	8.2	MPG-plus 40-IS	3.4
MPG-plus 32	5.8	MPG-plus 50	4.3
MPG-plus 32-AS	-7.3	MPG-plus 50-AS	-14.8
MPG-plus 32-IS	2.0	MPG-plus 50-IS	4.0

Note for size 32

During the monitoring process, the first and last 15% of the nominal stroke will not produce a change in the analog signal. It is therefore not possible to monitor the end positions. Should you have questions, do not hesitate to contact SCHUNK.

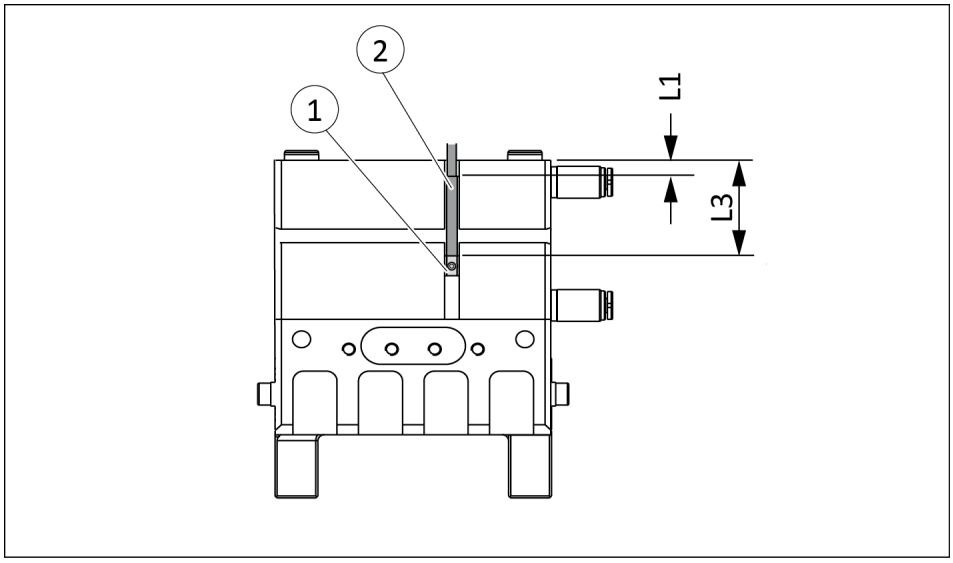
Size	Stroke	
	100%	15%
MPG-plus 32	4 mm	0.6 mm



5.3.7.2 Size MPG-plus 64

For this size, a bracket is not necessary. The sensor is fastened in the gripper's vertical slot. Fastening the sensor in the horizontal slot is not possible.

1. If there is a slot nut (1), move the slot nut to dimension L3 (see tabe "adjustment dimensions"). Move the sensor (2) into the slot up to the stop.
   OR: If there is no slot nut (1), move the sensor (2) into the slot and adjust it to distance L3 (see table "adjustment dimensions").
2. Fasten the senor using a threaded pin.
   Tightening torque: 10 Ncm
3. Adjust the sensor, see assembly and operating manual of the sensor.



Adjustment dimensions of slot nuts and the sensor for MPG-plus 64

L1	Protrusion of the sensor
L3	Distance of housing to front side of the sensor

Adjustment dimensions

Size	L1 [mm]	L3 [mm]
MPG-plus 64	-3.1	-25
MPG-plus 64 IS	1.2	-20.8
MPG-plus 64 AS	-18.0	-40

5.3.8 Mounting the programmable magnetic switch MMS-P 22

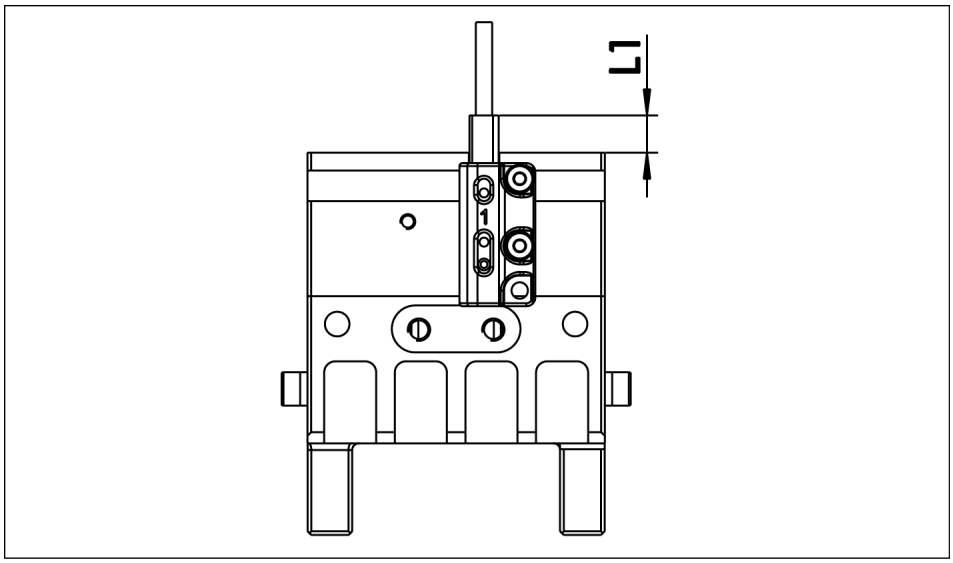
NOTICE

Risk of damage to the sensor during assembly!

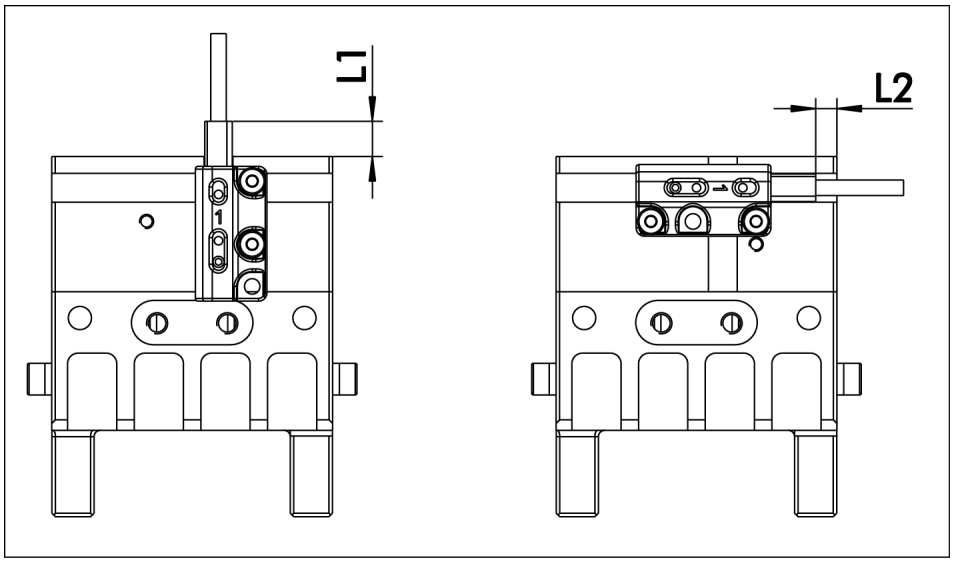
- Observe the maximal tightening torque.

5.3.8.1 Size MPG-plus 25 – 50

With these sizes, a vertically mounted bracket is standard. A horizontally mounted sensor is possible.



1. If a horizontal sensor is required, the bracket needs to be turned and fastened
2. Slide sensor into the bracket as far as the stop.
   OR: If there is no stop, adjust the projection of sensor L1 or L2, see the "Dimensions adjustment" table.
3. Secure the sensor using the set-screw.
   Tightening torque: 5 Ncm
4. Adjust sensor, see Assembly and Operating Manual for the sensor.



Projection of the sensor to be mounted

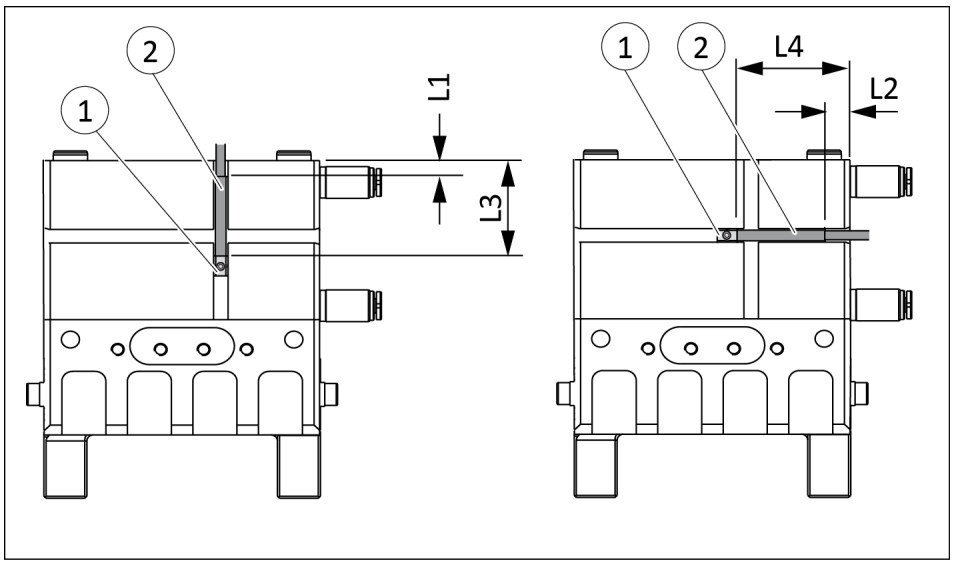
Setting dimensions

Size	L1 [mm]	L2 [mm]	Size	L1 [mm]	L2 [mm]
MPG-plus 25	6.3	3.0	MPG-plus 40	2.5	5.0
MPG-plus 25 AS	-6.5	3.0	MPG-plus 40-AS	-20.0	5.0
MPG-plus 25 IS	5.7	3.0	MPG-plus 40-IS	0.9	5.0
MPG-plus 32	3.3	7.0	MPG-plus 50	1.8	13
MPG-plus 32 AS	-9.8	7.0	MPG-plus 50-AS	-17.3	13
MPG-plus 32 IS	-0.5	7.0	MPG-plus 50-IS	1.5	13

5.3.8.2 Size MPG-plus 64

For this size, there is no bracket necessary. Depending on the desired installation position, the sensor is fastened in the vertical or horizontal slot of the gripper.

1. If there is a slot nut (1), move the slot nut to dimension L3 or L4 (see table "adjustment dimensions"). Move the sensor (2) into the slot up to the stop.
   OR: If there is no slot nut (1), move the sensor (2) into the slot and adjust it to distance L3 or L4 (see table "adjustment dimensions").
2. Fasten the senor using a threaded pin.
   Tightening torque: 10 Ncm
3. Adjust the sensor, see assembly and operating manual of the sensor.



Adjustment dimensions of slot nuts and the sensor

L1, L2	Protrusion of the sensor
L3, L4	Distance of housing to front side of the sensor

Adjustment dimensions

Size	L1 [mm]	L2 [mm]	L3 [mm]	L4[mm]
MPG-plus 64	-5	7	-25	-15
MPG-plus 64 IS	-20	6	-24	-16
MPG-plus 64 AS	-4	7	-40	-15

5.3.9 Mounting the flexible position sensor FPS

The flexible position sensor FPS consists of a control unit output and one of the following sensors:

- MMS 22-A-5V
- FPS-S 13

In order to operate the sensor, special housing variants of the gripper are required for the sizes MPG-plus 20–32. For the sizes MPG-plus 40–64, there is a bracket required.

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.

5.3.9.1 Mounting the MMS 22-A-5V

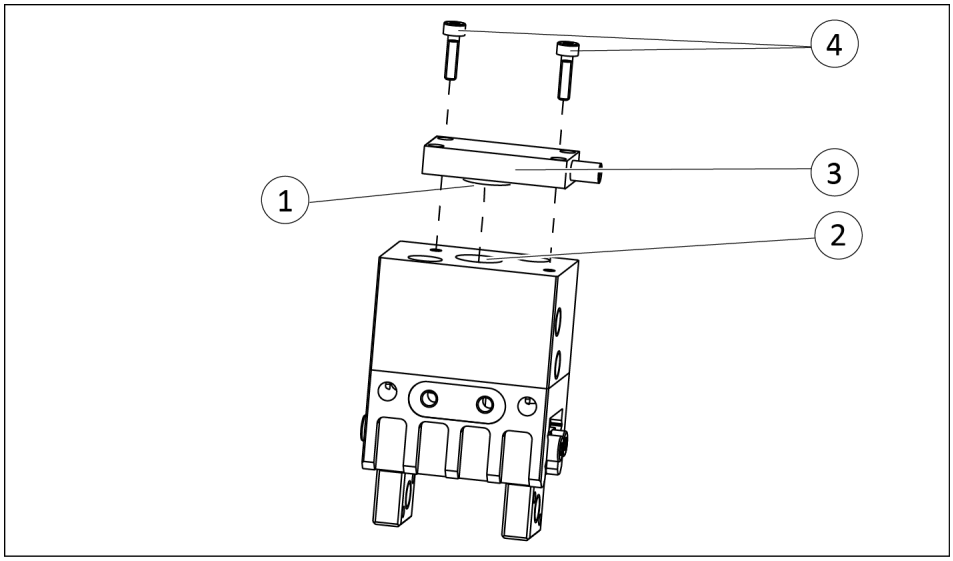
Note: In order to mount the sensor MMS 22-A-5V, no additional attachment kit is required.

1. Assembling the sensor, ▶ 5.3.7 [🗋 34] .
2. Connect the control unit output and adjust the sensor (see assembly and operating manual of the sensor).

5.3.9.2 Mounting the FPS-S 13

Size MPG-plus 20 / 25 / 32

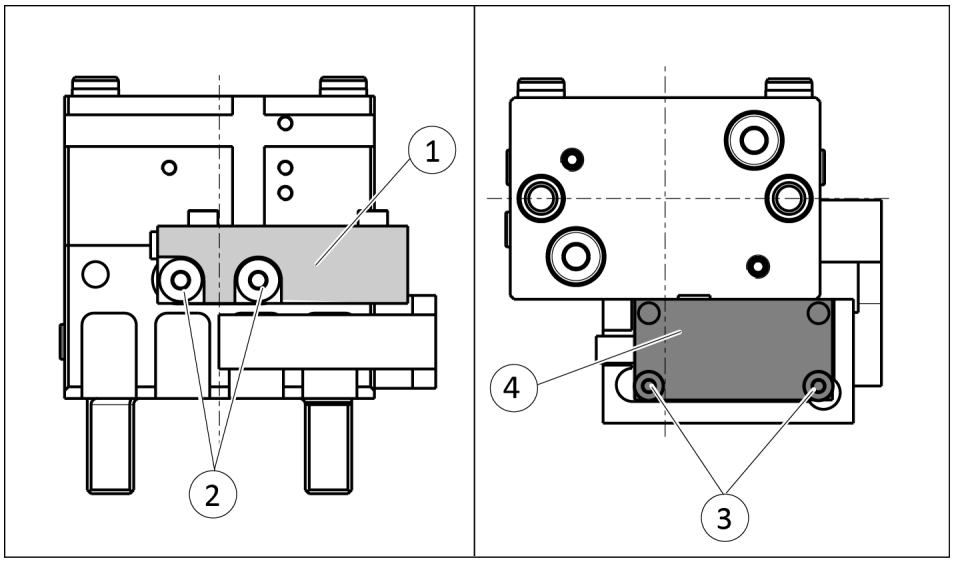
For these sizes, the sensor is mounted directly onto the housing.



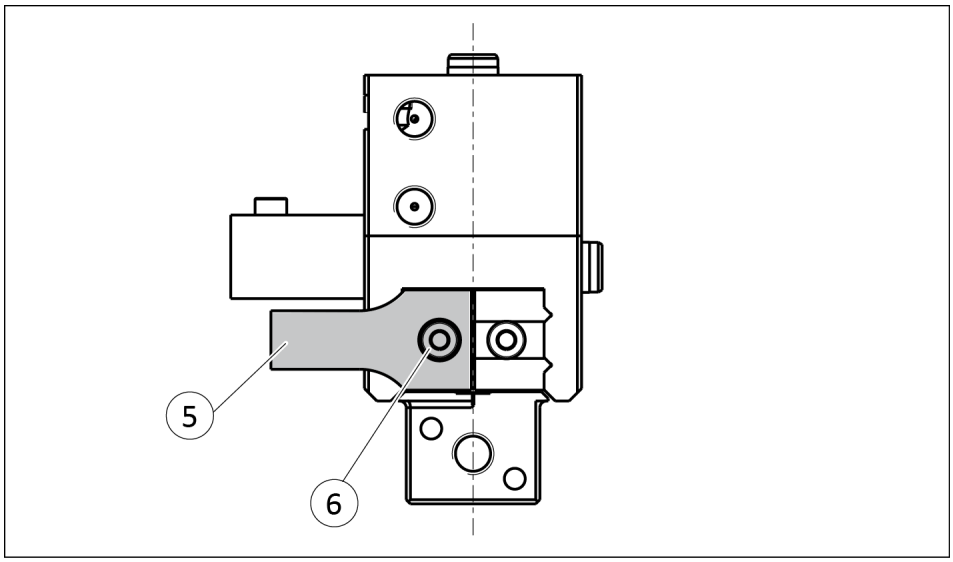
1. Position sensor (3) with the circular elevation (1) in the recess in the housing (2).
2. Secure sensor with screws (4).
   Tightening torque: 10 Ncm
3. Connect the torque sensor system controller and adjust the sensor, see the Assembly and Operating Manual for the sensor.

Size MPG-plus 40 / 50

For these sizes, a holder must be mounted. This holder is available from SCHUNK.



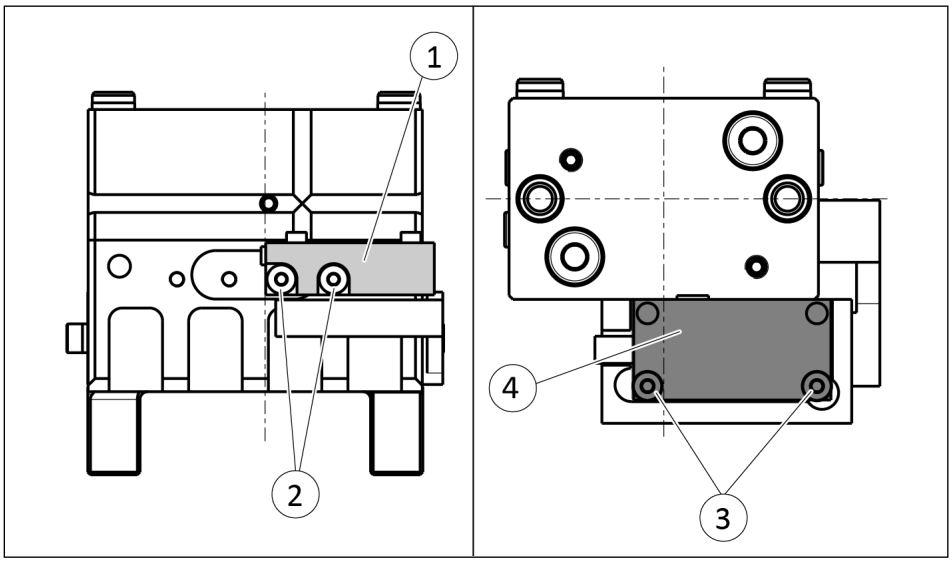
1. Secure holder (1) with screws (2).
2. Secure sensor (4) with screws (3).
   Tightening torque: 10 Ncm



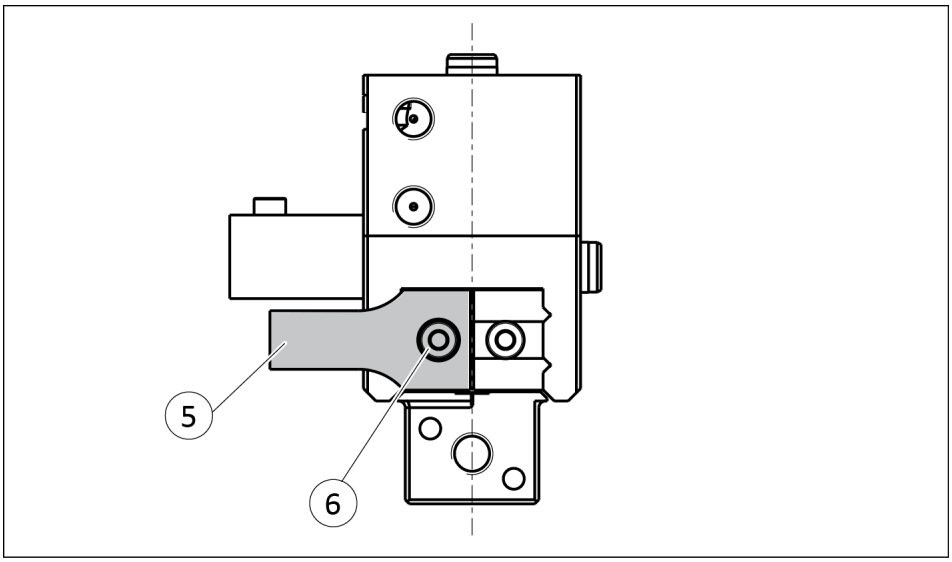
3. Secure control cam (5) with screw (6) on the base jaw. Ensure that the magnets are facing the sensor surface.
4. Connect the torque sensor system controller and adjust the sensor, see the Assembly and Operating Manual for the sensor.

Size MPG-plus 64

For this size, a holder must be mounted. This holder is available from SCHUNK.



1. Secure holder (1) with screws (2).
2. Secure sensor (4) with screws (3).
   Tightening torque: 10 Ncm

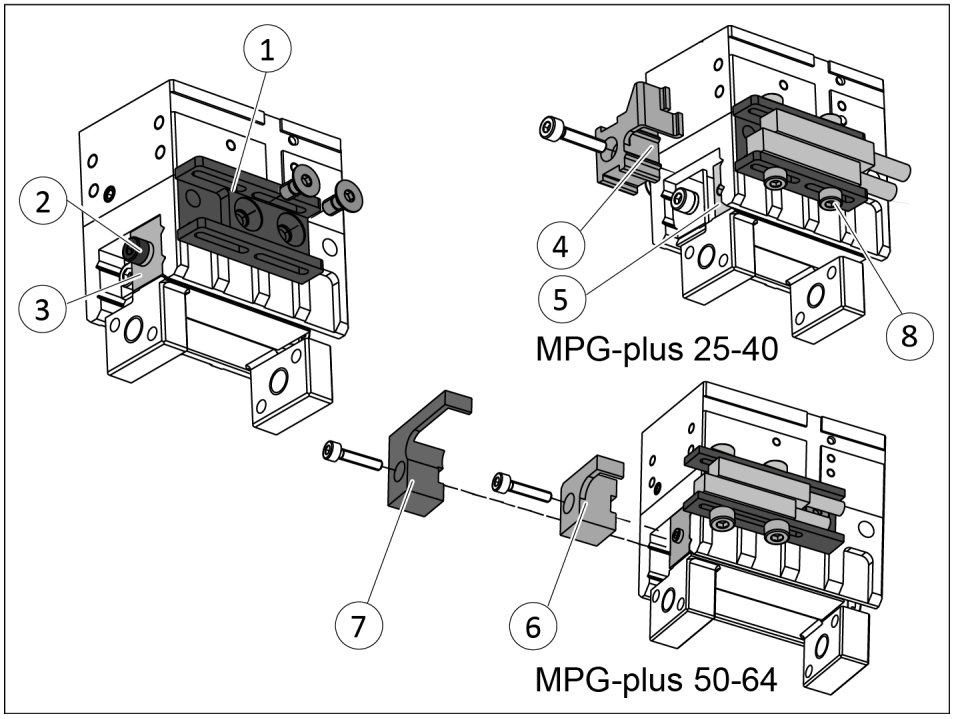


3. Secure control cam (5) with screw (6) on the base jaw. Ensure that the magnets are facing the sensor surface.
4. Connect the torque sensor system controller and adjust the sensor, see the Assembly and Operating Manual for the sensor.

5.3.10 Mounting the inductive proximity switch IN 5

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.



1. Remove the name plate.
2. Fasten the holder (1).
3. Until **12/2015:** Remove screw (2) and cover (3).
   From **1/2016** up to now: Remove screw (2), spacer and cover (3).
4. MPG-plus **20-40**: Fasten switching lug (4) to a base jaw (5).
   MPG-plus **50-64** to **12/2015**: Fasten switching lugs (6 and 7) with the cover (3) to the base jaws (5).
   MPG-plus **50-64** from **01/2016**: Fasten switching lugs (6 and 7) to the base jaws (5).
5. Insert both sensors into the bracket (1). Make sure the buttons point into the direction of the switching lugs.
6. Fasten the sensor using the screws (8).

The sensors can be set to perfrom the following queries:

Position "opened"

1. Move the gripper into the required position.
2. Push the sensor to the switching lug.
3. Slowly pull the sensor back until it switches. Then retract the sensor further by 0.2 mm.
4. Tighten the screws (8).
5. Query the position "opened" and test the function.

Position "closed"

1. Move the gripper into the required position.
2. Move the sensor into the direction of the switching lug until it switches. Then push the sensor further into the direction of the switching lug by 0.2 mm.
3. Tighten the screws (8).
4. Query the position "closed" and test the function.

Position "Part gripped (O.D. gripping)" or "Part gripped (I.D. gripping)"

1. Part gripped.
2. Move the sensor into the direction of the switching lug until it switches. Then push the sensor further into the direction of the switching lug by 0.2 mm.
3. Tighten the screws (8).
4. Query the position "Part gripped (O.D. gripping)" or "Part gripped (I.D. gripping)" and test the function.

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 [20]
	Loosen the mounting screws of the product and actuate the product again.
Pressure drops below minimum.	Check air supply. ▶ 5.2.2 [22]
Compressed air lines switched.	Check compressed air lines. ▶ 5.2.2 [22]
Proximity switch defective or set incorrect.	Readjust or change sensor.
Cylindrical pin incorrectly mounted.	Mount the cylindrical pin correctly.
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 [22]
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface. ▶ 5.2.1 [20]
Sensor incorrectly set.	Set the sensor correctly.
Cylindrical pin incorrectly mounted.	Mount the cylindrical pin correctly.
Component part defective.	Replace component or send it to SCHUNK for repair.

6.3 Product is opening or closing abruptly

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product.
Compressed air lines blocked.	Check compressed air lines of damage.
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface.

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 [🗋 17]
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.
	IMPORTANT! The one-way flow control valve must not be removed even if the opening and closing times are not achieved.
	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.

6.6 Compressed air connection is leaking

Possible cause	Corrective action
Wrong hose.	Check hose, see catalog data sheet.
Hose gets wider if it is frequently disassembled/assembled.	Cut off hose, replace if necessary.
Hose gets wider due to external forces.	Fix hose e.g. using cable tie.

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.

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 (million cycles) MPG-plus					Maintenance work
10 - 12	16 - 20	25 - 32	40 - 50	64	
10	15	5 *	4 *	3	Clean all parts thoroughly, check for damage and wear, if necessary replace seals and wearing parts. • Position of the wearing parts, ▶ 7.6 [🗋 53] • Seal kit, ▶ 1.4.1 [🗋 8]
-	-	2	2	-	For variant with protective cover: • Change protective cover, ▶ 7.5 [🗋 50].
10	15	5	4	3	Treat all grease areas with lubricant, ▶ 7.3 [🗋 48]
10	15	5	4	3	Oil or grease external steel parts.

* For variant with protective cover: Check protective cover for damage at regular intervals irrespective of the maintenance interval cycles specified and replace if necessary, ▶ 7.5 [🗋 50].

7.3 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
Crossed roller guides	Klübersynth UH1 14-151 *
All seals	Rivolta F.L.G. GT-2 *

* 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 Servicing the product

⚠ WARNING

Risk of injury due to spring forces!

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

- Dismantle the product carefully.

1. Clean all parts thoroughly, check for damage and wear.
2. Oil or grease external steel parts.
3. Disassemble product.
4. Treat all grease areas with lubricant, ▸ 7.3 [🗋 48].
5. Replace all wear parts / seals.
   – Position of the wearing parts, ▸ 7.6 [🗋 53]
   – Seal kit, ▸ 1.4.1 [🗋 8]
6. Assemble the product in reverse order. Observe the following: Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque.

7.5 Disassembling and assembling the protective cover

⚠ WARNING

Risk of injury due to contact with hazardous lubricants!

Harmful substances can collect under the protective cover. These substances may cause irritation and allergic reactions if they come in contact with the skin or eyes.

- Avoid skin or eye contact with harmful substances.
- Wear safety goggles and protective gloves.

NOTICE

Damage to the protective cover possible!

The protective cover material is elastic. Do not use sharp objects when assembling or disassembling the cover.

The item numbers specified for the corresponding individual components relate to chapter drawings. ▶ 7.6 [🗋 53]

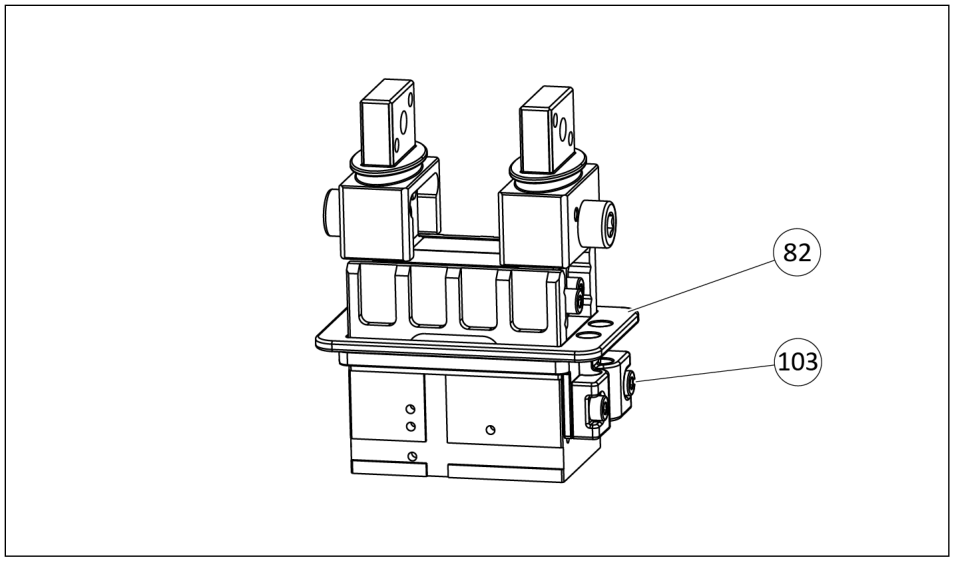
Disassembling the protective cover

1. Remove product from the system/machine.
2. Disassemble the gripper fingers.
3. Turn the product so that the base jaws point upwards.
4. Carefully loosen screws (103) and disassemble sensors or cylindrical pins (104).
5. Slightly tighten the screws (103) again.
6. Release the protective cover upwards (80) from the frame edge (82) and from the grooves of the intermediate jaws (81).
7. Pull the protective cover (80) upwards off the product.
8. Fit the new protective cover using the steps from "Fitting the protective cover".

Assembling the protective cover

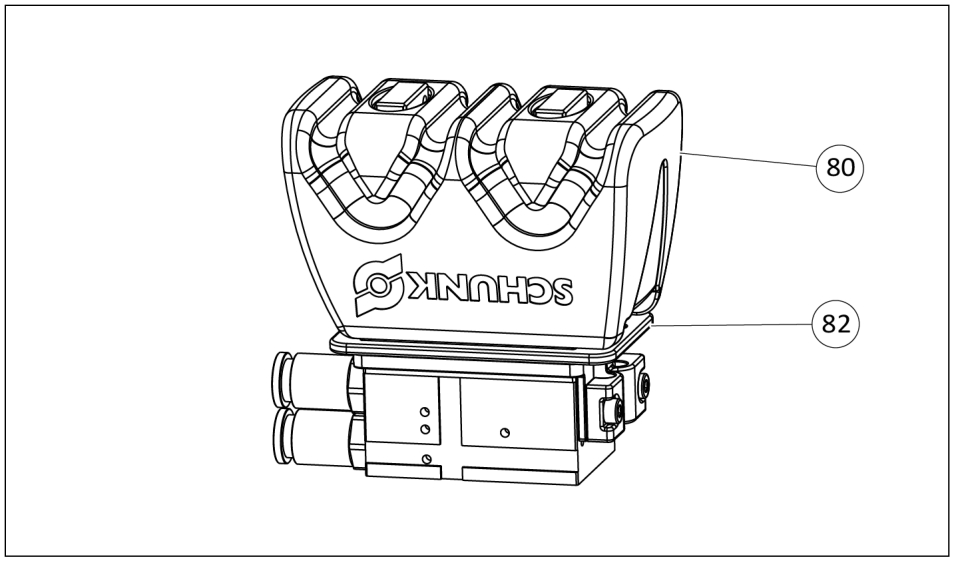
Assemble intermediate jaws and frame

1. Remove product from the system/machine.
2. Disassemble air connections.
3. If necessary, disassemble the sensors, sensor holder and gripper finger.
4. Turn the product so that the base jaws point upwards.
5. Place intermediate jaws (81) on base jaws and fix each with two cylindrical pins (102); glue or carefully press if necessary.
6. Fasten intermediate jaws (81) with screws (101).
   ✓ Observe the maximum tightening torque!
   Size 25: 2.2 Nm
   Size 32 and 40: 4.3 Nm

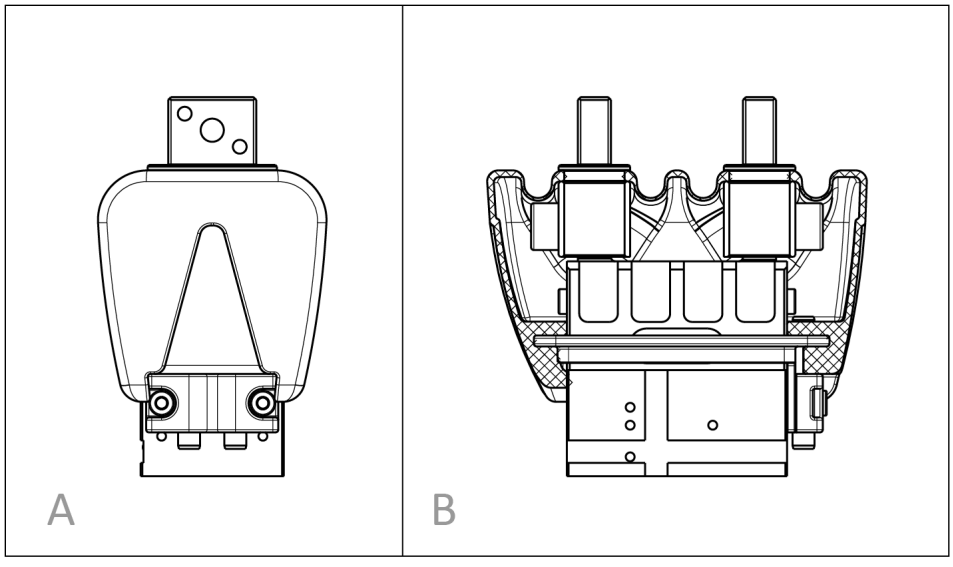


7. Slide the frame (82) onto the product from below.
   ✓ Frame snaps into place on the side mounting hole. Install screws (103) in the top two holes on the housing.**IMPORTANT! The frame must be aligned horizontally, i.e. it must not be inclined towards the gripper edges.**
8. Tighten the screws (103) only slightly for the time being.
9. Screw on air connections, ▸ 5.2.2 [🗋 22].

Fitting the protective cover



1. Place the protective cover (80) on the gripper from above and carefully pull it up to the edge of the frame (82).
2. Press the protective cover (80) onto the intermediate jaws (81) and snap the oval cutouts of the cover into the grooves on the intermediate jaws.
3. Stretch the protective cover slightly and pull it over the frame. The cover must neatly enclose the frame from above and below.
4. Make sure that the sealing lip on the inside of the protective cover lies horizontally against the housing along all sides and that no dents are visible in the cover.



***A**: View from the side; **B**: Cross-section, view from the front*

✓ The protective cover has been fitted.

Mount cylindrical pins or sensors

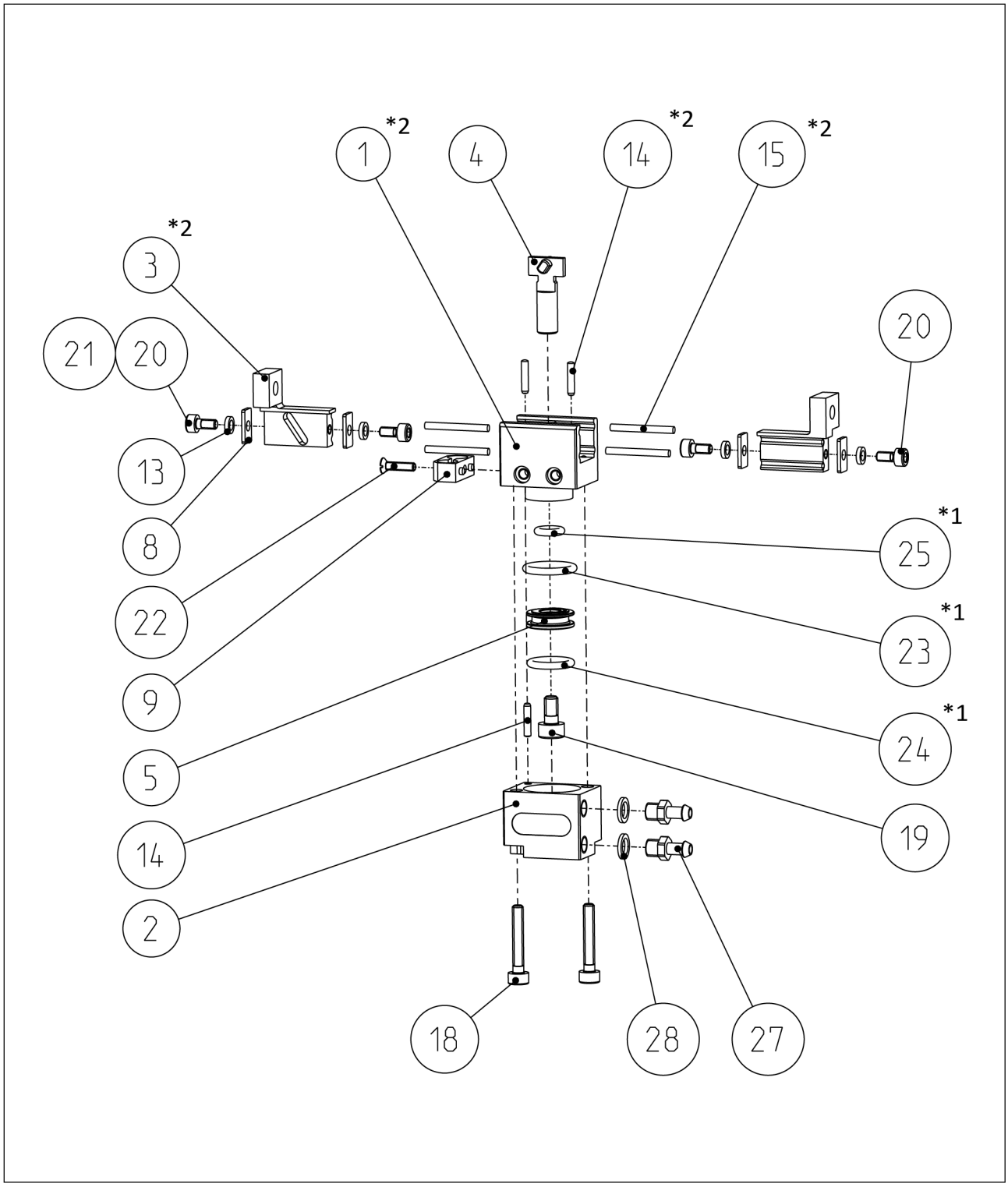
1. **When using sensors**: Mount sensors, ▶ 5.3 [🗋 23].
   No use of sensors: Loosen screws (103) slightly.
2. Move gripper to the "opened" position.
3. Carefully push the cylindrical pin (108) into the frame from below until it stops.
4. Pull the cylindrical pin (108) back a little.
5. Bring gripper into the "closed" position.
6. Carefully push the cylindrical pin (104) into the frame from below until it stops.
7. Pull the cylindrical pin (104) back a little.
8. Tighten screws (103).
9. Check the free movement and stroke of the gripper.
10. Mount product onto the system/machine.

    ✓ The product can be used with the protective cover.

7.6 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.

7.6.1 Sizes 10-12

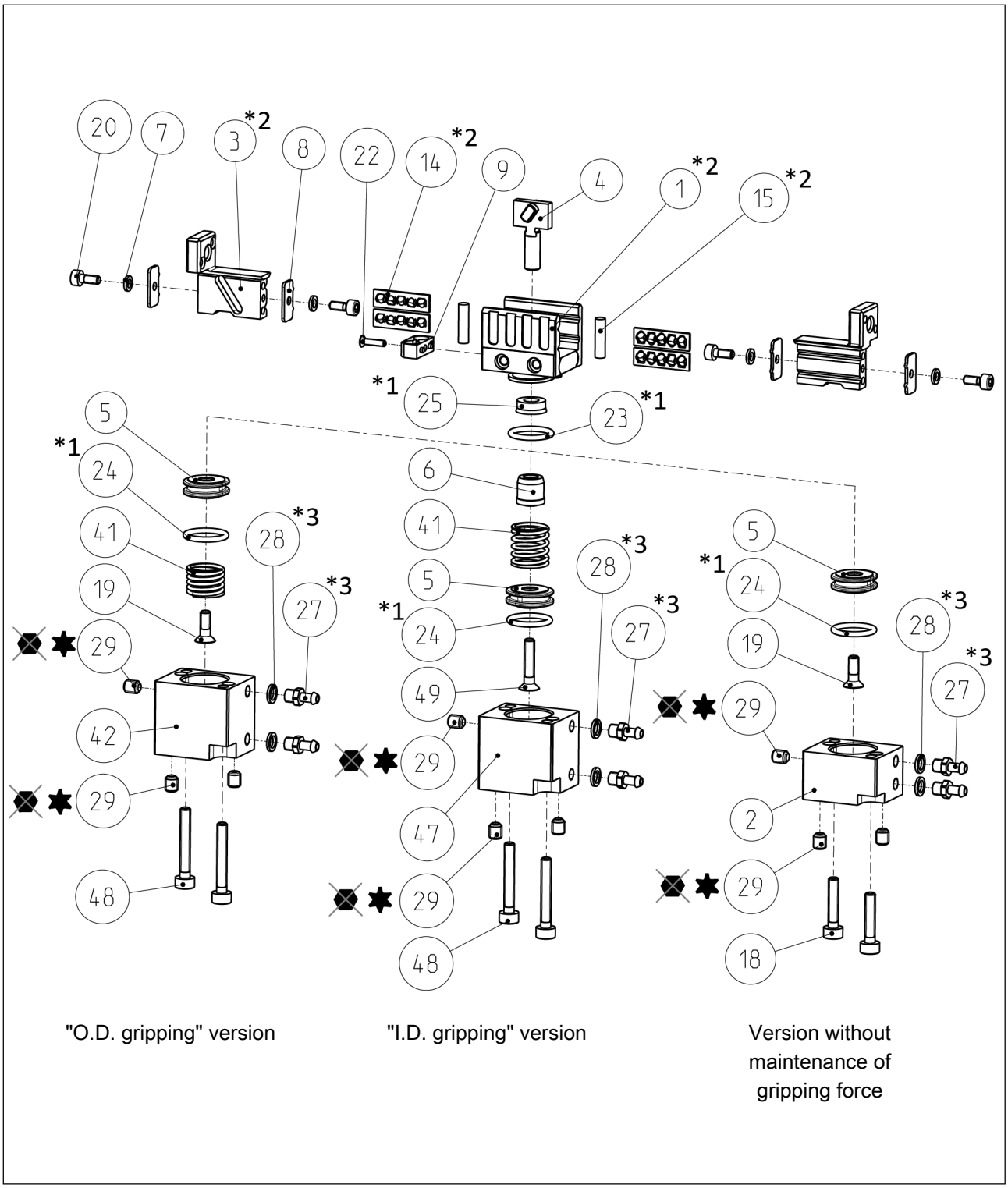


Assembly of sizes 10–12, variant without maintenance of gripping force

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

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

7.6.2 Sizes 16–20



Assembly of sizes 16-20

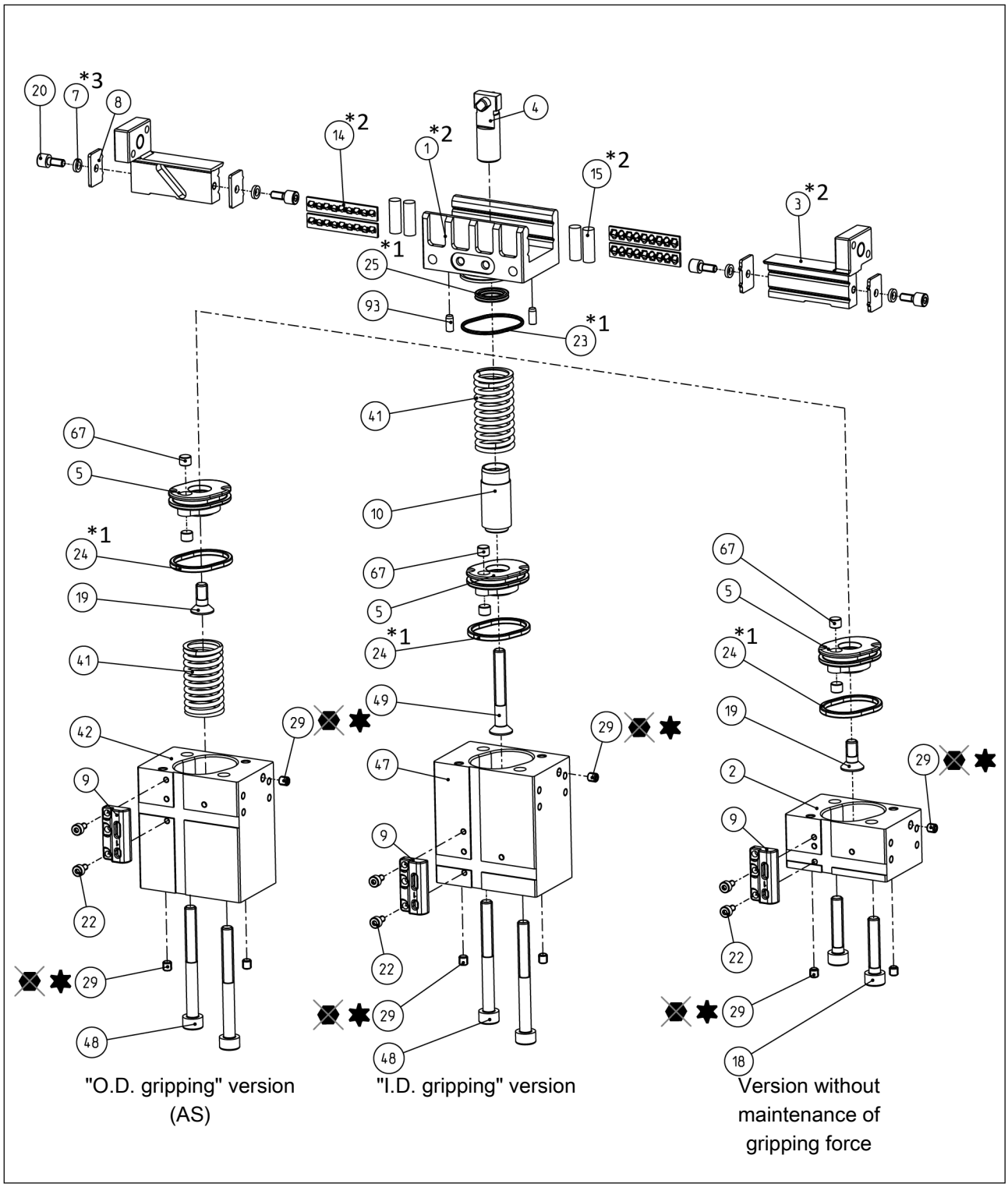
*1 Wearing part, replace during maintenance.
Included in the seal kit. Seal kit can only be ordered completely.

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

*3 Only size 16

Torx section

7.6.3 Size 25-50



Assembly of sizes 25-50

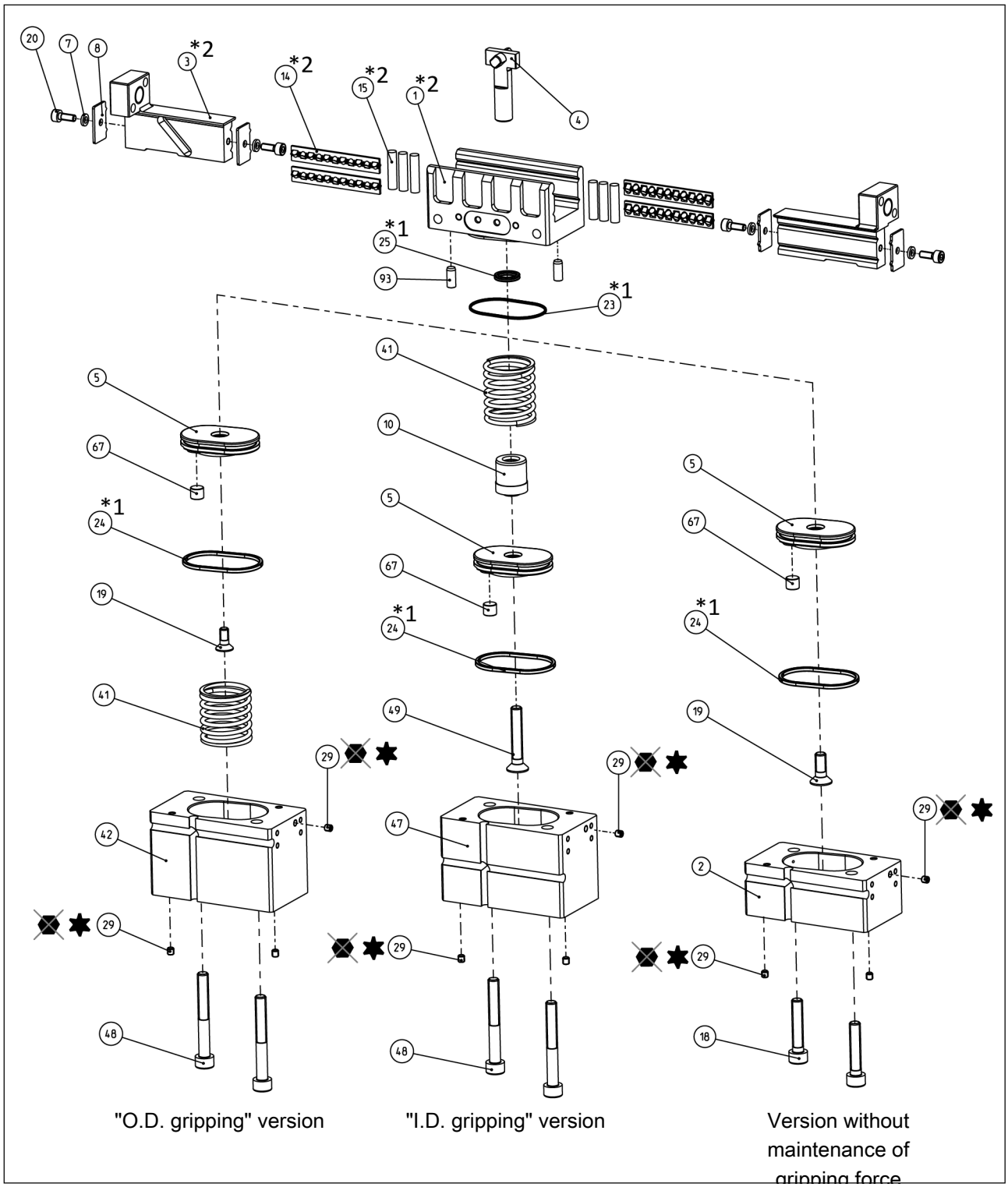
*1 Wearing part, replace during maintenance.
Included in the seal kit. Seal kit can only be ordered completely.

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

*3 Only size 25

Torx section

7.6.4 Size 64



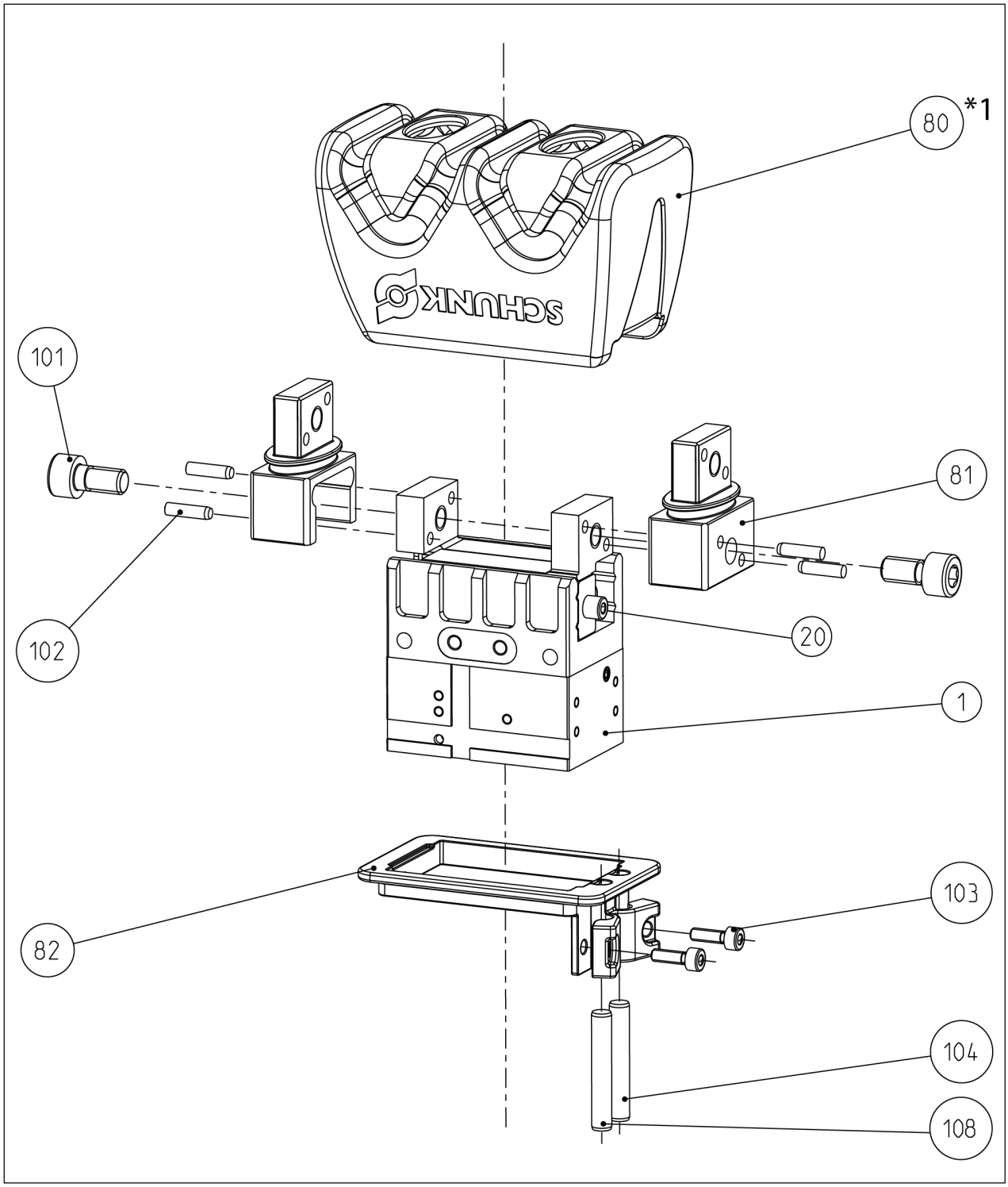
Assembly of size 64

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

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

Torx section

7.6.5 Variant with protective cover



2-finger parallel gripper MPG-plus with protective cover

*1 Wearing part, replace during maintenance.
Included in the "protective cover" spare parts package.

8 Translation of the 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 Clamping and gripping technology 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 / MPG-plus / pneumatic
ID number	0305481-0305489, 0305491-0305499, 0305501-0305507, 0305511-0305517, 0305521-0305527, 0305521-0305531, 0305541-0305549, 0305506-0305509, 0305516-0305519, 0305526-0305529, 0305536-0305539, 0305496-0305499

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, October 2022

p.p. Ralf Winkler;
Head of Technology & Engineering,
Mechanics Gripping Systems

9 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:	2-finger parallel gripper / MPG-plus / pneumatic
ID number	0305481-0305489, 0305491-0305499, 0305501-0305507, 0305511-0305517, 0305521-0305527, 0305521-0305531, 0305541-0305549, 0305506-0305509, 0305516-0305519, 0305526-0305529, 0305536-0305539, 0305496-0305499

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 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:
Marcel Machado, address: refer to manufacturer's address

Lauffen/Neckar, October 2022

p.p. Ralf Winkler;
Head of Technology & Engineering, Mechanics
Gripping Systems

10 Annex to declaration of Incorporation

in accordance with 2006/42/EC, Appendix II, no. 1 B

as well as

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

1. Description of the basic safety and health protection requirements, as per 2006/42/EC, Annex I and per the Supply of Machinery (Safety) Regulations 2008, that apply to and are fulfilled for the scope of the incomplete machine:

Product designation	2-finger parallel gripper
Type designation	MPG-plus
ID number	0305481-0305489, 0305491-0305499, 0305501-0305507, 0305511-0305517, 0305521-0305527, 0305521-0305531, 0305541-0305549, 0305506-0305509, 0305516-0305519, 0305526-0305529, 0305536-0305539, 0305496-0305499

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	
1.3.5	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	

SCHUNK GmbH & Co. KG
Clamping and gripping technology

Bahnhofstr. 106 - 134
D-74348 Lauffen/Neckar
Tel. +49-7133-103-0
Fax +49-7133-103-2399
info@de.schunk.com
schunk.com

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