

# Not Binding Operating and Assembly Instruction Progressive Cavity Pump

This operating and assembly instruction is only  
for general information.

Type  
BN 025-12 ~ ] Áo 1-6L



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**Subsidiaries**





# 1. Safety

## 1.1.3 Symbols, notes and abbreviations

### 1.1.3.1 Information symbols

| Symbol   | Application                       |
|----------|-----------------------------------|
| ➤        | Instruction/measure               |
| –        | supplementary instruction/measure |
| •        | List item                         |
| <b>i</b> | Information                       |
| →        | Cross-reference                   |

### 1.1.3.2 Abbreviations

Abbreviations facilitate readability in drawings.

Abbreviations are explained below:

| Abbrevia-<br>tion | Designation                   | Abbrevia-<br>tion | Designation                      |
|-------------------|-------------------------------|-------------------|----------------------------------|
| ANT               | Drive                         | K                 | Terminal                         |
| AP                | Lashing points                | KF                | Kinetic ring grease              |
| ATG               | Drive casing                  | KUL               | Crank                            |
| CBH               | Feed hopper screw fitting     | P                 | Dimension for stator replacement |
| CFL               | Flanged connection            | RTE               | Rotating unit                    |
| CTH               | Threaded connection           | S                 | Support                          |
| DFL               | Flange seal                   | SCH               | Screw fitting                    |
| ELT               | Feed hopper                   | SCL               | Holding band loop                |
| ERD               | Earth connection              | SEA               | Shaft sealing                    |
| FCO               | Flange cover                  | SH                | Protective cover                 |
| FLS               | Flange bearing surface        | SHL               | Cutting lever                    |
| GC                | Anti-seize graphite petroleum | SSU               | Flush connection                 |
| GF                | Joint grease                  | TSE               | Dry-running protection device    |
| GM                | Lubricant                     | TYS               | Type plate                       |
| GS                | Soft soap                     | ZA                | Sealing -/ centering surface     |
| HBD               | Holding band                  | ZD                | Centering surface                |
| HS                | Label                         |                   |                                  |

## 1.2 Safety-related Information

SEEPEX machines are built in accordance with the state of the art. Nevertheless, there is a residual risk, because the machine works with:

- Mechanical movements that pose a danger
- Electrical voltages and currents

## 1.3 Designated use

SEEPEX machines are individually configured. The machine is allocated to the operating and assembly instructions based on the commission no. The commission no. is indicated on the type plate of the machine and on the cover sheet of the operating and assembly instructions.

Observe the following points to ensure compliance with the intended use:

- Use the machine only for conveying media in accordance with the technical data (→ chapter 3)
- Use the machine only within the performance data as specified in the technical data (→ chapter 3)
- Make alterations and modifications to the machine only after obtaining the approval of SEEPEX
- Use the machine only in commercial and industrial areas
- Do not use the machine in explosive areas

## 1.4 Foreseeable misuse

Any use other than the intended use or any different use of the machine will be considered as improper use and can cause serious physical injury and damage to property.

In particular, the following is not admissible:

- Conveyance of conveying products other than those specified in the technical data (→ chapter 3)
- Operating the machine outside of the performance data specified in the technical data (→ chapter 3)
- Operating the machine without safety and protection devices
- Mechanical or electrical bypassing of machines or machine parts
- Use of parts other than the original parts
- Alterations, modification and manipulation
- Non-compliance with instructions and prescribed operating, maintenance and servicing conditions
- Non-compliance with the rules and regulations in the country of use and the statutory provisions and accident prevention regulations when handling the machine
- Operating the machine in explosive areas

## 1.5 Structure of warning notes

- For the protection of personnel and for the safe and efficient use of the machine, observe warning notes.

### Preceding warning notes

Preceding warning notes are placed at the beginning of each chapter or sequence of actions, and relate to the instructions following directly after.



# 1. Safety

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## DANGER

### Type and source of danger.

Possible consequences.

- Measures to avert the danger.
- 

### Preceding warning notes with warning or mandatory signs

Specific dangers are identified with additional warning or mandatory signs.

Example:

## DANGER



### Type and source of danger.

Possible consequences.

- Measures to avert the danger.
- 

### Embedded warning notes

Embedded warning notes describe immediately relevant dangers, and are shown within a sequence of actions. They are placed immediately before the danger.

Examples:

- **▲ WARNING** Type and source of danger. Possible consequences. Measures to avert the danger.

**▲ WARNING** Type and source of danger. Possible consequences.

- Measures to avert the danger.
- 

### 1.5.1 Warning levels

Warning notes are identified by coloured warning symbols and signal word fields.

The different warning levels are identified by additional signal words, and describe the extent of the danger.

#### Personal injury

## DANGER

DANGER indicates a dangerous situation which, if not avoided, will result in death or serious injury.

---

## WARNING

WARNING indicates a dangerous situation which, if not avoided, may result in death or serious injury.

---

## CAUTION

CAUTION indicates a dangerous situation which, if not avoided, may result in minor or moderate injury.

---

## Property damage





### NOTICE

NOTICE is used when the situation is not associated with personal injury.

#### 1.5.2 Warning symbols

In these operating and assembly instructions and on the machine, there are warning symbols.

- Ensure that these warning symbols are complied with.
- Warning symbols on the machine must be fully present and easily legible at all times.

| Warning symbols   | Hazard                      |
|---|-----------------------------|
|    | Suspended load warning      |
|   | Electric voltage warning    |
|  | Hot surface warning         |
|  | Warning for automatic start |

# 1. Safety

## 1.6 Qualification of the personnel

**i**

Detailed technical knowledge is essential for performing any work on the machine, in order to be able to independently recognise and avoid potential dangers.





| Activity  | Person                | proven knowledge  |
|---|-----------------------|---|
| <ul style="list-style-type: none"> <li>➤ Instruction of personnel</li> <li>➤ Definition of responsibilities</li> <li>➤ Definition of responsibilities</li> <li>➤ Monitoring of adequate qualification of personnel</li> </ul> | Owner                 | <ul style="list-style-type: none"> <li>➤ Knowledge of safety regulations</li> <li>➤ Knowledge of these operating and assembly instructions</li> </ul>   |
| <ul style="list-style-type: none"> <li>➤ Operation</li> <li>➤ Operational monitoring</li> <li>➤ Easy maintenance work and troubleshooting</li> </ul>  | Operator              | <ul style="list-style-type: none"> <li>➤ Instruction for the machine</li> <li>➤ Before starting any activity, the operating and assembly instructions must be read and understood</li> <li>➤ Knowledge of safety devices and regulations</li> </ul>   |
| <ul style="list-style-type: none"> <li>➤ Electrical installation</li> <li>➤ Commissioning</li> <li>➤ Maintenance</li> <li>➤ Repair</li> <li>➤ Decommissioning</li> <li>➤ Assembly and dismantling</li> </ul>                  | Electrical technician | <ul style="list-style-type: none"> <li>➤ Technical training, knowledge and experience with the machine in relation to electrical components</li> <li>➤ Knowledge of the relevant standards and regulations</li> <li>➤ Safe handling of tools</li> <li>➤ Knowledge of these operating and assembly instructions</li> </ul> |
| <ul style="list-style-type: none"> <li>➤ Commissioning</li> <li>➤ Maintenance</li> <li>➤ Repair</li> <li>➤ Decommissioning</li> <li>➤ Assembly and dismantling</li> </ul>   | Mechanical technician | <ul style="list-style-type: none"> <li>➤ Technical training, knowledge and experience with the machine in relation to mechanical components</li> <li>➤ Knowledge of the relevant standards and regulations</li> <li>➤ Safe handling of tools</li> <li>➤ Knowledge of these operating and assembly instructions</li> </ul> |

## 1.7 Tasks, notes for the owners, operators and technicians



- Do not work on the machine or plant unless it is at a standstill and de-pressurised.
- Switch off the main switch and pull out the power plug before starting work on live components.
- Observe the procedure for shutting down the machine (→ chapter 6).
  - Follow decommissioning procedure.
  - Secure the machine against recommissioning.
- On completion of all work, attach all safety and protective devices and make sure they are functioning.
- Refer to chapter Commissioning before recommissioning the machine (→ chapter 6).

## 1.8 Personal protective equipment

- Wear personal protective equipment and/or additional equipment for your own safety.

| Sign  | Meaning                | Scope of application  |
|---|------------------------|---|
|   | Wear safety shoes      | Work in the area of the machine   |
|  | Wear eye protection    | Work on the machine during which parts may be ejected at speed and parts may be pressurised |
|  | Wear protective gloves | Possible contact with aggressive media, hot surfaces or sharp edges                         |
|  | Wear ear protection    | Sustained sound pressure level > C 75 dB (A)  |

# 1. Safety

| Sign  | Meaning                  | Scope of application                        |
|---|--------------------------|---|
|  | Wear safety helmet       | Work with suspended loads and overhead work |
|  | Wear protective clothing | Possible contact with aggressive media      |

## 1.9 Safety and protective devices

- Before commissioning, bolt SEEPEX machines to a suitable foundation to ensure stability.
- Start-stop equipment must be clearly recognisable. In order to avoid errors, the operator must arrange corresponding measures.



Protective devices protect those persons who are attempting to reach danger areas without additional help and under the conditions defined for various situations of reaching up, reaching under or reaching through.

- Equip pump with a protective device
  - In order to prevent contact with hot surfaces
  - In order to prevent contact with moving parts
  - Use finger probe to check protective device.

### 2.1 General description

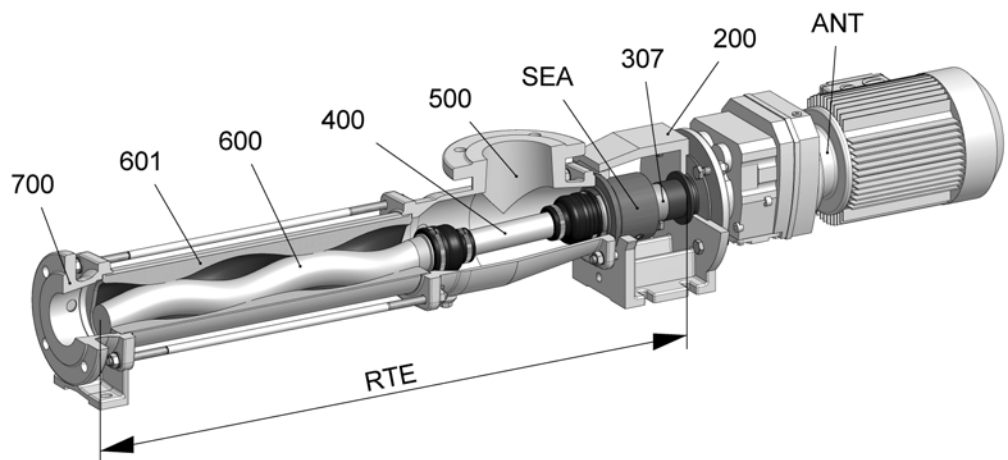
seepex pumps are members of the group of rotating displacement pumps.

- Characteristic features
  - Special configuration/arrangement of the rotor and stator pumping elements.
  - Motion sequence

### 2.2 Mode of action and pumping principle of the seepex pump

- Sealing bands are produced through geometric design/contact of both conveying elements.
- Sealing bands ensure a perfect fit between the suction and pressure side.  
Result:
  - Increased pump suction.
  - Higher pressure build-up independent of speed possible.

### 2.3 Constructive design



| No. | Designation     |
|-----|-----------------|
| ANT | Drive           |
| 200 | Lantern         |
| 307 | Plug-in shaft   |
| 400 | Coupling rod    |
| SEA | Shaft seal      |
| 500 | Suction casing  |
| 600 | Rotor           |
| RTE | Rotating unit   |
| 601 | Stator          |
| 700 | Pressure branch |



**3.1 Data sheet**

**3.2 Characteristic Curves**


**3.3 Declaration**

- Data sheet, characteristic curves and declarations are commission specific documents and not part of this not binding operating and assembly instruction.





#### 4.1 Safety

|   |
|---|
|  <b>CAUTION</b>  |
| <p><b>Damage to property/injuries due to incorrect transport</b><br/>Slight injury or damage to property can occur</p> <ul style="list-style-type: none"> <li>➤ Comply with the safety notes and transport notes on the packaging.</li> <li>➤ Use suitable means of transport, lifting devices and tools.</li> <li>➤ Use protective equipment.</li> </ul> |

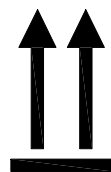
#### 4.2 Transport

##### 4.2.1 Dimensions, weights and center of gravity

- Note the dimensional drawing (→ chapter 5.6).

##### 4.2.2 Symbols

- Meaning of symbol



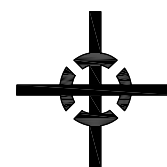
Top



Fragile  
item



Against moisture  
protect




Centre of gravity

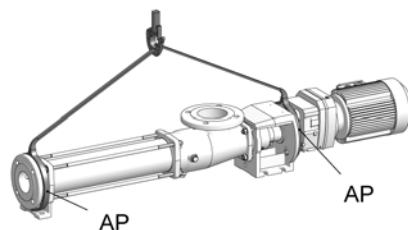


Lashing points

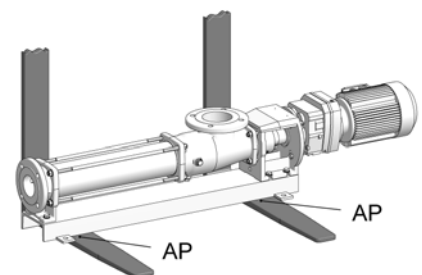
##### 4.2.3 Sling points (AP) for lifting devices

|   |                |
|---|----------------|
|    | <b>WARNING</b> |
| <p><b>Warning of suspended load.</b><br/>Death or serious injury can occur.</p> <ul style="list-style-type: none"> <li>➤ Use the lashing points <b>(AP)</b> for lifting devices.</li> <li>➤ Note the centre of gravity (→ dimensional drawing, chapter 5.6).</li> </ul> |                |

Lifting machine



Industrial trucks



##### 4.2.4 Unpacking the machine


- Comply with the symbols and notices on the packaging.
- Remove the screwed connection between the machine and packaging.
- Remove the machine with a lifting machine/industrial truck.

#### 4.3 Temporary storage/Corrosion protection


- All seepex machines have corrosion protection applied as standard prior to transport.

| <i>NOTICE</i> |   |
|---------------|---|
|               | <p><b>Damage to property if corrosion protection is missing</b><br/>Property damage can occur due to corrosion.</p> <ul style="list-style-type: none"><li>➤ Temporary storage must be in a dry, enclosed, frost-free room in order to provide protection against ambient influences.</li><li>➤ Contact seepex regarding the necessary corrosion protection for temporary storage.</li></ul> |

#### 4.4 Disposal

|   |  |
|---|--|
|  | <i>NOTICE</i>  |
|   | <p><b>Environmental protection</b><br/>Material damage can occur.</p> <ul style="list-style-type: none"><li>➤ Drain the pumping medium and dispose of it in accordance with the regulations.</li><li>➤ Dispose of the machine with regard to its composition and existing regulations.</li></ul> |

## 5.1 Mounting tools / lifting gear

|  <b>CAUTION</b>  |  |
|---|--|
| <p><b>Pump falling over.</b><br/>Slight injury or damage to property can occur.</p> <ul style="list-style-type: none"> <li>➤ Adhere to the lifting tool's starting point.</li> <li>➤ Pay attention to the dimensions, weight and centre of gravity of the pump.</li> <li>➤ Use suitable mounting tools/lifting gear.</li> </ul> |  |

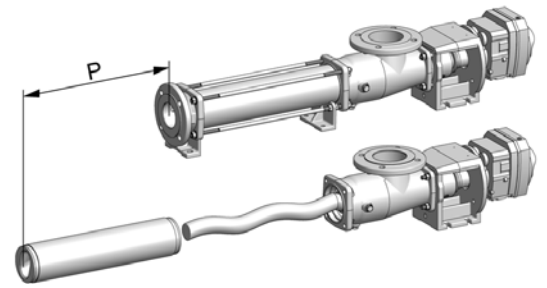
## 5.2 Space requirement

The required space should be determined by considering the following factors:

- Dimensions and weight.
- Requisite transport and lifting equipment.
- Pipe routing – dismantling (dimension for stator replacement).

## 5.2.1 Dimension for stator replacement (P)

- Refer to the dimensional drawing.



## 5.3 Assembly of the complete mounted pump


- Assemble according to technical data (→ chapter 3.).
- Note dimensional drawing.

**Tension-free mounting of the pump**



- Balance unevenness with suitable supports.
- Applies to mounting on foundations/load-bearing elements.
- Total areas of all pump bearing areas are resting on the surface.

**Correct position of the drives**

- All drives are set up ready for operation and mounted.
- Correct displacements of the drive during transport/installation of the pump by adjusting/fixing the drive.

|  <b>CAUTION</b>   |  |
|--|--|
| <p><b>Safety protection equipment.</b><br/>Slight injury or damage to property may result.</p> <ul style="list-style-type: none"> <li>➤ Connect safety protection equipment and activate.</li> </ul> |  |

## 5.4 Power supply of the seepex pump

|   |  |
|---|--|
|  |  <b>DANGER</b>  |
|   | <p><b>Supply voltage and power frequency.</b><br/>Death or serious injury will result.</p> <ul style="list-style-type: none"> <li>➤ Heed type plate on the pump.</li> <li>➤ Pay attention to manufacturer's directions (→ chapter 13.).</li> <li>➤ Pay attention to safety regulations.</li> </ul> |

## 5.5 Pipelines

## 5.5.1 Suction and pressure connection

- Refer to the dimensional drawing for the position, nominal width and standard.
- Note direction of rotation/flow direction.

## 5.5.2 Pipeline dimensions

- Adhere to specifications regarding pressure in the pressure respectively suction connection.
- Note technical data (→ chapter 3.).
- Nominal width of suction pipe = nominal width of suction connection of pumps.

## 5.5.3 Residue-free pipelines

|   |
|---|
| <b>NOTICE</b>   |
| <p><b>Damage to property through assembly residue.</b><br/>No claims under guarantee if violated.</p> <ul style="list-style-type: none"> <li>➤ Keep all pipe work free of foreign objects.</li> <li>➤ Remove weld spatters, screws, steel chips etc.</li> </ul> |

## 5.5.4 Tension-free assembly

- Assemble pipelines and other components in a tension-free manner on the pump.

**Master Copy**

**6.1 Commissioning report**

Send commissioning report online to  
[www.seepex.com](http://www.seepex.com)

**From:**

**Must be specified with every order!**

**Commission:**

**Model:**

\_\_\_\_\_

\_\_\_\_\_

Contact person: .....  
 Tel.: .....  
 Fax: .....  
 E-mail: .....

**Customer Service:**

seepex GmbH  
 Postfach 10 15 64  
 D-46215 Bottrop  
 service@seepex.com

**Germany**

Phone:+49 2041.996-231  
 Fax: +49 2041.996-431

**Rest of Europe**

Phone:+49 2041.996-224  
 Fax: +49 2041.996-424

**Outside Europe**

Phone:+49 2041.996-120  
 Fax: +49 2041.996-432

**Address of plant:**

.....  
 .....  
 .....  
 .....

Delivery date:

Date of installation:

Assembly check carried out on:

Please enter operational data:

Conveying liquid:

Temperature:

Fuse level/motor protection or power consumption

Frequency control

no

yes

If yes:

Supplied by seepex

Supplied by customer

Frequency:

Speed:

Power consumption:

Place, date

Signature / company stamp

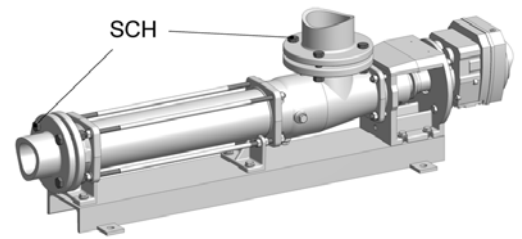


6.2 Measures before commissioning

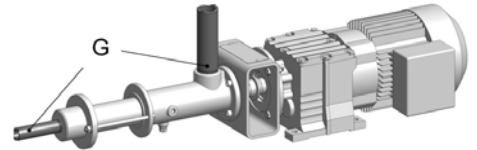
- Note the technical data (→ chapter 3.).

6.2.1 Checking pipelines

- Check flange screwed connections (**SCH**).



- Check threaded connections (**G**).



|   |
|---|
| <b>NOTICE</b>   |
| <p><b>Ensure the liquid can flow through without obstruction.</b><br/>Malfunction and/or irreparable damage to the pump.</p> <ul style="list-style-type: none"> <li>➤ Open all shut-off elements before switching on the pump.</li> </ul> |

6.2.2 Protective devices on the pump

|  |
|--|
| <b>DANGER</b>  |
| <p><b>Missing protective device.</b><br/>Danger of pulling in and crushing.</p> <ul style="list-style-type: none"> <li>➤ Equip the pump with a protective device. Protective devices provided for preventing contact with surfaces or moving parts must be regarded as suitable if contact is not possible in a test involving a test finger, with regard to the penetration possibility, strength and shock resistance.</li> <li>➤ Comply with national protection regulations.</li> <li>➤ In pumps with an open suction flange/feed hopper, attach touch protection. These safety clearances protect those persons who are attempting to reach danger areas without additional help and under the conditions defined for various situations of reaching up, reaching under or reaching through</li> </ul> <p>In shaft seals, touch protection is only necessary if there are components on the rotating shaft.</p> |

6.2.3 Electrical/hydraulic connections

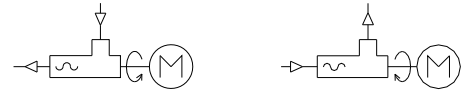
|  |   |
|--|---|
|  | <b>DANGER</b>   |
|  | <p><b>Dangerous voltage.</b><br/>Death or serious injury can occur.</p> <ul style="list-style-type: none"> <li>➤ Note safety regulations.</li> <li>➤ Disconnect motor from all sources of energy.</li> <li>➤ Secure electrical connections against restarting.</li> </ul> |



### 6.2.4 Direction of rotation check

- The pump direction of rotation determines the flow direction of the pumping medium.
- Note the direction of rotation arrow on the type plate.

flow direction



counter clockwise

clockwise

### 6.2.5 Additional devices - optional

- Refer to additional devices (→ chapter 12.1).

### 6.3 Initial commissioning/repeated commissioning

- Start up the pump.

#### NOTICE

##### **Dry running of the pump.**

Malfunction and/or irreparable damage to the pump.

- Fill the suction casing with liquid in order to lubricate the pumping elements.

### 6.3.1 Avoid dry running of the pump

#### NOTICE

##### **High temperature between rotor and stator.**

Stator material burned.

Complete failure of the pump.

- Make sure that the suction-side conveying capacity does not cavitate.
- If this cannot be guaranteed on the machine side, assemble a seepex dry running protection (TSE).

### 6.3.2 Pressure in the suction and pressure connection



#### CAUTION

##### **High pressure.**

Malfunction and/or irreparable damage to the shaft seal or pump.

- Maintain pressure in the suction connection in accordance with the technical data (→ chapter 3.).

#### **Recommendation:**


- Assemble an oil-filled contact pressure gauge to monitor and deactivate the pump.

## 6.4 De-commissioning

Protect the pump and additional devices against the following:

- Frost
- Deposit of solids
- Sedimentation from the liquid
- Corrosion of parts that come into contact with the medium

### 6.4.1 Switching off the pump

|   |   |
|---|---|
|  | <b>!</b> <b>DANGER</b>  |
|   | <b>Dangerous voltage.</b><br>Death or serious injury can occur. <ul style="list-style-type: none"><li>➤ Note safety regulations.</li><li>➤ Disconnect motor from all sources of energy.</li><li>➤ Secure electrical connections against restarting.</li></ul> |

### 6.4.2 Emptying the pump

|   |
|---|
| <b>!</b> <b>CAUTION</b>   |
| <b>Liquid draining out.</b><br>Minor injury or damage to property can occur. <ul style="list-style-type: none"><li>➤ Wear suitable protective clothing.</li><li>➤ Refer to the technical data (→ chapter 3.) for the corresponding configuration of the pump housing.</li></ul> |

To drain the pump:

- If the pump housing has screwed plugs, remove the screwed plugs.
- Drain using a connection branch (suction casing, pressure branch) if the pump housing is coated or the housing does not have screwed plugs.
- Drain the residual liquid from the pump housing.
- Drain the pipelines on the suction and pressure sides, or shut off behind the pump connections.

## 6.4.3 Removing the pump

**WARNING****Risk of pump tipping or falling.**

Death or serious injury can occur.

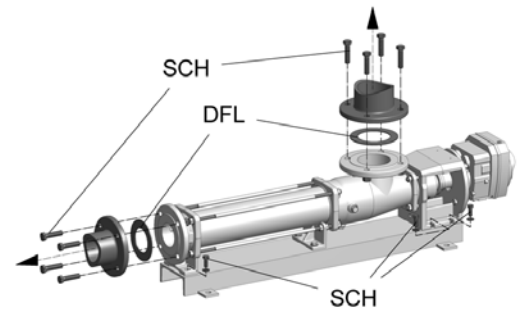
- Support the drive unit to guarantee stability.

**Pipeline dismantling**

- Remove flange bolts (**SCH**) and flange seals (**DFL**).

with/without base plate

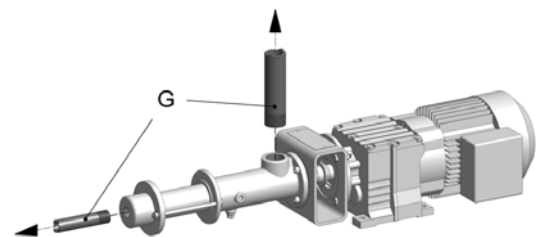
- Remove bolts (**SCH**) from the pump feet.

**Pipeline dismantling**

- Remove threaded connections (**G**).

with/without base plate

- Remove bolts (**SCH**) from the pump feet.



## 6.4.4 Preservation/storage of the pump

**NOTICE****Damage to property due to lack of corrosion protection.**



Property damage can occur due to corrosion.

- Contact seepex to discuss suitable preservation measures.
  - State the commission number of the pump.

7.1 Preventive measures



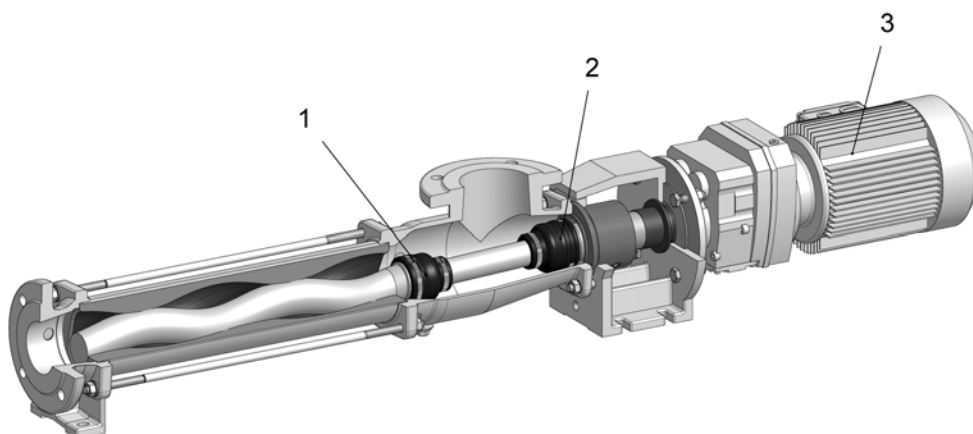
The maintenance personnel must have these operating instructions, follow them and also require corresponding qualifications.

|   |  |
|---|--|
|  |  <b>DANGER</b>  |
|   | <p><b>Dangerous voltage.</b><br/>Death or serious injury can occur.</p> <ul style="list-style-type: none"> <li>➤ Note safety regulations.</li> <li>➤ Disconnect pump from all sources of energy.</li> <li>➤ Secure electrical connections against restarting.</li> </ul> |

7.1.1 Pump down-time

|   |
|---|
| <b>NOTICE</b>   |
| <p><b>Pump down-time.</b><br/>Production failure due to wear.</p> <ul style="list-style-type: none"> <li>➤ Acquisition of a set of wearing parts and a set of gaskets.</li> </ul> |

7.2 Lubrication



| No. | Denomination | Lubricant  | Lubricant change in operating hours | Fill volume |
|-----|--------------|--|-------------------------------------|-------------|
| 1   | Pin joint    | seepex special grease<br>*                           | 10000 h                             | *           |
| 2   | Pin joint    | seepex special grease<br>*                           | 10000 h                             | *           |
| 3   | Drive        | Refer to manufacturer's documentation (chapter 13._) |                                     |             |
|     | Rotor/stator | Conveying medium                                     | ---                                 | ---         |
|     | Shaft seal   | Conveying medium                                     | ---                                 | ---         |

\* Type and filling quantities are commission specific information.

## 7.2.1 Joint grease

| NOTICE   |  |  |
|--|--|--|
| <b>Other grease types.</b><br>Malfunction and/or irreparable damage to the joints or the pump.<br>➤ Exclusively use seepex special grease. |  |  |

## 7.3 Inspection

| Component  | Interval   | Action                                      |
|------------|--|---|
| Joints     | Every 10,000 operating hours                           | Renew joint grease                          |
| Stator     | Every week   | Visual check for leaks                      |
| Shaft seal | Every week   | Visual check for leaks                      |
| Drive unit | Every 3000 operating hours,<br>at least every 6 months | Comply with manufacturer's<br>documentation |

Refer to technical data (chapter 3.) for application range of the pump.

| Malfunction         |                       |                                    |                              |                        |                                  |                           |                    | Causes  | Rectification  |
|---------------------|-----------------------|------------------------------------|------------------------------|------------------------|----------------------------------|---------------------------|--------------------|---|--|
| Pump is not sucking | Pump pumping unevenly | Conveying capacity is not achieved | Pressure head is not reached | Pump does not start up | Pump seized / pump does not pump | Pump is loud when running | Motor gets too hot |   |  |
|                     |                       |                                    | X                            |                        |                                  |                           | X                  | Static friction between stator/rotor too great. | Apply lubricant (liquid soap) between stator and rotor.  |
| X                   |                       |                                    |                              |                        |                                  |                           |                    | Incorrect direction of rotation.                | Check direction of rotation and swap over motor connections if necessary.  |
| X                   | X                     | X                                  |                              |                        | X                                | X                         |                    | Suction pipe or shaft seal leaking.             | Eliminate leaks.   |
| X                   | X                     | X                                  |                              |                        |                                  | X                         |                    | Suction head too great.                         | Check the suction head, if necessary increase pipe cross section on suction pipe and use a larger filter, open suction-side valve fully.     |
| X                   | X                     | X                                  |                              |                        |                                  |                           |                    | Viscosity of conveying product too great.       | Check/adapt (data sheet).  |
|                     |                       | X                                  | X                            |                        |                                  |                           | X                  | Pump rotation speed incorrect.                  | Correct rotation speed (data sheet).   |
|                     | X                     | X                                  |                              |                        |                                  |                           |                    |   | Avoid air bubbles in the conveying product.  |
|                     |                       | X                                  | X                            | X                      |                                  | X                         | X                  | Pressure head too great.                        | Check pressure head with pressure gauge, reduce pressure head by using larger pressure pipe crossed section or shortening the pressure pipe. |
| X                   | X                     | X                                  |                              |                        | X                                |                           | X                  | Pump running partially/ completely dry.         | Check there is adequate conveying product available on the suction side. Dry running protection DRP.   |
|                     |                       |                                    |                              |                        |                                  | X                         | X                  | Check coupling.                                 | If necessary, move pump in relation to drive, check wear on coupling gear, re-adjust coupling if necessary.                                  |
| X                   |                       | X                                  |                              |                        |                                  |                           |                    | Rotation speed too low.                         | Increase rotation speed for low-viscosity media/large suction volume.  |








| Malfunction         |                       |                                    |                              |                        |                                  |                           |                    |                       | Causes | Rectification   |  |
|---------------------|-----------------------|------------------------------------|------------------------------|------------------------|----------------------------------|---------------------------|--------------------|-----------------------|--------|---|--|
| Pump is not sucking | Pump pumping unevenly | Conveying capacity is not achieved | Pressure head is not reached | Pump does not start up | Pump seized / pump does not pump | Pump is loud when running | Motor gets too hot | Premature stator wear |        |   | Shaft seal is leaky  |
| X                   | X                     |                                    |                              |                        |                                  | X                         |                    |                       |        | Rotation speed too high.  | Reduce rotation speed for high-viscosity media, risk of cavitation.                      |
|                     |                       |                                    |                              |                        |                                  | X                         |                    |                       |        | Joint play too large.   | Check mounting of coupling rod bushing.  |
| X                   |                       | X                                  |                              | X                      | X                                |                           |                    | X                     |        | Foreign objects in pump.  | Dismantle pump, remove foreign bodies, replace defective parts.                          |
| X                   |                       | X                                  | X                            |                        | X                                |                           |                    |                       |        | Stator/rotor worn.  | Dismantle pump and renew defective parts.  |
| X                   |                       | X                                  |                              |                        | X                                | X                         |                    |                       |        | Joint parts worn.   | Renew joint parts, use seepex pin joint grease.  |
| X                   |                       | X                                  |                              |                        | X                                |                           |                    | X                     |        | Suction pipe blocked.   | Clean the suction pipe.  |
| X                   |                       |                                    |                              | X                      | X                                |                           | X                  | X                     |        | Temperature of pumping liquid too high.                                     | Check temperature, use an undersize rotor.   |
| X                   |                       | X                                  |                              | X                      |                                  |                           | X                  |                       | X      | Gland packing too firm/worn.  | Loosen packing gland or tighten. Renew unusable packing rings.                           |
| X                   |                       |                                    |                              | X                      | X                                |                           |                    | X                     |        | Solid content and/or grain size too great.                                  | Reduce pump speed, install screen with permitted mesh width. Increase liquid proportion. |
| X                   |                       |                                    |                              | X                      |                                  |                           |                    | X                     | X      | Sedimentation/gumming of solids when pump stationary.                       | Rinse through and clean the pump immediately.  |
| X                   |                       |                                    |                              | X                      | X                                |                           |                    | X                     | X      | Conveying product hardens when the temperature drops below a certain limit. | Heat the pump.   |
|                     |                       |                                    |                              | X                      | X                                |                           | X                  | X                     |        | Stator swollen and unable to withstand conveying product.                   | Select a suitable stator material, use an undersize rotor.                               |
|                     |                       |                                    |                              |                        |                                  | X                         |                    |                       | X      | Bearings in pump drive housing or drive unit defective.                     | Renew bearings.  |
|                     |                       |                                    |                              |                        |                                  |                           |                    |                       | X      | Mechanical seal defective.  | Check sliprings and O-rings for wear/resistance, renew if necessary.                     |

## 9.1 Dismantling

### 9.1.1 Keep tools ready for the dismantling




#### Recommended tools

Keep the listed tools ready (not part of the delivery scope):

| Illustration  | Denomination                        |
|---|-------------------------------------|
|    | Hammer                              |
|    | Set allen keys                      |
|    | Set ring spanners size 10 - size 30 |
|   | Set fork spanners size 10 - size 30 |
|  | Metal saw ( <b>WH</b> )             |
|  | Screwdriver ( <b>WS</b> )           |
|  | Chisel ( <b>WM</b> )                |




#### Recommended special tools

|          |   |
|----------|---|
| <b>i</b> | <p>Special tools are not part of the delivery scope.</p> <ul style="list-style-type: none"> <li>➤ Order special tools using the order form (→ chapter 11).</li> </ul> |
|----------|---|

| Illustration  | Denomination                   |
|---|--------------------------------|
|  | Chain wrench ( <b>W2</b> )     |
|  | Assembly mandrel ( <b>W4</b> ) |
|  | Drift ( <b>W5</b> )            |



## 9.1 Dismantling

| Illustration  | Denomination           |
|---|------------------------|
|  | Mounting lever (W9)    |
|  | Dismantling tool (W10) |
|  | Mounting plate (W15)   |

### Recommended auxiliary materials

Keep the auxiliary materials listed available (not included in the scope of delivery):

- Lubricant (GM)

## NOTICE

### Damage to property due to inadequate lubricants (GM).

Damage to components. Contamination of the conveying medium.

- Observe resistance to the materials used and the conveying medium.
- Use suitable lubricants (GM) only.

## 9.1.2 Prepare pump for dismantling

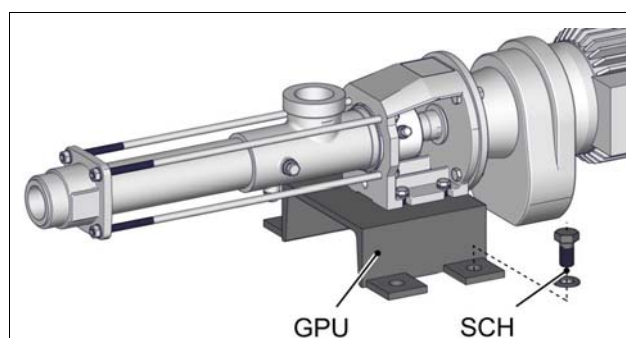
- Follow the instructions in the chapter Shut-down (→ chapter 6).

## 9.1.3 Dismantle pump

**⚠ WARNING** Risk of injury due to lack of stability of pump. Crushing of body parts due to the pump or pump parts tipping or falling down.

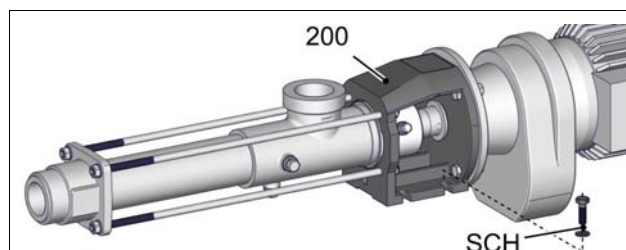
### Design with base plate

- Fasten base plate (GPU) to secure pump.
  - Recommendation: Fasten to suitable base using a screw fitting (SCH).



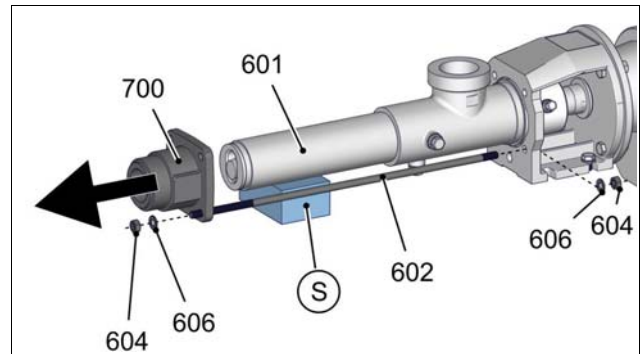
### Design without base plate

- Fasten lantern (200) to secure the pump.
  - Recommendation: Fasten to suitable base using a screw fitting (SCH).



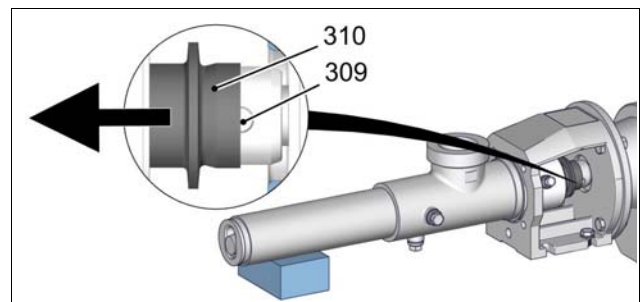
### 9.1.3.1 Dismantle pressure branch (700)

- Prop up stator (601) with the support (S).
- Dismantle screw fitting (604, 606).
- Remove pressure branches (700) and tensioning screws (602).

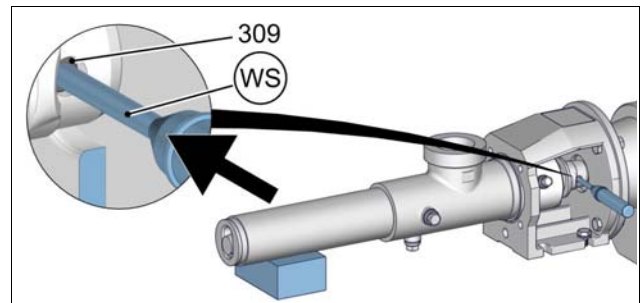


### 9.1.3.2 Dismantle stator (601)

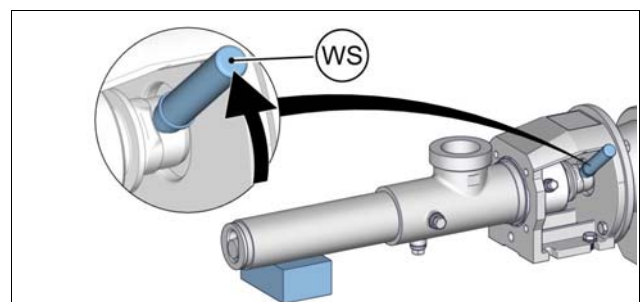
- Raise/reposition splash ring (310) to remove plug-in shaft pin (309).



- Eject plug-in shaft pin (309).
  - Use a suitable tool (WS).




- Turn tool (WS) upwards as locking device for the stator removal.

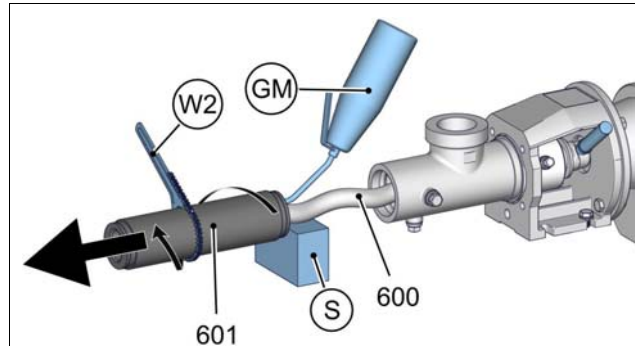


### **Dismantle the dry-running protection device (TSE) (optional)**

**NOTICE** Damage to the pump sided parts of the dry-running protection device (TSE) when dismantling stator.

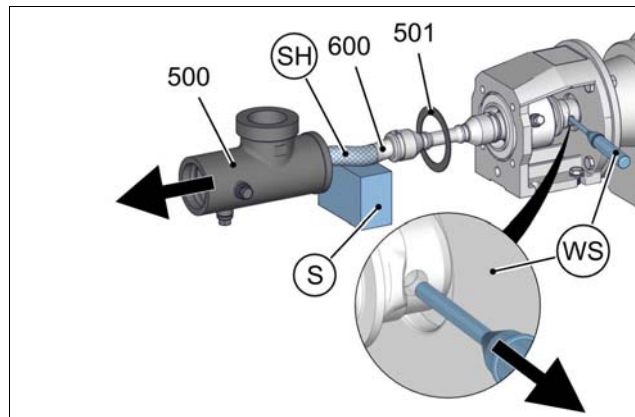
## 9.1 Dismantling

- Dismantle pump sided parts of the dry-running protection device (TSE) before dismantling stator.
  - Refer to chapter Options and Additional accessories (→ chapter 12.1).
- Turn stator (**601**) to remove it.
  - Apply lubricant (**GM**) into the opening between rotor (**600**) and stator (**601**) for easier dismantling.
  -  Use tool (**W2**).
- Support rotor (**600**) with support (**S**).



### 9.1.3.3 Dismantle suction casing (500)

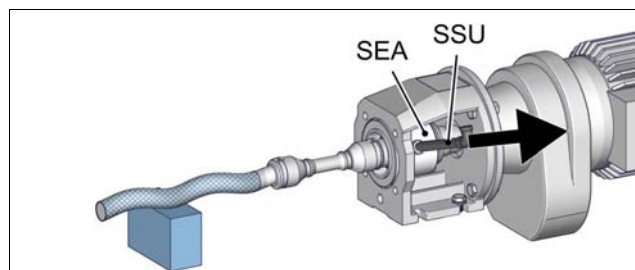
- Fit rotor (**600**) with protective cover (**SH**).
- Prop up rotor (**600**) with support (**S**).
- Remove suction casing (**500**) and suction casing gasket (**501**).
- Remove tool (**WS**).




### 9.1.3.4 Dismantle rotating unit (RTE)

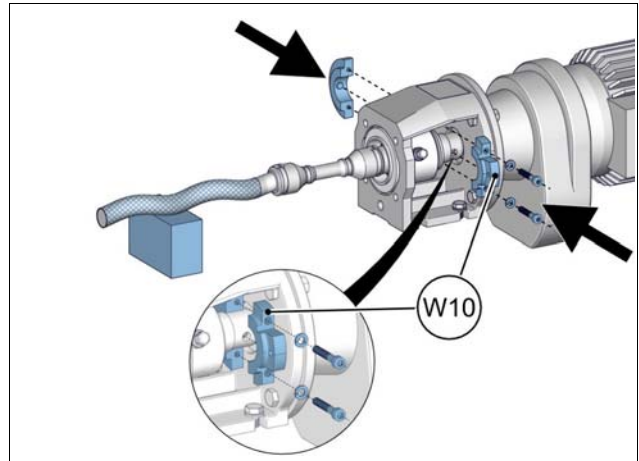
#### *Dismantle flush connection (SSU) (optional)*


- Remove flush connection (**SSU**) from the casing of the shaft sealing (**SEA**).

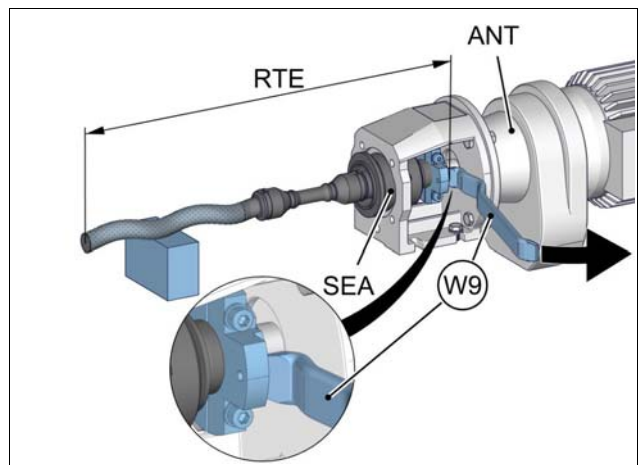



## 9.1 Dismantling

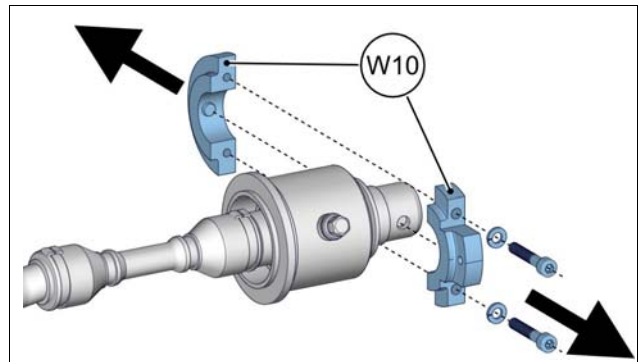
-  Assemble tool **(W10)** as contact surface for mounting lever **(W9)**.



- Pull off rotating unit **(RTE)** with shaft seal **(SEA)** from output shaft of drive **(ANT)**.
  -  Use tool **(W9)**.



-  Dismantle tool **(W10)**.



- Remove splash ring **(310)** and shaft seal casing **(SEA)** from plug-in shaft **(307)**.
  - See dismantling of shaft seal **(SEA)** (→ chapter 9.4).



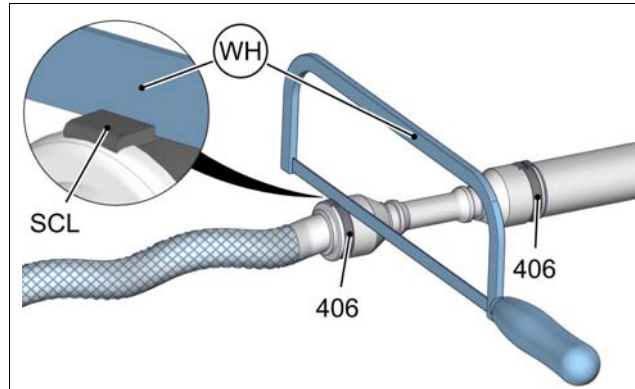
## 9.1 Dismantling

### 9.1.3.5 Dismantle rotor (600), coupling rod (400) and plug-in shaft (307)


#### Dismantle holding band (406)

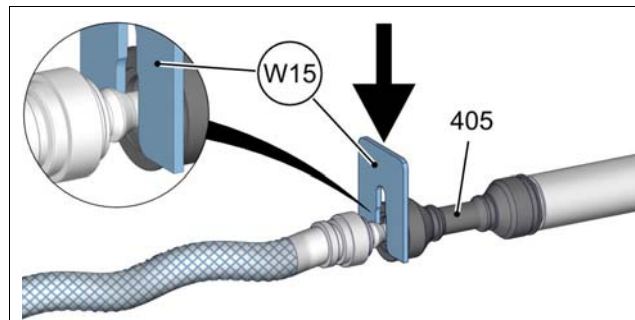
**⚠ CAUTION** Parts can be ejected at speed. Risk of injury to eyes. Wear safety goggles.

- Disconnect holding band loop (**SCL**).
  - Use suitable tools (**WH**).
- Press out parts of the holding band loop (**SCL**).
- Remove holding band (**406**).

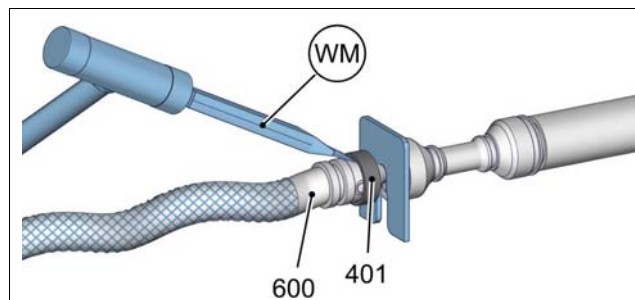


#### Separate joint - rotor side

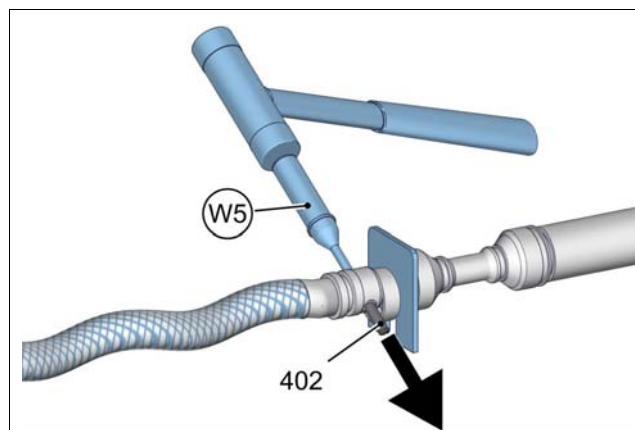
- Pull back universal joint sleeve (**405**) and fix in place.
  -  Use tool (**W15**).




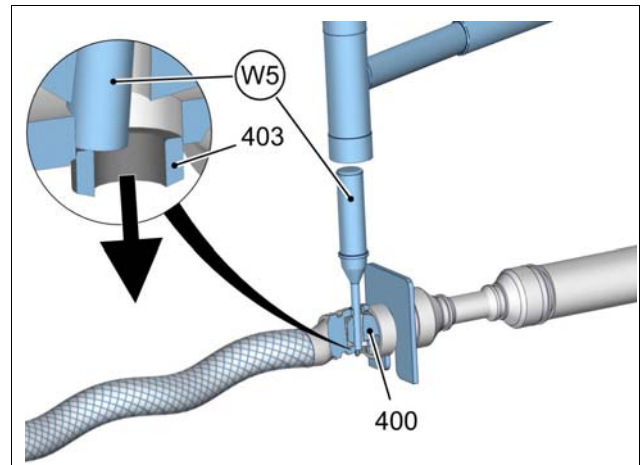
- Slide retaining sleeve (**401**) off rotor (**600**).
  - Use a suitable tool (**WM**).



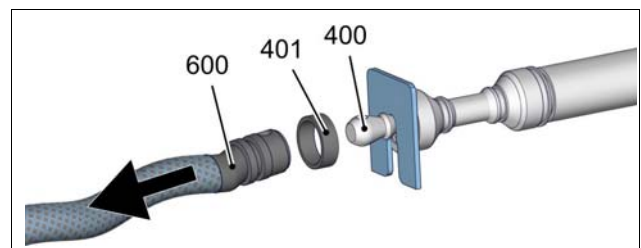
- Eject coupling rod pins (**402**).
  -  Use tool (**W5**).




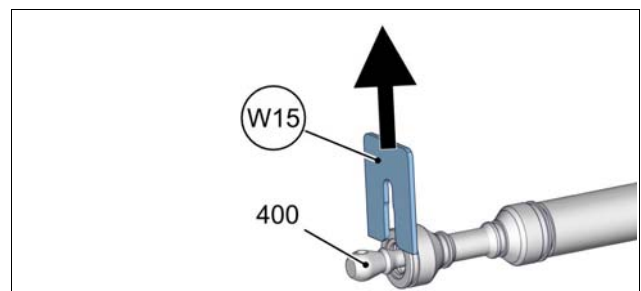
- Bend the coupling rod (400).
- Knock guide bushing (403).
  -  Use tool (W5).



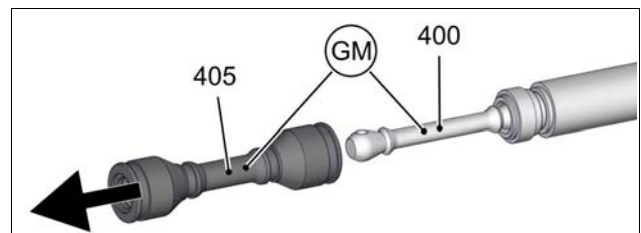
- Remove rotor (600) and retaining sleeve (401) from coupling rod (400).



-  Remove tool (W15) from coupling rod (400).

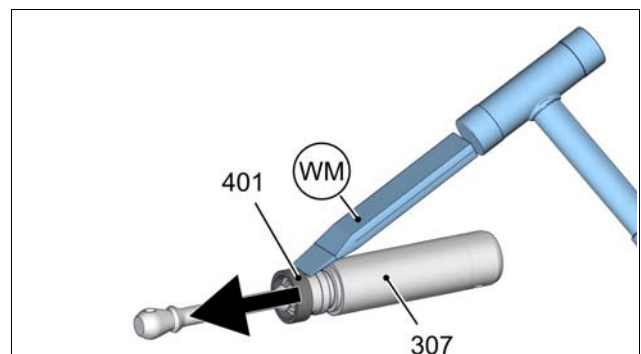


- For easier dismantling, apply lubricant (GM) to the interior of the universal joint sleeve (405) and the outer surface of the coupling rod (400).
- Remove universal joint sleeve (405) from coupling rod (400).



### Separate joint - drive side

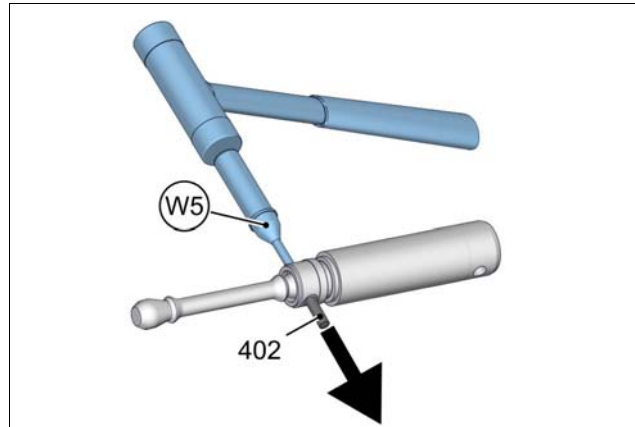
- Slide retaining sleeve (401) off plug-in shaft (307) and remove.
  - Use a suitable tool (WM).



## 9.1 Dismantling

- Eject coupling rod pins (402).

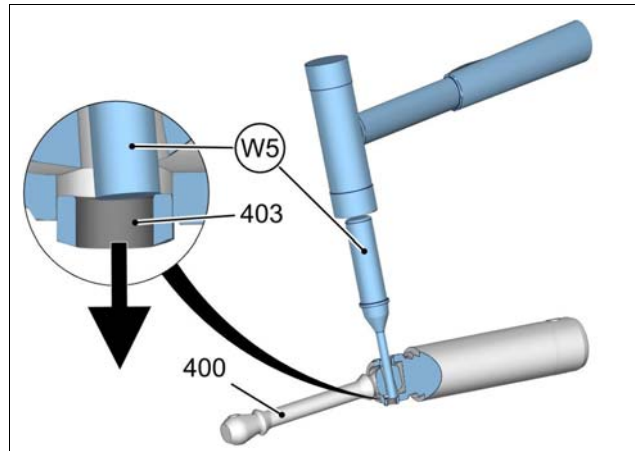
-  Use tool (W5).



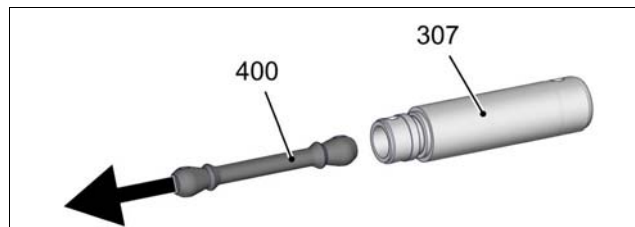
- Bend the coupling rod (400).

- Knock guide bushing (403).

-  Use tool (W5).



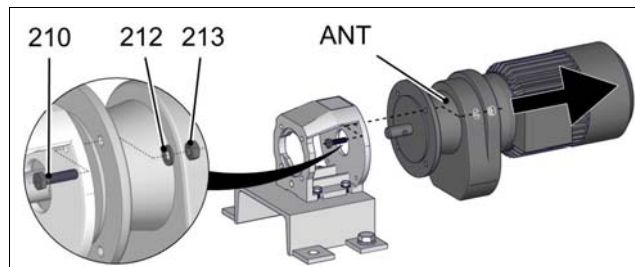
- Remove coupling rod (400) from plug-in shaft (307).



### 9.1.3.6 Dismantle drive (ANT)

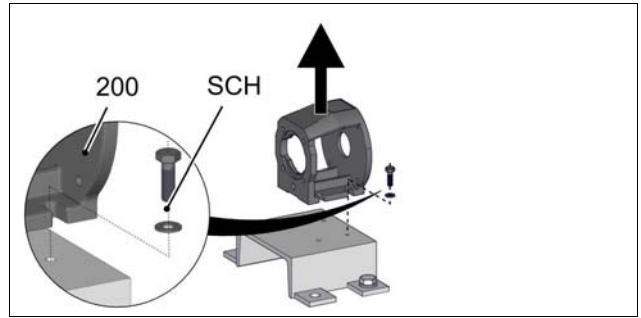
- Dismantle screw fitting (210, 212, 213).

- Remove drive (ANT).



## 9.1 Dismantling

- Dismantle screw fitting (**SCH**).
- Remove lantern (**200**).















## 9.2 Reassembly

# 9.2 Reassembly

### 9.2.1 Keep tools ready for assembly

#### *Recommended tools*

Keep the listed tools ready (not part of the delivery scope):






| Illustration  | Denomination                        |
|---|-------------------------------------|
|    | Hammer                              |
|    | Set allen keys                      |
|    | Set ring spanners size 10 - size 30 |
|   | Set fork spanners size 10 - size 30 |
|  | Screwdriver ( <b>WS</b> )           |
|  | Pliers ( <b>WFZ</b> )               |
|  | Centre punch ( <b>WK</b> )          |
|  | Spirit level ( <b>WW</b> )          |
|  | Cartridge gun ( <b>WF</b> )         |
|  | Belt shears ( <b>WBS</b> )          |

#### *Recommended special tools*

**i**

Special tools are not part of the delivery scope.

- Order special tools using the order form (→ chapter 11).

| Illustration  | Denomination          |
|---|-----------------------|
|  | Chain wrench (W2)     |
|  | Mounting tool (W3)    |
|  | Assembly mandrel (W4) |
|  | Drift (W5)            |
|  | Mounting plate (W15)  |

### Recommended auxiliary materials

Keep the auxiliary materials listed available (not included in the scope of delivery):

- Lubricant (GM)
- Anti-seize graphite petroleum (GC)
- SEEPEX joint grease (GF)

## NOTICE

### Damage to property due to inadequate lubricants (GM).

Damage to components. Contamination of the conveying medium.


- Observe resistance to the materials used and the conveying medium.
- Use suitable lubricants (GM) only.

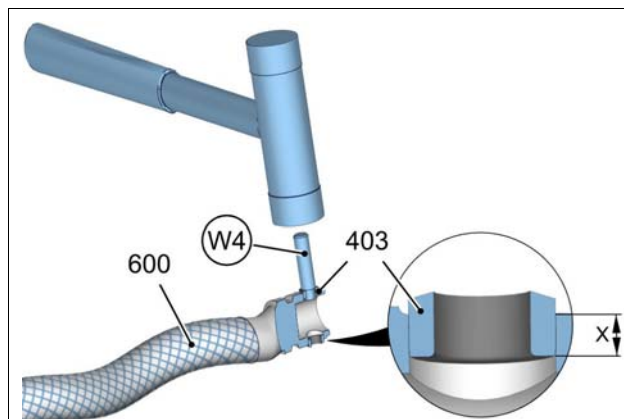
## 9.2.2 Prepare components parts for assembly

### 9.2.2.1 Prepare rotor (600) for assembly

- Remove any damage.
- Clean rotor (600).

**NOTICE** Malfunction of the joints. Malfunction and/or destruction of the joints. Renew coupling rod pin (402) and guide bushings (403) together.

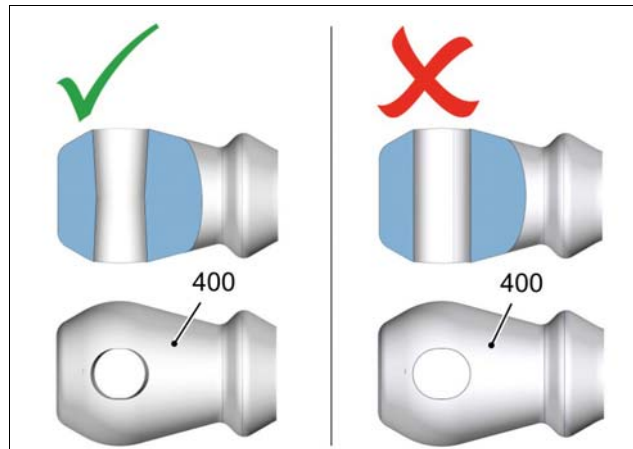
- Drive in guide bushings (403) (Depth X = 2/3).
  -  Use tool (W4).



## 9.2 Reassembly

### 9.2.2.2 Prepare coupling rod (400) for assembly


- Clean coupling rod (400).
- In the event of wear/damage, replace coupling rod (400).

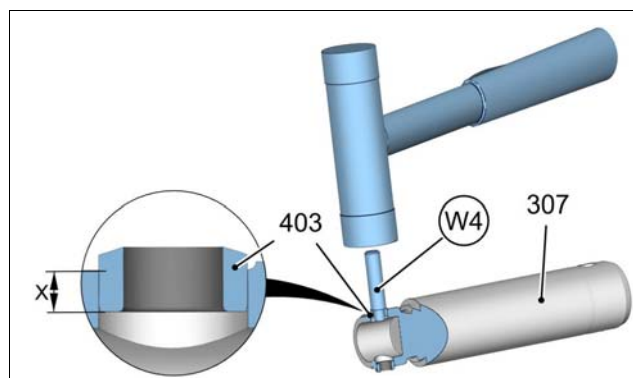


### 9.2.2.3 Prepare plug-in shaft (307) for assembly

- Remove any damage.
- Clean plug-in shaft (307).

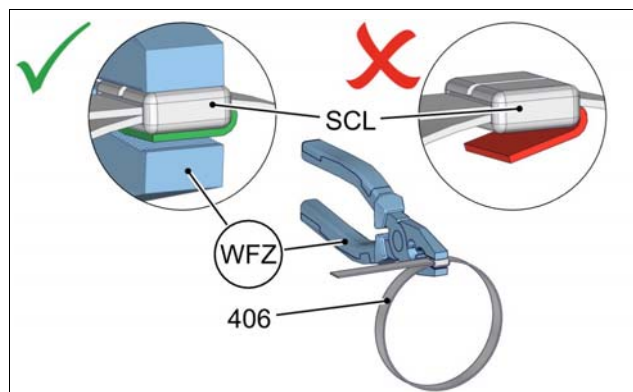
**NOTICE** Malfunction of the joints. Malfunction and/or destruction of the joints. Renew coupling rod pin (402) and guide bushings (403) together.

- Drive in guide bushings (403) (depth  $X = 2/3$ ).
  -  Use tool (W4).



### 9.2.2.4 Prepare holding band (406)

- Use prefabricated double-band holding bands only.
- Check the holding band (406)
  - Bent-over holding band (406) is in contact with holding band loop (SCL) to avoid damaging universal joint sleeve (405).
  - Press on holding band (406) using tool (WFZ) if necessary.

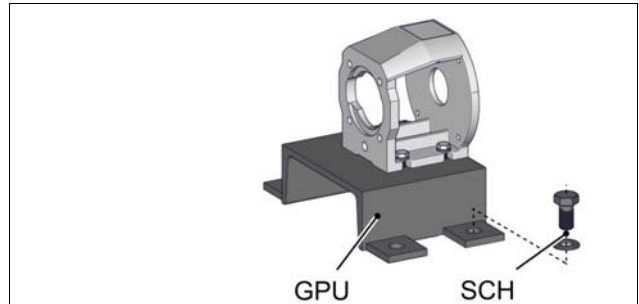


### 9.2.3 Assemble pump

**⚠ WARNING** Risk of injury due to lack of stability of pump. Crushing of body parts due to the pump or pump parts tipping or falling down.

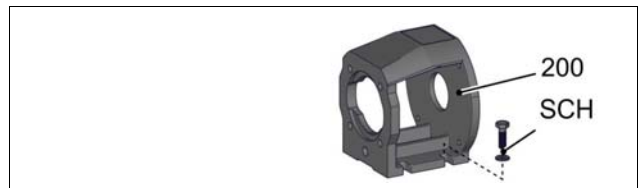
#### **Design with base plate**

- Fasten base plate (**GPU**) to secure pump.
  - Recommendation: Fasten to suitable base using a screw fitting (**SCH**).



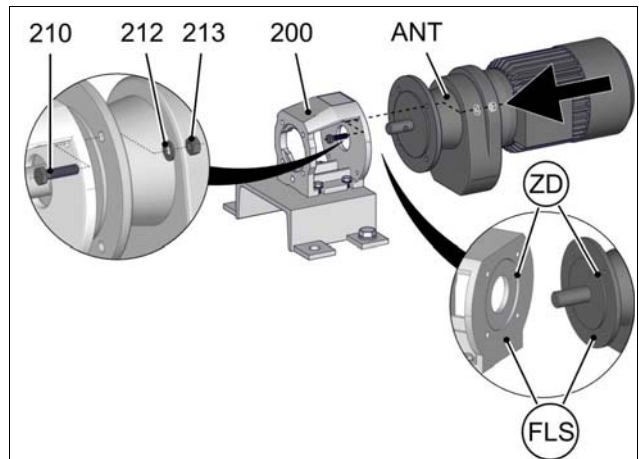
#### **Design without base plate**

- Fasten lantern (**200**) to secure the pump.
  - Recommendation: Fasten to suitable base using a screw fitting (**SCH**).



#### 9.2.3.1 Assemble drive (ANT)

- Clean flange bearing surfaces (**FLS**), centering surface (**ZD**) and output shaft of the drive (**ANT**).
- Assemble drive (**ANT**) with screw fitting (**210**, **212**, **213**) on lantern (**200**).

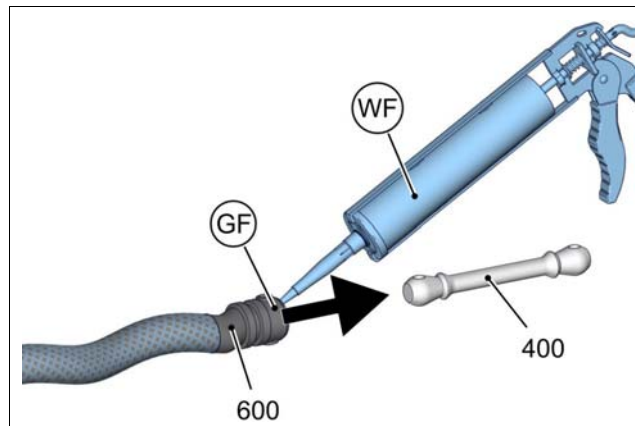


## 9.2 Reassembly

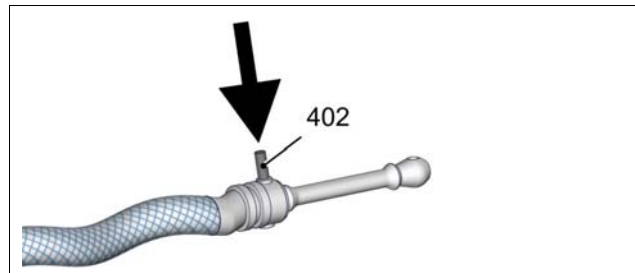
### 9.2.3.2 Assemble rotor (600), coupling rod (400) and plug-in shaft (307)


#### Connect rotor (600) and coupling rod (400)

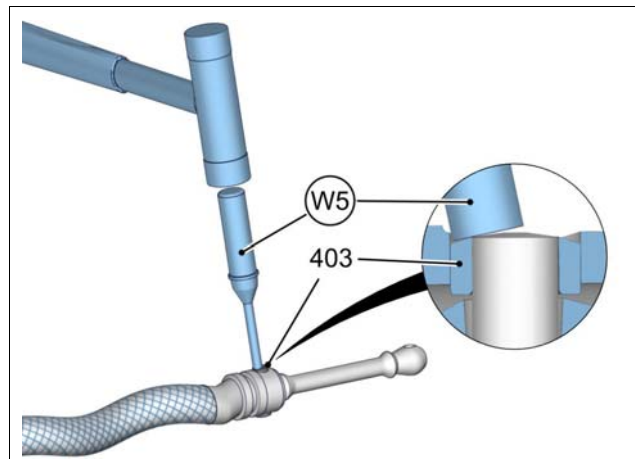
- Fill interior of joint head with SEEPEX joint grease (**GF**).
  - Use tool (**WF**).
- Slide rotor (**600**) onto coupling rod (**400**).




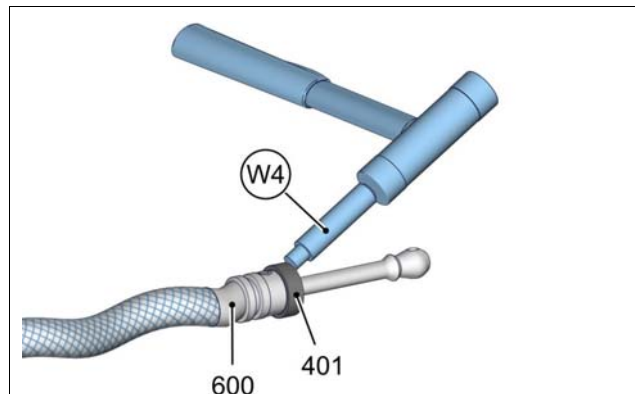
- Insert coupling rod pin (**402**).



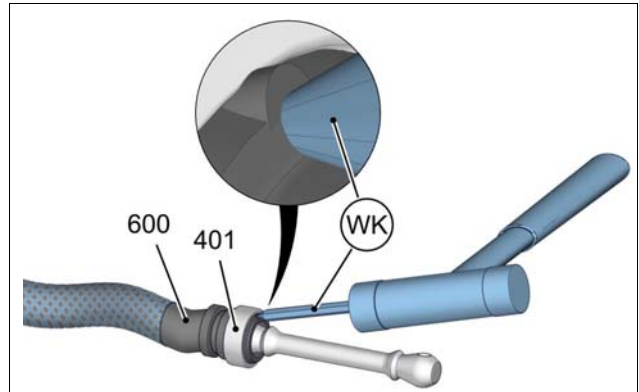
- Knock the guide bushings (**403**) in.
  -  Use tool (**W5**).



- Slide retaining sleeve (**401**) onto rotor (**600**).
  -  Use tool (**W4**).

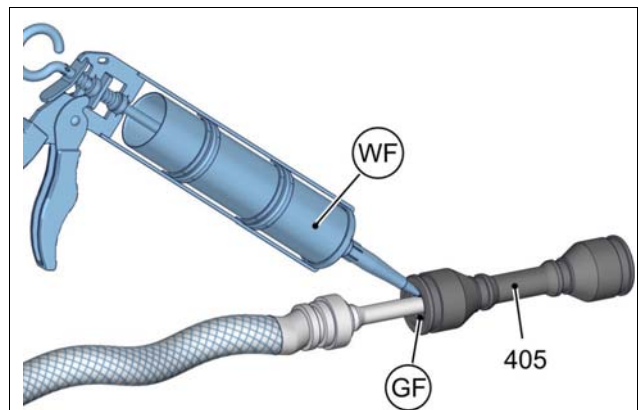
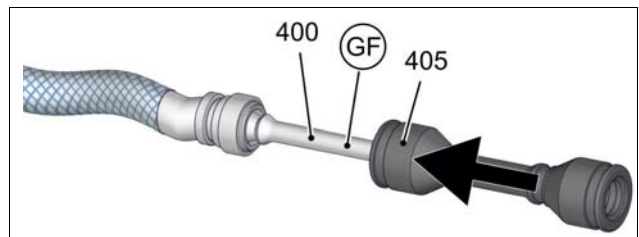


- Secure retaining sleeve (401) at a distance of 180° by means of material deformation at rotor (600).
  - Use a suitable tool (WK).



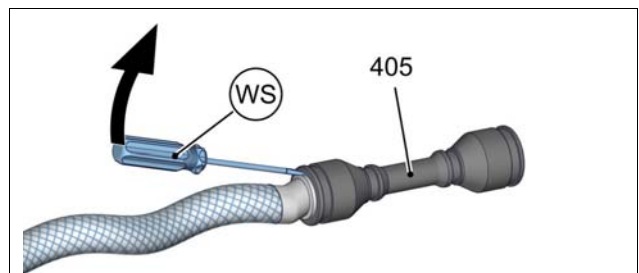
### Assemble universal joint sleeve (405) - rotor-side

- For simpler assembly of the universal joint sleeve (405), moisten the outer surface of coupling rod (400) with SEEPEX joint grease (GF).
- Slide universal joint sleeve (405) onto coupling rod (400).
- Fill interior of universal joint sleeve (405) with SEEPEX joint grease (GF).
  - Filling grade SEEPEX joint grease (GF) find in the document Maintenance (→ chapter 7).
  - Use tool (WF).



**NOTICE** Damage of universal joint sleeve due to sharp tools. Leak in universal joint sleeve.

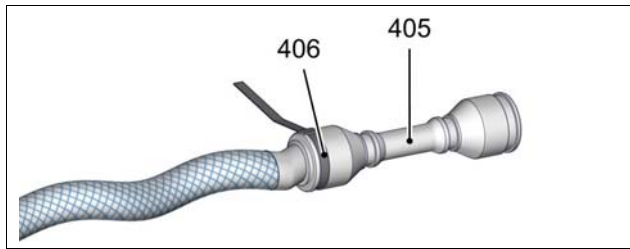
- Ventilate inner area of joint by lifting the universal joint sleeve (405).
  - Use a suitable tool (WS).




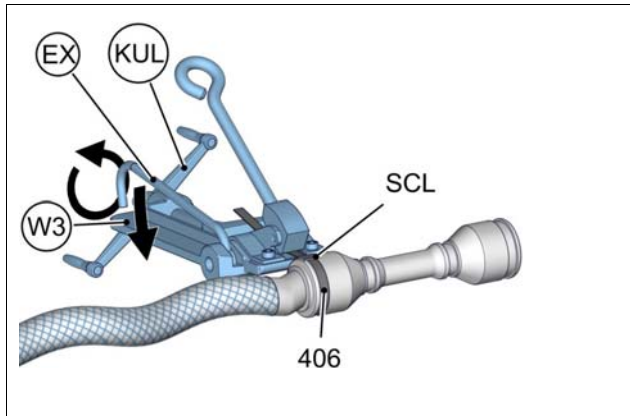
## 9.2 Reassembly

### Assemble holding band - rotor-side

- Slide holding bands (406) loosely onto universal joint sleeve (405).

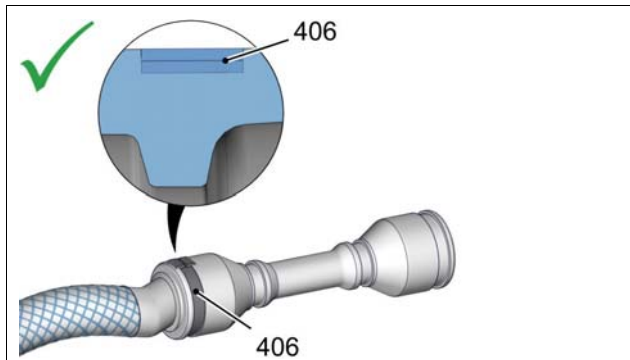


- Tighten holding band (406) - rotor-side
  -  Insert holding band (406) into tool (W3).
  - Clamp holding band firmly using eccentric lever (EX).
  - Turn crank (KUL) until the holding band (406) is tensioned and is in contact with holding band loop (SCL).
  - Carefully pull the holding band (406) together until it is in contact with the universal joint sleeve around the circumference.



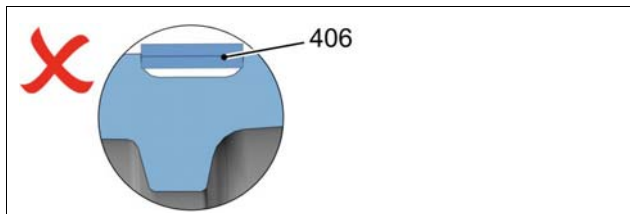
#### Correct

The holding band (406) has drawn in the out shape of the universal joint sleeve and is firmly seated.



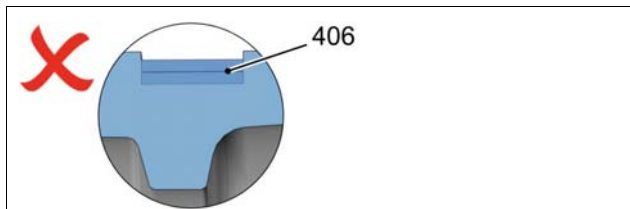
#### False


Holding band (406) too loose, can slip off.

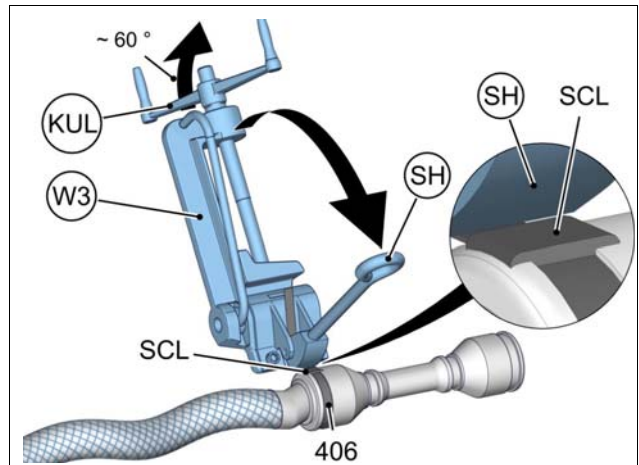


#### Incorrect

The holding band (406) is too tight, universal joint sleeve will be damaged/sheared off.



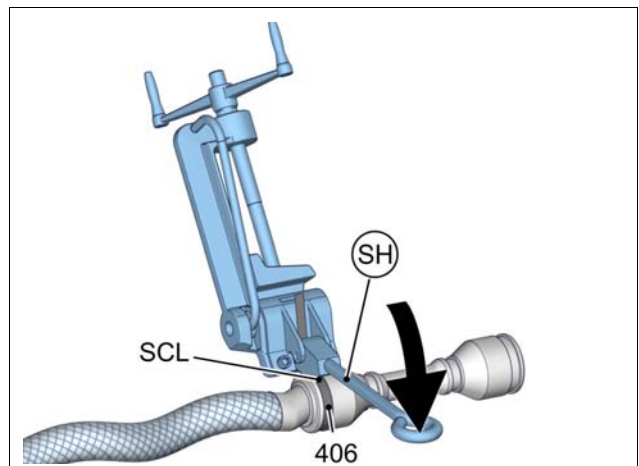
- Cant up the holding band (406).
-  Swivel mounting tool (W3) approx. 60° upwards.
- Loosen crank (KUL) by a half turn.
- Swivel cutting lever (SH) forward until the pressure piece is lying behind the holding band loop (SCL).



### **Shear off holding band (406) for material design stainless steel, corrosion-resistant steel**

**NOTICE** Universal joint sleeve can be damaged by hammering and striking. Joint grease (GF) can leak out. Avoid hammering or striking the universal joint sleeve.

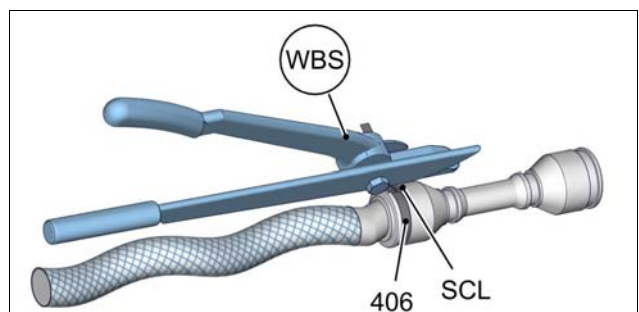
- Refer to the technical data (→ chapter 3) for the material design.
- Shear off holding band (406) below holding band loop (SCL).
  - Strike cutting lever (SH) with the palm of your hand.
- Straighten the holding band (406) carefully if it lifts up at the sheared-off end.



### **Cut off holding band (406) for material design stainless steel, heat-resistant steel**

**NOTICE** Universal joint sleeve can be damaged by hammering and striking. Joint grease (GF) can leak out. Avoid hammering or striking the universal joint sleeve.

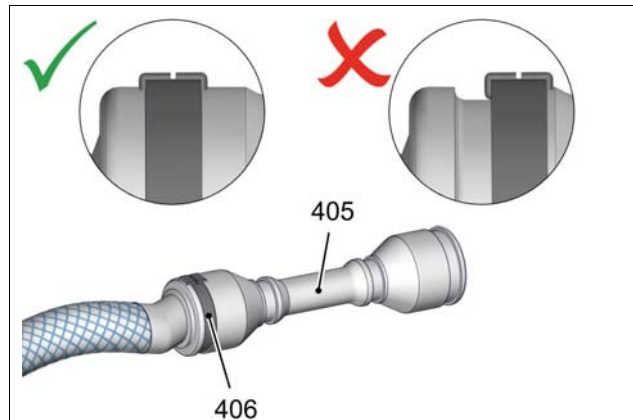
- Refer to the technical data (→ chapter 3) for the material design.
- Cut off holding band (406) below holding band loop (SCL).
  - Use tool (WBS).
- File down and deburr any projecting edges.






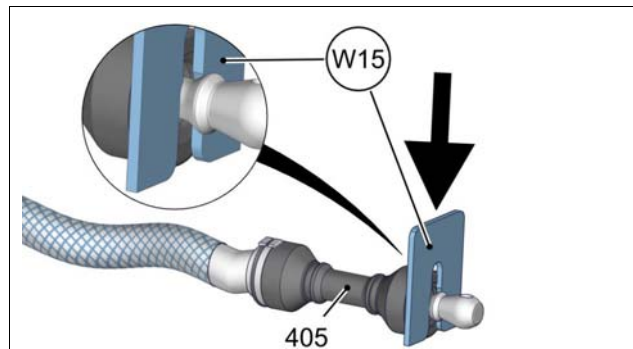
## 9.2 Reassembly

- The holding band (406) must lie in the groove of the universal joint sleeve (405).
- Replace the holding band (406) if the holding band (406) slips back through the loop.

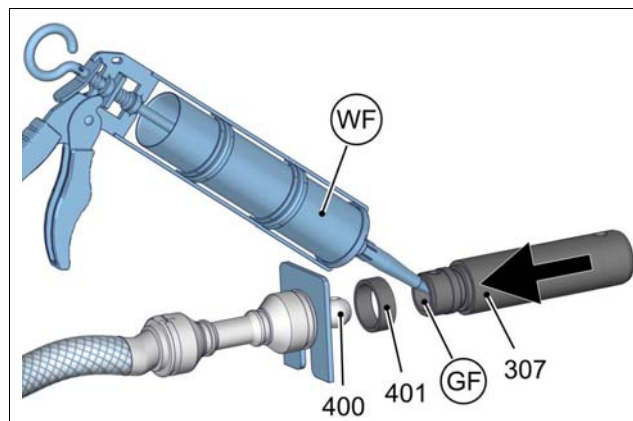


### Connect coupling rod (400) and plug-in shaft (307)

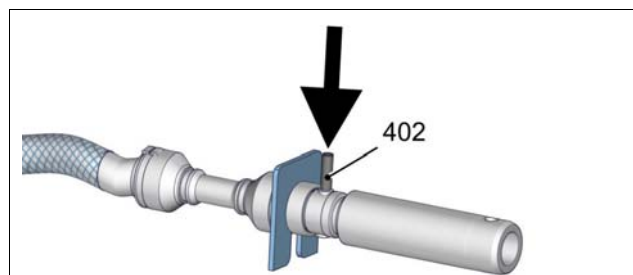
- Pull back universal joint sleeve (405) and fix in place.
  -  Use tool (W15).



- Fill interior of joint head with SEEPEX joint grease (GF).
  - Use tool (WF).
- Slide the retaining sleeve (401) and plug-in shaft (307) onto the coupling rod (400).



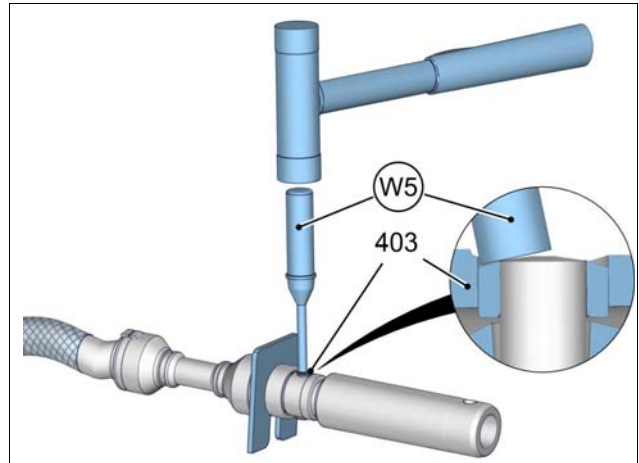
- Insert coupling rod pin (402).



## 9.2 Reassembly

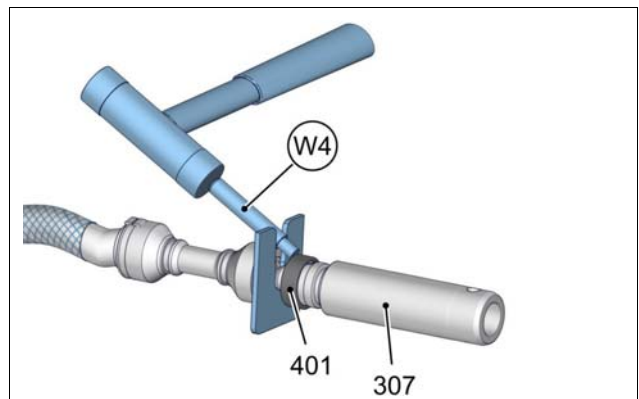
- Knock the guide bushings (403) in.

-  Use tool (W5).



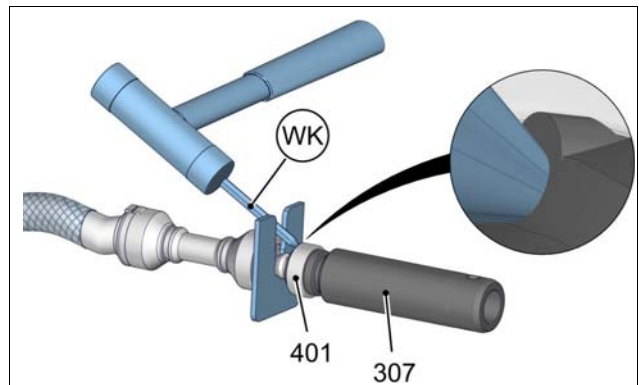
- Slide retaining sleeve (401) onto plug-in shaft (307).

-  Use tool (W4).



- Secure retaining sleeve (401) at a distance of 180° by means of material deformation at plug-in shaft (307).

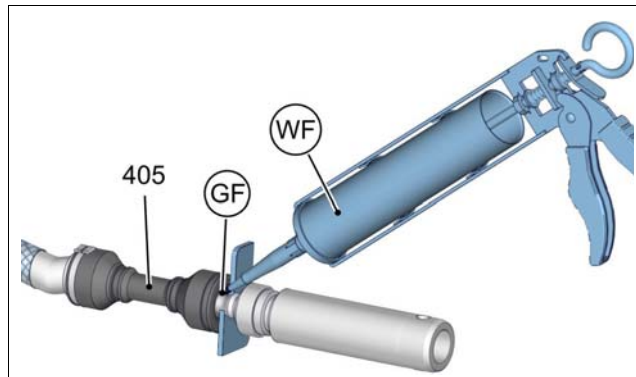
- Use a suitable tool (WK).



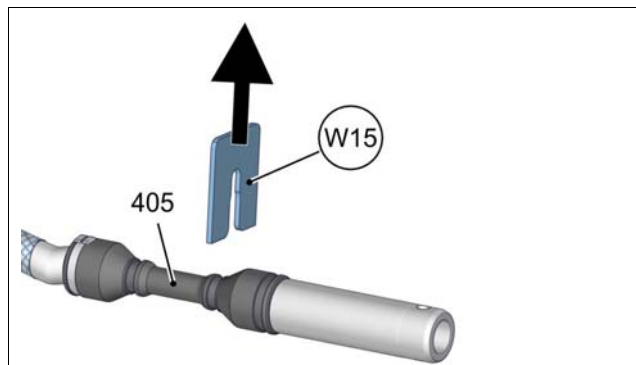
## 9.2 Reassembly

### Assemble universal joint sleeve (405) - drive side

- Fill interior of universal joint sleeve (405) with SEEPEX joint grease (GF).
  - Filling grade SEEPEX joint grease (GF) find in the document Maintenance (→ chapter 7).
  - Use tool (WF).

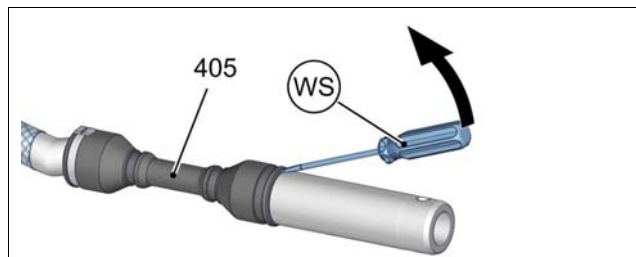


- Remove tool (W15).
- Slide universal joint sleeve (405) onto joint.



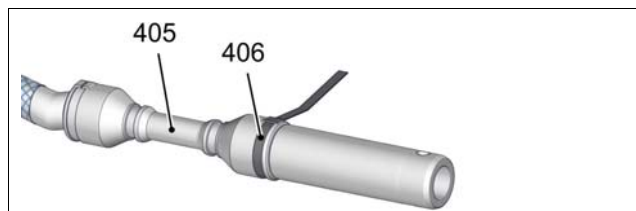
**NOTICE** Damage of universal joint sleeve due to sharp tools. Leak in universal joint sleeve.

- Ventilate inner area of joint by lifting the universal joint sleeve (405).
  - Use a suitable tool (WS).




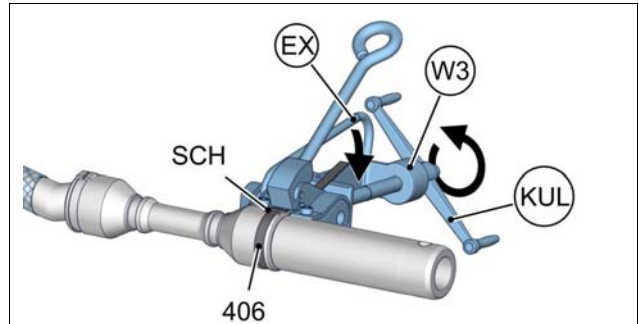
### Assemble holding band - drive-side

- Slide holding bands (406) loosely onto universal joint sleeve (405).



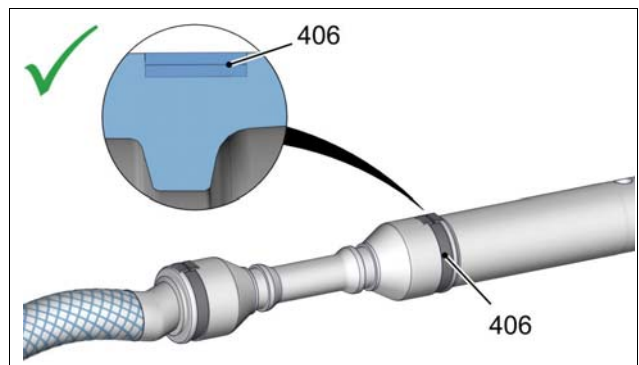
## 9.2 Reassembly

- Tighten holding band (406) - drive-side.
  -  Insert holding band (406) into tool (W3).
  - Clamp holding band firmly using eccentric lever (EX).
  - Turn crank (KUL) until the holding band (406) is tensioned and is in contact with holding band loop (SCH).
  - Carefully pull the holding band (406) together until it is in contact with the universal joint sleeve around the circumference.



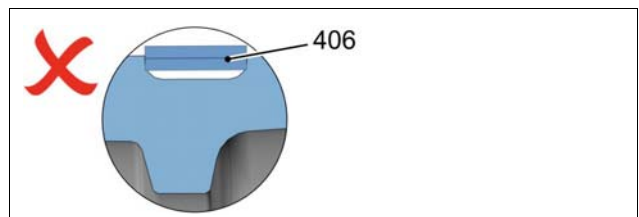
### Correct

The holding band (406) has drawn in the out shape of the universal joint sleeve and is firmly seated.



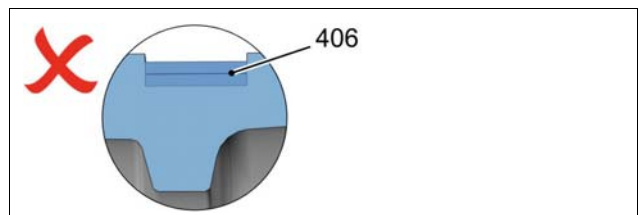
### False


Holding band (406) too loose, can slip off.

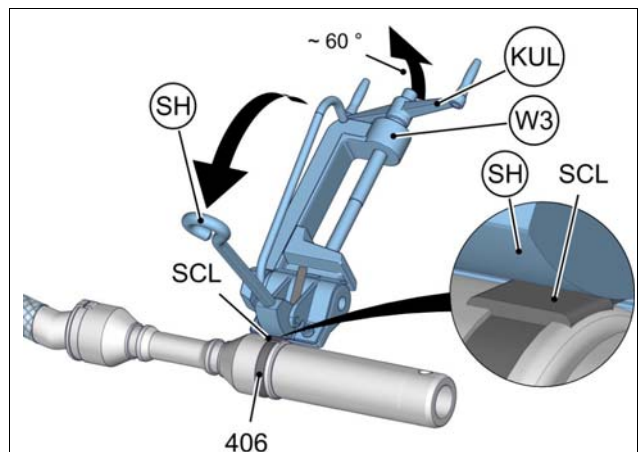


### Incorrect

The holding band (406) is too tight, universal joint sleeve will be damaged/sheared off.



- Cant up the holding band (406).
-  Swivel mounting tool (W3) approx. 60° upwards.
- Loosen crank (KUL) by a half turn.
- Swivel cutting lever (SH) forward until the pressure piece is lying behind the holding band loop (SCL).

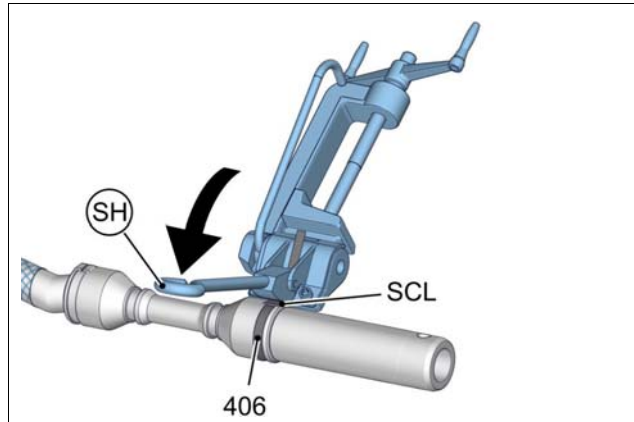


## 9.2 Reassembly

### **Shear off holding band (406) for material design stainless steel, corrosion-resistant steel**

**NOTICE** Universal joint sleeve can be damaged by hammering and striking. Joint grease (GF) can leak out. Avoid hammering or striking the universal joint sleeve.

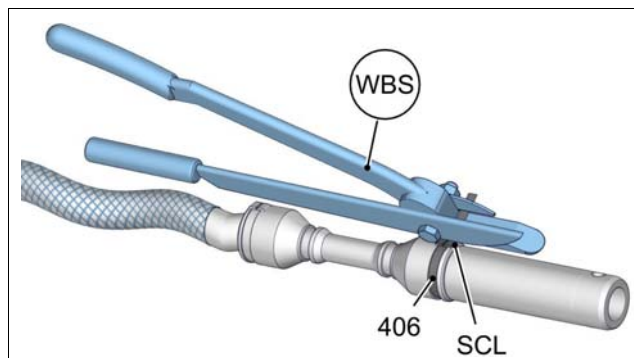
- Refer to the technical data (→ chapter 3) for the material design.
- Shear off holding band (406) below holding band loop (SCL).
  - Strike cutting lever (SH) with the palm of your hand.
- Straighten the holding band (406) carefully if it lifts up at the sheared-off end.



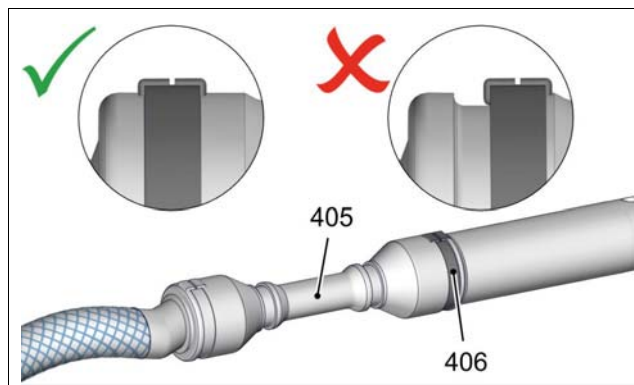
### **Cut off holding band (406) for material design stainless steel, heat-resistant steel**

**NOTICE** Universal joint sleeve can be damaged by hammering and striking. Joint grease (GF) can leak out. Avoid hammering or striking the universal joint sleeve.

- Refer to the technical data (→ chapter 3) for the material design.
- Cut off holding band (406) below holding band loop (SCL).
  - Use tool (WBS).
- File down and deburr any projecting edges.

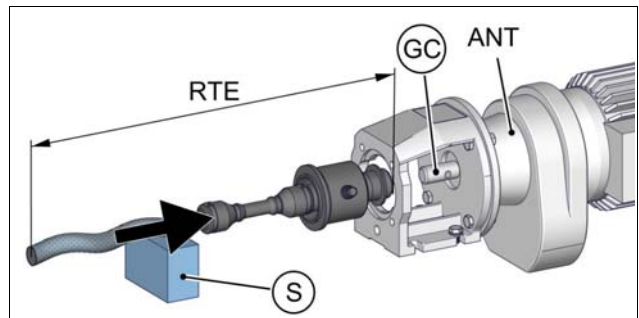
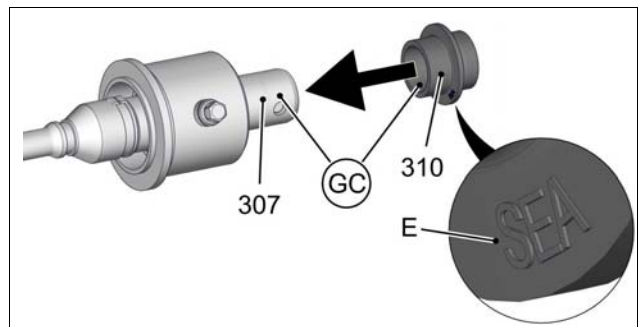
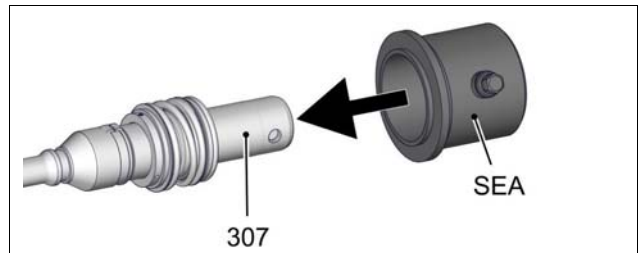


- The holding band (406) must lie in the groove of the universal joint sleeve (405).
- Replace the holding band (406) if the holding band (406) slips back through the loop.



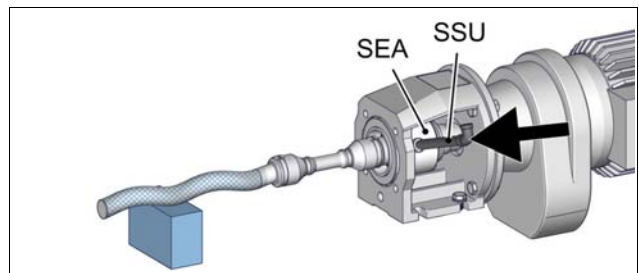
### 9.2.3.3 Assemble rotating unit (RTE)

- Slide shaft seal casing (SEA) onto plug-in shaft (307).
  - See chapter Shaft seal reassembly (→ chapter 9.4).
- Moisten inner surface of splash ring (310) and outer surface of plug-in shaft (307) with anti-seize graphite petroleum (GC) for easier assembly of the splash ring (310).
- Slide splash ring (310) onto plug-in shaft (307).
  - Observe fitting position of splash ring (E) (lettering „SEA“).
- Moisten output shaft of drive (ANT) with anti-seize graphite petroleum (GC) for easier assembly of the rotating unit (RTE).
- Push rotating unit (RTE) onto output shaft of the drive (ANT).
- Prop up rotor (600) with support (S).



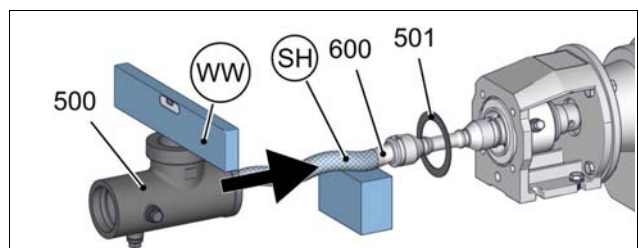
### Assemble the flush connection (SSU) (optional)

- Assemble flush connection (SSU).



### 9.2.3.4 Assemble suction casing (500)

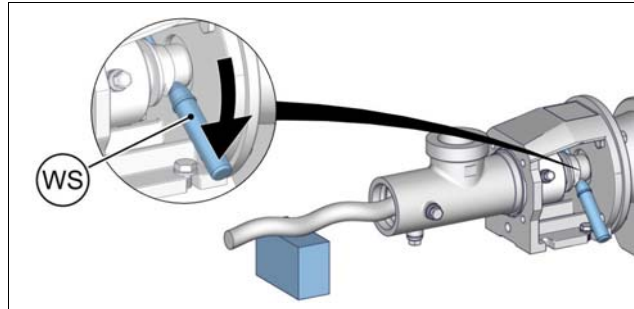
- Put a protective cover (SH) on the rotor (600).
- Push on the casing gasket (501).
- Mount and align the suction casing (500).
  - Use spirit level (WW).
- Remove the protective cover (SH).




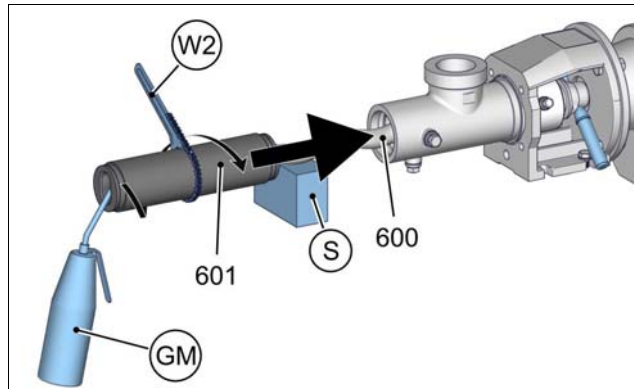
## 9.2 Reassembly

### 9.2.3.5 Assemble stator (601)

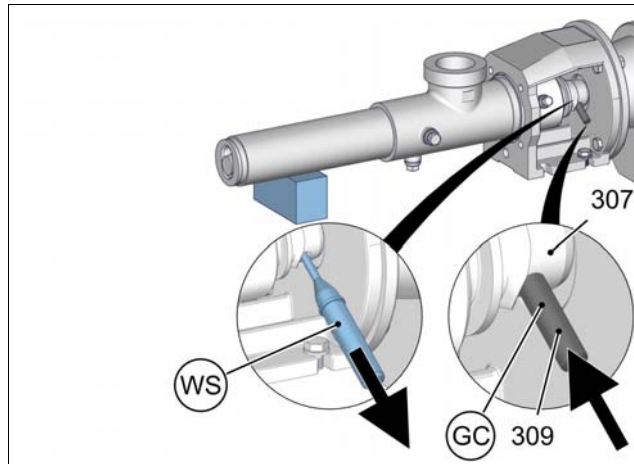
- Insert tool **(WS)** and turn downwards as locking device for stator assembly.



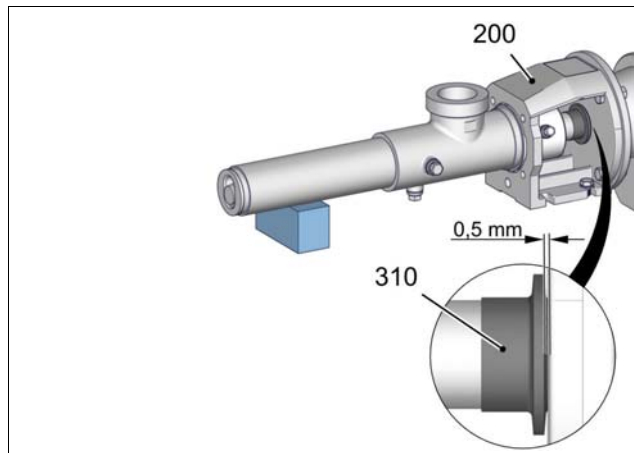
- Moisten outer surface of rotor **(600)** and inner surface of stator **(601)** with lubricant **(GM)** for easier assembly of the stator **(601)**,
- Prop up stator **(601)** with support **(S)**.
- Slide the stator **(601)** onto the rotor **(600)** by turning it.
  -  Use tool **(W2)**.



- Remove tool **(WS)**.
- Moisten the plug-in shaft pins **(309)** with anti-seize graphite petroleum **(GC)** and insert in plug-in shaft **(307)**.



- Note position of splash ring **(310)**.
- Insert splash ring collar at a distance of 0.5 mm from the lantern **(200)**.

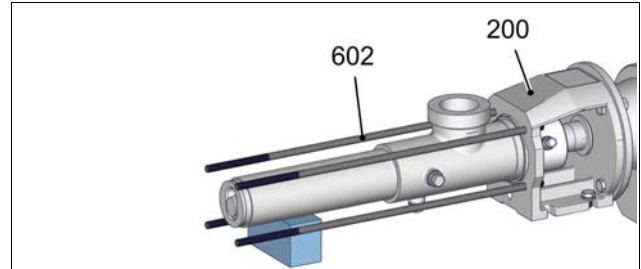


### Assemble dry-running protection device (TSE) (optional)

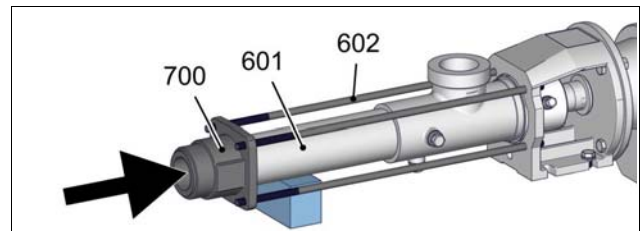
- Observe the chapter Options and additional accessories (→ chapter 12.1).

### 9.2.3.6 Assemble pressure branch (700)

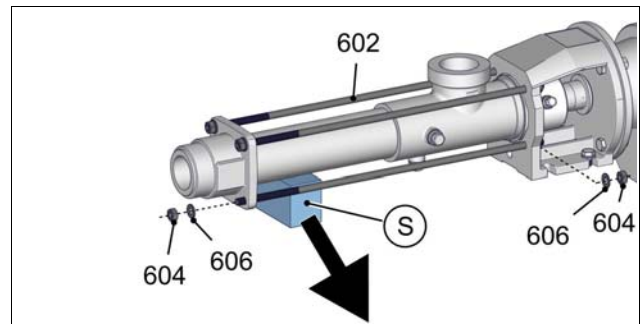
- Insert tie bolts (602) loosely into the lantern (200).



- Push pressure branch (700) onto the stator (601).
- Insert tie bolts (602) loosely in the pressure branch (700).



- Assemble screw fitting (604, 606).
- Tighten tie bolts (602) evenly.
- Remove the support (S).








## 9.4 / 9.5 Shaft sealing

## 9.4.1 Safety

|  <b>WARNING</b>  |  |
|---|--|
| <b>Shaft seal is leaky.</b><br>Leakage may escape into the atmosphere.  |  |
| <ul style="list-style-type: none"><li>➤ Take safety measures to protect persons and the environment.</li><li>➤ Wear suitable protective clothing.</li><li>➤ Dispose of leakage appropriately.</li><li>➤ Note applicable regulations when handling hazardous substances.</li></ul> |  |

## 9.4.2 Operating conditions and material combination

- Adjust to the relevant application
  - Design variants you will find at <http://www.seepex.com/en/service/downloads/>.



10.1 Spare parts list

10.2 Sectional drawing and parts list



**Version for copying**

**10.1 Spare parts list**

Spare parts can be ordered online or requested from  
[www.seepex.com](http://www.seepex.com)

**Type: BN 025-12 to 1-6L**

Request  Order

**Sender:**

**Must be included in every order or enquiry!**

**Commission:**

**Type:**

Contact: .....

Tel.: .....

Fax: .....

E-mail: .....

**Customer service:**  
seepex GmbH  
Postfach 10 15 64  
D-46215 Bottrop  
service@seepex.com

**Germany**

Tel +492041.996-231  
Fax +492041.996-431

**Rest of Europe**

Tel +492041.996-224  
Fax +492041.996-424

**Outside Europe**

Tel +492041.996-120  
Fax +492041.996-432

**Delivery address:**

.....  
.....  
.....  
.....

| No. | Quantity | Component | Material | Comment |
|-----|----------|-----------|----------|---------|
|-----|----------|-----------|----------|---------|

**Minor set of wearing parts**

|     |   |                      |  |                                       |
|-----|---|----------------------|--|---------------------------------------|
| 301 | 1 | Set of packing rings |  | according to data sheet (chapter 3.1) |
| 330 | 1 | Mechanical seal      |  | according to data sheet (chapter 3.1) |
| 601 | 1 | Stator               |  |                                       |

**Major set of wearing parts**

|     |   |   |  |                                       |
|-----|---|---|--|---------------------------------------|
| 301 | 1 | Set of packing rings                    |  | according to data sheet (chapter 3.1) |
| 307 | 1 | Plug-in shaft                           |  |                                       |
| 330 | 1 | Mechanical seal                         |  | according to data sheet (chapter 3.1) |
| 400 | 1 | Coupling rod with coupling rod bushings |  |                                       |
| 402 | 2 | Coupling rod pin                        |  |                                       |
| 403 | 4 | Guide bushing                           |  |                                       |
| 405 | 2 | Universal joint sleeve                  |  |                                       |
| 406 | 2 | Holding band, large                     |  |                                       |
| 600 | 1 | Rotor                                   |  |                                       |
| 601 | 1 | Stator                                  |  |                                       |

Place, date

Signature / company stamp

## Version for copying

| No.                                   | Quantity | Component                               | Material                 | Comment  |
|---------------------------------------|----------|---|--------------------------|--|
| <b>Set of gaskets</b>                 |          |   | <input type="checkbox"/> |  |
| 301                                   | 1        | Set of packing rings                    |                          | according to data sheet (chapter 3.1)  |
| 310                                   | 1        | Splash ring                             |                          | according to data sheet (chapter 3.1)  |
| 330                                   | 1        | Mechanical seal                         |                          |  |
| 501                                   | 1        | Casing gasket                           |                          |  |
| 503                                   | 3        | Sealing ring                            |                          |  |
| <b>Plug-in shaft &amp; shaft seal</b> |          |   | <input type="checkbox"/> |  |
| 301                                   |          | Set of packing rings                    |                          | according to data sheet (chapter 3.1)  |
| 307                                   |          | Plug-in shaft                           |                          |  |
| 309                                   |          | Plug-in shaft pin                       |                          |  |
| 310                                   |          | Splash ring                             |                          | according to data sheet (chapter 3.1)  |
| 330                                   |          | Mechanical seal                         |                          | according to data sheet (chapter 3.1)  |
| <b>Coupling rod &amp; joint parts</b> |          |   | <input type="checkbox"/> |  |
| 400                                   |          | Coupling rod with coupling rod bushings |                          |  |
| 401                                   |          | Retaining sleeve                        |                          |  |
| 402                                   |          | Coupling rod pin                        |                          |  |
| 403                                   |          | Guide bushing                           |                          |  |
| 405                                   |          | Universal joint sleeve                  |                          |  |
| 406                                   |          | Holding band, large                     |                          |  |
| 401-406                               |          | Complete set of joint parts             |                          |  |
| <b>Conveying elements</b>             |          |   | <input type="checkbox"/> |  |
| 600                                   |          | Rotor                                   |                          |  |
| 601                                   |          | Stator                                  |                          |  |
| <b>Miscellaneous parts</b>            |          |   | <input type="checkbox"/> |  |
| 501                                   |          | Casing gasket                           |                          |  |
| 098                                   |          | Pin joint grease                        |                          | 1 cartridge = 300 g (approx. 315 cm <sup>3</sup> )<br>Grease quantity according to maintenance (chapter 7.0) |

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 Place, date

---

 Signature / company stamp

**Version for copying**

Spare parts can be ordered online or requested from  
[www.seepex.com](http://www.seepex.com)

**Must be specified with every order!**

Commission: \_\_\_\_\_

Mark tool!

X

Sender:

Contact: .....

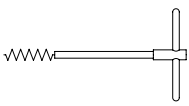

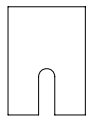
Tel.: .....

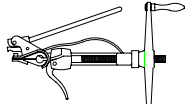
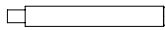
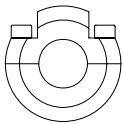
Fax: .....

E-mail: .....

|   |                       |  |
|---|-----------------------|--|
| <b>Customer service:</b><br>seepex GmbH<br>Postfach 10 15 64<br>D-46215 Bottrop<br>service@seepex.com | <b>Germany</b>        | Tel +492041.996-231<br>Fax +492041.996-431 |
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|   | <b>Outside Europe</b> | Tel +492041.996-120<br>Fax +492041.996-432 |

**Delivery address:**  
 .....  
 .....  
 .....  
 .....

| For installation of: | Packing gland   | Stator  | Universal joint sleeve  |
|----------------------|---|---|---|
| Tool no.             | W1 <input type="checkbox"/>   | W2 <input type="checkbox"/>   | W15 <input type="checkbox"/>  |
| Denomination:        | Packing puller  | Chain wrench plus spare chain   | Mounting plate  |
| Order no.            | PKZ   | KRZ   | MTP   |
|                      |  |  |  |

| For installation of: | Rotating unit   |   |   |
|----------------------|---|---|---|
|                      | Holding band  | Joint   | Plug-in shaft   |
| Tool no.             | W3 <input type="checkbox"/>   | W4 <input type="checkbox"/>   | W10 <input type="checkbox"/>  |
| Denomination:        | Mounting tool   | Drift   | Dismantling tool  |
| Order no.            | MHB   | MTD   | AZV   |
|                      |  |  |  |





### 12.1 Accessories/Technical information

- Accessories and technical information are commission specific documents not part of this not binding operating and assembly instruction.



### 13.1 Manufacturer's and supplier's documents

- Manufacturer's and supplier's documents are commission specific documents and not part of this not binding operating and assembly instruction.





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