

**LEADING IN
PRODUCTION
EFFICIENCY**



EcoPump AD

Air Operated Diaphragm Pump

Operation manual

MPU00025EN, V05

N24140013 N24140014

www.durr.com

Information about the document

This document describes the correct handling of the product.

- Read the document prior to every activity.
- Prepare the document for the application.
- Pass on the product only together with the complete documentation.
- Always follow safety instructions, handling instructions and specifications of every kind.
- Illustrations can deviate from the technical construction.

Validity range of the document

This document describes the following product:

N24140013 EcoPump AD 150 21 SST 3/8"	
N24140014 EcoPump AD 150 21 SST 3/8" SV	

Hotline and Contact

If you have queries or would like technical information, please contact your dealer or sales partner.

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1 Product overview

1.1 Overview

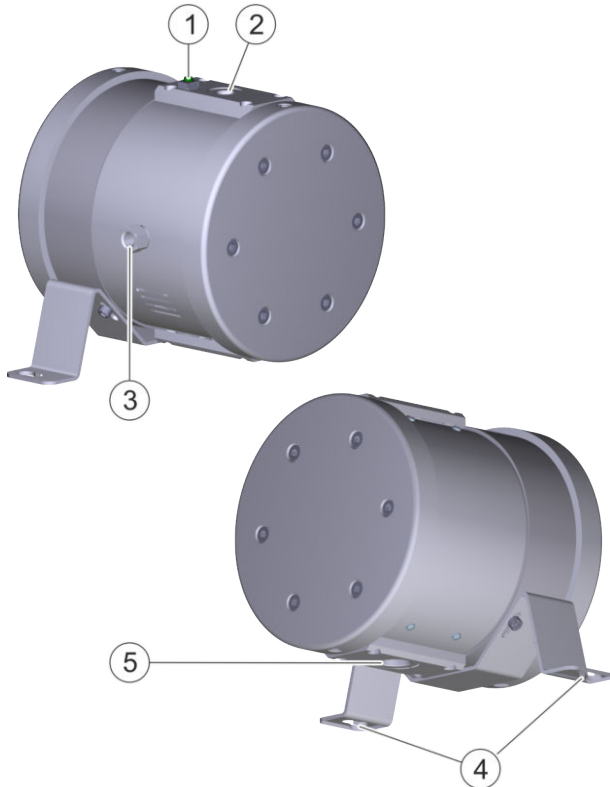


Fig. 1: Assemblies

- 1 Ground connection
- 2 Pressure side connection for material supply
- 3 Compressed air connection
- 4 Mounting feet
- 5 Suction side connection for material supply

1.2 Short description

The double diaphragm pump with pneumatic actuator (from here on "pump") is an air operated positive displacement pump. The pump is used to pump low-to medium-viscosity liquids (flammable and non-flammable coating materials) in industrial coating of surfaces.

2 Safety

2.1 Presentation of Notes

The following notes can appear in this instruction:

DANGER!

High risk situation that can lead to serious injuries or death.

WARNING!

Medium risk situation that can lead to serious injuries or death.

CAUTION!

Low risk situations that can lead to minor injuries.

NOTICE!

Situations that can lead to material damage.

ENVIRONMENT!

Situations that can lead to environmental damage.

Additional information and recommendations.

2.2 Intended Use

Use

The **EcoPump AD** is approved exclusively for pumping and processing of fluid coating materials and other fluids as well as their permitted detergents

The **EcoPump AD** is approved for pumping and working with the following media:

- Flammable fluid coating materials of the explosion group IIB
- Non-flammable fluid coating materials
- Its approved detergents and cleaning agents

Operate the **EcoPump AD** only within the approved technical data ↪ 12 "Technical data" .

The **EcoPump AD** is intended for use in industry and trade only.

The **EcoPump AD** may be used under the following conditions:

- In explosive areas of Ex zones 1 and 2
- In non-explosive areas
- With flammable fluid coating materials of the explosion group IIB
- With non-flammable fluid coating materials


Misuse

Not using as intended entails danger to life.

Examples of wrong use are:

- Installation of the pump in an area without forced ventilation
- Use of unapproved materials, see safety data sheets
- Making conversions or changes on your own
- Operation in explosive areas without grounding
- Use of non-conductive lines in explosive areas
- Combination of the pump components that are not suitable for the operation and not approved by Dürr Systems.
- Use of Pump in Ex zone 0

EX labeling

 II 2G Ex h IIB T6 Gb X

- II - Device group II: all areas except mining
- 2G - Device category 2 for gaseous ex-atmosphere
- Ex h - Ignition protection category h
- IIB - Explosion group
- T6 - Temperature class
- Gb - Device protection level EPL
- X - Restriction: The device is configured for operation in an ambient temperature of 15°C to 40°C.

2.3 Safety devices

Safety valve

The integrated pneumatic safety valve prevents defects due to excess pressure.

2.4 Residual risks

Danger of explosion due to sources of ignition in an explosive atmosphere.

Sparks, open flames and hot surfaces can cause explosions in explosive atmospheres. Serious injury and death could be the consequence.

- Before carrying out any work, make sure that there is no explosive atmosphere.
- Do not use any sources of ignition and no open light in the work area.
- Do not smoke.
- Do not unpack Pump in Ex zone.
- Dispose of packaging according to regulation outside of Ex zone or store it.
- Use tools with Ex approval.
- Ground Pump.
- Wear suitable protective equipment.

Sparks due to electrostatic discharge

If the pump is not properly grounded or the potential equalization fails, components may get charged electrostatically. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Ground Pump as specified.
- Check connection of grounding cable during operation.
- Measure volume resistivity.

Media

Material escaping under pressure can cause serious injuries.

Before working on the product:

- Disconnect the system, in which the product is installed, from compressed air and material supply.
- Depressurize the lines.
- Secure the system against being switched on again.
- Observe approved operating pressures ↪ 12.6 "Operating values" .

Danger from harmful or irritant substances

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Pump Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the relevant safety data sheets.
- Wear specified protective equipment.

2.5 Conduct in the event of a hazardous situation

Conduct in case of danger depends on the operator's installation situation.

Perform the following activities:

- Close lines.
- Secure against reconnection.
- Depressurize lines.

2.6 Staff qualification

WARNING!

Inadequate qualification

Wrong estimation of dangers can cause serious injury or death.

- Only sufficiently qualified persons may execute all work.
- Some work requires additional qualification. Additional qualifications of specialized personnel are marked with a “+”.

This document is intended for qualified personnel in industry and craftsmanship.

The following describes the different qualifications required for the work in this document. The required qualification is presented prior to the individual tasks in the appropriate chapters.

Cleaning staff

The cleaning staff receives regular instructions from the operator about the following contents:

- Using the product
- Handling cleaning tools
- Handling cleaning agents
- Technical Measures for occupational safety and health

Electrician

Electricians assemble, install, service and repair electrical systems in a professional manner.

Furthermore, electrical engineers have the following knowledge:

- Directives, Standards and Rules of Engineering
- Local conditions
- Electrical Systems and Their Loading Limits
- Technical Measures for occupational safety and health

Mechanic

The mechanic is trained specifically for the field of work in which he works.

Furthermore, he has the following knowledge:


- Directives, Standards and Rules of Engineering
- Local conditions
- Technical Measures for occupational safety and health

The mechanic is responsible for the following activities on equipment and components:

- Assembly
- Waiting
- Maintenance
- Disassembly

+ additional qualification explosion protection

In addition to the knowledge of the various specialist fields, the mechanic has knowledge of regulations and safety measures when working in potentially explosive areas.

Dürr Systems offers special product training for  “Hotline and Contact” .

2.7 Personal protective equipment

When working in explosive areas, the protective clothing, including gloves, must meet the requirements of EN 1149-5. Footwear must meet the requirements of ISO 20344 and IEC 61340-4-3. The volume resistivity must not exceed 100MΩ.

Wear the specified personal protective equipment when working. Provide the following personal protective equipment:



Anti-Static Safety Boots

Protect feet from crushing, falling items and slipping on slippery ground.

Moreover, anti-static safety boots reduce electrostatic charge by discharging the electrostatic charges.



Eye protection

Protects eyes from dust, paint drops and particles.



Protective gloves

Protect the hands from:

- mechanical forces
- Thermal forces
- Chemical effects



Protective workwear

Tight fitting workwear with low tear strength, tight sleeves and no hanging parts.



Respirator mask

Protects from hazardous gases, vapors, dust and similar materials and media.



Use ear protection

Protects from auditory damage due to noise.

3 Design and Function

3.1 Design

EcoPump AD main assemblies:

- Pneumatic assembly (compressed air)
- Material assembly
- Suction connection and pressure connection

Pneumatic assembly (compressed air)

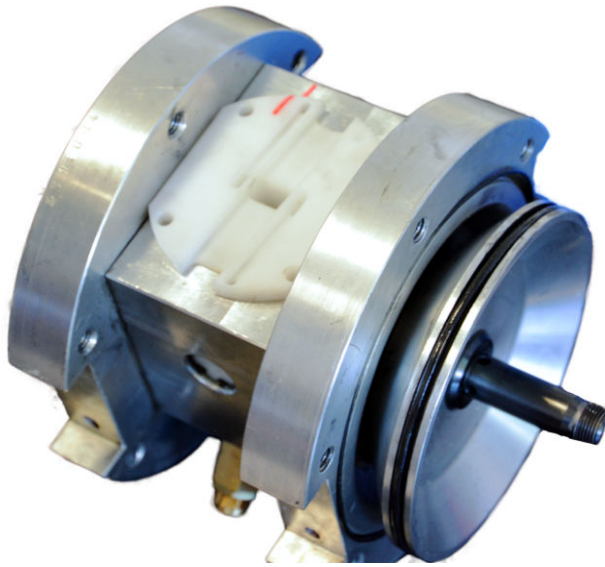


Fig. 2: Pneumatic assembly

Material assembly

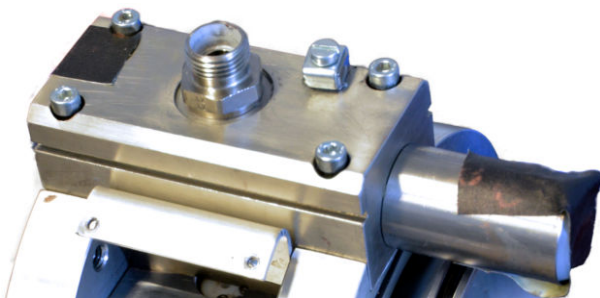


Fig. 3: Material assembly

Material supply

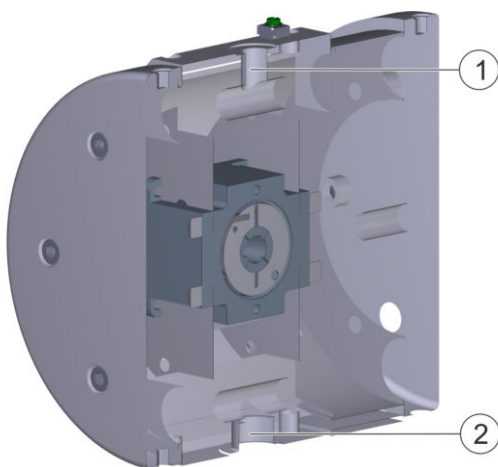


Fig. 4: Suction Connection and Pressure Connection

- 1 Pressure Connection for Material Supply
- 2 Suction connection for material supply

3.2 Operation

The pump has an air operated double diaphragm and additional disc piston which use differential pressure in the air chambers. In this way the material chambers can be suctioned up and emptied alternately. Ball valves prevent a return flow of the medium.

The pump starts as soon as compressed air is supplied. The pumping process adjusts to the respective demand. This builds up pressure and keeps it steady. The flow is stopped when the maximum tube pressure is reached. After this, the pumping process is restarted as necessary.

4 Transport, scope of supply and storage

4.1 Transport

! NOTICE!

Incorrect Transport

Improper transportation of the pump may cause the agitator the pump to fall and suffer damage.

- Protect Pump from moisture.
- Protect Pump from vibrations.
- Use transport locks (e. g. against slipping).

i Permissible ambient temperature during the transportation for a few hours:
-40°C to 60°C

4.2 Unpacking

EX DANGER!

Electrostatically charged plastic films and foils in potentially explosive areas

The foil can charge electrostatically at the time of unpacking. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Unpack product outside Ex zones.

1. Check the pump packaging for damage. If there is any damage, notify the customer service immediately ☞ "Hotline and Contact" .
2. Remove packing film.
3. Dispose of the packaging professionally.

4. Check pump for damage.
5. Transport pump to the assembly location without packaging film.

4.3 Scope of delivery

The scope of supply only includes the pump.

Personnel:

- Mechanic

Protective equipment:

- Protective gloves
- Protective workwear
- Anti-Static Safety Boots

1. Check the pump for integrity on receiving it.
2. Report defects immediately ↪ “Hotline and Contact” .

4.4 Handling of packaging material

ENVIRONMENT!

Incorrect disposal

Incorrectly disposed packaging material can damage environment.

- Dispose of material no longer required in an environment-friendly manner.
- Observe local disposal specifications.

4.5 Storage

Ambient Conditions

NOTICE!

Damage from improper storage

High load stresses on the packaging can damage the product.

- Do not stack the packaging.

Observe the following environmental conditions for the storage of the pump:

- Temperature: 10-40°C
- Humidity: 35 % – 90 %
- Protection from direct sunlight
- Protection from cold
- Protection from vibration
- Protection from dust and dirt
- Do not store outdoors.
- Store in a dry and dust-free place.
- Do not expose to aggressive media.

Storage of Spare parts

The same storage provision as for the pump apply to the spare parts.

5 Assembly

5.1 Requirements for the Installation point

WARNING!

Unsuitable tools in explosive areas

Tools that do not have Ex approval can generate sparks and cause a fire or an explosion in Ex zones. It can cause serious injuries or death.

- If possible, carry out cleaning and maintenance work outside the Ex zones.
- For work within the Ex zone:
 - Use tools with corresponding Ex approval.
 - Or ensure that at no time does an explosive atmosphere exist.

- Compressed air supply can be interrupted and secured against reconnecting.
- Technical ventilation is available.
- Rounding option is available.
- For wall mounting (option): Wall that withstands the weight of the system and vibrations during operation.

In the selected mounting mode, see that the pump is mounted vertically.

Vertical means that the material inlet points down and material outlet points up.

See that you use all the provided mounting points.

5.2 Assembly

NOTICE!

Air containing lubricant

If air containing a lubricant is present in the equipment, the slider can be oiled in the pump. Pump does not start.

- O-rings and seals must be compatible with the air.
- Observe the requirements for the compressed air ↪ 12.7 “Compressed air quality” .

Assembly

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Protective gloves
- Anti-Static Safety Boots

! NOTICE!

Material damage due to improper assembly

Installing the pump in an incorrect installation position will damage the pump.

- Store the pump in an upright position only.

! NOTICE!

Property damage due to vibrations and impacts

Exposing the pump to vibrations and impacts can damage the pump.

- Assemble lines so that they do not transfer pressure and tension to the pump.
- Do not use pump as support for lines.

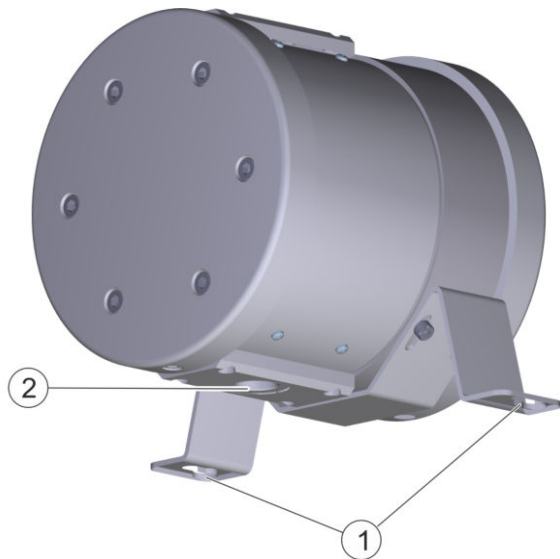


Fig. 5: Assemble pump

Use the recesses on the mounting feet (1) to fix the pump.

1. Lightly fix the pump on the mounting feet (1) using two screws and grommets ↪ 13.2 "Accessories" .

2. Connect compressed air lines and material line to the pump ↪ 5.4 "Connecting" .
3. Tighten screws.
 - ⇒ After installation, components must not be subject to mechanical stress.

Assembly with wall mounting bracket (option)

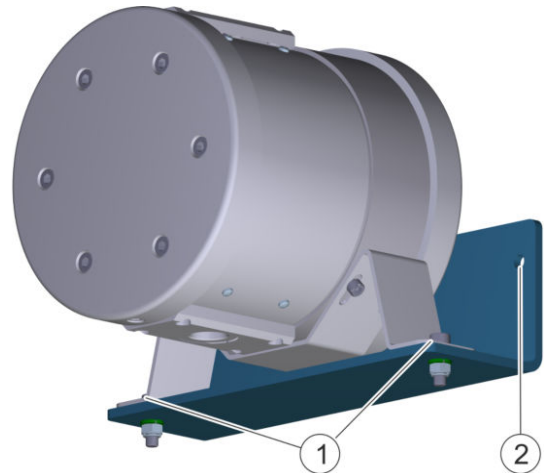


Fig. 6: Assembling Pump with Wall Mount Angle Bracket

Use the recesses on the mounting feet (1) to fix the pump.

Use recesses on the wall mounting bracket (2) to fix the wall mount angle.

1. Fix wall mounting bracket on the wall by means of two screws and washers ↪ 13.2 "Accessories" .

Adapt the fastening material to the wall finish.

2. Lightly fix the pump on the mounting feet (1) using two screws and grommets ↪ 13.2 "Accessories" .
3. Tighten screws.
 - ⇒ After installation, components must not be subject to mechanical stress.

5.3 Assembling ground conductor

EX WARNING!

Sparks due to electrostatic discharge

If the pump is not grounded, there can be an electrostatic charge on the the pump. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Ground Pump as specified.
- Before carrying out any work, make sure that there is no explosive atmosphere.

i The ground conductor and potential equalization cable are not in the scope of supply. Selection of suitable lines is the responsibility of the operator.

Personnel:

- Electrician
- + additional qualification explosion protection

Protective equipment:

- Protective workwear
- Protective gloves
- Anti-Static Safety Boots

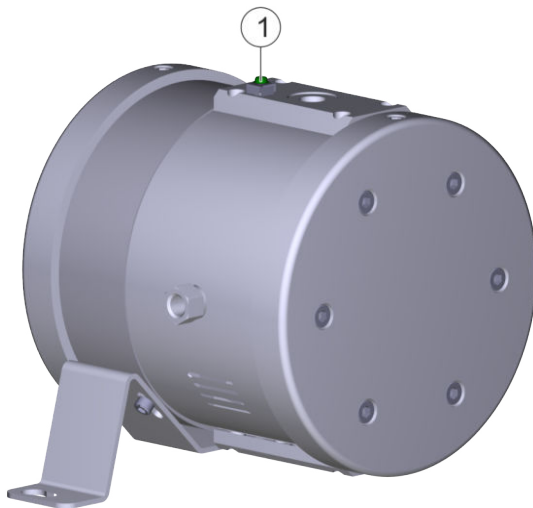


Fig. 7: Connecting Ground

1. Assemble ground conductor on the ground connection (1).
2. Measure grounding resistance.

5.4 Connecting

5.4.1 Connect compressed air supply

i The pump has a pneumatic safety valve.

! WARNING!

Damaged or removed paint seal

If the paint seal on the safety valve is removed or damaged, the setting pressure is no longer ensured. Overpressure can damage the pump. Serious injury and death could be the consequence.

- Only operate the pump with an intact safety valve.
- Only operate the safety valve with an intact paint seal.
- Replace safety valves with a removed or damaged paint seal.

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Anti-Static Safety Boots

1. Install a filter in the air supply line.
The filter must filter out particles above 50 µm.



It is advisable to use a pneumatic servicing unit with visible controllers, air filters and condensate separators.

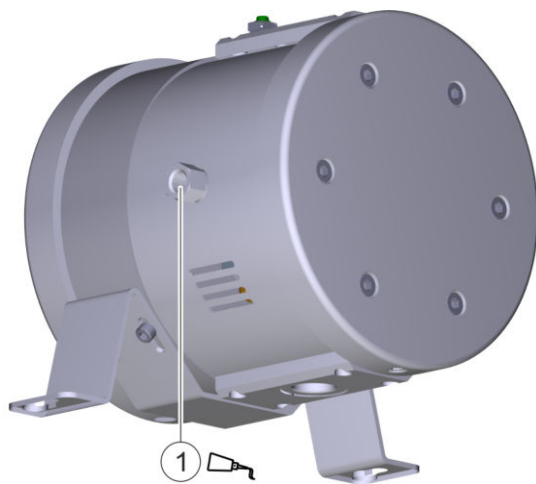


Fig. 8: Connect compressed air

Loctite 243

2. Connect compressed air hose to the compressed air connection (1). Seal threads using Loctite 243 thread locking medium or similar.

5.4.2 Connecting the material supply

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Anti-Static Safety Boots

Requirements:

- Connections of the material lines are flexible to balance out pump vibrations.
- Do not use pump as support for lines.
- Connections of the suction and pressure line are designed to be conductive.
- Connections are compatible with the material to be conveyed.
- Connections are not manufactured with pipes.
- Connections are checked (e.g. by pressure testing).

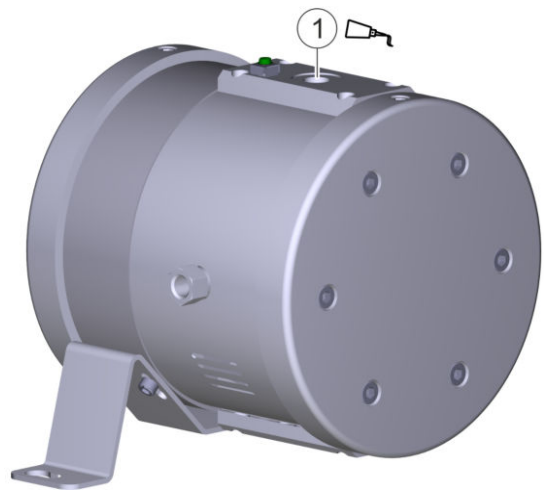


Fig. 9: Connect the pressure side material supply system.

Loctite 243

1. Connect pressure side connection for material supply (1). Seal threads using Loctite 243 thread locking medium or similar.

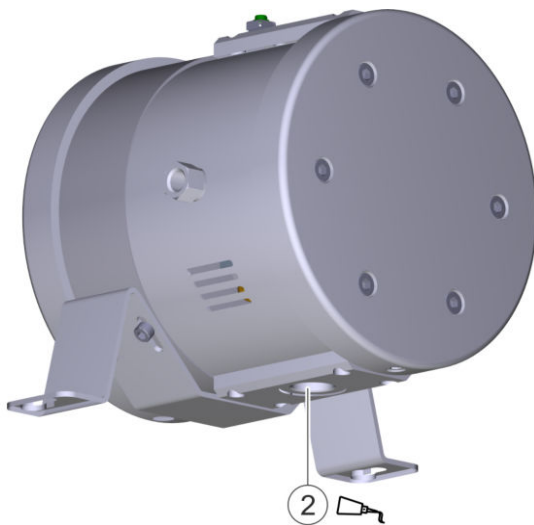


Fig. 10: Connecting Suction Side Material Supply

Loctite 243

2. Connect suction side connection for material supply (2). Seal threads using Loctite 243 thread locking medium or similar.

6 Commissioning

6.1 Safety recommendations

WARNING!

Excessive input pressure

Charging the pump with excessive input pressure will damage the pump. Serious injuries and death can be the consequence.

- Charge the pump with low pressure at the time of commissioning.
- Before increasing the pressure, check that hoses and connections are seated tightly.
- Increase pressure gradually, until the maximum input pressure is reached.
- Do not exceed maximum input pressure. ↪ 12.6 "Operating values" .

WARNING!

Sparks due to electrostatic discharge

If the pump is not grounded, there can be an electrostatic charge on the the pump. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Ground Pump as specified.
- Before carrying out any work, make sure that there is no explosive atmosphere.

WARNING!

Escaping material

Escaping compressed material can cause serious injury.

Before commissioning:

- Check ball valve for functioning.

WARNING!

Danger from harmful or irritant substances

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Pump Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the relevant safety data sheets.
- Wear specified protective equipment.
- Avoid contact (e.g. with eyes, skin).

WARNING!

Unsuitable tools in explosive areas

Tools that do not have Ex approval can generate sparks and cause a fire or an explosion in Ex zones. It can cause serious injuries or death.

- If possible, carry out cleaning and maintenance work outside the Ex zones.
- For work within the Ex zone:
 - Use tools with corresponding Ex approval.
 - Or ensure that at no time does an explosive atmosphere exist.

CAUTION!

Escaping compressed air

The compressed air escaping from the sound muffler can contain solid or liquid particles. Particles escaping under pressure can injure the eyes or the skin.

- Wear specified protective equipment.

6.2 Preparing for commissioning

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Protective gloves
- Anti-Static Safety Boots

1. Carry out the following checks for the operation:
 - Verify grounding of the pump.
 - Check the ambient temperature.
 - Check relative humidity.
 - Check all screw connections with a torque wrench ↪ 12.10 “Tightening torques” .
2. Purge the pump ↪ 7.4.3 “Flush the pump” .

6.3 Setting operating parameters

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Protective gloves
- Anti-Static Safety Boots

1. Ensure that the input pressures of the media supplied via the tube system are within the required ranges ↪ 12.6 “Operating values” .

7 Operation

7.1 Safety recommendations

WARNING!

Hot surfaces

In operation, the surfaces of the product can heat intensely. Contact can cause burn injuries.

- Wear protective hand gloves.

WARNING!

Noise

Disconnecting pressurized pneumatic lines creates loud noises. This might damage the hearing.

Before carrying out any work:

- Disconnect the compressed air supply and secure it personalized from being switched on again.
- Depressurize pneumatic lines.
- Wear ear protection.

WARNING!

Danger of explosion due to sources of ignition in an explosive atmosphere.

Sparks, open flames and hot surfaces can cause explosions in explosive atmospheres. Serious injury and death could be the consequence.

- Do not use any sources of ignition and no open light in the work area.
- Ensure that the forced ventilation is operational.
- Do not smoke.
- Ground Pump.
- Wear suitable protective equipment.

WARNING!

Danger of fire and explosion

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.

- Ensure that the flashpoint of the cleaning agent is at least 15K above the ambient temperature or clean product at the cleaning areas with active technical ventilation, in painting booths, according to EN 16985.
- Note explosion group of the fluid.
- Observe the security data sheets of the media being used.
- Ensure that forced ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.
- Check grounding.

! WARNING!

Escaping material and compressed air

Escaping material under pressure can cause serious injuries.

Before carrying out any work:

- Disconnect the system, in which the pump is installed, from compressed air and material supply.
- Secure system personalized from being switched on again.
- Depressurize the lines.

7.2 General notes

! NOTICE!

Material damage due to unsuitable rinsing agent

If the rinsing agent reacts chemically with the components or the material, components get damaged.

- Use only the rinsing agents that are compatible with the components and the material.
- Refer to safety data sheet of material manufacturer.

! NOTICE!

Material damage due to dried material residues

If material residues dry in the product, that can harm components.

- Purge product immediately after each use.

! NOTICE!

Air containing lubricant

If air containing a lubricant is present in the equipment, the slider can be oiled in the pump. Pump does not start.

- O-rings and seals must be compatible with the air.
- Observe the requirements for the compressed air ↪ 12.7 "Compressed air quality" .

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Use ear protection
- Protective gloves
- Protective workwear
- Anti-Static Safety Boots

- Check state of the pump.
- If pump temperature and vibrations are too high:
 - Switch off pump.
 - Service and repair pump ↪ 10 "Faults" .
- Clean the pump surface to prevent dust deposition ↪ 8.2 "Cleaning" .

Check for unusual noises during operation. Perform visual inspections:

- Check tightness of the connections.
- If there are conspicuous noises, carry out further checks during down times.
- Check for steady delivery pressure.

i If the pump is not in operating mode, reduce the number of cycle of the pump to the minimum flow velocity of the medium.

- This reduces pump wear and operating costs.

For further checks, see ↪ 6.3 "Setting operating parameters "

7.3 Starting Operations

Fill up the system.

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Protective gloves
- Protective workwear
- Anti-Static Safety Boots

1. Turn pressure regulator control knob until pump motor starts.
2. Leave pump running slowly until material is sucked in and air is expelled from hose and outlet valve.
3. Close the outlet valve.
4. Stop the pump by putting on maximum load.
5. Check connections for leaks.
6. Adjust pressure regulator as required to achieve desired operating pressure and flow rate.

i Regulate air pressure to maximum 3 bar.

7.4 Purging

7.4.1 Safety recommendations

! NOTICE!

Material damage due to unsuitable rinsing agent

If the rinsing agent reacts chemically with the components or the material, components get damaged.

- Use only the rinsing agents that are compatible with the components and the material.
- Refer to safety data sheet of material manufacturer.

7.4.2 General notes

When purging, use fluid to remove inner soiling from components.

7.4.3 Flush the pump

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Protective workwear
- Respirator mask
- Use ear protection
- Anti-Static Safety Boots

Complete the following steps if the pump is not in operation for a longish period:

- Purge pump with a suitable detergent ↪ 12.9 "Operating and auxiliary materials" .
- Disconnect compressed air supply to pump.
- Depressurize the lines ↪ 11.2 "Disassembly" .

8 Cleaning

8.1 Safety recommendations

EX WARNING!

Danger of fire and explosion

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.

- Ensure that the flashpoint of the cleaning agent is at least 15K above the ambient temperature or clean Pump at the cleaning areas with active technical ventilation, in painting booths, according to EN 16985.
- Only electrically conductive containers may be used for the cleaning fluid. Containers must be grounded.
- Note explosion group of the fluid.
- Observe safety data sheets of all media used.
- Ensure that forced ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.
- Ground Pump.

EX WARNING!

Danger of fire and explosion

Sources of ignition in explosive atmosphere can cause a fire or an explosion. Serious injuries and death can be the consequence.

- Before carrying out any cleaning and maintenance work, ensure there is no explosive atmosphere.

! WARNING!

Danger from harmful or irritant substances

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Pump Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the relevant safety data sheets.
- Wear specified protective equipment.
- Avoid contact (e.g. with eyes, skin).

! NOTICE!

Unsuitable cleaning agents

- Unsuitable detergents can cause material damage.
- Only use cleaning agents approved by the material manufacturer.
 - Follow safety data sheets.

! NOTICE!

Unsuitable Cleaning Tools

- Unsuitable cleaning tools can cause damage.
- Only use cloths, soft brushes and paintbrushes.
 - Do not use abrasive cleaning tools.
 - Do not use compressed air for cleaning.
 - Do not use any thinner spray guns.
 - Do not use high pressure for cleaning agents.

8.2 Cleaning

Personnel:

- Cleaning staff

Protective equipment:

- Eye protection
- Protective gloves
- Protective workwear
- Respirator mask

1. Purge the pump ↪ 7.4 “Purging” .
2. Clean pump carefully ↪ 12.9 “Operating and auxiliary materials” .

9 Maintenance

9.1 Safety recommendations

EX WARNING!

Danger of fire and explosion

Sources of ignition in explosive atmosphere can cause a fire or an explosion. Serious injuries and death can be the consequence.

- Before carrying out any cleaning and maintenance work, ensure there is no explosive atmosphere.

9.2 Maintenance schedule



If a maintenance assistant is used in the system visualizer, the maintenance intervals of the maintenance assistant are valid.

EX WARNING!

Unsuitable spare parts in explosive areas

Spare parts not compliant with the specifications of the ATEX directives can cause explosions in an explosive atmosphere. Serious injury and death could be the consequence.

- Use exclusively original spare parts.

! WARNING!

Danger from poisonous aerosols

When the diaphragm is defective, a mixture of paint, solvent and air is leaking from the muffler.

- Wear respiratory protection when working on the diaphragm.
- Carry out larger work on the pump at a suitable work station in the workshop.

! WARNING!

Escaping material and compressed air

Escaping material under pressure can cause serious injuries.

Before carrying out any work:

- Disconnect the system, in which the pump is installed, from compressed air and material supply.
- Secure system personalized from being switched on again.
- Depressurize the lines.

i The life cycle and the associated maintenance intervals depend heavily on the abrasiveness and temperature of the material to be pumped as well as the pumping pressure and the number of double strokes of the pump. The indications below are for guidance only. They may have to be adjusted according to the application.

The maintenance intervals given below are based on experiential values. Adjust maintenance intervals.

Interval	Maintenance work
weekly	Check cleanliness of the pump.
	Check tightness and state of the pump.
	Test the seal tightness and condition of the connections and lines.
	Check noise generation in the pump.
	Check for steady delivery pressure.
annually	Check grounding for damage. Measure grounding resistance. Assemble new ground conductor if there is any damage.

9.3 Dismantle and assemble

9.3.1 Dismantling Housing

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Anti-Static Safety Boots

Requirements:

- Pump has been purged ↪ 7.4.3 “Flush the pump” .
- Pump has been disassembled ↪ 11.2 “Disassembly” .



Fig. 11: Disassembling Mounting Feet

1. Loosen screws (2) on the mounting legs (1).
2. Remove mounting feet (1).

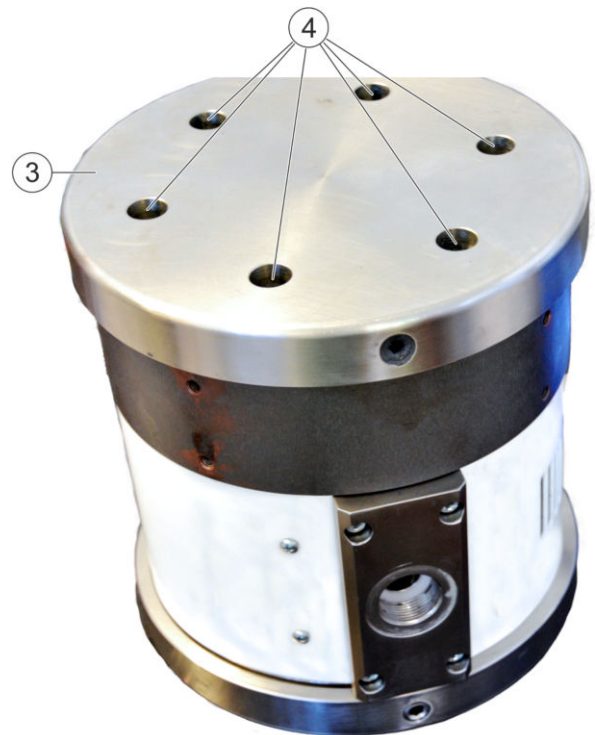


Fig. 12: Dismantling housing lid

3. Loosen six cheese head screws (4). Remove housing lid (3).



Fig. 13: Disassembling Diaphragm

4. Remove diaphragm (5) by simultaneously pushing down and rotating.
5. Close material inlet and material outlet (6).
⇒ Falling out of components is prevented.
6. Turn the pump. Repeat steps 2 to 4 on the other side.

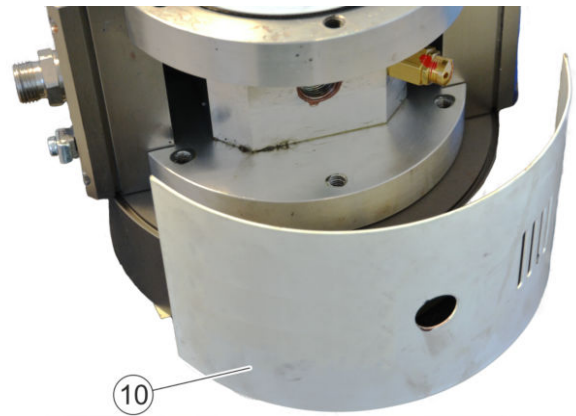


Fig. 15: Disassembling Housing Cover

10. Remove housing cover (10) by pulling cautiously.

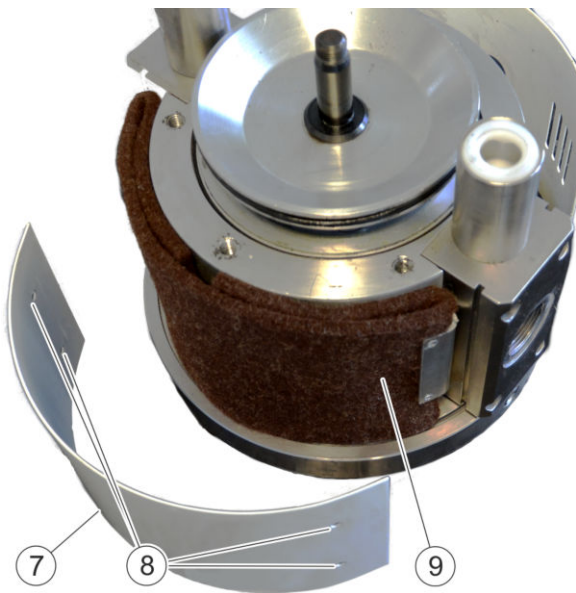


Fig. 14: Disassembling Housing Cover

7. Loosen four screws (8) of the housing cover (7).
8. Remove housing cover (7).
9. Remove silencer elements (9).

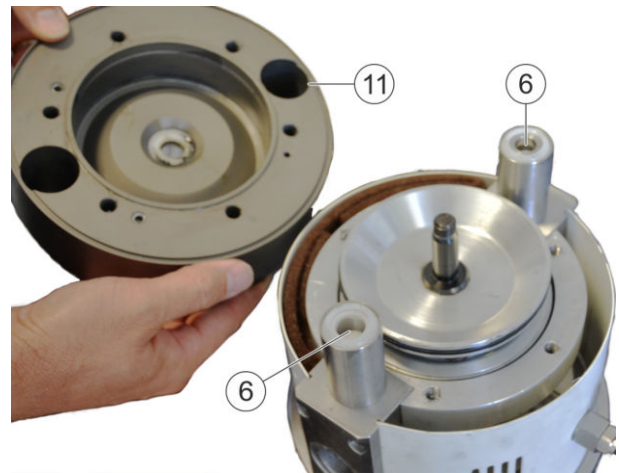


Fig. 16: Disassembling Cylinder

11. Open material inlet and material outlet (6).

12. Pull cylinder (11) upwards from the housing carefully, without tilting.

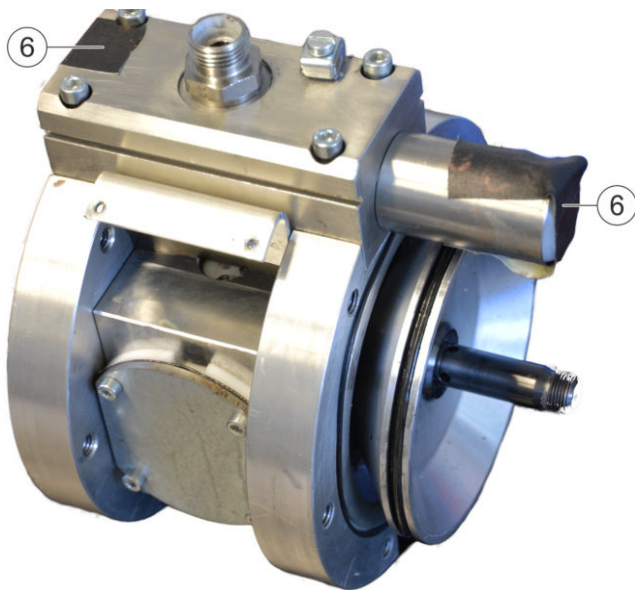


Fig. 17: Pneumatic assembly

13. Seal material inlet and material outlet (6) again using tape.
 ⇨ Pump housing is removed. Pneumatic assembly is free.

9.3.2 Dismantle pneumatic assembly

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Anti-Static Safety Boots

Requirements:

- Pump housing is dismantled ⇨ 9.3.1 "Dismantling Housing" .

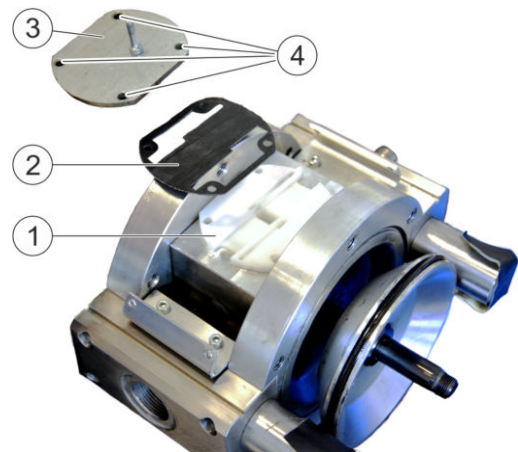


Fig. 18: Disassembling lid

1. Loosen four screws (4) on the lid (3).
2. Remove the lid (3).
3. Release flat seal (2) carefully from the slider seat (1).
4. Pull out slider seat (1).

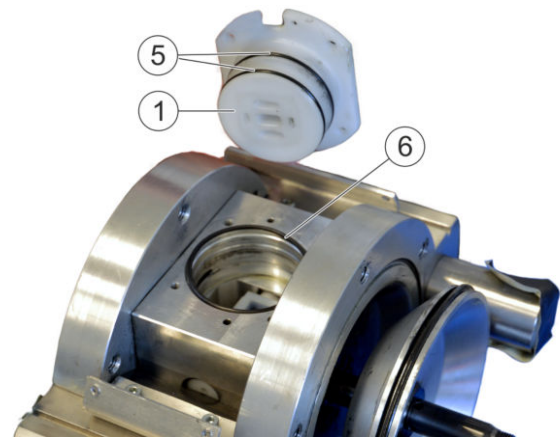


Fig. 19: Disassembling Slider Seat

5. Loosen two O-rings (5) from slider seat (1) using a suitable tool.
6. Remove O-ring (6) from its seat.

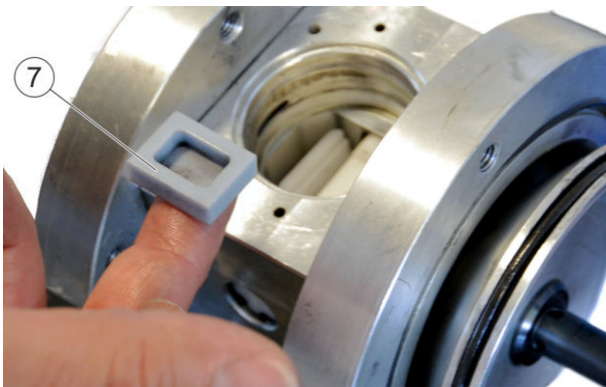


Fig. 20: Disassembling Flat Slider

7. Remove flat slider (7) from its seat.

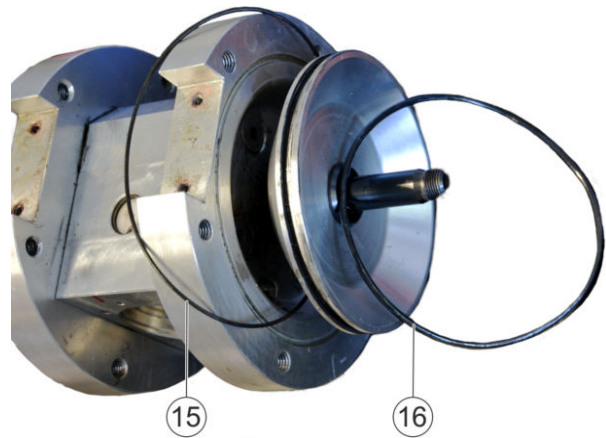


Fig. 23: Disassembling Seal

11. Remove O-ring (15) and O-ring (16) using a suitable tool.

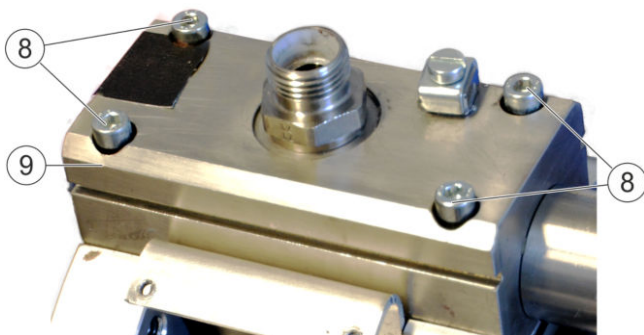


Fig. 21: Disassembling material distributor

8. Loosen four screws (8) on the material distributor (9). Remove material distributor (9).

9. Turn air motor. Repeat step 8.



Fig. 24: Disassembling driving rod

12. Remove retainer ring (17) by means of pliers.

13. Pull out driving rod.

14. Remove both O-rings.

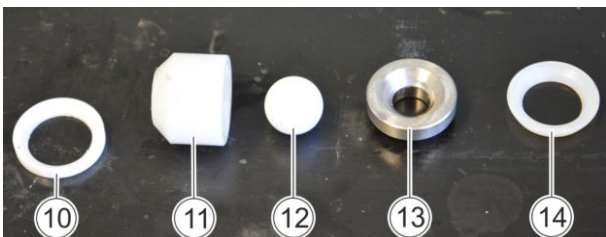


Fig. 22: Disassembling valves

10. Insert parts of the valves from the material inlets and material outlets of the material distributors (9). The valves consist of:

- Profile seal (10)
- Ball guide (11)
- Ball (12)
- Ball seat (13)
- O-Ring (14)

9.3.3 Assemble pneumatic assembly.

Personnel:

- Mechanic
- + additional qualification explosion protection

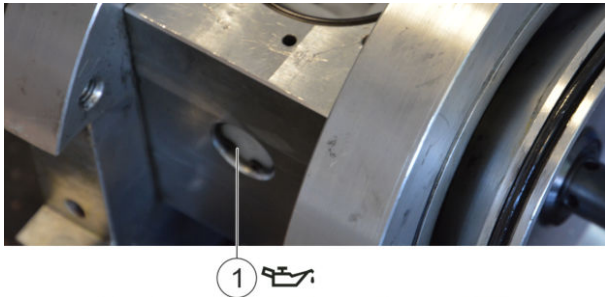
Protective equipment:

- Eye protection
- Protective gloves
- Anti-Static Safety Boots

Requirements:

- Pneumatic assembly is dismantled ↪ 9.3.2 “Dismantle pneumatic assembly” .

1. Remove both O-rings.
2. Pull out driving rod.

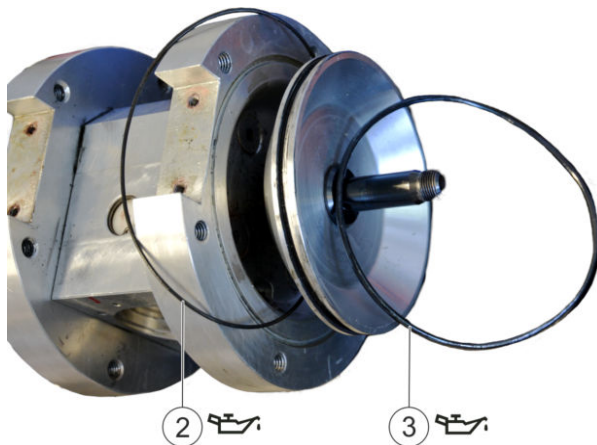


1

Fig. 25: Assembling driving rod

Molykote TP-42 Paste

3. Grease retainer ring (1).
4. Insert retainer ring (1).



2 3

Fig. 26: Disassembling Seal

Molykote TP-42 Paste

5. Grease O-rings (2) and (3).

6. Insert O-rings (2) and (3).

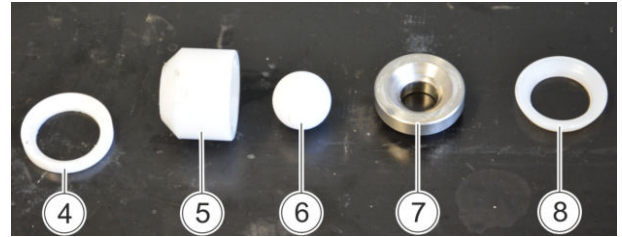


Fig. 27: Assembling Valves

7. Insert parts of the valves from the material inlets and material outlets of the material distributors (9). The valves consist of:
 - Profile seal (4)
 - Ball guide (5)
 - Ball (6)
 - Ball seat (7)
 - O-Ring (8)

8. Assemble profile seal (4) with the tapering side pointing to the ball guide (5).

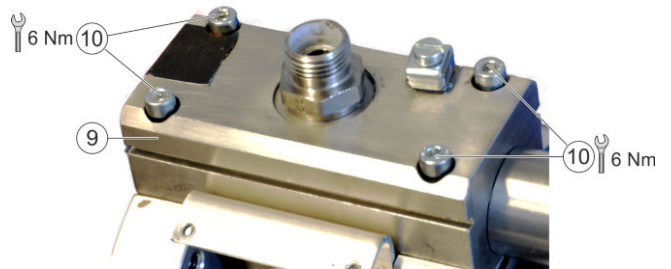


Fig. 28: Assembling material distributor

9. Set material distributor (9).
10. Tighten four screws (10) on the material distributor (9).
11. Turn air motor. Repeat steps 9 and 10.

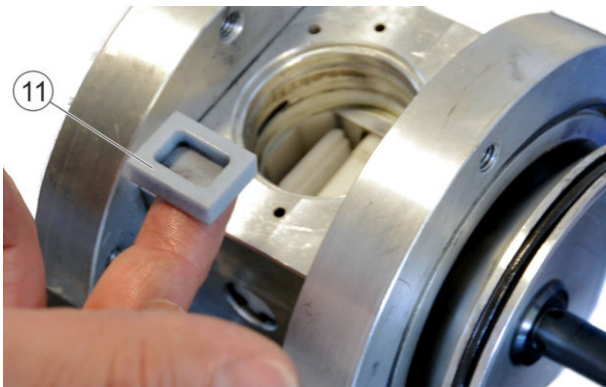


Fig. 29: Assembling Flat Slider

12. Insert flat slider (11) in its seat..

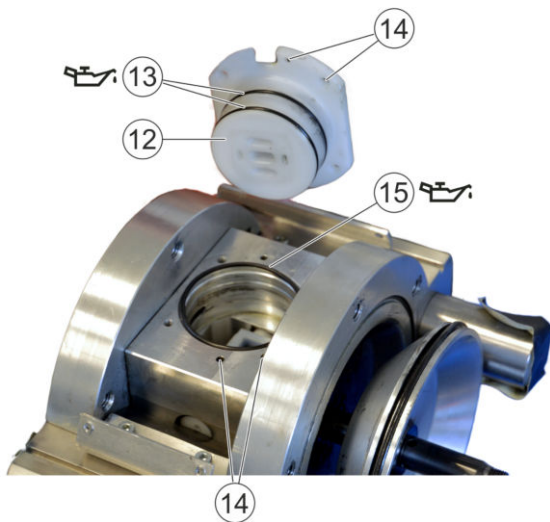


Fig. 30: Assembling Slider Seat

Molykote TP-42 Paste

13. Grease O-ring (15).

14. Insert O-ring (15) in its seat.

15. Grease two O-rings (13).

16. Slide O-rings (13) on the slider seat (12).

17. If the installation position is not correct, the pump will not start. Observe installation position of the slider seat (12). The markings (14) must lie on top of each other.

Insert slider seat (12).

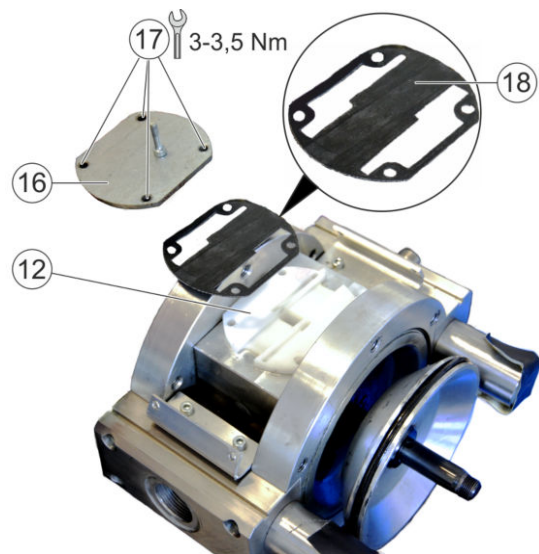


Fig. 31: Disassembling lid

18. Observe installation position of the flat seal (18).

Place flat seal (18) on the slider seat (12).

19. Place lid (16) on top.

20. Tighten four screws (17) on the lid (16).

9.3.4 Assembling Housing

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Anti-Static Safety Boots

Requirements:

- Pneumatic assembly is assembled ↪ 9.3.3 "Assemble pneumatic assembly."

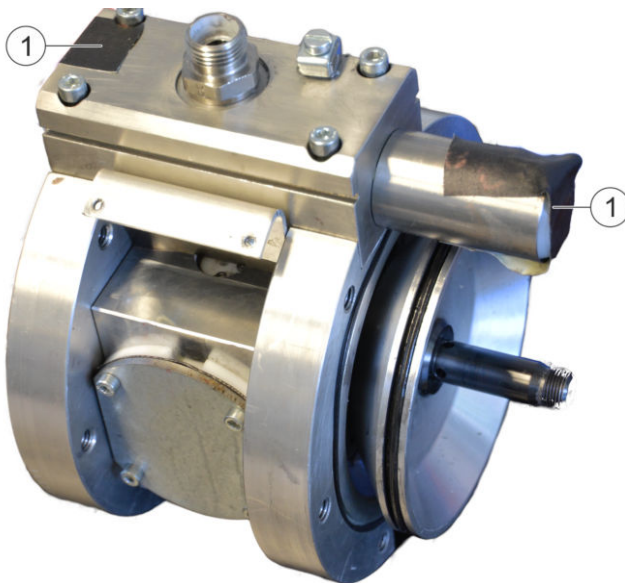


Fig. 32: Pneumatic assembly

1. Remove tape on material inlet and material outlet (1).

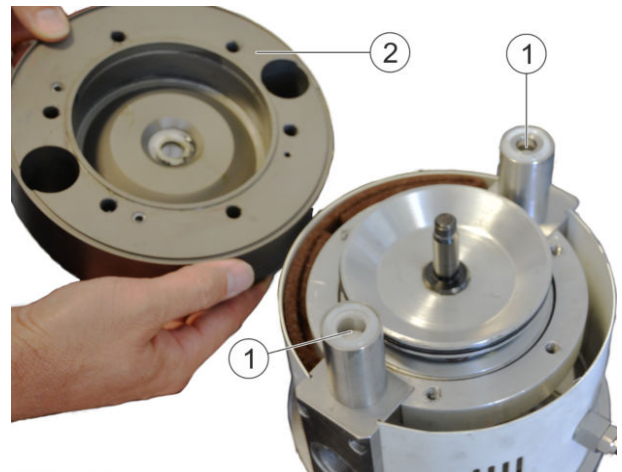


Fig. 33: Assembling Cylinder

2. Set cylinder (2) into the housing from the top carefully, without tilting.
3. Lock material inlet and material outlet (1) again.

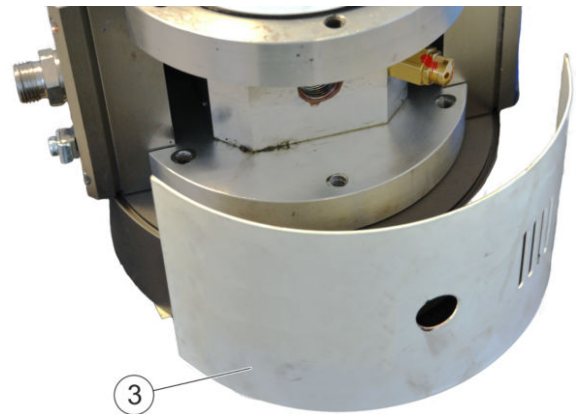


Fig. 34: Assembling Housing Cover

4. Insert housing cover (3).

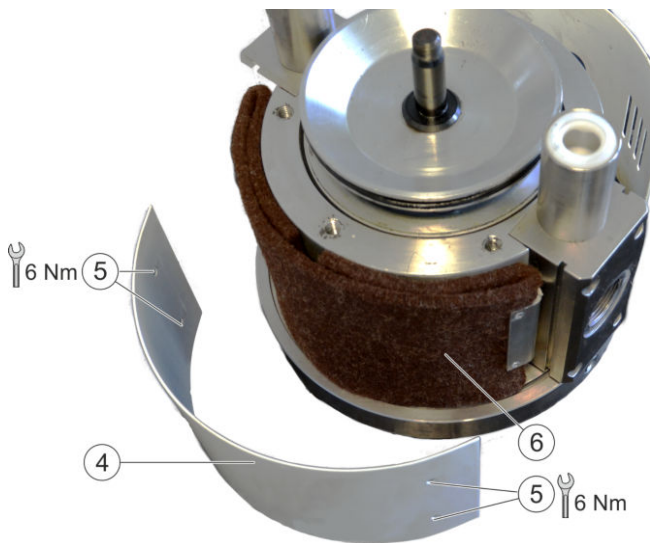


Fig. 35: Assembling Housing Cover

5. Insert silencer elements (6).
6. Insert housing cover (4).
7. Tighten four screws (5) of the housing cover (4).

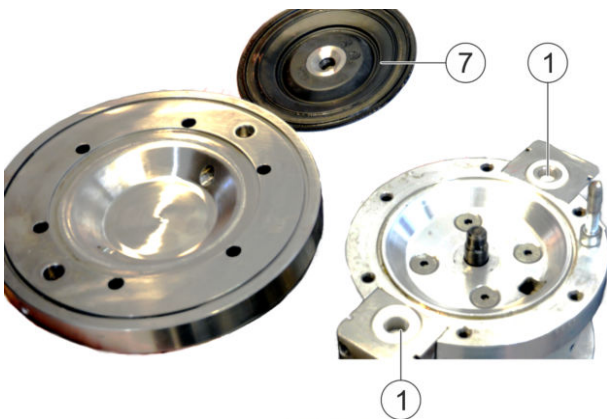


Fig. 36: Assembling Diaphragm

8. Insert diaphragm (7).
9. Open material inlet and material outlet (1).

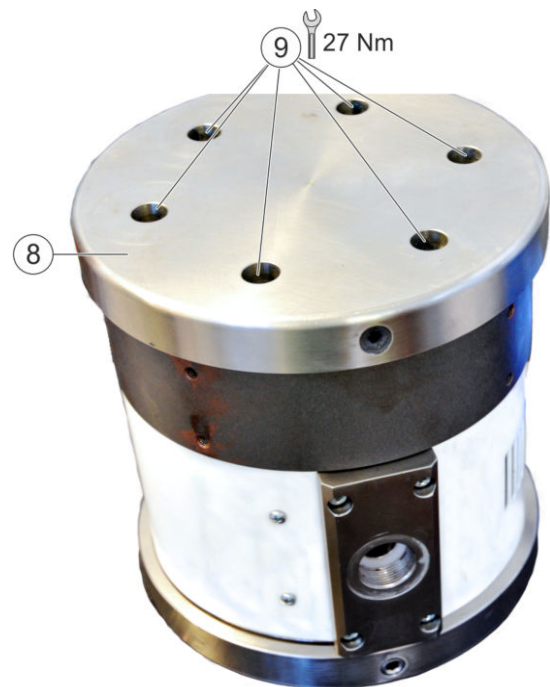


Fig. 37: Assembling housing lid

10. Set housing lid (8). See that the through holes point to material outlets.
11. Tighten six cheese head screws (9).
12. Turn the pump. Repeat steps 8 to 11 on the other side.

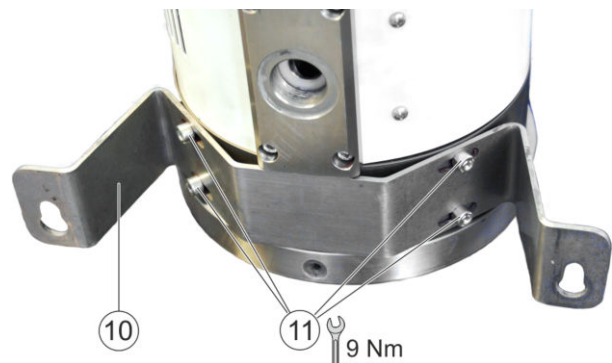


Fig. 38: Disassembling Mounting Feet

13. Set the mounting feet (10).
14. Tighten four screws (11) on the mounting legs (10).

10 Faults

10.1 Safety recommendations



WARNING!

Danger from harmful or irritant substances

Contact with hazardous chemicals can cause serious injuries.

- Follow the relevant safety data sheets.
- Wear specified protective equipment.



WARNING!

Escaping material and compressed air

Escaping material under pressure can cause serious injuries.

Before working on the product:

- Disconnect the system with the product from compressed air.
- Secure system personalized from being switched on again.
- Depressurize the lines.

10.2 Defects table

Fault description	Cause	Remedy
Pump does not run or remains at rest.	Main air valve blocked or soiled	Clean and check main air valve. If necessary, replace.
	Pressure Line Closed	Open shut-off valve.
	Counter pressure too high	Check line and material.
	Ball stuck to ball seat	Replace ball and ball seat. ▪ ↪ 9.3.2 “Dismantle pneumatic assembly”
	Air motor O-rings swollen	Replace O-rings. ▪ ↪ 9.3.2 “Dismantle pneumatic assembly” Check the ambient temperature.
	Assembly position of the pump wrong	Install the pump in an upright position. ▪ ↪ 5.2 “Assembly”
Pump does not start.	The slider is oiled.	Replace slider ↪ 9.3.2 “Dismantle pneumatic assembly” . Check compressed air quality ↪ 12.7 “Compressed air quality” .
No displacement volume	Pump sucks air.	Seal suction side.
	Suction capacity exceeded	Check the suction performance. ▪ ↪ 12.6 “Operating values”
	Foreign body between ball and ball seat	Clean. ▪ ↪ 9.3.2 “Dismantle pneumatic assembly” ▪ ↪ 12.9 “Operating and auxiliary materials”
Low displacement volume	Air inlet blocked	Clean and check air inlet. If necessary, replace. ▪ ↪ 12.9 “Operating and auxiliary materials”
	Air flow too low	Increase air flow.
	Suction pipe blocked	Clean the pipeline.
	Insufficient compressed air supply	Check compressed air hose.
	Viscosity too high	Use material with lower viscosity.
Pump at standstill after filling lines	Air pressure too low	Increase air pressure. ▪ ↪ 12.6 “Operating values”
	Viscosity too high	Use material with lower viscosity.
	Pump head too high	Increase air pressure. ▪ ↪ 12.6 “Operating values”
Air in material	Diaphragm torn or damaged	Replace diaphragm. ▪ ↪ 9.3.1 “Dismantling Housing”
	Pump sucks air.	Seal suction line.
Diaphragm leaking	Screws loosened	Verify tightening torque. ▪ ↪ 12.10 “Tightening torques”
	Chemical incompatibility	Replace material.

Fault description	Cause	Remedy
Manifold leaking	Screws loosened	Verify tightening torque. <ul style="list-style-type: none"> ☞ 12.10 “Tightening torques”
	Chemical incompatibility	Replace material.
Insufficient suction head	Ball and ball seat leaking	Replace ball and ball seat leaking <ul style="list-style-type: none"> ☞ 9.3.2 “Dismantle pneumatic assembly”
	Foreign body between ball and ball seat	Replace ball and ball seat. <ul style="list-style-type: none"> ☞ 9.3.2 “Dismantle pneumatic assembly” ☞ 12.9 “Operating and auxiliary materials”
	Pump is dry.	Fill the system. <ul style="list-style-type: none"> ☞ 7.3 “Starting Operations”
Membrane damaged	Foreign body in material	Install filter. Replace diaphragm. <ul style="list-style-type: none"> ☞ 9.3.1 “Dismantling Housing”
	Chemical incompatibility	Replace material. Replace diaphragm. <ul style="list-style-type: none"> ☞ 9.3.1 “Dismantling Housing”
	Thermal deformation	Replace material.
Ball deformed	Chemical incompatibility	Replace material.
	Thermal deformation	Replace material.
	Pressure surges	Use pulsation dampers.

11 Disassembly and Disposal

11.1 Safety recommendations

 **WARNING!**

Danger from harmful or irritant substances

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Pump Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the relevant safety data sheets.
- Wear specified protective equipment.
- Avoid contact (e.g. with eyes, skin).

 **WARNING!**

Danger due to freezing

The noise mufflers on the motor can cool down drastically. Contact with it can result in frostbite.

- Before working on the motor, ensure that the noise muffler is at room temperature.

11.2 Disassembly

Disconnect compressed air supply

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Protective workwear
- Anti-Static Safety Boots

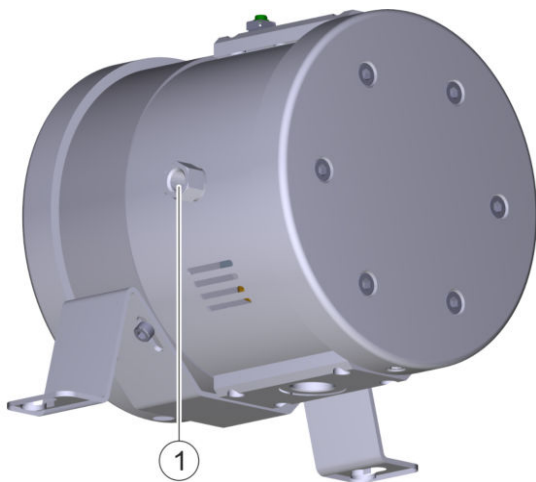


Fig. 39: Connect Compressed Air

1. Disconnect compressed air supply to the pump. Secure against reconnection.
2. Disconnect compressed air hose from the compressed air connection (1).

Switching off material supply

⚠ WARNING!

Escaping material and compressed air

Escaping material under pressure can cause serious injuries.

Before carrying out any work:

- Disconnect the system, in which the pump is installed, from compressed air and material supply.
- Secure system personalized from being switched on again.
- Depressurize the lines.

⚠ EX WARNING!

Unsuitable tools in explosive areas

Tools that do not have Ex approval can generate sparks and cause a fire or an explosion in Ex zones. It can cause serious injuries or death.

- If possible, carry out cleaning and maintenance work outside the Ex zones.
- For work within the Ex zone:
 - Use tools with corresponding Ex approval.
 - Or ensure that at no time does an explosive atmosphere exist.

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Protective workwear
- Anti-Static Safety Boots

1. Relieving Pressure:

- Switch off suction side material supply. Secure against reconnection.
- Disconnect material supply system on pressure side. Secure against reconnection.
- Remove suction side and pressure side connections.

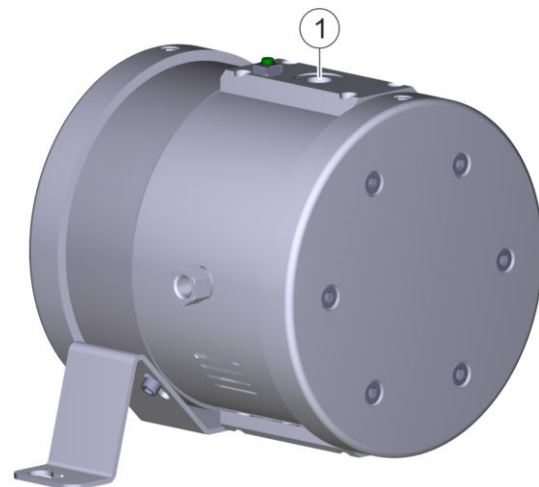


Fig. 40: Loosen pressure side material supply

2. Loosen material line from pressure side connection of the material supply (1).

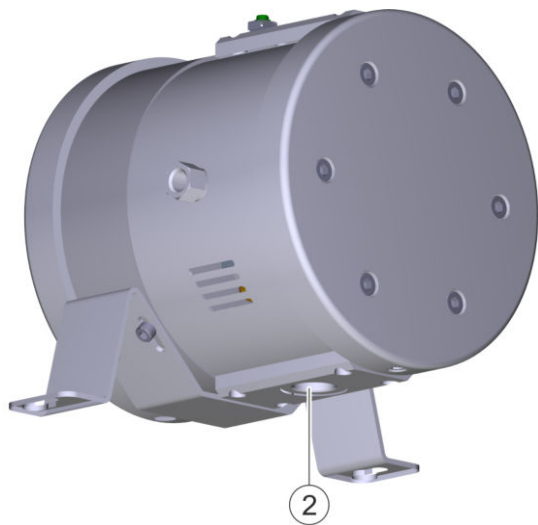


Fig. 41: Loosen suction side material supply

3. Loosen material line from suction side connection of the material supply (2).
4. Drain material residue from pump into a container.
5. Purge pump with suitable detergent ↪ 7.4.3 "Flush the pump" .

Disassemble pump

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Protective workwear
- Anti-Static Safety Boots

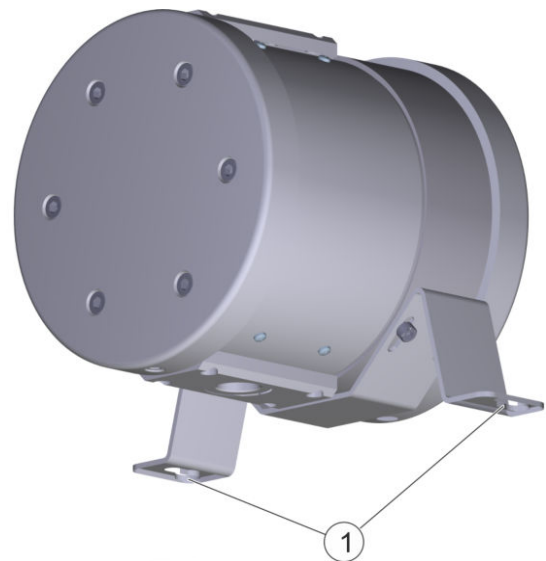


Fig. 42: Disassemble pump

1. Loosen screws (1) of the bores.
2. Remove pump.

Disassemble pump from wall mount (option)

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Eye protection
- Protective gloves
- Protective workwear
- Anti-Static Safety Boots

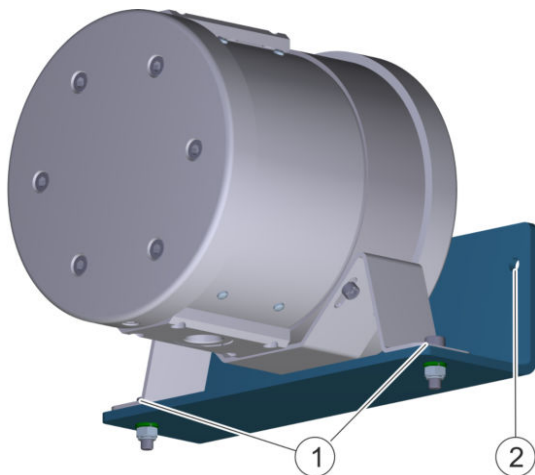


Fig. 43: Disassembling pump from wall mount

1. Loosen screws (2) of the bores.
2. Disassemble pump together with wall mount.
3. Loosen screws (1) of the bores.
4. Remove pump.

11.3 Disposal

ENVIRONMENT!

Improper waste disposal

Improper waste disposal threatens the environment and prevents re-use and recycling.

- Clean components before their disposal.
- Always dispose of components in accordance with their characteristics.
 - ↳ 12.8 “Materials used”
- Collect leaked out utilities and auxiliaries completely.
- Dispose of work equipment soaked in coating materials or operating substances according to the disposal provisions in force.
- Dispose of utilities and auxiliaries according to the disposal provisions in force.
- In case of doubt, refer to the local disposal authorities.

Requirements:

- Pump has been cleaned ↳ 8.2 “Cleaning” and purged ↳ 7.4 “Purging” .
- Pump has been disassembled ↳ 11.2 “Disassembly” .

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Protective gloves
- Eye protection
- Anti-Static Safety Boots

1. Dispose of material residue from pump professionally.
2. Remove the seals. Ensure professional disposal.
3. Dispose of individual parts of the pump professionally.

12 Technical data

12.1 Dimensions and weight

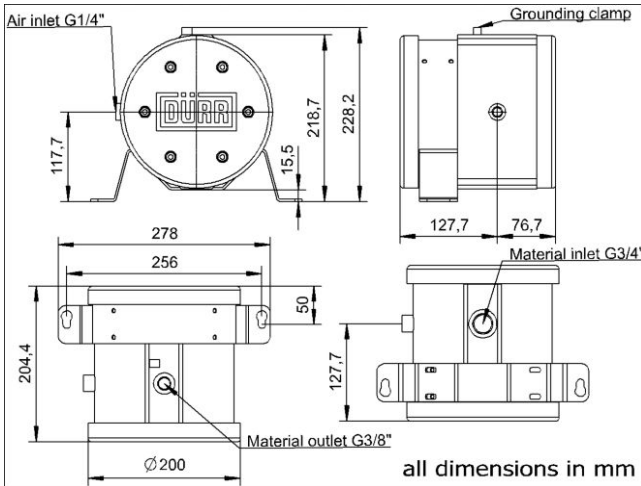


Fig. 44: Dimensions for Booth Construction

Detail	Value
Height	228.10 mm
Width	278.00 mm
Depth	204.40 mm
Particle size max.	0.53 mm
Weight	19.80 kg

12.2 Connections

Detail	Value
Compressed air connection	G 1/4
Inlet connection	G 3/4
Outlet connection	G 3/8

12.3 Operating conditions

Detail	Value
Media temperature, min.	10°C
Media temperature, max.	50°C

12.4 Emissions

Detail	Value
Sound pressure level	82 dB(A)

12.5 Type plate

The type plate shows the following details:

- Product name
- Material number
- Year of manufacture
- Serial number
- Maximum air pressure
- Maximum material pressure
- Manufacturer
- QR Code
- CE labeling
- EX labeling

12.6 Operating values

The performance values are strongly dependent on the supported medium.

Detail	Value
Control air pressure, max.	7 bar
Material output pressure, max.	21bar
Double strokes, max. (short)	20 1/min
Double strokes, max. (Duration)	10 1/min
Max. flow rate	3.0 l/min
Displacement per cycle	0.15 l
Translation ratio	3:1

12.7 Compressed air quality

- Purity classes in accordance with ISO 8573-1: 1:4:1
- Limitations for purity class 4 (pressure dew point max.):
 - $\leq -3^{\circ}\text{C}$ at 7bar absolute
 - $\leq +1^{\circ}\text{C}$ at 9bar absolute
 - $\leq +3^{\circ}\text{C}$ at 11bar absolute

12.8 Materials used

N24140013	
Detail	Value
Ball	POM
Ball race	POM
Ball seat	Stainless steel
Parts in contact with material	POM, PTFE, stainless steel

N24140014	
Detail	Value
Ball	PTFE
Ball race	Stainless steel
Ball seat	Stainless steel
Parts in contact with material	POM, PTFE, stainless steel

12.9 Operating and auxiliary materials

Material area	Specification
Thread	Loctite 243
O-rings, contact surfaces	Lubricants, free of paint-wetting impairment substances

Compressed air side	Specification
Thread	Loctite 243
O-rings, contact surfaces	Lubricants, free of paint-wetting impairment substances

Cleaning agents

Only use approved cleaning agents. Detergents must comply with the following criteria:

- Suitable for use in explosive areas
- Compatible with the materials used
↳ 12.8 "Materials used"

Material	Auxiliary materials
Conventional paints	Thinner
Water-based paints	Cleaning agents
Stainless steel parts, aluminum parts	Thinner

Detergent

Only use approved detergents that meet the following requirements: Detergents must comply with the following criteria.

- Suitable for use in explosive areas
- Compatible with the material to be conveyed
- Compatible with the materials used ↳ 12.8 "Materials used"

12.10 Tightening torques

Detail	Value
Cheese-head screw, slider seat	3.0 to 3.5 Nm
Cheese-head screw, retaining plate	4Nm
Self-tapping screw	6Nm
Cheese-head screw, mounting bracket (Mounting feet)	9 Nm
Cheese-head screw, housing lid	27 Nm
Cheese-head screw, material distributor	6Nm

12.11 Characteristic curve of the outflow rate

The power relates to water at ambient temperature.

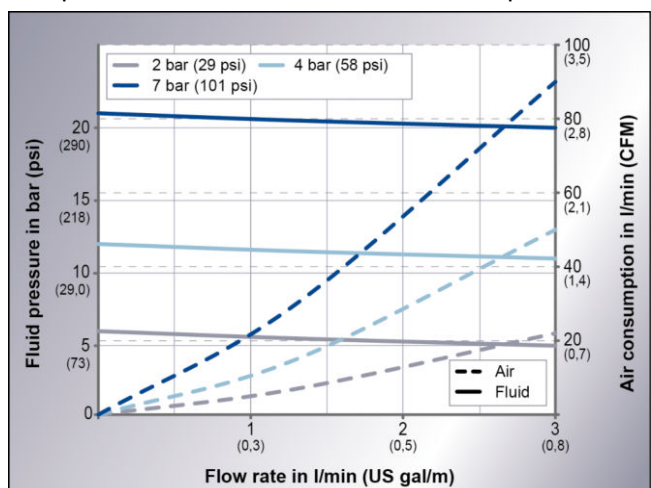


Fig. 45: Flow rate diagram

- [l/s (scfm)] Air consumption
- [bar (psi)] Pump head
- NPSH [m (feet)] Net positive suction head
- [l/min (US gal/min)] Volume flow

13 Spare parts, tools and accessories

13.1 Spare parts

13.1.1 Material assembly

Outlet valve unit

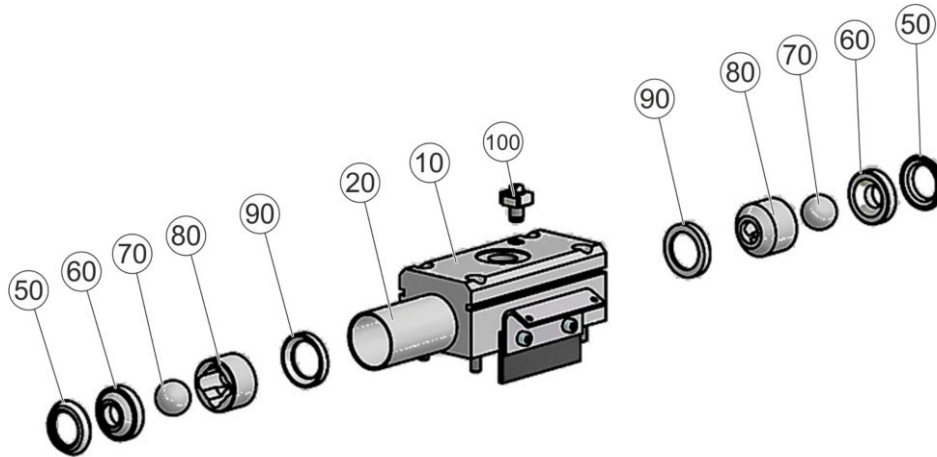


Fig. 46: Spare parts outlet valve unit

Item	Description	Quantity	Order number	Spare part/Wear part
10	VALVE HOUSING OUTLET F.Eco-Pump AD	1	M16020563	E
20	EXTENSION OUTLET F.EcoPump AD	1	M19140063	N
50	SEALING RING VALVE F.EcoPump AD	2	M08010566	V
60	VALVE OUTLET F.EcoPump AD	2	M08150072	V
70	N24140013 : BALL D18 F.EcoPump AD POM	2	M66100057	V
	N24140014 : BALL D18 F. Eco-Pump AD PTFE		M66100085	
80	N24140013 : GUIDE BALL F.Eco-Pump AD	2	M12290023	V
	N24140014 : GUIDE BALL F. Eco-Pump AD SST		M12290036	
90	RING OF VALVE SEAT F.EcoPump AD	2	M35010310	V
100	GROUNDING CLAMP EcoPump AD	1	E11020023	E

Inlet valve unit

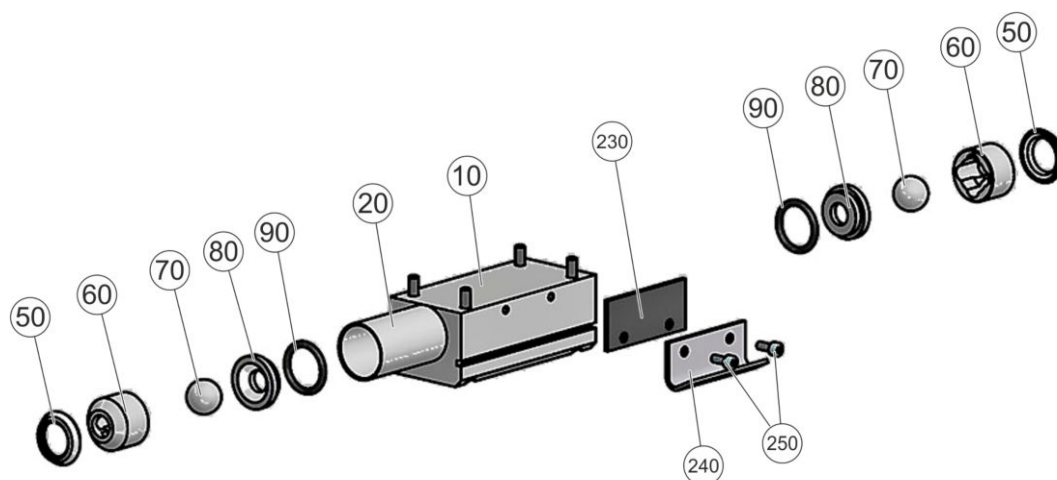


Fig. 47: Spare parts inlet valve unit

Item	Description	Quantity	Order number	Spare part/Wear part
10	VALVE HOUSING INLET F.Eco-Pump AD	1	M16020562	E
20	EXTENSION INLET F.EcoPump AD	1	M19140062	N
50	SEALING RING VALVE F.EcoPump AD	2	M08010566	V
60	N24140013: GUIDE BALL F.Eco-Pump AD	2	M12290023	V
	N24140014: GUIDE BALL F. Eco-Pump AD SST		M12290036	
70	N24140013: BALL D18 F.EcoPump AD POM	2	M66100057	V
	N24140014: BALL D18 F. Eco-Pump AD PTFE		M66100085	
80	VALVE SEAT INLET F.EcoPump AD	2	M08150073	V
90	O RING 22x3 F.MEMBRANE PUMP 001.085-DP	2	M08030222	V
230	SOUND MUFFLER EcoPump AD	2	M54610087	E
240	RETAINING PLATE BRACKET EcoPump AD	2	M19102577	E
250	CHEESE-HEAD SCREW M4x10 DIN912 1.4301	4	D09120220	N

Delivery times for spare and wear parts are included in the price list. Ordering as well as information on components that are not marked as spare parts or wearing parts in the parts list → “Hotline and Contact” .

- E: Spare part
- V: Wear part (recommended spare part)
- N: No spare part or wearing part

13.1.2 Membrane and pneumatic construction group

Membrane and housing lid

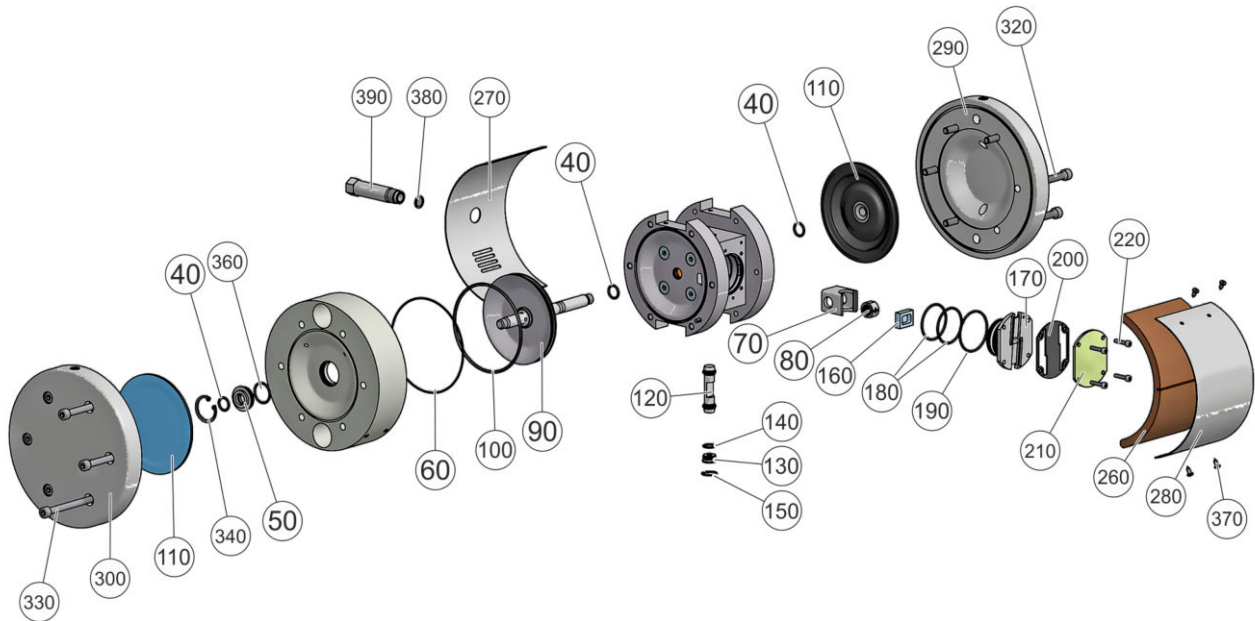


Fig. 48: Spare parts membrane and housing lid

Item	Description	Quantity	Order number	Spare part/Wear part
40	O RING 14x2 F.MEMBRANE PUMP 001.085-DP	3	M08030218	V
50	BEARING BUSH F.EcoPump AD	1	M05060019	E
60	O-RING 117x1.5 NBR	1	M08031010	V
70	DOG F.EcoPump AD	1	M26130111	V
80	CLAMPING RING F.EcoPump AD	1	M24030110	V
90	PISTON COMPLETE DISC PISTON EcoPump AD	1	M67010127	E
100	O RING 107x3B F. N24140013	1	M08030425	V
110	DIAPHRAGM F. EcoPump AD	2	M08510065	V
120	DOG ROD COMPLETE F.Eco-Pump AD	1	M26130112	V
130	PLUG CLOSURE F.EcoPump AD	2	M48010296	E
140	O-RING 13x1.5 NBR	2	M08030227	V
150	RETAINER RING 17x1 DIN472 VA	2	D04720052	E
160	SLIDER FLAT SLIDER F.EcoPump AD	1	M67020020	V
170	SLIDER SLIDER SEAT F.EcoPump AD	1	M67020021	V
180	O RING 42x2 F.MEMBRANE PUMP 001.085-DP	2	M08030219	V
190	O RING 48x2 F.MEMBRANE PUMP TRITON 308	1	M08030221	V
200	FLAT SEAL SLIDER SEAT F.Eco-Pump AD	1	M08090172	E
210	LID EcoPump AD	1	M63011461	E
220	CHEESE HEAD SCREW M4x20 DIN912 1.4301	4	D09120193	E
260	DAMPING MAT EcoPump AD	1	W30010032	E
270	SHEET COVERING PANEL 1 Eco-Pump AD	1	M07030518	E
280	SHEET COVERING PANEL 2 Eco-Pump AD	1	M07030519	E
290	HOUSING LID F.3:1 M-PUMP Eco-Pump AD	1	M16060161	E
300	HOUSING LID LOGO F. EcoPump AD	1	M16060163	E
320	CHEESE HEAD SCREW M8x90 DIN912 1.4571	6	D09120242	E
330	CHEESE HEAD SCREW M8x35 DIN912 1.4571	6	D09120510	E
340	RETAINER RING 32x1.2 DIN472 St	1	D04720005	E
360	O RING 23x2 70 SHORE NBR	1	M08031011	V

Item	Description	Quantity	Order number	Spare part/Wear part
370	SELF-TAPPING SCREW 3.9x13 DIN7981 1.4571	4	D79810010	E
380	WASHER SIEVE PLATE EcoPump AD	1	M39011107	E
390	CONNECTION SET G3/8"a-G1/4"i EcoPump AD	1	M55330003	E

Pump body drive

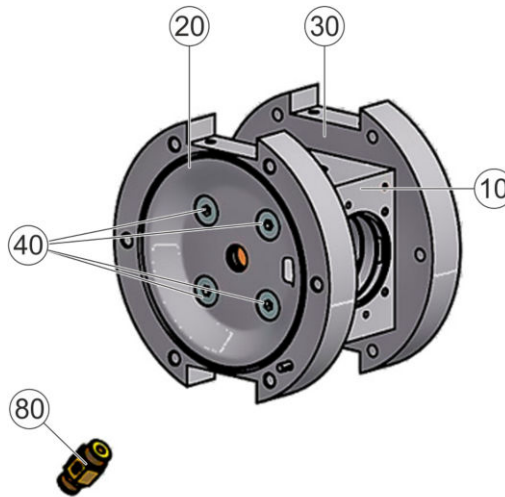


Fig. 49: Spare part Pump body drive

Item	Description	Quantity	Order number	Spare part/Wear part
10	HOUSING AIR CONTROL F. Eco- Pump AD	1	M16010577	E
20	PUMP BODY FLANGE F.EcoPump AD	1	M11010543	E
30	PUMP BODY ENGINE FLANGE F.EcoPump AD	1	M11180031	E
40	COUNTERSUNK-HEAD SCREW M8x20 DIN7991 1.4301	8	D79910082	N
80	SAFETY VALVE 8bar EcoPump AD	1	M54390187	E

Cylinder ring and wall-mounting bracket

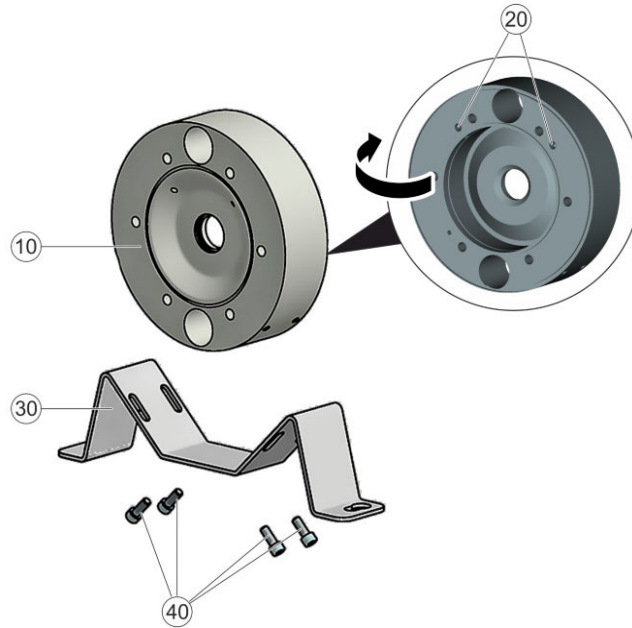


Fig. 50: Spare parts cylinder ring and wall-mounting bracket

Item	Description	Quantity	Order number	Spare part/Wear part
10	RING CYLINDER F.EcoPump AD	1	M35010318	E
20	THREADED PIN M8x8 DIN913 1.4301	2	D09130102	N
30	ANGLE WALL MOUNTING BRACKET EcoPump AD	1	M19102578	E
40	CHEESE_HEAD SCREW M6x12 DIN912 1.4301	4	D09120187	E

i Delivery times for spare and wear parts are included in the price list. Ordering as well as information on components that are not marked as spare parts or wearing parts in the parts list → “Hotline and Contact” .

- E: Spare part
- V: Wear part (recommended spare part)
- N: No spare part or wearing part

13.1.3 Repair kits

N24960105 - Spare parts kit control system

Designation	Quantity	Material number
Slider seat	1	M67020021
Dog	1	M26130111
Clamping ring	1	M24030110
Flat slider	1	M67020020
Retainer ring 17x1	2	D04720052
Plug Closure	2	M48010296
Dog Rod complete	1	M26130112

N24960106 - Spare part kit valves for N24140013

Designation	Quantity	Material number
Valve Seat Outlet	2	M08150072
Ball D18	4	M66100057
Guide Ball	4	M12290023
Ring of valve seat	2	M35010310
Valve seat inlet	2	M08150073

N24960204 - Spare part kit valves for N24140014

Designation	Quantity	Material number
Valve Seat Outlet	2	M08150072
Ball D18	4	M66100085
Guide Ball	4	M12290036
Ring of valve seat	2	M35010310
Valve seat inlet	2	M08150073

N24960107 - Spare parts kit diaphragm

Designation	Quantity	Material number
Membrane	2	M08510065
Sealing ring of valve seat	4	M08010566

N24960108 - Spare parts kit seals

Designation	Quantity	Material number
O Ring 14x2	3	M08030218
O-Ring 117x1.5	1	M08031010
O-Ring 107x3	1	M08030425
O Ring 23x2	1	M08031011
Flat seal Slider seat	1	M08090172
O Ring 42x2	2	M08030219
O Ring 48x2	1	M08030221

Designation	Quantity	Material number
O Ring 22x3	2	M08030222
O-ring 13x1.5	2	M08030227

N24960109 - Spare parts kit bearing

Designation	Quantity	Material number
Retainer ring 32x1.2	1	D04720005
Bearing bush	1	M05060019

N24960110 - Complete repair kit for N24140013

Designation	Quantity	Material number
Spare parts kit control system	1	N24960105
Spare parts kid valve	1	N24960106
Spare part Diaphragm	1	N24960107
Spare part Seals	1	N24960108
Spare part Storage	1	N24960109

N24960214 - Complete repair kit for N24140014

Designation	Quantity	Material number
Spare parts kit control system	1	N24960105
Spare parts kid valve	1	N24960204
Spare part Diaphragm	1	N24960107
Spare part Seals	1	N24960108
Spare part Storage	1	N24960109

13.2 Accessories

Detail	Value
Wall mounting bracket	M19102578
Wall mounting bracket	N25010146

13.3 Order

WARNING!
Unsuitable spare parts in explosive areas
 Spare parts not compliant with the specifications of the ATEX directives can cause explosions in an explosive atmosphere. Serious injury and death could be the consequence.

- Use exclusively original spare parts.

WARNING!
Unsuitable spare parts
 Spare parts of third-party suppliers may possibly not be able to hold the loads. Serious injury and death could be the consequence.

- Use exclusively original spare parts.

Ordering spare parts, tools and accessories as well as information on products that are listed without order number ↪ "Hotline and Contact" .


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