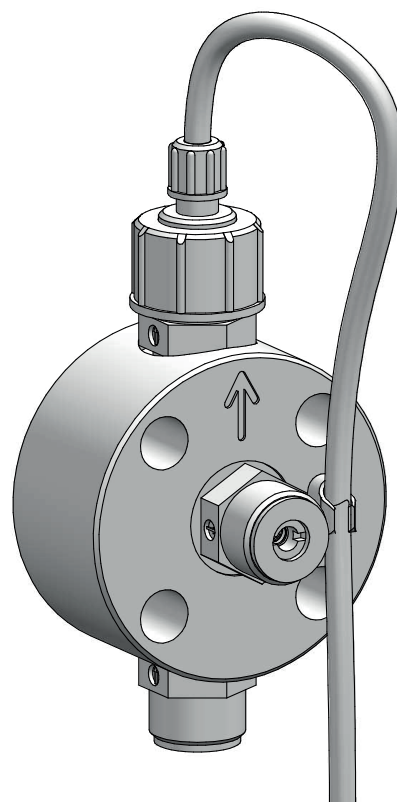


## Dosing head ventilation V

### Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!



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# 1 Notes for the Reader

These Operating instructions contain information and behaviour rules for safe and designated operation of the Dosing head ventilation V.

Observe the following principles:

- Read the entire operating manual prior to starting-up the device.
- Ensure that everyone who works with or on the device has read the operating manual and follows it.
- Maintain the operating manual throughout the service life of the device.
- Pass the operating manual on to any subsequent owner of the device.

## 1.1 General non-discrimination

In this operating manual, only the male gender is used where grammar allows gender allocation. The purpose of this is to make the text easy to read. Men and women are always referred to equally. We would like to ask female readers for understanding of this text simplification.

## 1.2 Explanation of the signal words




Different signal words in combination with warning signs are used in this operating manual. Signal words illustrate the gravity of possible injuries if the risk is ignored:

Signal word	Meaning
DANGER!	Refers to imminent danger. Ignoring this sign may lead to death or the most serious injuries.
WARNING	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to death or severe injuries.
CAUTION	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to minor injury or damage to property.
PLEASE NOTE	Refers to a danger which, if ignored, may lead to risk to the machine and its function.

Tab. 1: Explanation of the signal words

## 1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:

Warning sign	Type of danger
	General danger
	Danger from corrosive substances
	Danger of damage to machine or functional influences

Tab. 2: Explanation of the warning signs

## 1.4 Identification of warnings

Warnings are intended to help you recognise risks and avoid negative consequences.

This is how warnings are identified:

Warning sign	SIGNAL WORD
<p><b>Description of danger.</b> Consequences if ignored.</p> <p>⇒ The arrow signals a safety precaution to be taken to eliminate the danger.</p>	

## 1.5 Instruction for action identification

This is how pre-conditions for action are identified:

- ✓ Pre-condition for action which must be met before taking action.
- ✘ A resource such as a tool or auxiliary materials required to perform the operating instructions.

This is how instructions for action are identified:


- ➔ Separate step with no follow-up action.
- 1. First step in a series of steps.
- 2. Second step in a series of steps.
  - ▶ Result of the above action.
- ✓ **Action completed, aim achieved.**


## 2 Safety


### 2.1 General warnings

The following warnings are intended to help you eliminate the dangers that can arise while handling the device. Risk prevention measures always apply regardless of any specific action.

Safety instructions warning against risks arising from specific activities or situations can be found in the respective sub-chapters.

	<b>DANGER!</b>
<b>Danger to life from impurities!</b>	
Impurities can provoke violent reactions in a number of dosing media (e.g. hydrogen peroxide). Make sure that the dosing medium used is allowed to be returned to the medium container.	
⇒ Follow the safety data sheet of the dosing medium.	
⇒ Only use dosing head ventilation if no danger comes from smaller impurities in the dosing medium.	

	<b>WARNING</b>
<b>Danger from unsuitable materials</b>	
The materials of the dosing pump and hydraulic parts of the system must be suitable for the dosing medium that is used. Should this not be the case, the dosing media may leak.	
⇒ Make sure that the materials you are using are suitable for the dosing medium.	
⇒ Make sure that the lubricants, adhesives, sealants, etc. that you use are suitable for the dosing medium.	

	<b>CAUTION</b>
<b>Danger when changing the dosing medium!</b>	
Changing the dosing media can provoke unexpected reactions, damage to property and injury.	
⇒ Clean the dosing pump and the system parts in contact with the media thoroughly before changing the dosing medium.	

### 2.2 Hazards due to non-compliance with the safety instructions

Failure to follow the safety instructions may endanger not only persons, but also the environment and the device.




The specific consequences can be:

- Danger for individuals through dangerous dosing media
- danger to the environment caused leaking from the system

### 2.3 Personal protective equipment

Based on the degree of risk posed by the dosing medium and the type of work you are carrying out, you must use corresponding protective equipment. Read the Accident Prevention Regulations and the Safety Data Sheets to the dosing media find out what protective equipment you need.

You will require the minimum of the following personal protective equipment:

Personal protective equipment required	
	Protective goggles
	Protective clothing
	Protective gloves

Tab. 3: Personal protective equipment required

Wear the following personal protective equipment when performing the following tasks:

- Commissioning
- Shut-down
- Maintenance work
- Entsorgung

### 2.4 Personnel qualification

#### 2.4.1 Specialist staff

Thanks to their professional training, knowledge, experience and knowledge of the relevant specifications, specialist staff are able to perform the job allocated to them and recognise and/or eliminate any possible dangers by themselves.

#### 2.4.2 Personnel tasks

In the table below you can check what qualifications are the pre-condition for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks!

Qualification	Activities
Specialist staff	<ul style="list-style-type: none"> <li>■ Installation</li> <li>■ Fault rectification</li> <li>■ Maintenance</li> </ul>

Tab. 4: Personnel qualification

### 3 Intended use

#### 3.1 Notes on product warranty

Any non-designated use of the device can impair its function and the protection provided. This leads to invalidation of any warranty claims!

Please note that liability is on the side of the user in the following cases:

- the device is operated in a manner which is not consistent with these operating instructions, particularly safety instructions, handling instructions and the section "Intended Use".
- Information on usage and environment (see section 5 "Technical data" on page 7) is not adhered to.
- If people operate the device who are not adequately qualified to carry out their respective activities.
- No original spare parts or accessories of Lutz-Jesco GmbH are used.
- Unauthorised changes are made to the device.
- The user uses different dosing media than those indicated in the order.
- Maintenance and inspection intervals are not adhered to as required or not adhered to at all.
- The device is commissioned before it or the corresponding system has been correctly and completely installed.
- Safety equipment has been bridged, removed or made inoperative in any other way.

#### 3.2 Intended purpose

The Dosing head ventilation V permits trouble-free dosing of the emitted media. The automatic vent valve separates developing gas bubbles and thereby enables independent re-aspiration of the pump with back pressure.

#### 3.3 Prohibited dosing media

The device must not be used for the following media and substances:

- Gaseous media
- Radioactive media
- Solid media
- Combustible media
- All other media that are not suitable for transport via dosing head ventilation

### 4 Product description

#### 4.1 Scope of delivery

Please compare the delivery note with the scope of delivery. The following items are part of the scope of delivery:

- Dosing head ventilation
- Return hose (2 m)

#### 4.2 Design and function

##### 4.2.1 Device design

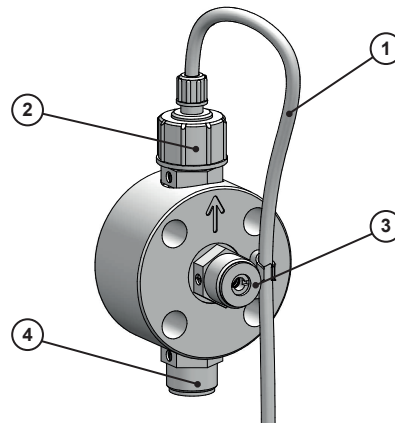


Fig. 1: Device design

No.	Description
1	Return hose
2	Vent valve
3	Pressure valve
4	Suction valve

Tab. 5: Components

The dosing head ventilation is fitted with three connection valves. The upper vent valve (marked with an arrow) effects the return of a small proportion of the dosing medium in the tank. This means that gas bubbles can be transported out of the dosing head.

In contrast to conventional pressure valves, the spring-loaded pressure valve is located in the centre.

##### 4.2.2 Function description

A proportion of the stroke volume and any gas bubbles are returned to the tank via the vent valve during the pressure stroke. This permits re-aspiration of the pump, even given back pressure.

## 5 Technical data

Information	Value	Dosing head ventilation V Size						
		05	1	2	4	6	10	15
Delivery capacity at max. backpressure	l/h	0.30	0.63	1.60	3.10	5.10	7.30	11.00
	ml/stroke	0.04	0.04	0.17	0.29	0.47	0.68	0.73
max. delivery pressure	bar	16				8	6	3
Max. delivery pressure in Eco-Mode 1*	bar	10				6	4	2
Max. delivery pressure in Eco-Mode 2*	bar	6				4	2	1
Delivery capacity at average backpressure	l/h	0.39	0.81	1.90	3.50	5.90	8.00	13.00
	ml/stroke	0.05	0.05	0.20	0.33	0.54	0.74	0.86
Medium back pressure	bar	8				4	3	1
Max. viscosity	mPa·s	20						
Approved ambient temperature	°C	5 – 40						
Approved media temperature	°C	35						
Materials	Housing	PMMA, PVC						
	Seals	FPM or EPDM						
Further components coming into contact with the media		PVDF, ceramic, hastelloy						

Tab. 6: Output data

\* In the case of operation in Eco-Mode energy saving mode, the delivery capacity is 5-10 % less than in normal mode (with the same backpressure).

## 6 Dimensions

All dimensions in millimetres (mm).

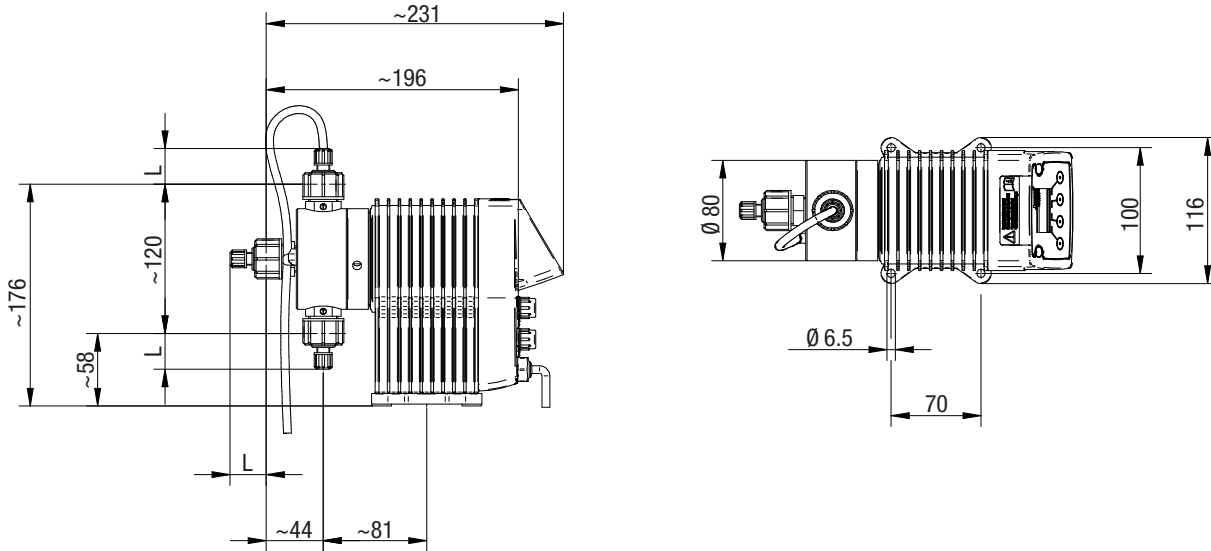


Fig. 2: Dimensional drawing

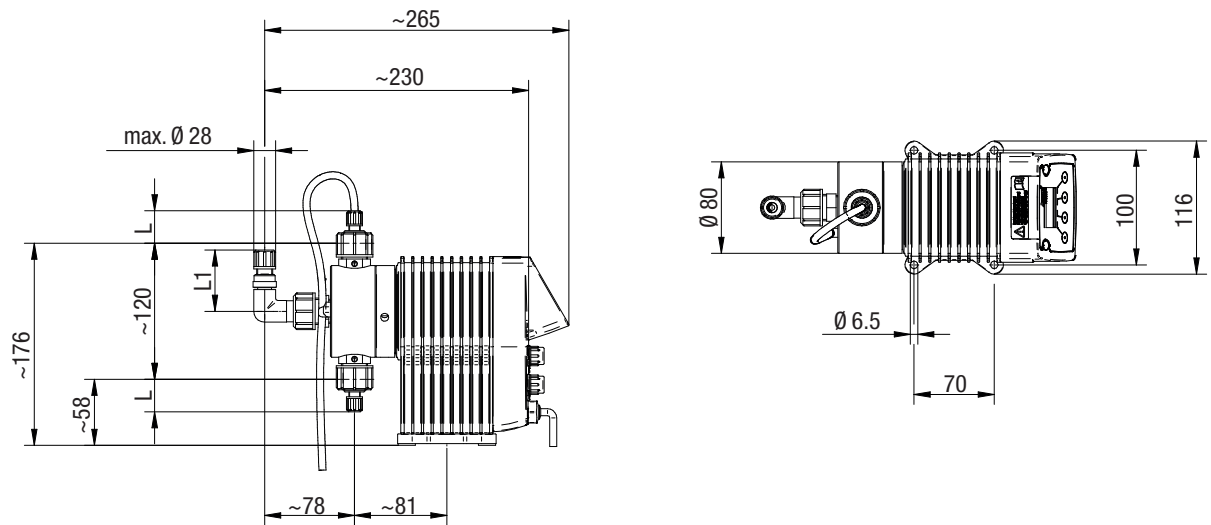


Fig. 3: Dimensioned drawing with angle connection

Connection	Material	Scale	Nominal width	L	L1
Hose clamp connection	PVC	4/6 mm	DN4	31	47
		1/4" x 3/8"	1/4"	34	54
		6/9 mm	DN6	34	54
		6/12 mm	DN6	15	62



## 7 Capacity

When using Dosing head ventilation V, the delivery capacity is reduced in comparison to the use of a normal dosing head. Part of the pressure stroke is conveyed into the return hose to remove gas bubbles from the dosing head.

As such, the regular delivery capacity data of your dosing pump as specified in the sales documents no longer apply.

Comply with the following delivery capacity curves. The curves show which delivery capacity the dosing pump can provide given a specific back pressure. The values have been discerned on the test bench and apply at 20 °C (68 °F) for water and a stroke frequency of 100%. The character of the dosing medium (density, viscosity, temperature) changes the delivery capacity. The actual delivery capacity should be measured under operation conditions and adapted.



If you measure the delivery capacity by dosing calibration on the suction side, the return hose must lead into the measuring jug.

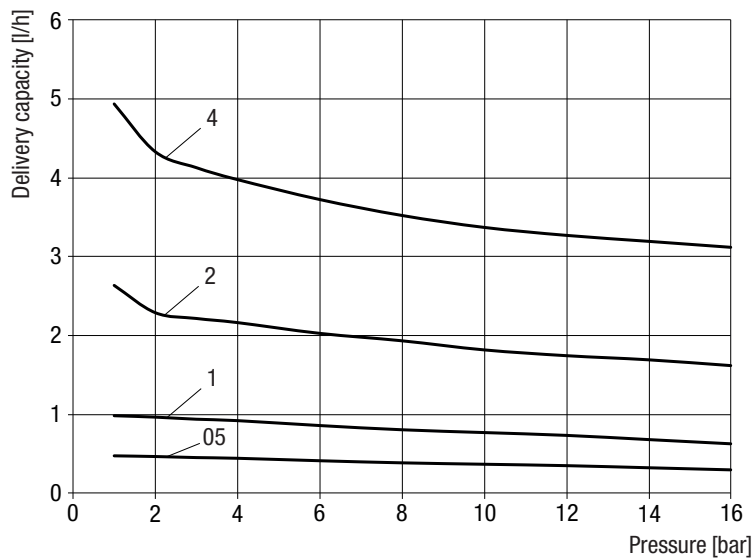


Fig. 4: Delivery capacity curve sizes 05 - 4

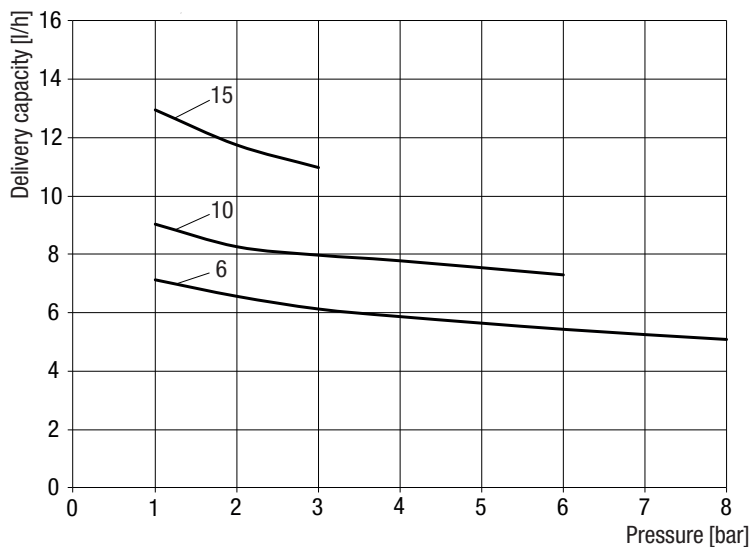



Fig. 5: Delivery capacity curve sizes 6 - 15

## 8 Installation

### 8.1 Principles

	<b>CAUTION</b>
<b>Danger of personal injury and material damage!</b>	
If the dosing pump is installed below or at the same level as the fluid level in the supply tank, there is a risk of uncontrolled leakage of dosing medium.	
⇒ Make sure that the return hose is firmly installed on the supply tank above the fluid level.	
⇒ There is also a risk of uncontrolled leakage if the dosing pump has a diaphragm rupture. We therefore recommend the use of a suction pressure regulator.	

- The leakage opening of the dosing head must be visible so that you can detect a diaphragm rupture. It must be possible for the outflow from the leakage drain to be on a free downwards gradient.
- To allow you to easily inspect the pressure conditions in the system, you should provide connections for pressure gauges close to the suction and pressure valves.
- The system piping must not exert any force on the connections and valves of the dosing head ventilation.
- Steel piping should be connected to the dosing head ventilation via flexible pipe sections.
- The nominal diameters of the piping and the installed fittings should be rated the same as or greater than the nominal diameters of the valves of the dosing head ventilation (suction and pressure valve).
- The suction line should be kept as short as possible.
- You should avoid intertwined hoses.
- Avoid loops, since air bubbles can collect.

### 8.2 Installing the dosing head ventilation

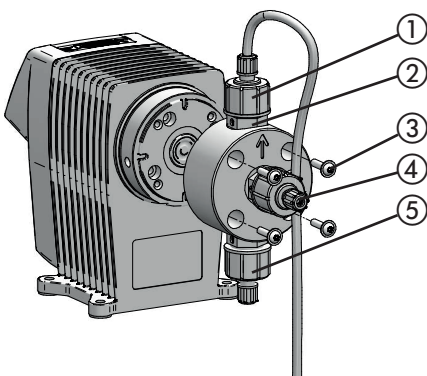



Fig. 6: Aligning the dosing head ventilation

Precondition for action:

- ✓ You have disconnected the dosing pump from the mains supply.
- ✓ You have depressurised the hydraulic sections of the plant.
- ✓ You have rinsed the dosing head using a safe medium (e.g. water).

Perform the following working steps:

1. Screw out the four screws (3) on the dosing head using a suitable tool (SW 3 Allen key) and take off the dosing head.
2. Clean the dosing pump diaphragm flange.
3. Bring the dosing head ventilation into position on the dosing pump. Comply with the flow direction.
4. Insert the screws and tighten them slightly. Then tighten the screws cross-wise with a torque of 180 Ncm.

	<b>PLEASE NOTE</b>
<b>Damage to the dosing head/diaphragm leaks</b>	
If you tighten the screws too much, this can lead to the dosing head being damaged. However, not tightening the screws enough leads to the diaphragm being leaky and correct functioning being affected.	
⇒ Tighten the screws to a torque of 180 Ncm.	

5. Screw the hose clamp connection (1) of the return hose with the seal to the vent valve (2) and press the return hose into the hose clip. Ensure that the hose is installed without kinking.
6. Lead the other end of the return hose back into the tank. The end of the return hose must have free discharge and may not be submerged in the dosing medium. Secure the end of the ventilation hose against slipping out.
7. Connect the suction line to the suction valve (5) and the pressure line to the pressure valve (4).

✓ **The dosing head ventilation is fitted.**

## 9 Maintenance

**WARNING**

**Caustic burns or other burns through dosing media!**

While working on the dosing head, valves and connections, you may come into contact with dosing media.

- ⇒ Use sufficient personal protective equipment.
- ⇒ Rinse the dosing head with a medium (e.g. water) which does not pose any risk.
- ⇒ Release pressure in hydraulic parts.
- ⇒ Never look into open ends of plugged pipelines and valves.

### 9.1 Maintenance intervals

This table gives you an overview of maintenance work and the intervals at which you must carry it out. The next few sections contain instructions for carrying out this work.

Interval	Maintenance
Regularly	<ul style="list-style-type: none"> <li>■ Tighten up dosing head bolts</li> <li>■ Check the stability of the vent valves</li> <li>■ Clean the vent valves</li> <li>■ Check diaphragm for leakage due to rupture</li> </ul>
After 1 year	<ul style="list-style-type: none"> <li>■ Replace parts that are subject to wear (diaphragm, valves, seals)</li> </ul>

Tab. 7: Maintenance intervals

### 9.2 Tighten up dosing head bolts

→ Tighten the dosing head bolts in diagonally opposite sequence with a torque wrench.

The necessary torque is 180 Ncm.

### 9.3 Change the diaphragm

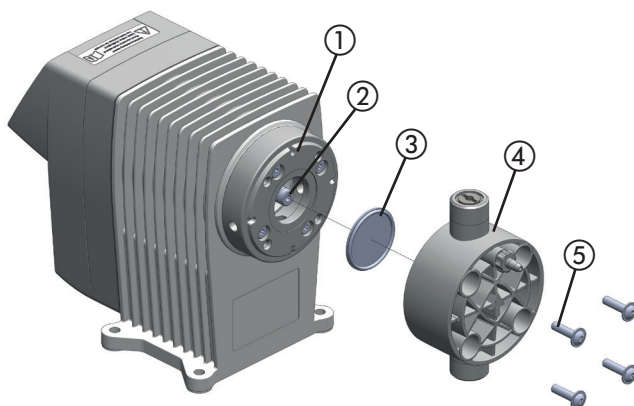


Fig. 7: Exploded view of the diaphragm and dosing head

#### 9.3.1 Remove the old diaphragm

Precondition for action:

- ✓ You have disconnected the dosing pump from the mains supply.
- ✓ You have depressurised the hydraulic sections of the plant.
- ✓ You have rinsed the dosing pump using a safe medium (e.g. water).

Perform the following working steps:

1. Screw out the four screws (5) on the dosing head using a suitable tool (SW 3 Allen key) and take off the dosing head (4).
2. Use pliers to bend the edge of the diaphragm (3) slightly upwards and screw it out counter-clockwise.

#### 9.3.2 Install a new diaphragm

Precondition for action:

- ✓ You have thoroughly cleaned the diaphragm rod (2) and the diaphragm flange (1) so that the new diaphragm is not affected by dosing medium residues.
- ✓ The diaphragm (3) thread was lightly greased (e.g. Molycote Longterm W2).

1. Screw the diaphragm manually in the clockwise direction until it safely contacts into the diaphragm rod.
2. Bring the dosing head into position and insert the screws. First tighten the screws finger-tight. After this, tighten the bolts on the diagonal, e.g. top left – bottom right – top right – bottom left.

PLEASE NOTE

**Damage to the dosing head/diaphragm leaks**

If you tighten the screws too much, this can lead to the dosing head being damaged. However, not tightening the screws enough leads to the diaphragm being leaky and correct functioning being affected.

⇒ Tighten the screws to a torque of 180 Ncm.

✓ **Diaphragm change finished.**

It may be necessary to gauge the delivery capacity after replacing the diaphragm or other dosing pump spare parts.

## 10 Troubleshooting

See below for information about how to rectify faults on the device or the system. If you cannot eliminate the fault, please consult with the manufacturer on further measures or return the device for repair.

Fault	Possible cause	Remedy
Dosing pump not delivering or output too low	Valve leaking or blocked	<ul style="list-style-type: none"> <li>■ Clean the valve and vent the dosing pump.</li> <li>■ Tighten the screw connections.</li> </ul>
	Valve damaged (e.g. valve ball)	<ul style="list-style-type: none"> <li>■ Remove the damaged parts or install a new valve.</li> </ul>
	Suction line is blocked (e.g. screen in foot valve)	<ul style="list-style-type: none"> <li>■ Clean the suction line.</li> </ul>
	Suction line is leaking	<ul style="list-style-type: none"> <li>■ Seal the leak locations or replace the parts.</li> </ul>
	Suction head too high	<ul style="list-style-type: none"> <li>■ Reduce the suction lift.</li> <li>■ Install a priming aid.</li> </ul>
	Viscosity too high	<ul style="list-style-type: none"> <li>■ Possibly reduce the concentration of the dosing medium or increase the temperature.</li> <li>■ Increase the pipe diameter.</li> </ul>
	System backpressure too high (measured at discharge connection of dosing pump)	<ul style="list-style-type: none"> <li>■ Clean blocked injection nozzle.</li> <li>■ Install pulsation dampeners to reduce pressure peaks if pipes are too long.</li> <li>■ Check function of safety valves.</li> </ul>
Diaphragm is torn or tears often	Pressure peaks due to acceleration with long suction lines	<ul style="list-style-type: none"> <li>■ Install a suction pressure regulator.</li> </ul>
	The materials are not suitable for the dosing medium being used	<ul style="list-style-type: none"> <li>■ Check the resistance of the materials.</li> </ul>
	Diaphragm not screwed up to the end stop on the diaphragm rod	<ul style="list-style-type: none"> <li>■ Screw a new diaphragm up to the end stop.</li> </ul>

Tab. 8: Troubleshooting

## 11 Declaration of no objection

Please copy the declaration, stick it to the outside of the packaging and return it with the device.

### Declaration of no objection

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type: ..... Part-no.: .....

Order No.: ..... Date of delivery: .....

Reason for repair: .....

.....

.....

#### Dosing medium

Description: ..... Irritating:  Yes  No

Properties: ..... Corrosive:  Yes  No

We hereby certify, that the product has been cleaned thoroughly inside and outside before returning, that it is free from hazardous material (i.e. chemical, biological, toxic, flammable, and radioactive material) and that the lubricant has been drained.

If the manufacturer finds it necessary to carry out further cleaning work, we accept the charge will be made to us.

We assure that the aforementioned information is correct and complete and that the unit is dispatched according to the legal requirements.

Company / address: ..... Phone: .....

..... Fax: .....

..... Email: .....

Customer No.: ..... Contact person: .....

Date, Signature: .....

## 12 Warranty claim

### Warranty claim

Please copy and send it back with the unit!

If the device breaks down within the period of warranty, please return it in a cleaned condition with the complete warranty claim.

#### Sender

Company: ..... Phone: ..... Date: .....

Address: .....

Contact person: .....

Manufacturer order no.: ..... Date of delivery:.....

Device type: ..... Serial number: .....

Nominal capacity / nominal pressure: .....

Description of fault:.....

.....

.....

.....

.....

.....

.....

.....

#### Service conditions of the device

Point of use / system designation:.....

.....

.....

Accessories used (suction line etc.):.....

.....

.....

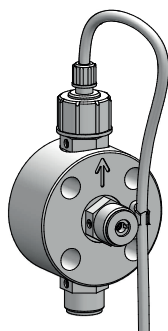
.....

Commissioning (date): .....

Duty period (approx. operating hours): .....

Please describe the specific installation and enclose a simple drawing or picture of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.





### **Lutz-Jesco GmbH**

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Operating instructions  
Dosing head ventilation V