Flow Meter
FLOWCON LP 1
Operating Instructions

Read the Operating Instructions!
The user is responsible for installation and operation related mistakes!
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1 Notes for the Reader

This operating manual contains information and behaviour rules for the safe and designated operation of the device.

Observe the following principles:
- read the entire operating manual prior to inaugurating the device.
- ensure that everyone who works with or on the device has read the operating manual and follows the instructions.
- 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 these operating instructions, 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:

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANGER</td>
<td>Refers to imminent danger. Ignoring this sign may lead to death or the most serious injuries.</td>
</tr>
<tr>
<td>WARNING</td>
<td>Refers to a potentially hazardous situation. Failure to follow this instruction may lead to death or severe injuries.</td>
</tr>
<tr>
<td>CAUTION</td>
<td>Refers to a potentially hazardous situation. Failure to follow this instruction may lead to minor injury or damage to property.</td>
</tr>
<tr>
<td>NOTICE</td>
<td>Refers to a danger which, if ignored, may lead to risk to the machine and its function.</td>
</tr>
</tbody>
</table>

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:

<table>
<thead>
<tr>
<th>Warning sign</th>
<th>Type of danger</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Danger of caustic or other burns</td>
</tr>
<tr>
<td></td>
<td>General danger zone</td>
</tr>
<tr>
<td></td>
<td>Danger of damage to machine or functional influences</td>
</tr>
</tbody>
</table>

1.4 Identification of warnings

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

This is how warnings are identified:

<table>
<thead>
<tr>
<th>Warning sign</th>
<th>SIGNAL WORD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Description of danger.</td>
</tr>
<tr>
<td></td>
<td>Consequences if ignored.</td>
</tr>
<tr>
<td></td>
<td>The arrow signals a safety precaution to be taken to eliminate the danger.</td>
</tr>
</tbody>
</table>

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.

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 to 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.

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:

- failure of important functions of the device and of the corresponding system,
- failure of required maintenance and repair methods,
- danger to persons,
- danger to the environment caused by substances leaking from the system.

2.3 Working in a safety-conscious manner

Besides the safety instructions specified in this operating manual, further safety rules apply and must be followed:

- accident prevention regulations
- safety and operating provisions,
- safety regulations on handling hazardous substances,
- environmental protection provisions,
- applicable standards and legislation.

2.4 Personal protective equipment

Depending on the type of work you are carrying out, you must use appropriate protective equipment. Read the Accident Prevention Regulations and the Safety Data Sheets to the dosing media find out what protective equipment you need.

As a minimum, the following protective equipment is recommended:

- Protective clothing
- Protective gloves
- Goggles
Corresponding protective equipment must be used during these tasks:
- commissioning,
- working on the dosing pump while running,
- shutdown,
- maintenance work,
- disposal.

2.5 Personnel qualification

Any personnel who work on the device must have appropriate special knowledge and skills.

Anybody who works on the product must meet the conditions below:
- attendance at all the training courses offered by the owner,
- personal suitability for the respective activity,
- sufficient qualification for the respective activity,
- training in how to handle the device,
- knowledge of safety equipment and the way this equipment functions,
- knowledge of this operating manual, particularly of safety instructions and sections relevant for the activity,
- knowledge of fundamental regulations regarding health and safety and accident prevention.

All persons must generally have the following minimum qualification:
- training as specialists to carry out work on the device unsupervised,
- sufficient training that they can work on the device under the supervision and guidance of a trained specialist.

These Operating instructions differentiate these user groups:

2.5.1 Specialist staff

Specialist staff are able, thanks to their professional training, knowledge and experience as well as knowledge of the respective provisions, to do the job allocated to them and recognise and/or eliminate any possible dangers by themselves.

2.5.2 Trained persons

Trained persons have received training from the operator about the tasks they are to perform and about the dangers stemming from improper behaviour.

Trained persons have attended all trainings offered by the operator.

2.5.3 Personnel tasks

In the table below, you can check what personnel qualifications are required for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks.

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist staff</td>
<td>Assembly</td>
</tr>
<tr>
<td></td>
<td>Hydraulic installations</td>
</tr>
<tr>
<td></td>
<td>Commissioning</td>
</tr>
<tr>
<td></td>
<td>Taking out of operation</td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
</tr>
<tr>
<td></td>
<td>Repairs</td>
</tr>
<tr>
<td></td>
<td>Disposal</td>
</tr>
<tr>
<td></td>
<td>Fault rectification</td>
</tr>
<tr>
<td>Trained persons</td>
<td>Storage</td>
</tr>
<tr>
<td></td>
<td>Transportation</td>
</tr>
<tr>
<td></td>
<td>Control</td>
</tr>
</tbody>
</table>
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 chapter Intended Use
- Information on usage and environment (see "Technical data" on page 9) 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.
- The user does not use dosing media under the conditions agreed with the manufacturer such as modified concentration, density, temperature, contamination, etc.

3.2 Intended purpose

The flow meter FLOWCON LP 1 is intended for the following purpose:
Monitoring an oscillating volume flow during delivery through a solenoid diaphragm dosing pump of the type MAGDOS LP 05 – 15.

3.3 Device revision

This operating manual applies to the following devices:

<table>
<thead>
<tr>
<th>Device</th>
<th>Month / year of manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Meter FLOWCON LP 1</td>
<td>11/2013 onwards</td>
</tr>
</tbody>
</table>

The production date is indicated on the rating plate.

3.4 Prohibited dosing media

The device must not be used for the following media and substances:
- Gaseous media,
- radioactive media,
- solid substances,
- combustible media,
- Media with viscosities greater than 400 mPa s (if using dosing pump MAGDOS LP 15: greater than 40 mPa s).
4 Product description

4.1 Scope of delivery

Carefully check the delivery prior to installation and refer to the delivery note to ensure the delivery is complete and to check for any transport damage. Contact the supplier and/or carrier regarding any questions concerning the delivery and/or transport damage. Do not operate defective devices.

The scope of delivery includes:
- flow meter FLOWCON LP 1
- spring for viscosities from 150 – 400 mPas
- operating manual

4.2 Structure of the device

![Structure of the device]

4.3 Function

The flow meter FLOWCON LP 1 was specially developed for monitoring oscillating volume flows. The function is based on the evaluation of the pulsating dosing quantity that typically occurs in dosing pumps. During the pressure stroke, a float is lifted from the flowing fluid, thus activating a reed switch. By adjusting the switch point, it is possible to monitor the dosing quantity previously determined by gauging. This makes it possible not only to sense whether the dosing pump is delivering fluid, but also whether the set dosing capacity is achieved. Assuming equal pressure and viscosity of the medium, reproducibility is of the order of 10 – 20%.

4.4 Rating plate

The rating plate contains information on the safety and functional method of the product. The rating plate must be kept legible for the duration of the service life of the product.

![Rating plate]

<table>
<thead>
<tr>
<th>Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adjusting screw for the reed switch</td>
</tr>
<tr>
<td>2</td>
<td>Counternut</td>
</tr>
<tr>
<td>3</td>
<td>Spring for viscous metered media</td>
</tr>
<tr>
<td>4</td>
<td>Reed contact</td>
</tr>
<tr>
<td>5</td>
<td>Float</td>
</tr>
<tr>
<td>6</td>
<td>Nozzle screw</td>
</tr>
<tr>
<td>7</td>
<td>Input, G 5/8”, union nut</td>
</tr>
<tr>
<td>8</td>
<td>Bypass valve</td>
</tr>
<tr>
<td>9</td>
<td>Arrow indicating the direction of throughflow of the dosing medium</td>
</tr>
<tr>
<td>10</td>
<td>Output, G 5/8”, threaded pin</td>
</tr>
</tbody>
</table>
### 4.5 Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing material</td>
<td>PMMA/PVC</td>
</tr>
<tr>
<td>Sealing material</td>
<td>FPM or EPDM</td>
</tr>
<tr>
<td>Connections</td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>Union nut G 5/8</td>
</tr>
<tr>
<td>Output</td>
<td>Threaded pin G 5/8</td>
</tr>
<tr>
<td>Dosing range</td>
<td>MAGDOS LP 05 – 15</td>
</tr>
<tr>
<td>Max. viscosity</td>
<td>400 mPa s (dependent on spring used)</td>
</tr>
<tr>
<td></td>
<td>If the dosing pump MAGDOS LP 15 is used:</td>
</tr>
<tr>
<td></td>
<td>40 mPa s</td>
</tr>
<tr>
<td>Max. backpressure</td>
<td>16 bar</td>
</tr>
<tr>
<td>Max. stroke frequency</td>
<td>250 min⁻¹</td>
</tr>
<tr>
<td>Approved media temperature</td>
<td>5 – 35 °C</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>0 – 40 °C</td>
</tr>
<tr>
<td>Switching capacity reed switch</td>
<td>48 V AC/DC, 0.5 A, max. 12 VA</td>
</tr>
<tr>
<td>Weight</td>
<td>0.26 kg</td>
</tr>
</tbody>
</table>
5 Dimensions

All dimensions in mm

5.1 Flow meter FLOWCON LP 1

Fig. 5-1: Dimensioned drawing of flow meter FLOWCON LP 1

5.2 Base

Fig. 5-2: Base

| G 5/8" | 4/6" | 45 |
| G 6/12" | 58 |

5.3 Wall holder

Fig. 5-3: Wall holder
6 Installation

Notes on assembly:

- The flow meter FLOWCON LP 1 can be mounted directly on the discharge valve of the dosing pump.
- If it cannot be mounted on the discharge valve, the FLOWCON LP 1 can also be mounted with the help of a pedestal or wall holder.
- The FLOWCON LP 1 must always be assembled in the vertical position.
- The arrow indicating the flow direction of the metered medium must always point upwards.
- Since the pulsating flow of the dosing pump is evaluated, there must be no damping between the discharge valve of the dosing pump and FLOWCON LP 1 caused by excessive restrictor resistance or pulsation dampers.
- When laying the hose, make sure that no loops are created between the dosing pump and FLOWCON LP 1. The entrapped air or gas can impair the function of the FLOWCON LP 1.
- Hose lengths greater than 1 m should be avoided.
- Magnetic and iron-containing objects (such as tools) in the vicinity of the FLOWCON LP 1 could influence the function.
- Assembly directly beside or above the drive magnets in the dosing pump can lead to faults. A minimum distance of 10 cm should be maintained.

6.1 FLOWCON LP 1 installation

Precondition for action:
- You have disconnected the dosing pump from the mains supply.

Perform the following working steps:

1. Place a gasket (7) that is suitable for the metered medium between FLOWCON LP 1 (5) and the discharge valve on the dosing pump (8).
2. Screw the FLOWCON LP 1 (5) using the union nut (6) onto the discharge valve (8) of the dosing pump.
3. Place a gasket (3) that is suitable for the metered medium between FLOWCON LP 1 (5) and connect (2) of the pressure line (1).
4. Screw the connection (2) onto the connection of the FLOWCON LP 1 (4).
5. Connect the connecting cable (10) of the FLOWCON LP 1 to the connection port 5 (dosing control input) on the dosing pump. Screw the union nut all the way onto the M12x1 plug connector (9) to ensure sufficient contact and tightness.

FLOWCON LP 1 installed.
6.2 Adjust to the viscosity of the metered medium

To guarantee the correct function of the flow meter FLOWCON LP 1, it is necessary to adjust it to the viscosity of the metered medium used. If necessary, you can remove or replace the spring that is located in the bypass above the float.

The following configuration is recommended for the different viscosities:

<table>
<thead>
<tr>
<th>Viscosity of the metered medium</th>
<th>Configuration FLOWCON LP 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 10 mPa s</td>
<td>Operation without spring</td>
</tr>
<tr>
<td>10 – 150 mPa s</td>
<td>Operation with standard spring</td>
</tr>
<tr>
<td>150 – 400 mPa s</td>
<td>Operation with stronger spring (included in scope of delivery)</td>
</tr>
</tbody>
</table>

Precondition for action:
- ✓ The device was thoroughly rinsed.
- ✓ The device was emptied.
- ✓ The device was dismounted.

Perform the following working steps:

1. Unscrew the nozzle screw (3) anti-clockwise.
2. Remove the float (2) and spring (1).
3. Insert a suitable spring (for viscosities below 10 mPa s, the spring is not required).
4. Insert the float (2) with the pointed end facing down.
5. Screw in the nozzle screw (3) clockwise. Do not use a tool for this! Tighten the nozzle screw by hand.

✓ FLOWCON LP 1 adjusted to the viscosity of the metered medium.
7 Operation

7.1 FLOWCON LP 1 Commissioning

Precondition for action:

- The flow meter FLOWCON LP 1 was installed hydraulically and electrically in accordance with section “Installation” (see page 11).
- The dosing pump MAGDOS LP was installed hydraulically and electrically in accordance with the relevant operating manual.
- The dosing pump MAGDOS LP was commissioned.

7.1.1 Venting

Perform the following working steps:

1. Open the bypass valve (3), by unscrewing it counterclockwise with a screwdriver all the way to the end stop.
2. Press Menu.
3. Use ↑ or ↓ to select the menu item Venting and press OK.
4. Press and hold the Start key.
   - The dosing pump starts delivery at the highest stroke frequency.
5. Release the Start key as soon as no more air bubbles escape.
   - The dosing pump stops delivery.
6. Close the bypass valve (3).
   - FLOWCON LP 1 vented.

7.1.2 Activating FLOWCON LP 1

1. Press Menu.
2. Use ↑ or ↓ to select the menu item System setup and press OK.
3. Use ↑ or ↓ to select the menu item Dosing control and press OK.
4. Press Mode.
   - Flow meter FLOWCON LP 1 activated.

In the factory settings, the parameters are set up as follows:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faulty strokes</td>
<td>5</td>
<td>This setting permits 5 registered faulty strokes. After the 5th faulty stroke, the message &quot;Flowcon error&quot; appears in the display on the dosing pump.</td>
</tr>
<tr>
<td>Pump</td>
<td>On</td>
<td>If this setting is set to On, the dosing pump continues to run if the set number of faulty strokes is reached.</td>
</tr>
<tr>
<td>Adjust</td>
<td>Error</td>
<td>The adjustment was not yet or not correctly performed.</td>
</tr>
</tbody>
</table>

7.1.3 Deactivating FLOWCON LP 1

1. Press Menu.
2. Use ↑ or ↓ to select the menu item System setup and press OK.
3. Use ↑ or ↓ to select the menu item Dosing control and press OK.
4. Press Mode.
   - Flow meter FLOWCON LP 1 deactivated.

7.1.4 Set behaviour in the event of an error

1. Press Menu.
2. Use ↑ or ↓ to select the menu item System setup and press OK.
3. Use ↑ or ↓ to select the menu item Dosing control and press OK.
4. Press Stop.
   - The dosing pump displays the menu 6.9 Dosing control, not active is pre-set as the mode.

   Fig. 7-4: Dosing control “Pump Stop”

   ➤ Press Stop.
   - The dosing pump is set to ON and does not stop when the “Flowcon error” message appears.
7.1.5 Set faulty strokes

1. Press Menu.
2. Use ↑ or ↓ to select the menu item System setup and press OK.
3. Use ↑ or ↓ to select the menu item Faulty strokes and press OK.
4. Use + and - to set the desired value. Adjustment range: 0 – 20 faulty strokes.

If the set number of permissible faulty strokes is not reached within 100 dosing strokes, the faulty strokes previously saved are deleted again. This avoids an unnecessary fault message, e.g. due to isolated gas bubbles (e.g. 1 faulty stroke/100 dosing strokes = 1% dosing error).

4. Press OK.

 Faulty strokes set.

7.1.6 Perform adjustment

The FLOWCON LP 1 contains a reed switch whose closing time is used to determine whether or not dosing strokes are correctly executed. To ensure that this functions, the FLOWCON LP 1 must be set to the delivery capacity of the dosing pump and the viscosity of the metered medium used. To do this, use the menu item Adjust.

Perform the following working steps:

1. Press Menu.
2. Use ↑ or ↓ to select the menu item System setup and press OK.
3. Use ↑ or ↓ to select the menu item Dosing control and press OK.
4. Use ↑ or ↓ to select the menu item Adjust and press OK.

The menu displays a symbol for the reed switch:

Fig. 7-6: Menu “Adjust” with symbol for closed contact

5. The symbol should be open. If it is closed, turn the adjusting screw (1) (see fig. 7-1 on page 13) counterclockwise until the contact symbol is open.
6. Turn the adjusting screw (1) slowly clockwise until the contact symbol is closed.
7. Unscrew the adjusting screw (1) again by three turns.
   ▶ The contact symbol is open.
8. Open the bypass valve (3), by unscrewing it counterclockwise with a screwdriver all the way to the end stop.
   ▶ The dosing pump starts conveying at approx. 20 strokes per minute.
10. Slowly close the bypass valve (3) with a screwdriver until the contact symbol closes with every dosing stroke. Once this point is reached, a circular symbol appears on the display. This symbol is used to find the optimum switch point for the reed switch.

The optimum switch point is reached if the circular symbol is precisely centred between the brackets:

Fig. 7-8: Optimum switch point

The circular symbol can be moved as follows:

<table>
<thead>
<tr>
<th>Adjusting screw (1)</th>
<th>Circular symbol movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unscrew</td>
<td>to the left</td>
</tr>
<tr>
<td>Screw in</td>
<td>to the right</td>
</tr>
</tbody>
</table>

11. Slowly screw in or unscrew the adjusting screw (1) until the circular symbol is positioned inside the brackets and remains there. If the circular symbol is not displayed, you have turned the adjusting screw too far in one direction. The contact symbol will no longer close. Turn the adjusting screw (1) in the other direction.
12. Tighten the counternut (2) clockwise. While doing so, hold the adjusting screw (1) securely to avoid losing the setting.
   ▶ The Adjust parameter is set to “OK”.

   ▶ The Adjust parameter is set to “OK”.

Adjustment performed.
7.2 Maintenance

- The flow meter FLOWCON LP 1 should be checked regularly (at least every six months) to ensure that the connections and deliver lines are leaktight.
- When aggressive media are dosed, the maintenance intervals are shorter.
- Some metered media can cause the float to get stuck. In these cases, the device should be regularly cleaned to prevent malfunctions.

The following maintenance sets are available as options:

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seal set G5/8” FPM</td>
<td>38200</td>
</tr>
<tr>
<td>Consisting of:</td>
<td></td>
</tr>
<tr>
<td>6 O-rings</td>
<td></td>
</tr>
<tr>
<td>1 flat gasket</td>
<td></td>
</tr>
<tr>
<td>Gasket set G5/8” EPDM</td>
<td>40911</td>
</tr>
<tr>
<td>Consisting of:</td>
<td></td>
</tr>
<tr>
<td>6 O-rings</td>
<td></td>
</tr>
<tr>
<td>1 flat gasket</td>
<td></td>
</tr>
</tbody>
</table>

7.3 Storage

Storing the device correctly will extend its service life. You should avoid negative influences such as extreme temperatures, high humidity, dust, chemicals, etc.

Ensure ideal storage conditions where possible:
- the storage place must be cold, dry, dust-free and generously ventilated,
- temperatures between +2 °C and +40 °C,
- Relative air humidity must not exceed 90%.

7.4 Transportation

Perform the following working steps:
- The unit should be thoroughly cleaned. Any dangerous dosing media must be additionally neutralised and decontaminated.
- All openings should be closed, so that no foreign objects can get into the system.
- The device must be suitably packed, preferably in the original packing, and shipped.

If the device is sent back to the manufacturer, please follow chapters “Declaration of Harmlessness” (see page 17) and “Warranty Application” (see page 18).

7.5 Disposal of old equipment

- The waste unit must be thoroughly cleaned. Any dangerous dosing media must be additionally neutralised and decontaminated.
- Any residual dosing media must be removed in a professional manner.
- The device must be disposed of in accordance with applicable local laws and regulations. It should not be disposed of as domestic waste!
- As the disposal regulations may differ from country to country, please consult your supplier if necessary.
8 EC Declaration of Conformity

(EN) Declaration of Incorporation according to EC directive 2006/42/EC on machinery (Annex II B)

Herewith we declare that the partly completed machinery described below is complying with all essential requirements of the Machinery Directive 2006/42/EC, as far as the scope of delivery allows. Additional we declare that the relevant technical documentation is compiled in accordance with part B of Annex VII. We commit to transmit, in response to a reasoned request by the market surveillance authorities, relevant documents on the partly completed machinery by our documentation department. The partly completed machinery must 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 2006/42/EC on Machinery, where appropriate, and until the EC Declaration of Conformity according to Annex II A is issued.

We declare, that the machine incomplete described below is in conformity with all requirements of the Machinery Directive 2006/42/EC.

Among the following Harmonized standards was applied:

The partly completed machine is in conformity with all requirements of the directive(s):

- 2006/42/EG

Dokumentationsbevollmächtigter:
Lucjan Gogolin

Authorized person for documentation:
Lucjan Gogolin

Head of Dosing Department
Lutz-Jesco, Wedemark, 01.10.2013

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

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9 Declaration of Harmlessness

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

### Declaration of Harmlessness

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: ..........................................................................................
10 Warranty Application

In the event of a repair, copy the warranty application and complete it separately for each unit. Enclose one copy to the unit you are sending. Please send the warranty application to us also in advance per fax or e-mail!

<table>
<thead>
<tr>
<th>Warranty Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please copy and send it back with the unit!</td>
</tr>
<tr>
<td>If the device breaks down within the period of warranty, please return it in a cleaned condition with the complete warranty application, filled out.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sender</th>
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</thead>
<tbody>
<tr>
<td>Company: ................................................................. Phone: ......................... Date: .........................</td>
</tr>
<tr>
<td>Address: ...........................................................................................................................................</td>
</tr>
<tr>
<td>Contact person: ..................................................................................................................................</td>
</tr>
<tr>
<td>Manufacturer order no.: ........................................................ Date of delivery: ...........................................</td>
</tr>
<tr>
<td>Device type: .......................................................................................................................................</td>
</tr>
<tr>
<td>Serial number: ...................................................................................................................................</td>
</tr>
<tr>
<td>Nominal capacity / nominal pressure: ...................................................................................................</td>
</tr>
<tr>
<td>Description of fault: ...................................................................................................................................</td>
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</table>

<table>
<thead>
<tr>
<th>Service conditions of the device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point of use / system designation: .................................................................</td>
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<tr>
<td>...................................................................................................................................................................</td>
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<tr>
<td>...................................................................................................................................................................</td>
</tr>
<tr>
<td>Accessories used (suction line etc.): .......................................................................................................................................</td>
</tr>
<tr>
<td>...................................................................................................................................................................</td>
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<tr>
<td>...................................................................................................................................................................</td>
</tr>
<tr>
<td>Commissioning (date): .................................................................................................................................................</td>
</tr>
<tr>
<td>Duty period (approx. operating hours): .......................................................................................................................................</td>
</tr>
</tbody>
</table>

| 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. |
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