

Ideen aus der Praxis!

MEIER-BRAKENBERG

Einweichenanlagen
Hochdruckreiniger
Tierwaagen

Medication Device
- mobile and stationary -

Users Manual



MBDos 10

MBDos 20

MBMobil10

MBMobil20



MBMisch60

MBMisch180

MEIER-BRAKENBERG GmbH & Co. KG

Brakenberg 29 • 32699 Extertal

Tel: +49(0)52 62/993 99-0 • Fax: +49(0)52 62/993 993

E-Mail: info@meier-brakenberg.de

Internet: www.meier-brakenberg.de

First issued: 21.03.2017

Last modification: --.--.---

Dear Reader

Permanent development of our products and innovative new designs mean that our assembly and operating instructions as well as spare parts sheets are regularly updated. If you have any queries, please contact directly Meier-Brakenberg

Current status online at: www.meier-brakenberg.de

©2017 MEIER-BRAKENBERG GmbH & Co. KG, Brakenberg 29, 32699 Extertal.

All rights reserved. Reprints, incl. excerpts thereof, only with authorisation of the company.

Modification notes

Version	Page	Date	Modification

Table of contents

1	Introduction	1
1.1	Notational conventions	2
1.2	Warranty and liability	3
1.3	Copyright	3
1.4	Guarantee terms.....	3
2	Safety	4
2.1	General safety information	4
2.2	Safety measures before startup	4
2.3	Safety measures during normal operation	5
2.4	Intended use	5
2.4.1	Field of application.....	5
2.4.2	Device revision	6
2.4.3	Structural alterations to the doser.....	6
2.5	Hazards due to electricity	7
2.6	Hazards due to incorrect spare parts	7
2.7	Safety devices and guards	8
2.8	Obligations of the plant operator	8
2.9	Personnel requirements	9
2.9.1	Responsibilities.....	9
2.9.2	Qualifications required by personnel	9
2.9.3	Obligations of personnel	10
2.9.4	Unauthorized persons	10
2.10	Instruction	10
3	Description MBDOS	11
3.1	Technical data	12
3.2	Delivery characteristic curves.....	13
4	Usage	14
4.1	Abridged manual.....	15
4.2	Menu overview.....	16
4.3	Start of operation	17
4.4	“Change values”	17
4.5	“Calibrate“	18
4.6	“System parameter“	20
5	Integration of the Dosing System MBDOS10/20 in watering system	22
5.1	Stationary Dosing System MBDOS	22
5.2	Mobile Dosing System MBMOBIL	23
6	Technical data MBDOS Touch controller	24
7	Overview spare parts MBDOS controller	25
8	Maintenance	27

8.1	Maintenance intervals.....	28
8.1.1	Tighten dosing head bolts	28
8.1.2	Diaphragm replacement MBDOS10.....	29
8.1.3	Diaphragm replacement MBDOS20.....	31
8.2	After usage	34
8.2.1	Decommissioning the dosing pump.....	34
8.2.2	Shutting down in an emergency	34
8.2.3	Storage	34
8.2.4	Disposal of old units	34
9	Maintenance	35
9.1	Dosing pump not delivering or output too low	35
9.2	Dosing pump does not prime.....	36
9.3	Delivery rate varies	36
9.4	No stroke movement observed.....	37
9.5	Dosing pump delivery rate too high	37
9.6	Loud noise on the dosing pump	37
9.7	Diaphragm is torn or tears too often	37
10	Overview spare parts MBDOS.....	39
10.1	MBDOS10 + MBDOS20	39
10.2	Pump for MBDOS10.....	41
10.3	Pump for MBDOS20.....	42
11	Equipment	43
12	Clamping plan	44
13	Dimension sheet	45
14	Mixer	46
14.1	Introduction	46
14.2	Operating manual	47
14.3	Fault analysis.....	47
14.4	Chemische Beständigkeit/Chemical resistance:	48
14.5	Spare part lists MBMisch 60 - from manufacturing year 05/2010	49
14.6	Spare part lists MBMisch 180.....	51

1 Introduction

This manual provides all information you need to install and later run the electrical Meier-Brakenberg doser MBDOS10 and MBDOS10 (also called doser from now on).

All persons responsible for running the doser must read, understand and heed this operating instruction. This applies in particular to the safety information that is given. After reading this manual you will be able to:

- Operate the doser safely,
- Maintain the doser according to the rules,
- Clean the doser according to the rules,
- Take the necessary action in the event of a fault.

In addition to this operating instruction, it is necessary to comply with general laws and other regulations concerning accident prevention and environmental protection in the country of use.

This manual is part of the doser. It must be kept within reach throughout the controller's service life and must also stay with the doser if it is sold. This manual is not subject to a change service. You can find out about the current status at:

MEIER-BRAKENBERG GmbH & Co. KG

Brakenberg 29 • 32699 Extertal

Tel: +49(0)52 62/993 99-0 • Fax: +49(0)52 62/993 993

E-Mail: info@meier-brakenberg.de

Internet: www.meier-brakenberg.de

1.1 Notational conventions

Passages of this operating instruction that require special attention or that are a direct hazard warning are shown as follows:




⚠ DANGER
Warning of electrical hazard!
This warning indicates an electrical hazard. Only qualified and authorized specialists are allowed to work on electrical equipment.

⚠ DANGER
This warning indicates a direct hazard which, unless avoided, involves a high risk of death or (serious) injury.

⚠ WARNING
This warning indicates a potential hazard which, unless avoided, may involve a medium risk of death or (serious) injury.

⚠ CAUTION
This warning indicates a hazard which, unless avoided, could involve a low risk of slight or medium injury.

NOTE
This warning indicates a hazard which, unless avoided, could involve a low risk of material damage.

	Important information!
	This symbol indicates information about the doser function or setting, or information that care is required.

The following notational conventions are also used:

- Text following this mark represents an item in a list.
- “ “ Text in double quotation marks refers to other chapters, sections or documents.
- 1., 2., 3. Text following this numeration mark steps in a series of steps.
- ▶ Text following this mark represents a result of the above mentioned action.

1.2 Warranty and liability

The obligations under the supply contract, the general and delivery terms and conditions of Meier-Brakenberg and the legal regulations in force at the time the contact was signed will apply. All information in this manual has been compiled in line with the applicable standards and regulations, the state of the art and longstanding knowledge and experience. Warranty and liability claims for personal injury and material damage are excluded if they are attributable to one of the following causes:

- Unintended or inappropriate use of the doser,
- Inappropriate installation, commissioning, operation, maintenance or cleaning of the doser,
- Operation of the doser with defective safety devices or with improperly fitted or nonfunctional safety devices and guards,
- Failure to heed information in the operating instruction regarding installation, commissioning, operation, maintenance and cleaning of the doser,
- Deployment of untrained personal,
- Structural alterations to the doser (conversions or other alterations to the doser are not allowed to be made without prior written permission from LUBING; any breach of this causes the controller to lose its EC conformity),
- Technical alterations,
- Improperly executed repairs,
- Use of nonpermitted spare parts or of spare parts that do not satisfy the technically established requirements,
- Disasters, effects of extraneous elements and force majeure.

We reserve the right to make technical alterations in the course of further development and improvement of features.

1.3 Copyright

This operating instruction is protected by copyright and intended for internal use only.

This manual or parts thereof must not be passed or disclosed to any third party or be reproduced or exploited in any form without the prior written consent of LUBING except for internal use.

Contravention is an offense and results in liability for damages (German Copyright Act UrhG; German Civil Code – BGB). All rights are reserved in the event of the grant of patent or the registration of a utility model or design.

1.4 Guarantee terms

The guarantee terms are contained in the general terms and conditions of Meier-Brakenberg. You can find the actual terms at: www.meier-brakenberg.de

2 Safety

The following safety information must be read carefully before working on the doser and must be heeded. It concerns your safety and is intended to prevent hazards and/or injuries.

⚠ WARNING
<p>Failure to observe the safety information below may have serious consequences:</p> <ul style="list-style-type: none">– Risk to persons due to electrical effects,– Failure of important controller functions. <p>Read the safety and hazard information in this section thoroughly before putting the doser into operation.</p> <p>In addition to the information specified in this manual always comply with general safety and accident prevention regulations.</p> <p>In addition to the information specified in this manual the doser operator must comply with national occupational, health and safety regulations. It is also important to follow internal rules and regulations.</p>

2.1 General safety information

The following general safety information has to be observed:

- Always read and understand the operating instruction before operating the doser.
- Only use the doser for its intended purpose (see section “2.4 Intended use”).
- Never operate the doser without associated guards and safety devices. Never take fitted safety devices out of operation.
- Always keep the work area around the doser clean and tidy to prevent hazards due to dirt and things lying around.
- Do not exceed the technical data (see section “3.1 Technical data”).
- Only trained personnel are allowed to operate or work on the doser.
- Take the doser out of operation immediately if a fault occurs. Have faults rectified by appropriately trained personnel or by .
- Always keep the operating instruction at the doser’s point of development. It must be ensured that all persons dealing with the doser are able to view the operator’s manual at any time.

2.2 Safety measures before startup

Familiarize yourself with the doser’s

- On-site operator and system controls,
- features,
- working principles,

- immediate environment,
- measures for an emergency.

Carry out the following activities before every startup:

- Inspect the doser for visible damage; rectify any detected defects immediately or notify them to the supervisory staff – the doser must only be operated in a perfect state.
- Remove all objects and other materials that are not needed to operate the doser out of its work area.

2.3 Safety measures during normal operation

Carry out the following inspection activities every day:

- Inspect the doser for externally visible damage.
- Also pay attention to the instructions and information in or concerning the higher-level operating manual or system doser.

2.4 Intended use

2.4.1 Field of application

The safety of the doser is only ensured if it is used as intended.

The doser is intended for the following purpose: the conveying and dosing of liquids. The doser is not intended for another use than as described here; other use counts as inappropriate.

The dosing pump must not be used for these media and substances:

- Gaseous media,
- Radioactive media,
- Solid substances,
- Combustible media,
- all other media that are not suitable for delivery using this dosing pump.

Intended use also includes:

- Heeding all information from the operating instruction,
- Complying with the inspection and maintenance intervals,
- Complying with the operating and maintenance conditions,
- Taking foreseeable misconduct into consideration.

It is necessary to comply with the technical specifications in section “3.1 Technical data” without exception.

Important information!



Only use the doser as intended; otherwise there is no guarantee of safe and reliable operation. It is not the manufacturer but the plant operator who is responsible for any and all personal injuries and material damage resulting from unintended use!

2.4.2 Device revision

Device	Month / year of manufacture	Firmware
MBDOS10	06/2017 onward	V.1.0.4 onward
MBDOS20	06/2017 onward	V.1.0.4 onward

2.4.3 Structural alterations to the doser

Construction and acceptance are based on the German Equipment and Product Safety Act (GPSG). The doser is not allowed to be converted or otherwise altered without prior written permission from Meier-Brakenberg.

Any breach of this causes the doser to lose its EC conformity. Such a breach absolves the manufacturer of the machine from warranty. This also applies to welding work on load-bearing parts.

Any parts not in a perfect state must be replaced immediately.

Use original spare / wearing / accessory parts only. These parts have been specifically designed for the doser. For parts from other sources there is no guarantee that they have been designed and manufactured in line with load and safety requirements.

Parts and special features not delivered by Meier-Brakenberg have not been released for use with the machine.

2.5 Hazards due to electricity



⚠ DANGER

Warning of electrical hazard!

Touching live parts or parts that have become live due faults, poses a direct risk of death. Damage to the insulation or individual parts can be fatal hazard. Short-circuits and overloading pose the risk of being hit by ejected molten parts.

- Always run the doser with the correct electrical voltage.
- Only electrical specialists are allowed to work on the doser's electrical equipment.
- Regularly inspect the doser's electrical equipment for defects such as loose connections or damaged insulation.
- If there is a damage, switch off the power supply immediately and have the damage repaired.
- When working in the electrical equipment always shut off the power and verify safe isolation.
- Switch off the power supply during maintenance, cleaning and repair work and prevent unexpected restoration on power.
- Keep moisture away from live parts as it can cause short-circuits. Never clean the electrical equipment with water or similar liquids.
- Connect the doser only to a socket outlet with earthing contact protected by a ground fault circuit interrupter (GFC).
- Replace damaged cables without delay. Do not use extension cables and do not bury cables.
- Have the electrical equipment and fixed electrical apparatuses tested by an electrical specialist every four years at least.
- Alterations made after testing must comply with DIN EN 60204-1.

Comply with the regulations of the VDE (Verband der Elektrotechnik Elektronik Informationstechnik e.V.) or IEC (International Electrotechnical Commission) and the national accident prevention regulations for electrical systems and equipment.

2.6 Hazards due to incorrect spare parts

⚠ WARNING

Injury hazard due to incorrect spare parts!

Incorrect or faulty spare parts may cause damage, malfunctioning or total failure, and may also give rise to safety hazards. Use original spare parts only.

Procure spare parts via Meier-Brakenberg.

The necessary details about spare parts are given in section "10 MBDOS".

2.7 Safety devices and guards

- Before switching on the doser always make sure that all safety devices and guards have been fitted properly and are functional.
- When subcomponents are delivered the plant operator must ensure that the guards are fitted according to the rules.
- You must not bypass or remove safety devices and guards or defeat them in any other way.
- Check the functioning of all the doser's safety devices regularly.

2.8 Obligations of the plant operator

The doser is used in an industrial plant. The plant operator is therefore subject to the legal requirements concerning health and safety at work.

In addition to the safety information in these manual it is necessary to comply with the safety, accident prevention and environmental protection regulations in force where the doser is being used.

The following applies in particular:

- The plant operator must ensure that the doser is used as intended (see section "2.4 Intended use").
- The plant operator must always keep the manual in a legible and complete state at the doser's point of deployment.
- Throughout the time that the doser is in use the plant operator must check that the plant instructions are in line with official regulations and must update them if necessary.
- The plant operator must only let suitably qualified and authorized personnel work on the doser.
- The plant operator must ensure that all personnel working on or with the doser have read and understood this operating instruction. The plant operator must also train the personnel and inform them about hazards at regular intervals.
- The plant operator must provide sufficient lighting at the control points of the doser in accordance with local health and safety regulations.
- The plant operator must make sure that individuals whose response is impaired by drugs, alcohol, medication and the like do not work on the doser.

In addition, the plant operator is responsible for keeping the doser in a perfect technical state so the following also applies:

The plant operator must regularly check that all safety devices are functioning correctly and are complete.

2.9 Personnel requirements

The doser is only allowed to be operated, maintained and repaired by persons who have been trained for this and are authorized to do so. These persons must know the installation instructions and act in accordance with them. The respective authorizations for personnel must be defined clearly.

2.9.1 Responsibilities

Personnel require the following qualifications for the various activities:

Personnel requiring training

Personnel requiring training, such as trainees or temporary workers, are not aware of all hazards that operation of the doser can entail. They are only allowed to work on the doser under the supervision of skilled personnel.

Instructed personnel

Instructed personnel have been instructed by the plant operator about their tasks and the potential risks of inappropriate behavior.

Skilled personnel

Skilled personnel are able to do their work and recognize/avoid potential hazards on their own as a result of their training, knowledge and experience and their familiarity with regulations.

Electrical specialists

Electrical specialists are able to work on electrical equipment and recognize / avoid potential hazards on their own as a result of their training, knowledge and experience and their familiarity with standards and regulations. Electrical specialists have been trained for their specific point of deployment and know the relevant standards and regulations.

2.9.2 Qualifications required by personnel

⚠ WARNING

Injury hazard due to inadequate qualifications!

Inappropriate actions when working on the doser can lead to considerable personal injury and material damage. All activities must therefore be carried out by qualified personnel only.

Personnel must consist of individuals who can be expected to perform their work reliably. Individuals whose response is impaired by drugs, alcohol, medication and the like must not work on the doser.

All persons working on the doser must read the operating instruction and confirm with their signature that they have understood them.

Initially, personnel requiring training are only allowed to work on the doser under the supervision of skilled personnel. The completion and success of instruction must be confirmed in writing.

All control and safety devices must only be activated by instructed persons.

In addition, particular qualifications are required for the following activities:

- Installation – only allowed to be carried out by trained specialists
- Commissioning – only allowed to be carried out by trained specialists
- Instruction – only allowed to be carried out by trained personnel
- Cleaning – only allowed to be carried out by instructed personnel
- Maintenance/ serving – only allowed to be carried out by trained specialists
- Repairs – only allowed to be carried out by trained specialists

2.9.3 Obligations of personnel

Before working on or with the doser, all persons undertake the following:

- To comply with basic regulations concerning health, safety and accident prevention.
- To read the safety information and warnings in this manual and to confirm with their signature that they have understood the issues.

2.9.4 Unauthorized persons

⚠ WARNING
<p>Injury hazard due to inadequate qualifications!</p> <p>Inappropriate actions when working on the doser can lead to considerable personal injury and material damage. All activities must therefore be carried out by qualified personnel only.</p>

2.10 Instruction

Date	Name	Typ of instruction	Instruction given by	Signature

3 Description MBDOS

The Meier-Brakenberg dosing systems MBDOS are electrical powered injection pumps, processor-controlled. The measurement of the water flow is realised by a sensor.

The Meier-Brakenberg dosing systems MBDOS are made to inject fluids into a water net. Any other use shall not be regarded as proper. The manufacturer will not be liable for any ensuing damage. The risk shall be borne by the user alone.

The doser MBDOS10 Touch is able to inject max. 15 liter liquid per hour, the doser MBDOS20 is able to inject max. 30 liter liquid per hour. The mixing ratio can be adjusted from a value of 0.01 to 15 %. The display will show a warning message if the limit of performance is reached. It is possible to inject according to a batch or to the time. If a level sensor is connected the doser will stop automatically when the liquid is empty.

NOTE

Fill the doser on the lefthand side with clear, clean water only!

NOTE

The accuracy of the dosage depends on the tidiness of the pump valves. The pump valves have to be cleaned regularly. Defective valves have to be replaced.

NOTE

If the doser is used in a water supply net an open watersplit must be installed in front of the doser. This makes sure that no medicine or additives flow back into this net.

Important information!



If the doser is used for medication or dosing of other additives into the drinking water of animals follow the information of the producer of these medicines and additives exactly. Also the laws for using medicines and additives have to be followed.

To avoid problems, please follow these instructions:

- Use the doser with clean filteres water only.
Filter units are shown in section "11 Equipment".
- All additives used in the doser should be liquid. Avoid air inside the system. Otherwise the doser could be damaged because of sticking.
- Run the doser for cleaning periodical with water.
- In case of using strong acids the diaphragm in the pump head gets older. As a result the diaphragm should be changed once in a year (see section "8.1.2 Diaphragm replacement and 8.1.3 MBDOS20". Damages caused by a defective diaphragm are in the responsibility of the customer.

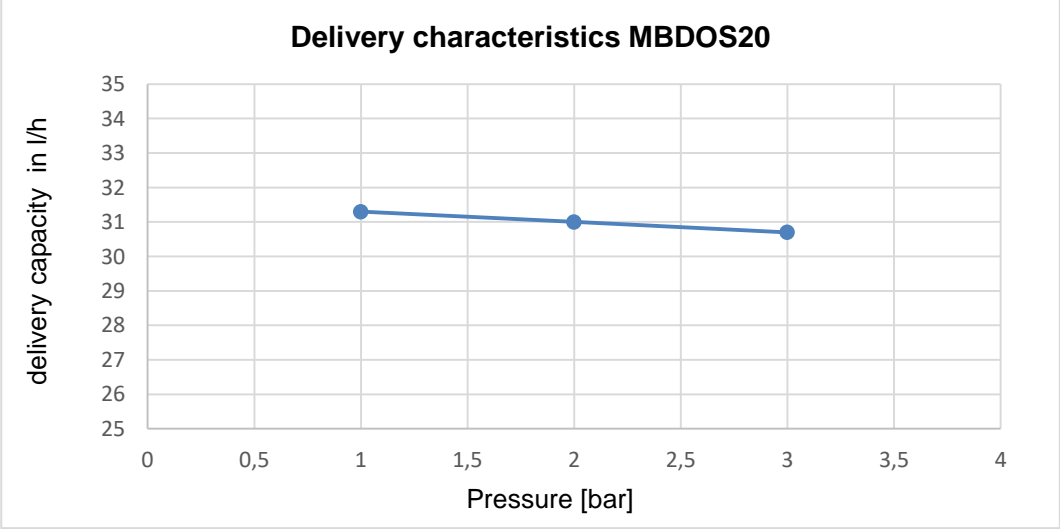
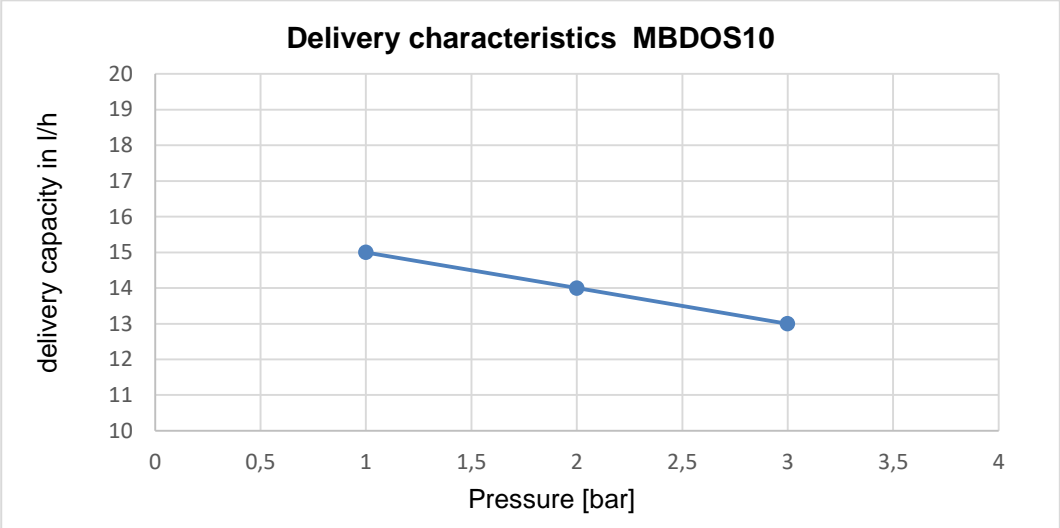
3.1 Technical data

	MBDOS10	MBDOS20
Type of pump	Solenoid-diaphragm	Stepping motor
Dosing range	0,01-15%	0,01–15%
Flow rate range	10 – 2500 l/h	
Max. pump capacity	15 l/h	30 l/h
Mixing ratio at 1000 l/h	1,50 %	3 %
Operating water pressure	0-3 bar	0-3 bar
Weight	12,2 kg	11,2 kg
Logging function	Yes	Yes
Connecting for level sensor	Yes	Yes
Batch dosing	Yes	Yes
Dosing timer	Yes	Yes
External Start/Stop	Yes	Yes

	MBDOS10	MBDOS20
Voltage supply	230 V AC ± 10%	110-240 V AC
Power frequency	50/60 Hz	50/60 Hz
Working power consumption	22 W	25 W
Working temperature	+5 - +40 °C	+5 - +40 °C
Temperature of storing	-5 - +50 °C	-5 - +50 °C
Working humidity	0 – 80 %	0 – 80 %
Safety class	IP 56	IP 56

3.2 Delivery characteristic curves

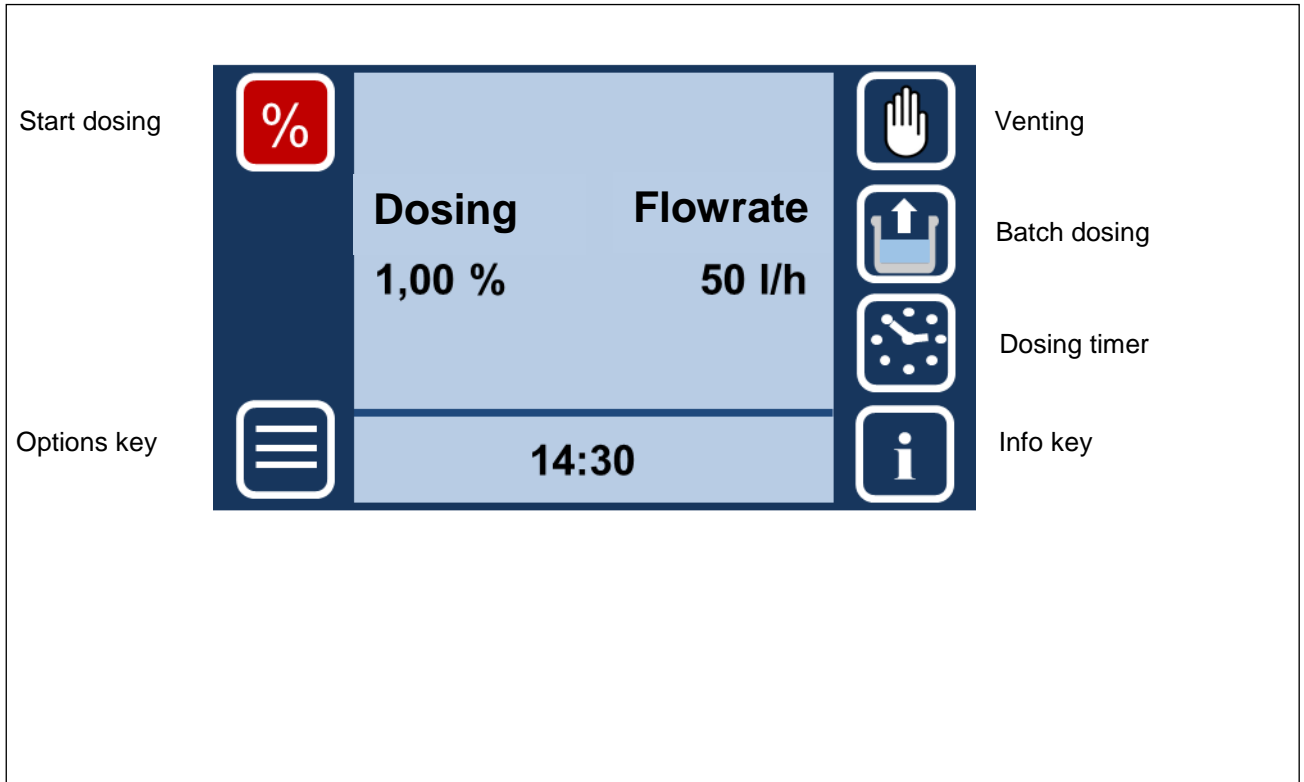
This chapter is intended to give you an idea of the delivery capacity that the dosing pump can achieve at specific back pressures. These delivery capacities were determined on the manufacturer’s test stands. They apply at 20°C (68°F) for water at 100% stroke frequency. The delivery capacity depends on the medium (density and viscosity) and temperature. Since these conditions vary at every installation location you should calibrate the dosing pump.



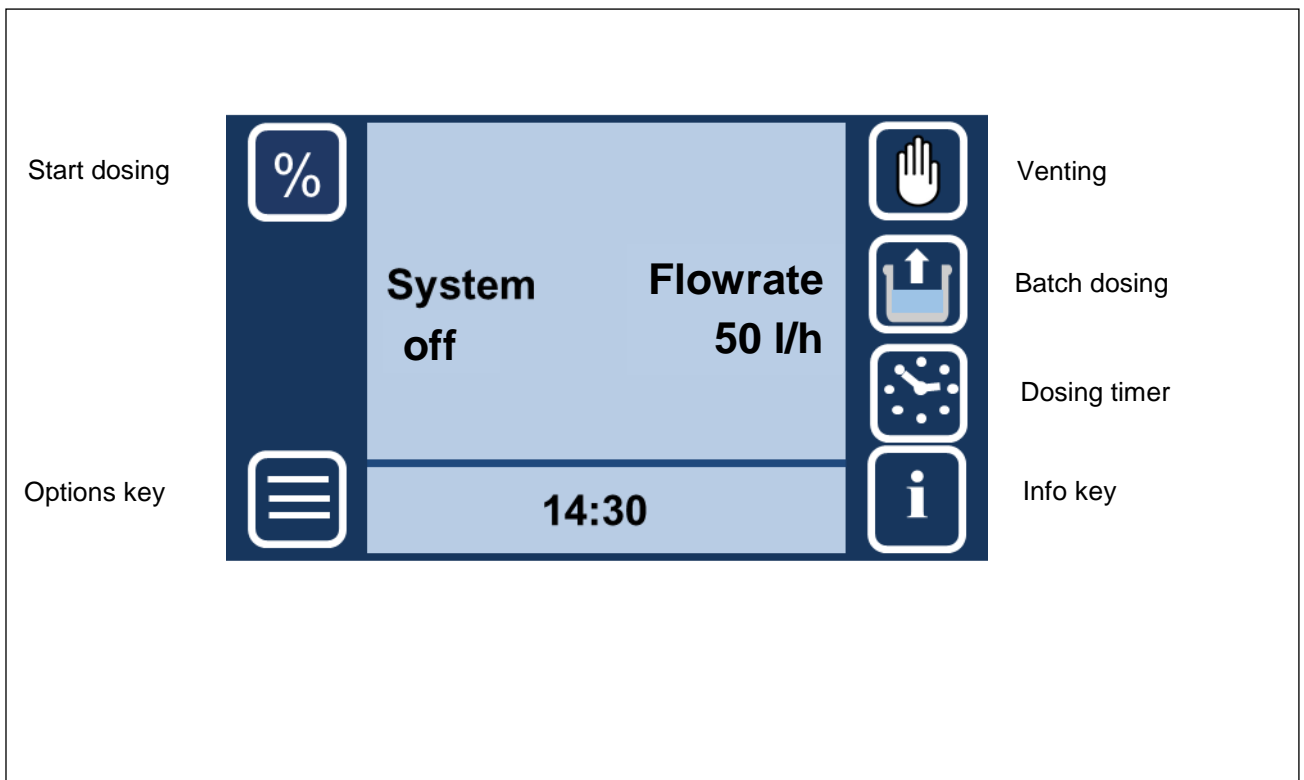
4 Usage

Example switch panel

MBDOS in dosing operation:



MBDOS is not in dosing operation:



4.1 Abridged manual

Function keys:

With the function keys different functions of the system are switched on or off. They are valid for the shown area or system number.



The START DOSING key starts the dosing procedure. Before starting the concentration can be adjusted.



The VENTING key is used to vent the suction pipe. For this purpose loose the nut on the injection site or the venting nut at the pump's head.



The BATCH DOSING key starts the dosing procedure of a batch. The volume of the batch and the concentration can be adjusted before.



The DOSING TIMER starts the dosing procedure for a preadjusted period of time. The period and the concentration can be adjusted before.



Several operating data can be shown on the display by using the INFO key.



The OPTION key enters the system menu.



The ARROW keys allow selecting menu parameters. They turn into +/- keys if a value can be set.



The OK key confirms a selection or a setting of a value. A new value is only taken over after the process is confirmed with the OK key.



The ESC key returns to the last previously viewed menu or stops a current adjustment.



The RUN key starts the dosing procedure.

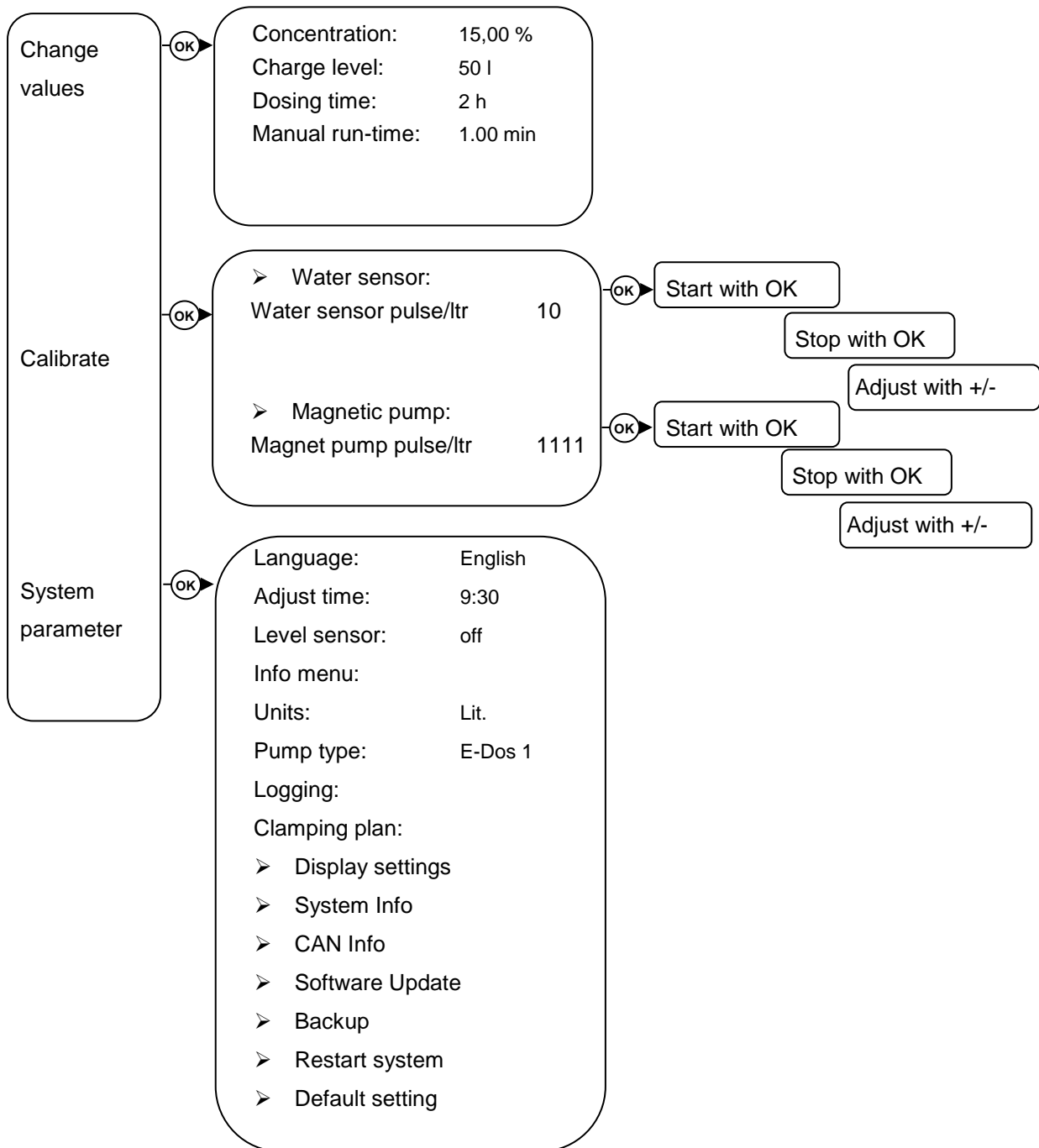


The HOME key returns back to the main screen.



The EDIT key allows an adjustment of variable parameters.

4.2 Menu overview



4.3 Start of operation

After installation the doser is ready to use.

You have to adjust the function “**timer**” only. Proceed as follows:

1. Select the third main menu “System parameter“ with the OPTIONS key.
2. Select parameter “Adjust time“ with the OK key.
3. By using the ARROW keys ↑ ↓ the time can be set correctly.

Remark: If the key is pressed a little longer then the counting interval will get bigger.

4. Finally the adjustment has to be confirmed with the OK key.

After first using the controller all parameters are adjusted to standard values by the factory. The next pages will explain the details of the Meier-Brakenberg MBDOS controller menu as well as they describe how to navigate to the different menus and how to change the parameters quickly and easily.

4.4 “Change values”

1. Select the first main menu “Change values“ with the OPTIONS key.
2. By using the OK key it is possible to navigate to the next level.
3. The required parameter can be selected with the ARROW keys ↑ ↓.
4. The parameter is activated with the EDIT key.
5. The adjustment is done with +/- keys.
6. The adjustment has to be confirmed with the OK key.

The following parameters are selectable:

Menu “Change values“	
Parameter	Description
Concentration	The concentration defines the ratio between dosing medium and drinking water.
Charge level	The charge level specifies the quantity of the batch, which is dosed during the mode BATCH DOSING.
Dosing time	The Dosing time describes the time while the mode DOSING Timer is executed.
Manual run-time	The manual run-time describes the time while the mode VENTING is executed.

4.5

“Calibrate“

1. Select the second main menu “Calibrate“ with the OPTIONS key.
2. By using the OK key it is possible to navigate to the next level.
3. The required parameter can be selected with the ARROW keys ↑ ↓.
4. The parameter is activated with the EDIT key.
5. The adjustment is done with +/- keys.
6. The adjustment has to be confirmed with the OK key.

The following parameters are selectable:

Menu “Calibrate“	
Parameter	Description
Water sensor	Menu for calibrating the water sensor. ¹⁾
Water sensor pulse/ltr	In this menu the calibration of the water sensor can be adjusted manually. The menu indicates the number of pulses which the water sensor passes to the controller each liter. The factory installed water sensor carries out 10 impulses each liter.
Magnetic pump	Menu for calibrating the magnetic pump. ²⁾
Magnetic pump pulse/ltr	In this menu the calibration of the magnetic pump can be adjusted manually. The number of strokes that the magnetic pump carries out per discharge liter can be set. The magnetic pump is calibrated in the factory to a working pressure of 2.5 bar (~ 37 psi). MBDOS10 pump is adjusted to a value of 1111 pulses/ltr. The MBDOS20 pump is adjusted to a value of 293 pulses/ltr.

¹⁾ *Calibrating the water sensor:*

Disconnect the water line behind the dosing system before you start the calibrating process of the water sensor. Lead the water from the dosing system into an empty water bucket (e.g Meier-Brakenberg Mixer):

1. Select the menu „*Calibrate Water sensor*“ and start the calibration with the OK key.
2. Turn on the water supply and let the water run through the doing system into the bucket.
3. Switch off the water supply after approx. 50 liter and stop the calibration process with the OK key.
 - ▶ The detected water volume is shown on the display of the controller.
4. Quantify the exact volume of water in the bucket.
5. Correct the value that is shown on the controller display by using the +/- keys and confirm with the OK key.
 - ▶ The water sensor is calibrated now. Reconnect the doser to the water line.

2) *Calibrating the magnetic pump:*

The magnetic pump is calibrated in the factory to a working pressure of 2.5 bar (~ 37 psi). If the working pressure is different on site, then the magnetic pump has to be calibrated once again. Therefore put the suction pipe of the doser into a measuring cup that is filled with water (e.g. 1 liter).

1. Vent the doser by pressing the Venting key (approx. 20 sec.)
2. Write down the water volume in the measuring cup.
3. Select the menu „*Calibrate magnetic pump*“ and start the calibration with the OK key.
 - ▶ The pump starts to inject.
4. Before the measuring cup is empty, stop the calibration with the OK key.
 - ▶ The detected injection volume is shown on the controller display.
5. Read the remaining water volume in the measuring cup and calculate the injected volume.
6. Correct the value of the injection volume [ml] shown on the display by using the +/- keys. Confirm with the OK key.
 - ▶ The magnetic pump is calibrated now.

4.6 “System parameter“

1. Select the third main menu “System parameter“ with the OPTIONS key.
2. By using the OK key it is possible to navigate to the next level.
3. The required parameter can be selected with the ARROW keys ↑ ↓.
4. The parameter is activated with the EDIT key.
5. The adjustment is done with +/- keys.
6. The adjustment has to be confirmed with the OK key.

The following parameters are selectable:

Menu „System parameter“	
Parameter	Description
Language	Different languages can be selected.
Adjust time	The time can be set. The current time is only needed for the parameter “logging“. Remark: If the controller is without power supply for a longer period of time, then the time has to be adjusted once again.
Level sensor	The doser is prepared for the connection of a level sensor. This sensor will disconnect a contact if the liquid bucket is nearly empty. If this function is activated the doser will switch off automatically. In the factory setting this function is switched off.
Info menu	Several operating data can be shown on the display at the same time. To avoid confusion it is possible to switch on and off the information separately. <i>Water meter:</i> counts the total amount of water. <i>Day water meter:</i> counts the amount of water after reset. <i>Water consumption dos:</i> counts the amount of water while dosing <i>Current water flow:</i> indicates the current water flow. <i>Inject consumption:</i> counts the total amount of inject-medium <i>Inject consumption dos:</i> counts the amount of inject-medium for the current dosing process only. This counter resets automatically.
Units	There are three different units selectable: 1. Metric units (Liter, m ³) 2. English gallons (UK g) 3. American gallons (US g)

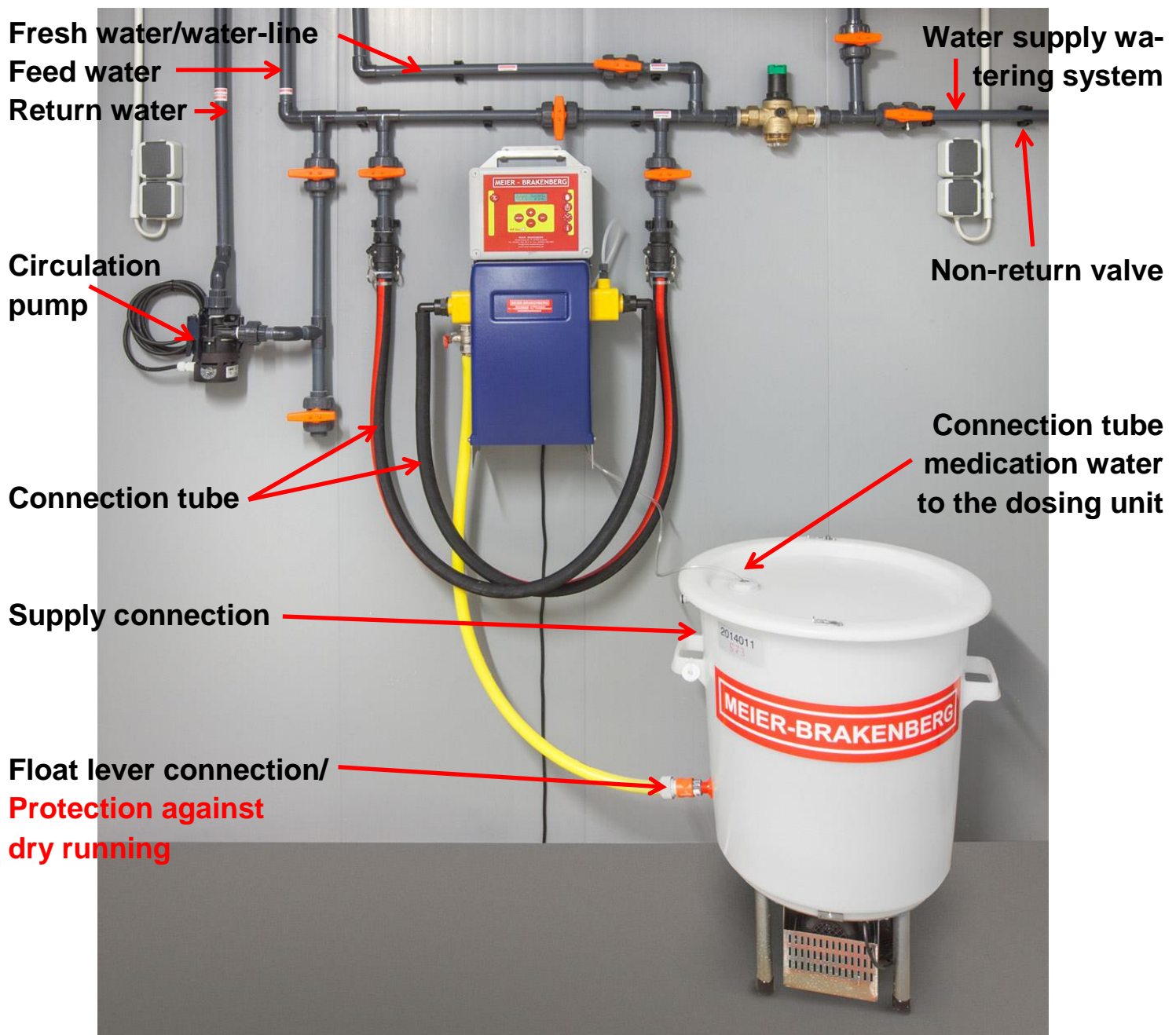
Parameter	Description
Pump type	It is possible to switch between MBDOS10 and MBDOS20. The correct type of pump is already set in the factory. If all values are set back to standard values MBDOS10 is automatically selected.
Logging	The dosing can be recorded on a microSD card (card slot on the motherboard). For this the logging must be enabled.
Clamping Plan	The terminal assignment of the mainboard is shown. In the submenu "manual mode" the outputs can be manually switched, e.g. to control the correct porting. Before that the PIN code 1949 must be used. Remark: If the outputs are switched manually then there are no control parameters considered! There is also no supervision.
Display Settings	Several display settings can be adjusted (e.g. brightness, lighting times)
System Info	The current software version is shown.
CAN Info	Mistakes of the CAN-bus are logged.
Software Update	A new software version can be set to the system via microSD card (password required).
Backup	Operating data can be read out (password required).
Restart System	The system will boot up. Remark: If there are additional CAN connections linked, then it will be necessary to restart the whole system. Only this way it can be guaranteed that all components will be identified.
Default setting	All values will be set back to standard values.

5 Integration of the Dosing System MBDOS10/20 in watering system

5.1 Stationary Dosing System MBDOS

Installation of the Dosing System MB Dos combined with the Mixer MB Misch in the water pipe system.

The float connection must be under pressure during the mixing. That averts the draining of the mixer pump.



5.2 Mobile Dosing System MBMOBIL

Layout for connecting mobile doser MBMobil to the watering system, to insert medicinal drugs in front of separate compartment.

Attention:

Adjustment of ball valve during insert of medicated water. Left and right valve open, middle valve close.



6 Technical data MBDOS Touch controller

Electrical data

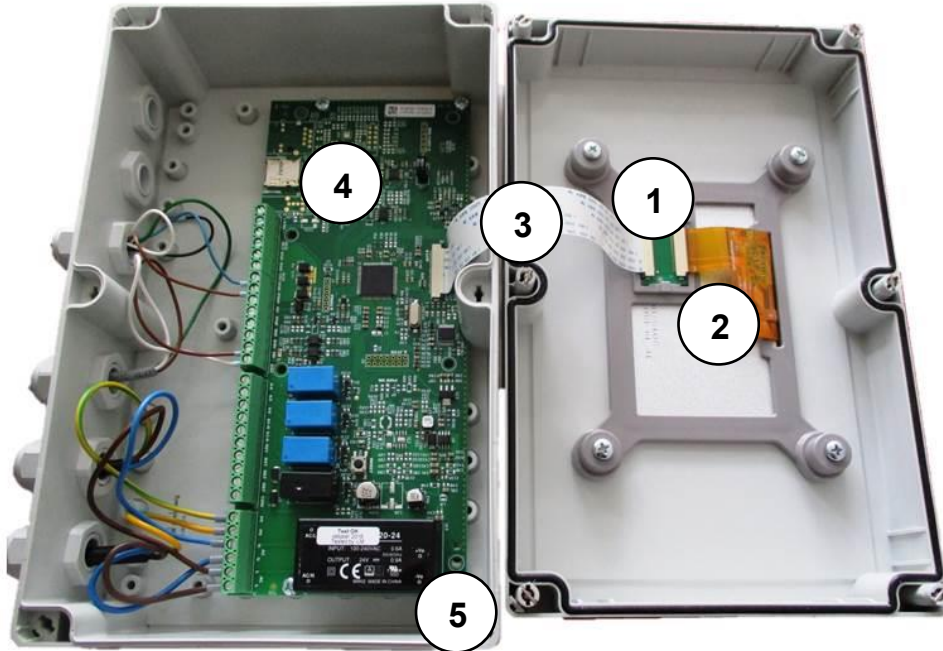
Power consumption:	max. 20 VA
Outputs:	max. 4 relais 250V, 1A, PWM port
Inputs:	2 digital inputs, 1 analog input
Safety class:	IP 56

Weight and dimensions

H x B x T:	250 x 160 x 95 mm
Weight:	1,1 kg







7 Overview spare parts MBDOS controller

Item No. 031 100 54 00 – Controller MBDOS



Interior view E-Dos Touch

- | | |
|---|-------------------|
| 1 | Coupling |
| 2 | Touchdisplay 4,3" |
| 3 | Ribbon cable |
| 4 | Mainboard |
| 5 | Cover and base |

Spare parts for MBDOS controller			
Spare part	Item No.	Description	
	033 720 07 00	Basic module controller 2.0	
Components of the basic modul		55 10 021	Coupling
		55 11 014	Touchdisplay 4,3"
		55 10 023	Mainboard
		55 11 013	Ribbon cable
	Cover and base	033 720 05 00	Cover and base
	63 65 017	Frontfoil	

8 Maintenance

Meier-Brakenberg dosing pumps are produced to the highest quality standards and have a long service life. Nevertheless some of their parts are subject to wear due to operation (e.g. diaphragms, valve seats, valve balls). This means that regular visual inspections are necessary to ensure a long operating life. Regular maintenance will protect the dosing pump from operation interruptions.

⚠ 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. <ul style="list-style-type: none">– Use sufficient personal protective equipment.– Rinse the dosing pump 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.

⚠ WARNING
Caustic burns or other burns through dosing media! After connecting the mains supply residual dosing media in the dosing head can spray out. <ul style="list-style-type: none">– Before connecting the mains supply, connect the dosing lines.– Check that all screw connections have been tightened correctly and are leak-proof.

⚠ CAUTION
Danger of personal injury and material damage! The dosing pump can generate a pressure that is many times the rated one. The dosing medium can escape in the case of material failure or wear on the dosing head the connection pipe or the seals that are used. <ul style="list-style-type: none">– Carry out maintenance work at the recommended intervals.– Operational disturbances caused by inadequate or improper maintenance can cause very high repair costs and long downtimes. If maintenance is negligently neglected during the warranty period, the operator himself bears the resulting restoration costs.

8.1 Maintenance intervals

This table gives you an overview of maintenance work and the intervals at which you must carry it out.

Maintenance work to be carried out	Frequency
Check that piping is seated firmly	– Regularly
Check that suction and discharge valves are seated firmly	– Regularly
Clean suction and discharge valves	– Regularly
Check that electrical connections are not damaged	– Regularly
Tighten dosing head bolts	– Regularly, before initial commissioning and each time you replace the diaphragms.
Check diaphragms for leakage due to rupture	– Regularly
Check that the installed accessories are functioning correctly	– Regularly
Check the dosing pump for unusual noises during operation, unusual temperatures or smells	– Regularly
Replace parts that are subject to wear (diaphragms, valves, seals etc.)	– If you detect unacceptable wear
Rinse out and clean the dosing pump	– Before changing diaphragms, before decommissioning for a long period of time, after feeding aggressive, adhesive, crystallizing or contaminated liquids

8.1.1 Tighten dosing head bolts

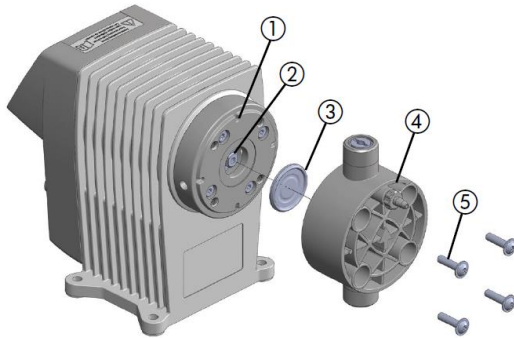
- Tighten the dosing head bolts in diagonally opposite sequence with a torque wrench.
- The necessary torque is **180 Ncm**.

8.1.2 Diaphragm replacement MBDOS10

Dismount old diaphragm:

Precondition for action:

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



Perform the following working steps to remove the old diaphragm:

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.

Install 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.
- You have slightly greased the diaphragm thread **(3)** (e.g. using Molykote Long-term W2).

Perform the following working steps to install the new diaphragm:

1. Screw the diaphragm **(3)** manually in the clockwise direction until it safely contacts into the diaphragm rod.
2. Bring the dosing head into position and insert the screws. After this tighten the screws in diagonally opposite sequence.

NOTE

Damage to the dosing head / leakiness of the diaphragm

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. The necessary torque is 180 Ncm.



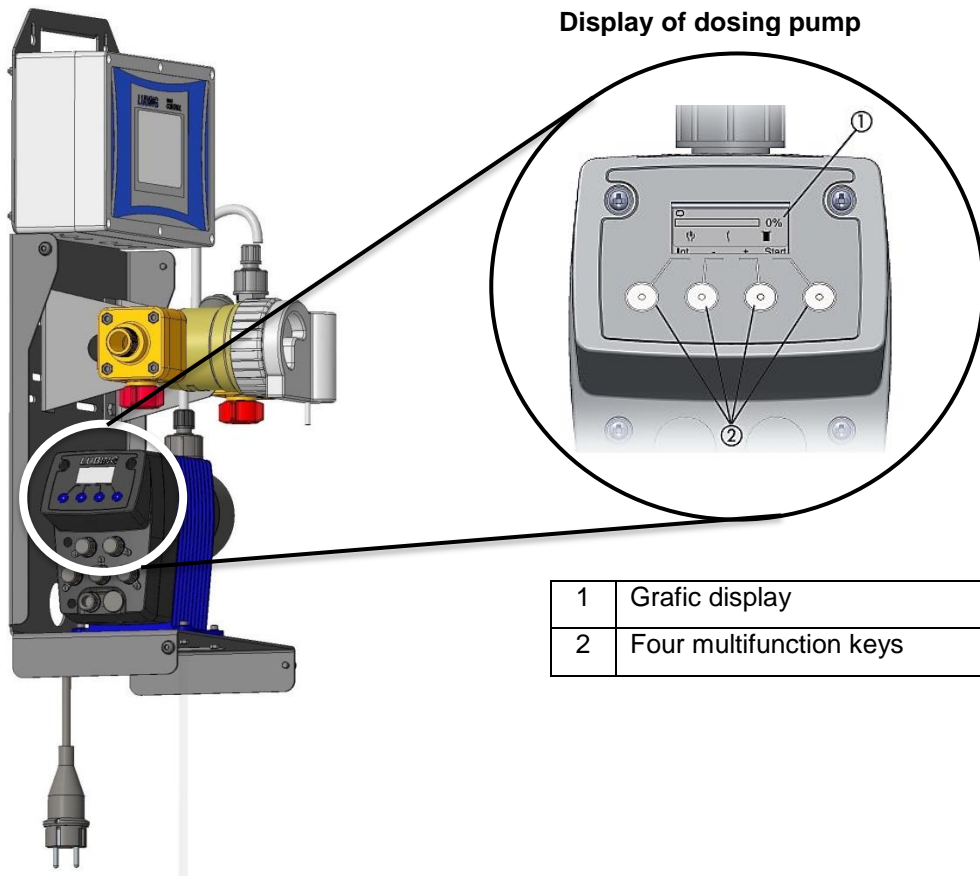
Important Information!

It may be necessary to recalibrate the dosing pump after replacing the diaphragm or other spare parts on it.

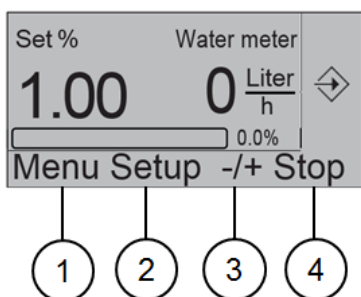
8.1.3 Diaphragm replacement MBDOS20

NOTE

The dosing pump of the MBDOS20 has got a diaphragm changing menu. This menu has to be selected on the display of the dosing pump.



You operate the dosing pump by using the four multifunction keys below the display. The system shows the respective functions of the keys at the bottom of the display:

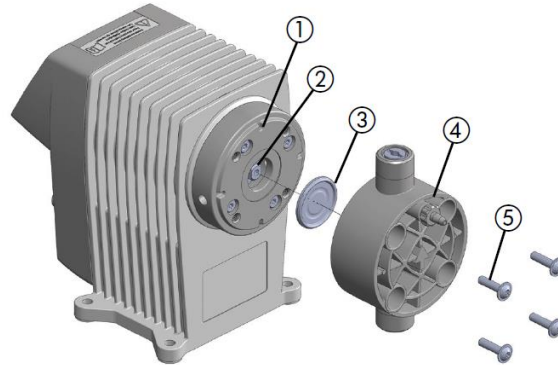


In this example, the first key from the left has the **Menu** function; the second one has the **Setup** function; the third one has the **- / +** function and the fourth one has the **Stop** function.

Dismount old diaphragm:

Precondition for action:

- You have depressurized the hydraulic sections of the plant.
- You have rinsed the dosing pump using a safe medium (e.g. water).



Perform the following working steps to remove the old diaphragm:

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. Press **Menu**.
3. Use the \uparrow or \downarrow key to choose menu item *Diaphragm change* and press **OK**.
 - ▶ The dosing pump displays menu 9 *Diaphragm change*.
4. Press **Start**.
 - ▶ The diaphragm travels slowly in the front end position. The message “Please wait!” is displayed.
 - ▶ Wait until the message “Replace” appears.
5. Biegen Sie die Membrane **(3)** mit einer Zange am Rand leicht hoch und schrauben Sie sie entgegen dem Uhrzeigersinn heraus.

Install 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.
- You have slightly greased the diaphragm thread **(3)** (e.g. using Molykote Long-term W2).

Perform the following working steps to install the new diaphragm:

1. Screw the diaphragm manually **(3)** in the clockwise direction until it safely contacts into the diaphragm rod.
2. Press **Menu**.
 - ▶ The pump moves to the rear end position.
3. Bring the dosing head into position and insert the screws. After this tighten the screws in diagonally opposite sequence.

NOTE

Damage to the dosing head / leakiness of the diaphragm

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. The necessary torque is 180 Ncm.



Important Information!

It may be necessary to recalibrate the dosing pump after replacing the diaphragm or other spare parts on it.

8.2 After usage

8.2.1 Decommissioning the dosing pump

Perform the following working steps:

1. Stop the dosing pump in accordance with the selected operating mode.
2. Unplug the dosing pump's mains plug from the power supply.
3. Disconnect all electrical connections.
4. Depressurize all the hydraulic parts in the system.
5. Unplug all the hydraulic connections on the dosing pump.
6. Empty the dosing head.
7. Remove any residual dosing medium from the dosing head by flushing the system with a washing agent. Ensure that the washing agent is compatible with the dosing medium.
 - ▶ The dosing pump is decommissioned.

8.2.2 Shutting down in an emergency

- In an emergency you must immediately disconnect the dosing pump from the mains supply or activate the emergency Stop switch installed in the plant.
- Depending on the type of incident you must depressurized the hydraulic connections or locked to prevent dosing medium from escaping.
- You must follow the safety data sheet of the dosing medium.

8.2.3 Storage

- Storing the dosing pump correctly extends its service life. You should avoid negative influences like 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,
- Relative humidity must not exceed 90 %.

8.2.4 Disposal of old units

- The waste unit must be thoroughly cleaned. Any dangerous dosing media must be additionally neutralized and decontaminated.
- Any residual dosing media must be removed in a professional manner.
- The dosing pump must be disposed of in accordance with applicable local laws and regulations. The unit does not belong to household waste.
- As the disposal regulations may differ from country to country in the European Union please consult your supplier if necessary.

9 Maintenance

See below the troubleshooting instructions to the unit/system. If you cannot eliminate the fault please consult with the manufacturer on further measures or return the dosing pump for repair.

9.1 Dosing pump not delivering or output too low

Possible cause	Remedy
Wrong type of dosing pump selected	<ul style="list-style-type: none">– Check the dosing pump's technical data and if necessary select a type with a higher delivery capacity.
Valve leaking or blocked	<ul style="list-style-type: none">– Clean the valve and vent the dosing pump.– Tighten the screw connections.
Valve installed incorrectly	<ul style="list-style-type: none">– Reassemble the valve. Ensure that the valve balls are located above the valve seats.
Valve damaged (e.g. valve balls)	<ul style="list-style-type: none">– Remove the damaged parts or install a new valve.
Suction line is leaking	<ul style="list-style-type: none">– Seal the leak locations or replace the parts.
Suction line is blocked (e.g. screen in foot valve)	<ul style="list-style-type: none">– Clean the suction line
Shut-off valves closed	<ul style="list-style-type: none">– Open the shut-off valves. Inspect the dosing pump for possible damage.
Suction head too high	<ul style="list-style-type: none">– Set the dosing pump to feed or reduce the suction head.– Install a priming aid
Viscosity too high	<ul style="list-style-type: none">– Possibly reduce the concentration of the dosing medium or increase the temperature– Install spring-loaded valves– Increase the pipe diameter
Current supply interrupted	<ul style="list-style-type: none">– Reconnect the current supply
The dosing pump's electrical data does not match that of the main supply	<ul style="list-style-type: none">– Check the electrical installation
System back pressure too high (measured at discharge connection of dosing pump)	<ul style="list-style-type: none">– Clean blocked injection nozzle– Install pulsation dampeners to reduce pressure peaks if pipes are too long– Check function of safety valves

9.2 Dosing pump does not prime

Possible cause	Remedy
Valve leaking or blocked	<ul style="list-style-type: none"> – Clean the valve and vent the dosing pump. – Tighten the screw connections.
Valve installed incorrectly	<ul style="list-style-type: none"> – Reassemble the valve. Ensure that the valve balls are located above the valve seats.
Valve damaged (e.g. valve balls)	<ul style="list-style-type: none"> – Remove the damaged parts or install a new valve.
Suction line is leaking	<ul style="list-style-type: none"> – Seal the leak locations or replace the parts.
Suction line is blocked (e.g. screen in foot valve)	<ul style="list-style-type: none"> – Clean the suction line
Shut-off valves closed	<ul style="list-style-type: none"> – Open the shut-off valves. Inspect the dosing pump for possible damage.
Suction head too high	<ul style="list-style-type: none"> – Set the dosing pump to feed or reduce the suction head. – Install a priming aid
Viscosity too high	<ul style="list-style-type: none"> – Possibly reduce the concentration of the dosing medium or increase the temperature – Install spring-loaded valves – Increase the pipe diameter
Current supply interrupted	<ul style="list-style-type: none"> – Reconnect the current supply.
Dry valves	<ul style="list-style-type: none"> – Dampen the dosing head and the valves. – Vent the dosing head.
Air in the suction line with simultaneous pressure on the discharge valve	<ul style="list-style-type: none"> – Vent the dosing head or the lines.

9.3 Delivery rate varies

Possible cause	Remedy
Valve leaking or blocked	<ul style="list-style-type: none"> – Clean the valve and vent the dosing pump. – Tighten the screw connections.
Valve damaged (e.g. valve balls)	<ul style="list-style-type: none"> – Remove the damaged parts or install a new valve.
Suction line is leaking	<ul style="list-style-type: none"> – Seal the leak locations or replace the parts.
Suction line is blocked (e.g. screen in foot valve)	<ul style="list-style-type: none"> – Clean the suction line.
Viscosity too high	<ul style="list-style-type: none"> – Possibly reduce the concentration of the dosing medium or increase the temperature. – Install spring-loaded valves. – Increase the pipe diameter.
The dosing pump's electrical data does not match that of the main supply	<ul style="list-style-type: none"> – Check the electrical installation
Suction side pressure too high (pump siphoning)	<ul style="list-style-type: none"> – Install a back-pressure valve in the pressure line
Pressure peaks due to acceleration with long suction lines	<ul style="list-style-type: none"> – Install a suction pressure regulator.

Possible cause	Remedy
Imprecise dosing due to changeable positive and negative suction heads	– Install a suction pressure regulator.
System back pressure too high (measured at discharge connection of dosing pump)	– Clean blocked injection nozzle. – Install pulsation dampeners to reduce pressure peaks if pipes are too long. – Check function of safety valves.

9.4 No stroke movement observed

Possible cause	Remedy
Diaphragm return spring broken	– Contact the manufacturer.
Current supply interrupted	– Reconnect the current supply.
Pressure peaks due to acceleration with long suction lines	– Install a suction pressure regulator.
The dosing pump's electrical data does not match that of the main supply	– Check the electrical installation.
System back pressure too high (measured at discharge connection of dosing pump)	– Clean blocked injection nozzle. – Install pulsation dampeners to reduce pressure peaks if pipes are too long. – Check function of safety valves.

9.5 Dosing pump delivery rate too high

Possible cause	Remedy
Suction side pressure too high (pump siphoning)	– Install a back-pressure valve in the pressure line.
Pressure peaks due to acceleration with long suction lines	– Install a suction pressure regulator.

9.6 Loud noise on the dosing pump

Possible cause	Remedy
The drive magnet's stop dampener is worn-out	– Contact the manufacturer.

9.7 Diaphragm is torn or tears too often

Possible cause	Remedy
Shut-off valves closed	– Open the shut-off valves. Inspect the dosing pump for possible damage.
Pressure peaks due to acceleration with long suction lines	– Install a suction pressure regulator.

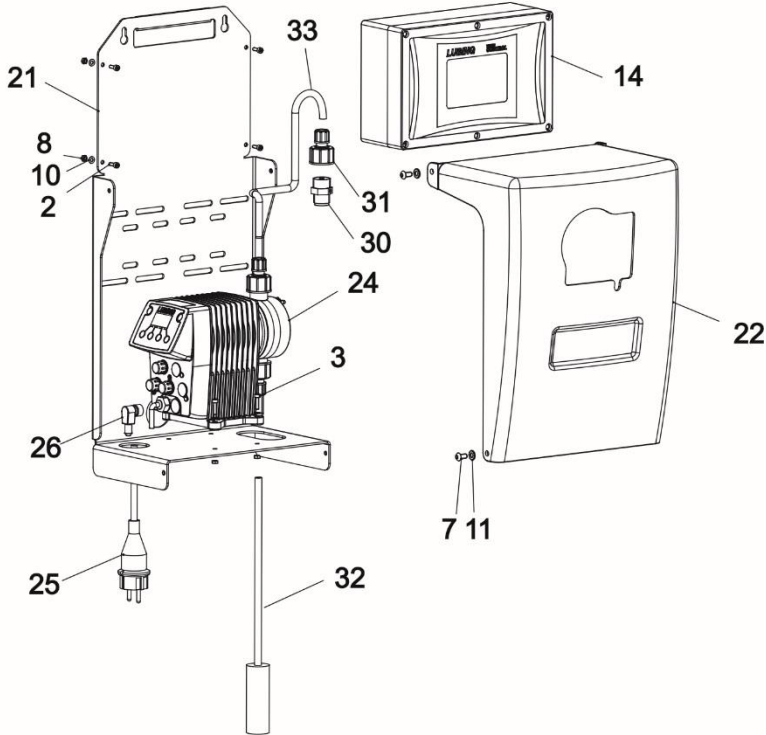
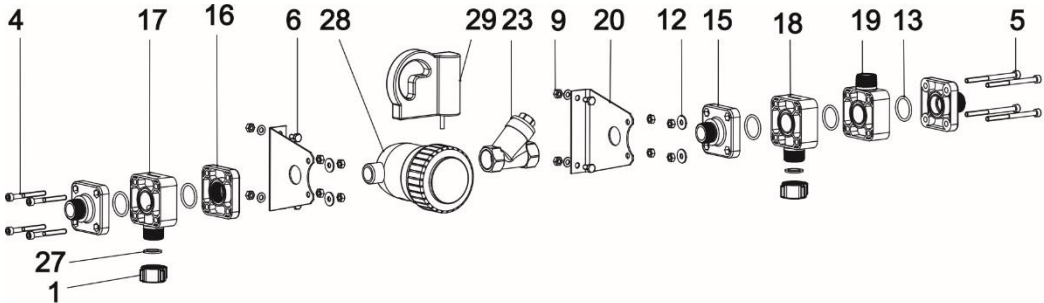
Possible cause	Remedy
The materials are not suitable for the dosing medium being used	<ul style="list-style-type: none"> – Check the resistance of the materials.
Diaphragm not screwed up to the end stop on the diaphragm rod	<ul style="list-style-type: none"> – Screw a new diaphragm up to the end stop.
System back pressure too high (measured at discharge connection of dosing pump)	<ul style="list-style-type: none"> – Clean blocked injection nozzle. – Install pulsation dampeners to reduce pressure peaks if pipes are too long. – Check function of safety valves.
Media sediment in dosing head	<ul style="list-style-type: none"> – Clean the dosing head.

10 Overview spare parts MBDOS

10.1 MBDOS10 + MBDOS20

Doser MBDOS10, 3/4" version

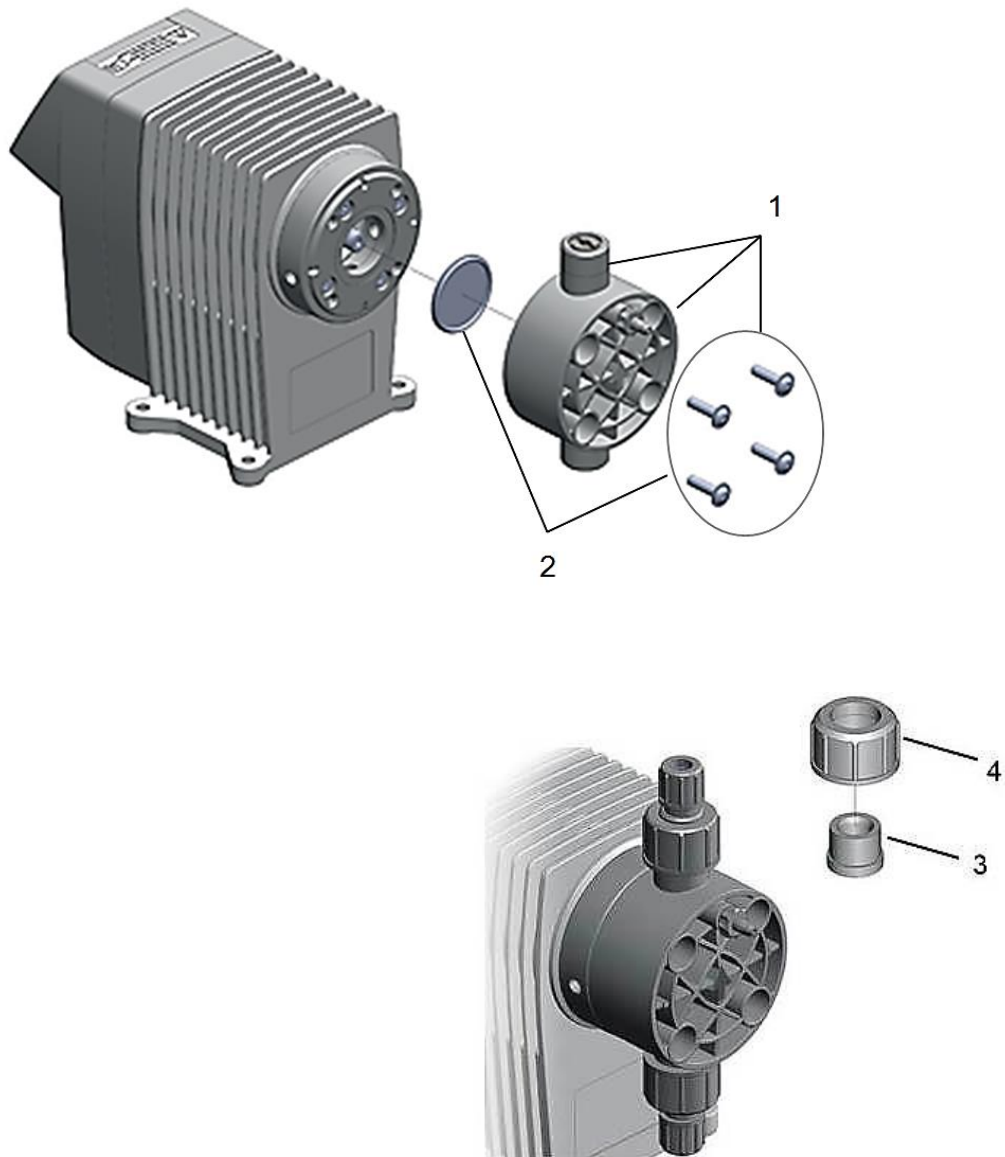
Doser MBDOS20, 3/4" version



Spare parts list for MBDOS10 + MBDOS20

		MBDOS10	MBDOS20
Pos.	Description	Item No.	Item No.
1	Seal nut ¾", red	001 370 40 04	001 370 40 04
2	Cylinder screw M4x12	23 42 031	23 42 031
3	Cylinder screw M4x16	23 42 032	23 42 032
4	Cylinder screw M6x55	23 42 076	23 42 076
5	Cylinder screw M6x80	23 42 081	23 42 081
6	Hexagon nut M6x12	23 56 067	23 56 067
7	Flat head screw M6x12	23 90 067	23 90 067
8	Hexagon nut M4	VM4	VM4
9	Hexagon nut M6	VM6	VM6
10	Washer A4,3	26 02 307	26 02 307
11	Washer A6,4 DIN 125	VSC6,4x12	VSC6,4x12
12	Washer A6,4 DIN 9021	VSC6,4x24	VSC6,4x24
13	O-ring 27x3 EPDM 70	30 07 356	30 07 356
14	Controller E-Dos Touch	MBDOSE150	MBDOSE150
15	Flange with external thread, yellow	MBDOSE011	MBDOSE011
16	Flange with internal thread, yellow	MBDOSE008	MBDOSE008
17	Flange connection, yellow	MBDOSE028	MBDOSE028
18	Flange connection ¼", yellow	MBDOSE028	MBDOSE028
19	Flange connection ½", yellow	MBDOSE114	MBDOSE114
20	Bracket for doser	031 130 03 00	031 130 03 00
21	Console E-Dos Touch 1+2	031 130 15 00	031 130 15 00
22	Cover E-Dos Touch 1+2	031 130 16 00	031 130 16 00
23	Back pressure valve ¾", 2xIT, bevel seat, DN20	MBDOSE007	MBDOSE007
24	Dosing-Pump	MBDOSE130	MBDOSE130
25	Cabel 3x0,75 with schuko-plug	ELL0031	ELL0031
26	Circular connector M12	51 40 010	51 40 010
27	Washer for ¾" seal nut	4213-05	4213-05
28	Water meter DN15, ET ¾", 110 mm long	MBDOSE120	MBDOSE120
29	Pulse counter water meter	MBDOSE121	MBDOSE121
30	Injection part R DN4 ½; E-Dos 1+2	MBDOSE110	MBDOSE110
31	Hose clamp connection 6x9 with union unit, E-Dos 1+2	MBDOSE115	MBDOSE115
32	Suction hose 6x9 with bottom valve E-Dos 1+2	MBDOSE116	MBDOSE116
33	PVC Hose	SCPVC058	SCPVC058

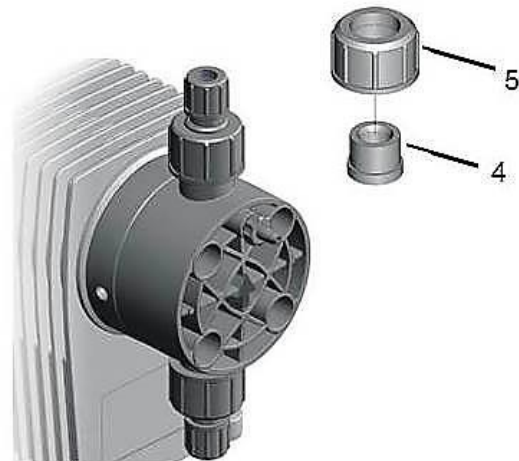
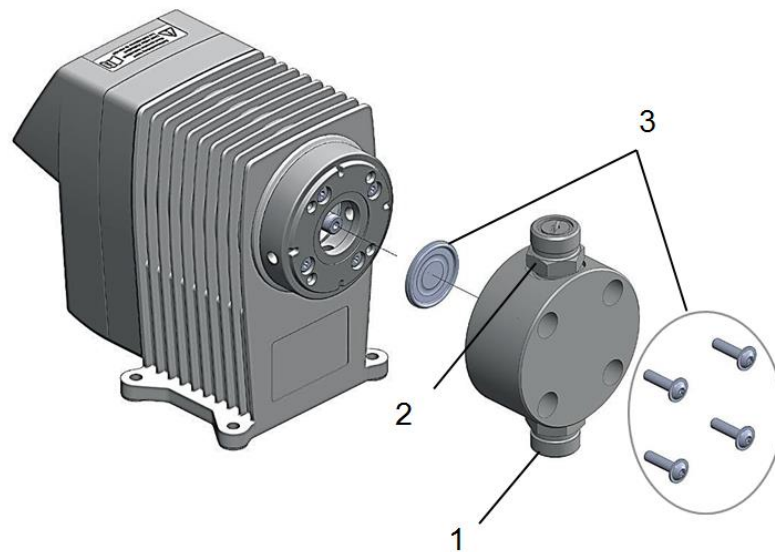
10.2 Pump for MBDOS10



Pump for MBDOS10 – Item No. MBDOSE130

Pos.	Description	Art.-Nr.
1	Pump head MBDOS10 (dosing head, valves, screws)	MBDOSE135
2	Diaphragm-set Ø 39 MBDOS10 (diaphragm + screws	MBDOSE136
3	Clamp ring 6x9 PVDF natur	MBDOSE137
4	Union nut 6/9 MBDOS10 + MBDOS20, black	MBDOSE138

10.3 Pump for MBDOS20



Pump for MBDOS20– Item No. 48 06 014		
Pos.	Description	Art.-Nr.
1	Suction valve DN4 MBDOS20	48 07 055
2	Pressure valve DN4 MBDOS20	48 07 056
3	Diaphragm-set Ø 54 MBDOS20 (diaphragm + screws)	48 07 057
4	Clamp ring 6x9 PVDF natural	48 07 045
5	Union nut 6/9 MBDOS10 + MBDOS20, black	48 07 046

11 Equipment

Mixer 60 Liter (Item MBMISCH60)

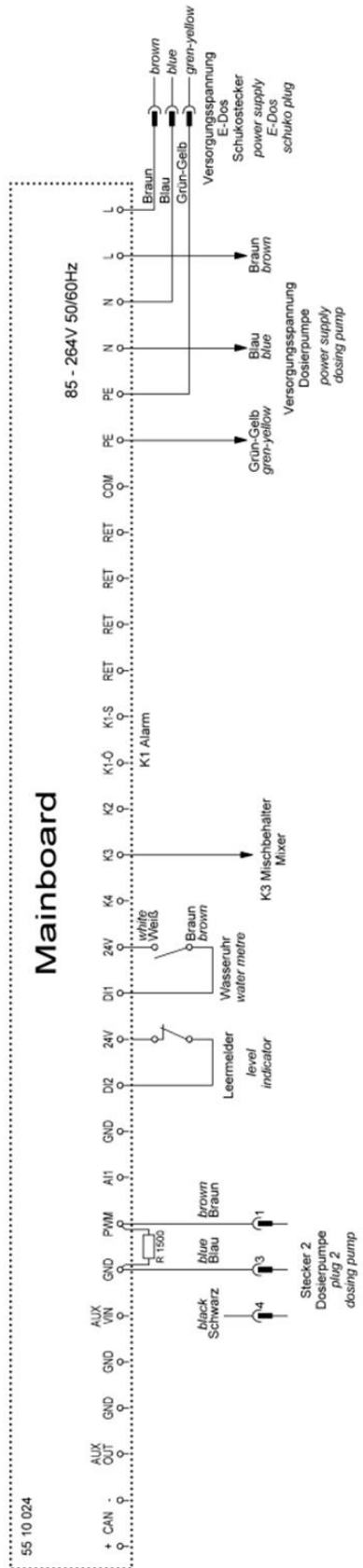
Mixer 180 Liter (Item MBMISCH60)



Main water supply with doser MBDOS, mixer (Item No. MBMISCH60), and pressure reducing valve (Item No. T176), circulations pump (Item No. MBDOSZ020) – arranged as ring main/drinking circulation system



Clamping plan



Datum		Name		Bezeichnung		Controller	
gez.:				MBDOS10 + MBDOS20		27.03.2017	
geb.:				MEIER-BRAKENBERG		Blattzahl: 20	
				Zeichnungs-Nr.: Neuer Controller 2.spl7		Blatt-Nr.: 20	
						E-Dos	

13 Dimension sheet

Maschinenfabrik Ludwig Bening GmbH & Co. KG Lubingstraße 6 49406 Barnstorf	Teil- und/oder Teil-Beschriftung Dosierer MBDOS10, 3/4"	Masse 11.900 kg
MEIER-BRAKENBERG	Formnummer	Blatt 2/2
	Format A3	Maßstab 1:5

Maschinenfabrik Ludwig Bening GmbH & Co. KG Lubingstraße 6 49406 Barnstorf	Teil- und/oder Teil-Beschriftung Dosierer MBDOS20, 3/4"	Masse 10.920 kg
MEIER-BRAKENBERG	Formnummer 4272-2	Blatt 2/2
	Format A3	Maßstab 1:5



14 Mixer

14.1 Introduction

The MEIER-BRAKENBERG Mixer MBMisch are exclusively intended for mixing water with water soluble additives via a rotary vane pump.

The following points must to be considered for a trouble free function:

- Regular control of the water quality, particularly on iron and lime content.
- Input pressure up to 3 bars (43 PSI).
- Do not use aggressive cleaning agents (Acids, etc.). If you need information about the additive, which should be present, ask the importer/producer.

	Warning of cold! Frost can destroy construction units of the mixing unit!
	Warning of corrosive materials! Aggressive cleaners or acids can destroy construction units of the mixing unit!

At operational fault inform immediately the supplier/manufacturer! Maintenance and repair work may be accomplished only by trained personnel. During neglect of the instructions and/or when not intended use any warranty claim is void!


The MBMisch mixer will be delivered pre-mounted. Pay attention to cleanness at start-up. Each pollution could impair the function of the mixer and also in water flow direction construction units behind (e.g. doser, etc.).

Flush thoroughly before start-up!

The MBMisch mixer must stand on an even and horizontal surface. The connection for the water inlet is a ¾" hose with a Gardena connection. The pump is not splash-proof.

Electrical connecting:

Connect the power supply plug at 240 V 50 Hz.
Deviating tensions or frequencies are noted in the delivery note.

	Never run Pump dry! Running dry destroys important construction units of the pump!
---	---

14.2 Operating manual

Unlock the safety devices for children to open the cover. The intake for the doser is the drilling lead. Attach the hose with the Gardena connection to the upper clutch. Fill the container with the desired quantity water. Put the water hose on the lower clutch and do not close the shut-off valve from the water supply. Then put the power supply plug into the plug socket. Now the additives can be added. Only water-soluble additives may be used (e.g. citric acid crystallise very fast, and these crystals shier then between the Impeller and the pump housing. Water from that can arrive to up-scrubbed housing into the engine and it can to foaming power in the mixer or in extreme cases to a short-circuit). Lock afterwards the cover with the safety device for children.

Flushing procedure:

With only small mixture quantity fresh water is supplied by the float valve at the lower Gardena connection. Hereby the container and also the doser are flushed. Further deposits should be present must be cleaned with suitable pure greed.

Remove after thorough flushing procedure the power supply plug and turn off the water inlet. Protect the doser against unlubricated operation. Turn off the doser before the mixing unit is pumped empty. Reminders from the mixer dispose according to authority regulations.

Maintance instruction:

The mixer must be thoroughly flushed after each medication or cleaning!



Aggressive and media containing solvent can cause leakages and loss depending upon kind and concentration.

14.3 Fault analysis

Fault	Cause	Remedy
Foam formation during operation	Air ingest of the pump.	The housing of the pump is defect and must be exchanged.
Engine runs no movement in the mixer	Blockage by deposits of the angles in the tank bottom or the pump.	Cleaning of the entire system considering the cleaning instruction.
Leakage at the lower housing	<ul style="list-style-type: none"> • Porous hoses. • Unscrew clamp. • after running pump dry chafed through housing. 	Control hoses and clips if necessary exchange or the housing of the pump are defect and must be exchanged.

14.4 Chemische Beständigkeit/Chemical resistance:

Material / material	ABS	POM	PVC	PP
Stand / issue 10.03	Entlüftung Druckminderer Wassertank Breather unit Regulator Water tank	Nippelgehäuse Rohrhalter Klemmschraube Nipple body support clam- ping screw	Nippelrohr Deh- nungs-kupplung Entlüftung Nipple pipe Tube connector Breather unit	Putenmastschale Putenaufzuchtschale Pendelhalter Turkey finishing cup Turkey rearing cup Pendulum holder
Alkohole / alcohol	2	3	4	4
Aldehyde / aldehyde	2	3	3	4
Amine / aliphatisch / amine - alipatic	1	3	2	2
Amine / aromatisch / amine - aromatic	1	2	1	1
Basen / bases	3	3	4	4
Benzin / petrol	2	4	2	2
Ester / ester	1	3	1	1
Glykole / glycol	3	3	4	4
Ketone / ketone	1	3	1	4
Kochendes Wasser / boiling water	2	3	2	2
Kohlenwasserstoff / aliphatisch hydrocarbon - alipatic	3	3	4	2
Kohlenwasserstoff / aromatisch hydrocarbon - aromatic	1	3	1	2
Kohlenwasserstoff / chloriert hydrocarbon - chlorinated	1	2	1	2
Lösungsmittel / solvent	2	3	3	
Mineralsäuren / konzentriert / mineral acids - concentrated	1	2	4	3
Mineralsäuren / verdünnt mineral acids - diluted	3	3	4	4
Motoröl / engine oil	3	4	4	4
Organische Säuren / konzentriert organic acids - concentrated	1	2	4	3
Organische Säuren / verdünnt organic acids - diluted	3	3	4	4
Oxidierende Mineralsäuren / konzentriert oxydating mineral acids - concentrated	3	1	3	4

Für die chemischen Beständigkeiten gelten folgende Kategorien:

- 1 = schlecht beständig
- 2 = weniger beständig
- 3 = oft beständig
- 4 = beständig

For chemical resistance there are 4 categories:

- 1 = little resistant
- 2 = less resistant
- 3 = often resistant
- 4 = resistant

Niemals Chemikalien der Kategorien 1 und 2 in oder an der Tränkelinie verwenden!

Diese Liste erhebt keinen Anspruch auf Vollständigkeit. Bitte beachten Sie die Beständigkeitslisten.

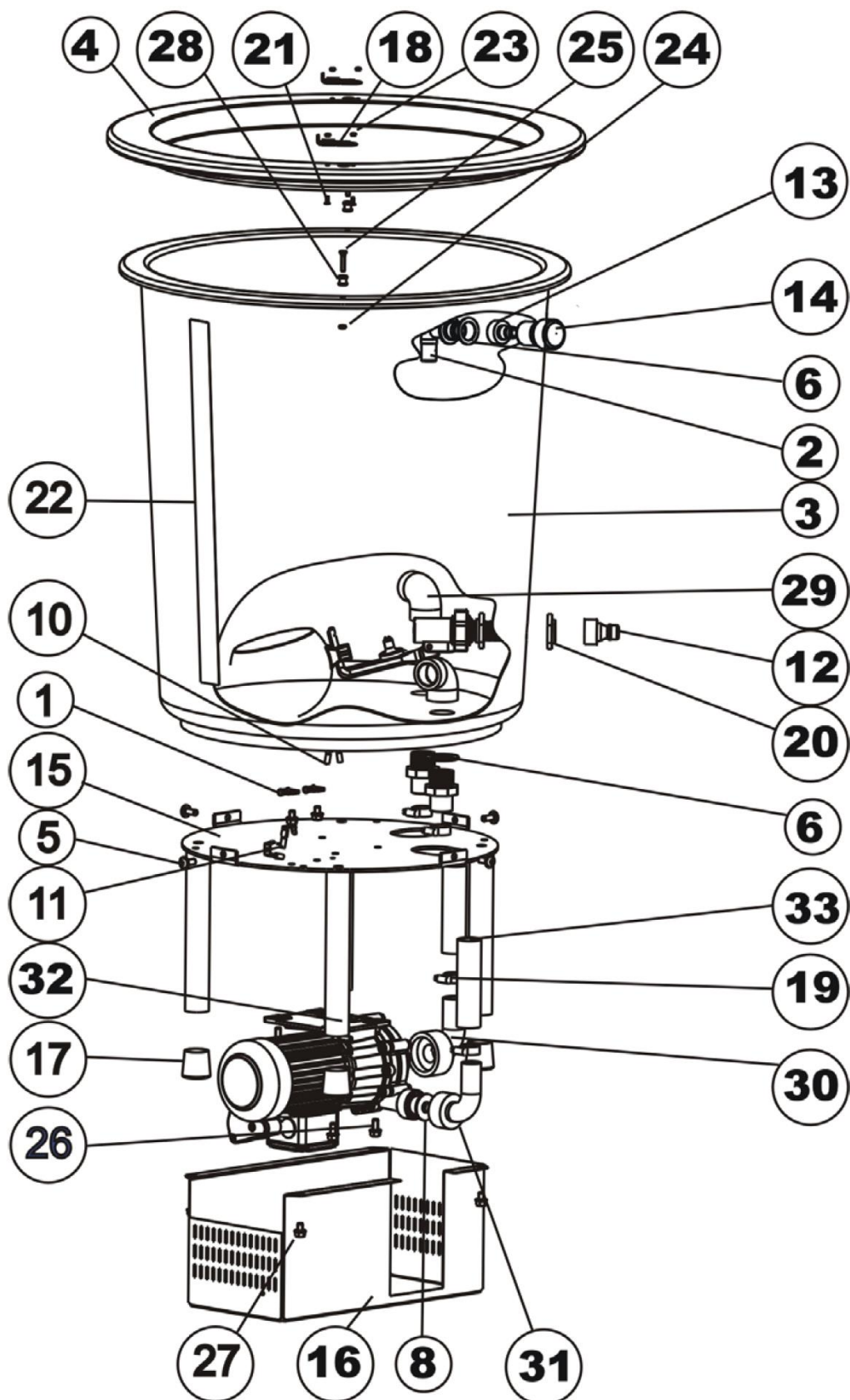
Do not use chemicals of categories 1 and 2 in or on the drinker line!

Due to large number of chemicals this list can not be complete. Please check the lists of chemicals.

14.5

Spare part lists

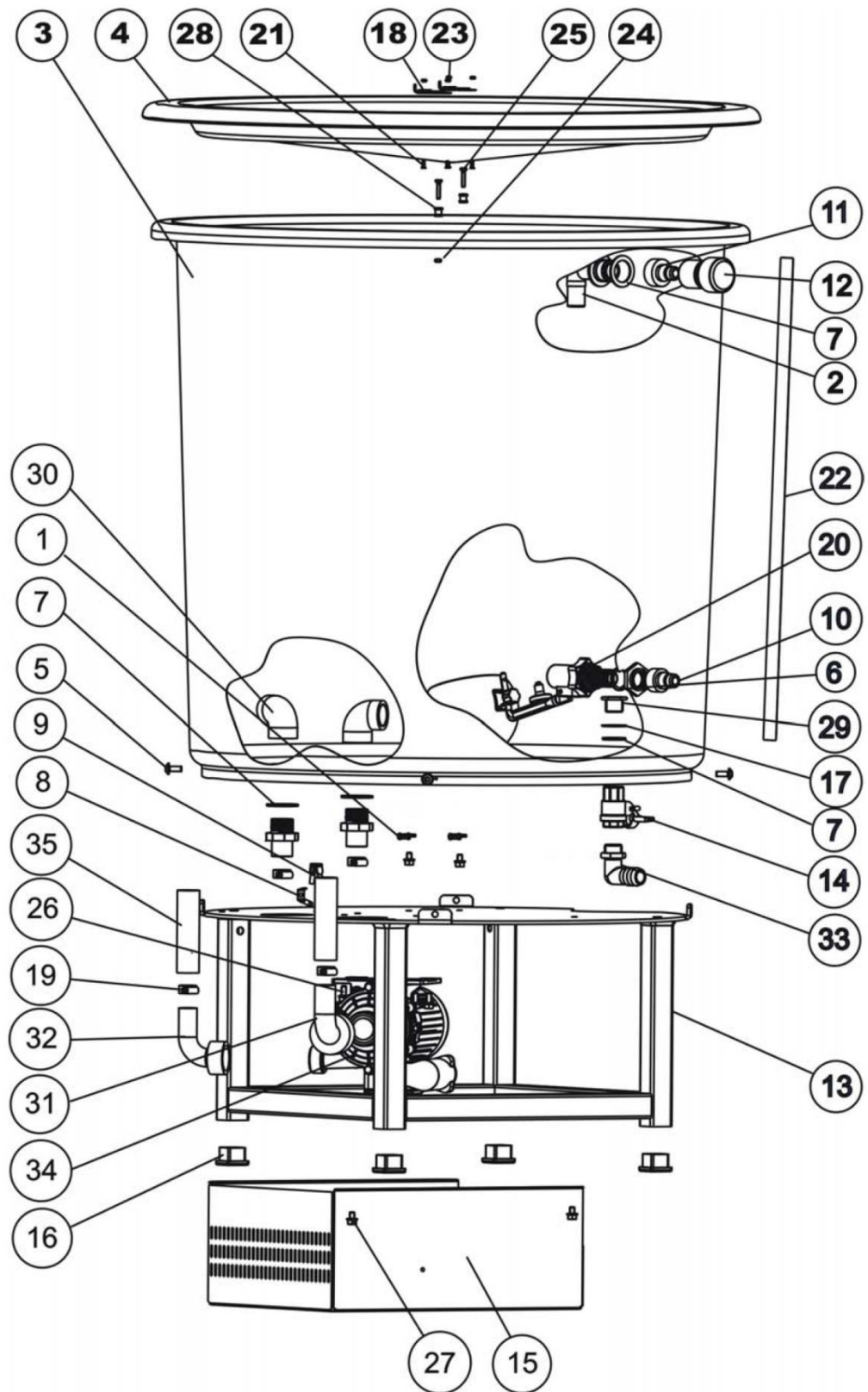
MBMisch 60 - from manufacturing year 05/2010



Pos.	Benennung	Description	Art. Nr. / Item
1	Alu-Befestigungsschelle	Alu clip 4,8mm	40 09 071
2	Auslauf 3/4" winklig weiß	Outlet 90 degree elbow	4209-04
3	Behälter 75L	Tank 75l	042 120 01 01
4	Deckel	Cover mixer and medomix	040 120 05 01
5	DELTA PT Schraube WN 5451 6x15	DELTA PT screw WN 5451 6x15	21 96 224
6	Dichtring 3/4" Aussengewinde	Washer 3/4" ext.thread	4212-05
7	Drosselscheibe D10mm für Mischgeräte	Baffle Ø10mm	042 140 01 00
8	Drosselscheibe D12mm für Mischgeräte	Baffle Ø12mm	042 140 01 01
9	Drosselscheibe D14mm für Mischgeräte	Baffle Ø14mm	042 140 01 02
10	Erdanschluß Standart	Ground terminal	51 85 001
11	Flachsteckhülse 6,3x0,8x1qmm	Receptacle for tabs 6.3x0.8x1 qmm	52 03 001
12	Gardena Hahnstück 1/2"	Gardena Connector 1/2"	42 50 021
13	Gardena Hahnstück 3/4"	Gardena Connector 3/4"	42 50 041
14	Gardena Wasserstop 3/4"	Gardena water stop 3/4"	42 50 046
15	Gestell 60L	Base frame 60l	042 100 01 01
16	Pumpenabdeckung 60l	Cover for pump 60l	042 120 13 02
17	Rohrkappe Ø27mm schwarz	Pipe cap Ø27mm black	70 50 227
18	Schiebeverschuß kpl.	Slide closure cpl.	38 05 060
19	Schneckenengewindeschelle W4 20-32mm	Worm drive hose clip W4 20-32	40 11 507
20	Schwimmerventil	Ball valve 1/2"	4204
21	Senkschraube M3x8	Slotted countersunk screw M3x8	21 61 016
22	Skala Klarfolie 3x42 cm	Scale for mixer 42x8	63 60 005
23	Skt. Mutter M3	Hexagon nut M3	25 15 102
24	Skt. Mutter M4	Hexagon nut M4	25 15 303
25	Skt.-Schraube M4x20	Hexagon screw M4x20	23 56 033
26	Skt.-Schraube mit Scheibe M6x12	Hexagon screw with flange M6x12	21 99 067
27	Skt.-Schraube mit Scheibe M6x8	Hexagon screw with flange M6x8	21 99 065
28	Verschluszapfen	Sealing stud	042 120 10 00
29	Winkel 90° 2 x 3/4" IG	Elbow 90° 25mm x 3/4"	42 06 011
30	Winkelschlauchtülle 1 1/4" x 25mm	Angle hose connector 1 1/4" x25mm	40 12 028
31	Winkelschlauchtülle 1" x 22mm	Angle hose connector 1" x22mm	40 12 023
32	Zentrifugalpumpe RM PP	Centrifugal pump RM PP	48 03 007
33	Übergangsstück 3/4" außen auf Schlauch	Transition piece 3/4" with tube	042 100 14 00

14.6 Spare part lists

MBMisch 180



Pos.	Benennung	Description	Art.Nr. / Item
1	Alu-Befestigungsschelle	Alu clip 4,8mm	40 09 071
2	Auslauf 3/4" winklig weiß	Outlet 90 degree elbow	4209-04
3	Behälter 180l	Tank 180l	042 120 02 00
4	Deckel 180l	Cover mixer 180 l	040 120 06 00
5	DELTA PT Schraube WN 5451 6x15	DELTA PT screw WN 5451 6x15	21 96 224
6	Dichtring 1/2"	Washer 1/2"	4214-05
7	Dichtring 3/4" Aussengewinde	Washer 3/4" ext.thread	4212-05
8	Erdanschluß Standart	Ground terminal	51 85 001
9	Flachsteckhülse 6,3x0,8x1qmm	Receptacle for tabs 6.3x0.8x1 qmm	52 03 001
10	Gardena Hahnstück 1/2"	Gardena Connector 1/2"	42 50 021
11	Gardena Hahnstück 3/4"	Gardena Connector 3/4"	42 50 041
12	Gardena Wasserstop 3/4"	Gardena water stop 3/4"	42 50 046
13	Gestell 180 l	Base frame 60l	042 100 04 01
14	Kugelhahn 1/2" IG	Ball valve 1/2" internal thread	4389
15	Pumpenabdeckung 180l	Cover for pump 60l	042 120 14 01
16	Rohrkappe 30x30x2	Pipe cap	70 50 005
17	Scheibe 30x21x1	Washer 30x21x1	040 140 02 00
18	Schiebeverschuß kpl.	Slide closure cpl.	38 05 060
19	Schneckengetriebeschelle W4 20-32mm	Worm drive hose clip W4 20-32	40 11 507
20	Schwimmerventil	Ball valve 1/2"	4204
21	Senkschraube M3x8	Slotted countersunk screw M3x8	21 61 016
22	Skala 180 l	Scale for mixer 4258	63 60 007
23	Skt. Mutter M3	Hexagon nut M3	25 15 102
24	Skt. Mutter M4	Hexagon nut M4	25 15 303
25	Skt.-Schraube M4x20	Hexagon screw M4x20	23 56 033
26	Skt.-Schraube mit Scheibe M6x12	Hexagon screw with flange M6x12	21 99 067
27	Skt.-Schraube mit Scheibe M6x8	Hexagon screw with flange M6x8	21 99 065
28	Verschlusszapfen	Sealing stud	042 120 10 00
29	Verschraubung 1/2" Edelstahl	Screw connection 1/2" stainless steel	040 120 14 01
30	Winkel 90° 2 x 3/4" IG	Elbow 90° 25mm x 3/4"	42 06 011
31	Winkelschlauchtülle 1 1/4" x 25mm	Angle hose connector 1 1/4" x25mm	40 12 028
32	Winkelschlauchtülle 1" x 22mm	Angle hose connector 1" x22mm	40 12 023
33	Winkelschlauchtülle 1/2"	Angle hose connector 1/2"	40 12 008
34	Zentrifugalpumpe RM PP	Centrifugal pump RM PP	48 03 007
35	Übergangsstück 3/4" außen auf Schlauch	Transition piece 3/4" with tube	042 100 14 00

MEIER-BRAKENBERG

Brakenberg 29 • 32699 Extertal

Telefon: 0 52 62 / 993 99-0

Fax: 0 52 62 / 993 993

e-Mail: info@meier-brakenberg.de

Internet: www.meier-brakenberg.de