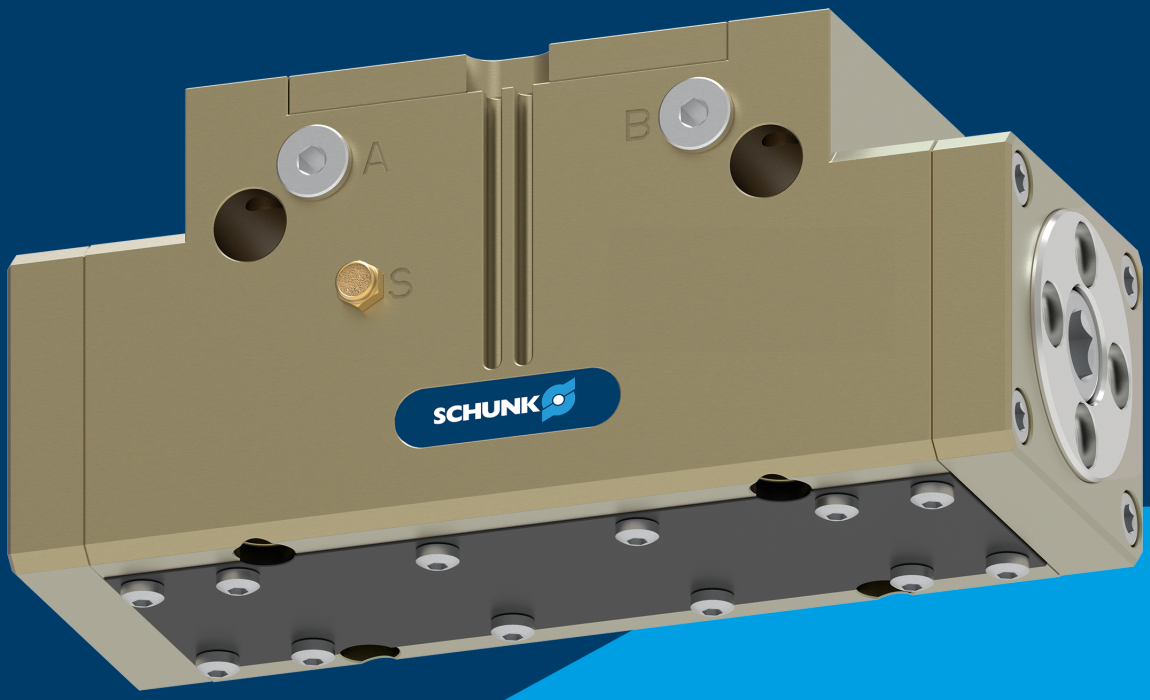


Assembly and Operating Manual DPG-plus

Sealed 2-Finger Parallel Gripper

Translation of Original Operating Manual

Hand in hand for tomorrow

Imprint

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

Document number: 389031

Version: 36.00 | 26/11/2025 | en

Dear Customer,

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

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

Best regards,

Your SCHUNK team

Customer Management
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.

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

The product has been redesigned as of 2018. The modified successor version is directly interchangeable with the previous version and replaces it.

The difference between the two versions lies exclusively in the design and is therefore only relevant for spare parts such as the sealing kit. The instructions identify the two versions at the relevant points with the additions "previous version" and "successor version".

To distinguish between the two versions, a list of all ID numbers is provided in the appendix of this manual, ▸ 8 [🗋 76].

In addition to these instructions, the documents listed under ▸ 1.1.2 [🗋 7] are applicable.

1.1.1 Presentation of Warning Labels

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

⚠ DANGER

Dangers for persons!

Non-observance will inevitably cause irreversible injury or death.

⚠ WARNING

Dangers for persons!

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

⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

NOTICE

Material damage!

Information about avoiding material damage.

1.1.2 Applicable documents

- General terms of business *
- Catalog data sheet of the purchased product *
- Assembly and operating manuals of the accessories *
- For ATEX versions: Supplementary sheet "Installation and operating instructions – EX" *

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

1.1.3 Sizes

This operating manual applies to the following sizes:

- DPG-plus 40
- DPG-plus 50
- DPG-plus 64
- DPG-plus 80
- DPG-plus 100
- DPG-plus 125
- DPG-plus 160
- DPG-plus 200
- DPG-plus 240
- DPG-plus 300
- DPG-plus 380

1.1.4 Variants

This operating manual applies to the following variations:

- DPG-plus stroke 1
- DPG-plus stroke 2
- DPG-plus without gripping force maintenance
- DPG-plus with gripping force maintenance "O.D. gripping" (AS)
- DPG-plus with gripping force maintenance "I.D. gripping" (IS)
- DPG-plus force intensification (KVZ)
- DPG-plus ATEX (EX)
- DPG-plus high-temperature (V/HT)

1.2 Warranty

If the product is used as intended, the warranty is valid for 36 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

- Sealed 2-Finger Parallel Gripper DPG-plus in the version ordered
- Accessory pack

Content of the accessory pack:

- 6 x centering sleeves for mounting
- 2 x O-rings for hose-free direct connection
- 2 x locking screws for hose connections (with size 380 the locking screws are screwed into the gripper)

Size	ID number
40	5518410
40 V/HT	1011722
50	5512043
50 V/HT	395515326
64	5512044
64 V/HT	395515327
80	5512045
80 V/HT	395515328
100	5515329
100 V/HT	395515329
125	5512047
125 V/HT	395515330
160	5515331
160 V/HT	395515331
200	5512049
200 V/HT	395515332
240	5513858
240 V/HT	1011723
300	5519595
300 V/HT	1011724
380	5522737
380 V/HT	1011725

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

1.4 Accessories

A wide range of accessories are available for this product

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

The product has been redesigned as of 2018. The modified successor version is directly interchangeable with the previous version and replaces it.

The difference between the two versions lies exclusively in the design and is therefore only relevant for spare parts such as the sealing kit. The instructions identify the two versions at the relevant points with the additions "previous version" and "successor version".

To distinguish between the two versions, a list of all ID numbers is provided in the appendix of this manual, ▶ 8 [🗋 76].

1.4.1 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:

- Seal kit spare parts package
- Lateral cover spare parts package
- Spring spare parts package

Seal kit

Seal kits contain all seals necessary for maintaining a SCHUNK component.

Contents of the spare parts package, ▶ 7.9 [🗋 70] / ▶ 7.10 [🗋 73]

Size	ID number	
	Previous version	Successor version
40	5517031	1322182
50	5515339	1322202
50 V/HT	395515339	1322244
50 KVZ	–	1322205
64	5515340	1322209
64 V/HT	395515340	1322246
64 KVZ	–	1322212
80	5515341	1322215
80 V/HT	395515341	1322247
80 KVZ	–	1322220
100	5515342	1322223
100 V/HT	395515342	1322251
100 KVZ	–	1322224
125	5515343	1322229
125 V/HT	395515343	1322256
125 KVZ	–	1322231
160	5515344	1322232
160 V/HT	395515344	1322257
160 KVZ	–	1322233
200	5515345	1322235
200 V/HT	395515345	1322258
240	5519620	1322237
240 V/HT	–	1322259
300	5519621	1322239
300 V/HT	–	1322260
380	5522736	1322240
380 V/HT	–	1322261

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

Side cover

The ID numbers indicated refer to the successor version. No "Side cover" spare parts kits are available for the previous version.

Size	ID number
40 EX	1349886
50 EX	1349895
64 EX	1349919
80	1349924
80 EX	1349942
100	1349950
100 EX	1349961
125	1349962
125 EX	1349971
160 EX	1350001
200 EX	1350007
240 EX	1350012
300 EX	1350015
380 EX	–

Tab.: ID. No. spare part kit "Side cover"

Spring

The ID numbers apply to both the previous version and the successor version

Size	ID number
40	0325320
40 AS	–
40 IS	–
50	0325324
50 AS	–
50 IS	–
64	0325328
64 AS	–
64 IS	–
80	0325332
80 AS	–
80 IS	–
100	0325336
100 AS	–
100 IS	–
125	–
125 AS	0325340
125 IS	0325341
160	–
160 AS	0325345
160 IS	0325346
200	–
200 AS	0325349
200 IS	0325350
240	–
240 AS	0325353
240 IS	0325354
300	–
300 AS	0325357
300 IS	0325358
380	–
380 AS	0325360
380 IS	0325361

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

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 [🗋 22].
- 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 for the gripper fingers

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

- 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 [🗋 22].

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

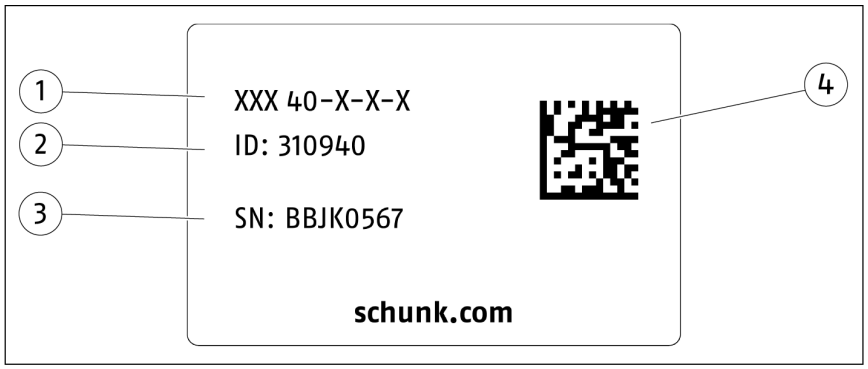
Risk of injury from objects falling during energy supply failure

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

3.1 Name plate



1	Product designation
2	ID
3	Serial number
4	Data matrix code

Scan code or enter serial number on the web and get all the product information: operating manuals, spare parts packages, software updates and much more.

For further information, visit **schunk.com/serialisierung**

A separate app may be required for scanning with a mobile phone.

3.2 Basic data

Designation	Value
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	2.5
Minimum pressure [bar] with maintenance of gripping force	4
Maximum pressure [bar] without maintenance of gripping force	8
Maximum pressure [bar] with maintenance of gripping force	6.5
Pressure range for air purge [bar]	0.2 – 0.5

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

3.3 Ambient conditions and operating conditions

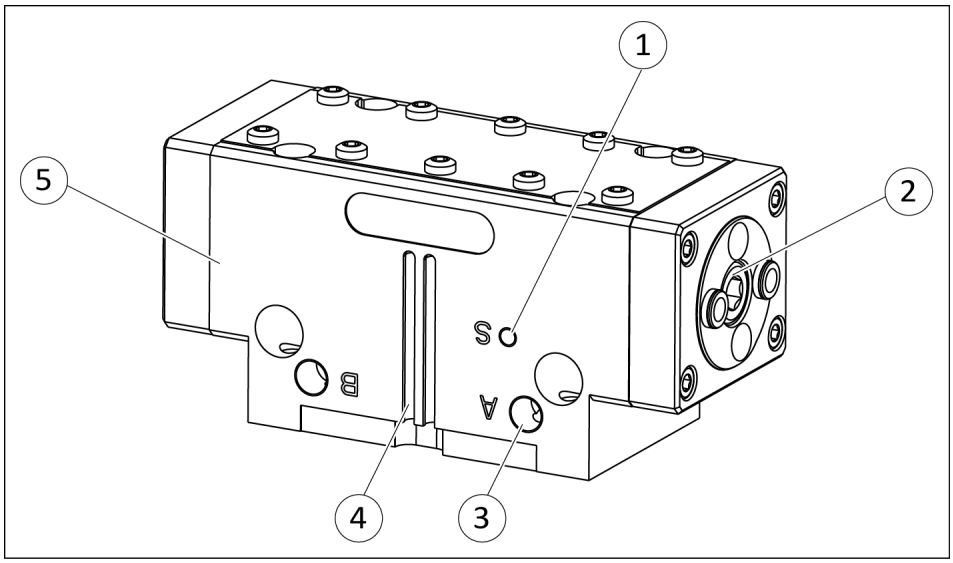
Designation	Value
Ambient temperature [°C] min.	 +5
Ambient temperature [°C] max.	 +90
Ambient temperature [°C] max. (variant V/HT)	+100 (previous version) +130 (successor version)
IP rating* with sinter filter (delivery state) with ventilation connection with Air purge connection	 54 67 68
Noise emission [dB(A)]	≤70

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

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

4 Design and description

4.1 Design



Sealed 2-Finger Parallel Gripper

1	Air purge connection
2	Base jaw
3	Compressed air main connection
4	Groove for magnetic switch
5	Housing

4.2 Description

Sealed 2-finger parallel gripper with large gripping force and high maximum moments due to multi-tooth guidance.

5 Assembly

5.1 Installing and connecting

⚠ DANGER

Danger of explosion in potentially explosive areas!

- Observe supplementary sheet for products with explosion-resistant versions "DPG-plus -...-EX".

⚠ 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

Risk of damage to the gripper!

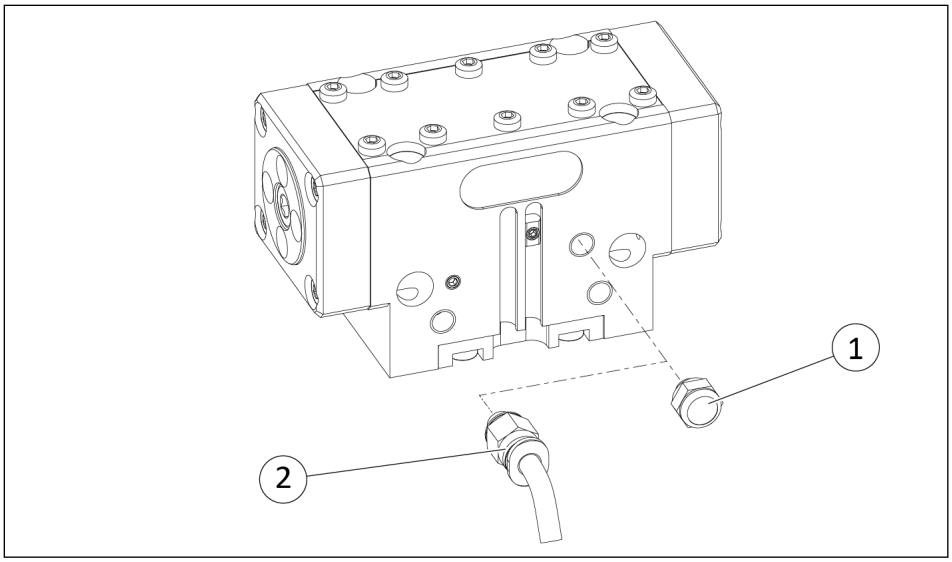
If the maximum permissible finger weight or the permissible mass moment of inertia of the fingers is exceeded, the gripper can be damaged.

- As a rule, a jaw movement must take place without impact and bouncing.
- To do this, carry out sufficient throttling and/or damping if necessary.
- Observe specifications in the catalog data sheet.

1. Check the evenness of the mounting surface, ▸ 5.2.1 [🗋 27].
2. Only open the required air connections (main connection or direct connection), ▸ 5.2.2 [🗋 30].
3. Connect the product via the hose-free direct connection.
4. OR: Connect compressed air lines to the main air connections "A" and "B".
   - ⇨ Remove the locking screws.
   - ⇨ Screw in air connections (plug connections).
     OR: Screw on throttle valve in order to be able to perform sufficient throttling and/or damping.
5. Screw the product to the machine/system, ▸ 5.2.1 [🗋 27].

- ⇨ 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 [🗋 27].
   - ⇨ Insert two centering sleeves per base jaw, positioned horizontally or vertically opposite and fasten with four screws.
   - ⇨ Observe the permissible depth of engagement.



Installing the ventilation connection or air purge connection

7. Dismantle the sinter filter (1).
8. Install the ventilation connection (2) or air purge connection (2), ▸ 5.3 [🗋 32].
9. Connect the sensor, see assembly and operating manual of the sensor.
10. Mount the sensor, ▸ 5.4 [🗋 36].

5.2 Connections

5.2.1 Mechanical connection

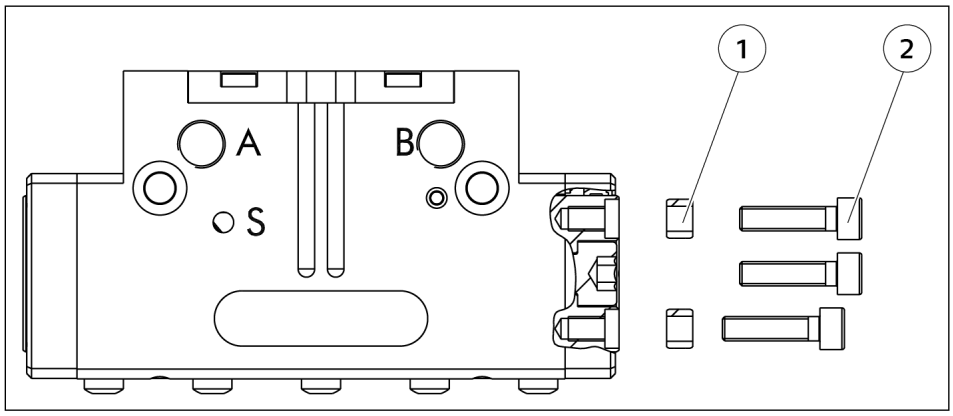
Evenness of the mounting surface

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

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

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

Connections at the base jaws



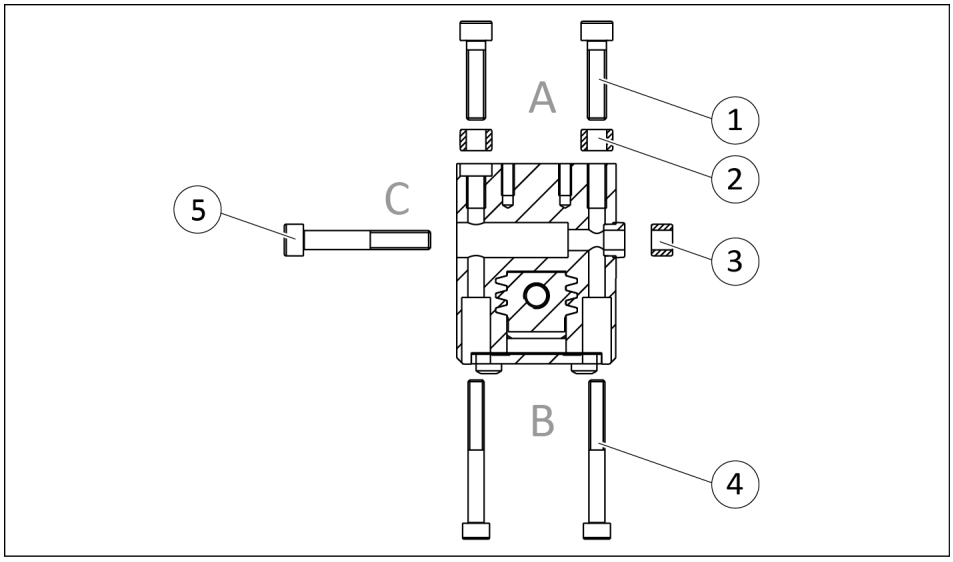
Connections at the base jaws

Size	① Centering sleeve	② Screws *
40	Ø4	M2.5 / 5.5
50	Ø5	M3 / 7
64	Ø6	M4 / 7
80	Ø 8	M5 / 10
100	Ø 8	M5 / 10
125	Ø 10	M6 / 12
160	Ø 12	M8 / 13
200	Ø 16	M12 / 20
240	Ø 16	M12 / 20
300	Ø 22	M16 / 24
380	Ø 28	M20 / 30

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

Connections at the housing

The product can be mounted from three sides.



Connections at the housing

Side A

Size	① Screws *	② Centering sleeve
40	M3 / 8	Ø5
50	M4 / 11	Ø6
64	M5 / 12	Ø 8
80	M5 / 15	Ø 8
100	M6 / 14	Ø 10
125	M8 / 18	Ø 12
160	M8 / 20	Ø 12
200	M10 / 20	Ø 14
240	M12 / 25.5	Ø 16
300	M16 / 31	Ø 22
380	M20 / 32	Ø 28

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

Side B

Size	④ Screws	② Centering sleeve
40	M2.5	Ø5
50	M3	Ø6
64	M4	Ø 8
80	M4	Ø 8
100	M5	Ø 10
125	M6	Ø 12
160	M6	Ø 12
200	M8	Ø 14

Size	④ Screws	② Centering sleeve
240	M10	Ø 16
300	M12	Ø 22
380	M16	Ø 28

Side C

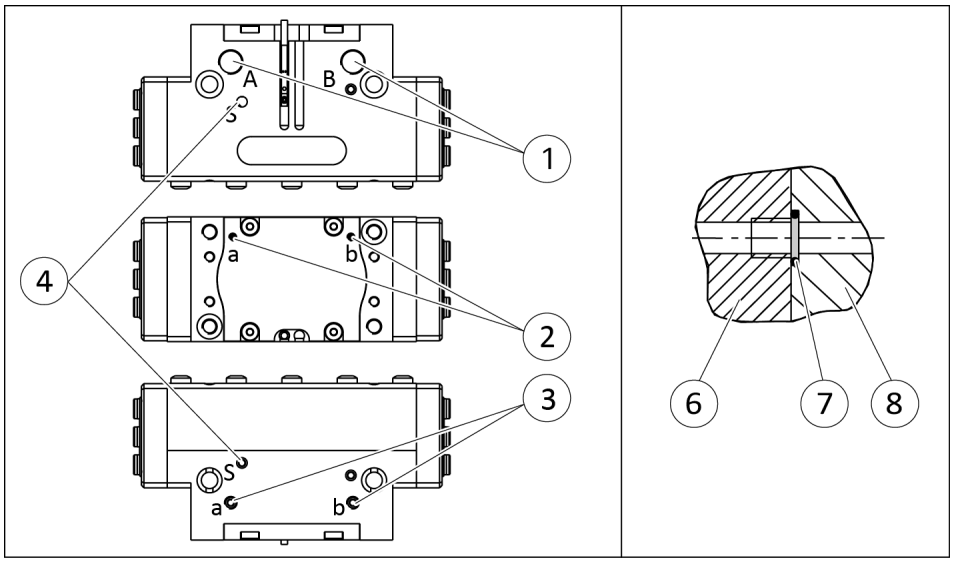
Size	⑤ Screws	③ Centering sleeve
40	M2.5	Ø5
50	M3	Ø6
64	M4	Ø 8
80	M5	Ø 8
100	M6	Ø 10
125	M8	Ø 12
160	M8	Ø 12
200	M10	Ø 14
240	M12	Ø 16
300	M16	Ø 22
380	M20	Ø 28

5.2.2 Pneumatic connection

NOTE

- Observe the requirements for the compressed air supply, ▸ 3 [🗋 22].
- 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.

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



Compressed air connection

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

Tab.: Thread diameter of the air connections

Size	Main connections (Hose connection)	Hose-free direct connection at the base	Hose-free direct connection at the side	Air purge connection
40	M3	M2	M3	M3
50	M5	M3	M5	M5
64	M5	M3	M5	M5
80	M5	M3	M5	M5
100	G 1/8	M3	M5	M5
125	G 1/8	M5	M5	M5
160	G 1/8	M5	M5	M5
200	G 1/8	M5	M5	M5
240	G 1/8	M5	M5	G 1/8
300	G 1/8	M5	M5	G 1/8
380	G 1/4	M6	M6	G 1/8

5.3 Installing the ventilation connection/air purge connection

NOTICE

Material damage due to incorrect connection!

If the product is only operated with the two main air connections, neither correct functioning nor permanent tightness can be guaranteed. This can result in damage to the product.

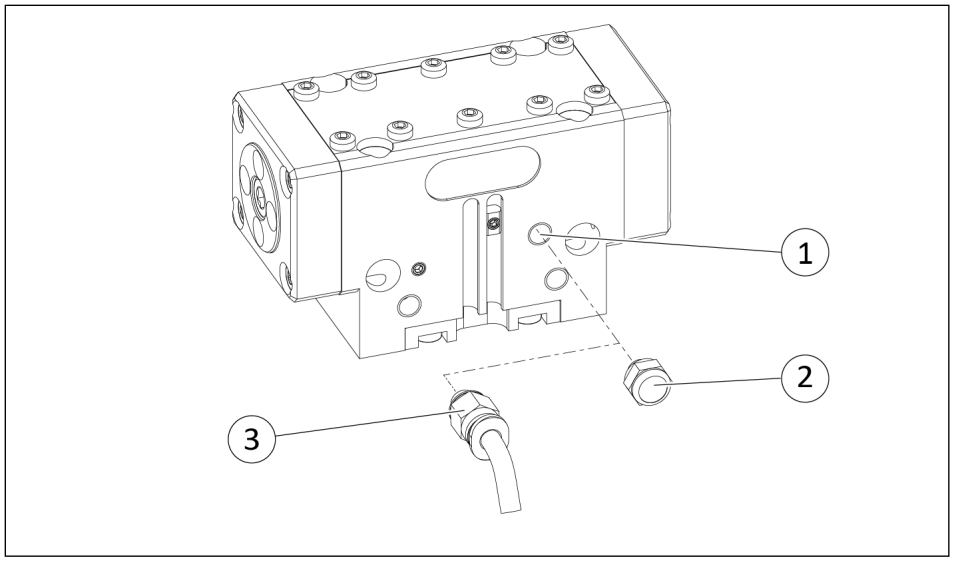
- The product can only be operated if either a ventilation hose (preferred) or the air purge has been connected at the air purge connection.
- When using the air purge connection, make sure the product releases excess pressure while closing.

NOTICE

Material damage due to liquid ingress!

When used under water, liquid may enter the gripper during temporary or constant immersion.

- In such cases, always operate the product with air purge in order to prevent ingress of liquid.



Installing the ventilation line or air purge connection

Installing the ventilation connection

The ventilation line is designed to compensate for changes in volume inside the gripper due to gripper movement. It ensures no vacuums are created inside the gripper and that no dirt is thus sucked into the gripper.

NOTE

Make sure the ventilation line is assembled in a clean environment so that no dirt or liquid can be sucked into the gripper.

1. Remove the sinter filter (2) from the purge air connection (1).
2. Connect the ventilation line (3) to the purge air connection (1).
3. Place the hose end in a clean area.
4. If necessary, attach a filter to the end of the hose in order to prevent ingress of foreign bodies as much as possible.

Fitting the air purge connection

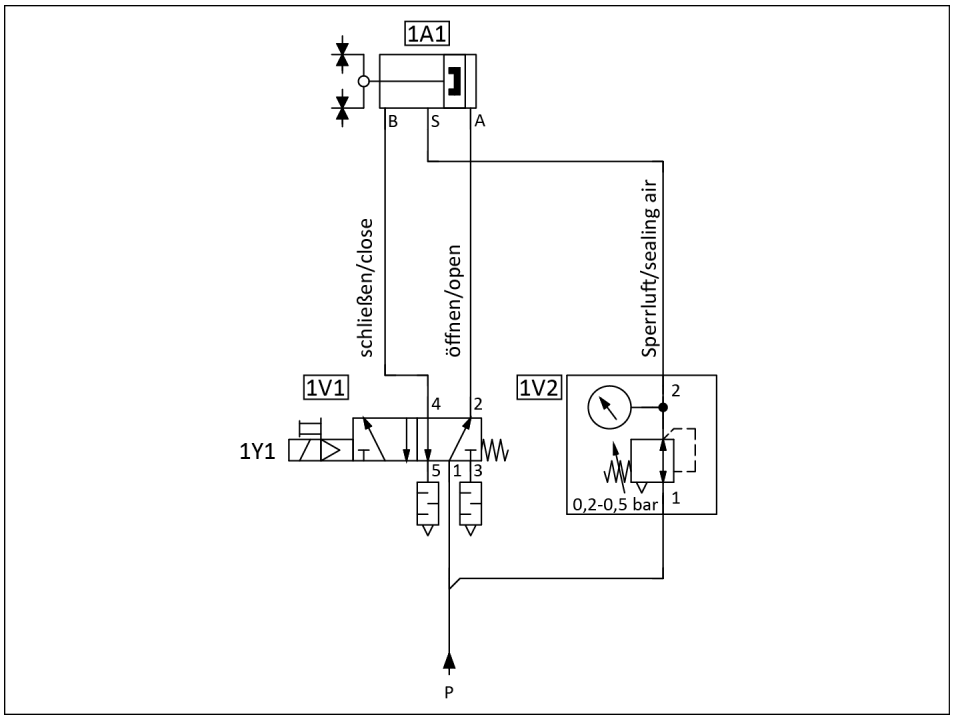
During operation using air purge, excess pressure may occur. If the gripper is not sufficiently relieved of excess pressure, the gripper jaws may close slowly or with a jolt. Excess pressure needs to be released via a pressure control valve with secondary venting, see Actuation plan "1V2". This ensures air purge pressure remains constant. For a recommendation regarding a suitable pressure control valve with secondary venting, contact Technical Sales.

1. Remove the sinter filter (2) from the purge air connection (1).
2. Connect air purge via a pressure control valve with secondary venting (3) at the purge air connection (1).
3. Set the air purge pressure between 0.2 bar and a maximum 0.5 bar. The air purge pressure must be present constantly.

Actuation with air purge

NOTE

The use of air purge changes the gripping forces. Air purge pressure reduces the gripping force on closing and increases it on opening.



Air purge actuation plan

Size	Air purge pressure			
	0.2 bar	0.3 bar	0.4 bar	0.5 bar
40	8 N	12 N	15 N	19 N
50	12 N	18 N	24 N	30 N
64	14 N	21 N	28 N	36 N
80	26 N	39 N	52 N	65 N
100	29 N	44 N	58 N	73 N
125	46 N	69 N	92 N	116 N
160	72 N	108 N	145 N	181 N
200	115 N	172 N	230 N	287 N
240	142 N	212 N	283 N	354 N
300	240 N	360 N	481 N	601 N
380	396 N	594 N	792 N	991 N

Tab.: Changes in gripping forces that arise due to air purge

When using air purge, the gripping forces may be calculated using the following formulas. The changes in gripping force using air purge from the table above are used for this.

Gripping force on opening: $F_{G,\,opening} = F_{G,\,nominal} + F_{air\ purge}$

Gripping force on closing: $F_{G,\,closing} = F_{G,\,nominal} - F_{air\ purge}$

Example: DPG-plus 80 (stroke 1,
nominal pressure = 6 bar, air purge pressure = 0.5 bar, closing force = ?)

Closing force (from catalog)		375 N	(at 6 bar)
Gripping force change (from table)	–	65 N	(at 0.5 bar)
Closing force at air purge pressure 0.5 bar		**310 N**	

5.4 Installing the sensors

⚠ DANGER

Danger of explosion in potentially explosive areas!

- Observe supplementary sheet for products with explosion-resistant versions "DPG-plus -...-EX".

NOTE

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

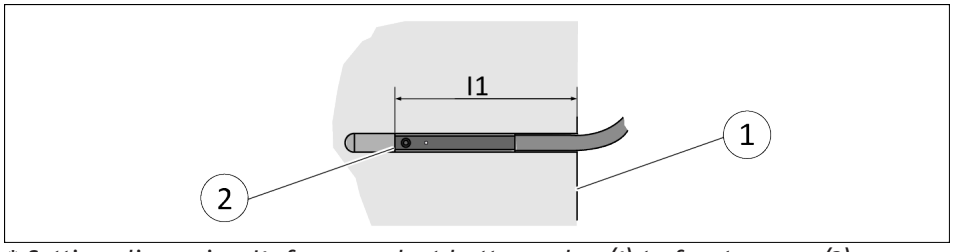
The product is prepared for the use of sensors.

- For the exact type designations of suitable sensors, please see catalog datasheet and ▸ 5.4.1 [🗋 36].
- 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.

5.4.1 Overview of sensors

Size	MMS 22	MMS 22-PI1	MMS 22-PI2	MMS-P 22	MMS 22-IOL	RMS 22
40	✓	✓	✓	✓	✓	⊘
50	✓	✓	⊘	✓	✓	⊘
64	✓	✓	✓	✓	✓	⊘
80	✓	✓	✓	✓	✓	⊘
100	✓	✓	✓	✓	✓	✓
125	✓	✓	✓	✓	✓	✓
160	✓	✓	✓	✓	✓	✓
200	✓	✓	⊘	⊘	⊘	✓
240	✓	✓	⊘	⊘	⊘	✓
300	✓	✓	⊘	⊘	⊘	✓
380	✓	✓	⊘	⊘	⊘	✓

5.4.2 Setting dimensions for magnetic switches



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

The setting dimension applies to the following sensors:

- Programmable magnetic switch MMS 22-PI1, not for sizes 50, 200, 240, 300 and 380
- Programmable magnetic switch MMS 22-PI2, not for sizes 50, 200, 240, 300 and 380
- Programmable magnetic switch MMS-P 22

Size	l1* [mm]
40	14.9
40 AS	18.9
40 IS	23.9
50	15.4
50 AS	20.8
50 IS	31.4
50-KVZ	30.7
50 AS-KVZ	46.7
50 IS-KVZ	46.7
64	22.4
64 AS	19.2
64 IS	40.4
64-KVZ	41.4
64 AS-KVZ	59.4
64 IS-KVZ	59.4
80	26.0
80 AS	22.4
80 IS	44.0
80-KVZ	48.5
80 AS-KVZ	66.5
80 IS-KVZ	66.5
100	27.7
100 AS	19.9
100 IS	53.7

Size	l1* [mm]
100-KVZ	54.2
100 AS-KVZ	80.2
100 IS-KVZ	80.2
125	23.0
125 AS	59.6
125 IS	53.0
125-KVZ	55.5
125 AS-KVZ	85.5
125 IS-KVZ	85.5
160	31.4
160 AS	71.7
160 IS	71.4
160-KVZ	68.9
160 AS-KVZ	108.9
160 IS-KVZ	108.9

Tab.: Setting dimensions

NOTE

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

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

Further information on the installation of the sensor, ▸ 5.4.5 [🗋 41]

5.4.3 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 ≤ 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

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

Example: Product with 7 mm nominal stroke per jaw

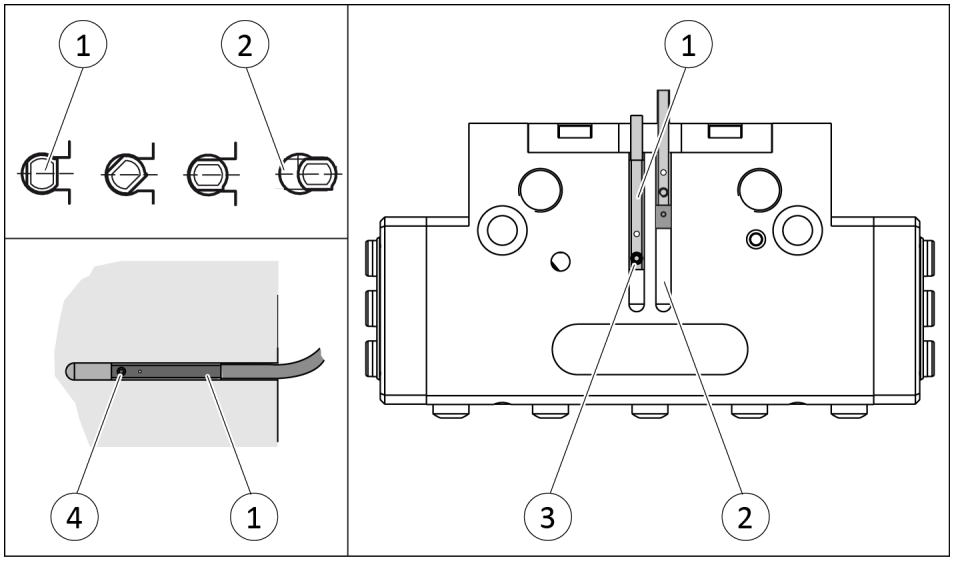
7 mm * 20% = 1.4 mm

5.4.4 Mounting magnetic switch MMS 22

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



Positioning 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)"

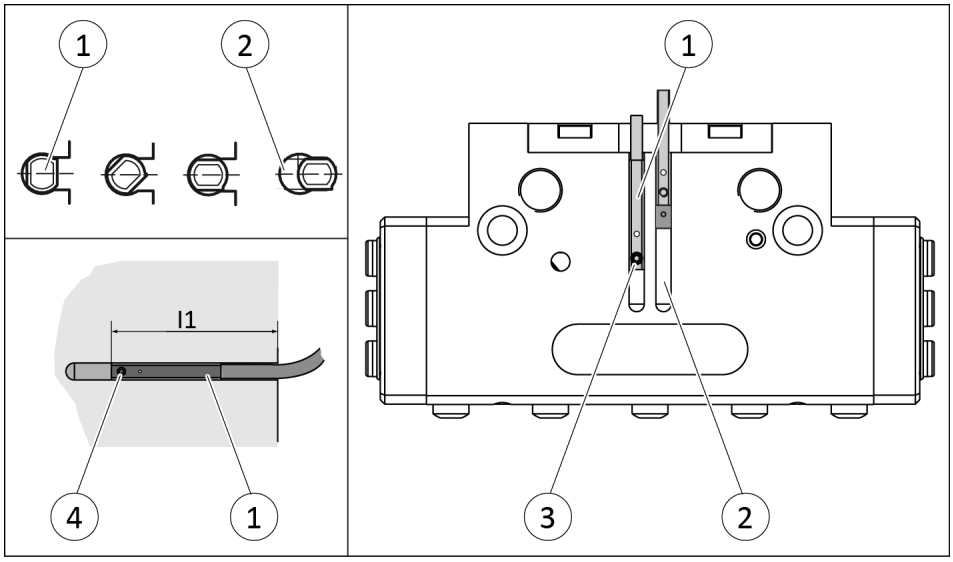
1. Bring product in the position in which it is to be set.
2. If necessary remove T-nut (3).
3. Turn the sensor 2 (1) into the groove (2).
   OR: Slide sensor 2 (1) into the groove (2) in the direction of the housing middle (3), until the sensor 2 (1) switches.
4. Secure the sensor 2 (1) using the set-screw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

5.4.5 Mounting programmable magnetic switch MMS 22-PI1

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.

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.

Setting the sensor in "Standard mode"
Alternatively for size: 40, 64, 80, 100, 125,160

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.

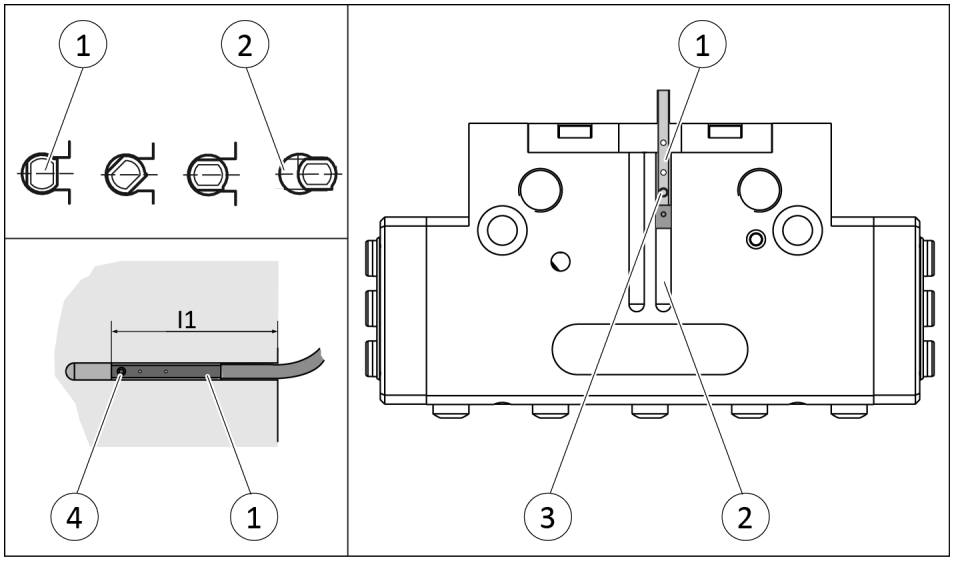
NOTE
If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ▸ 5.4.2 [🗋 37].

5.4.6 Mounting programmable magnetic switch MMS 22-PI2

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), ▸ 5.4.2 [🗋 37].

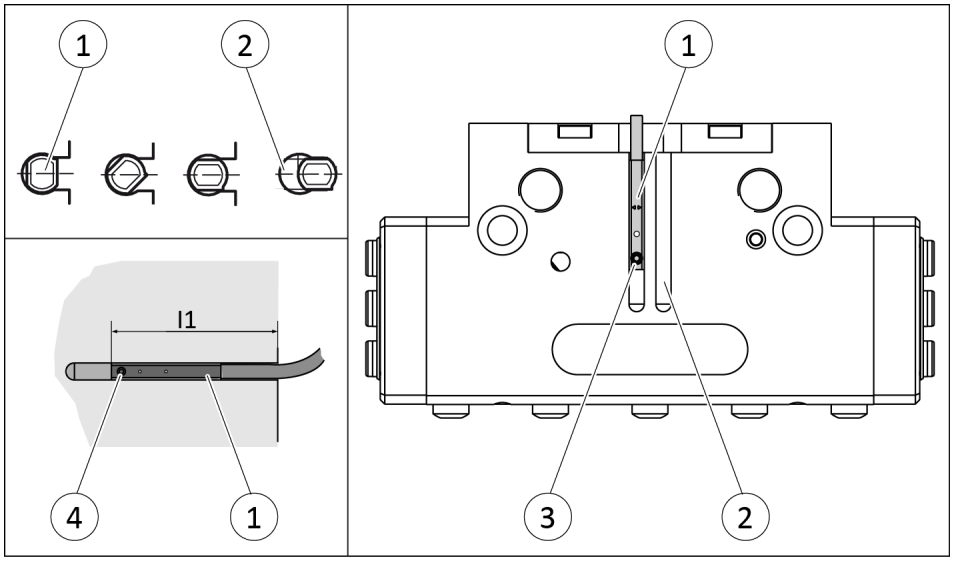
1. Turn the sensor (1) into the groove (2).
   OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Secure the sensor (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor (1), see sensor assembly and operating manual.

5.4.7 Mounting programmable magnetic switch MMS-P 22

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), ▸ 5.4.2 [🗋 37].

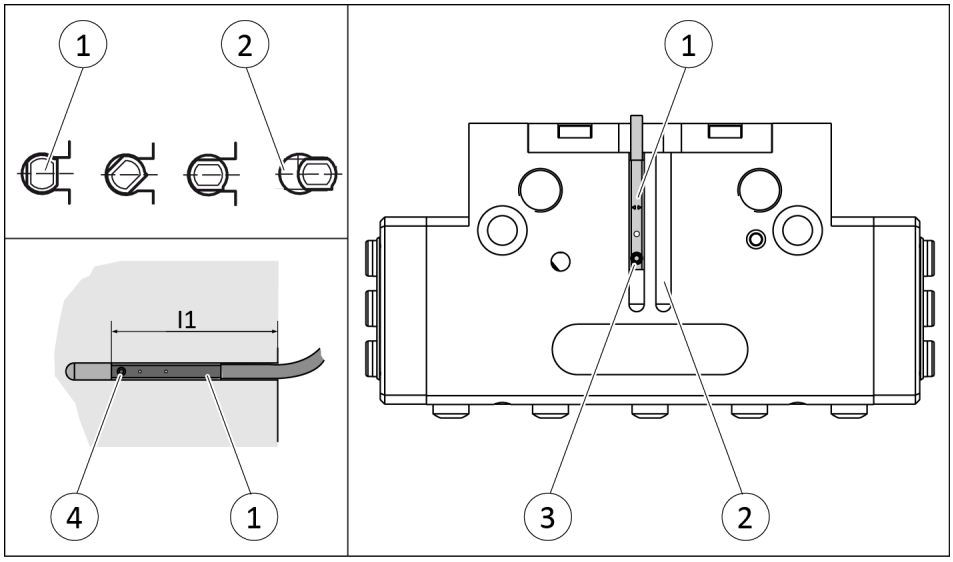
1. Turn the sensor 1 (1) into the groove (2).
   OR: Slide the sensor 1 (1) into the groove (2) until the sensor 1 (1) stops at the T-nut (3).
2. Secure the sensor 1 (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor 1 (1), see sensor assembly and operating manual.
4. Repeat steps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

5.4.8 Mounting magnetic switch MMS 22-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 l1 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	l1* [mm]
40	15.5
40 AS	20.1
40 IS	20.1
50	At stop
50 AS	23.0
50 IS	At stop
50-KVZ	At stop
50 AS-KVZ	At stop
50 IS-KVZ	At stop
64	22.4
64 AS	19.2

Size	l1* [mm]
64 IS	39.5
64-KVZ	41.4
64 AS-KVZ	59.4
64 IS-KVZ	59.4
80	26.5
80 AS	22.0
80 IS	44.5
80-KVZ	49
80 AS-KVZ	67
80 IS-KVZ	67
100	28.7
100 AS	22.0
100 IS	55.6
100-KVZ	55.2
100 AS-KVZ	81.2
100 IS-KVZ	81.2
125	23.0
125 AS	59.6
125 IS	56.9
125-KVZ	55.5
125 AS-KVZ	85.5
125 IS-KVZ	85.5
160	35.5
160 AS	76.0
160 IS	75.5
160-KVZ	71.9
160 AS-KVZ	111.9
160 IS-KVZ	111.9

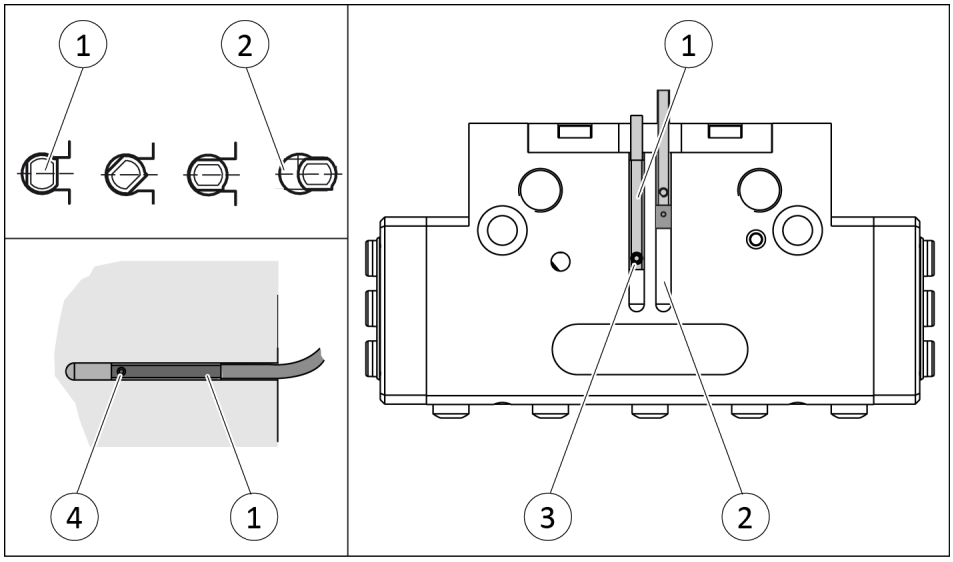
Tab.: Setting dimensions

5.4.9 Mounting reed switch RMS 22

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



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

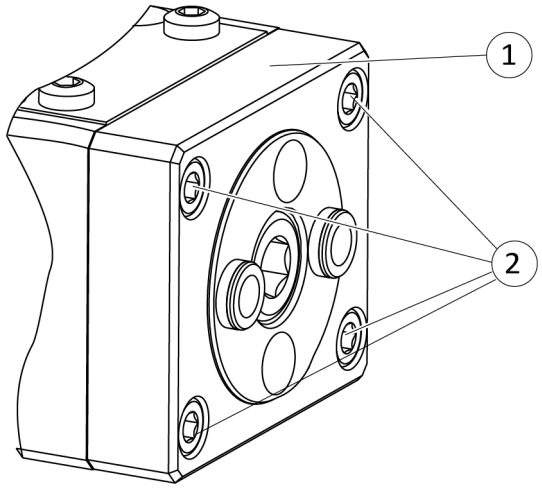
1. Bring product in the position to be set.
2. If necessary remove T-nut (3).
3. Turn the sensor 1 (1) into the groove (2).
   OR: Slide the sensor 1 (1) into the groove (2) until the sensor 1 (1) stops at the end of the groove.
4. Pull the sensor 1 (1) back again slowly until it switches.
5. Secure 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.

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 [🗋 27]
	Loosen the mounting screws of the product and actuate the product again.
Side covers have move slightly due to a collision or other external influence.	**1.** Adjust the side covers (1). To that, loosen slightly the screws (2) so that the side cover (1) can be moved. Move the side cover (1) to the right or to the left. Tighten screws (2) crosswise. **2.** Apply compressed air to the product. ⇨ When the product opens and closes, the side cover has the correct position. ⇨ If the product does not open and close, adjust the side cover (1) again. If the product after then still does not open and close, send the product to SCHUNK for repair. 
Pressure drops below minimum.	Check air supply. ▸ 5.2.2 [🗋 30]
Compressed air lines switched.	Check compressed air lines. ▸ 5.2.2 [🗋 30]
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 The product is not executing the complete stroke

Possible cause	Corrective action
Dirt deposits between cover and piston.	Clean and if necessary re-lubricate. ▸ 7 [🗋 51]
Dirt deposits between basic jaws and guidance.	Disassemble and clean the product.
Pressure drops below minimum.	Check air supply. ▸ 5.2.2 [🗋 30]
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface. ▸ 5.2.1 [🗋 27]
Component part defective.	Replace component or send it to SCHUNK for repair.
Air purge set too high (> 0.5 bar).	Reduce air purge (max. 0.5 bar).

6.3 Product is opening or closing abruptly

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product. ▸ 7 [🗋 51]
Compressed air lines blocked.	Check compressed air lines of damage.
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface.
Excess pressure cannot be released when using air purge.	Check the pressure control valve with drain hole and replace if necessary. ▸ 5.3 [🗋 32]

6.4 The 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. ▸ 7 [🗋 51]
Pressure drops below minimum.	Check air supply. ▸ 5.2.2 [🗋 30]
Component part defective.	Replace component or send it to SCHUNK for repair.
Air purge reduces the gripping force when closing.	Check the dimensioning. ▸ 5.3 [🗋 32]

6.5 Product does not achieve the opening and closing times

Possible cause	Corrective action
Compressed air lines are not installed optimally.	If present: Open the flow control couplings on the product to the maximum that the movement of the jaws occurs without bouncing and hitting.
	Check compressed air lines.
	Inner diameters of compressed air lines are of sufficient size in relation to compressed air consumption.
	Keep compressed air lines between the product and directional control valve as short as possible.
	Flow rate of valve is sufficiently large relative to the compressed air consumption.
	NOTICE! The one-way flow control valve must not be removed even if the opening and closing times are not achieved.
	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.

7 Maintenance

7.1 Notes

⚠ DANGER

Danger of explosion in potentially explosive areas!

- Observe supplementary sheet for products with explosion-resistant versions "DPG-plus -...-EX".

⚠ WARNING

Risk of burns through contact with hot surfaces!

Surfaces of components can heat up severely during operation. Skin contact with hot surfaces causes severe burns to the skin.

- For all work in the vicinity of hot surfaces, wear safety gloves.
- Before carrying out any work, make sure that all surfaces have cooled down to the ambient temperature.

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.

Size	Interval (million cycles)
40	4
50	4
64	4
80	4
100	4
125	4
160	2
200	2
240	2
300	2
380	0.5

7.3 Maintenance

- Clean all parts thoroughly, check for damage and wear, if necessary replace seals and wearing parts, ▸ 7.9 [🗋 70].
- Treat all grease areas with lubricant, ▸ 7.4 [🗋 53].
- Only size 380:
  Apply grease to piston and guides, ▸ 7.6 [🗋 54]

7.4 Grease/greasing areas

NOTICE

Damage due to ingress of foreign particles!

If the lubrication nipples are installed during operation, the tightness of the product cannot be guaranteed and foreign particles may enter the product. This can lead to considerable damage.

- Remove all lubrication nipples after greasing and seal!

Greasing area	Lubricant
Metallic sliding surfaces	SCHUNK grease 3
Seals and sealing surfaces	SCHUNK grease 1

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

The product contains food-compliant lubricants as standard.
The requirements of standard EN 1672-2:2020 are not fully met.

NOTE

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

The guides in the housing can be re-lubricated as needed. Remove the set-screw of the air purge connection and replace it with a lubrication nipple.

7.5 Threadlocker

Position of the item numbers, ▸ 7.9 [🗋 70]

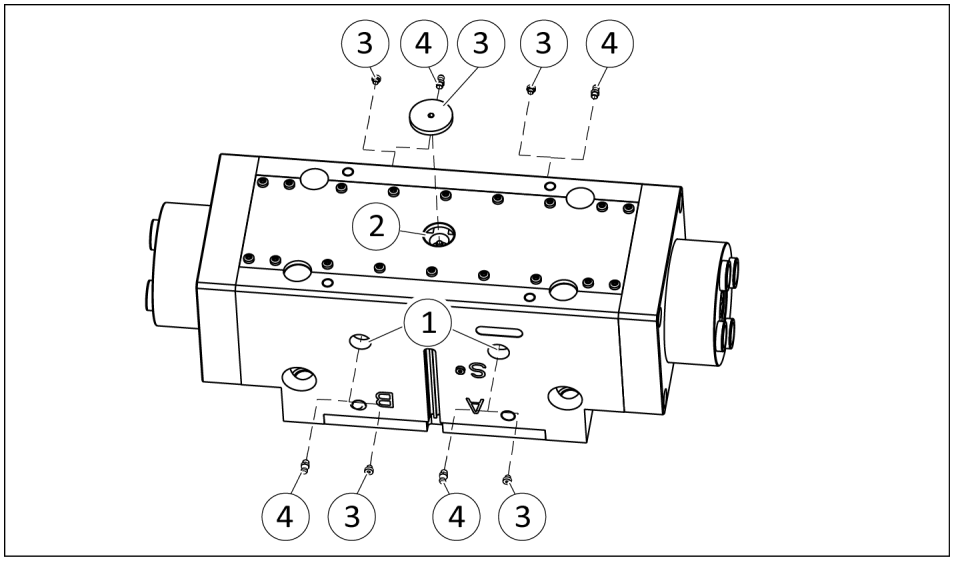
- Secure the screws and nuts listed in the table with the specified adhesive and tighten with the tightening torque, ▸ 7.7.6 [🗋 67].

Adhesive	Item
Weicon 302-41	(41) (42) (46)
Weicon 302-43	(40) (43) (45)
Weicon 302-70	(2) (7) (13)

Equivalent greases/adhesives/surface-sealing pastes from other manufacturers can also be used.

7.6 Greasing pistons and guides

Size 380



For size 380, the guides must be greased during each maintenance interval across all four greasing areas at the housing (1) and the piston via the greasing area at the piston (2).

1. Remove the locking screws (3)
2. Insert the lubrication nipple (4) into the housing
3. Lubricate the gripper at four greasing areas (1) and at greasing area (2)
4. Remove lubricating nipple (4) again
5. Insert the sealing plugs (3)

7.7 Disassembly and assembly

7.7.1 Version without gripping force maintenance

Position of the item numbers:

- **Previous version:** ▸ 7.9 [🗋 70]
- **Successor version:** ▸ 7.10 [🗋 73]

Disassembling

1. Remove the compressed air hose.
2. Unfasten and remove the screws (47).
3. **Previous version:** Remove the cover (5) and seal (37/20).
   Successor version: Remove the cover (5) and flat seal (20).
4. Mark the installation positions of the base jaw (2/7) and the side cover (12) on the housing (1).
5. **Previous version:** Unscrew screws (42). Remove the side cover (12) and the gasket (14).
   For DPG-plus 240 / 300: Remove O-ring (39).
   Successor version: Unscrew and remove screws (42), remove the side cover (12) and the flat seal ring (39).
   NOTICE! Do not disassemble the filler piece (18) for maintenance purposes, as the product may leak. If the filler piece (18) is nevertheless disassembled, seal the filler piece (18) with liquid sealant on reassembly.
6. Unscrew and remove the screws (41) and remove the cover (4).
7. **Previous version:** Mark the installation position between the cylinder piston (60) and the housing (1).
   Successor version: Mark the installation position between the cylinder piston (71) and the housing (1).
8. Unscrew screw (40) and remove cylinder piston (60) from the housing (1).
9. Push the pistons (3/8) upwards out of the housing (1).

NOTE

Do not disassemble the intermediate jaw (13) from the base jaw (2/7).

10. Pull the base jaws (2/7) out of the housing (1).
11. Loosen the screw (43) and disassemble the intermediate jaw (13) from the base jaw (2/7).

Assembling

NOTE
Tighten all screws with the required tightening torque., ▸ 7.7.6 [🗋 67].

1. Insert the base jaw (2/7) into the intermediate jaw (13) and tighten the screw (43).
2. Insert the seal (31) into the housing (1) from above.
3. Push the base jaw (2/7) into the housing (1), observing the correct installation position.
4. Insert the piston (3/8) into the housing (1) from above.
5. Position the base jaws (2/7) so that the piston (3/8) can be pushed into the base jaws (2/7) without any problems.
6. **Previous version:** Slide the cylinder piston (60) from below into the housing (1), observing the correct installation position. Ensure that the sealing lips of the seal (30) do not become damaged while sliding in the cylinder piston.
   Successor version: Slide the cylinder piston (71) into the housing (1) from below. When doing this, observe the correct installation position. Ensure that the sealing lips of the seal (30) do not become damaged while sliding in the cylinder piston.
7. Screw in the screw (40).
8. Insert seals (34) / (32/38) into the cover (4).
9. Fasten the cover (4) with screws (41).
10. **Previous version:** Insert the gasket (14) into the housing (1). For DPG-plus 240/300: Insert O-ring (39) into the side cover (12).
    Note: The product must be in the "Gripper closed" position to prevent the gasket (14)/the O-ring (39) from jamming.
    Successor version: Insert the flat seal ring (39) into the side cover (12).
11. Put on the side cover (12), making sure the installation position is correct.

NOTE
Do not damage the sealing lips of the seal (36) with the intermediate jaw (13).

12. Do not screw the screw (42) completely into the cover (12). The gap between the side cover (12) and the housing (1) should be approximately divided in half.

13. Allow the product to run approx. 20 cycles in order to center the side cover (12).
14. Tighten the screws (42) to fasten the side cover (12).
15. **Only for previous version:** Apply a strip of Plast-o-Seal along the side cover (12), ▸ 7.7.5 [🗋 67].
16. **Previous version:** Insert the seal (37/20) into the housing (1).
    Successor version: Insert the flat seal (20) into the housing (1).
17. Screw the cover plate (5) on tight with the screws (47).

7.7.2 Variant with maintenance of gripping force (OD gripping)

Position of the item numbers:

- **Previous version:** ▸ 7.9 [🗋 70]
- **Successor version:** ▸ 7.10 [🗋 73]

⚠ WARNING

Risk of injury due to spring forces!

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

- Dismantle the product carefully.

Disassembling

1. Remove the compressed air hose.
2. Unfasten and remove the screws (47).
3. **Previous version:** Remove the cover (5) and seal (37/20).
   Successor version: Remove the cover (5) and flat seal (20).
4. Mark the installation positions of the base jaw (2/7) and the side cover (12) on the housing (1).
5. **Previous version:** Unscrew screws (42). Remove the side cover (12) and the gasket (14).
   For DPG-plus 240 / 300: Remove O-ring (39).
   Successor version: Unscrew and remove screws (42), remove the side cover (12) and the flat seal ring (39).
   NOTICE! Do not disassemble the filler piece (18) for maintenance purposes, as the product may leak. If the filler piece (18) is nevertheless disassembled, seal the filler piece (18) with liquid sealant on reassembly.
6. Unscrew the screws (46) and remove the cover (9).
7. Remove the centering sleeves (19).
8. **Previous version:** Mark the installation position between the cylinder piston (60) and the housing (1).
   Successor version: Mark the installation position between the cylinder piston (72) and the housing (1).

9. **WARNING! Risk of injury due to spring forces! The cylinder piston is under spring tension. Dismantle the product carefully.** Clamp the product between the housing (1) and the cylinder piston.
10. Unscrew and remove the screw (45).
11. Carefully open the vise until the compression spring (25) has no more tension.
12. **Previous version:** Remove the cylinder piston (60) from the housing (1).
    Successor version: Remove the cylinder piston (72) from the housing (1).
13. Size 125 or above: Remove the spacer bolt (11) from the housing (1).
14. Push the pistons (3/8) upwards out of the housing (1).

NOTE
Do not disassemble the intermediate jaw (13) from the base jaw (2/7).

15. Pull the base jaws (2/7) out of the housing (1).
16. Loosen the screw (43) and disassemble the intermediate jaw (13) from the base jaw (2/7).

Assembling

NOTE
Tighten all screws with the required tightening torque., ▸ 7.7.6 [🗋 67].

Mounting the base jaws

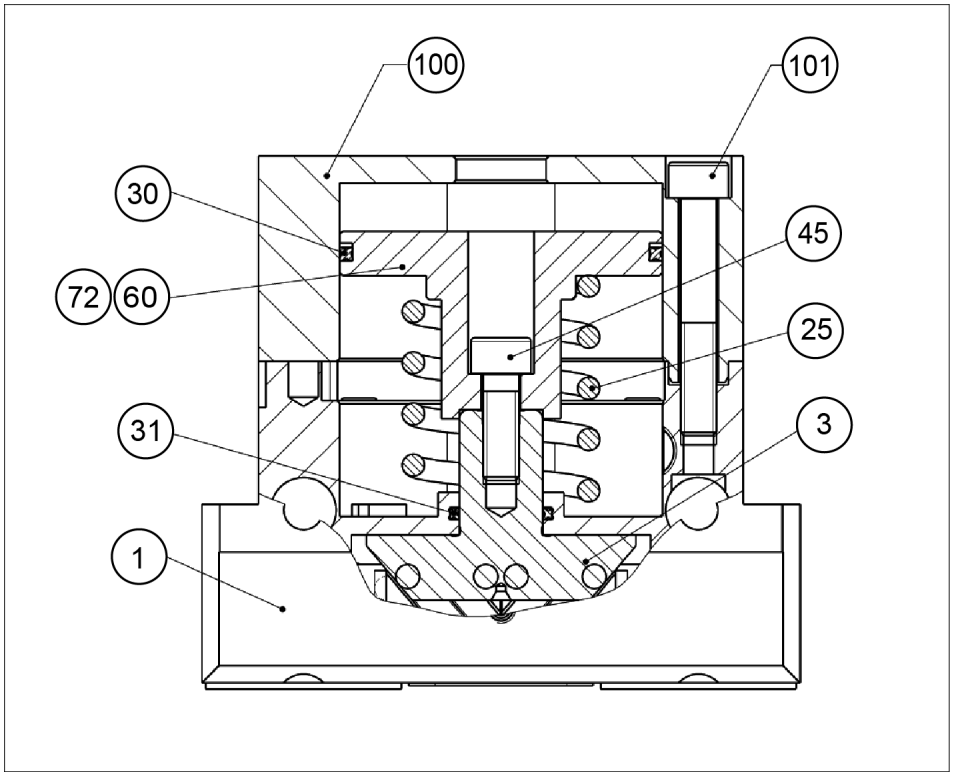
1. Insert the base jaw (2/7) into the intermediate jaw (13) and tighten the screw (43).
2. Push the base jaw (2/7) into the housing (1), observing the correct installation position.
3. Insert the seal (31) into the housing (1) from above.
4. Insert the piston (3/8) into the housing (1) from above.
5. Position the base jaws (2/7) so that the piston (3/8) can be pushed into the base jaws (2/7) without any problems.
6. **Previous version:** Mount cylinder piston (60), see the following sections.
   Successor version: Mount the cylinder piston (72), see the following sections.

NOTE

- For sizes 40–100, the cylinder piston is mounted using **one** assembly device.
- For sizes 125–380, the cylinder piston is mounted using **two** assembly devices.

Assembling cylinder piston with sizes 40 – 100

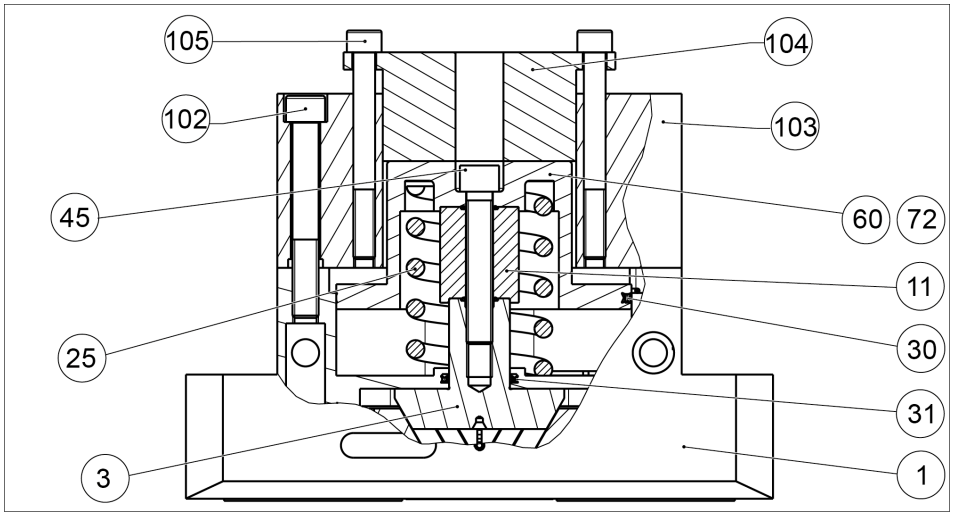
Dimensions of assembly device, ▶ 7.8.1 [🗋 68].



1. Grease and install device (100).
2. Push the cylinder piston (60/72) with seal (30) and the compression spring (25) into the housing (1) from below, observing the correct installation position. Ensure that the sealing lips of the seal (30) do not become damaged while pushing in the cylinder piston (60/72).
3. Carefully pull the device (100) over the cylinder piston and assemble onto the housing (1) with the screws (101).
4. Tighten screw (45) to the required tightening torque, ▶ 7.7.6 [🗋 67].
5. Remove device (100).
6. Complete the assembly, see following section, "Final assembly".

Mounting cylinder piston for size 125 – 380

Dimensions of assembly device, ▸ 7.8.2 [🗋 69].



1. Slide the compression springs (25), spacer bolts (11) and cylinder pistons (60/72) with the seals (30/33) from below into the housing (1), ensuring the correct installation position. Ensure that the sealing lips of the seal (30) do not become damaged while pushing in the cylinder piston (60/72).
2. Carefully pull device 1 (103) over the cylinder piston and mount onto the housing (1) with the screws (102).
3. Insert device 2 (104) and fasten this onto device 1 evenly using the screws (105).
4. Tighten screw (45) to the required tightening torque, ▸ 7.7.6 [🗋 67].
5. Remove the devices (103/104).
6. Insert the centering sleeves (19) in the housing (1). Insert the seals (32/34) and fasten the cover (9) to the housing using the screws (46).
7. Complete the assembly, see following section, "Final assembly".

Final assembly

1. Insert seals (34) / (32/38) into the cover (9).
2. Insert the centering sleeves (19) into the housing (1) and fasten the cover (9) to the housing (1) with screws (46).
3. **Previous version:** Insert the gasket (14) into the housing (1). Note: The product must be in the "Gripper closed" position, to prevent the gasket (14) from jamming.
   Successor version: Insert the flat seal ring (39) into the side cover (12).
4. Put on the side cover (12), making sure the installation position is correct.

NOTE

Do not damage the sealing lips of the seal (36) with the intermediate jaw (13).

5. Do not screw the screw (42) completely into the cover (12). The gap between the side cover (12) and the housing (1) should be approximately divided in half.
6. Allow the product to run approx. 20 cycles in order to center the side cover (12).
7. Tighten the screws (42) to fasten the side cover (12).
8. **Only for previous version:** Apply a strip of Plast-o-Seal along the side cover (12), ▸ 7.7.5 [🗋 67].
9. **Previous version:** Insert the seal (37/20) into the housing (1).
   Successor version: Insert the flat seal (20) into the housing (1).
10. Screw the cover plate (5) on tight with the screws (47).

7.7.3 Version with gripping force maintenance I.D.

Position of the item numbers:

- **Previous version:** ▸ 7.9 [🗋 70]
- **Successor version:** ▸ 7.10 [🗋 73]

⚠ WARNING

Risk of injury due to spring forces!

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

- Dismantle the product carefully.

Disassembling

1. Remove the compressed air hose.
2. Unfasten and remove the screws (47).
3. **Previous version:** Remove the cover (5) and seal (37/20).
   Successor version: Remove the cover (5) and flat seal (20).
4. Mark the installation positions of the base jaw (2/7) and the side cover (12) on the housing (1).
5. **Previous version:** Unscrew screws (42). Remove the side cover (12) and the gasket (14).
   For DPG-plus 240 / 300: Remove O-ring (39).
   Successor version: Unscrew and remove screws (42), remove the side cover (12) and the flat seal ring (39).
   NOTICE! Do not disassemble the filler piece (18) for

maintenance purposes, as the product may leak. If the filler piece (18) is nevertheless disassembled, seal the filler piece (18) with liquid sealant on reassembly.

6. **WARNING! Risk of injury due to spring forces! The cover is under spring tension.**
   Clamp the product between the housing (1) and cover (9) in the vise so that it is still possible to remove the four screws (46).
7. Unfasten and remove the screws (46).
8. Carefully open the vise until the compression spring (25) has no more tension.
9. Remove the cover (9) and the compression spring (25).
10. Remove the centering sleeves (19).
11. **Previous version:** Mark the installation position between the cylinder piston (60) and the housing (1).
    Successor version: Mark the installation position between the cylinder piston (71) and the housing (1).
12. Unscrew and remove the screw (40).
13. **Previous version:** Remove the cylinder piston (60) from the housing (1).
    Successor version: Remove the cylinder piston (71) from the housing (1).
14. Push the pistons (3/8) upwards out of the housing (1).

NOTE
Do not disassemble the intermediate jaw (13) from the base jaw (2/7).

15. Pull the base jaws (2/7) out of the housing (1).
16. Loosen the screw (43) and disassemble the intermediate jaw (13) from the base jaw (2/7).

Assembling

NOTE

Tighten all screws with the required tightening torque., ▶ 7.7.6 [🗋 67].

1. Insert the base jaw (2/7) into the intermediate jaw (13) and tighten the screw (43).
2. Push the base jaw (2/7) into the housing (1), observing the correct installation position.
3. Insert the seal (31) into the housing (1) from above.
4. Insert the piston (3/8) into the housing (1) from above.
5. Position the base jaws (2/7) so that the piston (3/8) can be pushed into the base jaws (2/7) without any problems.
6. **Previous version:** Slide the cylinder piston (60) from below into the housing (1), observing the correct installation position. Ensure that the sealing lips of the seal (30) do not become damaged while sliding in the cylinder piston.
   Successor version: Slide the cylinder piston (71) into the housing (1) from below. When doing this, observe the correct installation position. Ensure that the sealing lips of the seal (30) do not become damaged while sliding in the cylinder piston.
7. Screw in the screw (40).
8. **Previous version:** Slide the compression spring (25) onto the cylinder piston (60) over the collar.
   Successor version: Slide the compression spring (25) onto the cylinder piston (71) over the collar.
9. Insert seals (34) / (32/38) into the cover (9).
10. Insert the centering sleeves (19) into the housing (1).
11. Clamp the product in a vise so that the screws (46) can be assembled.
12. Fasten the cover (9) with the screws (46).
13. **Previous version:** Insert the gasket (14) into the housing (1). Note: The product must be in the "Gripper closed" position, to prevent the gasket (14) from jamming.
    Successor version: Insert the flat seal ring (39) into the side cover (12).
14. Put on the side cover (12), making sure the installation position is correct.

NOTE
Do not damage the sealing lips of the seal (36) with the intermediate jaw (13).

15. Do not screw the screw (42) completely into the cover (12). The gap between the side cover (12) and the housing (1) should be approximately divided in half.
16. Allow the product to run approx. 20 cycles in order to center the side cover (12).
17. Tighten the screws (42) to fasten the side cover (12).
18. **Only for previous version:** Apply a strip of Plast-o-Seal along the side cover (12), ▸ 7.7.5 [🗋 67].
19. **Previous version:** Insert the seal (37/20) into the housing (1).
    Successor version: Insert the flat seal (20) into the housing (1).
20. Screw the cover plate (5) on tight with the screws (47).

7.7.4 Version with "force amplification cylinder" (KVZ)

Position of the item numbers:

- **Previous version:** ▸ 7.9 [🗋 70]
- **Successor version:** ▸ 7.10 [🗋 73]

Dismantling

1. Remove the compressed air hose.
2. Unfasten and remove the screws (47).
3. **Previous version:** Remove the cover (5) and seal (37/20).
   Successor version: Remove the cover (5) and flat seal (20).
4. Mark the installation positions of the piston (3/8), the base jaws (2/7) and the side cover (12) on the housing (1).
5. **Previous version:** Unscrew screws (42). Remove the side cover (12) and the gasket (14).
   For DPG-plus 240 / 300: Remove O-ring (39).
   Successor version: Unscrew and remove screws (42), remove the side cover (12) and the flat seal ring (39).
   NOTICE! Do not disassemble the filler piece (18) for maintenance purposes, as the product may leak. If the filler piece (18) is nevertheless disassembled, seal the filler piece (18) with liquid sealant on reassembly.
6. Unscrew and remove the screws (41) and remove the cover (4).
7. Unscrew the screw (40/45) and remove the cylinder piston (10/6) from the intermediate housing (65).
8. Remove the intermediate housing (65).

9. **Previous version:** Mark the installation position between the cylinder piston (60) and the housing (1).
   Successor version: Mark the installation position between the cylinder piston (71) and the housing (1).
10. Remove the intermediate piston (66).
11. **Previous version:** Remove the second cylinder piston (60) from the housing (1).
    Successor version: Remove the second cylinder piston (71) from the housing (1).
12. Push the pistons (3/8) upwards out of the housing (1).

NOTE
Do not disassemble the intermediate jaw (13) from the base jaw (2/7).

13. Pull the base jaws (2/7) out of the housing (1).
14. Loosen the screw (43) and disassemble the intermediate jaw (13) from the base jaw (2/7).

Assembly

1. Insert the base jaw (2/7) into the intermediate jaw (13) and tighten the screw (43).
2. Push the base jaw (2/7) into the housing (1), observing the correct installation position.
3. Position the base jaws (2/7) so that the piston (3/8) can be pushed into the base jaws (2/7) without any problems.
4. Insert the piston (3/8) into the housing (1) from above.
5. Insert the seal (31) into the housing (1) from above.
6. **Previous version:** Slide the cylinder piston (60) from below into the housing (1), observing the correct installation position. Ensure that the sealing lips of the seal (30) do not become damaged while sliding in the cylinder piston.
   Successor version: Slide the cylinder piston (71) into the housing (1) from below. When doing this, observe the correct installation position. Ensure that the sealing lips of the seal (30) do not become damaged while sliding in the cylinder piston.
7. Install the intermediate piston (66).
8. Assemble a second cylinder piston (6/10) on the intermediate piston with the screw (40/45). Ensure that the sealing lips of the seal (30) do not become damaged while sliding in the second cylinder piston.
9. Insert seals (32/38) and (34) in the intermediate housing (65).

10. Slide the intermediate housing (65) over the cylinder piston (6/10).
11. Fasten the cover (4) with the screws (46).
12. **Previous version:** Insert the gasket (14) into the housing (1). Note: The product must be in the "Gripper closed" position to prevent the gasket (14) / the O-ring (39) from jamming. **Successor version:** Insert the flat seal ring (39) into the side cover.
13. Put on the side cover (12), making sure the installation position is correct.

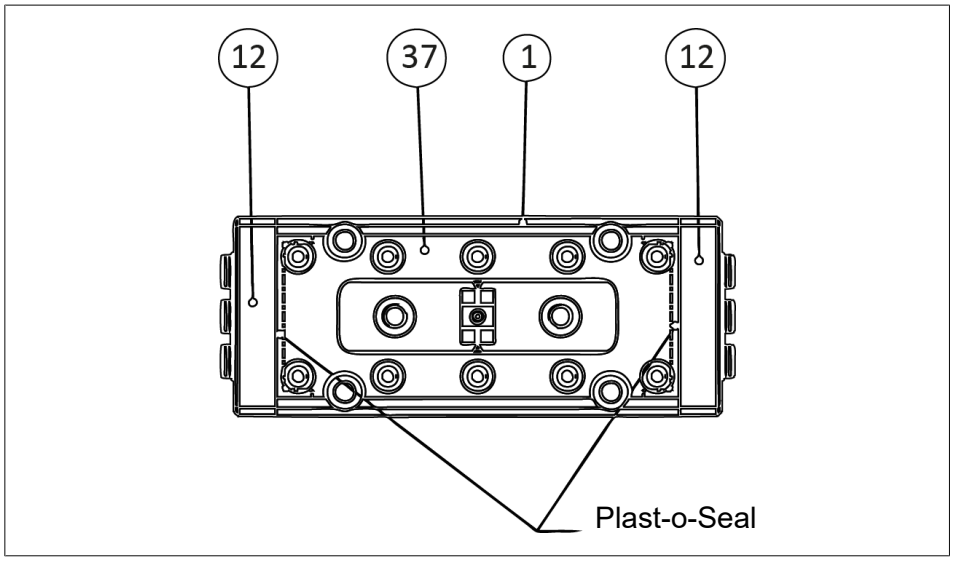
NOTE

Do not damage the sealing lips of the seal (36) with the intermediate jaw (13).

14. Do not screw the screw (42) completely into the cover (12). The gap between the side cover (12) and the housing (1) should be approximately divided in half.
15. Allow the product to run approx. 20 cycles in order to center the side cover (12).
16. Tighten the screws (42) to fasten the side cover (12).
17. **Only for previous version:** Apply a strip of Plast-o-Seal along the side cover (12), ▸ 7.7.5 [🗋 67].
18. **Previous version:** Insert the seal (37/20) into the housing (1). **Successor version:** Insert the flat seal (20) into the housing (1).
19. Screw the cover plate (5) on tight with the screws (47).

7.7.5 Position of the Plast-o-Seal (previous version)

Position of the item numbers, ▶ 7.9 [🗋 70]



Position of the Plast-o-Seal

7.7.6 Tightening torque for screws

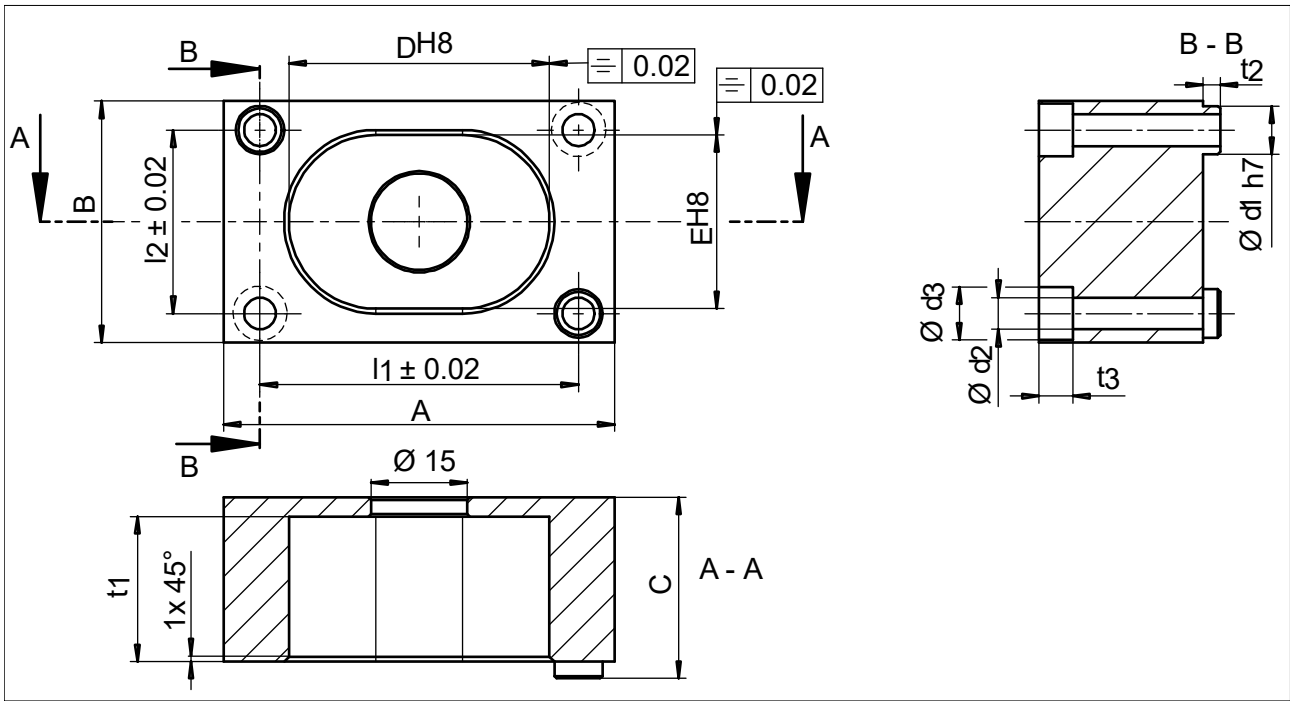
Position of the item numbers, ▶ 7.9 [🗋 70]

Size	Item 40	Item 41	Item 42	Item 43	Item 45	Item 46	Item 47
40	2.7	0.75	0.75	2.7	2.7	0.75	0.5
50	0.8	1.3	1.35	5.8	2.7	1.35	0.5
64	5.9	1.3	1.35	12	12	1.35	0.5
80	10	3.1	3.1	21	21	3.1	1.4
100	10	3.1	3.1	42	21	3.1	2.2
125	24	6.1	6.1	100	42	6.1	2.2
160	48	6.1	10	200	100	6.1	2.2
200	75	6.1	26	350	116	25	4.5
240	75	6.1	24	590	116	50	4.5
300	120	6.1	24	1017	150	24	4.5
380	200	10	48	2030	300	50	4.5

Tab.: Tightening torque [Nm]

7.8 Assembly device cylinder piston with gripping force maintenance

7.8.1 Sizes 40 – 100



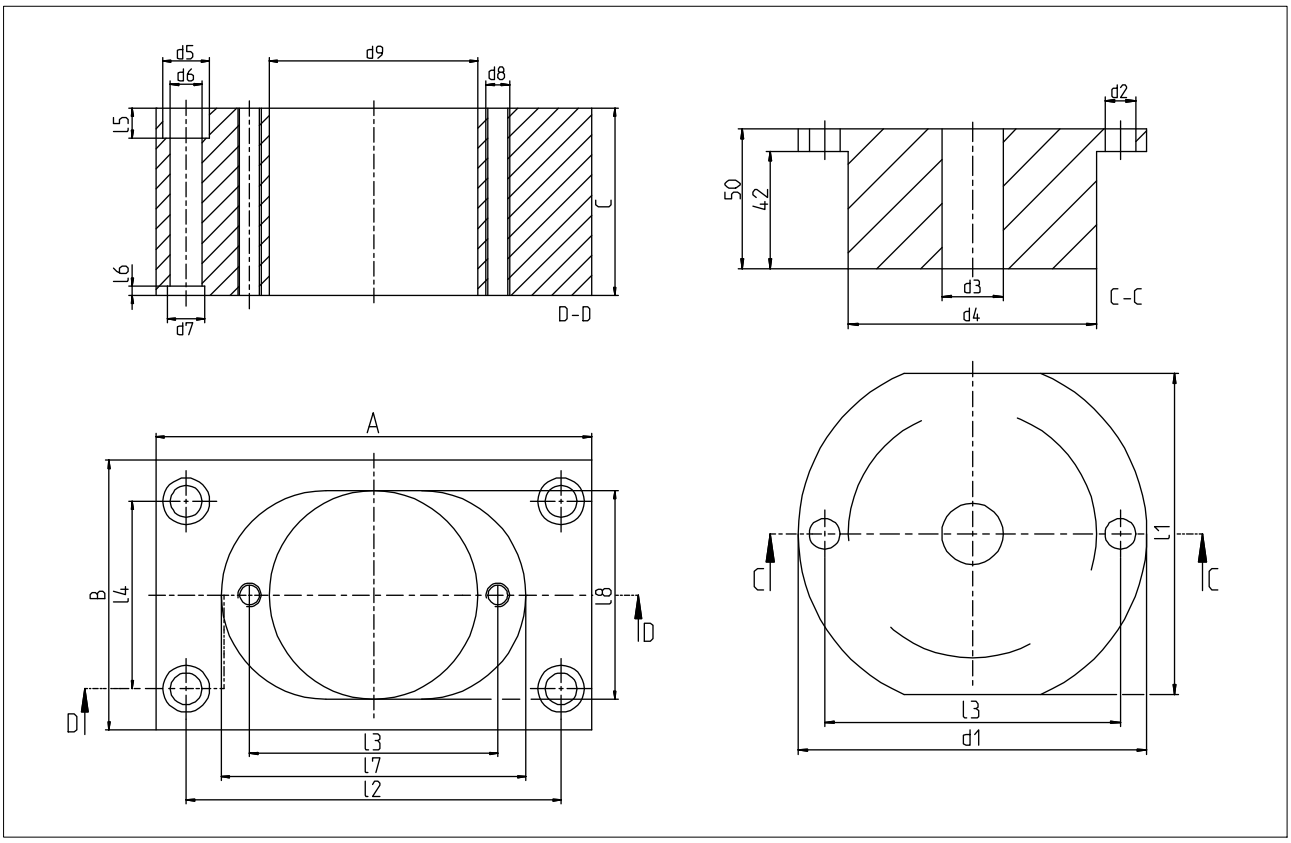
Tab.: Cylinder piston assembly device – dimensions in mm

DPG-plus	a	b	c	d	e	l1	l2	d1	d2	d3	t1	t2	t3
40	38	24	20	22.5	14.5	32	18	5	3.5	6.5	14	2	4
50	42	30	25	25	19	35	22	6	3.5	8	18	2.5	6
64	52	36	27	31	24	42	27	8	5.5	10	23	2.5	7
80	63	42	32	42	30	52	32	8	5.5	10	25	2.5	6
100	81	50	38	54	36	66	38	10	6.6	11	30	3.5	7

DPG-plus	Screw (DIN EN ISO 4762) Item 101
40	M3 x 20
50	M3 x 25
64	M5 x 30
80	M5 x 35
100	M6 x 40

Tab.: Screw for assembly device

7.8.2 Sizes 125 – 380



Tab.: Cylinder piston assembly device – dimensions in mm

DPG-plus	A	B	C	d1	d2	d3	d4	d5	d6	d7
125	100	60	50	96	9	15	45	14	9	12
160	125	58.5	72	100	74.5	56	9	3	–	–
200	154	79	100	130	95	70	11	4	–	–
240	186	89	115	160	106	80	13	4	–	–
300	210	115.3	139	180	130	96	17	6	–	–
380	285	170	110	180	13.5	32	129	33	22	28

DPG-plus	d8	d9	l1	l2	l3	l4	l5	l6	l7	l8
125	M8	–	60	82	80	45	9	3	67	46
160	M8	58.5	72	100	74.5	56	9	3	–	–
200	M8	79	100	130	95	70	11	4	–	–
240	M10	89	115	160	106	80	13	4	–	–
300	M10	115.3	139	180	130	96	17	6	–	–
380	M12	130	170	250	150	116	21	8	–	–

DPG-plus	Screw Item102	Screw Item 105
125	M8 x 55	M8 x 60
160	M8 x 60	M8 x 65
200	M10 x 80	M8 x 80
240	M12 x 90	M10 x 95
300	M16 x 110	M10 x 110
380	M20 x 120	M12 x 125

Tab.: Screw for assembly device

7.9 Assembly drawing (previous version)

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

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

2* From size 100

3* Item. 38 for sizes 40 – 80
Item. 32 for sizes 100 – 380

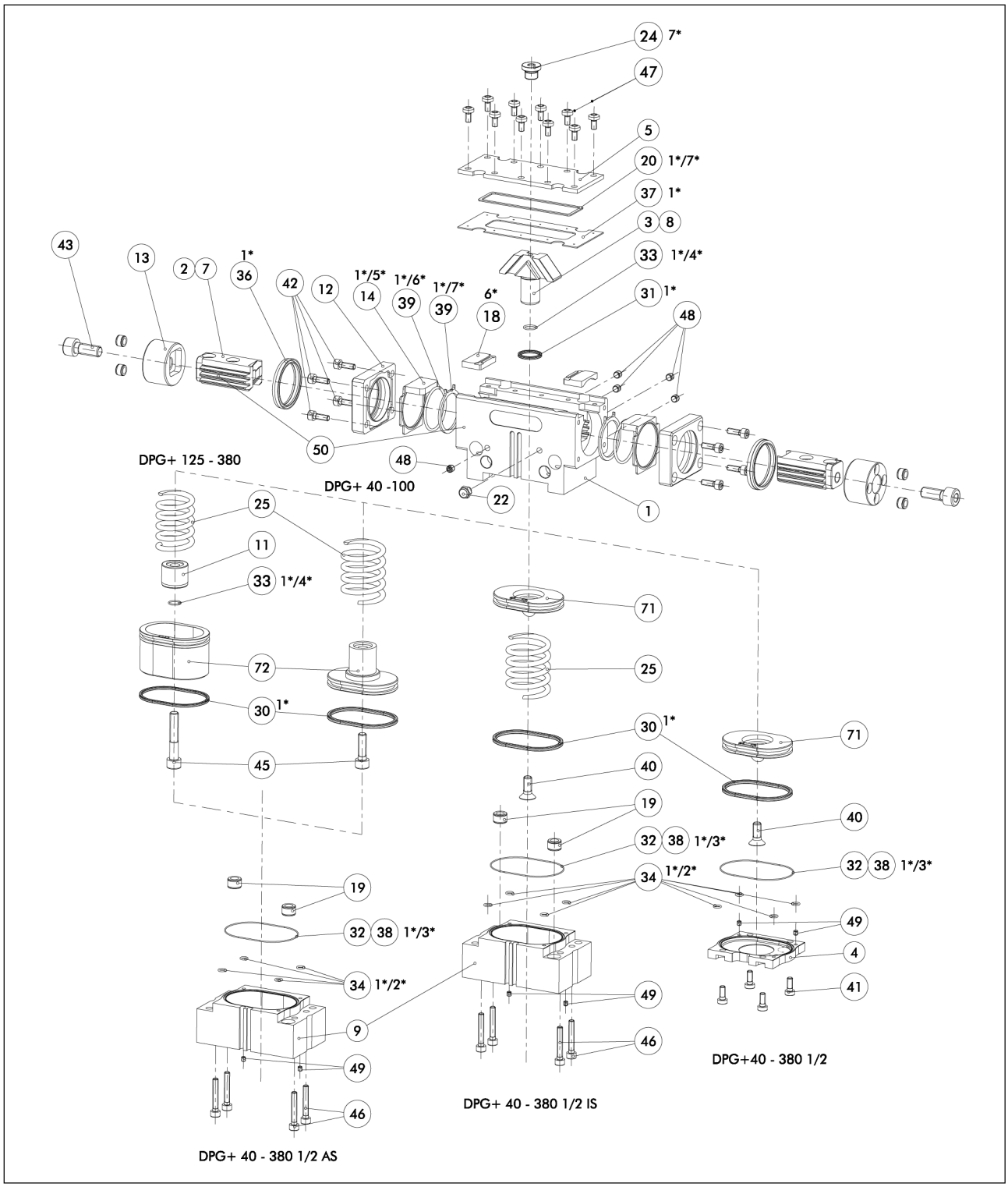
4* From size 125

5* From size 200

6* To size 240

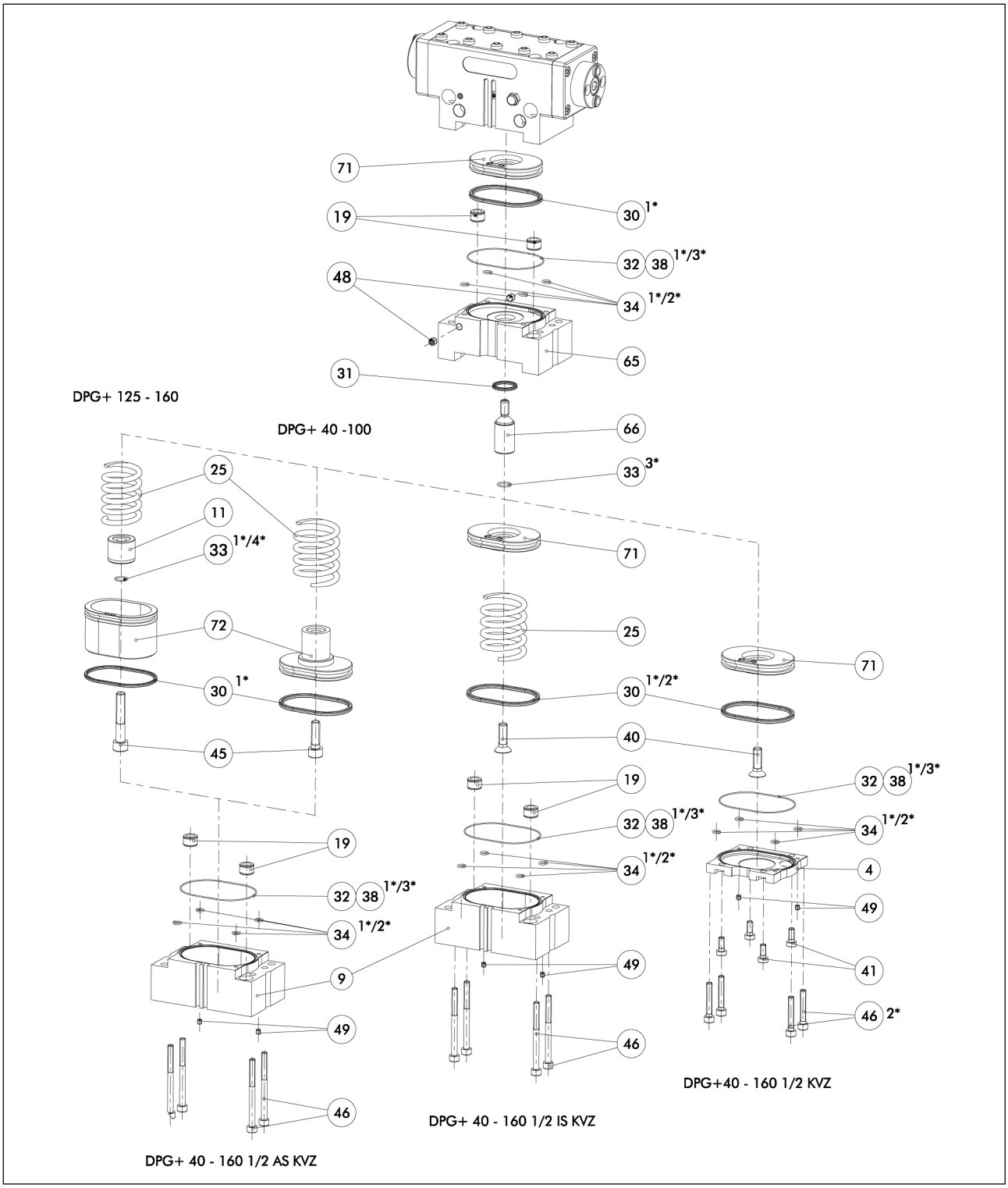
7* Only size 380

7.9.1 Assembly of variants OD / ID / without maintenance of gripping force



Assembly of the variants O.D. gripping/I.D. gripping/without maintenance of gripping force (previous version)

7.9.2 Assembly of the variant with force amplification cylinder



Assembly of the variant with force amplification cylinder (previous version)

Gripper variants with force amplification cylinders are not permitted for use in explosion-protected applications (EX).

7.10 Assembly drawing (successor version)

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

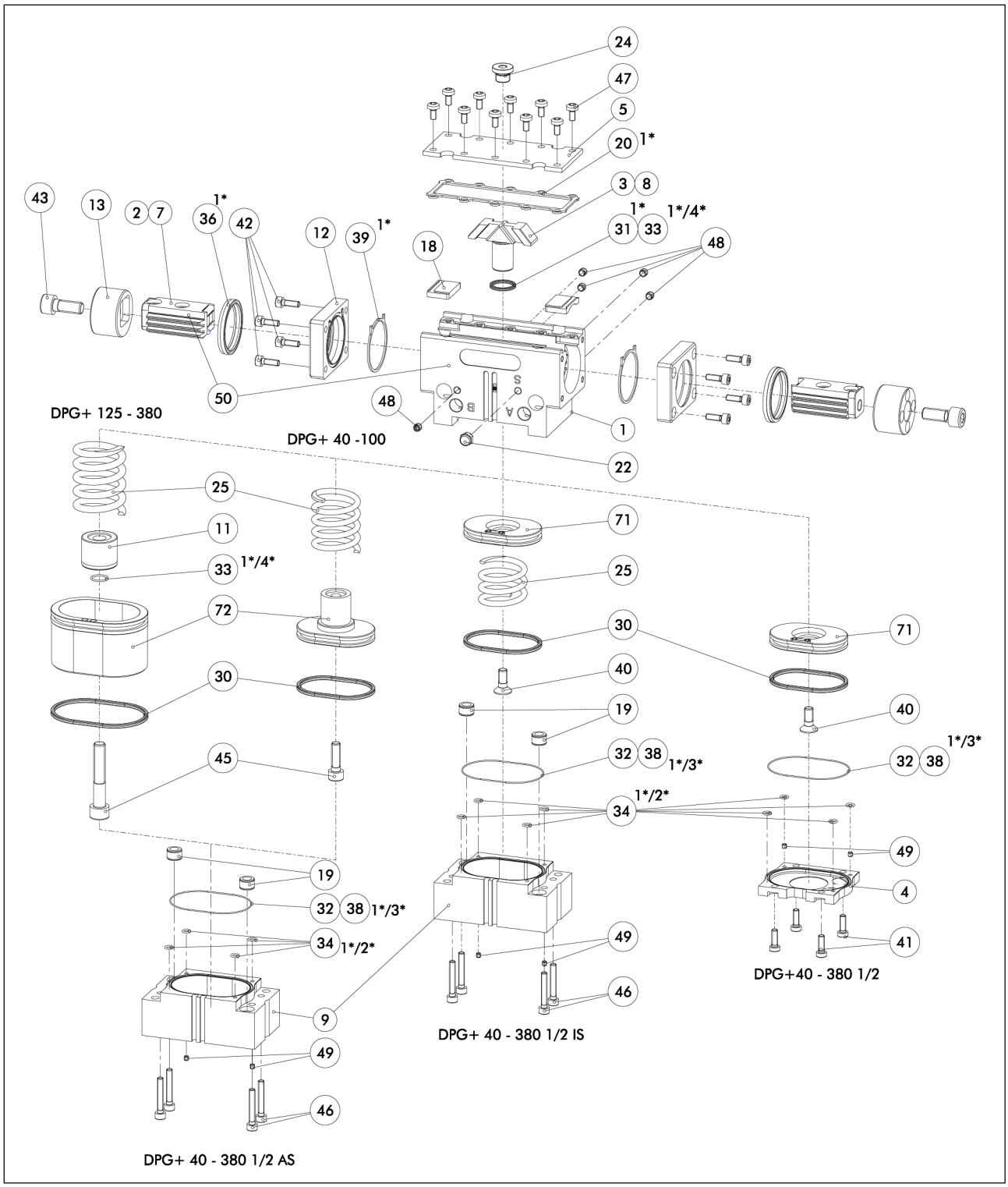
1* Wearing part, replace during maintenance.
Contained in the spare part kit "seal kit". The spare part kit can be ordered completely only.

2* From size 100

3* Item. 38 for sizes 40 – 80
Item. 32 for sizes 100 – 380

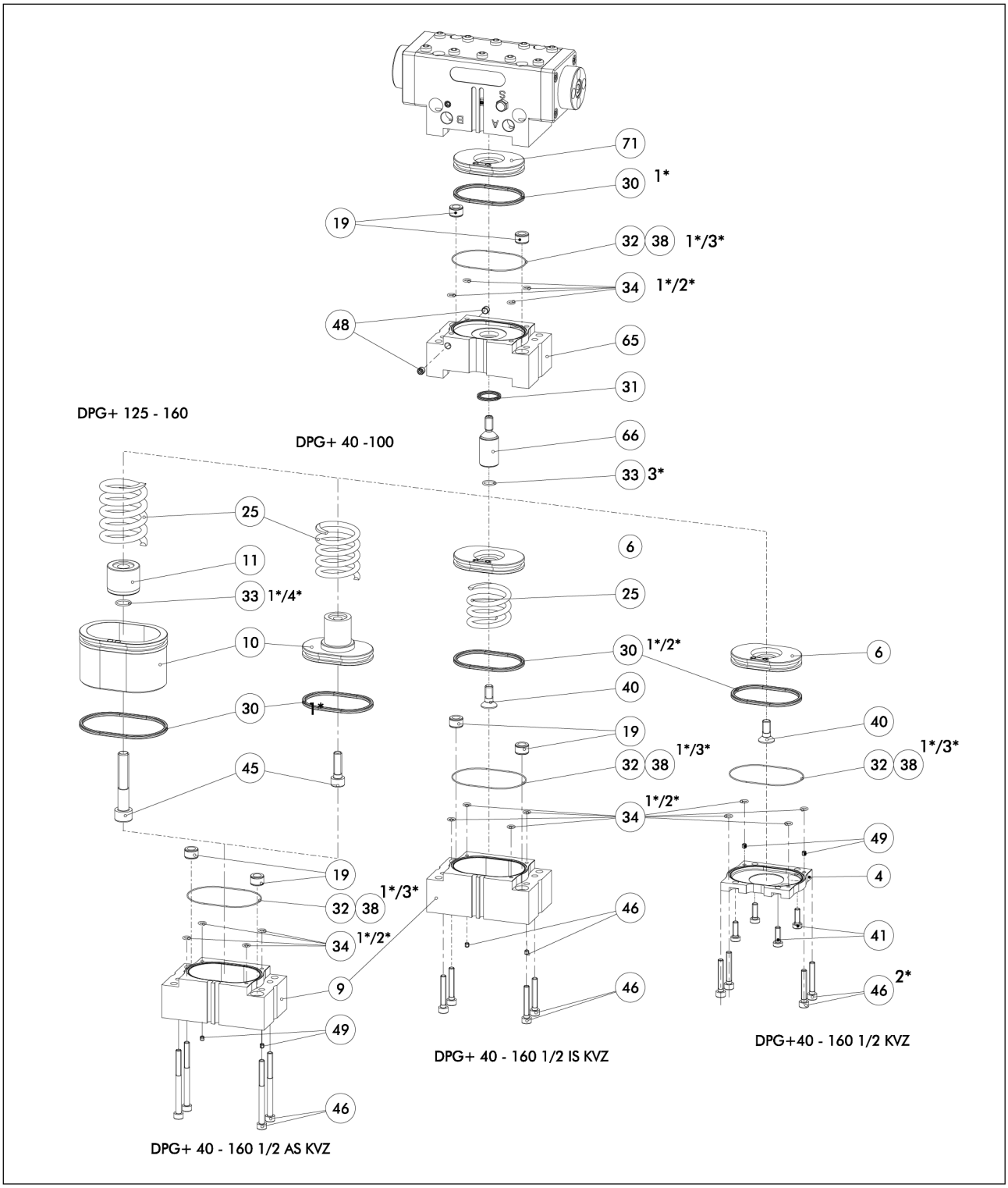
4* From size 125

7.10.1 Assembly of variants OD / ID / without maintenance of gripping force



Assembly of the variants O.D. gripping/I.D. gripping/without maintenance of gripping force (successor version)

7.10.2 Assembly of the variant with force amplification cylinder



Assembly of the variant with force amplification cylinder (successor version)

Gripper variants with force amplification cylinders are not permitted for use in explosion-protected applications (EX).

8 Appendix

8.1 Differentiation between the previous version and the successor version

The product has been redesigned as of 2018. The modified successor version is directly interchangeable with the previous version and replaces it.

The difference between the two versions lies exclusively in the design and is therefore only relevant for spare parts such as the sealing kit. The instructions identify the two versions at the relevant points with the additions "previous version" and "successor version".

DPG-plus	Ident number Previous version	Ident number Successor version
40-AS-EX	304201	1315189
40-EX	304200	1315186
40-IS-EX	304202	1315194
50-1-AS-EX	304212	1315199
50-1-EX	304210	1315197
50-1-IS-EX	304214	1315203
50-2-AS-EX	304213	1315200
50-2-EX	304211	1315198
50-2-IS-EX	304215	1315204
64-1-AS-EX	304222	1315214
64-1-IS-EX	304224	1315224
64-2-AS-EX	304223	1315223
64-2-EX	304221	1315211
64-2-IS-EX	304225	1315233
80-1-AS-EX	304232	1315244
80-1-IS-EX	304234	1315247
80-2-AS-EX	304233	1315245
80-2-EX	304231	1315241
80-2-IS-EX	304235	1315248
100-1-AS-EX	304242	1315260
100-1-IS-EX	304244	1315261
100-2-AS-EX	304243	1315255
100-2-IS-EX	304245	1315262
125-1-AS-EX	304252	1315267
125-1-IS-EX	304254	1315270

DPG-plus	Ident number Previous version	Ident number Successor version
125-2-AS-EX	304253	1315268
125-2-EX	304251	1315265
125-2-IS-EX	304255	1315273
160-1-AS-EX	304262	1315278
160-1-EX	304260	1315274
160-1-IS-EX	304264	1315280
160-2-AS-EX	304263	1315279
160-2-EX	304261	1315275
160-2-IS-EX	304265	1315282
200-1-AS-EX	304272	1315289
200-1-EX	304270	1315284
200-1-IS-EX	304274	1315291
200-2-AS-EX	304273	1315290
200-2-EX	304271	1315287
200-2-IS-EX	304275	1315294
240-1-AS-EX	304282	1315297
240-1-EX	304280	1315295
240-1-IS-EX	304284	1315303
240-2-AS-EX	304283	1315299
240-2-EX	304281	1315296
240-2-IS-EX	304285	1315305
300-1-AS-EX	304512	1315311
300-1-EX	304510	1315309
300-1-IS-EX	304514	1315319
300-2-AS-EX	304513	1315315
300-2-EX	304511	1315310
300-2-IS-EX	304515	1315323

9 Translation of the original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1 Section B.

Manufacturer/ Distributor	SCHUNK SE & Co. KG Spanntechnik | Greiftechnik | Automatisierungstechnik Bahnhofstr. 106 – 134 D–74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation:	Sealed 2-Finger Parallel Gripper / DPG-plus /pneumatic
ID number	0304291 ... 0304395 (Previous version), 1315186 ... 1321266 (Successor version)

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, July 2025

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

10 UKCA declaration of incorporation

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

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

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

Product designation:	Sealed 2-Finger Parallel Gripper / DPG-plus / pneumatic
ID number	0304291 ... 0304395 (Previous version), 1315186 ... 1321266 (Successor version)

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, July 2025

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

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

RoHS Directive

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

REACH Regulation

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

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

Signature: see original declaration

Lauffen/Neckar, July 2025

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

SCHUNK SE & Co. KG
Spanntechnik | Greiftechnik | Automatisierungstechnik

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