

Operating instructions

Needle Gripper SNG-V ... HP/HP-HT

Note

The Operating instructions were originally written in German. Store in a safe place for future reference. Subject to technical changes without notice. No responsibility is taken for printing or other types of errors.

Published by

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Contact

J. Schmalz GmbH
Johannes-Schmalz-Str. 1
72293 Glatten, Germany
T: +49 (0) 7443 2403-0
schmalz@schmalz.de
www.schmalz.com

Contact information for Schmalz companies and trade partners worldwide can be found at:
www.schmalz.com/salesnetwork

1 Important Information

1.1 Note on Using this Document

J. Schmalz GmbH is generally referred to as Schmalz in this document.

The document contains important notes and information about the different operating phases of the product:

- Transport, storage, start of operations and decommissioning
- Safe operation, required maintenance, rectification of any faults

The document describes the product at the time of delivery by Schmalz and is aimed at:

- Installers who are trained in handling the product and can operate and install it
- Technically trained service personnel performing the maintenance work
- Technically trained persons who work on electrical equipment

1.2 The technical documentation is part of the product

1. For problem-free and safe operation, follow the instructions in the documents.
 2. Keep the technical documentation in close proximity to the product. The documentation must be accessible to personnel at all times.
 3. Pass on the technical documentation to subsequent users.
- ⇒ Failure to follow the instructions in these Operating instructions may result in injuries!
- ⇒ Schmalz is not liable for damage or malfunctions that result from failure to heed these instructions.

If you still have questions after reading the technical documentation, contact Schmalz Service at:

www.schmalz.com/services

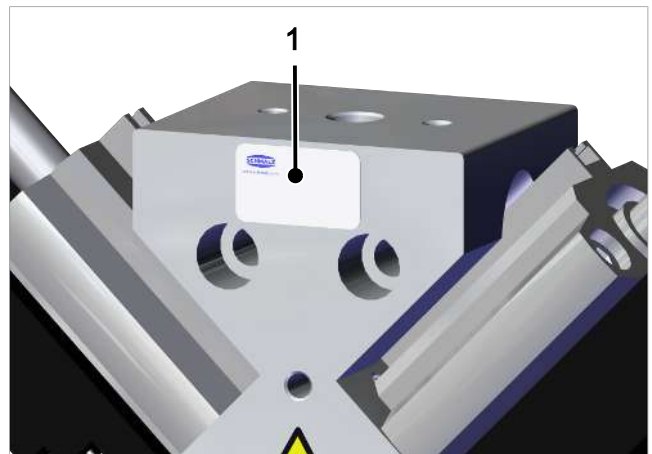
1.3 Type Plate

The type plate is permanently attached to the product and must always be clearly legible. It contains product identification data and important technical information.

- ▶ For spare parts orders, warranty claims or other inquiries, have the information on the type plate to hand.

The type plate contains the following data:

- QR code
- Part sales designation/type
- Part number
- Serial number
- Coded date of manufacture
- Permitted pressure range



1.4 Symbols



This symbol indicates useful and important information.

- ✓ This symbol represents a prerequisite that must be met prior to an operational step.
- ▶ This symbol represents an action to be performed.
- ⇒ This symbol represents the result of an action.

Actions that consist of more than one step are numbered:

1. First action to be performed.
2. Second action to be performed.

2 Fundamental Safety Instructions

2.1 Intended Use

The Schmalz needle grippers from the SNG series are used for gripping dimensionally unstable, air-permeable materials or components.

The gripper is to be used in combination with an automated handling system (gantry/robot).

The product is built in accordance with the latest standards of technology and is delivered in a safe operating condition; however, hazards may arise during use.

The product is intended for industrial use.

Intended use includes observing the technical data and the installation and operating instructions in this manual.

2.2 Non-Intended Use

Schmalz accepts no liability for damages resulting from use other than as intended. In particular, the following are considered non-intended use:

- Use in potentially explosive atmospheres
- The product must not be operated in aggressive environments (e.g. ambient air containing solvent fumes).
- Use in medical applications
- Use in food product applications

2.3 Personnel Qualifications

Unqualified personnel cannot recognize dangers and are therefore exposed to higher risks!

The operating company must ensure the following points:



- The personnel must be commissioned for the activities described in these operating instructions.
- The operating staff are physically and mentally capable and can be expected to reliably perform the tasks assigned.
- The operating staff have been instructed in the operation of the product and have read and understood the operating instructions.
- Installation, maintenance, and repairs must be carried out only by specialists or by persons who have undergone appropriate training.

Applicable for Germany:

A qualified employee is defined as an employee who has received technical training and has the knowledge and experience – including knowledge of applicable regulations – necessary to enable him or her to recognize possible dangers and implement the appropriate safety measures while performing tasks. Qualified employees must observe the relevant industry-specific rules and regulations.

2.4 Warnings in This Document

Warnings warn against hazards that may occur when handling the product. The signal word indicates the level of danger.

Signal word	Meaning
 WARNING	Indicates a medium-risk hazard that could result in death or serious injury if not avoided.
 CAUTION	Indicates a low-risk hazard that could result in minor or moderate injury if not avoided.
NOTE	Indicates a danger that leads to property damage.

2.5 Residual Risks



CAUTION

Pricks, cuts and scratches caused by exposed needles!

- ▶ If possible, push in the needles manually before troubleshooting or before maintenance and repair work.
- ▶ Wear suitable work gloves.



CAUTION

Risk of injury due to open compressed air lines

- ▶ Do not place eyes, ears or hands into compressed air lines.
- ▶ Keep eyes and body orifices away from open compressed air lines.



NOTE

Placing the needle gripper firmly on the load under mechanical pressure!

Damage to the needle gripper

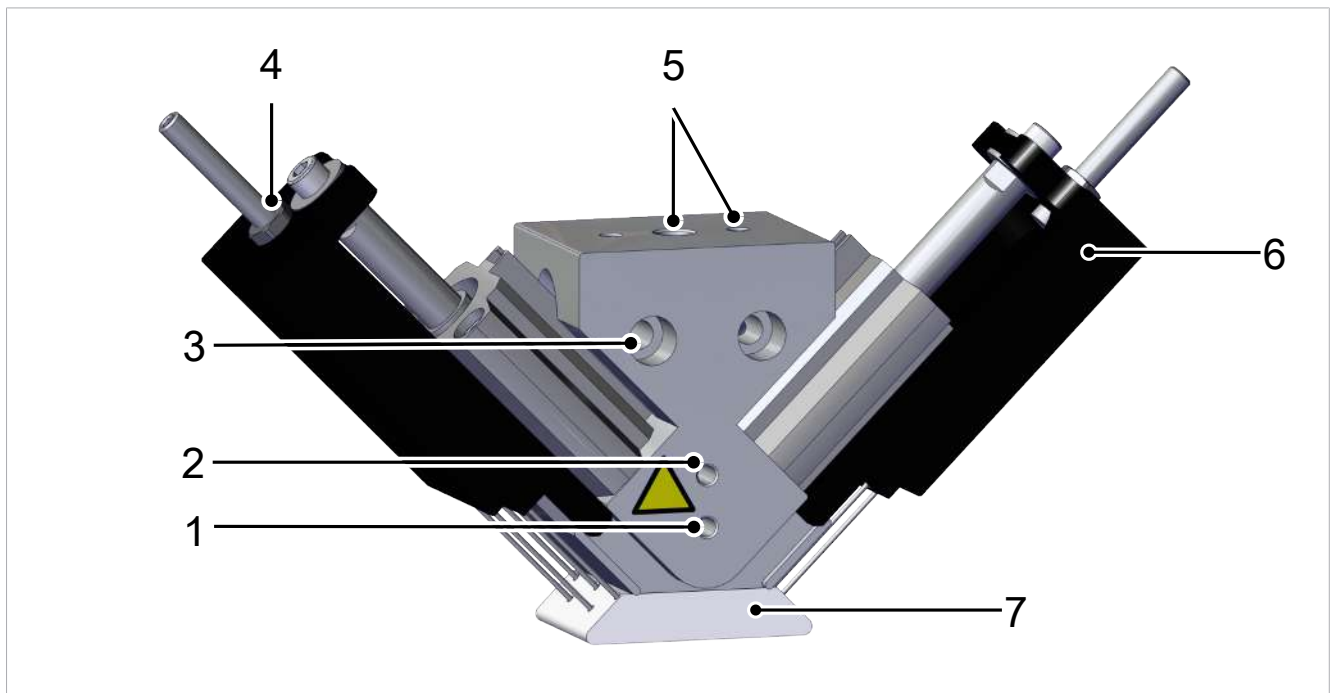
- ▶ Ensure that the needles are retracted before fitting.
- ▶ Place the needle gripper gently on the load without mechanical pressure.

2.6 Modifications to the Product

Schmalz assumes no liability for consequences of modifications over which it has no control:

1. The product must be operated only in its original condition as delivered.
2. Use only original spare parts from Schmalz.
3. The product must be operated only in perfect condition.

3 Product Design of the Needle Gripper SNG-V



1	Compressed air connection M5 "Retract needles"	5	Mechanical connection 2xM5 and G1/8
2	Compressed air connection M5 "Extend needles"	6	Needle module
3	Holes + counterbores for fastening screws M6	7	Contact surface
4	Stroke adjustment	—	—

4 Technical Data

4.1 Technical Data / General Parameters

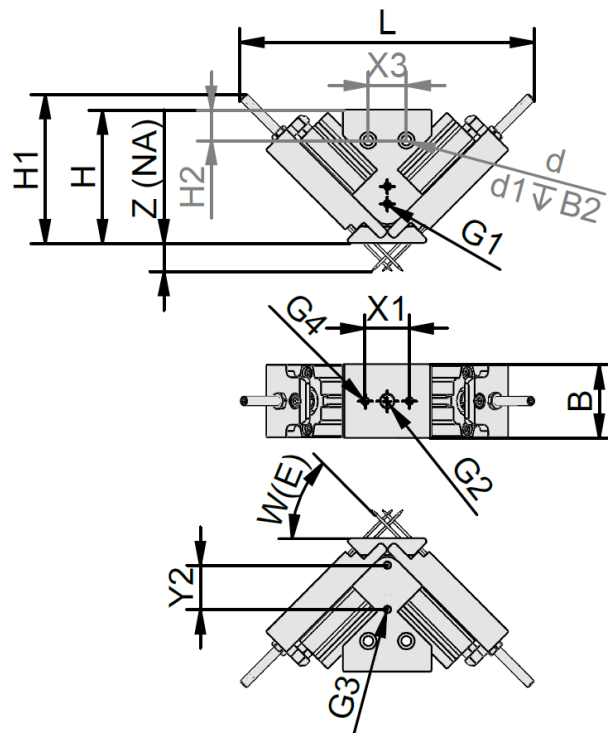
SNG-V ... HP Part no.	Number of needles	Needle Ø	Variable stroke	Operating temperature	Weight
10.01.29.00547	10	1.2 mm	0 to 18 mm	5 to 80° C ¹⁾	930 g
10.01.29.00511	10	1.2 mm	0 to 18 mm	5 to 150° C ²⁾	930 g
10.01.29.00568	6	1.5 mm	0 to 25 mm	5 to 60° C	1140 g
10.01.29.00609	4	1.5 mm	0 to 25 mm	5 to 60° C	1140 g
10.01.29.00624	10	1.5 mm	0 to 25 mm	5 to 60° C	1143 g
10.01.29.00671	6	1.5 mm	0 to 25 mm	5 to 60° C	1140 g

¹⁾ For workpiece temperatures up to 260° C for short-term contact of max. 10 seconds

²⁾ For workpiece temperatures up to 260° C for short-term contact of max. 30 seconds

Operating pressure	3 to 7 bar
Operating medium	Dry, oil-free air
Mounting	2xM5 / G1/8 / 2x hole for screw M6
Mounting position	Any

4.2 Parameters / Dimensions



B	B2	d	d1	H	G1	G2	G3	G4	W (E)
48	10	6.6	11	87.2	M5 internal thread	1/8" internal thread	M5 internal thread	M5 internal thread	45

Part no.		Z (NA)	L	H1	H2	X1	X3	Y2
10.01.29.00547		18	237	97.4	20	29	25	29
10.01.29.00511								
10.01.29.00568		25	229	111.6				
10.01.29.00609								
10.01.29.00624								
10.01.29.00671								

5 Checking the Delivery

The scope of delivery can be found in the order confirmation. The weights and dimensions are listed in the delivery notes.

1. Compare the entire delivery with the supplied delivery notes to make sure nothing is missing.
2. Damage caused by defective packaging or occurring in transit must be reported immediately to the carrier and J. Schmalz GmbH.

6 Installation

6.1 Installation Instructions



CAUTION

Pricks, cuts and scratches caused by exposed needles!

- ▶ If possible, push in the needles manually before troubleshooting or before maintenance and repair work.
- ▶ Wear suitable work gloves.

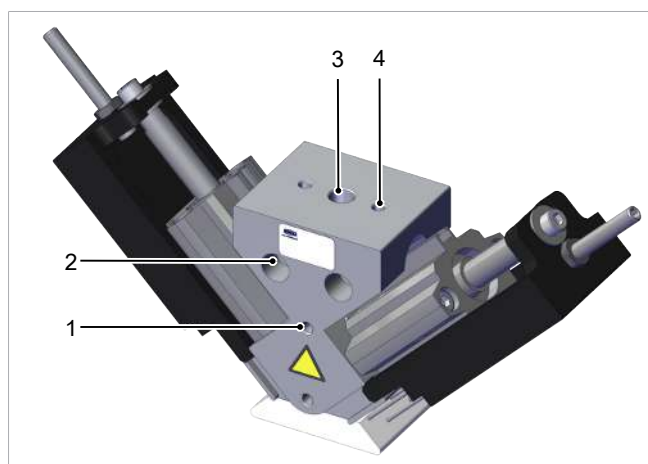
For safe installation, the following instructions must be observed:

1. Check the product for visible damage. Correct any faults or report them to the supervising personnel.
2. Use only the connectors, mounting holes and attachment materials that have been provided.
3. The product must be mounted only when de-energized and depressurized.
4. Ensure that only authorized persons are present in the working area of the machine or system in order to prevent any hazard from switching on the machine.

6.2 Mounting

The product can be mounted in any position.

- ▶ Attach the product to a handling system using one of the mounting options:
 - (1) Side, 2x thread M5
 - (2) Side, 2x hole 6.6 mm
 - (3) Top, thread G1/8
 - (4) Top, 2x thread M5



Appropriate holders are listed in the accessories ([> See ch. 11 Accessories, p. 21](#)).

6.3 Pneumatic Connection



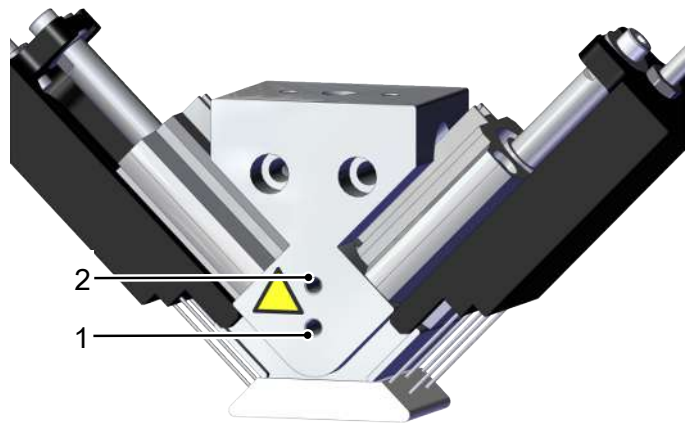
CAUTION

Uncontrolled movement (whipping) of the compressed air hose when the compressed air supply is activated

Risk of injury

- ▶ Deactivate the compressed air supply when working on the product.
- ▶ Cut hoses as short as possible and fix in place.
- ▶ Wear eye protection.

1	Compressed air connection "Retract needles"
2	Compressed air connection "Extend needles"



1. For the "Retract needles" function, connect compressed air to the compressed air connection M5 (1) with a maximum torque of 1.5 Nm.
2. For the "Extend needles" function, connect compressed air to the compressed air connection M5 (2) with a maximum tightening torque of 1.5 Nm.

Select a hose with internal diameter ≥ 4 mm for the compressed air connection.

You can attach plug-in screw unions, hose sleeves or other connections at the positions shown, observing the specified threads.

7 Operation

7.1 Safety Instructions for Operation



⚠ CAUTION

Pricks, cuts and scratches caused by exposed needles!

- ▶ If possible, push in the needles manually before troubleshooting or before maintenance and repair work.
- ▶ Wear suitable work gloves.



⚠ CAUTION

Moving parts on the product (e.g. exposed spring, driven components)

Hand injuries

- ▶ Grip the product only when it is deactivated and de-energized.

7.2 Control Principle

The needle gripper is controlled alternately via the two compressed air connections "Extend needles" and "Retract needles."

In each case, the counter connection must be ventilated.

After placing on the load, the needles are pneumatically inserted into the workpiece by activating the compressed air at the "Extend needles" connection.

The load can be lifted thanks to the opposing insertion angles.

7.3 Setting the Needle Stroke



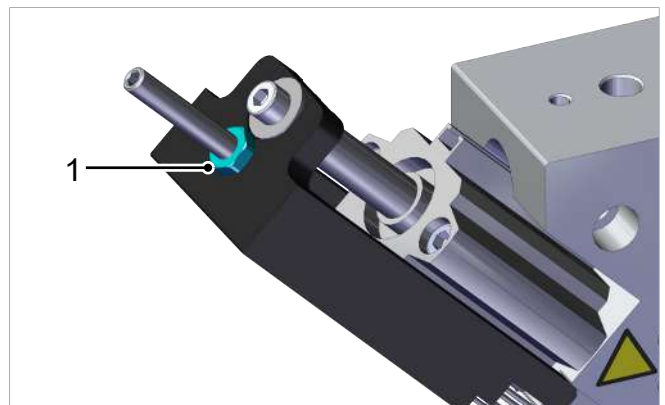
NOTE

The needle stroke is too large and the needles pierce the base.

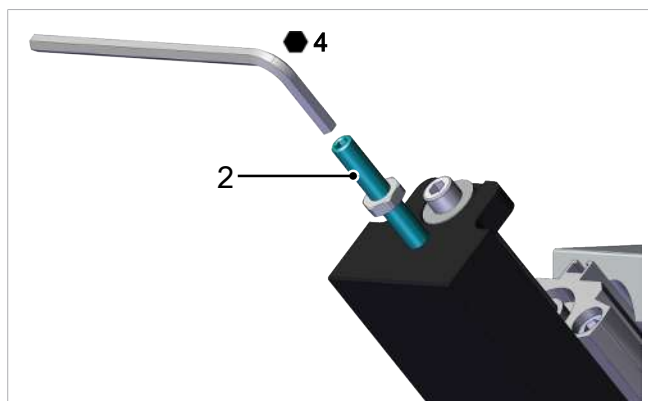
Damage to the needles

- ▶ Adjust the needle stroke so that it does not penetrate into the base.

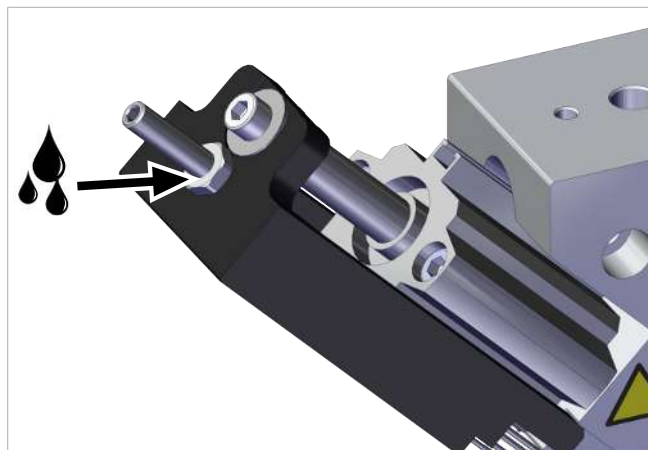
1. Release the nut (1)



2. Adjust the stroke with the screw (2) (Size 4 Allen key)



3. Tighten the nut (1) and prevent it from unscrewing with a low-strength thread locking compound (resistance up to 180° C).



8 Warranty

This system is guaranteed in accordance with our general terms of trade and delivery. The same applies to spare parts, provided that these are original parts supplied by us.

We are not liable for any damage resulting from the use of non-original spare parts or accessories.

The exclusive use of original spare parts is a prerequisite for the proper functioning of the system and for the validity of the warranty.

Wearing parts are not covered by the warranty.

9 Maintenance

9.1 Safety Instructions for Maintenance



CAUTION

Pricks, cuts and scratches caused by exposed needles!

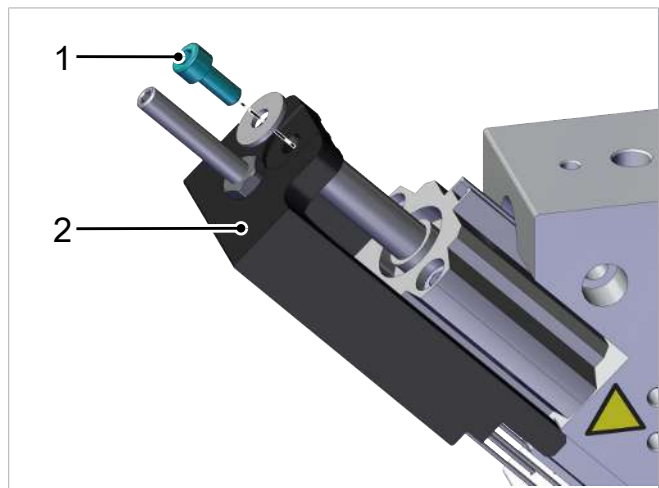
- ▶ If possible, push in the needles manually before troubleshooting or before maintenance and repair work.
- ▶ Wear suitable work gloves.

The product must be installed, maintained, and disassembled only by qualified specialist mechanics. Personnel must have read and understood the instructions.

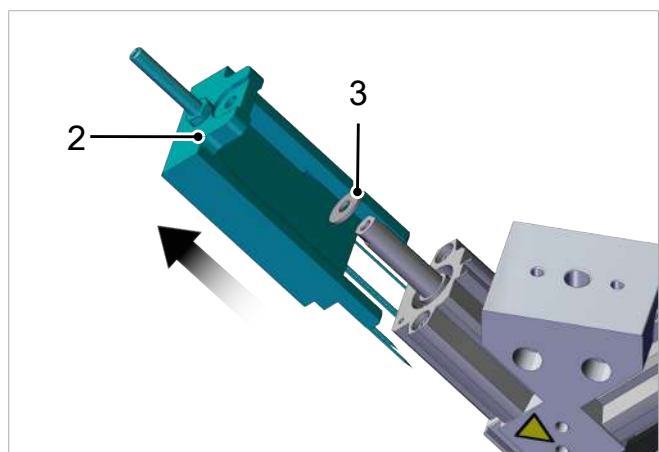
9.2 Replacing the Needles

- ✓ Disconnect the product from any compressed air supply before maintenance.
- ✓ Have a suitable new needle module at the ready.

1. While extended, loosen the fastening screw (1) on the needle module (2).

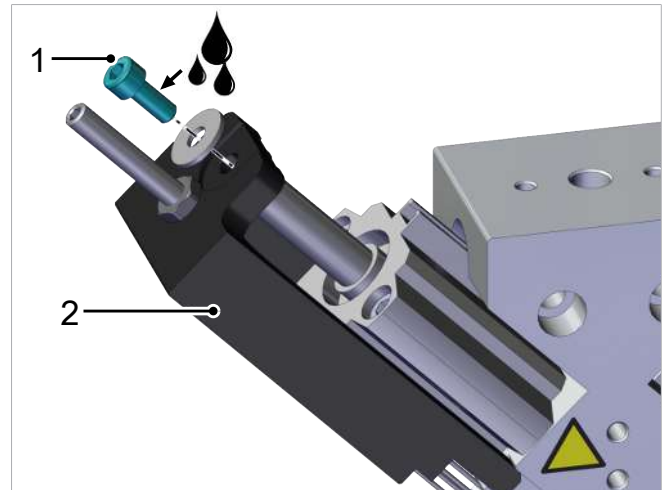


2. Pull out the old needle module (2) to the rear. Save the washer (3) for reuse.



3. Insert the new needle module (2).

4. Secure the needle module (2) with a new fastening screw (1) and glue with a medium-strength thread locking compound. Resistance up to 180° C must be ensured.

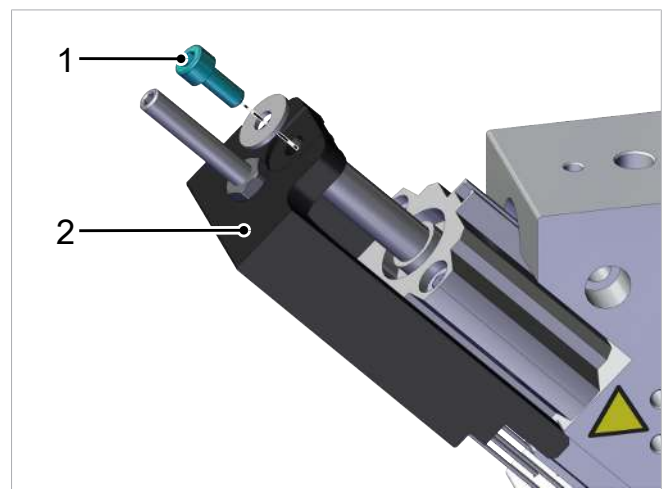


5. Check the mobility of the needle module (2) by hand.

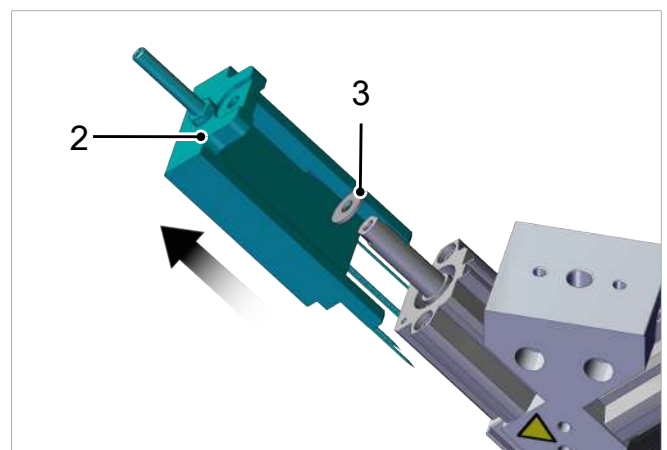
9.3 Replacing the Contact Surface

- ✓ Disconnect the product from any compressed air supply before maintenance.
- ✓ Have a suitable wear part set for the contact surface at the ready.

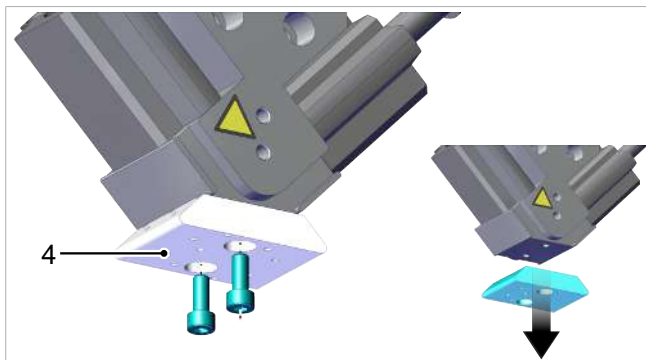
1. While extended, loosen the fastening screw (1) on the needle module (2) on both sides.



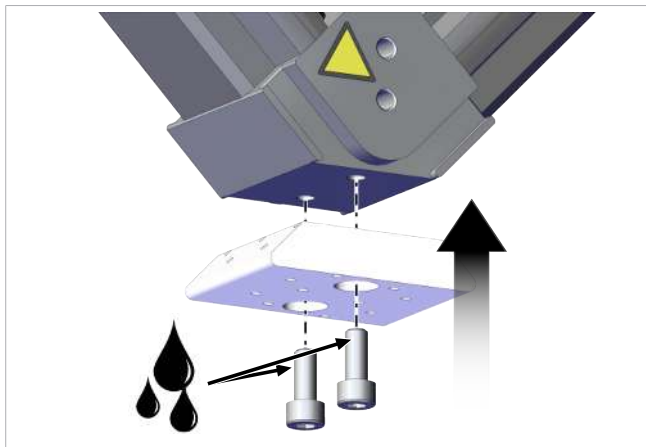
2. Pull out the needle modules (2) to the rear. Save washers (3) for reuse.



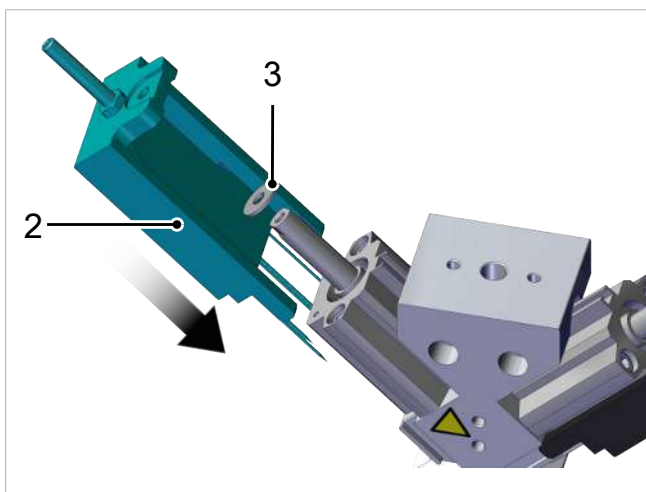
3. Loosen the screws on the contact surface (4).



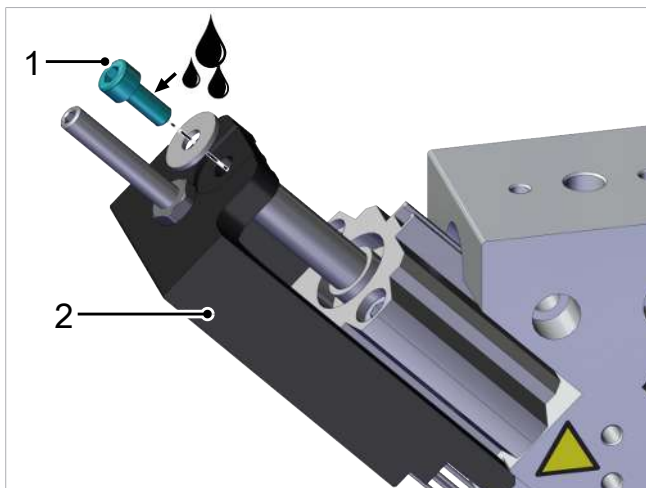
4. Fasten the contact surface with new screws, gluing in with medium-strength thread locking compound. Resistance up to 180 °C must be ensured.



5. Insert both needle modules (2) using washers (3).



6. Secure the needle module (2) with a new fastening screw (1) and glue with a medium-strength thread locking compound. Resistance up to 180° C must be ensured.



7. Check the mobility of the needle module (2)
by hand.

10 Spare and Wearing Parts

Maintenance work may only be carried out by qualified personnel.



⚠ WARNING

Risk of injury due to incorrect maintenance or troubleshooting

- ▶ Check the proper functioning of the product, especially the safety features, after every maintenance or troubleshooting operation.

Part no.	Included in delivery	For needle gripper
10.01.29.00550	2 needle wedges including needles	10.01.29.00547
10.01.29.00576	2 needle wedges including needles	10.01.29.00568
10.01.29.00665	2 needle wedges including needles	10.01.29.00671
10.01.29.00521	2 needle wedges including needles	10.01.29.00511
10.01.29.00522	Contact surface including 2 screws	10.01.29.00547 and 10.01.29.00511
10.01.29.00577	Contact surface including 2 screws	10.01.29.00568 and 10.01.29.00671

11 Accessories

Part no.	Designation	Note
10.01.29.00403	BEF-PL 38x15x11.5 G1/4-IG SNG	
10.01.29.00622	HTS-A2 SNG AP/AE OP	Holder system, cylindrical shape
10.01.29.00619	HTS-A3 SNG AP/AE OP	Holder system, spherical shape

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J. Schmalz GmbH
Johannes-Schmalz-Str. 1
72293 Glatten, Germany
T: +49 (0) 7443 2403-0
schmalz@schmalz.de
WWW.SCHMALZ.COM