Assembly and Operating Manual
GSW-B
Shaft interface

Translation of the original manual

Hand in hand for tomorrow

Imprint

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

Document number: 389112

Version: 08.00 | 04/03/2024 | 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.

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1 General

1.1 About this manual

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

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

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

In addition to these instructions, the documents listed under ▸ 1.1.2 [🗋 6] are applicable.

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

1.1.1 Presentation of Warning Labels

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

⚠ DANGER

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.

CAUTION

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 manual of the gripper *

Die mit Stern (*) gekennzeichneten Unterlagen können unter **schunk.com/downloads** heruntergeladen werden.

1.1.3 Sizes

This operating manual applies to the following sizes:

- GSW-B 50
- GSW-B 64
- GSW-B 80
- GSW-B 100

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 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

- Shaft interface GSW-B for gripper in the version ordered
- Assembly and Operating Manual
- Accessory pack
- Mounting screws

Fastening screws for	with gripper	ID number
GSW-B 50-P	PGN-plus 50 AS/IS	9942569
GSW-B 50-P	PGN-plus P 50 AS/IS	9682133
GSW-B 50-Z	PZN-plus 50 AS/IS	1342767
GSW-B 64-PZ	PGN-plus 64 AS/IS	9660008
GSW-B 64-PZ	PGN-plus P 64 AS/IS	9938313
GSW-B 64-PZ	PZN-plus 64 AS/IS	9660070
GSW-B 80-PZ	PGN-plus 80 AS/IS	9660008
GSW-B 80-PZ	PGN-plus P 80 AS/IS	9938313
GSW-B 80-PZ	PZN-plus 80 AS/IS	9660092
GSW-B 100-PZ	PGN-plus 100 AS/IS	9951593
GSW-B 100-PZ	PGN-plus P 100 AS/IS	9966101

Fastening screws for	with gripper	ID number
GSW-B 100-PZ	PZN-plus 100 AS/IS	9955450

Tab.: Fastening screws for assembling the gripper

Fastening screws for	with adapter plate	Fastening screw	
	ID number	Dimensions	ID number
GSW-B 50-P	5519121	2x M5x14, DIN 4762	9660091
GSW-B 50-Z	5519205	2x M5x14, DIN 4762	9660091
GSW-B 64-PZ	5519122	4x M5x14, DIN 4762	9660091
GSW-B 80-PZ	5519123	4x M5x14, DIN 4762	9660091
GSW-B 100-PZ	5519124	4x M5x14, DIN 4762	9660091

Tab.: Fastening screws for mounting the adapter plate

1.3.1 Accessories kit

Accessory pack for	ID number
GSW-B 50 - 80	5520205
GSW-B 100	5520206

Content of the accessories pack: ▸ 7.5 [🗋 28].

1.4 Accessories

The following accessories, which must be ordered separately, are required for the product:

- Toolholder
- Grippers

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.

2 Basic safety notes

2.1 Intended use

The product is for use with a toolholder and a gripper for gripping and time-limited holding of workpieces or objects

- The product may only be used within the scope of its technical data, ▶ 3 [🗋 14].
- 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.

CAUTION

Using the GSW-B in connection with a (heat-) shrinking toolholder has to be considered as an abuse! The manufacturer is not responsible for therefrom resulting damages.

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 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 [🗋 14].

2.5 Personnel qualification

Inadequate qualifications of the personnel

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

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

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

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

2.6 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.

2.7 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.

2.8 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.

2.9 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.

2.10 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.

2.11 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.

2.11.1 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.

2.11.2 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.

2.11.3 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.

2.11.4 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.

3 Technical data

Tab.:

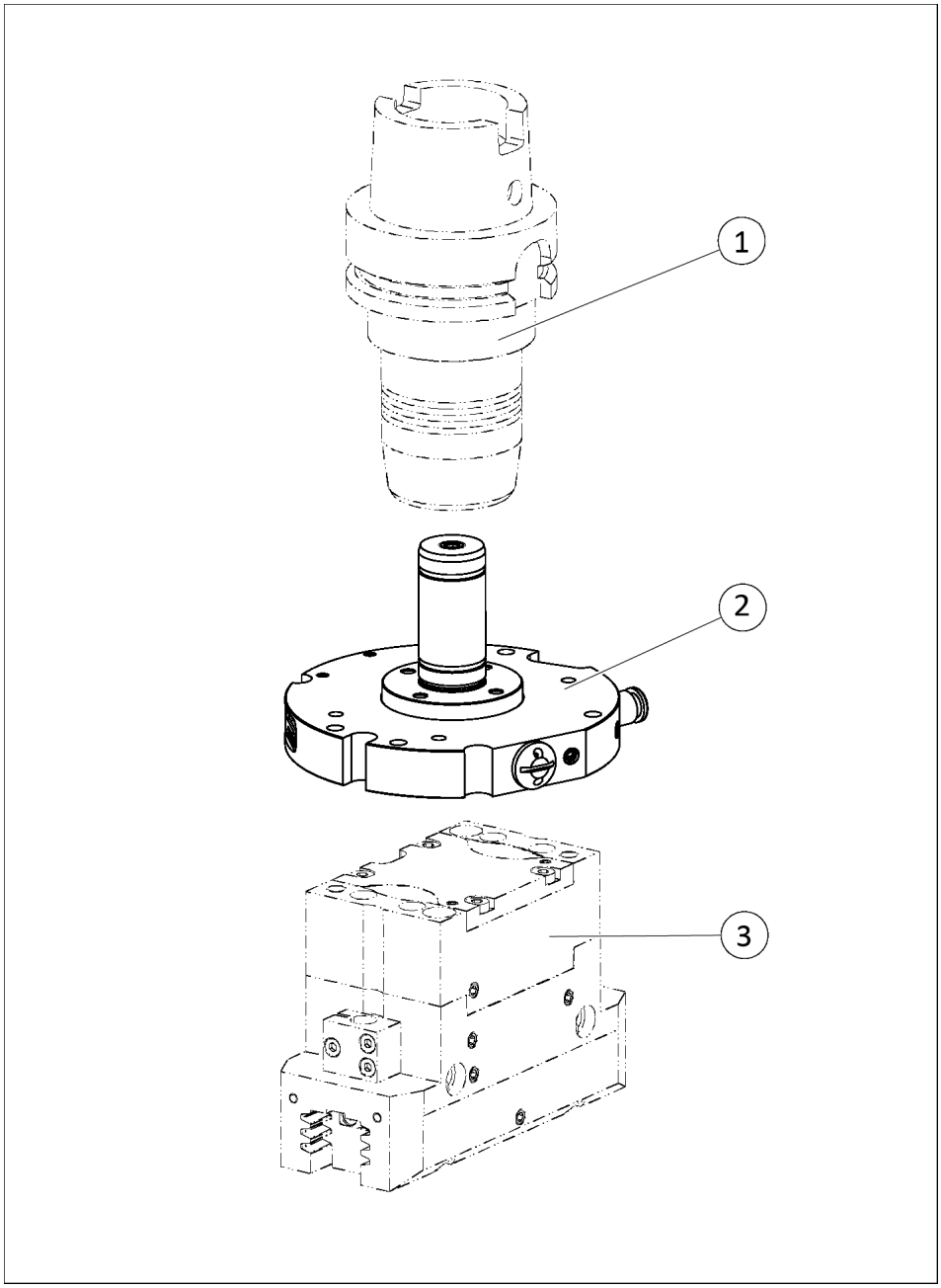
Size	50	64	80	100
Mechanical operating data				
Weight [kg]	0.2	0.23	0.31	0.42
max. permitted speed [min−1]		20		
Ambient temperature [°C] Min. Max.		 −10 90		
IP rating		40		
Noise emission [dB(A)]		≤ 70		
Operating data for media connection				
Pressure medium		Compressed air, compressed air quality according to ISO 8573−1:2010 [7:4:4]		
Nominal working pressure [bar] [bar] compressed air Machine coolant		 6 40		
min./max. Nominal operating pressure [bar] compressed air Machine coolant		 4 / 8 20 / 50		

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

4 Description

4.1 Description GSW-B

Shaft interface (2) for use with a toolholder (1) and a gripper (3).



5 Assembly

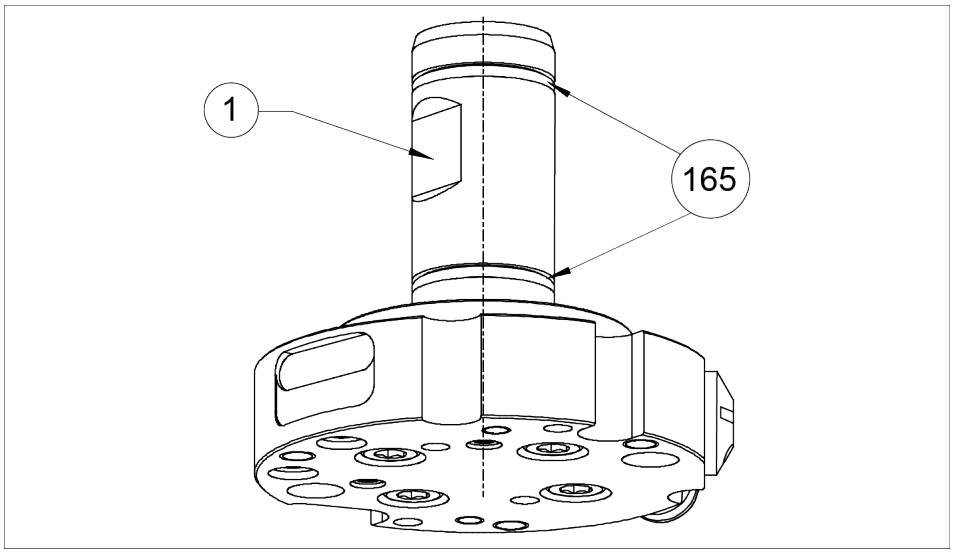
5.1 Mechanical connection of a GSW-B into a toolholder

CAUTION

- The orientation of the GSW-B in the toolholder must be determined by the customer.

NOTE

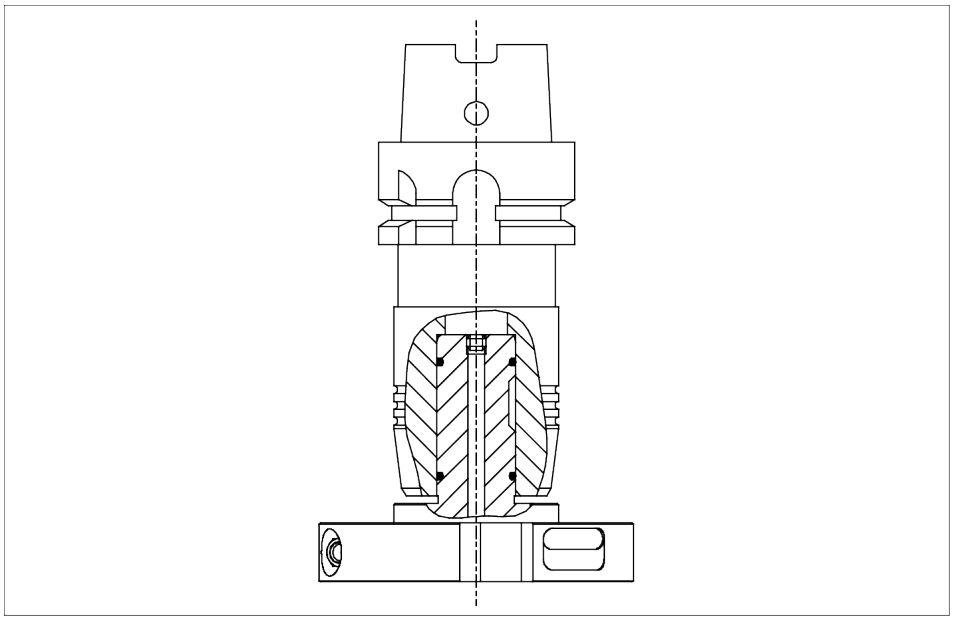
Never use a shrink fit chuck.



Assembly options

1. Check if the O-rings (165) are insert in the shank. If necessary, insert the O-rings (165).
2. Clamp the module with the shank or via the clamping surface (1) into the toolholder.

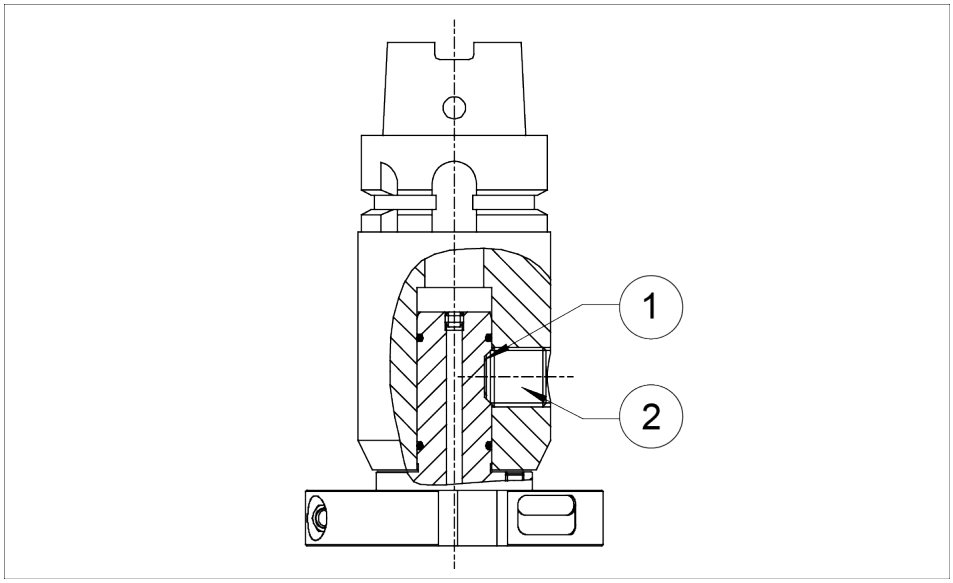
SCHUNK TENDO Toolholder



Sectioning GSW-B clamped in the TENDO toolholder from SCHUNK

The shank of the GSW-B is surface clamped with the TENDO toolholder (Principle of clamping: Hydraulic expansion toolholder).

Toolholder with WELDON mounting



Sectioning GSW-B clamped in a WELDON mounting

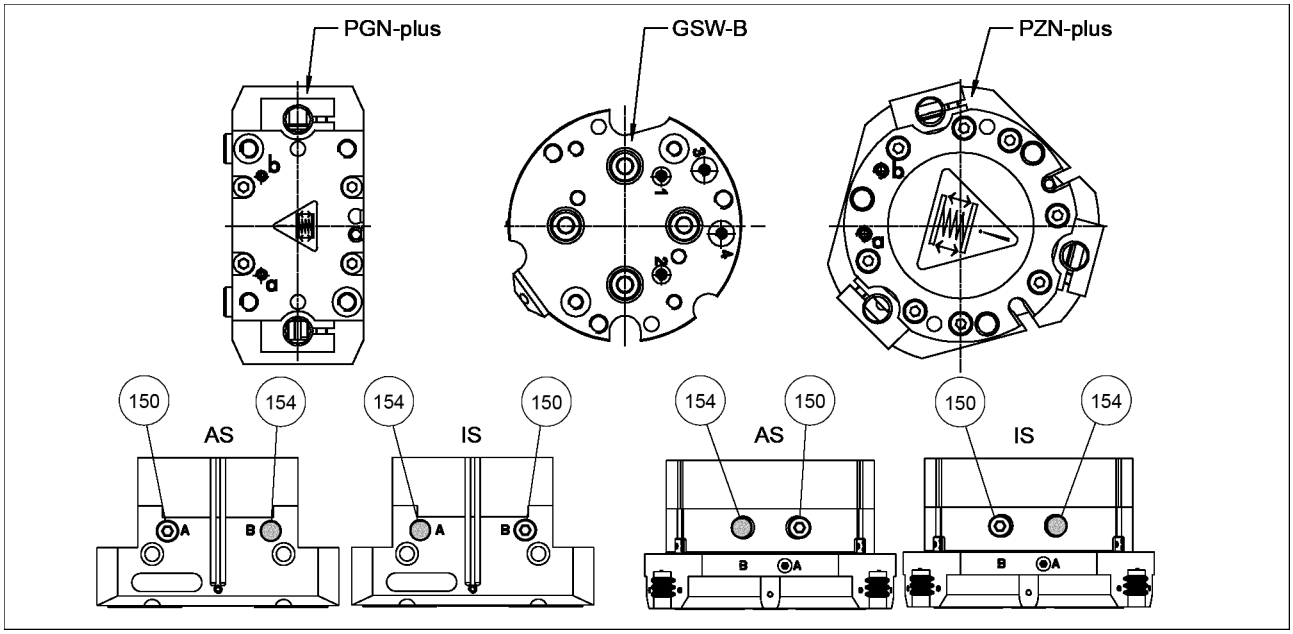
The shaft of the GSW-B is clamped via the clamping surface (1) through the set-screw (2) of the toolholder with WELDON mounting.

5.2 Pressure supply [GSW-B]

CAUTION

Observe the requirements for the air supply, ▶ 3 [🗋 14].

5.2.1 Air connections



Position of the air connections for SCHUNK grippers

Tab.: Bottom air connections / compressed air connection for SCHUNK grippers

Connection designation for GSW-B	1	2	3	4
Hose-free direct connection at the base on the gripper	"b" at PGN-plus-IS	"a" at PGN-plus-AS	"b" at PZN-plus-IS	"a" at PZN-plus-AS

- When using a SCHUNK gripper with **AS** (AS = closing the gripper with spring force):
  - Connection 2 or 4 on GSW-B and open the bottom connection "a" on the gripper.
  - Connection "A" on the gripper is to be closed with the locking screw (gripper accessory kit) and connection "B" on the gripper is to be closed with the sound absorber (154).
- When using a SCHUNK gripper with **IS** (IS = opening the gripper with spring force):
  - Connection 1 or 3 on GSW-B and open the bottom connection "b" on the gripper.
  - Connection "B" on the gripper is to be closed with the locking screw (gripper accessory kit) and connection "A" on the gripper is to be closed with the sound absorber (154).

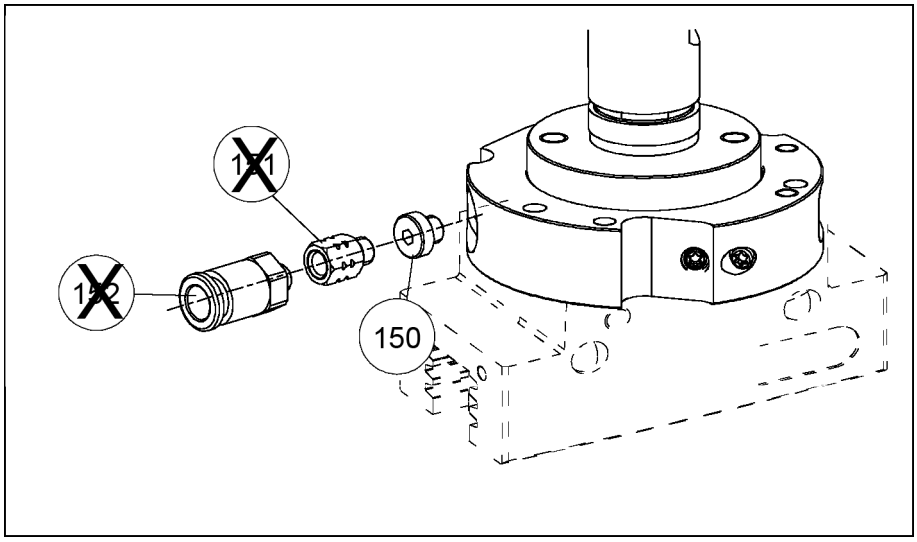
5.2.2 Pressure supply with compressed air

CAUTION

No function with check valve!

On machines with a check valve, the gripper cannot be operated because the air cannot be ventilated via the machine.

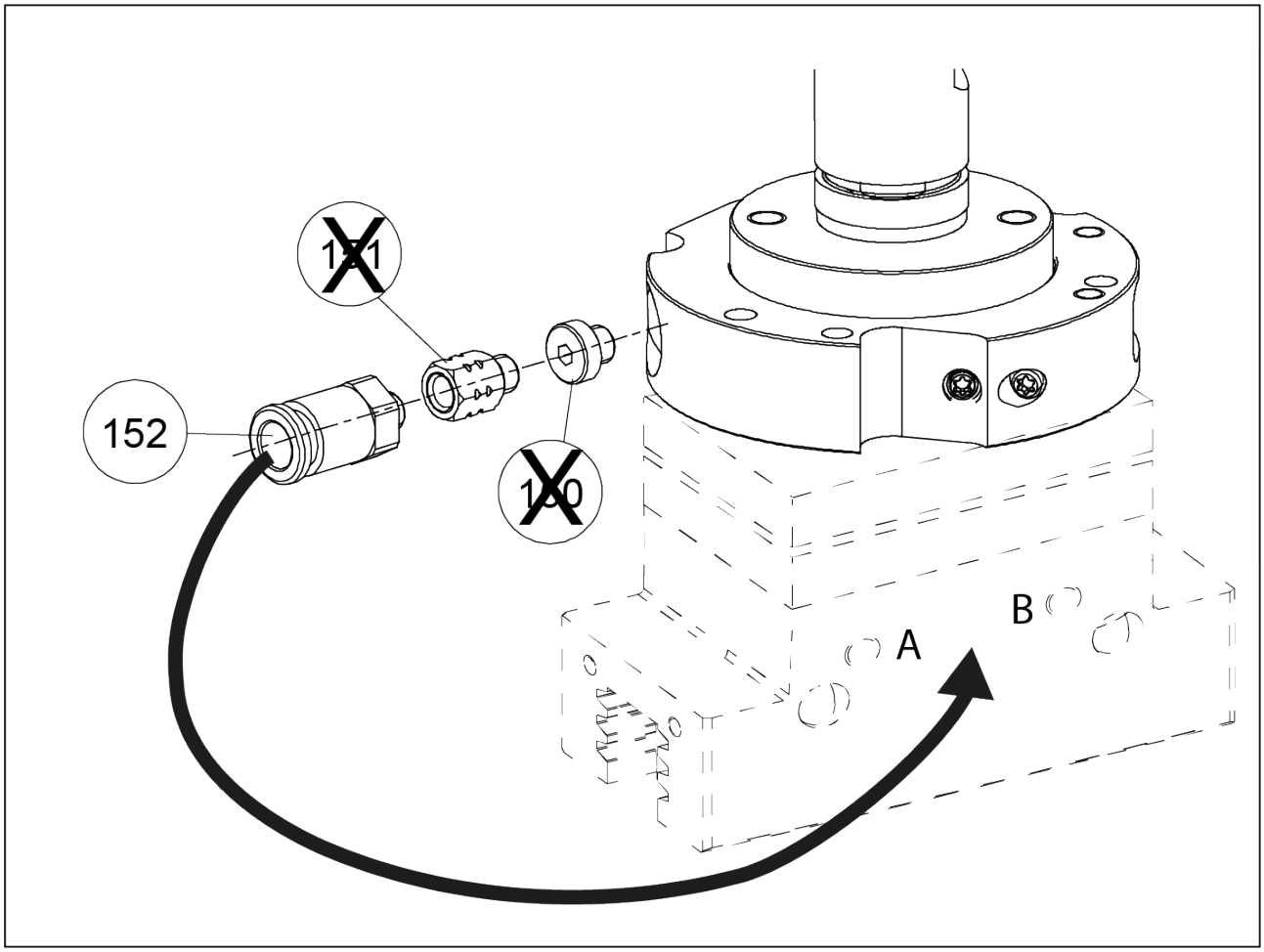
- Ensure ventilation via the machine.
- Alternatively, install an adjustable exhaust air throttle instead of the locking screw (150).
  Note that the gripping force can be influenced when opening the throttle!



The pressure supply with **compressed air** is provided via the machine spindle.

For machines **without** check valve: Use locking screw (150).

5.2.3 Pressure supply with compressed air and use of the TCU compensation unit



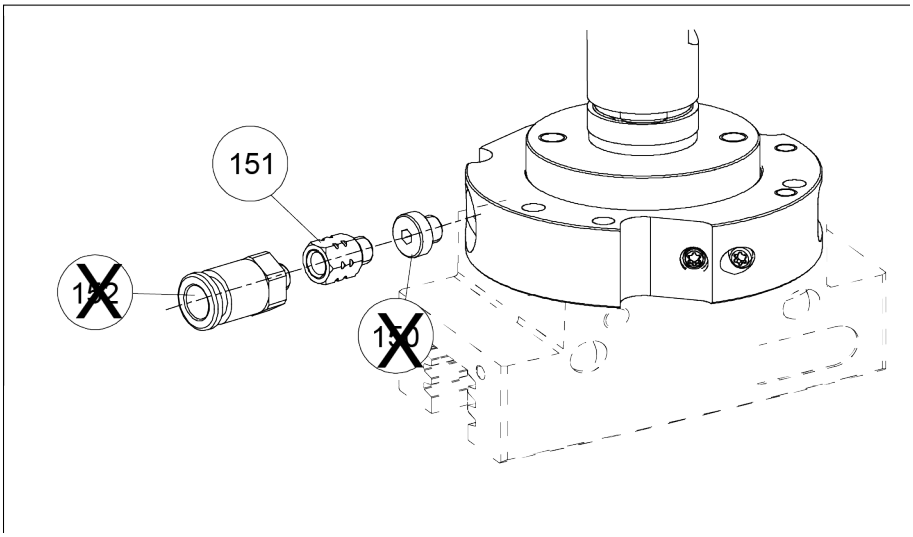
The pressure supply with **compressed air** is provided via the machine spindle.

Screw in the screw-in union (152) and connect the hose to the gripper connection **A** or **B**.

Close the other connection with the sound absorber as described in ▸ 5.2.1 [🗋 18].

Note: The screw-in union (152) is only required if the hose-free direct connection of the gripper is not used, e.g. when a SCHUNK TCU compensation unit is used at the same time.

5.2.4 Pressure supply with machine cooling fluid



The pressure supply with **machine cooling fluid** is provided via the machine spindle.

Replace the locking screw (150) with the throttle (151).

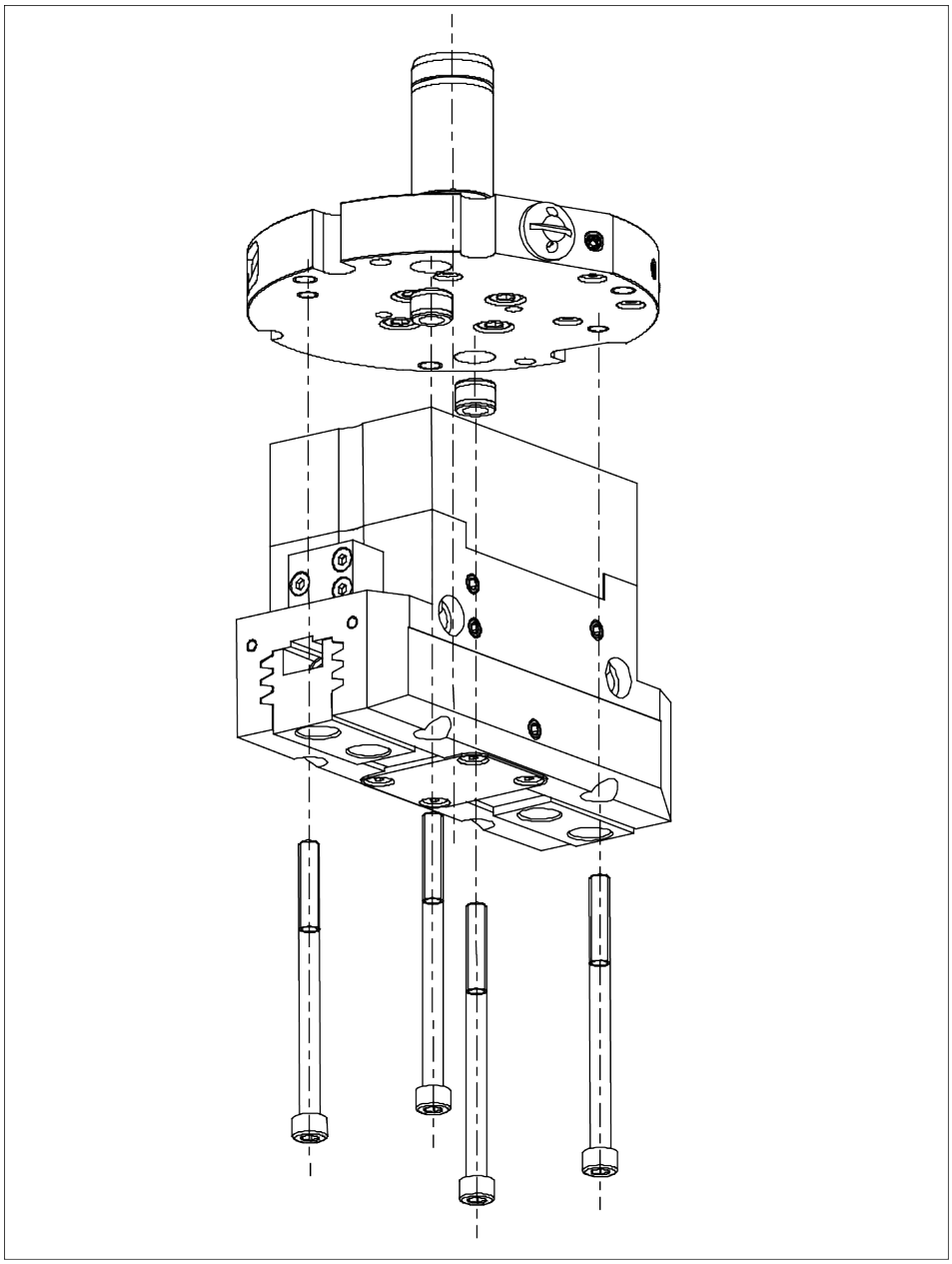
Note: Please observe the permissible pressure range! In case of deviating pressures, the function of the gripper is limited or disabled!

5.3 Connection of a GSW-B to a gripper

NOTE

- Open the pressure connections before fastening the gripper to the mounting surface, ▶ 5.2.1 [🗋 19].

SCHUNK parallel grippers PGN-plus / PGN-plus P



Assembly of SCHUNK parallel grippers, shown as an example on PGN-plus

Maximal screw-in depth of the fastening screws provided by the customer.

Mounting	PGN-plus			
	50	64	80	100
Mounting screw *	M3 x 45	M4 x 50	M4 x 50	M5 x 70
Mounting screw according to standard	DIN EN ISO 4762			

Mounting	PGN-plus			
	50	64	80	100
Amount	4	4	4	4
Max. depth of engagement from locating surface [mm]	8	9	9	11
Max. tightening torque [Nm]	2.1	5.3	5.3	11.0

Tab.: Assembly of PGN-plus

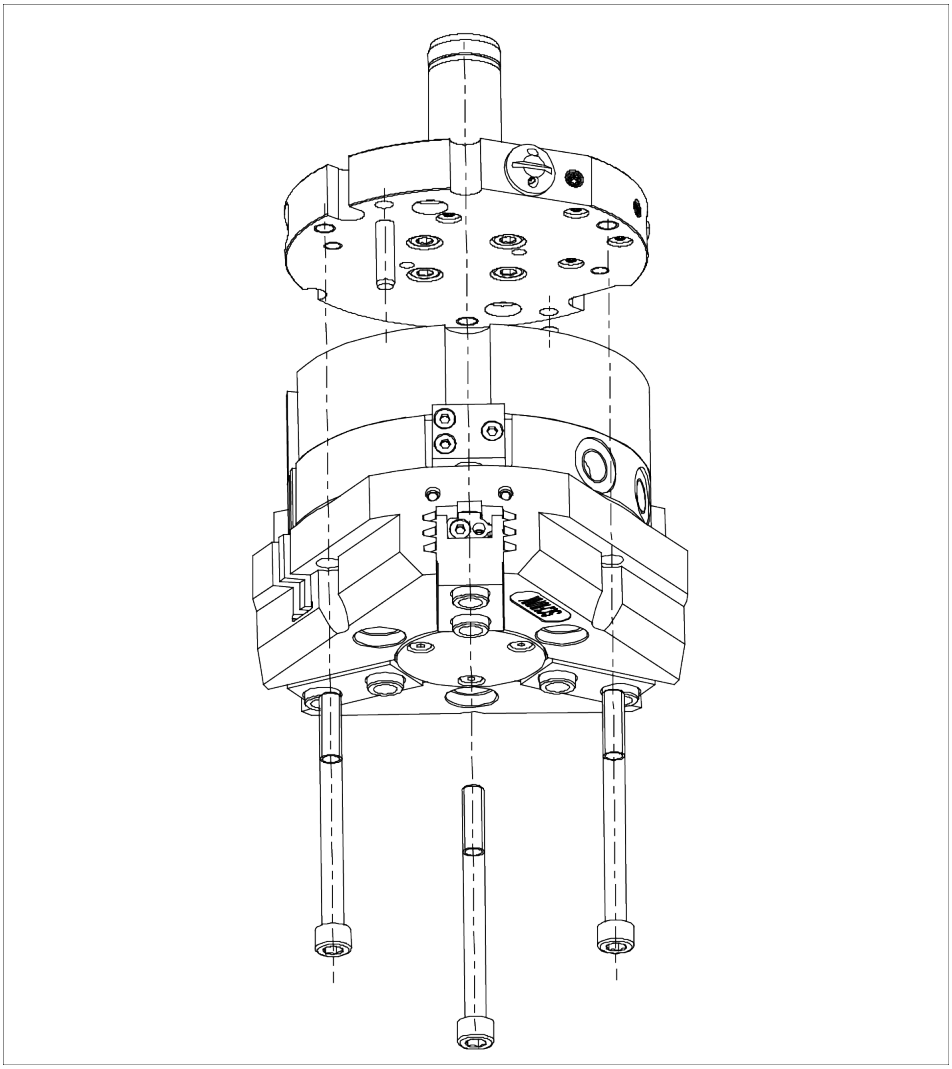
* included in the scope of delivery of the product

Mounting	PGN-plus P			
	50	64	80	100
Mounting screw *	M3 x 35	M4 x 40	M4 x 40	M5 x 55
Mounting screw according to standard	DIN EN ISO 4762			
Amount	4	4	4	4
Max. depth of engagement from locating surface [mm]	8	9	9	11
Max. tightening torque [Nm]	2.1	5.3	5.3	11.0

Tab.: Assembly of PGN-plus P

* included in the scope of delivery of the product

SCHUNK centric gripper PZN-plus



Assembly of SCHUNK centric grippers, shown as an example on PZN-plus

Maximal screw-in depth of the fastening screws provided by the customer.

Mounting	PZN-plus			
	50	64	80	100
Mounting screw *	M3 x 40	M5 x 50	M6 x 55	M6 x 70
Mounting screw according to standard	DIN EN ISO 4762			
Amount	3	3	3	3
Max. depth of engagement from locating surface [mm]	8	9	9	11
Max. tightening torque [Nm]	0.94	11.0	18.0	18.0

Tab.: Assembly of PZN-plus

* included in the scope of delivery of the product

6 Troubleshooting

6.1 Product does not move?

Possible cause	Corrective action
The required air connections are closed	Open the required air connections.
Compressed air lines switched.	Check compressed air lines.
Unused air connections open.	Close unused air connections.
The machine is equipped with a check valve.	Use throttle ▶ 5.2.1 [🗋 19].

7 Maintenance and Care

The product is not intended for maintenance.

- In the event of increased leakage, however, the seals can be replaced with the aid of the seal kit ▸ 7.3 [🗋 27].
- If required, the spare parts can be reordered or exchanged ▸ 7.5 [🗋 28].

7.1 Lubricants/Lubrication points

SCHUNK recommends the lubricants listed.

Lubricant point	Lubricant
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.

7.2 Disassemble product

Disassemble the module as shown in the chapter “Assembly drawing” ▸ 7.5 [🗋 28].

7.3 Replacing the seals

Replace seals

- Clean all parts thoroughly and check for damage and wear.
- Treat all greased areas with lubricant.
- Oil or grease bare external steel parts.
- Replace the seals.
  - Position of the wearing parts ▸ 7.5 [🗋 28]
  - Seal kit ▸ 7.4 [🗋 27]

Assembly

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.

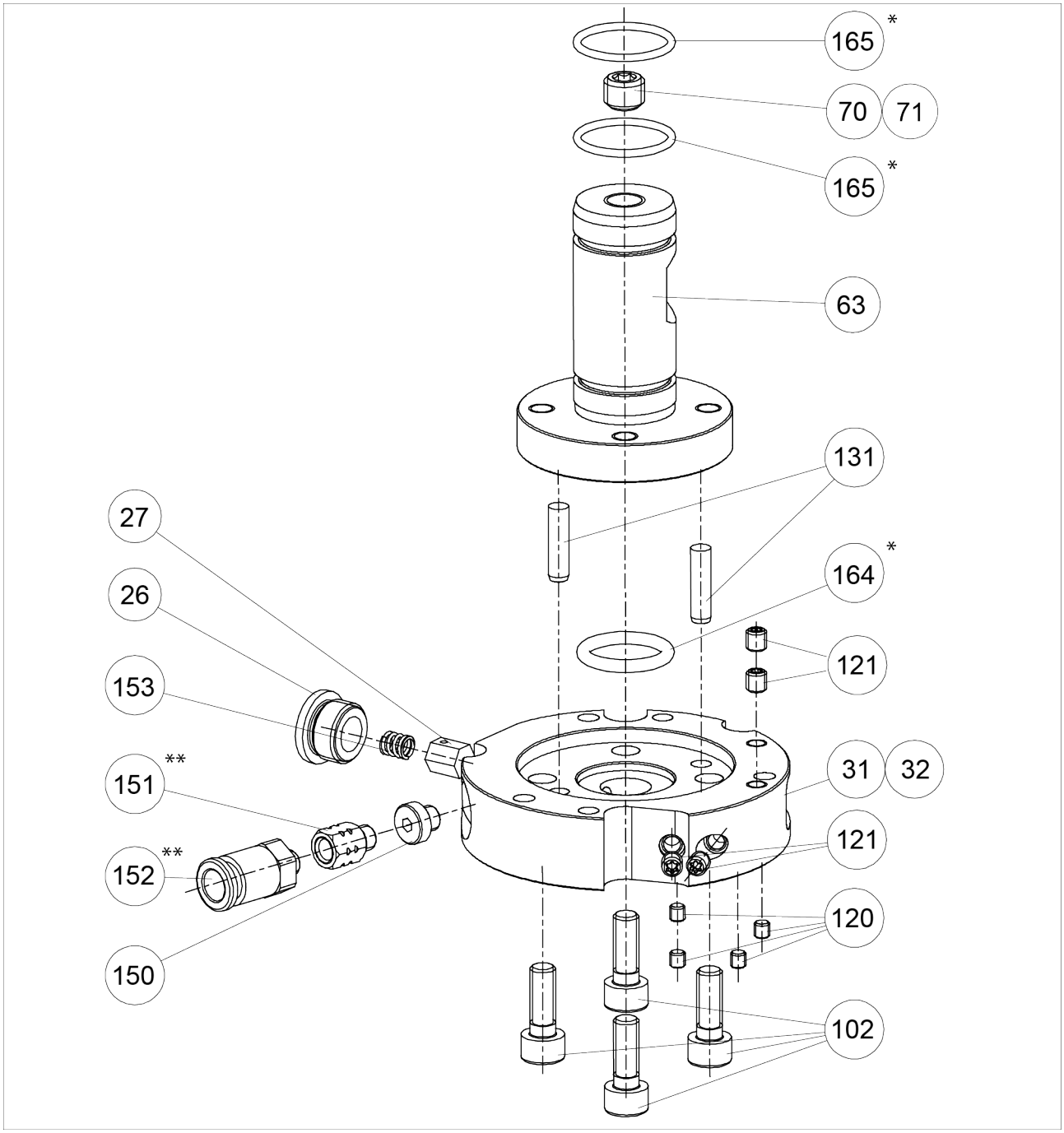
7.4 Seal kit

Seal kit for	ID number
GSW-B 50 – 100	5520204

contents of the sealing kit, ▸ 7.5 [🗋 28].

7.5 Assembly drawing

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



Exploded view of the GSW-B

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

** Contained in accessory pack.

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 Toolholding and Workholding | Gripping Technology | Automation Technology Bahnhofstr. 106 – 134 D–74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation:	Shaft interface / GSW-B /
ID number	0308420, 0308421, 0308422, 0308423, 0308424

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 2024

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:	Shaft interface / GSW-B /
ID number	0308420, 0308421, 0308422, 0308423, 0308424

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 2024

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**.

Signature: see original declaration

Lauffen/Neckar, March 2024

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

SCHUNK SE & Co. KG
Toolholding and Workholding | Gripping Technology | Automation Technology

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

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