

Operating instrucciones Peristaltic Pumps

RBT Series

www.boyser.com

1. Introduction

This instruction manual must accompany the pump at all times for as long as it is in use. The RBT series peristaltic pump is a machine for fluid handling intended to be used in industrial areas, as such the instruction manual is part of the legislative provisions for the safe and correct use of the pump.

This instruction manual does not substitute any installation standard or any additional future standard.

1.1. How to use this manual

This manual is intended as a reference book by means of which qualified users are able to install, commission and maintain the hose pumps mentioned on the front cover.

1.2. Original instructions

The original instructions for this manual have been written in English. Other language versions of this manual are a translation of the original instructions.

1.3. Other supplied documentation


Documentation of components such as motors and inverters is normally not included in this manual. However, if additional documentation is supplied, you must follow the instructions in this additional documentation.

1.4. Service and support

For information with respect to specific adjustments, installation, maintenance or repair jobs which fall beyond the scope of this manual, contact BOYSER. Make sure you have the serial number hose pump at hand.

1.5. Environment and disposal of waste

Enquire within your local government about the possibilities for reuse or environment friendly processing of packaging materials, (contaminated) lubricant

| | |
|---|---|
|  | <p>CAUTION</p> <p>Always observe the local rules and regulations with respect to processing (non reusable) parts of the hose pump.</p> |
|---|---|

2. Safety

2.1. Explanation of the safety information



This symbol identifies the instructions of this manual, which must be observed to avoid failure to meet safety standards.



This symbol identifies the instructions of this manual, which must be observed to avoid compromising electrical safety.



This symbol identifies the instructions of this manual, which must be observed to guarantee the correct operation of the pump.

Other documentation supplied: instructions in all additional documentation supplied with the pump must also be followed (instructions for components such as gearbox, motor, sensor, frequency controller).

2.2. Intended use

The hose pump is exclusively designed for pumping suitable products. Every other or further use is not in conformance with the intended use. In case of doubt it is the use which appears to be its intended use judging from the construction, execution and function of the product. Observing the instructions in the user's documentation also belongs to intended use.

Only use the pump in conformance with the intended use described above. The manufacturer cannot be held responsible for damage or harm resulting from use that is not in conformance with the intended use. If you want to change the application of your hose pump, contact BOYSER.

2.3. Responsibility

The manufacturer does not accept any responsibility for damage or harm caused by not (strictly) observing the safety regulations and instructions in this manual and the also supplied documentation, or by negligence during installation, use, maintenance and repair of the hose pumps mentioned on the front cover. Depending on the specific working conditions or accessories used, additional safety instructions can be required.

2.4. User qualifications

Pumps are machines that can present dangers due to moving parts and the presence of a pressurised fluid within the hose.

THE FOLLOWING CAN CAUSE SERIOUS DAMAGE AND INJURY:

- Improper use
- Removal of the protections and/or disconnection of protective devices
- Lack of inspections and maintenance

The person responsible for safety should therefore guarantee that the pump is transported, installed, put in service, used, maintained and repaired by qualified personnel who should possess:

- Specific training and sufficient experience for the tasks.
- Knowledge of the technical standards and applicable laws.
- Knowledge of the national and local safety and installation standards.

Any work carried out on the electrical part of the pump should be authorized by the person responsible for safety.

Given that the pump is intended to form part of a system, it is the responsibility of whoever supervises the installation of the entire system to guarantee absolute safety, adopting the necessary measures of additional protection.

2.5. General safety information



Live parts

Possible consequence: fatal or very serious injuries.

- Risk mitigation: the device must be disconnected from the power supply before it is opened
- Isolate damaged, faulty or manipulated devices from the mains in order to de-energize.



Lack of emergency stop switch

Possible consequence: fatal or very serious injuries.

An emergency stop switch must be connected for the entire system. This should enable the entire system to be shut down in the event of an emergency in such a way that the overall system can be brought into a safe condition.



Unauthorized access

Possible consequence: Fatal or very serious injuries.

- Risk mitigation: ensure that there can be no unauthorized access to the pump or to the system.



Hazardous media/contamination of persons and equipment

Possible consequences: Fatal / serious injuries, material damage.

- Ensure that the pump hoses are chemically resistant against the media being handled
- Always observe the safety data sheets for the media to be handled. The system operator must ensure that these safety data sheets are available and that kept up-to-date.
- The safety data sheets for the fluid being handled are always decisive for initiating countermeasures and/or first aid in the event of leakage of the fluid.
- Observe the general restrictions in relation to viscosity limits, chemical resistance and density.
- Always switch the pump off before exchanging the pump hose



Incorrect and improper use

Possible consequence: fatal or very serious injuries.

- The unit is not intended to convey or regulate gases or solid media
- Do not exceed the rated pressure, speed or temperature for the pump
- Maximum pressure on suction/inlet side is 3 bar (45 psi approx.) and maximum pressure on suction/inlet side is 0,5 bar (7,25 psi approx.) only in pumps with Norprene tube).
- The unit may only be used in accordance with the technical data and specifications provided in these operating instructions and in the operating instructions for the individual components
- This pump is NOT supplied for use in areas of risk from explosion. ATEX versions of BOYSER pumps are available and they are supplied with a special ATEX version of the Instruction Manual.
- Only switch the pump on if it has been properly fastened to the floor
- Only switch the pump on if the front cover has been attached.
- Do not carry out any maintenance operations or dismantle the pump without first making sure that the pipes are not under pressure and are empty or isolated.
- In the case of the hose becoming stuck during extraction or fitting it is necessary to reverse the direction of the pump, re-lubricate, and then repeat the operation.
- As the peristaltic pump is volumetric and its functioning is positive displacement, it is necessary to prevent a possible overload of pressure, due to, for example, the accidental closure of a valve. For this reason, it is advisable to fit a safety device such as: a safety valve, pressure limiter, etc.



Operational lifetime of the pump hoses

Possible consequence: fatal or very serious injuries.

- The hose has an indeterminate life and due to the possibility of its breakage or deterioration, the user is responsible for the prevention of a possible (although most unlikely) incorporation of particles from the hose into the product being pumped. This can be achieved by means of filtration, a hose rupture alarm or other means suitable for the respective process
- In addition, the operational lifetime of the pump hoses cannot be precisely specified. For this reason, the possibility of fracture and consequential leakage of liquids must be accounted for. If the hose rupture alarm (optional) is fitted, then the pump can be stopped and/or an electrical valve can be activated.



CIP cleaning

- In the event of CIP cleaning, it is necessary to obtain information from the manufacturer about correct installation of the pump (a special installation is required) as well as regarding the compatibility of the cleaning agents with the pump hoses and the hydraulic connections.
- Cleaning should be undertaken at the recommended maximum temperature.



Direction of rotation/flow direction

Possible consequence: material damage, destruction of the unit.

- The pump's direction of rotation in relation to the desired flow direction must be checked prior to every start.



Disconnect the pump from the mains

Possible consequence: personal injury.

- Work may only be carried out on the pump after it has previously been switched off and disconnected from the mains.



Environmental influences

Possible consequence: material damage up to destruction of the unit.

- The device is suitable for outdoor operation once it is covered and protected from rain and direct sunlight. Ambient conditions must also be respected, see Section 7.2 & 7.3.
- Take suitable measures to protect the device from environmental influences such as UV rays, moisture, frost, etc.

3. Functional description

The RBT Series is a positive displacement pump. The feed chemical is conveyed by the rotor squeezing the hose in the direction of flow. No valves are needed for this. This ensures gentle handling of the metered media.

Maximum pressure on suction/inlet side is 3 bar (45 psi approx.) and maximum pressure on suction/inlet side is 0,5 bar (7,25 psi approx.) only in pumps with Norprene tube).

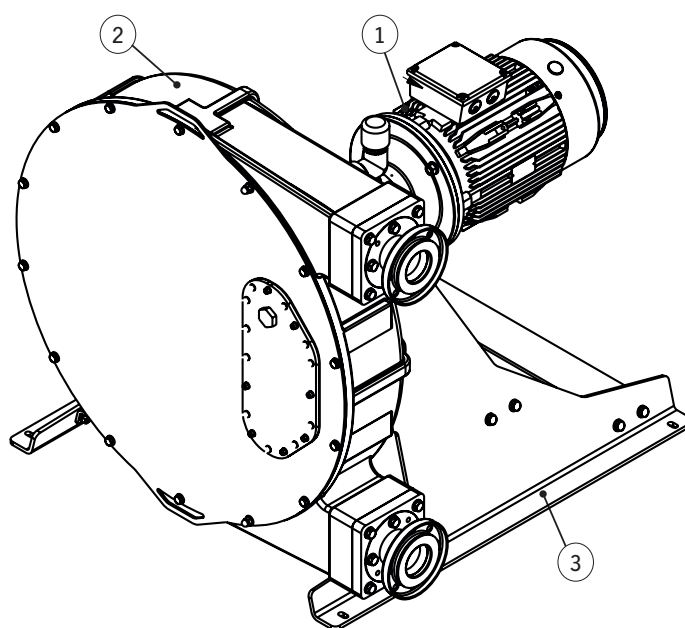
The RBT Series has been designed for safe and uncomplicated operation, as well as straightforward maintenance.

The RBT Series can be used for many different media. However, this pump type is often the optimal solution for abrasive, shear-sensitive and viscous media.

Typical areas of use include processes where only a low discharge pressure is required (max. 15 bar).

3.1. Main modules:

1. Drive Unit
2. Housing
3. Base frame

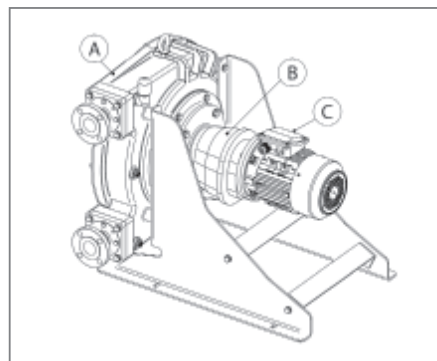


| DESCRIPTION | UNIT | RBT-25 | RBT-32 | RBT-40 | RBT-60 | RBT-70 | RBT-80 | RBT-100 |
|-----------------------------------|-------------------|------------|------------|------------|------------|------------|------------|------------|
| Max. capacity continuous | m ³ /h | 1,08 | 1,86 | 4,79 | 10,83 | 18,09 | 28,08 | 36,00 |
| | GPM | 4,76 | 8,19 | 21,09 | 47,68 | 79,65 | 123,63 | 158,50 |
| Max. capacity intermittent | m ³ /h | 1,44 | 2,98 | 6,38 | 12,99 | 24,12 | 42,12 | 48,00 |
| | GPM | 6,34 | 13,12 | 28,09 | 57,19 | 106,19 | 185,45 | 211,34 |
| Capacity per revolution | l/rev | 0,3 | 0,62 | 1,33 | 3,61 | 6,7 | 11,7 | 20 |
| | Gal/rev | 0,079 | 0,164 | 0,351 | 0,954 | 1,770 | 3,091 | 5,283 |
| Max. permissible working pressure | bar | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Permissible ambient temperature | °C | -10 to +45 | -10 to +45 | -10 to +45 | -10 to +45 | -10 to +45 | -10 to +45 | -10 to +45 |
| Permissible product temperature | °C | -10 to +80 | -10 to +80 | -10 to +80 | -10 to +80 | -10 to +80 | -10 to +80 | -10 to +80 |
| Sound level at 1m | dB (A) | 70 | 70 | 70 | 70 | 70 | 70 | 70 |

4. DESCRIPTION

4.1. Identification of the product

- A: Pump head
- B: Gearbox
- C: Electric motor



4.2. Identification of the pump

- MOD: Type number
- Nº: Serial number
- YEAR: Year of manufacture



4.3. Identification of the gearbox (B)

The gearbox has an identity plate with the model, serial number and manufacturer's details as well as information relevant to its function such as reduction ratio.

4.4. Identification of the electric motor (C)

The motor has an identity plate with the model, serial number and manufacturer's details as well as information relevant to its function such as electric power.

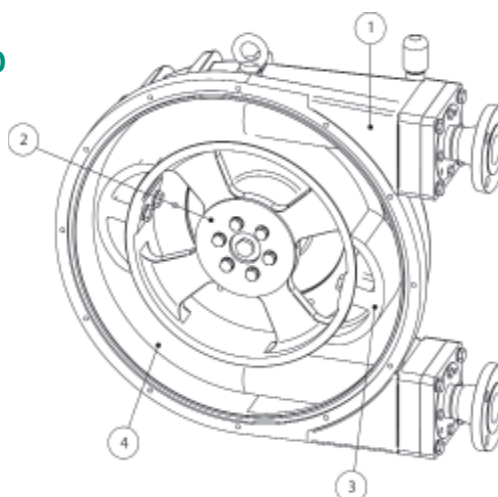
5. CONSTRUCTION

The pump housing is closed off with a bolted front cover in order to avoid the risk of injury. The motor serves to drive the rotor. Two shoes attached to the rotor serve to press the pump hose against the pump housing.

The rotary movement of the rotor alternately presses and releases the shoes against the pump hose. This serves to suck the media and convey it into the metering line.

5.1. Diagram of functional princip

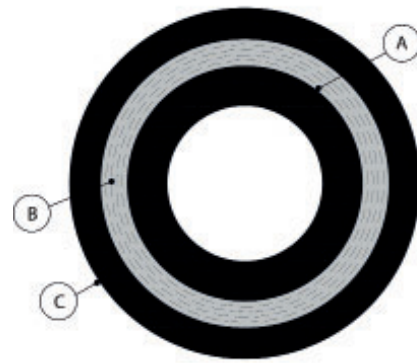
- 1. Housing
- 2. Rotor
- 3. Shoes
- 4. Hose



6. PUMP HOSE

6.1. General

- A: Inner layer
- B: Nylon reinforcement layers
- C: Outer layer



The pump hose liner material should be chemically resistant with the product to be pumped. Depending on the specific requirements of your application a corresponding pump hose must be selected. For each pump model various hose types are available.

The material of inner lines is the part in contact with the media.

| HOSE TYPE | MATERIAL INNER LINER | COLOUR STRIPE |
|-----------|----------------------|----------------|
| NR | Natural rubber | No one (black) |
| NBR | Nitrile rubber | Red |
| NBR-A | Nitrile rubber (FDA) | White |
| EPDM | EPDM | Blue |
| CSM | Hypalon | Green |

7. TRANSPORT AND STORAGE

7.1. Transport

- The pump is protected by cardboard packaging or a wooden crate.
- The packaging materials are recyclable.

7.2. Storage for less than 1 month

- The pump should be in a resting position, rotor in horizontal position.
- Avoid areas open to harsh weather or excessive humidity and temperatures lower than 0°C or higher than 30°C.
- Spare hoses should be stored in a dry place away from direct light.

7.3. Storage for more than 1 month

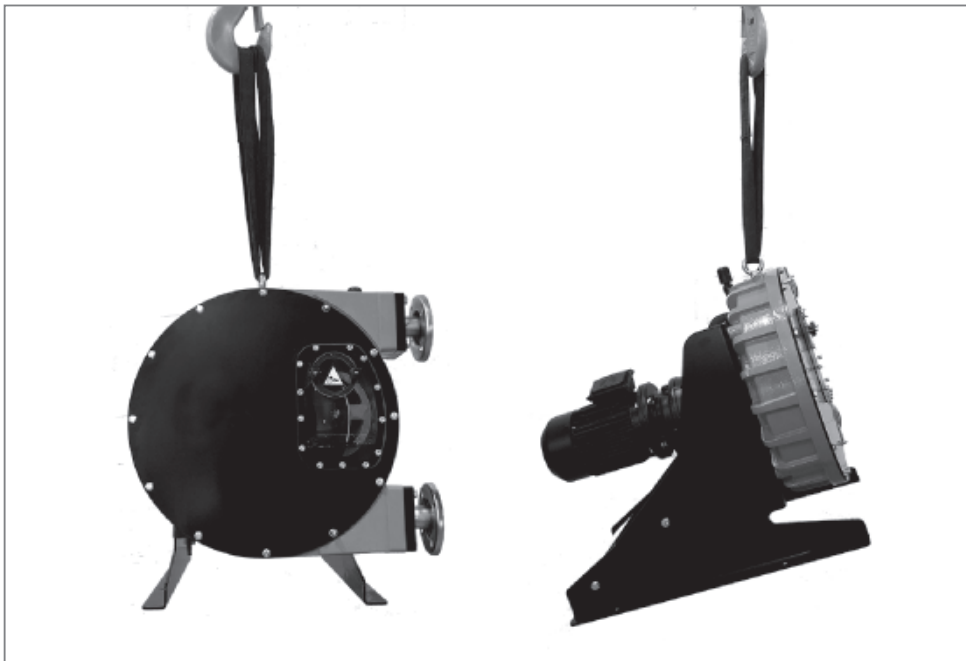
- Avoid areas open to harsh weather or excessive humidity and temperatures lower than 0°C or higher than 30°C.
- **IMPORTANT** Disassemble one of the shoes (see also section 9.4.1 for instructions):
 - Remove the front cover.
 - Remove a shoe (the shoe that is not touching the pump hose).
 - Mount the front cover.
 - Turn the rotor with the help of the motor so that the remaining shoe is not pressing against the pump hose.
- For storage periods of longer than 30 days, protect the coupling surfaces (clamps, reducers, motors) with adequate anti-rust protection.
- For storage periods longer than 6 months rotate the rotor a few turns to prevent damage to bearings and oil seals and to prevent grease migration.
- Spare hoses should be stored in a dry place away from direct light.

7.4. Elevation

Models RBT- 25, RBT-32, RBT-40

| Weights | RBT-25 | RBT-32 | RBT-40 |
|----------------------------------|---------|---------|---------|
| Total pump weight | 96 kg | 145 kg | 196 kg |
| | 211 lbs | 319 lbs | 432 lbs |
| Max. rating of the lifting point | 170 kg | 170 kg | 240 kg |
| | 374 lbs | 374 lbs | 529 lbs |
| Safety factor | 6 | 6 | 6 |

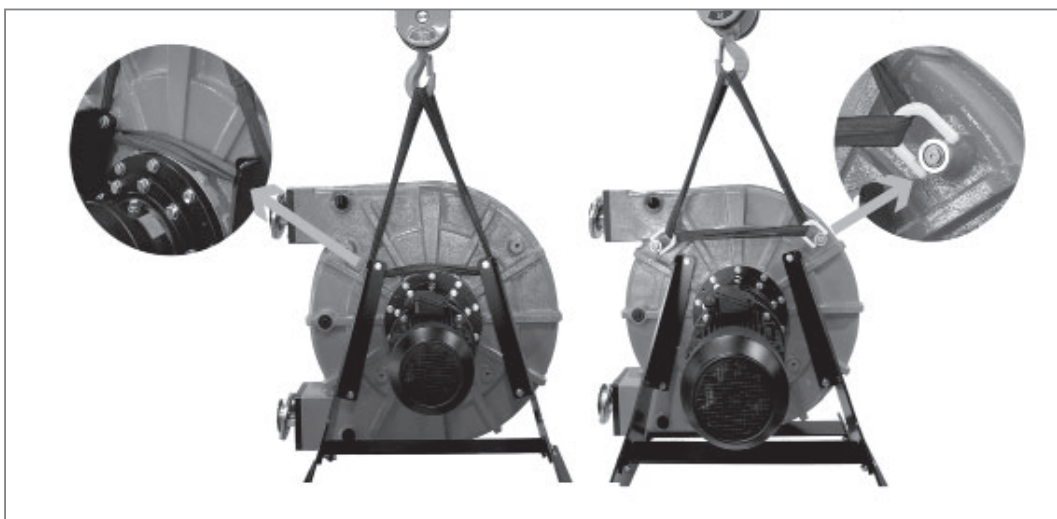
- To elevate the pump use the eye bolt.



Models RBT-60, RBT-70, RBT-80 and RBT-100

| Weights | RBT-60 | RBT-70 | RBT-80 | RBT-100 |
|----------------------------------|---------|----------|----------|----------|
| Total pump weight | 346 kg | 642 kg | 1150 kg | 1375 kg |
| | 762 lbs | 1415 lbs | 2535 lbs | 3031 lbs |
| Max. rating of the lifting point | 400 kg | 750 kg | 1280 kg | 1525 kg |
| | 881 lbs | 1653 lbs | 2821 lbs | 3362 lbs |
| Safety factor | >6 | >6 | 6 | 5 |

- To elevate the pump, it is necessary to use lifting equipment.



8. ASSEMBLY, COMMISSIONING AND INSTALLATION

8.1. Ambient conditions

Assembly is to be carried out in the following order.

If the pump has to be installed outdoors, then it is to be equipped with protection against sunlight and weather influences.

When positioning the pump, ensure that sufficient room for access is provided for all types of maintenance work.

Limit values for hose temperature and pressure.

| Hose Material | Min. Temp. (°C) Feed chemical | Max. Temp (°C) Feed chemical | Min. Temp (°C) Environment | Max. Pressure (bar) |
|---------------|----------------------------------|---------------------------------|-------------------------------|------------------------|
| NR | - 10 | 80* | - 20 | 15 |
| NBR | - 10 | 80* | - 20 | 15 |
| NBR-A | - 10 | 80* | - 20 | 15 |
| EPDM | - 10 | 80* | - 20 | 15 |
| CSM | - 10 | 80* | - 20 | 15 |

* At max. temperature, the life of hose is drastically reduced.

Please contact BOYSER for applications with feed chemical temperature higher than 60°.

8.2. Commissioning

8.2.1. Testing prior to commissioning the pump

The following tests are to be carried out:

- Check that the shoes are correctly fitted and fastened.
- Check that the drive and the pump housing are properly lubricated. The specially formulated lubricant can be obtained from BOYSER or from the authorized distributor.
- Only switch the pump on if the front cover has been properly attached.
- Check that the mains voltage is suitable for the motor.
- Check that the thermal overload protection (not included in the delivery scope) corresponds to the value specified on the motor type plate.
- Confirm that pump has been properly earthed.
- Connect the electric motor according to local applicable rules and regulations. The electrical installation work must be carried out by qualified personnel.
- Check that the optional electrical components are connected and are working properly.
- Check whether the direction of rotation is correctly adjusted.

8.3. Correct installation of the pump

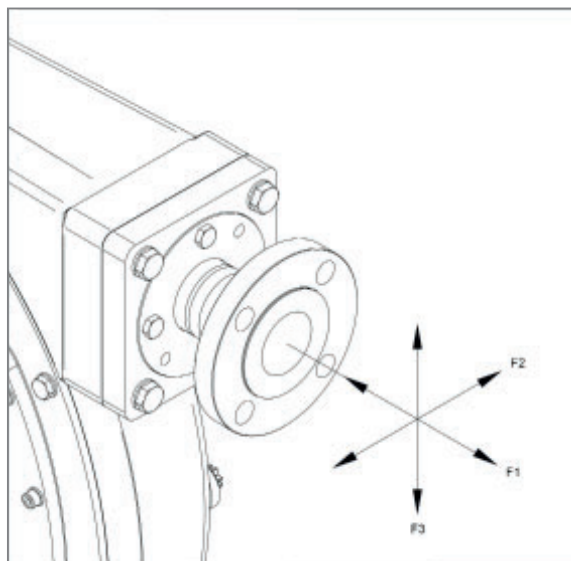
- Ensure that the pump has not been damaged during transportation or storage. Immediately report any damage to the supplier.
- Ensure that all the packaging has been removed.
- Check that the information printed on the identification plate corresponds with the order.
- Check the operating instructions in order to ensure that the flow values, pressures and power consumption of the motor do not exceed rated values.
- Ensure that the hose is suitable for the fluid to be conveyed and that it is not damaged.
- Make sure that the temperature of the liquid does not exceed the recommended temperature range.
- Ensure that there is enough space for free airflow around the motor.
- Ensure that no nearby objects or direct sunshine radiate additional heat to the motor.

8.3.1. Suction side

- Install a manometer in the pressure line if the back-pressure value is unknown. Maximum pressure on suction/inlet side is 3 bar (45 psi approx.) and maximum pressure on suction/inlet side is 0,5 bar (7,25 psi approx.) only in pumps with Norprene tube).
- The pump is to be positioned as near as possible to the liquid container, so that the suction side is kept as short and straight as possible.
- The suction line must be absolutely airtight and made of a suitable material, so that it does not collapse under vacuum.
- The diameter must correspond to the rated diameter of the pump hose. A larger diameter is recommended in the event of viscous liquids.
- The pump is self-priming and does not require an admission valve.
- The pump is reversible and the suction side can be connected to either hydraulic connection of the pump. Normally the option is selected which is best suited to the physical conditions of the rest of the installation.
- It is recommended to use flexible piping between the fixed pipes and the hydraulic connections of the pump, in order to avoid the transmission of vibrations.

8.3.2. Maximum permissible loads on the pump connection

- Pump must be bolted to floor before applying loads to connections/flanges.



| | | RBT-25 | RBT-32 | RBT-40 | RBT-60 | RBT-70 | RBT-80 | RBT-100 |
|----|------|--------|--------|--------|--------|--------|--------|---------|
| F1 | N | 600 | 600 | 900 | 1200 | 1300 | 1500 | 1700 |
| | lb-f | 135 | 135 | 202 | 270 | 292 | 337 | 382 |
| F2 | N | 300 | 300 | 450 | 600 | 650 | 750 | 850 |
| | lb-f | 67 | 67 | 101 | 135 | 146 | 167 | 191 |
| F3 | N | 120 | 120 | 450 | 600 | 650 | 750 | 850 |
| | lb-f | 27 | 27 | 101 | 135 | 146 | 167 | 191 |

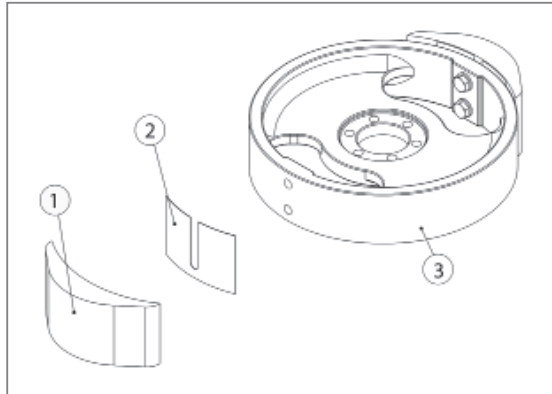
8.3.3. Discharge side

- The discharge line is to be kept as straight and short as possible, in order to avoid performance reduction.
- The diameter must correspond to the rated diameter of the pump hose. A larger diameter is recommended in the event of viscous liquids.
- It is recommended to use flexible piping between the fixed pipes and the hydraulic connections of the pump, in order to avoid the transmission of vibrations.
- Install a pressure relief valve or a pressure switch (or similar device) in the pressure line in order to protect the pump in the event that a valve is unintentionally closed off or the line is blocked in another way.

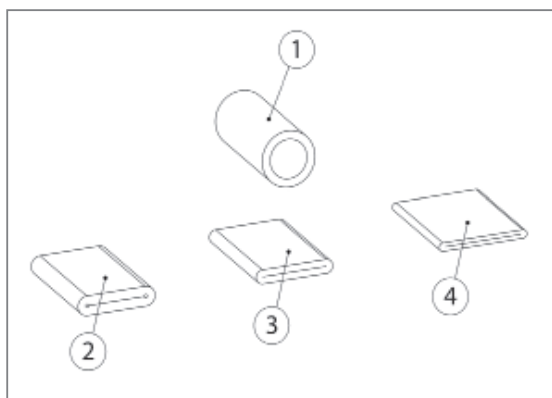
8.4. Adjusting the shoe pressure

- The peristaltic pump is equipped with shims, in order to adjust the precise distance from the axis of rotation to the shoe for correct hose compression (also dependent on speed and operating pressure).

- In order to achieve optimal life of the pump hose, the compression force of the pump hose can be adjusted by placing a number of shims under the pressing shoe. The shims (2) are fitted between the rotor (1) and the pressing shoe (3). The number of shims will vary for each counter pressure situation.



Shims placement



Squeezing the hose



1. Hose in normal shape.
2. Insufficient squeezing (back flowing media in the cavity will destroy the hose within a short period of time).
3. Perfect squeezing.
4. Excessive squeezing (increased wear and tear to pump and hose).

The shims are fitted in the factory. The number of shims can be adapted to the actual operating conditions according to the following tables.

8.4.1. RBT-25 Model

a) NR, NBR, EPDM, CSM and NBR-A:

Number of shims of 0,5 mm thickness (part number 100.01.13) in each location (i.e. multiply by 2 for total quantity). NOTE: for fluid temperatures >60°C, reduce shim quantities by 1. Halar coated pumps, reduce shim quantities by 1.

| RBT-25 | | rev/min | | | | |
|--------|------|---------|-------|-------|-------|-------|
| | | 0-19 | 20-39 | 40-59 | 60-79 | 80-99 |
| bar | 0,5 | 1 | 1 | 1 | 0 | 0 |
| | 2,5 | 1 | 1 | 1 | 1 | 1 |
| | 5,0* | 2 | 2 | 2 | 2 | 2 |
| | 7,5 | 4 | 3 | 3 | 3 | 3 |
| | 10,0 | 5 | 4 | 4 | 4 | 4 |
| | 12,5 | 6 | 5 | 5 | 5 | 4 |
| | 15,0 | 7 | 6 | 6 | 6 | -- |

*Factory default setting if working pressure is not informed

8.4.2. RBT-32 Model

a) NR, NBR, EPDM, CSM and NBR-A:

Number of shims of 0,5 mm thickness (part number 104.01.13) in each location (i.e. multiply by 2 for total quantity). NOTE: for fluid temperatures >60°C, reduce shim quantities by 1. Halar coated pumps, reduce shim quantities by 1.

| RBT-32 | | rev/min | | | | |
|--------|------|---------|-------|-------|-------|-------|
| | | 0-19 | 20-39 | 40-59 | 60-79 | 80-99 |
| bar | 0,5 | 0 | 0 | 0 | 0 | 0 |
| | 2,5 | 0 | 0 | 0 | 0 | 0 |
| | 5,0* | 1 | 1 | 1 | 0 | 0 |
| | 7,5 | 2 | 1 | 1 | 1 | 0 |
| | 10,0 | 2 | 2 | 2 | 1 | 1 |
| | 12,5 | 3 | 3 | 3 | 2 | 2 |
| | 15,0 | 4 | 4 | 4 | 3 | -- |

*Factory default setting if working pressure is not informed

8.4.3. RBT-40 Model

a) NR, NBR, EPDM, CSM and NBR-A:

Number of shims of 0,5 mm thickness (part number 109.00.04) in each location (i.e. multiply by 2 for total quantity). NOTE: for fluid temperatures >60°C, reduce shim quantities by 1. Halar coated pumps, reduce shim quantities by 1.

| RBT-40 | | rev/min | | | | |
|--------|------|---------|-------|-------|-------|-------|
| | | 0-19 | 20-39 | 40-59 | 60-79 | 80-99 |
| bar | 0,5 | 3 | 3 | 2 | 2 | 2 |
| | 2,5 | 4 | 3 | 3 | 3 | -- |
| | 5,0* | 5 | 4 | 4 | 4 | -- |
| | 7,5 | 5 | 5 | 5 | -- | -- |
| | 10,0 | 6 | 6 | 5 | -- | -- |
| | 12,5 | 7 | 7 | 6 | -- | -- |
| | 15,0 | 8 | 8 | -- | -- | -- |

*Factory default setting if working pressure is not informed.

8.4.4. RBT-60 Model

a) NR, NBR, EPDM, CSM and NBR-A:

Number of shims of 0,5 mm thickness (part number 111.00.47) in each location (i.e. multiply by 2 for total quantity). NOTE: for fluid temperatures >60°C, reduce shim quantities by 1. Halar coated pumps, reduce shim quantities by 1.

| RBT-60 | | rev/min | | | | |
|--------|------|---------|-------|-------|-------|-------|
| | | 0-19 | 20-39 | 40-59 | 60-79 | 80-99 |
| bar | 0,5 | 0 | 0 | 0 | 0 | 0 |
| | 2,5 | 0 | 0 | 0 | 0 | 0 |
| | 5,0* | 2 | 2 | 0 | 0 | 0 |
| | 7,5 | 2 | 2 | 2 | 2 | 2 |
| | 10,0 | 4 | 4 | 2 | 2 | -- |
| | 12,5 | 4 | 4 | 4 | 4 | -- |
| | 15,0 | 4 | 4 | 4 | -- | -- |

*Factory default setting if working pressure is not informed.

8.4.5. RBT-70 Model**a) NR, NBR, EPDM, CSM and NBR-A:**

Number of shims of 0,5 mm thickness (part number 114.00.03) in each location (i.e. multiply by 2 for total quantity). NOTE: for fluid temperatures >60°C, reduce shim quantities by 1. Halar coated pumps, reduce shim quantities by 1.

| RBT-70 | | rev/min | | | | |
|--------|------|---------|-------|-------|-------|-------|
| | | 0-19 | 20-39 | 40-59 | 60-79 | 80-99 |
| bar | 0,5 | 1 | 1 | 1 | 0 | 0 |
| | 2,5 | 2 | 2 | 2 | 1 | -- |
| | 5,0* | 3 | 3 | 3 | 2 | -- |
| | 7,5 | 4 | 4 | 4 | -- | -- |
| | 10,0 | 5 | 5 | 5 | -- | -- |
| | 12,5 | 6 | 6 | 6 | -- | -- |
| | 15,0 | 7 | 7 | -- | -- | -- |

*Factory default setting if working pressure is not informed.

8.4.6. RBT-80 Model**a) NR, NBR, EPDM, CSM and NBR-A:**

Number of shims of 0,5 mm thickness (part number 118.00.49) in each location (i.e. multiply by 2 for total quantity). NOTE: for fluid temperatures >60°C, reduce shim quantities by 1. Halar coated pumps, reduce shim quantities by 1.

| RBT-80 | | rev/min | | | | |
|--------|------|---------|-------|-------|-------|-------|
| | | 0-19 | 20-39 | 40-59 | 60-79 | 80-99 |
| bar | 0,5 | 7 | 6 | -- | -- | -- |
| | 2,5 | 8 | 7 | -- | -- | -- |
| | 5,0* | 9 | 8 | -- | -- | -- |
| | 7,5 | 10 | 10 | -- | -- | -- |
| | 10,0 | 12 | 11 | -- | -- | -- |
| | 12,5 | 13 | 12 | -- | -- | -- |
| | 15,0 | 14 | 13 | -- | -- | -- |

*Factory default setting if working pressure is not informed.

8.4.7 RBT-100 Model

a) NR, NBR, EPDM, CSM and NBR-A:

Number of shims of 0,5 mm thickness (part number 119.00.07) in each location (i.e. multiply by 2 for total quantity). NOTE: for fluid temperatures >60°C, reduce shim quantities by 1. Halar coated pumps, reduce shim quantities by 1.

| RBT-100 | | rev/min | | | | |
|---------|------|---------|-------|-------|-------|-------|
| | | 0-19 | 20-39 | 40-59 | 60-79 | 80-99 |
| bar | 0,5 | 3 | 1 | -- | -- | -- |
| | 2,5 | 3 | 1 | -- | -- | -- |
| | 5,0* | 5 | 4 | -- | -- | -- |
| | 7,5 | 5 | 4 | -- | -- | -- |
| | 10,0 | 7 | 4 | -- | -- | -- |
| | 12,5 | 9 | -- | -- | -- | -- |
| | 15,0 | 11 | -- | 6 | -- | -- |

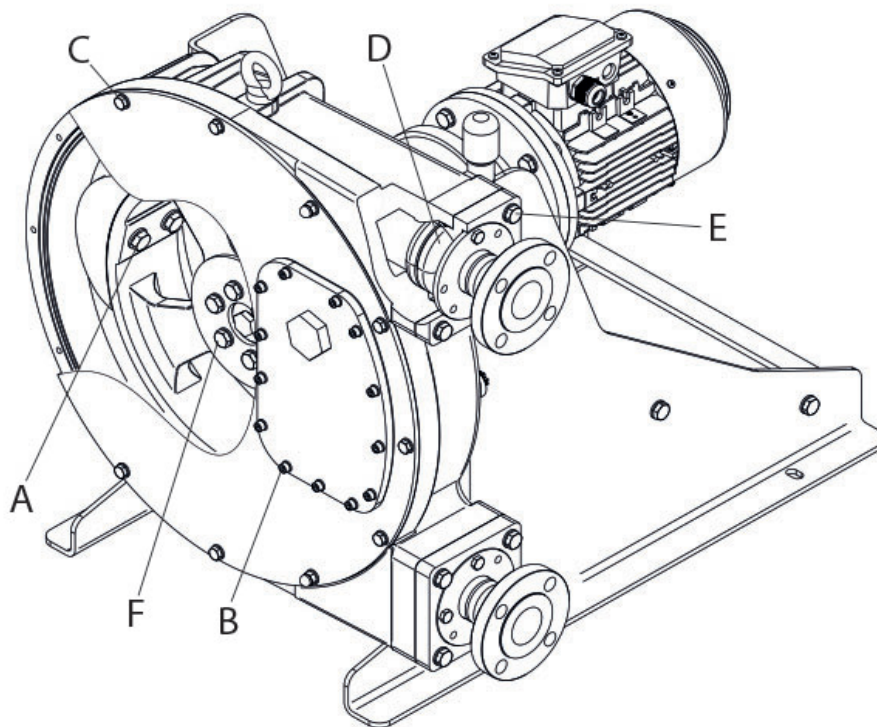
*Factory default setting if working pressure is not informed.

9. MAINTENANCE

9.1. Components weights

| | RBT-25 | RBT-32 | RBT-40 | RBT-60 | RBT-70 | RBT-80 | RBT-100 |
|--------------|---------|---------|---------|----------|----------|----------|----------|
| Total Weight | 96 kg | 145 kg | 196 kg | 346 kg | 642 kg | 1150 kg | 1375 kg |
| | 211 lbs | 319 lbs | 432 lbs | 762 lbs | 1415 lbs | 2535 lbs | 3031 lbs |
| Pump Cover | 5.1 kg | 7.7 kg | 10,6 kg | 14,5 kg | 32,4 kg | 42,8 kg | 58,3 kg |
| | 11 lbs | 16 lbs | 23 lbs | 31 lbs | 71 lbs | 94 lbs | 128 lbs |
| Shoe | 0,4 kg | 0,6 kg | 1,6 kg | 3,4 kg | 6,5 kg | 14,2 kg | 21,9 kg |
| | 0,9 lbs | 1,3 lbs | 3,5 lbs | 7,5 lbs | 14,3 lbs | 31,3 lbs | 48,3 lbs |
| Connection | 0,2 kg | 0,2 kg | 1,4 kg | 1,9 kg | 3,2 kg | 5,4 kg | 7,0 kg |
| | 0,4 lbs | 0,4 lbs | 3,1 lbs | 4,2 lbs | 7,1 lbs | 11,9 lbs | 15,4 lbs |
| Press Flange | 2,3 kg | 2,8 kg | 2,0 kg | 3,9 kg | 3,9 kg | 9,0 kg | 12,9 kg |
| | 5,1 lbs | 6,2 lbs | 4,4 lbs | 8,6 lbs | 8,6 lbs | 19,8 lbs | 28,4 lbs |
| Hose | 1,8 kg | 2,7 kg | 3,1 kg | 6,3 kg | 11,2 kg | 19 kg | 28 kg |
| | 3,9 lbs | 5,6 lbs | 6,8 lbs | 13,9 lbs | 24,7 lbs | 42 lbs | 62 lbs |

9.2. Torque values



| Description | | RBT-25 | RBT-32 | RBT-40 | RBT-60 | RBT-70 | RBT-80 | RBT-100 |
|-------------|-------------------------|----------------------------------|----------------------------------|-----------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| A | Shoe support bolts* | 29 M8 13 mm spanner | 46 M12 19 mm spanner | 46 M12 19 mm spanner | 53 M16 10.9 24 mm spanner | 53 M16 10.9 24 mm spanner | 59 M18 10.9 27 mm Spanner | 59 M18 10.9 27 mm Spanner |
| B | Inspection cover bolts* | 2 M6 5 mm A/F allen key | 2 M6 5 mm A/F allen key | 2 M6 5 mm A/F allen key | 4 M8 6 mm A/F allen key | 2 M6 5 mm A/F allen key | 2 M6 5 mm A/F allen key | 4 M8 6 mm A/F allen key |
| C | Cover bolts* | 29 M8 13 mm spanner | 43 M10 17 mm spanner | 29 M8 13 mm spanner | 43 M10 17 mm spanner | 46 M12 19 mm spanner | 46 M12 19 mm spanner | 46 M12 19 mm spanner |
| D | Hose clamp* | Manual, no bolts | Manual, no bolts | Manual, no bolts | Manual, no bolts | Manual, no bolts | Manual, no bolts | Manual, no bolts |
| E | Flange bracket bolts* | 29 M8 13 mm spanner | 43 M10 17 mm spanner | 43 M10 17 mm spanner | 46 M12 19 mm spanner | 46 M12 19 mm spanner | 49 M14 22 mm spanner | 49 M14 22 mm spanner |
| F | Drive shaft bolts* | 29 M8 13 mm spanner | 29 M8 13 mm spanner | 37 M8 10.9 13 mm spanner | 46 M12 10.9 19 mm spanner | 46 M12 10.9 19 mm spanner | 59 M18 8.8 27 mm spanner | 59 M18 10.9 27 mm spanner |

*Units: Nm

9.3. Lubrication and cooling

The pump head is filled with our genuine hose lubricant. This lubricant lubricates and disperses the heat generated by the movement of the pressing shoes against the pump hose.

Lubricant quantity table

| | Unit | RBT-25 | RBT-32 | RBT-40 | RBT-60 | RBT-70 | RBT-80 | RBT-100 |
|-------------------|---------|--------|--------|--------|--------|--------|--------|---------|
| Lubricant | - | Boyser | Boyser | Boyser | Boyser | Boyser | Boyser | Boyser |
| Required quantity | Liters | 2 | 3 | 5 | 10 | 30 | 45 | 70 |
| | Gallons | 0,5 | 0,8 | 1,3 | 2,6 | 7,9 | 11,9 | 18,5 |

Check that the level of lubricant in the casing of the pump is correct

- The correct level is shown on the inspection window cover installed on the front cover. Add lubricant if necessary.
- The lubricant must be replaced each time that pump hose is replaced.
- The specially formulated lubricant can be obtained from BOYSER or from authorized distributor. The use of this lubricant ensures a longer life of the hose.

9.3.1. Changing oil in gearbox

The instructions manual of the gearbox are usually delivered with the IOM of the Boyser pump.

Some models of gearbox are lubricated for life, other models of gear reducers require regular maintenance according to the instructions manual of the gear reducer manufacturer.

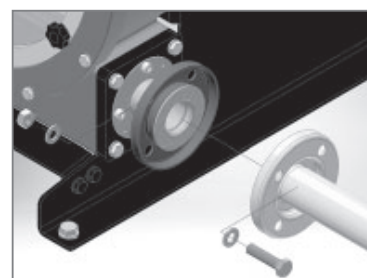
In case of doubt, please contact the gearbox manufacturer or their authorised distributor in your country.

9.4. Exchanging the pump hoses

9.4.1. Dismantling

Close off all valves, in order to prevent leakage of the feed chemical.

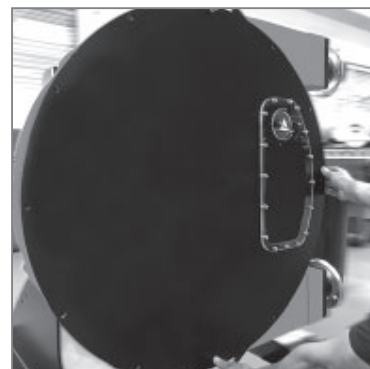
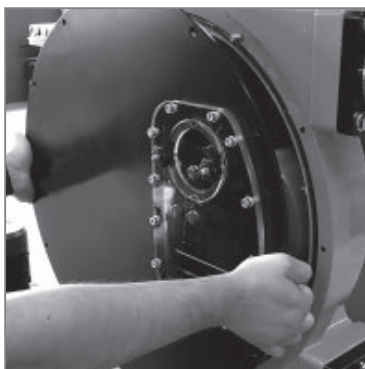
1. Dismantle the pipes from both discharge and suction sides.



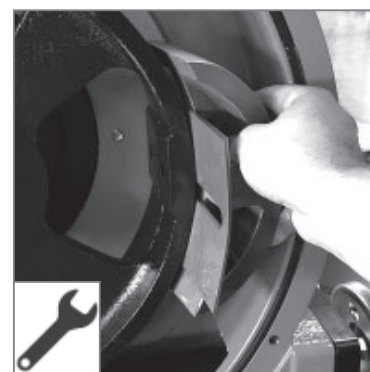
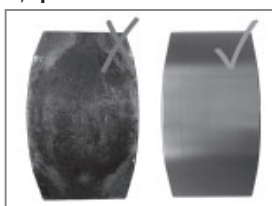
2. Empty all lubricating liquid from the pump housing by removing the lower drain plug. The 3 drain plugs are located at the rear of the pump housing. Remove the lower drain plug, located behind the lower connection.



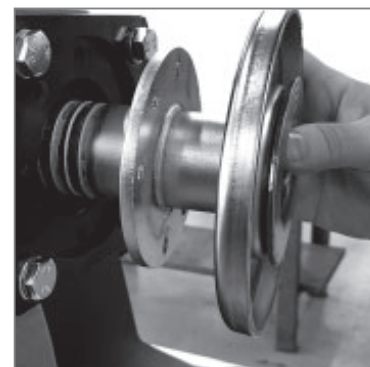
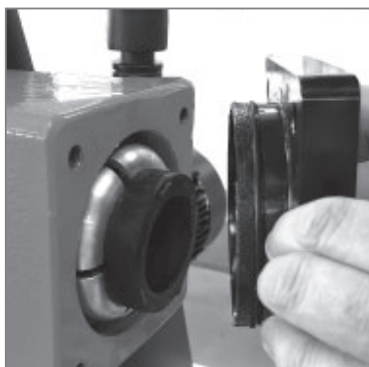
3. Remove the front cover.
Front covers of RBT-25, RBT-32, RBT-40 and RBT-60 can be removed manually (<20 kg).
Lifting equipment must be used to remove the front covers of RBT-70, RBT-80 and RBT-100.



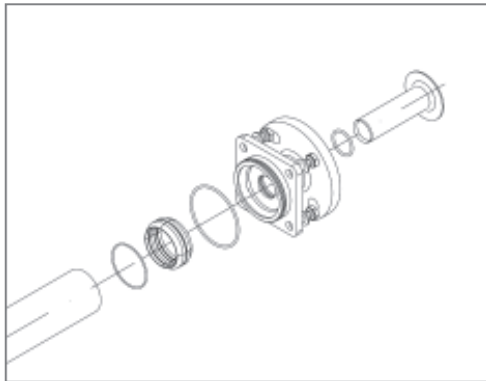
4. Remove the shoe incl. the shims (the shoe that is not touching the hose).
Check the shoe. Ensure that the shoe surfaces are not damaged. Otherwise, please substitute the shoe.



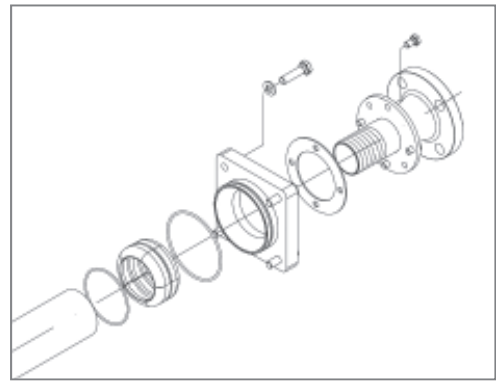
5. Remove the press flange and hydraulic connections from pump housing:



- a. RBT-25, RBT-32 have flanges and Inserts.
- b. RBT-40, RBT-60, RBT-70, RBT-80, RBT-100 have flanges.

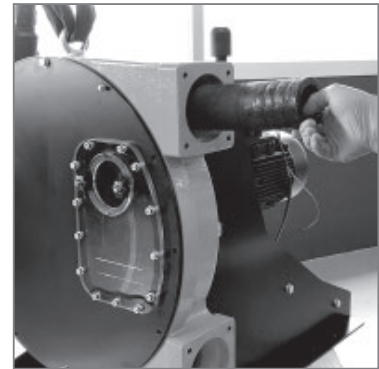


Flange connection with Insert



Flange connection

- 6. Mount the front cover.
- 7. Turn the rotor with the help of the motor so that the hose is pushed out through one of the openings.
- 8. Remove the pump hose to be exchanged.
- 9. Dismount the front cover.

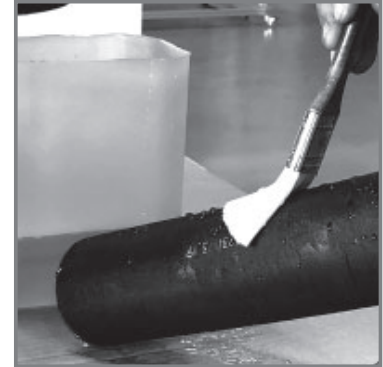


9.4.2. Installation of the new hose

- 1. Rotate the rotor 180° so that the shoe that is still assembled no longer presses the hose.



2. Clean the interior surfaces of the pump housing with a clean dry cloth.
3. Lubricate with our original lubricant the hose and the internal surfaces of the pump housing at the contact surfaces between the pump hose and the external part of the new hose.



4. Mount front cover.
5. Lay the pump hose into the pump housing through the connection holes.

The hoses of the RBT pumps must be manually inserted through the lower opening up to the point where the hose begins to be compressed by the rotor.

Turn the rotor with the help of the motor until the hose has been pulled through the lower opening and until the end of the hose is correctly positioned in the upper opening.

The rotor must only have one shoe attached to safely perform this operation.



6. Lay the press rings. Between the end of the hose and the press ring, there must be a specific distance (see fig. 1 and fig. 2).

| Pump model | Approximate distance outside press ring (Fig. 1) |
|------------|--|
| RBT-25 | 3-7 mm |
| RBT-32 | 3-7 mm |

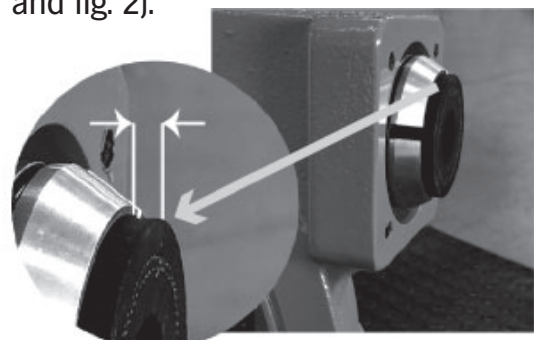


Fig. 1

| Pump model | Approximate distance outside press flange (Fig. 2) |
|------------|--|
| RBT-40 | 5 mm |
| RBT-60 | 6 mm |
| RBT-70 | 7 mm |
| RBT-80 | 10 mm |
| RBT-100 | 10 mm |

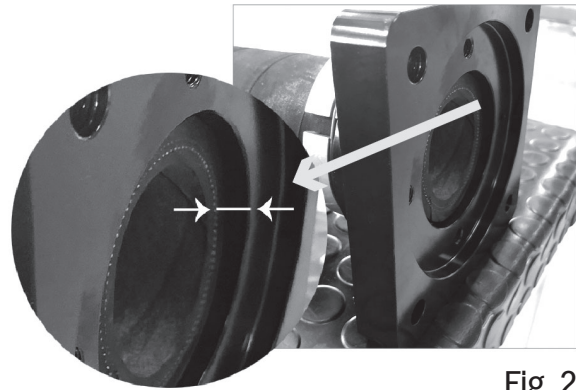
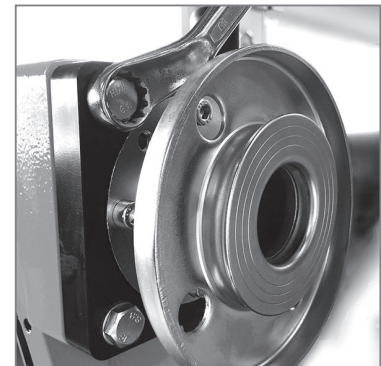
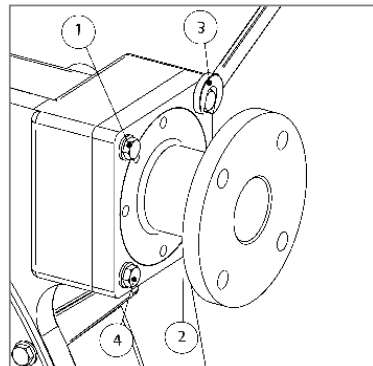


Fig. 2

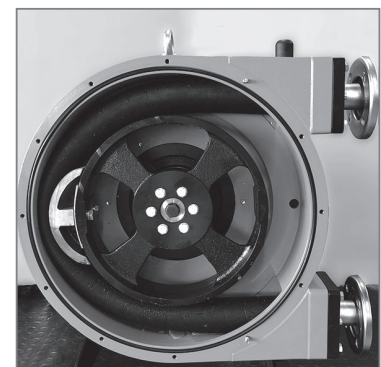
7. Push the barb of the connection into the hose (apply a little grease on the shaft if there is too much interference). Tighten the four allen bolts.

Fasten the press flange and the connections to the pump casing and tighten progressively the bolts in a star pattern (1, 2, 3, 4 - 1, 2, 3, 4, etc.), until the flange is fully tightened.

Way to proceed with the screws tightening



8. Mount the front cover.
9. Turn the rotor with the help of the motor so that the remaining shoe presses against the pump hose.



10. Dismount the front cover.

11. Re-attach the second shoe with shims back onto the rotor.

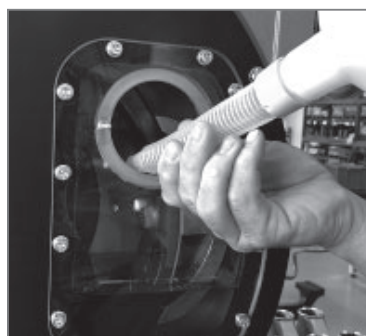


12. Fix the lower drain plug.



13. Attach the front cover to the pump housing.

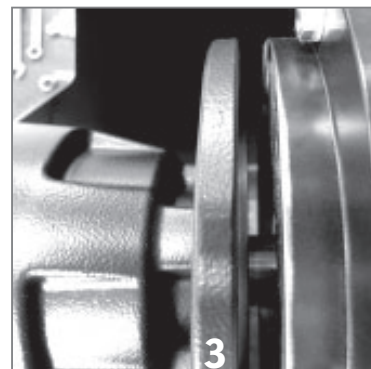
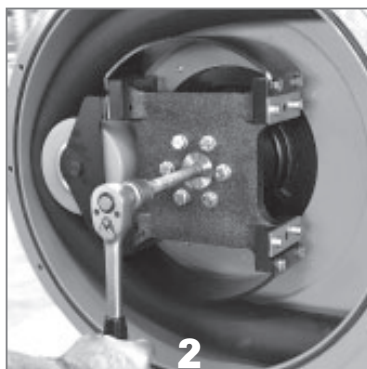
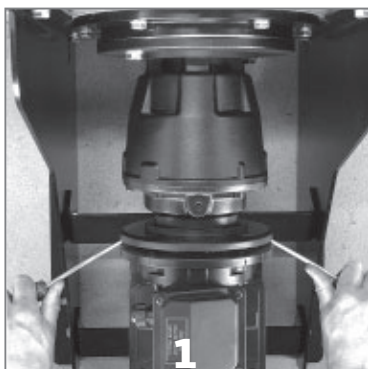
14. Fill the body of the pump with lubricant up to the marked level via the upper filling or inspection cover.



15. Mount the pipes from both discharge and suction sides.
16. Open all of the valves.

9.5. Replacement of electric motor and/or gear reducer

For repair or replacement of the electric motor and the gear reducer they could be disassembled from the pump housing. The pump is stable on its baseplate and will not fall over when the electric motor and gear reducer are disassembled. No support set is necessary.



Follow the picture sequence from left to right (1, 2, 3):

- Unbolt and separate motor from gear reducer as in **number 1**.
- Unbolt the gear reducer from the pump's shaft as in **number 2**.
- Unbolt and separate gear reducer from pump housing as in **number 3**.

9.6. Addition of leak detection sensor

The standard drain plug supplied with the RBT pump should be removed from the pump housing.

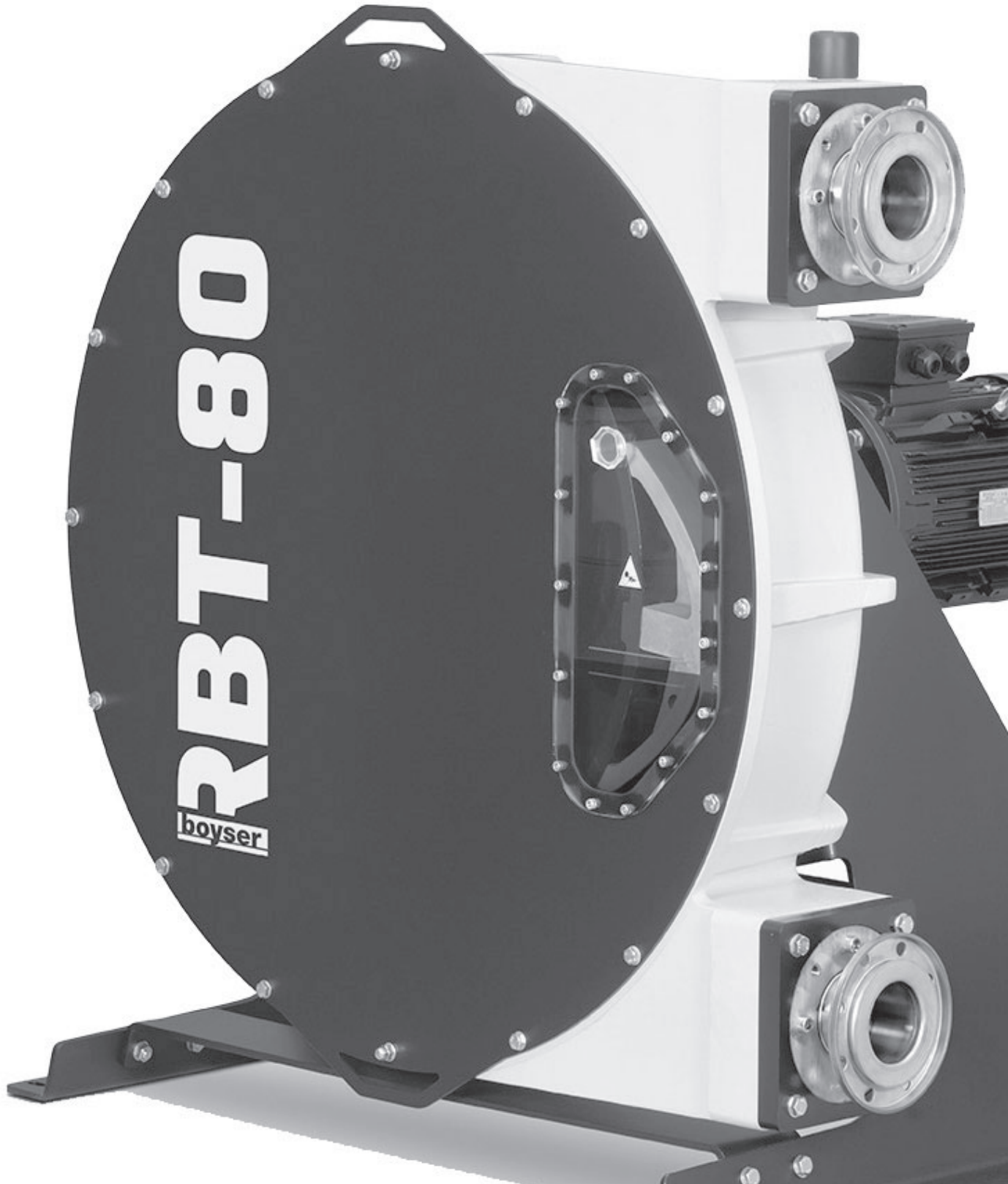
Dismantle and replace elbow with the T-fitting.

Screw electro-optical detector to cap, then attach cap to T-fitting.

Reassemble the breather and detector assembly to the pump housing.



RBT SERIES



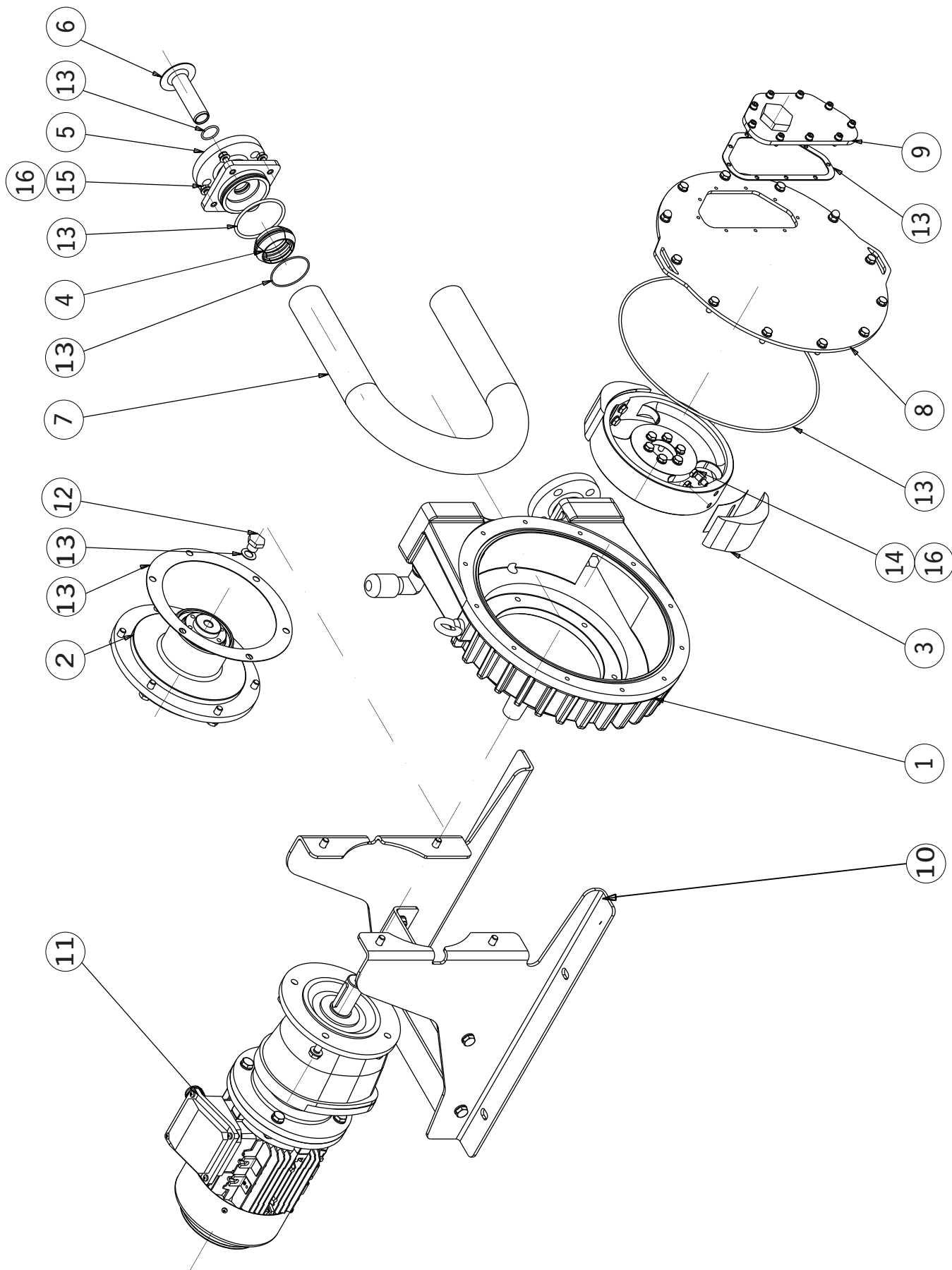
10. Troubleshooting

| Problem | Possible cause | Solution |
|-----------------------------------|---|---|
| Increased pump temperature | Pump hose has no lubricant | Lubricate pump hose |
| | Increased product temperature | Reduce product temperature |
| | Insufficient or poor suction conditions | Check suction line condition |
| | Pump speed too high | Reduce pump speed |
| Reduced flow or pressure | Valves on discharge and or suction side completely or partially closed | Open valves |
| | Pump hose insufficiently compressed | Check number of shims |
| | Pump hose rupture (the product leaks out into the housing) | Exchange pump hose and clean pump |
| | Partial blockage of the suction line | Clean pipe |
| | Insufficient product quantity in storage container | Fill storage container or exchange pump |
| | Insufficient diameter on the suction side | Increase the diameter on the suction side, as far as possible |
| | Suction line too long | Shorten the suction line, as far as possible |
| | High viscosity of medium | Reduce viscosity, as far as possible |
| | Air introduction in the suction connections | Check connections and accessories for air tightness |
| High pulsation on suction | Tighten connections and accessories Mount anti-pulsation equipment Reconsider application (speed, etc.) | |
| Vibrations on pumps and pipelines | The pipes are not correctly fastened | Fasten pipes correctly (e.g. wall brackets) |
| | Pump speed too high | Reduce pump speed |
| | Insufficient nominal width of the pipes | Increase nominal width |
| | Pump base plate loose | Fasten base plate |
| | Pulsation dampers insufficient or missing | Install pulsation dampers on suction and / or discharge side |

| | | |
|---|--|--|
| Short operational lifetime of the hoses | Chemical exposure | Check the compatibility of the hose with the liquid being conveyed, the cleaning fluid and the lubricant |
| | High pump speed | Reduce pump speed |
| | High conveying temperature | Reduce product temperature |
| | High operating pressure | Reduce operating pressure |
| | Pump cavitation | Check the suction conditions |
| | Abnormal elevation of temperature | Check number of shims |
| | Unsuitable lubricant | Use Boyser lubricant |
| | Insufficient quantity of lubricant | Reapply lubricant |
| Pump hose pulled into the pump housing | High inlet pressure (>3 bar) | Reduce inlet pressure |
| | Pump hose filled with deposits | Clean or replace the pump hose |
| | Holder (press flange) insufficiently tightened | Re-tighten holder (press flange) |
| | Insufficient lubricant | Reapply lubricant |
| The pump does not start up | Insufficient motor performance | Check motor and replace if necessary |
| | Insufficient output from frequency converter | The frequency converter must match the motor |
| | Blockage in the pump | Check voltage. Start occurs at minimum 10 Hz |
| | Blockage in the pump | Check if the suction or discharge side is blocked. Rectify blockage |

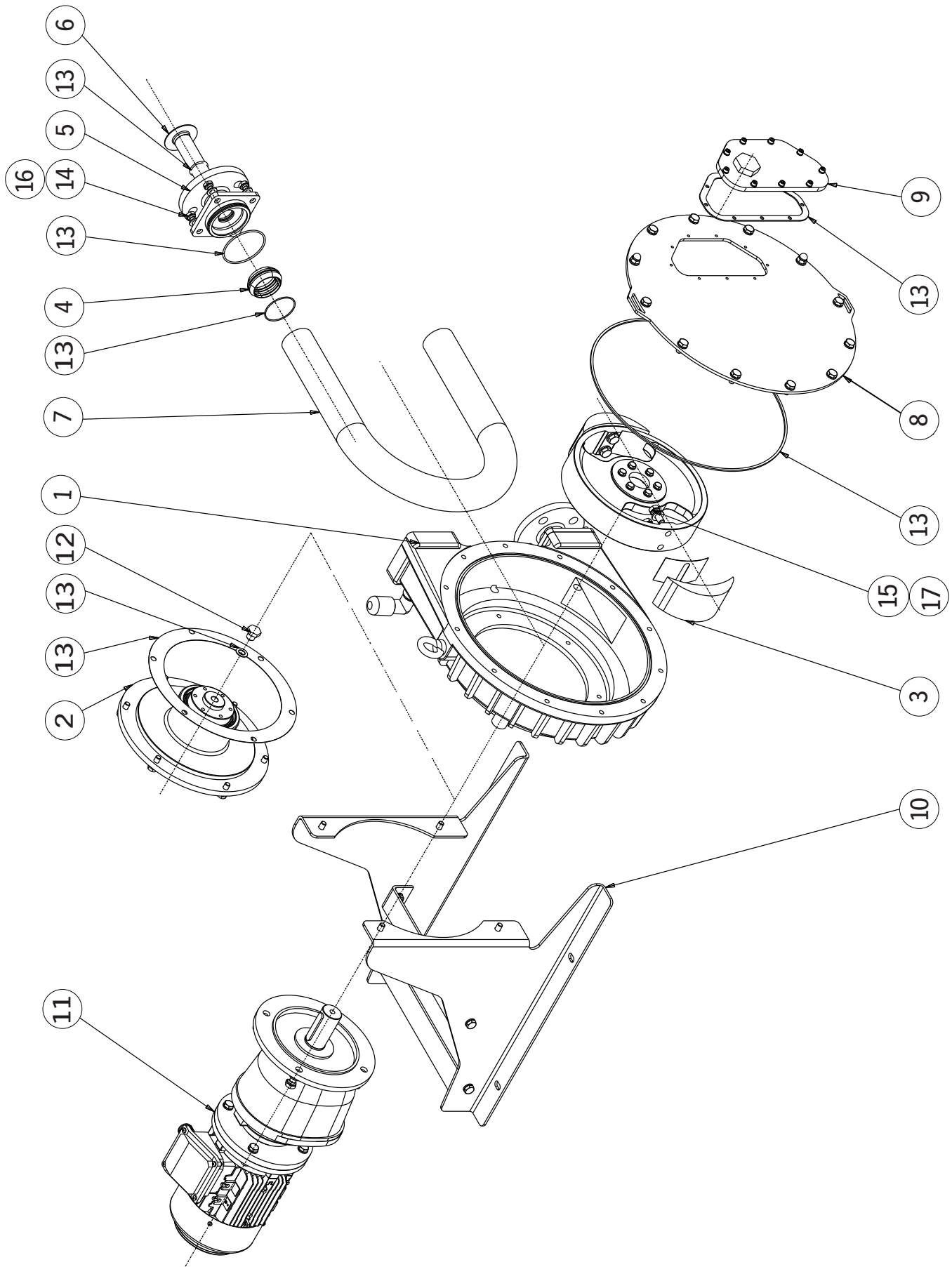
11. Spare parts exploded view

11.1. Spare parts RBT-25 model



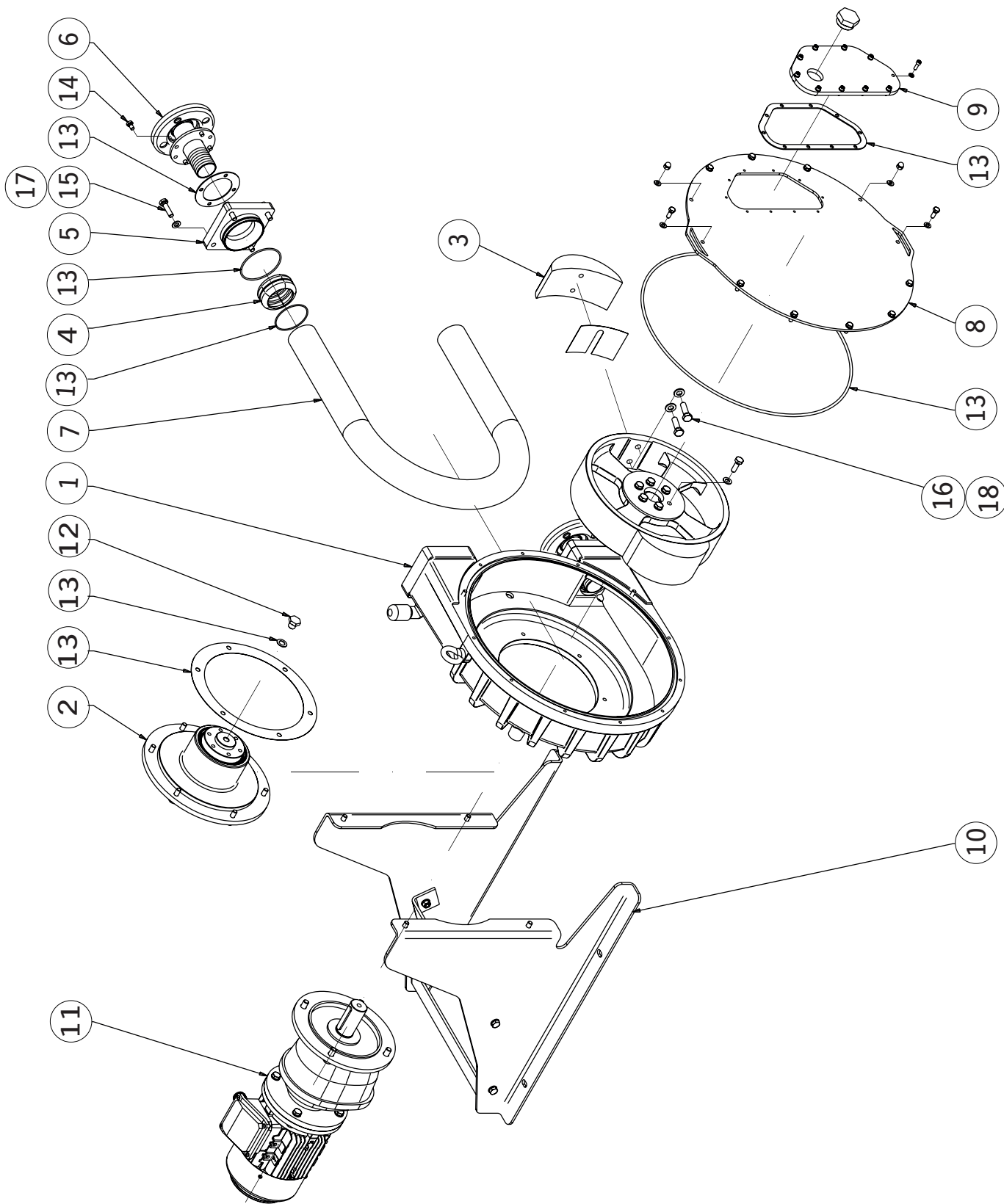
| Pos. | Description | Qty | Article |
|------|--|-----|--------------------|
| 1 | Pump Housing RBT-25B | 1 | 100.01.01 |
| 2 | Bearing Housing Kit RBT-25B | 1 | 100.99.05 |
| 3 | Shoe RBT-25 | 2 | 100.02.17 |
| 4 | Press Ring RBT-25B | 2 | 100.02.05 |
| 5 | Press Flange DIN RBT-25B | 2 | 100.00.06 |
| 5 | Press Flange ANSI 1" RBT-25B | 2 | 100.00.40 |
| 6 | Insertion S.S. RBT-25B | 2 | 100.01.04 |
| 6 | PP Insertion RBT-25B | 2 | 100.00.15 |
| 6 | PVDF Insertion RBT-25B | 2 | 100.00.62 |
| 7 | Peristaltic Hose NR RBT-25B | 1 | 100.01.08 |
| 7 | Peristaltic Hose NBR RBT-25B | 1 | 100.01.09 |
| 7 | Peristaltic Hose EPDM RBT-25B | 1 | 100.01.10 |
| 8 | Front Cover RBT-25B | 1 | 100.01.07 |
| 9 | Inspection Cover RBT-25B | 1 | 100.00.48 |
| 10 | Base set RBT-25B | 1 | |
| 10 | Base set Stainless Steel RBT-25B | 1 | |
| 11 | Driver | 1 | |
| 12 | Bearing Housing Plug | 1 | TORDIN933M16X20PAV |
| 13 | Seal kit RBT-25B | 1 | 100.99.10 |
| 14 | DIN 933 Hexagonal Head Cap Screw M8x30 Grade 8.8 | 4 | TORDIN933M8X30 |
| 15 | DIN 933 Hexagonal Head Cap Screw M8x35 Grade 8.8 | 8 | TORDIN933M8x35 |
| 16 | DIN 125A Flat Washer M8 Grade 8.8 | 12 | ARANDIN125AM8 |

11.2. Spare parts exploded view RBT-32 model



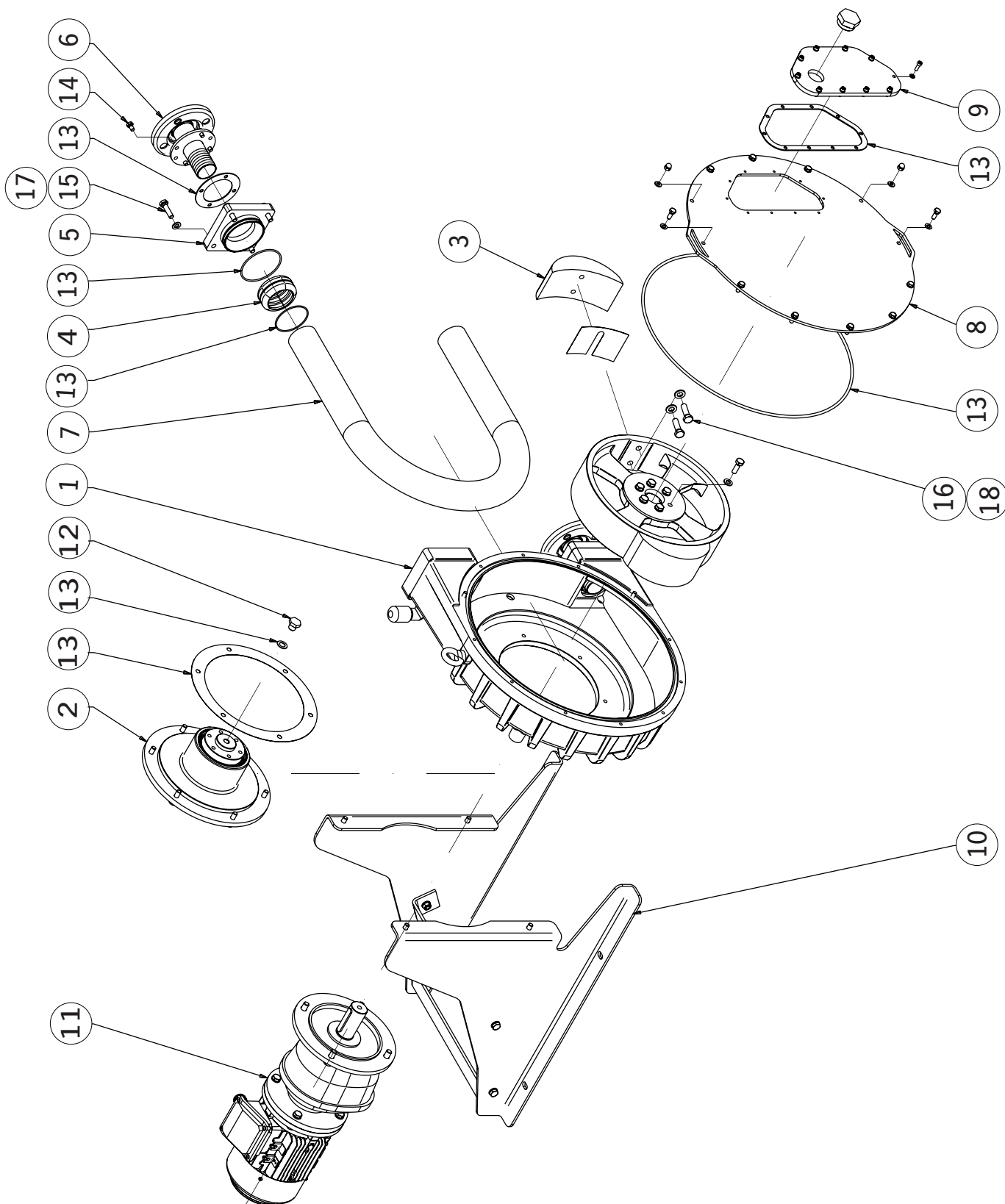
| Pos. | Description | Qty | Article |
|------|---|-----|--------------------|
| 1 | Pump Housing RBT-32B | 1 | 106.00.01 |
| 2 | Bearing housing Kit RBT-32B | 1 | 104.99.05 |
| 3 | Shoe RBT-32B | 2 | 104.02.17 |
| 4 | Press ring RBT-32B | 2 | 106.01.16 |
| 5 | Flange connection RBT-32B DIN DN32 | 2 | 104.00.06 |
| 5 | Flange connection RBT-32B ANSI 1¼" | 2 | 104.00.40 |
| 6 | Insertion S.S. RBT-32B | 2 | 104.01.04 |
| 6 | Insertion PP RBT-32B | 2 | 104.00.15 |
| 6 | Insertion PVDF RBT-32B | 2 | 104.00.34 |
| 7 | Peristaltic Hose NR RBT-32B | 1 | 104.01.08 |
| 7 | Peristaltic Hose NBR RBT-32B | 1 | 104.01.09 |
| 7 | Peristaltic Hose EPDM RBT-32B | 1 | 104.01.10 |
| 8 | Cover RBT-32B | 1 | 104.01.07 |
| 9 | Inspection window RBT-32B | 1 | 104.01.35 |
| 10 | Base set FMP-40 / RBT-32B | 1 | |
| 10 | Base set Stainless Steel RBT-32B | 1 | |
| 11 | Driver | 1 | |
| 12 | Bearing Housing Plug | 1 | TORDIN933M16X20PAV |
| 13 | Seal Kit RBT-32B | 1 | 104.99.10 |
| 14 | DIN 933 Hexagonal Head Cap Screw M10x35 Grade 8.8 | 8 | TORDIN933M10X35 |
| 15 | DIN 933 Hexagonal Head Cap Screw M12x30 Grade 8.8 | 4 | TORDIN933M12X30 |
| 16 | DIN 125A Flat Washer M10 Grade 8.8 | 8 | ARANDIN125AM10 |
| 17 | DIN 125A Flat Washer M12 Grade 8.8 | 4 | ARANDIN125AM12 |

11.3. Spare parts exploded view RBT-40 model



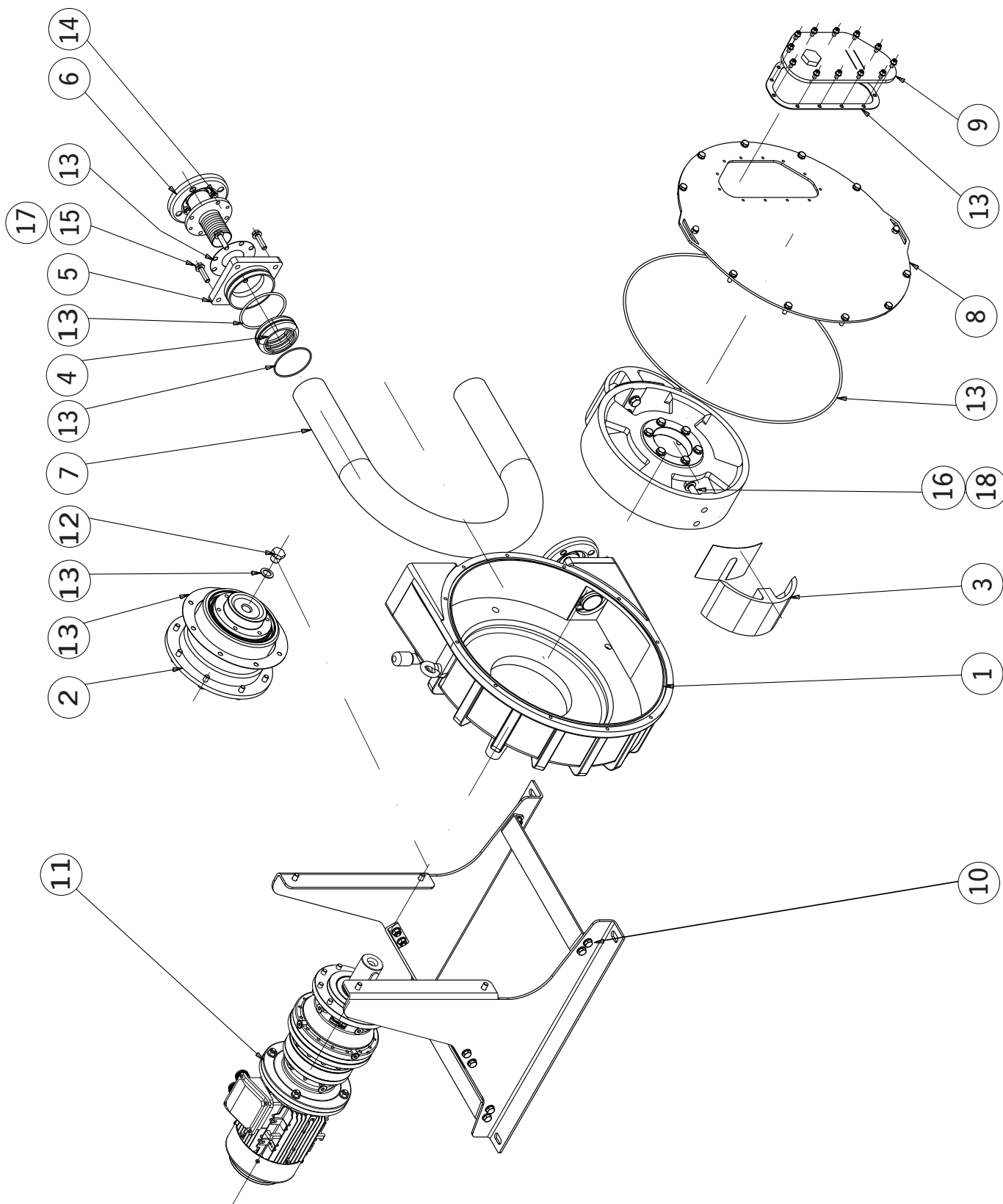
| Pos. | Description | Qty | Article |
|------|---|-----|--------------------|
| 1 | Pump Housing RBT-40 | 1 | 108.01.01 |
| 2 | Bearing Housing Kit RBT-40 | 1 | 108.99.05 |
| 3 | Shoe RBT-40 | 2 | 109.01.03 |
| 4 | Press Ring RBT-40 | 2 | 108.01.12 |
| 5 | Press Flange RBT-40 | 2 | 108.00.11 |
| 6 | Flange Connection S.S. DIN DN40 RBT-40 | 2 | 108.00.13 |
| 6 | Flange Connection PP DIN DN40 RBT-40 | 2 | 108.00.16 |
| 6 | Flange Connection PVDF DIN DN40 RBT-40 | 2 | 108.00.18 |
| 6 | Flange Connection S.S. ANSI 1½" RBT-40 | 2 | 108.00.14 |
| 6 | Flange Connection PP ANSI 1½" RBT-40 DN50 | 2 | 108.00.17 |
| 6 | Flange Connection PVDF ANSI 1½" RBT-40 | 2 | 108.00.19 |
| 7 | Peristaltic Hose NR RBT-40 | 1 | 108.00.20 |
| 7 | Peristaltic Hose NBR RBT-40 | 1 | 108.00.22 |
| 7 | Peristaltic Hose EPDM RBT-40 | 1 | 108.00.24 |
| 7 | Peristaltic Hose HYPALON RBT-40 | 1 | 108.00.25 |
| 8 | Metallic Cover RBT-40 | 1 | 109.01.05 |
| 9 | Inspection window RBT-40 | 1 | 109.00.64 |
| 10 | Base set RBT-40 | 1 | |
| 10 | Base set Stainless Steel RBT-40 | 1 | |
| 11 | Drive | 1 | |
| 12 | Bearing Housing Plug | 1 | TORDIN933M16X20PAV |
| 13 | Seal Kit RBT-40 | 1 | 109.99.10 |
| 14 | DIN 912 Socket Cap Screw M8x14 Grade 8.8 | 8 | TORDIN912M8X14 |
| 15 | DIN 933 Hexagonal Head Cap Screw M10x40 Grade 8.8 | 8 | TORDIN933M10X40 |
| 16 | DIN 933 Hexagonal Head Cap Screw M12x40 Grade 8.8 | 4 | TORDIN933M12X40 |
| 17 | DIN 125A Flat Washer M10 Grade 8.8 | 8 | ARANDIN125AM10 |
| 18 | DIN 125A Flat Washer M12 Grade 8.8 | 4 | ARANDIN125AM12 |

11.4. Spare parts exploded view RBT-40 NBR-A version



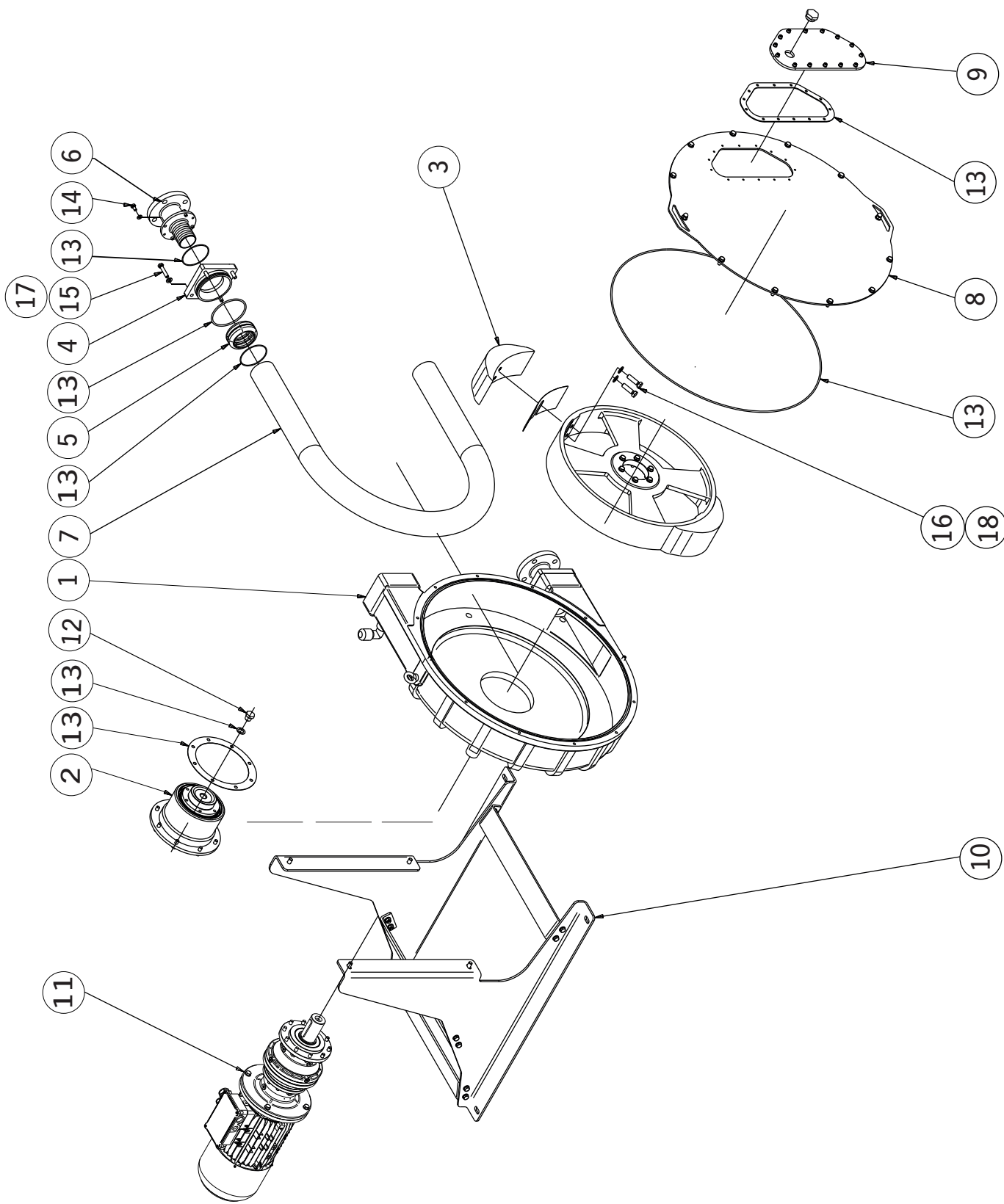
| Pos. | Description | Qty | Article |
|------|---|-----|--------------------|
| 1 | Pump Housing RBT-40 | 1 | 108.01.01 |
| 2 | Bearing Housing Kit RBT-40 | 1 | 108.99.05 |
| 3 | Shoe RBT-40 | 2 | 109.01.03 |
| 4 | Press Ring RBT-40 | 2 | 108.01.12 |
| 5 | Press Flange RBT-40 | 2 | 108.00.11 |
| 6 | Connection S.S. TRI-CLAMP 2" RBT-40 NBR-A | 2 | 108.00.53 |
| 6 | Connection S.S. DIN 11851 NW50 RBT-40 NBR-A | 2 | 108.00.52 |
| 7 | Peristaltic Hose NBR-A RBT-40 | 1 | 108.01.23 |
| 8 | Metallic Cover RBT-40 | 1 | 109.01.05 |
| 9 | Inspection window RBT-40 | 1 | 109.00.64 |
| 10 | Base set RBT-40 | 1 | |
| 10 | Base set Stainless Steel RBT-40 | 1 | |
| 11 | Drive | 1 | |
| 12 | Bearing Housing Plug | 1 | TORDIN933M16X20PAV |
| 13 | Seal Kit RBT-40 | 1 | 109.99.10 |
| 14 | DIN 912 Socket Cap Screw M8x14 Grade 8.8 | 8 | TORDIN912M8X14 |
| 15 | DIN 933 Hexagonal Head Cap Screw M10x40 Grade 8.8 | 8 | TORDIN933M10X40 |
| 16 | DIN 933 Hexagonal Head Cap Screw M12x40 Grade 8.8 | 4 | TORDIN933M12X40 |
| 17 | DIN 125A Flat Washer M10 Grade 8.8 | 8 | ARANDIN125AM10 |
| 18 | DIN 125A Flat Washer M12 Grade 8.8 | 4 | ARANDIN125AM12 |

11.5. Spare parts exploded view RBT-60 model



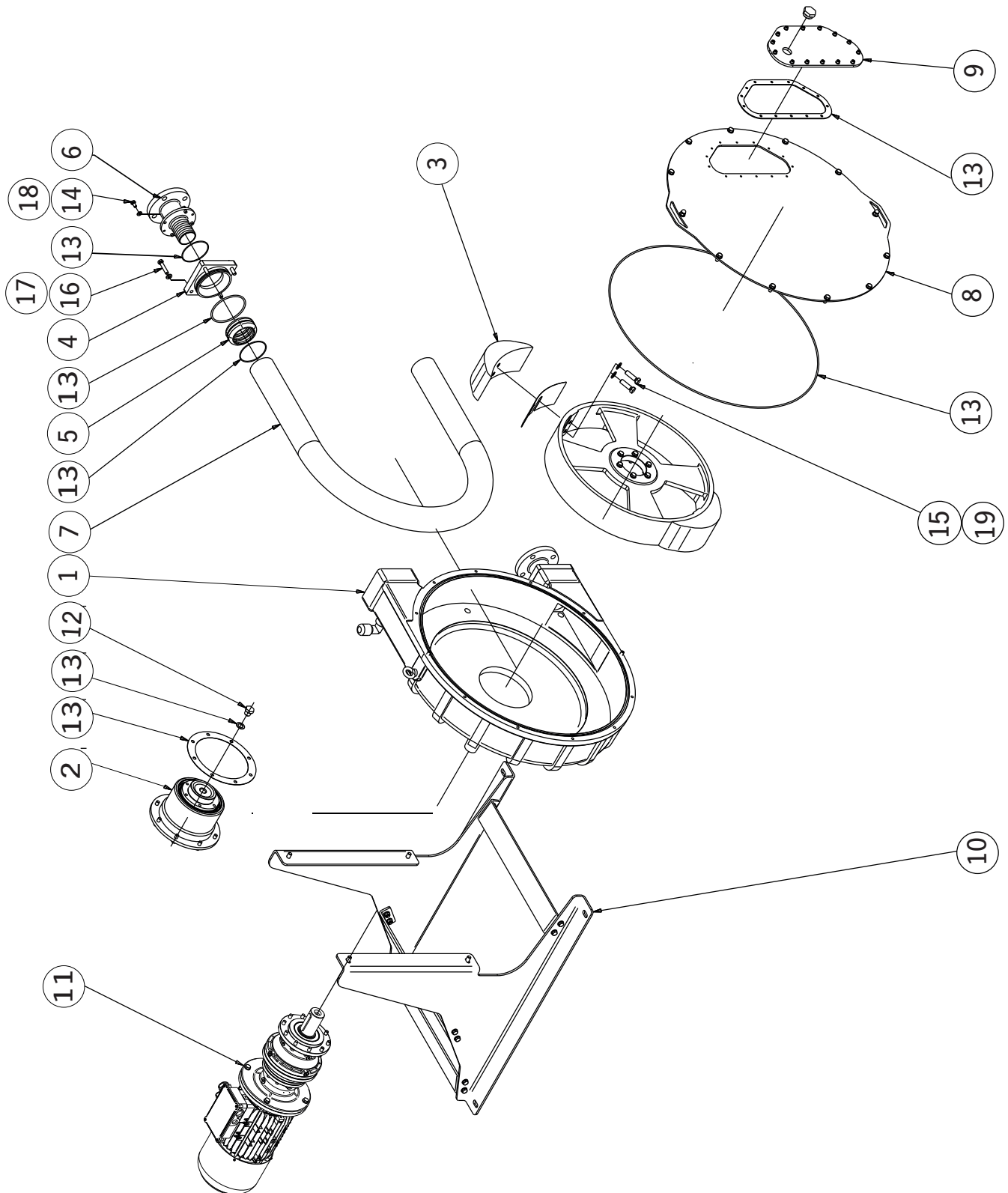
| Pos. | Description | Qty | Article |
|------|---|-----|-----------------|
| 1 | Pump Housing RBT-60B | 1 | 110.01.01 |
| 2 | Bearing Housing Kit RBT-60B | 1 | 111.99.05 |
| 3 | Shoe RBT-60B | 2 | 111.01.06 |
| 4 | Press Ring RBT-60B | 2 | 110.01.16 |
| 5 | Press Flange RBT-60B | 2 | 110.01.15 |
| 6 | Connection Flange S.S. DIN DN50 RBT-60B | 2 | 110.01.17 |
| 6 | Connection Flange PP DIN DN50 RBT-60B | 2 | 110.01.64 |
| 6 | Connection Flange PVDF DIN DN50 RBT-60B | 2 | 110.01.72 |
| 6 | Connection Flange S.S. ANSI 2" RBT-60B | 2 | 110.01.41 |
| 6 | Connection Flange PP ANSI 2" RBT-60B | 2 | 110.01.63 |
| 6 | Connection Flange PVDF ANSI 2" RBT-60B | 2 | 110.01.65 |
| 7 | Peristaltic Hose NR RBT-60B | 1 | 111.00.18 |
| 7 | Peristaltic Hose NBR RBT-60B | 1 | 111.00.20 |
| 7 | Peristaltic Hose EPDM RBT-60B | 1 | 111.00.22 |
| 8 | Cover RBT-60B | 1 | 111.01.07 |
| 9 | Inspection Cover RBT-60B | 1 | 111.01.38 |
| 10 | Base set RBT-60B | 1 | |
| 10 | Base set Stainless Steel RBT-60B | 1 | |
| 11 | Driver | 1 | |
| 12 | Bearing Housing Plug | 1 | 111.00.08 |
| 13 | Seal Kit RBT-60B | 1 | 111.99.10 |
| 14 | DIN 912 Socket Cap Screw M10x20 Grade 8.8 | 8 | TORDIN912M10X20 |
| 15 | DIN 933 Hexagonal Head Cap Screw M12x50 Grade 8.8 | 8 | TORDIN933M12X50 |
| 16 | DIN 933 Hexagonal Head Cap Screw M16x55 Grade 8.8 | 4 | TORDIN933M16X55 |
| 17 | DIN 125A Flat Washer M12 Grade 8.8 | 8 | ARANDIN125AM12 |
| 18 | DIN 125A Flat Washer M16 Grade 8.8 | 4 | ARANDIN125AM16 |

11.6. Spare parts exploded view RBT-70 model



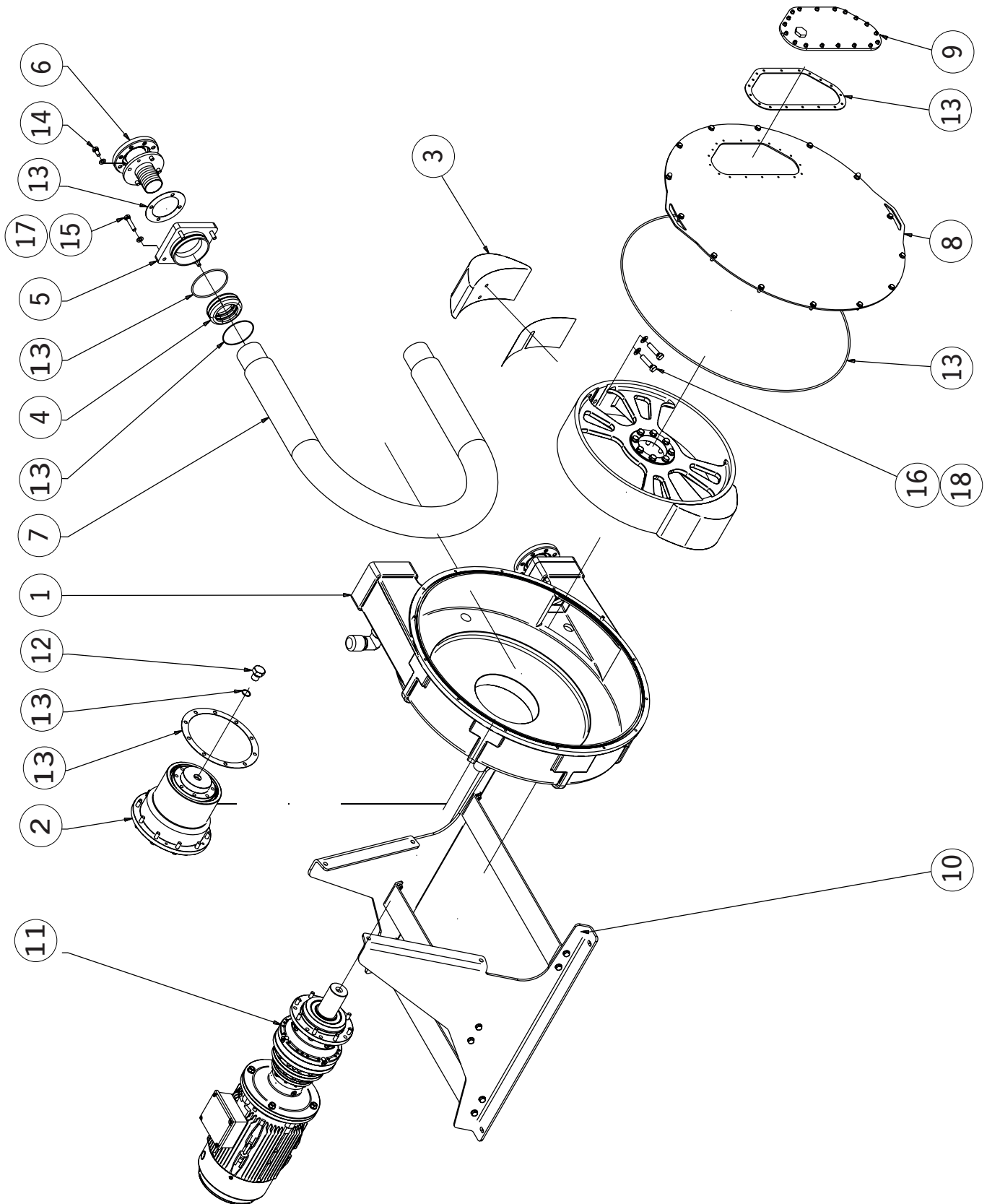
| Pos. | Description | Qty | Article |
|------|---|-----|-----------------|
| 1 | Pump Housing RBT-70 | 1 | 112.01.01 |
| 2 | Bearing Housing Kit RBT-70B | 1 | 111.99.05 |
| 3 | Shoe RBT-70 | 2 | 114.01.02 |
| 4 | Press Flange RBT-70 | 2 | 114.00.05 |
| 5 | Press Ring RBT-70 | 2 | 112.00.10 |
| 6 | Flange Connection S.S. DIN DN65 RBT-70 | 2 | 112.00.11 |
| 6 | Flange Connection PP DIN DN65 RBT-70 | 2 | 112.00.14 |
| 6 | Flange Connection S.S. ANSI 2½" RBT-70 | 2 | 112.00.12 |
| 6 | Flange Connection PP ANSI 2½" RBT-70 | 2 | 112.00.15 |
| 7 | Peristaltic Hose NR RBT-70 | 1 | 112.00.18 |
| 7 | Peristaltic Hose NBR RBT-70 | 1 | 112.00.20 |
| 7 | Peristaltic Hose EPDM RBT-70 | 1 | 112.00.22 |
| 7 | Peristaltic Hose HYPALON RBT-70 | 1 | 112.00.23 |
| 8 | Metallic Cover RBT-70 | 1 | 114.03.04 |
| 9 | Inspection Cover RBT-70 | 1 | 114.01.11 |
| 10 | Base Set RBT-70 | 1 | |
| 10 | Base Set Stainless Steel RBT-70 | 1 | |
| 11 | Drive | 1 | |
| 12 | Bearing Housing Plug | 1 | 111.00.08 |
| 13 | Seal Kit RBT-70 | 1 | 114.99.10 |
| 14 | DIN 912 Socket Cap Screw M10x20 Grade 8.8 | 8 | TORDIN912M10X20 |
| 15 | DIN 933 Hexagonal Head Cap Screw M12x60 Grade 8.8 | 8 | TORDIN933M12X60 |
| 16 | DIN 933 Hexagonal Head Cap Screw M16x55 Grade 8.8 | 4 | TORDIN933M16X55 |
| 17 | DIN 125A Flat Washer M12 Grade 8.8 | 8 | ARANDIN125AM12 |
| 18 | DIN 125A Flat Washer M16 Grade 8.8 | 4 | ARANDIN125AM16 |

11.7. Spare parts exploded view RBT-70B NBR-A version



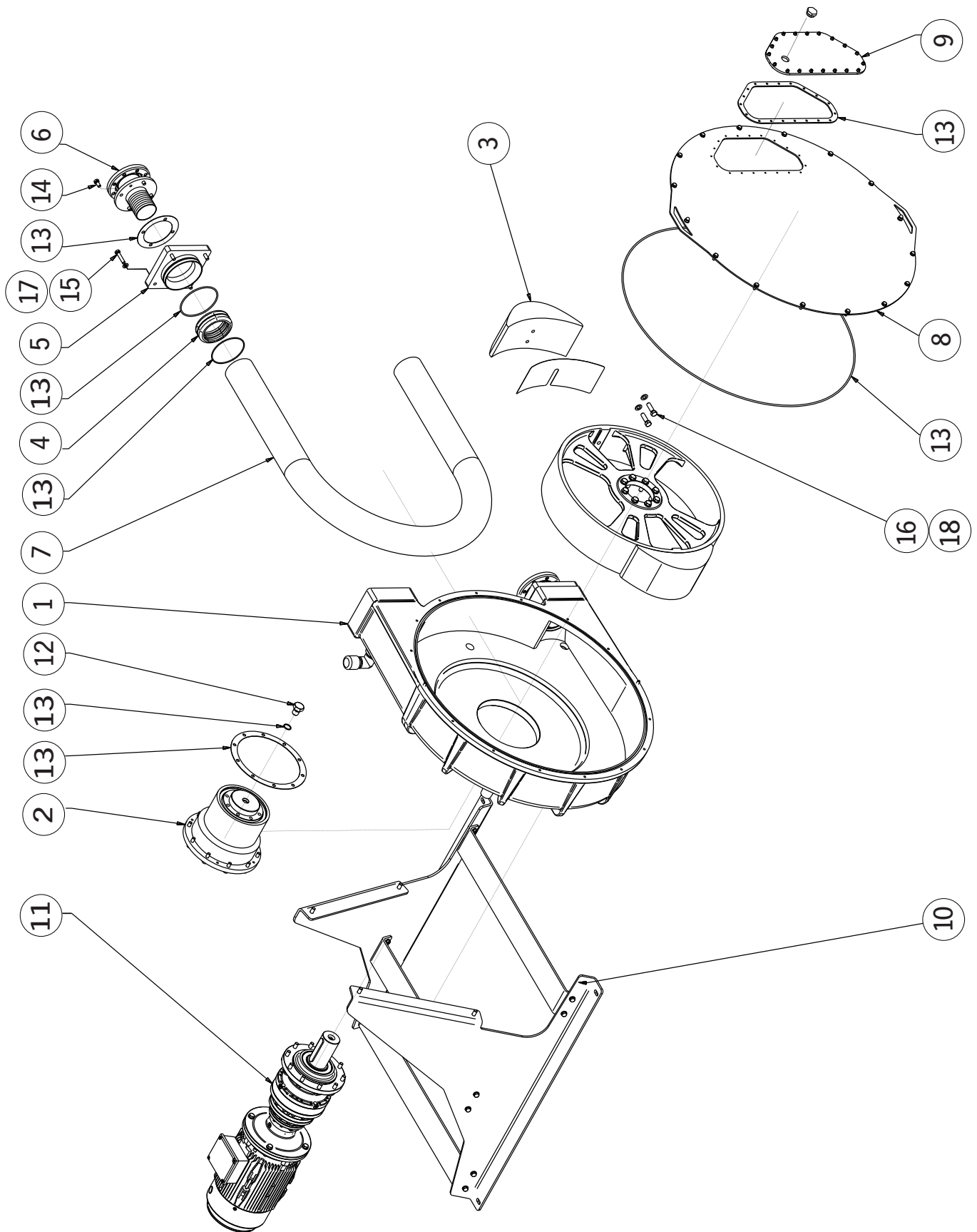
| Pos. | Description | Qty | Article |
|------|---|-----|-----------------|
| 1 | Pump Housing RBT-70 | 1 | 112.01.01 |
| 2 | Bearing Housing Kit RBT-70B | 1 | 111.99.05 |
| 3 | Shoe RBT-70 | 2 | 114.01.02 |
| 4 | Press Flange RBT-70 | 2 | 114.00.05 |
| 5 | Press Ring RBT-70 | 2 | 112.00.10 |
| 6 | Flange Connection S.S. DIN DN65 RBT-70 | 2 | 112.00.11 |
| 6 | Flange Connection PP DIN DN65 RBT-70 | 2 | 112.00.14 |
| 6 | Flange Connection S.S. ANSI 2½" RBT-70 | 2 | 112.00.12 |
| 6 | Flange Connection PP ANSI 2½" RBT-70 | 2 | 112.00.15 |
| 7 | Peristaltic Hose NBR-A RBT-70 | 1 | 112.00.18 |
| 8 | Metallic Cover RBT-70 | 1 | 114.03.04 |
| 9 | Inspection Cover RBT-70 | 1 | 114.01.11 |
| 10 | Base Set RBT-70 | 1 | |
| 10 | Base Set Stainless Steel RBT-70 | 1 | |
| 11 | Drive | 1 | |
| 12 | Bearing Housing Plug | 1 | 111.00.08 |
| 13 | Seal Kit RBT-70 | 1 | 114.99.10 |
| 14 | DIN 912 Socket Cap Screw M10x20 Grade 8.8 | 8 | TORDIN912M10X20 |
| 15 | DIN 933 Hexagonal Head Cap Screw M12x60 Grade 8.8 | 8 | TORDIN933M12X60 |
| 16 | DIN 933 Hexagonal Head Cap Screw M16x55 Grade 8.8 | 4 | TORDIN933M16X55 |
| 17 | DIN 125A Flat Washer M12 Grade 8.8 | 8 | ARANDIN125AM12 |
| 18 | DIN 125A Flat Washer M16 Grade 8.8 | 4 | ARANDIN125AM16 |

11.8. Spare parts exploded view RBT-80 model



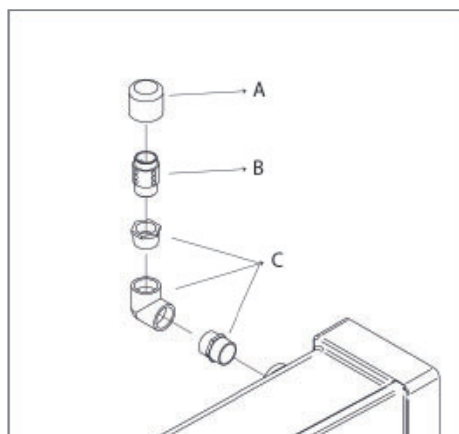
| Pos. | Description | Qty | Article |
|------|---|-----|-----------------|
| 1 | Pump Housing RBT-80B - MACHINING | 1 | 120.001.00 |
| 2 | Bearing Housing Kit RBT-80B C080 | 1 | 120.99.05 |
| 3 | Shoe RBT-80 | 2 | 118.00.03 |
| 4 | Press Ring RBT-80 | 2 | 118.00.06 |
| 5 | Press Flange FMP-80 PA | 2 | 117.00.04 |
| 6 | Flange Connection S.S. DIN DN80 RBT-80 | 2 | 118.00.05 |
| 6 | Flange Connection PP DIN DN80 RBT-80 | 2 | 118.00.28 |
| 6 | Flange Connection S.S. ANSI 3" RBT-80 | 2 | 118.00.27 |
| 6 | Flange Connection PP ANSI 3" RBT-80 | 2 | 118.00.29 |
| 7 | Peristaltic Hose NR | 1 | 118.00.12 |
| 7 | Peristaltic Hose NBR | 1 | 118.00.13 |
| 7 | Peristaltic Hose EPDM | 1 | 118.00.14 |
| 8 | Cover RBT-80B | 1 | 120.008.00 |
| 9 | Peephole RBT-80 | 1 | 118.00.09 |
| 10 | Base set RBT-80 | 1 | |
| 10 | Base set Stainless Steel RBT-80 | 1 | |
| 11 | Drive | 1 | |
| 12 | Bearing Housing Plug | 1 | TORDIN933M30X35 |
| 13 | Seal Kit RBT-80B | 1 | 120.99.10 |
| 14 | DIN 933 Hexagonal Head Cap Screw M14x30 Grade 8.8 | 8 | TORDIN933M14X30 |
| 15 | DIN 933 Hexagonal Head Cap Screw M14x70 Grade 8.8 | 8 | TORDIN933M14X70 |
| 16 | DIN 933 Hexagonal Head Cap Screw M18x60 Grade 8.8 | 4 | TORDIN933M18X60 |
| 17 | DIN 125A Flat Washer M14 Grade 8.8 | 8 | ARANDIN125AM14 |
| 18 | DIN 125A Flat Washer M18 Grade 8.8 | 4 | ARANDIN125AM18 |

11.9. Spare parts exploded view RBT-100 model



| Pos. | Description | Qty | Article |
|------|---|-----|-----------------|
| 1 | Pump Housing RBT-100 | 1 | 119.00.01 |
| 2 | Bearing Housing Kit RBT-100 | 1 | 119.99.05 |
| 3 | Shoe RBT-100 | 2 | 119.00.06 |
| 4 | Press Ring RBT-100 | 2 | 119.00.10 |
| 5 | Press Flange RBT-100 | 2 | 119.00.09 |
| 6 | Flange Connection S.S. DIN DN100 RBT-100 | 2 | 119.00.11 |
| 6 | Flange Connection PP DIN DN100 RBT-100 | 2 | 119.00.13 |
| 6 | Flange Connection S.S. ANSI 4" RBT-100 | 2 | 119.00.12 |
| 6 | Flange Connection PP ANSI 4" RBT-100 | 2 | 119.00.14 |
| 7 | Peristaltic Hose NR RBT-100 | 1 | 119.00.19 |
| 7 | Peristaltic Hose NBR RBT-100 | 1 | 119.00.20 |
| 7 | Peristaltic Hose EPDM RBT-100 | 1 | 119.00.21 |
| 8 | Cover RBT-100 | 1 | 119.02.08 |
| 9 | Peephole RBT-100 | 1 | 119.01.38 |
| 10 | Base set RBT-100 | 1 | |
| 10 | Base set S.S. RBT-100 | 1 | |
| 11 | Drive | 1 | |
| 12 | Bearing Housing Plug | 1 | TORDIN933M30X35 |
| 13 | Seal Kit RBT-100 | 1 | 119.99.11 |
| 14 | DIN 933 Hexagonal Head Cap Screw M14x30 Grade 8.8 | 8 | TORDIN933M14X30 |
| 15 | DIN 933 Hexagonal Head Cap Screw M14x70 Grade 8.8 | 8 | TORDIN933M14X70 |
| 16 | DIN 933 Hexagonal Head Cap Screw M18x60 Grade 8.8 | 4 | TORDIN933M18X60 |
| 17 | DIN 125A Flat Washer M14 Grade 8.8 | 8 | ARANDIN125AM14 |
| 18 | DIN 125A Flat Washer M18 Grade 8.8 | 4 | ARANDIN125AM18 |

| Pump model | Breather cap (A) | Breather (B) | Elbow components (C) |
|------------|------------------|--------------|--|
| RBT-25 | 100.01.39 | 100.01.38 | RAC500H12H12PP RAC200M12M12PP |
| RBT-32 | 100.01.39 | 100.01.38 | RAC500M12H12 |
| RBT-40 | | | |
| RBT-60 | | | |
| RBT-70 | 114.00.25 | 114.00.24 | RAC500H34H34PP RAC200M34M34PP |
| RBT-80 | 119.00.49 | 119.00.48 | RAC500H112H112PP RAC400M112H114PP RAC200M112M112PP |
| RBT-100 | | | |



12. End-of-Life



WARNING! Danger from hazardous substances!

Possible consequence: Fatal or very serious injuries.

Customer must decontaminate the pump with suitable agents (refer to the material safety data sheet for the fluid).

12.1. Recycling

Once cleaned the following components can be scrapped/recycled: pump housing, rotor and shoes, baseplate and drive. Some specialist disassembly may be required.

12.2. Recycling-Repurposing

The following components even when cleaned must still be prepared for special waste disposal. Customer is responsible to follow local legislation for reuse or environmentally friendly processing of packaging materials, (contaminated) lubricant, oil and the following components: hose and plastic. Once the hose has been cleaned it may be disposed of using the same methods as car tyre disposal **follow local regulations**.



EC DECLARATION OF CONFORMITY

BOMBAS BOYSER, S.L.

C/.Miquel Martí i Pol, s/n Pol. Ind.Pla de la Costa - 08182 Sant Feliu de Codines - (Barcelona) Spain
Company responsible for manufacturing and commercializing the below specified machine:

RBT SERIES PERISTALTIC PUMP

Declare under our sole responsibility:

Its conformity in accordance with all applicable provisions of the Machinery Directive (2006/42/EC), Low Voltage Directive (2014/35/EU), Electromagnetic Compatibility and Repealing Directive (2014/30/EU), national applicable regulations, and with the provisions of the following standards applied:

| <u>Reference Standard</u> | <u>Title of the harmonized standard</u> | <u>Publication date</u> |
|---------------------------|---|-------------------------|
| EN-ISO-12100 | Safety of machinery - General principles for design - Risk assessment and risk reduction. | 2012 |
| EN-614-1 | Safety of machinery – Ergonomic design principles- Part 1: Terminology and general principles. | 2006+A1/2009 |
| EN- ISO-14120 | Safety of machinery-Guards- General requirements for the design and construction of fixed and movable guards. | 2016 |
| EN-60204-1 | Safety of machinery-Electrical equipment of machines- Part 1: General requirements. | 2007/A1:2009 |
| EN-60335-1 | Household and similar electrical appliances - Safety - Part 1: General requirements | 2012/A11:2014 |
| EN-60034-1 | Rotating electrical machines - Part 1: Rating and performance | 2010/AC:2010 |
| EN-809 | Pumps and pump units for liquids - Common safety requirements. | 1999+A1/2010 |
| EN-ISO-14847 | Rotary positive displacement pumps- Technical requirements. | 1999 |

This declaration refers only to machines in the state of the market, with exclusion of the elements added and / or operations carried out subsequently by the end user.

The pump should not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of Directive 2006/42/EC.


Juan Jofresa
 Managing Director
 Bombas Boyser



www.boyser.com