



Assembly- and Operating Manual

MPZ

3-finger centric gripper

Translation of Original Operating
Manual

Hand in hand for tomorrow

Imprint

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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

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

Table of Contents

1 General	5
1.1 About this manual	5
1.1.1 Presentation of Warning Labels	5
1.1.2 Definition of Terms	6
1.1.3 Symbol definition	6
1.1.4 Applicable documents	6
1.1.5 Sizes	6
1.1.6 Variants	6
1.2 Warranty	7
1.3 Scope of delivery	7
1.3.1 Accessories pack	7
1.4 Accessories	9
1.4.1 Seal kit	9
2 Basic safety notes	10
2.1 Intended use	10
2.2 Constructional changes	10
2.3 Spare parts	10
2.4 Gripper fingers	10
2.5 Ambient conditions and operating conditions	11
2.6 Personnel qualification	11
2.7 Personal protective equipment	12
2.8 Notes on safe operation	12
2.9 Transport	12
2.10 Malfunctions	13
2.11 Disposal	13
2.12 Fundamental dangers	13
2.12.1 Protection during handling and assembly	14
2.12.2 Protection during commissioning and operation	14
2.12.3 Protection against dangerous movements	14
2.12.4 Protection against electric shock	15
2.13 Notes on particular risks	16
3 Technical data	18
4 Design and description	19
4.1 Configuration	19
4.2 Description	19
5 Assembly	20
5.1 Assembly and connection	20
5.2 Connections	22

5.2.1	Mechanical connection	22
5.2.2	Pneumatical connection	23
5.3	Mounting the sensor	24
5.3.1	Overview of sensors	24
5.3.2	Switch-off hysteresis for magnetic switches	24
5.3.3	Setting dimensions	25
5.3.4	Mounting MMS 22 magnetic switch	26
5.3.5	Mounting MMS 22-PI1 programmable magnetic switch	27
5.3.6	Mounting programmable MMS 22-PI2 magnetic switch	29
5.3.7	Mounting programmable MMS-P magnetic switch	30
5.3.8	Mounting programmable magnetic switch MMS-IOL	31
5.3.9	Mounting inductive proximity switch IN 30K	33
5.3.10	Mounting flexible position sensor FPS	34
6	Troubleshooting.....	35
6.1	Product is not moving	35
6.2	Product is not executing the complete stroke	35
6.3	Product opens or closes abruptly	35
6.4	Gripping force is dropping.....	36
6.5	Product does not achieve the opening and closing times	36
6.6	Compressed air connection is leaking	36
7	Maintenance	37
7.1	Notes.....	37
7.2	Maintenance intervals.....	37
7.3	Lubricants/Lubrication points.....	38
7.4	Dismantling the product	39
7.4.1	Version without gripping force maintenance	39
7.4.2	Maintenacnce of module with gripping force maintenance "O.D. gripping" (O.D.)	39
7.4.3	Version with gripping force maintenance I.D.	40
7.4.4	Variant with flexible position sensor (FPS)	41
7.5	Assembling the product	41
7.6	Tightening torque for screws	41
7.7	Drawings	42
7.7.1	Assembly MPZ 16-25	43
7.7.2	Assembly MPZ 30-45	44
7.7.3	Assembly with flexible position sensor FPS.....	45
8	Translation of the original declaration of incorporation	46
9	UKCA declaration of incorporation	47
10	Information on the RoHS Directive, REACH Regulation and Substances of Very High Concern (SVHC)	48

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 ▶ 1.1.4 [6] are applicable.

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

1.1.1 Presentation of Warning Labels

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



⚠ DANGER

Dangers for persons!

Non-observance will inevitably cause irreversible injury or death.



⚠ WARNING

Dangers for persons!

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



⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

NOTICE

Material damage!

Information about avoiding material damage.

1.1.2 Definition of Terms

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

1.1.3 Symbol definition

The following symbols are used in this manual:

■ Prerequisite for an action

1. Action 1

2. Action 2

⇒ Intermediate results

⇒ Final results

▶ 1.1.3 [📄 6]: chapter number and [page number] in hyperlinks

1.1.4 Applicable documents

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

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

1.1.5 Sizes

This operating manual applies to the following sizes:

- MPZ 16
- MPZ 20
- MPZ 25
- MPZ 30
- MPZ 38
- MPZ 45

1.1.6 Variants

This operating manual applies to the following variations:

- MPZ without gripping force maintenance
- MPZ with gripping force maintenance O.D. gripping
- MPZ with gripping force maintenance I.D. gripping
- MPZ High-temperature version (HT)
- MPZ with flexible position sensor

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

- 3-finger centric gripper MPZ in the version ordered
- Safety information (product-specific instructions available online)
- Accessory pack

1.3.1 Accessories pack

NOTE

MPZ 16-25 contains no accessory pack

Content of the accessory pack:

- 2x Centering sleeves for mounting
- 2x Locking screw
- 2x O-ring for hose-free direct connection *
- 2x Locking screw **

* not for MPZ-FPS 30-45

** not for MPZ-FPS 30

Size	ID number
30	5512077
30 HT	395512077
30 GKS-HT	395512078
30 AS / -IS	5512078
30 FPS	5512079
38	5512091
38 HT	395512091
38 GKS-HT	-
38 AS / -IS	5512092
38 FPS	5512093
45	5512105
45 HT	395512105

Size	ID number
45 GKS-HT	-
45 AS / -IS	5512092
45 FPS	5512093

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

Content of the accessories pack: ▶ [7.7](#) [[42](#)].

1.4 Accessories

A wide range of accessories are available for this product
For information regarding which accessory articles can be used
with the corresponding product variants, see catalog data sheet.

1.4.1 Seal kit

Size	ID number
16	-
16 HT	-
20	-
20 HT	-
25	-
25 HT	-
30	0370886
30 HT	0370490
38	0370887
38 HT	-
45	0370888
45 HT	-

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

contents of the sealing kit, ► 7.7 [42].

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 [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 utilization that exceeds or differs from the appropriate use is regarded as misuse.

2.2 Constructional changes

Implementation of structural changes

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

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

2.3 Spare parts

Use of unauthorized spare parts

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

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

2.4 Gripper fingers

Requirements of gripper fingers

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

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

2.5 Ambient conditions and operating conditions

Required ambient conditions and operating conditions

Incorrect ambient and operating conditions can make the product unsafe, leading to the risk of serious injuries, considerable material damage and/or a significant reduction to the product's life span.

- Make sure that the product is used only in the context of its defined application parameters, ▶ 3 [📄 18].

2.6 Personnel qualification

Inadequate qualifications of the personnel

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

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

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

Trained electrician

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

Qualified personnel

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

Instructed person

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

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

2.7 Personal protective equipment

Use of personal protective equipment

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

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

2.8 Notes on safe operation

Incorrect handling of the personnel

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

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

2.9 Transport

Handling during transport

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

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

2.10 Malfunctions

Behavior in case of malfunctions

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

2.11 Disposal

Handling of disposal

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

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

2.12 Fundamental dangers

General

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

2.12.1 Protection during handling and assembly

Incorrect handling and assembly

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

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

Incorrect lifting of loads

Falling loads may cause serious injuries and even death.

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

2.12.2 Protection during commissioning and operation

Falling or violently ejected components

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

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

2.12.3 Protection against dangerous movements

Unexpected movements

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

- Switch off the energy supply, ensure that no residual energy remains and secure against inadvertent reactivation.
- Never rely solely on the response of the monitoring function to avert danger. Until the installed monitors become effective, it must be assumed that the drive movement is faulty, with its action being dependent on the control unit and the current operating condition of the drive. Perform maintenance work, modifications, and attachments outside the danger zone defined by the movement range.
- To avoid accidents and/or material damage, human access to the movement range of the machine must be restricted. Limit/prevent accidental access for people in this area due through technical safety measures. The protective cover and protective

fence must be rigid enough to withstand the maximum possible movement energy. EMERGENCY STOP switches must be easily and quickly accessible. Before starting up the machine or automated system, check that the EMERGENCY STOP system is working. Prevent operation of the machine if this protective equipment does not function correctly.

2.12.4 Protection against electric shock

Possible electrostatic energy

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

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

2.13 Notes on particular risks



⚠ DANGER

Risk of fatal injury from suspended loads!

Falling loads can cause serious injuries and even death.

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



⚠ WARNING

Risk of injury from objects falling and being ejected!

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

- Take appropriate protective measures to secure the danger zone.



⚠ WARNING

Risk of injury from sharp edges and corners!

Sharp edges and corners can cause cuts.

- Use suitable protective equipment.



⚠ WARNING

Risk of injury due to unexpected movements!

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

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



⚠ WARNING

Risk of injury from crushing and impacts!

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

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



⚠ WARNING

Risk of injury due to spring forces!

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

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



⚠ WARNING

Risk of injury from objects falling during energy supply failure

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

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

3 Technical data

Connection data

Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:2010 [7:4:4]
Nominal operating pressure [bar]	6
Minimum pressure [bar] without maintenance of gripping force	2
Minimum pressure [bar] with maintenance of gripping force	4
Minimum pressure [bar] mit flexiblem Positionssensor	2
Max. pressure [bar] without maintenance of gripping force	8
Max. pressure [bar] with maintenance of gripping force	6.5
Max. pressure [bar] with flexible position sensor	8

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

Ambient conditions and operating conditions

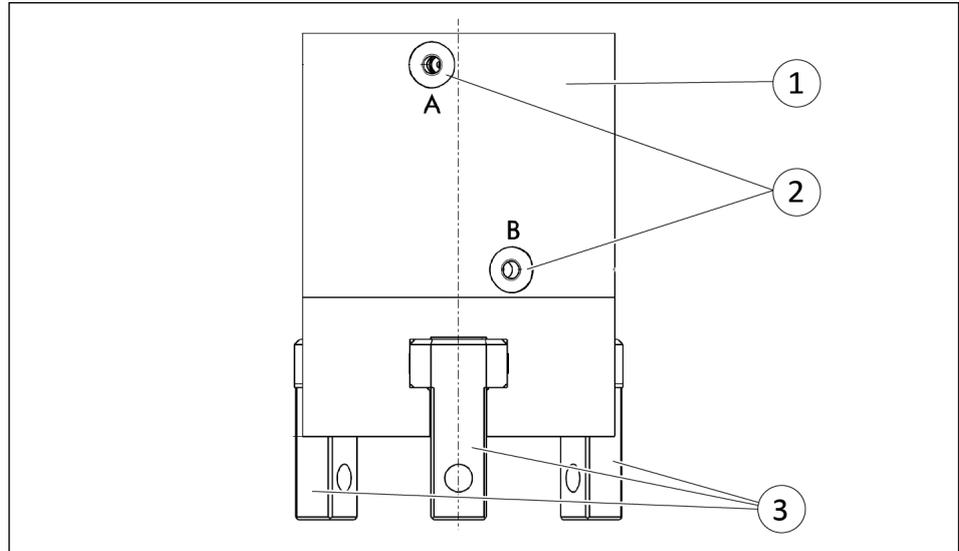
Designation

Ambient temperature [°C]	
min.	+5
max.	+90
Protection class IP *	40
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.

4 Design and description

4.1 Configuration



3-finger centric gripper

- | | |
|---|----------------------|
| 1 | Housing |
| 2 | Main air connections |
| 3 | Base jaws |

4.2 Description

3-finger centric gripper with base jaws guided on T-slots

5 Assembly

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 [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 evenness of the mounting surface, ▶ 5.2.1 [22].
2. Only open the required air connections (main connection or direct connection), ▶ 5.2.2 [23].
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 [📄 23].
 - ⇒ 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 [📄 22].
 - ⇒ 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 [📄 22].
- 7.** Connect the sensor, see assembly and operating manual of the sensor.
- 8.** Mount the sensor, ▶ 5.3 [📄 24].

5.2 Connections

5.2.1 Mechanical connection

Evenness of the mounting surface

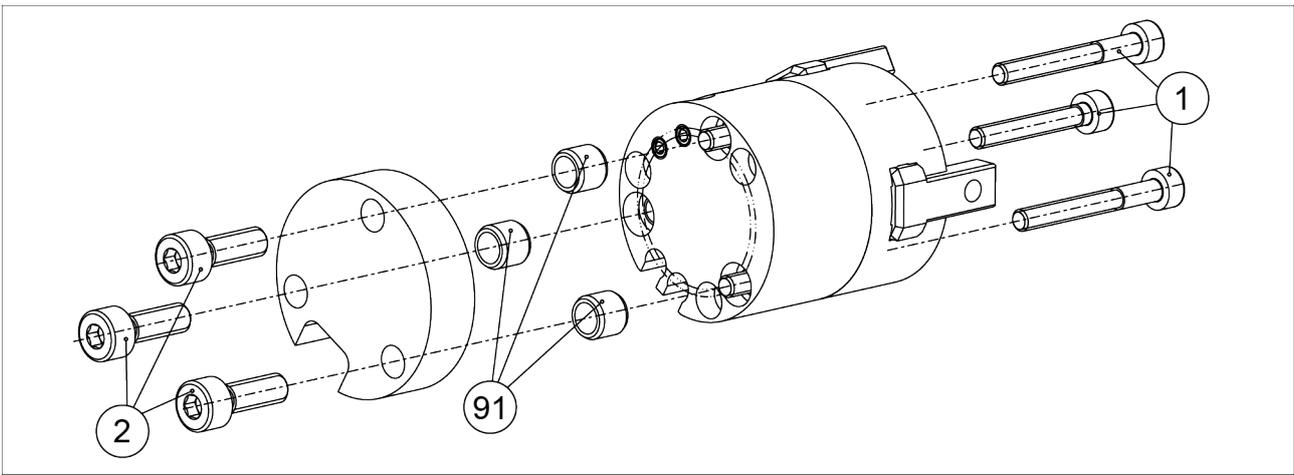
The values apply to the whole mounting surface to which the product is mounted.

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

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

Mounting

The module can be mounted from the front and from the rear:



Assembly options

Size	(1) Screws	(2) Screws	(91) Centering sleeve *
16	M1.6	M2 5 tief	Ø1.5 H7
20	M1.6	M2 8 tief	Ø3.5 H7
25	M2.5	M3 10 tief	Ø5 H7
30	M3	M4 9 tief	Ø6 H7
38	M4	M5 10 tief	Ø8 H7
45	M4	M5 10 tief	Ø8 H7

* Contained in accessory pack.

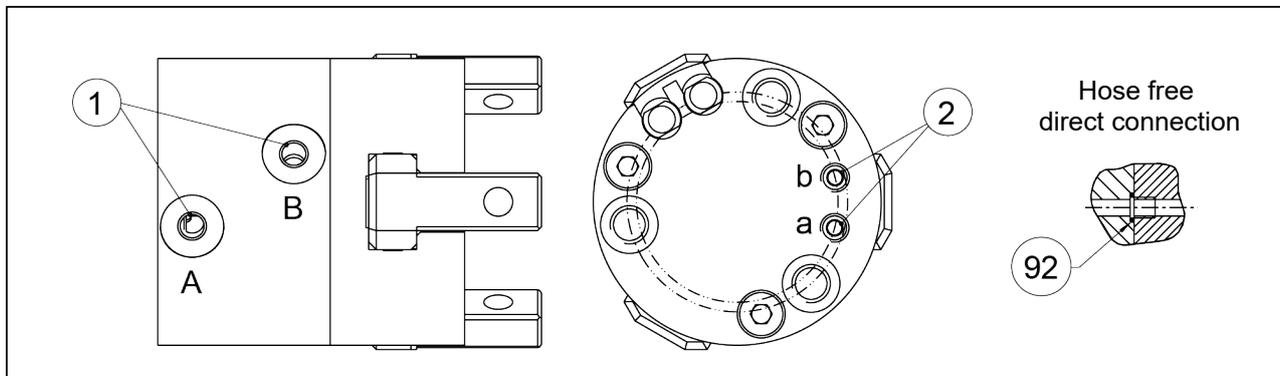
NOTE

- Locate the module with 2 centre sleeves (91).
- Mount the module using the screws (1/2).

5.2.2 Pneumatical connection

NOTE

The central air unit must be equipped with a maintenance unit that is located as near as possible to the consumer.



Compressed air connections

Size	(1) Hose connection	(2) Hose-free direct connection	(92) O-ring
16	M2.5 (2x)	-	-
20	M3 (2x)	-	-
25	M3 (2x)	M2.5 (2x)	-
30	M3 (2x)	M3 (2x)	∅3 x 1.00 *
38	M3 (2x)	M3 (2x)	∅3 x 1.00 *
45	M3 (2x)	M3 (2x)	∅3 x 1.00 *

Tab.: Thread diameter of the air connections

* Contained in accessory pack.

For the size 16 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, ▶ 6 [35].

Further information on the hose-free direct connection contains the catalog data sheet.

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

Size	MMS 22	MMS 22-PI1	MMS 22-PI2	MMS-P 22	MMS 22-IOL	IN 3 K	FPS with FPS-S 13
16	⊘	⊘	⊘	⊘	⊘	✓	⊘
20	⊘	✓	✓	✓	⊘	⊘	⊘
25	⊘	✓	✓	✓	⊘	⊘	⊘
30	✓	✓	✓	✓	✓	⊘	✓
38	✓	✓	✓	✓	✓	⊘	✓
45	✓	✓	✓	✓	✓	⊘	✓

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:

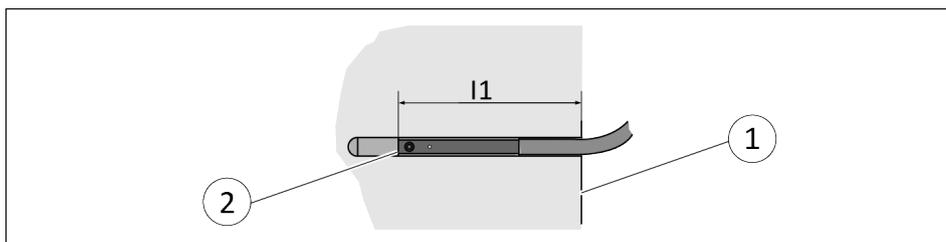
For products with X mm nominal stroke per jaw	Min. query range per jaw/ min. queried stroke difference per jaw
$X \leq 5 \text{ mm}$	30 % of the nominal stroke per jaw
$X > 5 \text{ mm to } X \leq 10 \text{ mm}$	20 % of the nominal stroke per jaw
$X > 10 \text{ mm}$	10 % of the nominal stroke per jaw

Tab.: The smallest detectable difference in stroke based on the nominal stroke

Example: Product with 7 mm nominal stroke per jaw

$7 \text{ mm} * 20\% = 1.4 \text{ mm}$

5.3.3 Setting dimensions



* Setting dimension l_1 , from product bottom edge (1) to front sensor (2)

The setting dimension applies for the following sensors:

- Programmable magnetic switch MMS 22-PI1
- Programmable magnetic switch MMS 22-PI2
- Programmable magnetic switch MMS-P 22

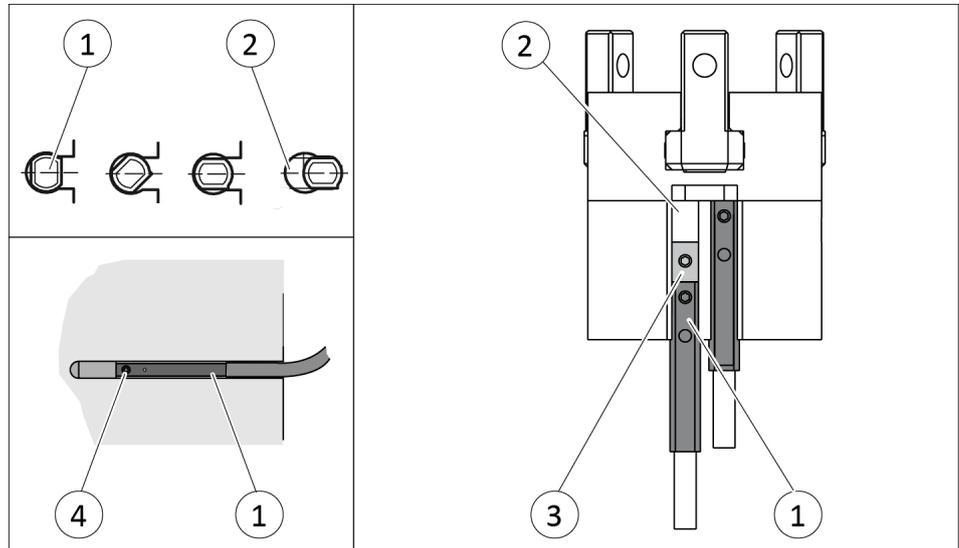
Size	l_1^* [mm]
20	19.0 (until end of groove)
20-AS	19.3
20-IS	24.3 (until end of groove))
25	19.4 (until end of groove))
25-AS	18.4
25-IS	31.4 (until end of groove))
30	21.0 (until end of groove))
30-AS	21.2
30-IS	29.2
38	17.5
38-AS	22.0
38-IS	41.0
45	19.4
45-AS	22.9
45-IS	37.5

5.3.4 Mounting MMS 22 magnetic switch

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



Positioning of the magnetic switches

Position "Gripper open" or "Part gripped (I.D. gripping)"

1. Bring product in the position to be set.
2. If necessary remove T-nut (3).
3. Turn the 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 end of the groove.
4. Pull the sensor 1 (1) back again slowly until it switches.
5. Secure the sensor 1 (1) using the set-screw (4).
Tightening torque: 10 Ncm
6. Bring product into the "Gripper open" or "Part gripped" position and test the function.

Position "Gripper closed" or "Part gripped (O.D. gripping)"

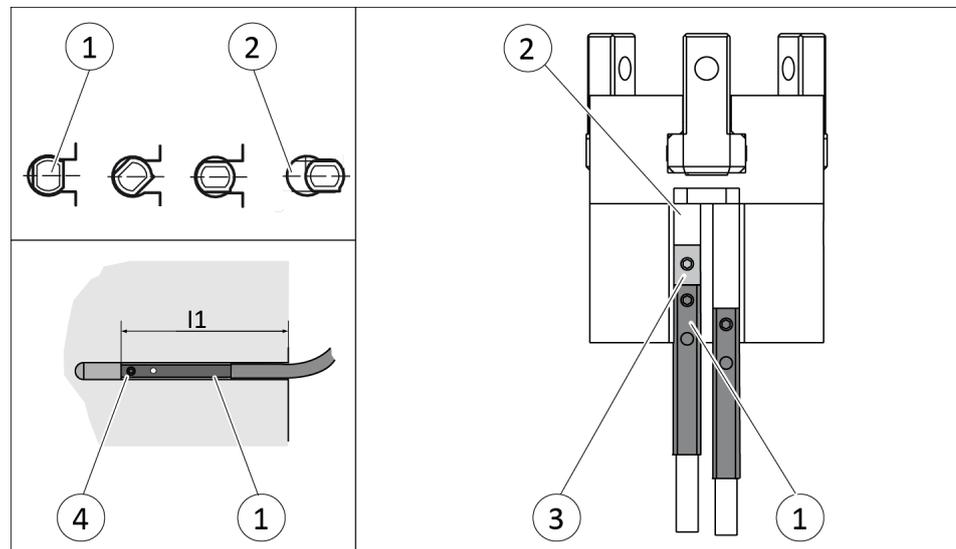
1. Bring product in the position in which it is to be set.
2. If necessary remove T-nut (3).
3. Turn the sensor 2 (1) into the groove (2).
OR: Slide sensor 2 (1) into the groove (2) in the direction of the housing middle (3), until the sensor 2 (1) switches.
4. Secure the sensor 2 (1) using the set-screw (4).
Tightening torque: 10 Ncm
5. Bring product into the "Gripper closed" or "Part gripped" position and test the function.

5.3.5 Mounting MMS 22-PI1 programmable magnetic switch

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal 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.

NOTE

If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ► 5.3.3 [25].

Setting the sensor in "Standard mode"

1. Turn the 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.

**Alternatively for size 20-45, except 25-AS and 45:
Setting the sensor in "Optimum mode"**

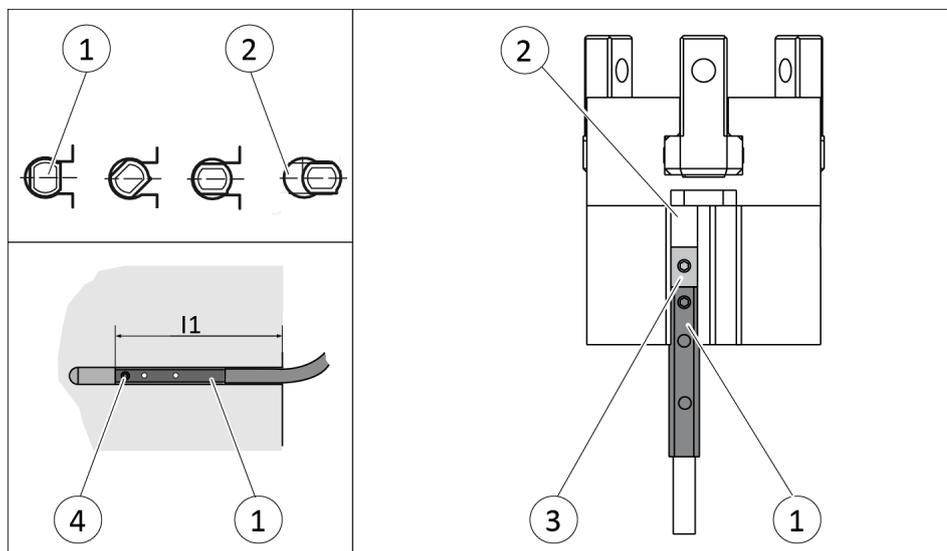
1. Put product in the position in which it is to be set.
2. Hold teaching tool to the sensor 1 (1) until the sensor flashes.
3. Slide sensor 1 (1) into the groove (2), until the sensor 1 flashes rapidly.
⇒ The optimum position is displayed.
4. Secure the sensor 1 (1) using the set-screw (3).
Tightening 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.

5.3.6 Mounting programmable MMS 22-PI2 magnetic switch

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



NOTE

If there is no T-nut available, slide the sensor according to dimension l_1 into the groove (2), ► 5.3.3 [25].

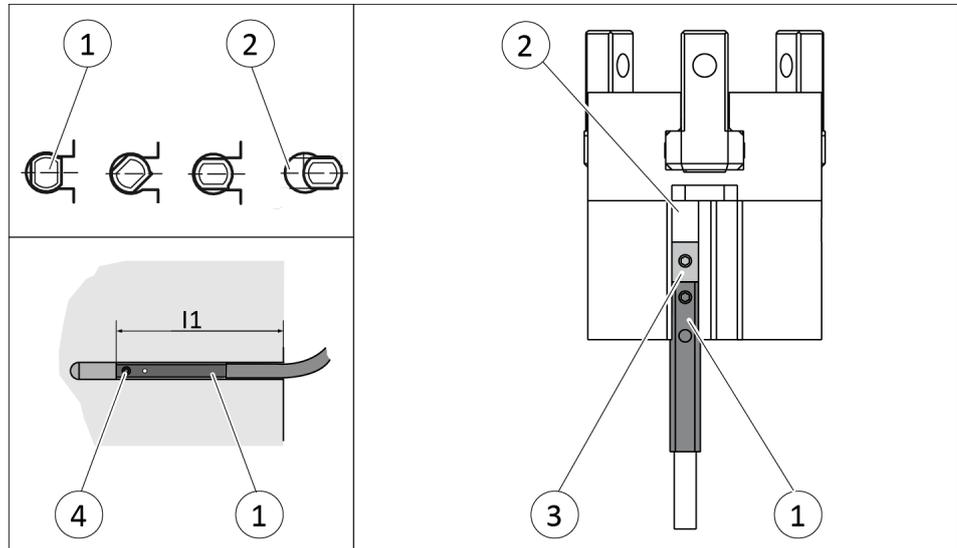
1. Turn the sensor (1) into the groove (2).
OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Secure the sensor (1) using the set-screw (4).
Tightening torque: 10 Ncm
3. Adjust sensor (1), see sensor assembly and operating manual.

5.3.7 Mounting programmable MMS-P magnetic switch

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



NOTE

If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ► 5.3.3 [25].

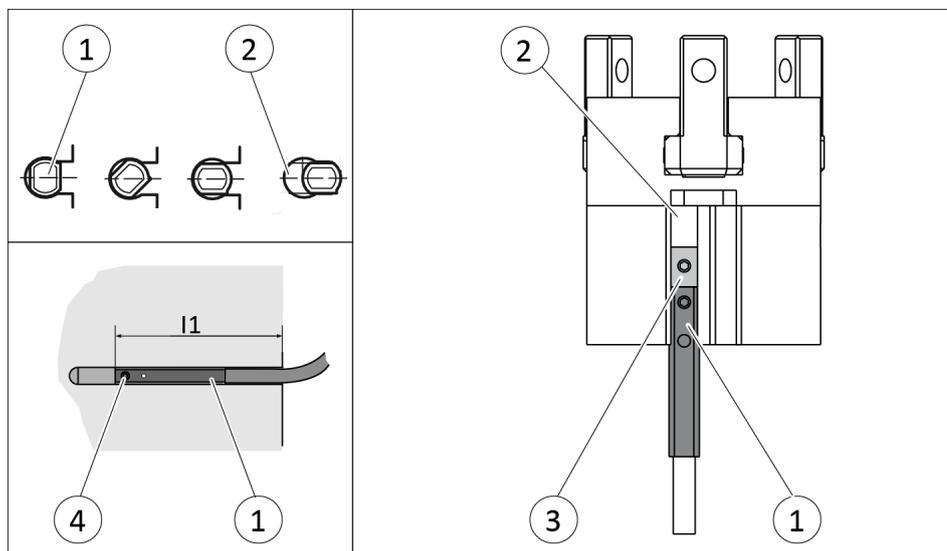
1. Turn the sensor (1) into the groove (2).
OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Secure the sensor (1) using the set-screw (4).
Tightening torque: 10 Ncm
3. Adjust sensor (1), see sensor assembly and operating manual.

5.3.8 Mounting programmable magnetic switch MMS-IOL

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



NOTE

If there is no T-nut available, slide the sensor according to dimension l_1 into the groove (2), see following table.

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 sensor assembly and operating manual.

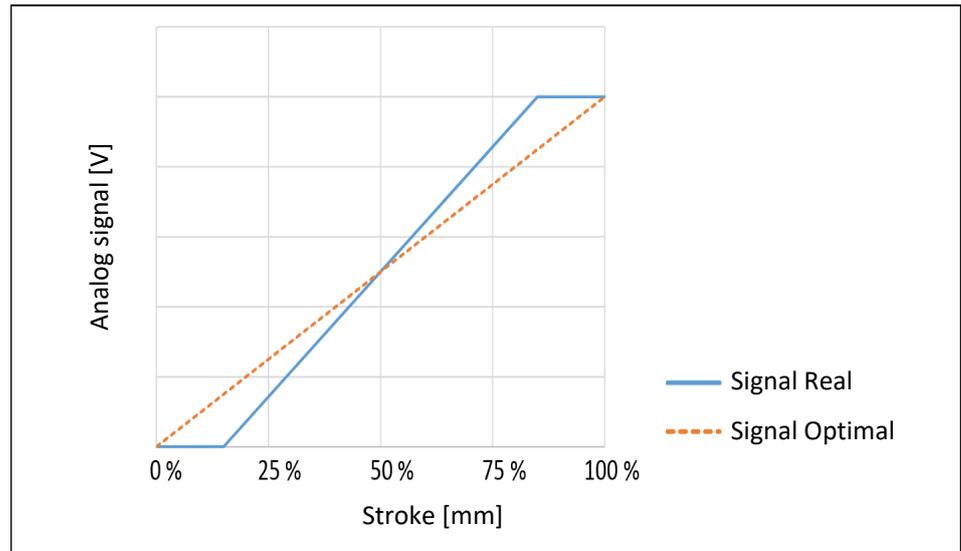
Size	l_1^* [mm]
30	20.0
30 AS	25.5
30 IS	33.5
38	21.0
38 AS	25.5
38 IS	42.0
45	20.0
45 AS	22.75
45 IS	34.5

* Setting dimension l_1 , from product bottom edge to front sensor

Size 45 AS:

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 %
45 AS	5 mm	0.75 mm

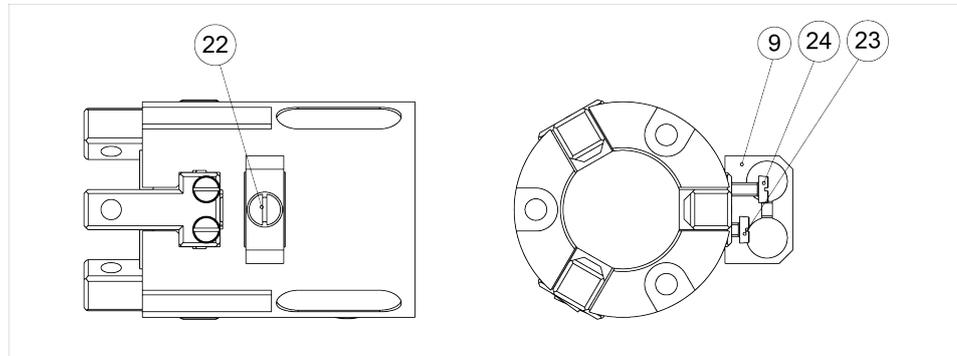


5.3.9 Mounting inductive proximity switch IN 30K

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



NOTE

The screw heads of screws (23) and (24) are used for proximity switch monitoring. The monitoring positions "Gripper open" and "Gripper closed" were factory-set. These monitoring positions cannot be changed.

1. Slide both sensors into the holder (9) and tighten screw (22) slightly.
2. Put the product in the position in which it is to be set.
3. Slide the sensor carefully towards the screw head.
4. Use a feeler gage to set a distance of 0.2 mm.
5. Bring the product into position and test the function.
6. Tighten screw (22) on the holder (9).
Tightening torque: 10 Ncm

5.3.10 Mounting flexible position sensor FPS

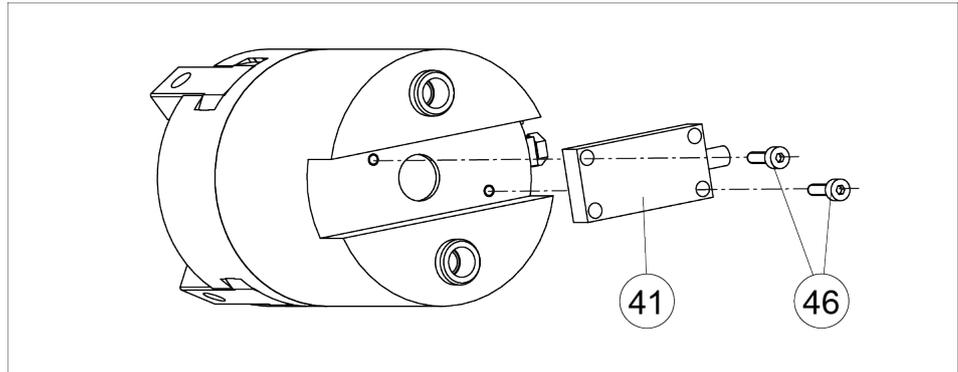
The flexible position sensor FPS consists of an evaluation unit and one of the following sensors:

- FPS-S 13

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



1. Insert the sensor (41) with the circular elevation (active sensor surface) in the recess of the housing.
2. Secure the sensor (41) on the gripper using screws (46).
Tightening torque: 1 Ncm
3. Connect the evaluation unit and adjust the sensor, see the Assembly and Operating Manual for the sensor.

6 Troubleshooting

6.1 Product is not moving

Possible cause	Corrective action
Base jaws jam in housing, e.g. mounting surface is not sufficiently even.	Check the evenness of the mounting surface. ▶ 5.2.1 [22]
	Loosen the mounting screws of the product and actuate the product again.
Pressure drops below minimum.	Check air supply. ▶ 5.2.2 [23]
Compressed air lines switched.	Check compressed air lines. ▶ 5.2.2 [23]
Proximity switch defective or set incorrect.	Readjust or change sensor.
Unused air connections open.	Close unused air connections.
Flow control valve closed.	Open the flow control valve.
Component part defective.	Replace component or send it to SCHUNK for repair.

6.2 Product is not executing the complete stroke

Possible cause	Corrective action
Dirt deposits between cover and piston.	Clean and if necessary re-lubricate.
Dirt deposits between basic jaws and guidance.	Disassemble and clean the product.
Pressure drops below minimum.	Check air supply. ▶ 5.2.2 [23]
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface. ▶ 5.2.1 [22]
Component part defective.	Replace component or send it to SCHUNK for repair.

6.3 Product opens or closes abruptly

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product. ▶ 7 [37]
Compressed air lines blocked.	Check compressed air lines of damage.
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface.
One-way flow control valve is missing or adjustet incorrectly.	Install and adjust one-way flow control valve.
Loading too large.	Check permissible weight and length of the gripper fingers.

6.4 Gripping force is dropping

Possible cause	Corrective action
Compressed air can escape.	Check seals, if necessary, disassemble the product and replace seals.
Too much grease in the mechanical movement space.	Clean and lubricate product.
Pressure drops below minimum.	Check air supply. ▶ 3 [18]
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. Flow rate of valve is sufficiently large relative to the compressed air consumption. 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.
Compressed air can escape.	Check seals, if necessary, disassemble the product and replace seals.
Component part defective.	Replace component or send it to SCHUNK for repair.
Too much grease in the mechanical movement space.	Clean and lubricate product. ▶ 7 [37]
Loading too large.	Check permissible weight and length of the gripper fingers.

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. To replace these parts, send the product to SCHUNK with a repair order.

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

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

7.2 Maintenance 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)	Maintenance work
1.5	Treat all grease areas with lubricant, ▶ 7.3 [38]. Oil or grease external steel parts. Clean all parts thoroughly, check for damage and wear
1.5	only for sizes 30–45: If necessary, replace seals, ▶ 7.4 [39]. The seals are in the enclosed sealing kit. ▶ 1.4.1 [9].

7.3 Lubricants/Lubrication points

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

SCHUNK recommends the lubricants listed.

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

Details regarding SCHUNK lubricant designations are available at [schunk.com/lubricants](https://www.schunk.com/lubricants).

The product contains food-compliant lubricants as standard.

The requirements of standard EN 1672-2:2020 are not fully met.

NOTE

- Change contaminated food-compliant lubricant.
 - Observe information in the safety data sheet from the lubricant manufacturer.
-

7.4 Dismantling the product

NOTE

For sizes 16, 20 and 25, there is no need to dismantle the product since seal replacement is not necessary.

7.4.1 Version without gripping force maintenance

Position of the item numbers ▶ 7.7 [42]



⚠ WARNING

Risk of injury due to unexpected movements!

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

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

1. Remove the compressed air hoses.
2. Unscrew the screws (20) and remove the cover (8).
3. Unscrew screw (18) and remove the housing (2).
4. Unscrew screw (19) and remove cylinder piston (5).
5. Press the piston (4) upward out of the housing (1).
6. Pull the base jaws (3) out of the housing (1).

7.4.2 Maintenance of module with gripping force maintenance "O.D. gripping" (O.D.)

Position of the item numbers ▶ 7.7 [42]



⚠ WARNING

Risk of injury due to unexpected movements!

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

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



⚠ WARNING

Risk of injury due to spring forces!

The cylinder piston is under spring tension.

- Carefully disassemble the product.
-
1. Remove the compressed air hoses.
 2. Unscrew the screws (20) and remove the cover (8).
 3. Unscrew the screws (38) and remove the housing (32).
 4. **WARNING! Danger of injury due to spring forces! the cover housing is spring tensioned. Carefully disassemble the module.** Secure the cylinder piston (35) against accidentally springing out and unscrew the screw (39).
 5. Release the tension on the spring (31) and remove the cylinder piston (35).
 6. Press the piston (4) upward out of the housing (1).
 7. Pull the base jaws (3) out of the housing (1).

7.4.3 Version with gripping force maintenance I.D.

Position of the item numbers ▶ 7.7 [42]



⚠ WARNING

Risk of injury due to unexpected movements!

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

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



⚠ WARNING

Risk of injury due to spring forces!

The cylinder piston is under spring tension.

- Carefully disassemble the product.
-
1. Remove the compressed air hoses.
 2. Unscrew the screws (20) and remove the cover (8).
 3. **WARNING! Danger of injury due to spring forces! The cylinder piston (35) is under spring tension Carefully disassemble the module.** Clamp the module between the housing parts (32) and (1) in a vice.

4. Unscrew the screws (38).
5. Carefully open the vise until the compression spring (31) has no more tension.
6. Remove the housing (32) and take out the compression spring (31).
7. Unscrew screw (19) and remove cylinder piston (5) from the housing (1).
8. Press the piston (4) upward out of the housing (1).
9. Pull the base jaws (3) out of the housing (1).

7.4.4 Variant with flexible position sensor (FPS)

Position of the item numbers ▶ 7.7 [📄 42]



⚠ WARNING

Risk of injury due to unexpected movements!

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

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

1. Remove the compressed air hoses.
2. Unscrew screws (48) and remove the housing (42).
3. Hold the set screw (49) and unscrew the cylinder piston (45).
4. Press the piston (4) upward out of the housing (1).
5. Pull the base jaws (3) out of the housing (1).

7.5 Assembling the product

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

- Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque. ▶ 7.6 [📄 41]

7.6 Tightening torque for screws

Position of the item numbers ▶ 7.7 [📄 42]

Size	Item											
	18	19	20	21	22	23	24	38	39	49	94	
16	-	-	0.3	0.3	0.1	0.1	0.1	-	-	-	-	
20	-	-	0.6	0.6	-	-	-	-	-	-	-	

Size	Item										
	18	19	20	21	22	23	24	38	39	49	94
25	-	-	1.3	1.3	-	-	-	-	-	-	-
30	1.1	2.2	0.18	-	-	-	-	0.6	2.2	0.8	1.1
38	2.4	5.8	0.18	-	-	-	-	1.1	5.8	2.2	2.4
45	2.4	12.0	0.18	-	-	-	-	2.6	12.0	5.9	2.4

Tab.: Values in Nm

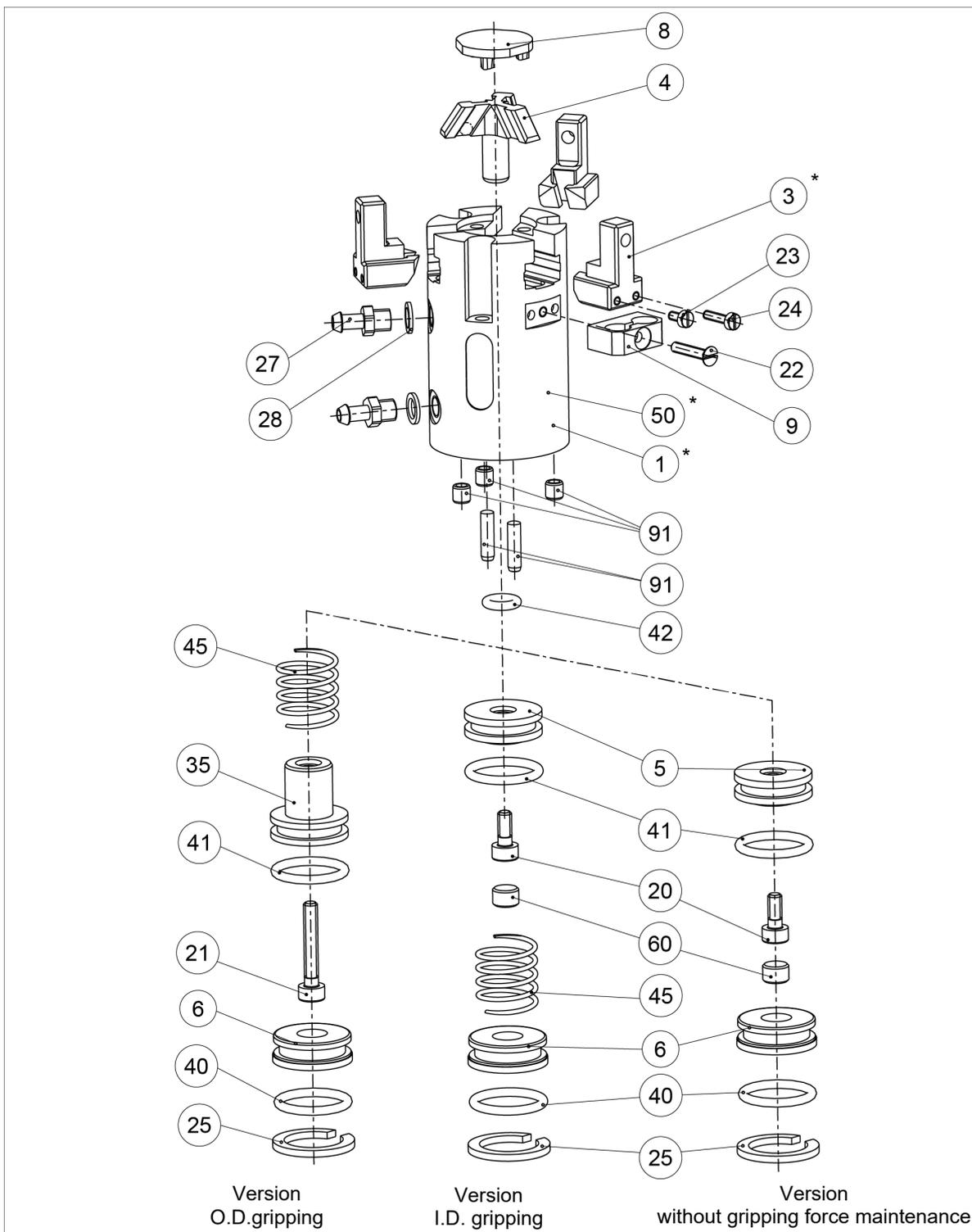
7.7 Drawings

The following figures are example images.

They serve for illustration and assignment of the spare parts.

Variations are possible depending on size and variant.

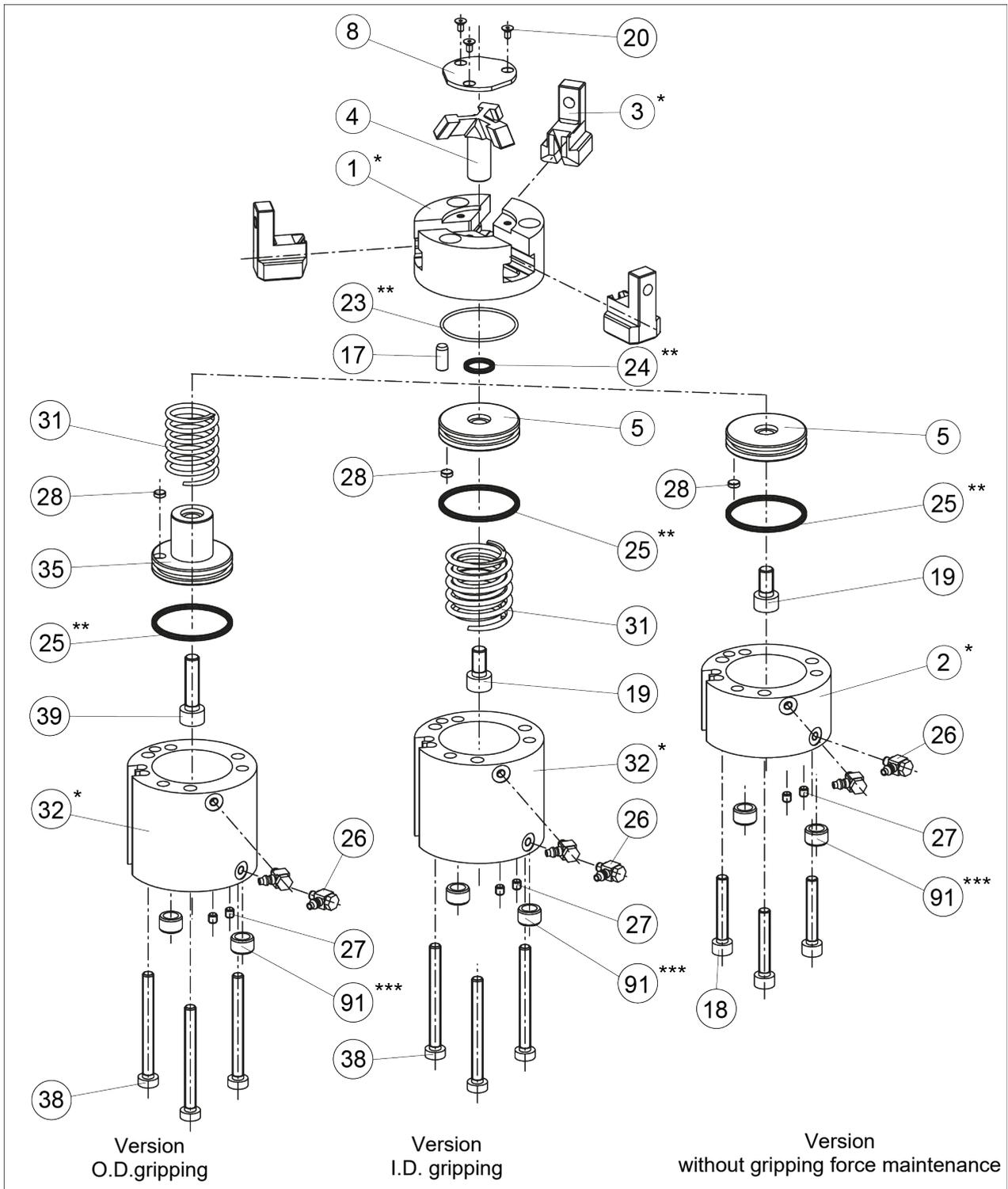
7.7.1 Assembly MPZ 16-25



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

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

7.7.2 Assembly MPZ 30-45



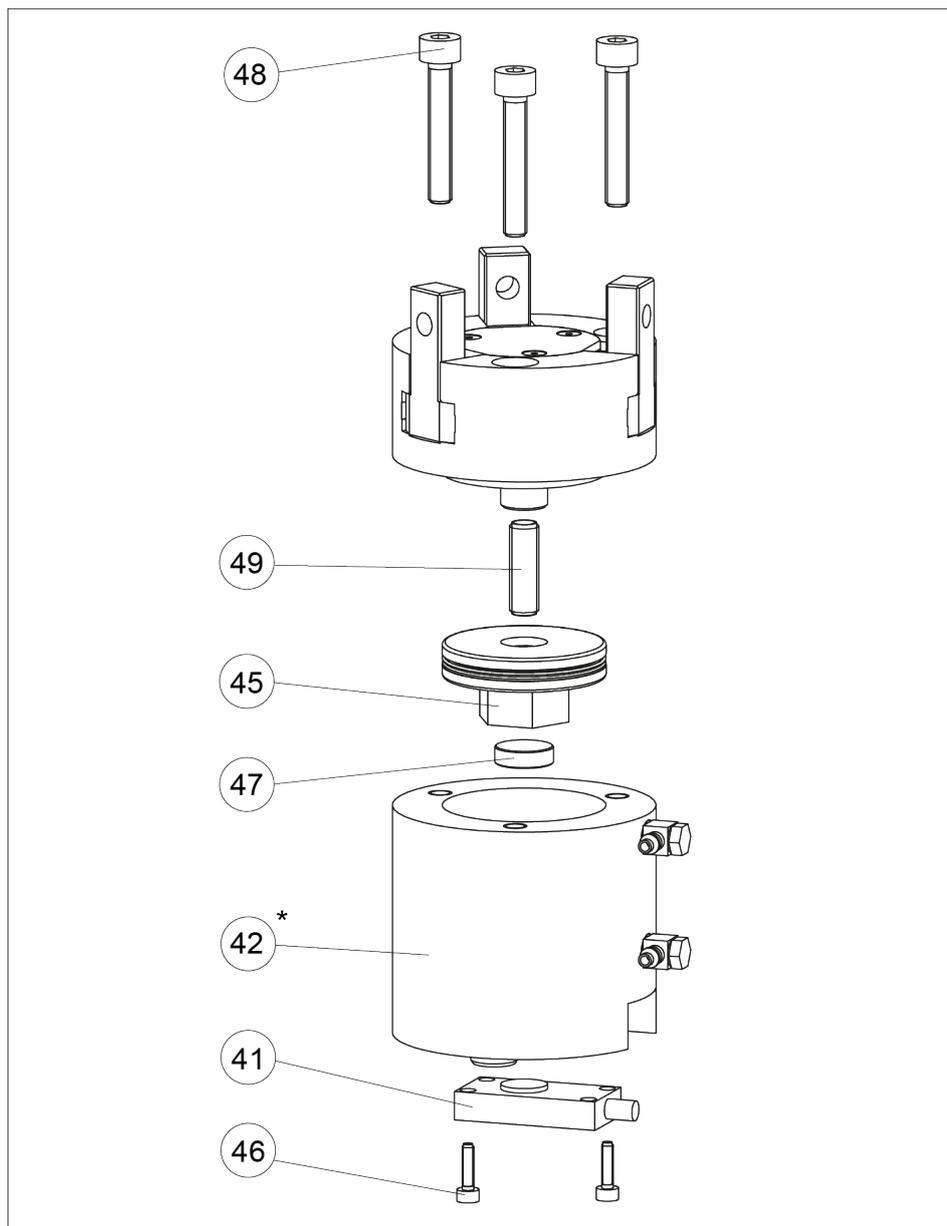
Assembly of the Types O.D.gripping / I.D. gripping / without gripping force maintenance

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

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

*** Contained in accessory pack.

7.7.3 Assembly with flexible position sensor FPS



Assembly of the Types with flexible position sensor FPS

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

8 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: 3-finger centric gripper / MPZ /pneumatic
ID number 0340480 ... 0340533

meets the following basic occupational health and safety of the Machinery Directive 2006/42/EC:

No. 1.1.1, No. 1.1.2, No. 1.1.3, No. 1.1.5, No. 1.3.2, No. 1.5.3, No. 1.5.4, No. 1.5.6, No. 1.5.8, No. 1.5.10, No. 1.5.11, No. 1.5.13

The partly completed machinery may not be put into operation until it has been confirmed that the machine into which the partly completed machinery is to be installed complies with the provisions of the Machinery Directive (2006/42/EC). The declaration shall be rendered invalid if modifications are made to the product.

Applied harmonized standards, especially:

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

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

Person authorized to compile the technical documentation:
Stefanie Walter, Address: see manufacturer's address

Signature: see original declaration

Lauffen/Neckar, March 2025

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

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:	3-finger centric gripper / MPZ / pneumatic
ID number	0340480 ... 0340533

The partly completed machine may not be put into operation until it has been confirmed that the machine into which the partly completed machine is to be installed complies with the provisions of the "Supply of Machinery (Safety) Regulations 2008".

Applied harmonized standards, especially:

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

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

Person authorized to compile the technical documentation:
Marcel Machado, address: refer to manufacturer's address



Lauffen/Neckar, March 2025

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

10 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

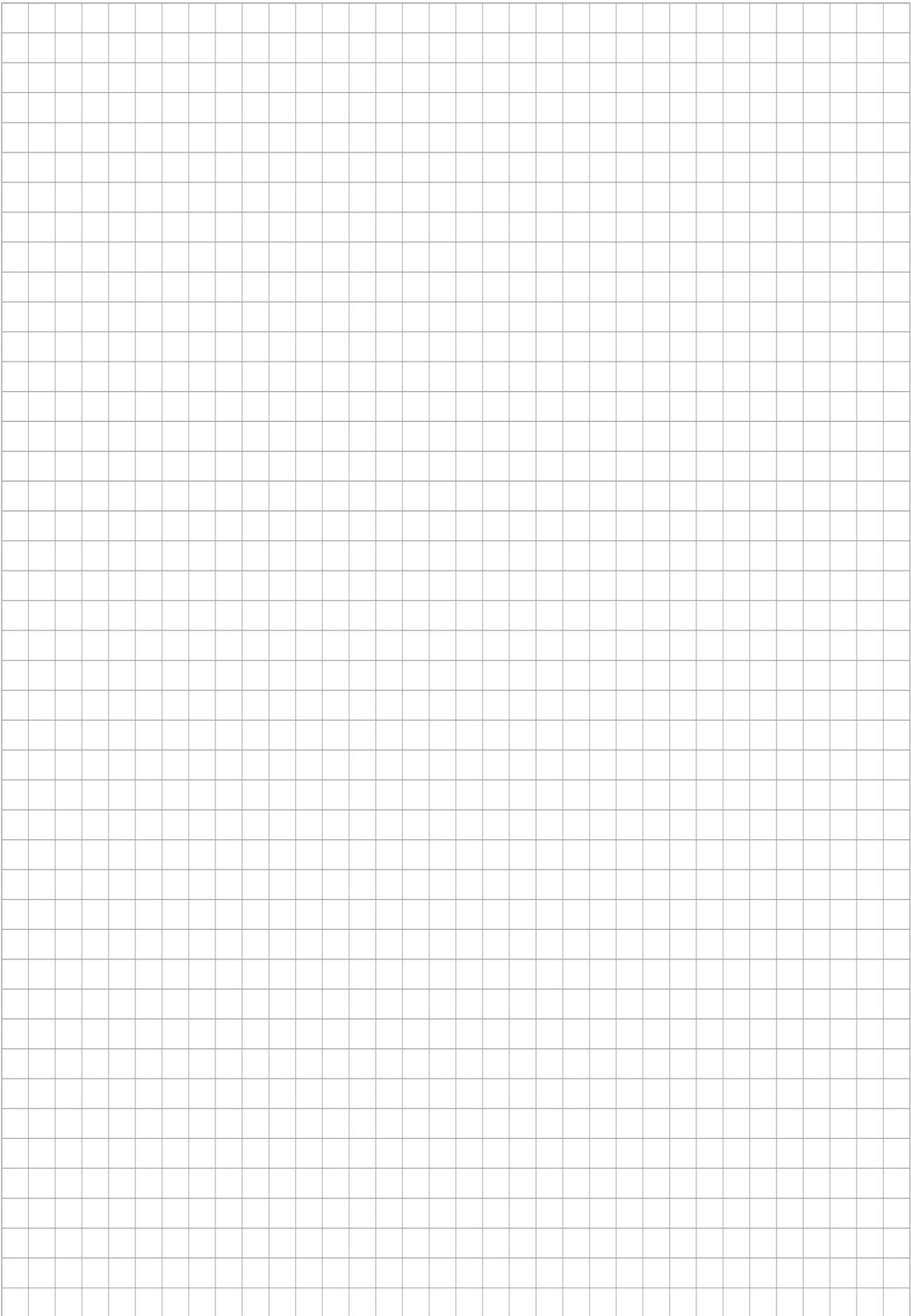
Products from SCHUNK fully comply with the regulations of Regulation (EC) No. 1907/2006 "concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)" and its amendment 2022/477. SCHUNK attaches great importance to completely avoiding chemicals of concern to humans and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

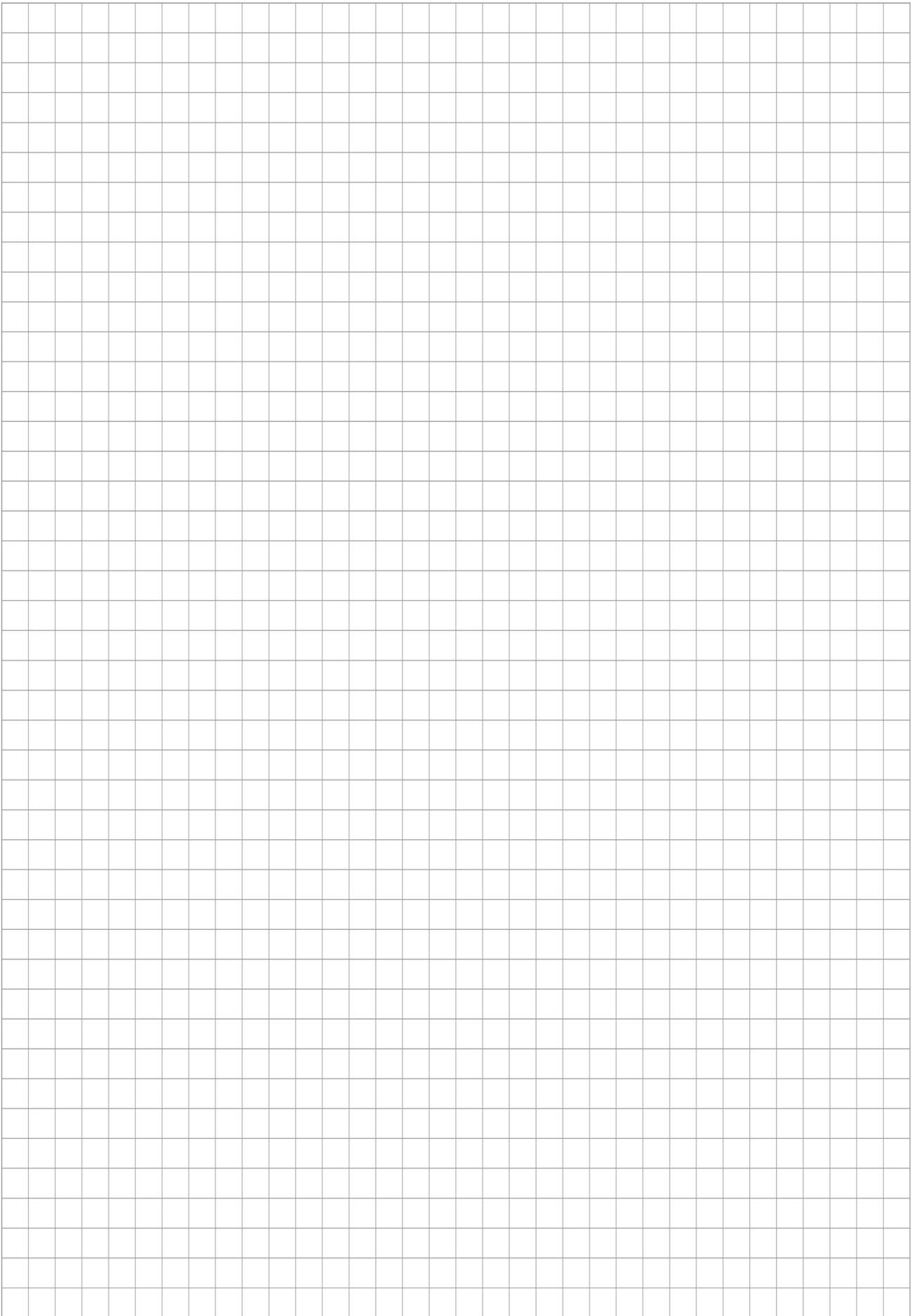
Only in rare exceptional cases do SCHUNK products contain SVHC substances on the candidate list with a mass content above 0.1%. In accordance with Article. 33 (1) of Regulation (EC) No. 1907/2006, SCHUNK complies with its duty to "communicate information on substances in articles" and lists the components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

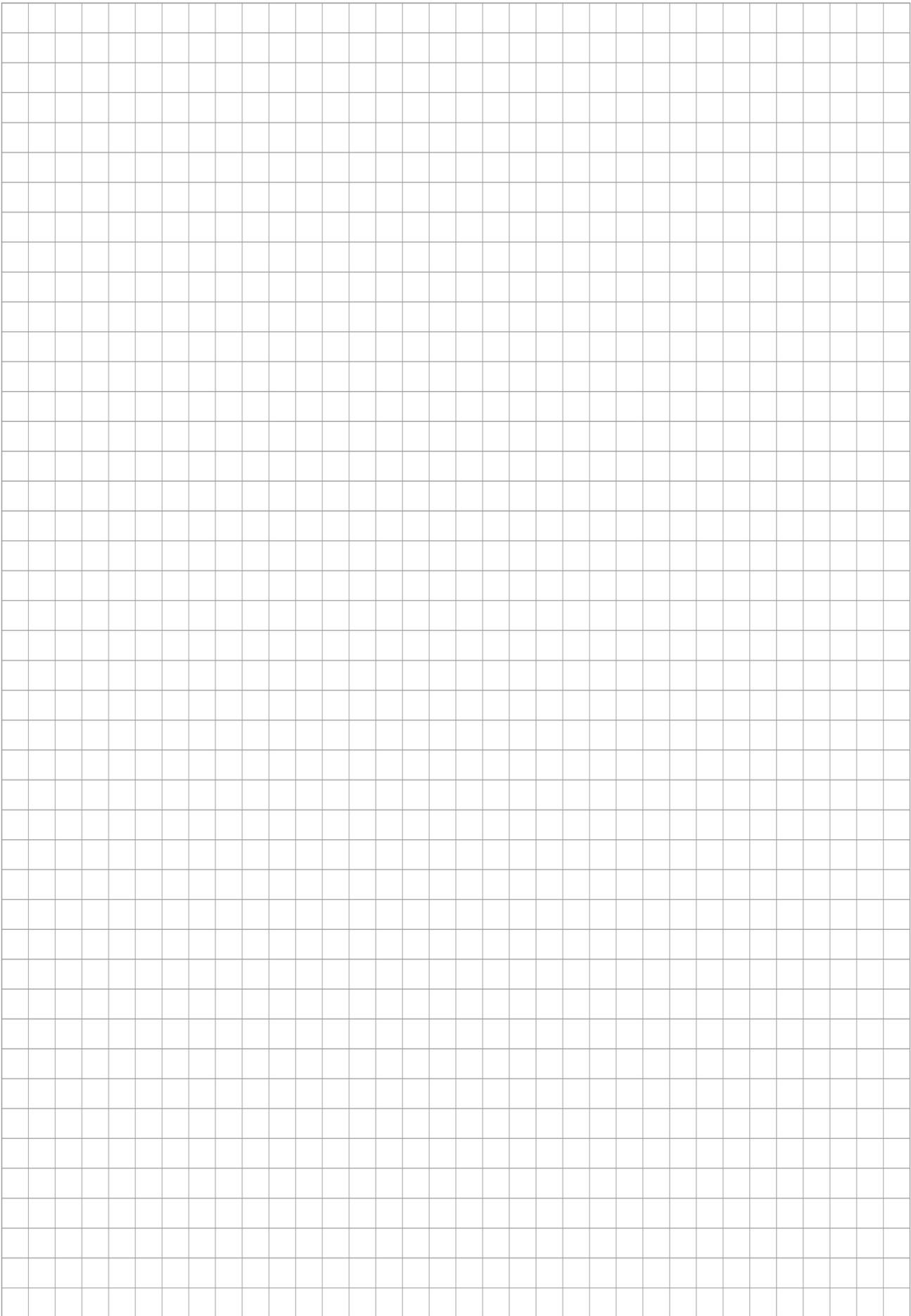
Signature: see original declaration

Lauffen/Neckar, March 2025

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









SCHUNK SE & Co. KG
Spanntechnik | Greiftechnik | Automatisierungstechnik

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