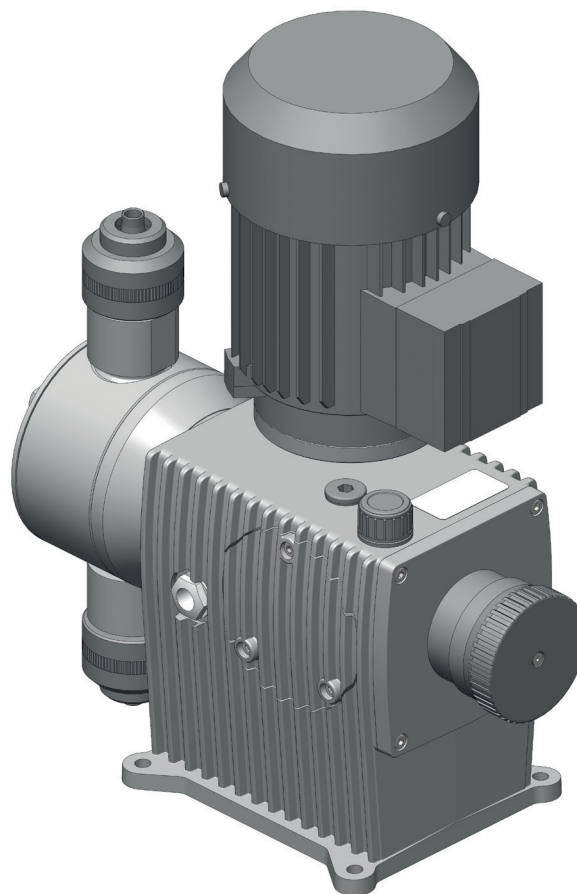


Motor-driven diaphragm dosing pump

MEMDOS LB

Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

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Table of Contents

1	Notes for the Reader	4	10	Control	28
1.1	General non-discrimination	4	11	Operation	29
1.2	Explanation of the signal words	4	11.1	Commissioning the dosing pump	29
1.3	Explanation of the warning signs	4	11.2	Commissioning the electric servomotor	30
1.4	Identification of warnings	4	11.3	Decommissioning the dosing pump	30
1.5	Identification of action instructions	4	11.4	Shutting down in an emergency	30
2	Safety	5	11.5	Storage	30
2.1	General warnings	5	11.6	Transportation	30
2.2	Warnings for use within explosive-risk zones	6	11.7	Disposal of old equipment	30
2.3	Hazards due to non-compliance with the safety instructions	6	12	Maintenance	31
2.4	Working in a safety-conscious manner	6	12.1	Maintenance intervals	31
2.5	Personal protective equipment	6	12.2	Change the oil	32
2.6	Personnel qualification	7	12.3	Tighten up dosing head bolts	33
3	Intended use	8	12.4	Diaphragm replacement	33
3.1	Notes on product warranty	8	12.5	Clean suction and pressure valves	34
3.2	Intended purpose	8	13	Troubleshooting	35
3.3	Principles	8	13.1	Type of fault	35
3.4	Prohibited dosing media	8	14	Spare parts	37
3.5	Use in explosion risk areas	8	14.1	Diaphragm spare parts kits	37
3.6	Ex label of dosing pump and motor	8	14.2	Dosing head spare parts kits including valves	37
3.7	Foreseeable misuse	9	15	Delivery characteristic curves	38
4	Product description	10	16	EU declaration of conformity MEMDOS LB	40
4.1	Properties	10	17	EU declaration of conformity MEMDOS LB Ex	41
4.2	Scope of delivery	10	18	UK Conformity Assessed	42
4.3	Structure of the dosing pump	10	19	Declaration of no objection	43
4.4	Function description	10	20	Warranty claim	44
4.5	Rating plate	11	21	Index	45
5	Technical data	12			
5.1	Delivery capacity data	12			
5.2	Operating conditions and limits	13			
5.3	Other data	13			
5.4	Motor data	14			
5.5	Electrical servomotors	18			
6	Dimensions	19			
6.1	MEMDOS LB 4 – 80, 150	19			
6.2	MEMDOS LB 110, 160 – 1010	20			
6.3	MEMDOS LB 4 – 80, 150 with electrical servomotor	21			
6.4	MEMDOS LB 110, 160 – 1010 with electrical servomotor	21			
7	Installing the Dosing Pump	22			
7.1	Set up information	22			
7.2	Installation on a wall console	22			
8	Hydraulic installations	23			
8.1	Design of the system	23			
8.2	System piping	23			
8.3	Suction and pressure valves	24			
8.4	Connecting a leakage drain	24			
8.5	Hydraulic accessories	25			
9	Electrical installation	27			
9.1	Drive motor connection	27			
9.2	Connection of electric servomotor	28			

1 Notes for the Reader

These Operating instructions contain information and behaviour rules for safe and designated operation of the dosing pump MEMDOS LB.

Observe the following principles:

- Read the entire operating manual prior to starting-up the device.
- Ensure that everyone who works with or on the dosing pump has read the operating instructions and follows them.
- Keep the operating instructions for the entire service life of the dosing pump.
- Pass on the operating instructions to any subsequent owner of the dosing pump.

1.1 General non-discrimination

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

1.2 Explanation of the signal words








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

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

Tab. 1: Explanation of the signal words

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:

Warning sign	Type of danger
	General danger zone
	Danger of electric shock
	Danger of caustic or other burns
	Danger of explosions
	Danger of electromagnetic radiation
	Danger of automatic start up
	Danger of damage to machine or functional influences

Tab. 2: Explanation of the warning signs

1.4 Identification of warnings

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

This is how warnings are identified:

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

1.5 Identification of action instructions

This is how pre-conditions for action are identified:

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

This is how instructions for action are identified:

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


Dosing Pump air


2 Safety


2.1 General warnings


The following warnings are intended to help you to eliminate the dangers that can arise while handling the dosing pump. 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.


	DANGER!
<p>Mortal danger from electric shock!</p> <p>Wrongly connected or located cables or damaged ones can injure you.</p> <ul style="list-style-type: none"> ⇒ Only connect the device to an earthed power supply. ⇒ Replace damaged cables without delay. ⇒ Do not use extension cables. ⇒ Do not bury cables. ⇒ Secure cables to avoid being damaged by other equipment. 	


	WARNING
<p>Danger from unsuitable materials</p> <p>The materials of the dosing pump and hydraulic parts of the system must be suitable for the dosing medium that is used. Should this not be the case, the dosing media may leak.</p> <ul style="list-style-type: none"> ⇒ Make sure that the materials you are using are suitable for the dosing medium. ⇒ Make sure that the lubricants, adhesives, sealants, etc. that you use are suitable for the dosing medium. 	

	WARNING
<p>Danger of automatic start up!</p> <p>After connecting the mains supply, residual dosing media in the dosing head can spray out.</p> <ul style="list-style-type: none"> ⇒ Before connecting the mains supply, connect the dosing lines. ⇒ Check that all the screw connections have been tightened correctly and are leak-proof. 	

	WARNING
<p>Caustic burns or other burns through dosing media!</p> <p>While working on the dosing head, valves and connections, you may come into contact with dosing media.</p> <ul style="list-style-type: none"> ⇒ Use sufficient personal protective equipment. ⇒ Rinse the dosing pump with a liquid (e.g. water) which does not pose any risk. Ensure that the liquid is compatible with the dosing medium. ⇒ Release pressure in hydraulic parts. ⇒ Never look into open ends of plugged pipelines and valves. 	

	WARNING
<p>Danger from electromagnetic radiation!</p> <p>Solenoid diaphragm dosing pumps In operation, solenoid diaphragm dosing pumps emit a stray magnetic field. If you do not keep far enough away, the function of a pacemaker can be negatively affected.</p> <ul style="list-style-type: none"> ⇒ People with pacemakers must always keep at least 50 cm away from the dosing pump. 	


	CAUTION
<p>Danger when changing the dosing medium!</p> <p>Changing the dosing media can provoke unexpected reactions, damage to property and injury.</p> <ul style="list-style-type: none"> ⇒ Clean the dosing pump and the system parts in contact with the media thoroughly before changing the dosing medium. 	


	CAUTION
<p>Increased risk of accidents due to insufficient qualification of personnel!</p> <p>Dosing pumps and their accessories may only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.</p> <ul style="list-style-type: none"> ⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications. ⇒ Prevent access to the system for unauthorised persons. 	


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2.2 Warnings for use within explosive-risk zones

ATEX certified versions of the MEMDOS LB dosing pump can be used in potentially explosive atmospheres. The following warnings only apply for use in such areas:

	DANGER!
Danger to life through explosions!	
Explosions may result which could result in fatal injuries.	
⇒ Use only ATEX certified versions of the MEMDOS LB dosing pump in potentially explosive atmosphere (check the information on the rating plate).	

	DANGER!
Danger to life from electrostatic charge!	
Static electricity in explosive risk areas can build up when dosing flammable liquids. Explosions may result which could result in fatal injuries.	
⇒ Earth the dosing pump, drive motor and all metal parts along the suction and pressure piping route.	
⇒ Only use dosing heads made of stainless steel. In exceptional cases, carbon-filled PTFE dosing heads are also possible. For this, contact Lutz-Jesco GmbH.	

	DANGER!
Danger to life from the incorrect spare parts!	
Original Lutz-Jesco GmbH diaphragms from 90 mm in diameter are fitted with special conductive diaphragms to prevent static charging. If unsuitable membranes from other manufacturers are fitted, this can lead to electrostatic charging in explosive risk areas. Explosions may result which could result in fatal injuries.	
⇒ Only use original diaphragms for spare parts. This applies to MEMDOS LB 80 – 1010 dosing pumps.	

2.3 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 vital functions of the dosing pump and the system
- Failure of required maintenance and repair methods
- Danger for individuals through dangerous dosing media
- Danger to the environment caused by substances leaking from the system

2.4 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 provisions for handling dangerous substances (mostly the safety data sheets to dosing media)
- Environmental protection provisions
- Applicable standards and legislation

2.5 Personal protective equipment

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

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

Personal protective equipment required	
	Protective goggles
	Protective clothing
	Protective gloves

Tab. 3: Personal protective equipment required

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

- Commissioning
- Working on the dosing pump while running
- Shut-down
- Maintenance work
- Entsorgung

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2.6 Personnel qualification

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

Anybody who works on the dosing pump 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 handling of the dosing pump
- 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 dosing pump unsupervised
- Sufficient training that they can work on the dosing pump under the supervision and guidance of a trained specialist.

These operating instructions differentiate between these user groups:

2.6.1 Specialist staff

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

2.6.2 Trained electricians

Due to their professional training, knowledge and experience as well as knowledge of specific standards and provisions, trained electricians are able to do the electrical work assigned to them and to recognise and avoid any potential dangers by themselves.

They are specially trained for their specific working environment and are familiar with relevant standards and provisions.

They must comply with the legally binding regulations on accident prevention.

2.6.3 Trained electricians with additional qualification for explosion protection

Trained electricians with additional qualification for explosion protection fulfil the criteria to act as a competent person to meet all the special requirements needed when working in explosive risk areas.

They are specially trained for their work environment in explosive risk areas and know all the relevant standards and regulations.

Above all, they have the required specialist knowledge about explosion protection like, for example, ignition protection classes, flash points, density ratios, zoning, device categories, temperature classes etc.

2.6.4 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.

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

Qualification	Activities
Specialist staff	<ul style="list-style-type: none"> ■ Assembly ■ Hydraulic installations ■ Maintenance ■ Repairs ■ Commissioning ■ Taking out of operation ■ Disposal ■ Fault rectification
Trained electricians	<ul style="list-style-type: none"> ■ Electrical installation ■ Installing the electric servomotor ■ Rectifying electrical faults
Trained electricians with additional qualification for explosion protection	<ul style="list-style-type: none"> ■ Electrical installation in explosive risk areas ■ Fault rectification in explosive risk areas
Trained persons	<ul style="list-style-type: none"> ■ Storage ■ Transportation ■ Control ■ Fault rectification

Tab. 4: Personnel qualification

3 Intended use

3.1 Notes on product warranty

Any non-designated use of the product can compromise its function or intended protection. This leads to invalidation of any warranty claims!

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

- The dosing pump is operated in a manner which is not consistent with these operating instructions, particularly safety instructions, handling instructions and the section "Intended Use".
- if people operate the product who are not adequately qualified to carry out their respective activities.
- No original spare parts or accessories are used.
- Unauthorised changes are made to the device.
- The user uses different dosing media than those indicated in the order.
- 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 dosing pump MEMDOS LB is intended for the following purpose: the conveying and dosing of liquids.

3.3 Principles

- Before delivery, the manufacturer inspected the dosing pump and operated it under specific conditions (with a specific dosing medium with a specific density and temperature, with specific pipe dimensions, etc.) Since these conditions differ at every location of usage, the delivery capacity of the dosing pump should be measured by gauging it at the operating company's installation. For details on the approximate values and the capacity of the dosing pump, refer to the chapter 15 "Delivery characteristic curves" on page 38.
- Comply with the information regarding the operating and environmental conditions (see chapter "Technical data").
- Any restrictions regarding the viscosity, temperature and density of dosing media must be followed. You must only use dosing media at temperatures above freezing point or below the boiling point of the respective medium.
- The materials of the dosing pump and hydraulic parts of the system must be suitable for the dosing medium that is used. In this connection, note that the resistance of these components can change in dependence on the temperature of the media and the operating pressure.



Information on the suitability of materials combined with different dosing media can be found in the Compatibility Chart of the manufacturer.

The information in this resistance list is based on information from the material manufacturers and on expertise obtained from handling the materials.

As the durability of the materials depends on many factors, this list only constitutes initial guidance on selecting material. In all cases, test the equipment with the chemicals you use under operating conditions.

- The dosing pump is not intended for outdoor use unless appropriate protective measures have been taken.
- Avoid leaks of liquids and dust into the casing and avoid direct exposure to sunlight.
- You must never operate dosing pumps in a potentially explosive atmosphere if they do not have corresponding nameplates or an appropriate EC Declaration of Conformity for potentially explosive atmospheres.

3.4 Prohibited dosing media

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

- Gaseous media
- Radioactive media
- Solid substances
- Flammable media, if adequate protective measures are not taken
- All other media that are not suitable for delivery using this dosing pump

3.5 Use in explosion risk areas

- The MEMDOS LB dosing pump with ATEX certification is an electric motor-driven, explosion protected of equipment group II, equipment category 2G. When used with an explosion-protected motor, it is used to supply and dose fluids in zone 1 and 2 explosion risk areas.
- When using the dosing pumps in explosion risk areas, you must observe the minimum requirements concerning zoning. The explosion group, category and type of protection which is indicated in the labelling, must meet or be better than the requirements for the intended area of use.
- The operating instructions for the explosion protected motor which are included in delivery must also be observed.

3.6 Ex label of dosing pump and motor

Dosing pumps for use in zone 1 explosion risk areas carry the label: II 2G Ex h IIC T4 - PTB 12 ATEX D036.

Motors for use in zone 1 explosion risk areas carry the label: II 2G Ex db eb IIC T4.

Dosing pumps for use in zone 2 explosion risk areas carry the label: II 2G Ex h IIC T3 - PTB 12 ATEX D036.

Motors for use in zone 2 explosion risk areas carry the label: II 2G Ex eb IIC T3.

This information can also be found on the ratings plate on the dosing pump and the ratings plate on the motor.

3.7 Foreseeable misuse

Below, there is information about the applications of the dosing pump or associated equipment that are not considered to be intended use. This section is intended to allow you to detect possible misuse in advance and to avoid it. Foreseeable misuse is assigned to the individual stages of the product lifetime:

3.7.1 Incorrect assembly

- Unstable or unsuitable bracket
- Dosing pump bolted wrongly or loosely

3.7.2 Incorrect hydraulic installation

- Suction and pressure lines dimensioned incorrectly
- Unsuitable connection of the pipes due to wrong material or unsuitable connections.
- Suction and pressure lines mixed-up
- Damage to threads due to them being tightened too much
- Bending of pipelines
- No free return flow of the pressure relief valve
- Excessive demand due to the pressure differences between the suction and pressure valves
- Through-suction at installation without back-pressure valves
- Damage due to undamped acceleration mass forces
- Exceeding the admissible pressure on the suction and discharge sides
- Using damaged parts

3.7.3 Incorrect electrical installation

- Connecting the mains voltage without a protective earth
- Unsecured mains or one that does not conform to standards
- Not possible to immediately or easily disconnect the power supply
- Wrong connecting cables for mains voltage
- Dosing pump accessories connected to wrong sockets
- Diaphragm monitoring not connected or defective
- Protective earth removed

3.7.4 Incorrect start-up

- Start-up with damaged system
- Shut-off valves closed at commissioning
- Closed suction or pressure line, e.g. due to blockages
- Personnel was not informed before the start-up
- System was recommissioned after maintenance without all the protective equipment and fixtures, etc. being reconnected.
- Inadequate protective clothing or none at all

3.7.5 Incorrect operation

- Protective equipment not functioning correctly or dismantled
- Modification of the dosing pump without authority
- Ignoring operational disturbances
- Elimination of operational disturbances by personnel without adequate qualifications
- Deposits in the dosing head due to inadequate purging, particularly with suspensions

- Bridging the external fuse
- Operation made more difficult due to inadequate lighting or machines that are difficult to access
- Operation not possible due to dirty or illegible display of the dosing pump
- Delivery of dosing media for which the system is not designed
- Delivery of particulate or contaminated dosing media
- Inadequate protective clothing or none at all

3.7.6 Incorrect maintenance

- Carrying out maintenance during ongoing operation
- Carrying out work that is not described in the operating manual
- No adequate or regular inspection of correct functioning
- No replacement of damaged parts or cables with inadequate insulation
- No securing against reactivation during maintenance work
- Using cleaning materials that can cause reactions with the dosing media
- Inadequate cleaning of the system
- Unsuitable purging medium
- Unsuitable cleaning materials
- Detergents left in system parts
- Using unsuitable cleaning equipment
- Using the wrong spares or lubricants
- Contaminating the dosing medium with lubricant
- Installing spare parts without following the instructions in the operating manual
- Blocking venting orifices
- Pulling off sections of the plant
- Contamination at installation without a dirt trap
- Mixing up the valves
- Mixing up the sensor lines
- Not reconnecting all the lines
- Damaging or not installing all the seals
- Not renewing seals
- Not paying attention to safety data sheets
- Inadequate protective clothing or none at all

3.7.7 Incorrect decommissioning

- Not completely removing the dosing medium
- Dismantling lines while the dosing pump is running
- Device not disconnected from the power supply
- Using the wrong dismantling tools
- Inadequate protective clothing or none at all

3.7.8 Incorrect disposal

- Incorrect disposal of dosing media, operating resources and other materials
- No labelling of hazardous substances

4 Product description

4.1 Properties

The MEMDOS LB is a classic motor-driven diaphragm dosing pump used when a control is not required to achieve constant dosing.

They are characterized by the following properties:

- Suitable for accurate mixing tasks
- Performance range of 4 to 1020 l/h with a backpressure of 16 – 3 bar
- Reproducible dosing precision of $\pm 2\%$
- Stroke length manually adjustable between 0% and 100%
- Also suitable for frequency converter operation
- Wide range of dosing head materials
- With ATEX certification can be used in zones 1 and 2 explosion risk areas
- Non-leaking
- Suitable for highly aggressive or poisonous dosing media,
- Intermediate chamber for targeted discharge of the dosing medium in the event of a diaphragm rupture

4.2 Scope of delivery

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

- Dosing pump MEMDOS LB
- 1 container of oil
- Operating instructions
- Motor operating instructions (only for MEMDOS LB dosing pumps with explosion protection motors)
- Electric servomotor and associated operating manual (optional)
- Inspection report and test certificate (optional)
- Accessory kit (optional)

4.3 Structure of the dosing pump

4.3.1 General Overview

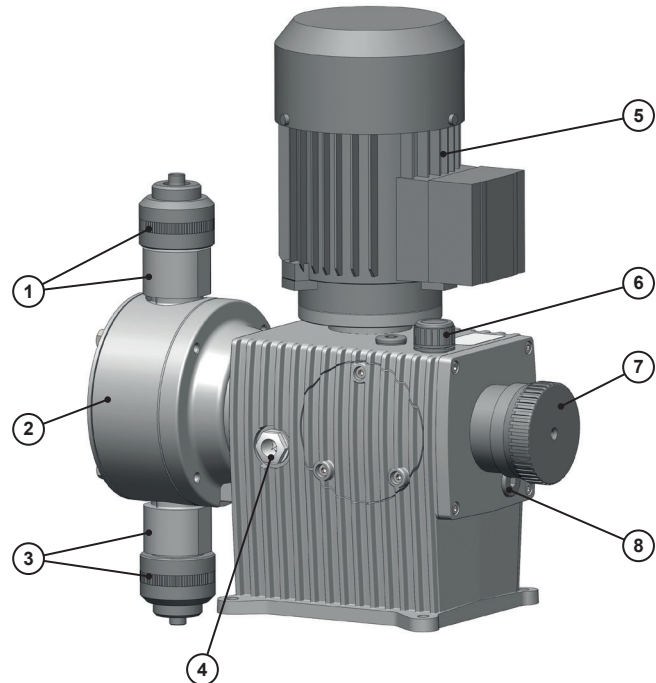


Fig. 1: Dosing pump overview MEMDOS LB

No.	Description
1	Valve and connection on the discharge side
2	Dosing head
3	Valve and connection on the suction side
4	Oil level glass
5	Drive motor
6	Oil inlet and gearbox ventilation
7	Stroke length adjustment
8	Oil drain

Tab. 5: Designation of components

4.4 Function description

Dosing pumps are positive displacement pumps. They are used if precisely defined delivery of a medium is necessary. A constant volume per stroke or time is delivered.

The system delivers or meters the dosing medium by means of a repeated sequence of suction strokes followed by pressure strokes. This results in a pulsing flow.

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If the dosing pump is in the suction stroke phase, the diaphragm is pulled into the rear final position. Due to the resulting vacuum in the dosing head, the pressure valve closes, the suction valve opens and dosing medium flows from the suction line into the dosing head.

If the dosing pump is in the pressure stroke phase, the diaphragm is moved into the front final position. Due to the pressure in the dosing head, the suction valve closes and the dosing medium flows through the pressure valve from the dosing head into the pressurised pipe.

4.5 Rating plate

There is information on the equipment about safety or the product's way of functioning. The information must stay legible for the duration of the service life of the product.

No.	Description
6	Protection class
7	Voltage supply at 50 and 60 Hz
8	Label showing conformity with applicable European directives
9	WEEE label
10	Label showing conformity with applicable UK directives
11	Serial number
12	Part number
13	Month/year of manufacture

Tab. 6: Rating plate

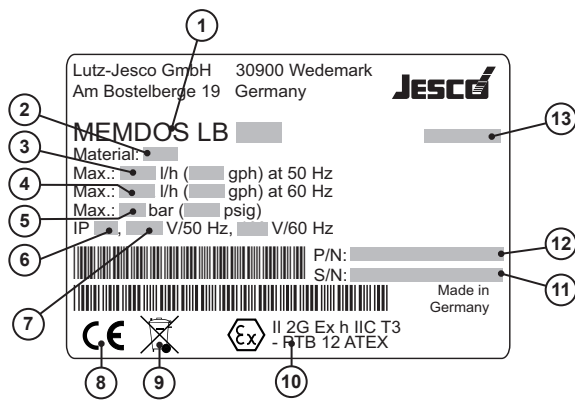


Fig. 2: Rating plate MEMDOS LB

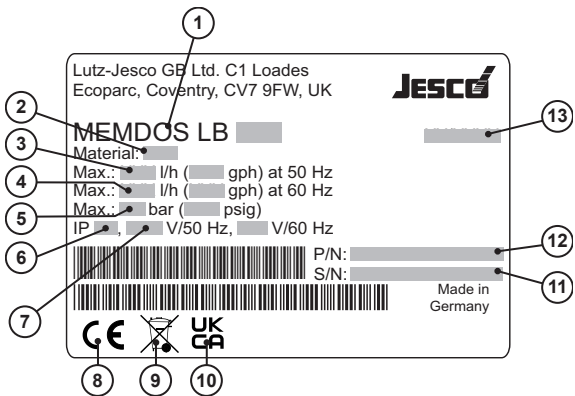


Fig. 3: Rating plate MEMDOS LB for the UK

No.	Description
1	Product, type, nominal size
2	Material
3	Maximum delivery capacity in l/h and gph at 50 Hz and maximum back pressure
4	Maximum delivery capacity in l/h and gph at 60 Hz and maximum back pressure
5	Maximum pressure in bar and psig

Tab. 6: Rating plate

5 Technical data

5.1 Delivery capacity data

Please note that some of this data only represents guide values. The actual capacity of a dosing pump depends on various factors. For approximate values of the delivery capacity at different pressures, refer to chapter 15 "Delivery characteristic curves" on page 38.

5.1.1 MEMDOS LB 4 – 80, 150

Information			MEMDOS LB Size									
			4	4-HP	10	10-HP	20	20-HP	35	60	80	150
Delivery capacity at max. backpressure	l/h	50 Hz	4	8.4	14	24	22	36	36	63	90	156
		60 Hz	4.8	10.1	16.8	28.8	26.4	43.2	43.2	75.6	108	187.2
	ml/stroke		2.6	5.4	3.2	5.6	3.1	5.0	8.3	8.8	20.8	21.7
max. delivery pressure	bar		12	16	12	16	12	16	10		5	
Max. stroke frequency	rpm	50 Hz	26		72		120		72	120	72	120
		60 Hz	31.2		86.4		144		86.4	144	86.4	144
Suction height for non-gassing media (with a filled suction line)	mWS		9					8		7		

Tab. 7: Delivery capacity MEMDOS LB 4 – 80, 150

5.1.2 MEMDOS LB 110, 160 – 1010

Information			MEMDOS LB Size								
			110	160	210	260	310	400	510	760	1010
Delivery capacity at max. backpressure	l/h	50 Hz	114	144	210	264	294	390	504	744	1020
		60 Hz	136.8	172.8	252	316.8	352.8	468	604.8	892.8	1224
	ml/stroke		19.8	20.0	36.5	36.7	51.0	54.2	158.5	163.2	158.9
max. delivery pressure	bar		10				8	6	4		3
Max. stroke frequency	rpm	50 Hz	96	120	96	120	96	120	53	76	107
		60 Hz	115.2	144	115.2	144	115.2	144	63.6	91.2	128.4
Suction height for non-gassing media (with a filled suction line)	mWS		7		6		4.5		1		

Tab. 8: Delivery capacity MEMDOS LB 110, 160 – 1010

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5.2 Operating conditions and limits

Information		MEMDOS LB (all sizes)
Approved ambient temperature	°C	5 – 45 (with PVC components 5 – 40)*
Relative humidity	%	max. 90
Max. sound pressure level	dB(A)	57 – 65
Max. supply pressure	mbar	500
Viscosity limits	mPa·s	300**/1000***
Adjustable dosing range	%	0 – 100

Tab. 9: Operating conditions and limits

* Use of the dosing pump at ambient temperatures below 5 °C must be checked individually. In such cases, please contact the manufacturer.

** With a viscosity of ~300 mPa·s and above, you must use spring-loaded valves.

*** If the viscosity is above 1000 mPa·s, this must be checked individually and the stroke frequency must be between 50 and 100 strokes/min.

5.2.1 Approved media temperature

Information		MEMDOS LB (all sizes)
Dosing head made of PVC	°C	0 – 35
Dosing head made of PP	°C	0 – 60
Dosing head made of PVDF	°C	0 – 60
Dosing head made of stainless steel (1.4571)	°C	0 – 80

Tab. 10: Approved media temperature

5.3 Other data

5.3.1 MEMDOS LB 4 – 80, 150

Information		MEMDOS LB Size									
		4	4-HP	10	10-HP	20	20-HP	35	60	80	150
Weight (qith dosing head made of PVC)*	kg	5.2					5.5		7.5		
Weight (with dosing head made of PP)*	kg	5.1					5.3		7.1		
Weight (dosing head made of PVDF)*	kg	5.3					5.6		8.2		
Weight (with dosing head made of stainless steel (1.4571))*	kg	6.7					7.3		12.7		
Diameter of diaphragm	mm	52					64		90		
Stroke length	mm	7.5					10				
Protection class		IP55									
Nominal valve width		DN4					DN6		DN10		

Tab. 11: Other data MEMDOS LB 4 - 80, 150

* Specifications without motor. For weight specifications, see "5.4 Motor data" on page 14 and the following pages.

5.3.2 MEMDOS LB 110, 160 – 1010

Information		MEMDOS LB Size							
		110	160	210	260	310	400	510	760
Weight (qith dosing head made of PVC)*	kg	15.2		15.7		17.7		24.9	
Weight (with dosing head made of PP)*	kg	14.9		15.2		16.8		22.8	
Weight (dosing head made of PVDF)*	kg	15.9		16.2		18.4		26.2	
Weight (with dosing head made of stainless steel (1.4571))*	kg	20.4		22.8		28.7		45.7	
Diameter of diaphragm	mm	90		120		150		185	
Stroke length	mm	10						12.5	
Protection class		IP55							
Nominal valve width		DN10		DN10**/DN15		DN15		DN25	

Tab. 12: Other data MEMDOS LB 110, 160 – 1010

* Specifications without motor. For weight specifications, see .“5.4 Motor data” on page 14 and the following pages.

** DN10 only with double-ball valves

5.4 Motor data**5.4.1 230 V or 120 V alternating current motors with operating capacitor**

Information			MEMDOS LB Size		
			4 – 80, 150	110, 160 – 400	510 – 1010
Power output	kW	50 Hz	0.18	0.25	0.75
		60 Hz	0.12	0.25	0.75
Speed	rpm	50 Hz	1360	1425	1440
		60 Hz	1680	1725	1680
Nominal current	A	50 Hz	1.2	2.15	5
		60 Hz	2.6	5.8	11.1
Voltage	V 1~	230 or 120			
Mains voltage		DIN EC 60038			
Frequency	Hz	50 or 60			
Operating mode		S1			
Protection class		IP55			
Insulation class		F			
Size		63	71	80	
Flange Diameter	mm	90	105	120	
Shaft	mm	Ø11 x 23	Ø14 x 30	Ø19 x 40	
Cooling		IC 411			

Tab. 13: 230 V or 120 V alternating current motors with operating capacitor

Information		MEMDOS LB Size		
		4 – 80, 150	110, 160 – 400	510 – 1010
Weight (230 V)	kg	5.5	12.1	11
Weight (120 V)	kg	4.5	11.1	10.5

Tab. 13: 230 V or 120 V alternating current motors with operating capacitor

5.4.2 400 V/230 V three-phase motors

Information			MEMDOS LB Size			
			4 – 80, 150	110, 160 – 400	510 – 760	1010
Power output	kW	50 Hz	0.12	0.37	0.55	0.75
		60 Hz	0.14	0.44	0.65	0.90
Speed	rpm	50 Hz	1360	1350	1385	1440
		60 Hz	1670	1650	1685	1740
Nominal current	A	50 Hz	0.49	1.08	1.43	1.8
		60 Hz	0.42	1.03	1.37	1.72
Voltage	V 3~	50 Hz	400/230			
		60 Hz	460/270			
Mains voltage		DIN EC 60038				
Frequency	Hz	50/60				
Operating mode		S1				
Protection class		IP55				
Insulation class		F				
Size		63	71	80		
Flange Diameter	mm	90	105	120		
Shaft	mm	Ø11 x 23	Ø14 x 30	Ø19 x 40		
Cooling		IC 411				
Weight	kg	4.1	6.6	9	13	

Tab. 14: 400 V/230 V three-phase motors

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5.4.3 400 V/230 V three-phase motors for frequency converter operation

Information			MEMDOS LB Size			
			4 – 80, 150	110, 160 – 400	510 – 760	1010
Power output	kW	50 Hz	0.18	0.6	0.75	1.1
		60 Hz	0.21	0.69	0.9	1.3
Speed	rpm	50 Hz	1350		1440	
		60 Hz	1650	1655	1740	
Nominal current	A	50 Hz	0.58	1.6	1.79	2.43
		60 Hz	0.57	1.5	1.72	2.35
Voltage	V 3~	50 Hz	400/230			
		60 Hz	460/270			
Mains voltage		DIN EC 60038				
Frequency	Hz	50/60				
Operating mode		S1				
Protection class		IP55				
Insulation class		F				
Size		63	71	80	90	
Flange Diameter	mm	90	105	120	140	
Shaft	mm	Ø11 x 23	Ø14 x 30	Ø19 x 40	Ø24 x 50	
Cooling		IC 411				
Weight	kg	4	7.8	11	14	

Tab. 15: 400 V/230 V three-phase motors

5.4.4 Three-phase motors in explosion protection versions

5.4.4.1 Motors for use in Zone 1 explosive risk areas

Information			MEMDOS LB Size			
			4 – 80, 150	110, 160 – 400	510 – 760	1010
Power output	kW	0.18	0.37	0.55	0.75	
Speed	rpm	1340	1390	1445	1410	
Nominal current	A	0.67	1.1	1.45	2.05	
Voltage	V 3~	400/230				
Mains voltage		DIN EC 60038				
Frequency	Hz	50				
Operating mode		S1				

Tab. 16: Motors for use in Zone 1 explosive risk areas

Information		MEMDOS LB Size			
		4 – 80, 150	110, 160 – 400	510 – 760	1010
Protection class		IP55			
Insulation class		F			
Temperature class		T4			
Degree of ignition protection		db eb			
Ex label		II 2G Ex db eb IIC T4			
Size		63	71	80	
Flange Diameter	mm	90	105	120	
Shaft	mm	Ø11 x 23	Ø14 x 30	Ø19 x 40	
Cooling		IC 411			
Weight	kg	16	19	12	24

Tab. 16: Motors for use in Zone 1 explosive risk areas

5.4.4.2 Motors for use in Zone 2 explosive risk areas

Information		MEMDOS LB Size			
		4 – 80, 150	110, 160 – 400	510 – 760	1010
Power output	kW	0.12	0.37	0.55	0.75
Speed	rpm	1355	1390	1380	1440
Nominal current	A	0.64	1.1	1.59	
Voltage	V 3~	230/400			
Mains voltage		DIN EC 60038			
Frequency	Hz	50			
Operating mode		S1			
Protection class		IP55			
Insulation class		F			
Temperature class		T3			
Degree of ignition protection		eb			
Ex label		II 2G Ex eb IIC T3			
Size		63	71	80	
Flange Diameter	mm	90	105	120	
Shaft	mm	Ø11 x 23	Ø14 x 30	Ø19 x 40	
Cooling		IC 411			
Weight	kg	4	7.8	10.6	11.7

Tab. 17: Motors for use in Zone 2 explosive risk areas

5.5 Electrical servomotors

Information		All sizes			
		Servomotor Type NL 0608		Servomotor Type NL 0608 PMR 2-LC	
Design		Reversible alternating current motor with maintenance-free gear Inside gear disengagement			
Use		For controllers with switching output (3-point step control)		For controllers with constant output 0(4) – 20 mA	
Voltage	V 1~	115	230	115	230
Frequency	Hz	50/60			
Power consumption	VA	max. 20			
Torque	Nm	8			
Actuating time (switch actuation path 10 turns)	s	240 (50 Hz)			
		200 (60 Hz)			
Service switch		-		Manual/automatic operation	
Protection classification		IP65 (with cable screw connection)			
Ambient temperature	°C	-15 to +60		0 to +60	
Weight	kg	3.4			
Shaft end	mm	d = 12 x 25 (with feather keyway)			
End-position limit		2 limit switches, adjustable by trigger cam			
Inputs					
Control		3-point step control		0(4) – 20 mA 0 – 10 V*	
Working resistance at 0(4) – 20 mA		-		250 Ω	
Outputs					
Position feedback signal for remote display		0 – 1000 Ω, max. 2 W		0(4) – 20 mA	

Tab. 18: Electrical servomotors

* Corresponding presetting available as an option or subsequently adjustable



Please also follow the operating manual for the electric servomotor enclosed with the dosing pump.

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6 Dimensions

All dimensions in mm

6.1 MEMDOS LB 4 – 80, 150

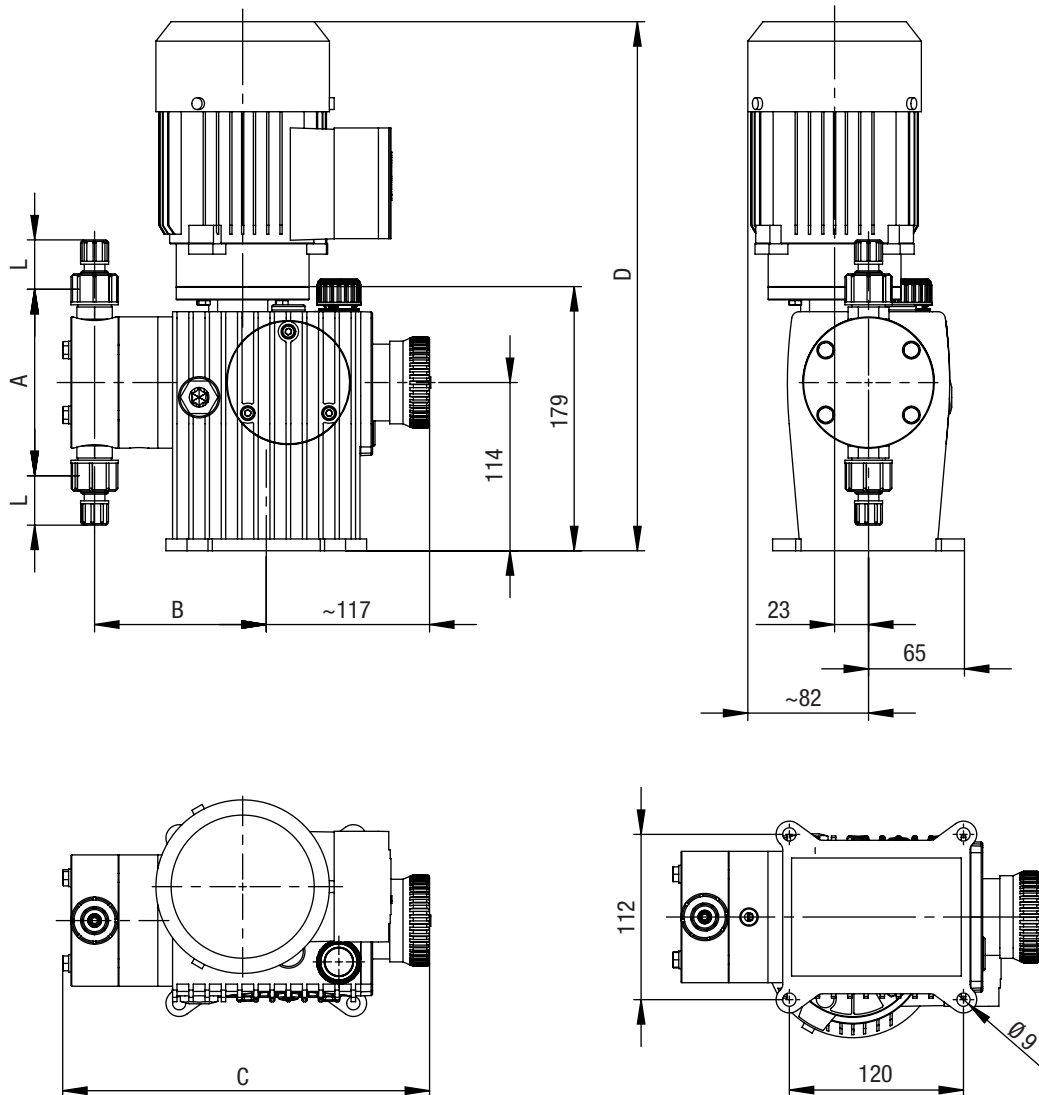


Fig. 4: Dimensioned drawings MEMDOS LB 4 – 80 and 150

Scale	MEMDOS LB size		
	4 – 20	35 – 60	80, 150
A	126	149	249
B	116	121.5	133
C	249	256	280
D *	389	389	389
L	Depends on the connection type and size		

Tab. 19: Dimensions MEMDOS LB 4 – 80 and 150

* with 400 V/230 V three-phase motor

6.2 MEMDOS LB 110, 160 – 1010

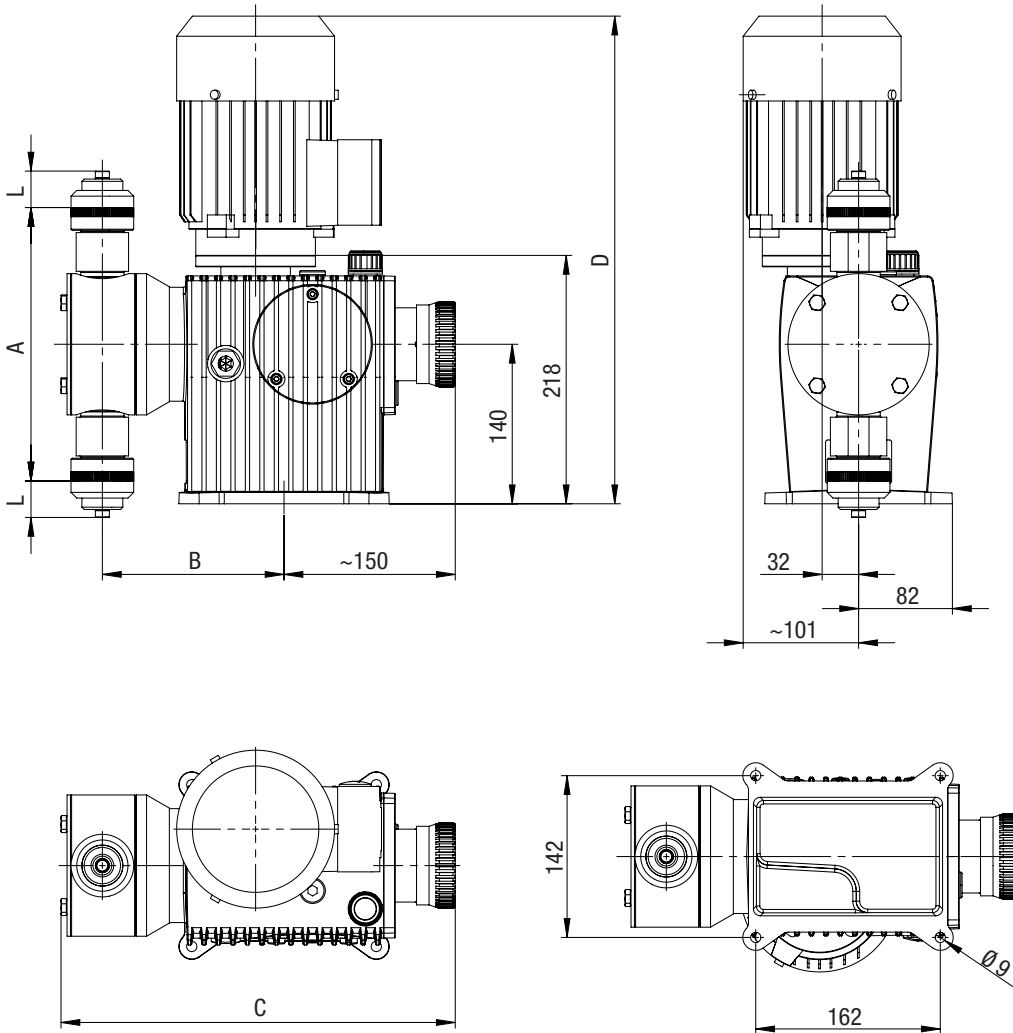


Fig. 5: Dimensioned drawing MEMDOS LB 110, 160 – 1010

Scale	MEMDOS LB size			
	110, 160	210 – 260	310 – 400	510 – 1010
A	249	268	312.5	352
B	160	170	175	208 (194.3*)
C	346	357	362	402 (375.5*)
D**	437	437	437	509
L	Depends on the connection type and size			

Tab. 20: Dimensions MEMDOS LB 110, 160 – 1010

* with dosing head made of stainless steel (1.4571)

** with 400 V/230 V three-phase motor

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6.3 MEMDOS LB 4 – 80, 150 with electrical servomotor

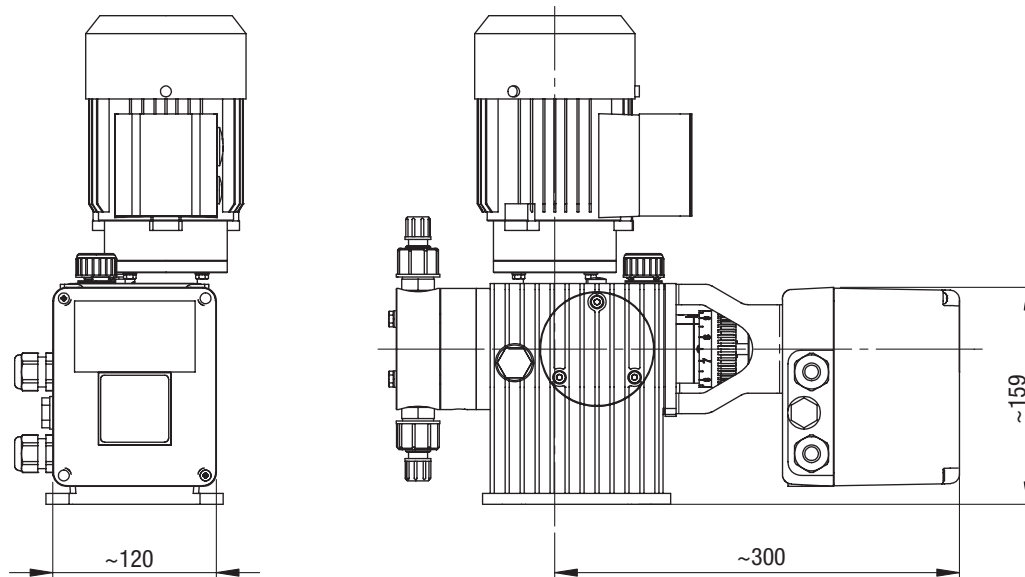


Fig. 6: Dimensioned drawing MEMDOS LB 4 – 80 and 150 with electrical servomotor

6.4 MEMDOS LB 110, 160 – 1010 with electrical servomotor

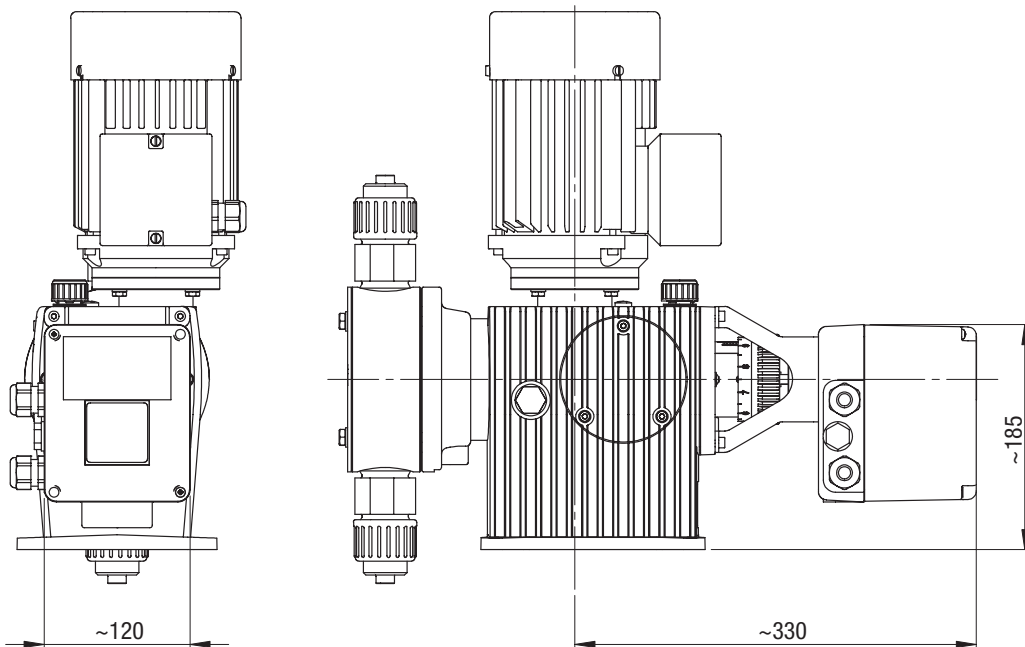


Fig. 7: Dimensioned drawing MEMDOS LB 110, 160 – 1010 with electrical servomotor

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7 Installing the Dosing Pump



DANGER!

Mortal danger from electric shock!

Electrically conductive liquid can enter pump housings, cable screw connections and mains connectors.

- ⇒ Make sure that all protective measures comply at least with the requirements of protection class IP65.
- ⇒ Always set up the dosing pump such that water cannot enter the housing.



CAUTION

Danger of personal injury and material damage!

A dosing pump that is difficult to access represents a danger due to incorrect operation and faulty maintenance.

- ⇒ Install the dosing pump such that it is accessible at all times.

7.1 Set up information

When installing, follow the basic principles below:

- The valves must be vertical: Pressure valve at top, suction valve at bottom. In this connection, pay attention to the arrow on the dosing head. The dosing head must be aligned such that the arrow points vertically upwards.
- You should install the dosing pump at a convenient height for operation.
- It must not be installed under the ceiling.
- The frame of foundation for fixing the dosing pump must not be subjected to jolts. The pump must be vibration-free and stable.
- There must be enough free space in the area of the dosing head and the suction and pressure valves for these parts to be easily dismantled if required. The entire space requirement for installation and maintenance is approximately 1 m².
- The distance from the sides of the dosing pump to the wall or other dosing pumps or equipment must be at least 3 cm. There must be a guaranteed flow of circulating air.
- The maximum ambient temperature must be complied with, see chapter 5.2 "Operating conditions and limits" on page 13. If necessary, radiant heat from surrounding equipment must be screened.
- Avoid exposure to direct sunlight.
- The dosing pump is not intended for use out of doors unless appropriate protective measures have been taken to prevent dust and water from entering the housing.
- For the dimensions of the fastening holes, refer to chapter 6 "Dimensions" on page 19.
- The tightening torque for the fastening bolts is 1.5 – 2 Nm.

7.2 Installation on a wall console

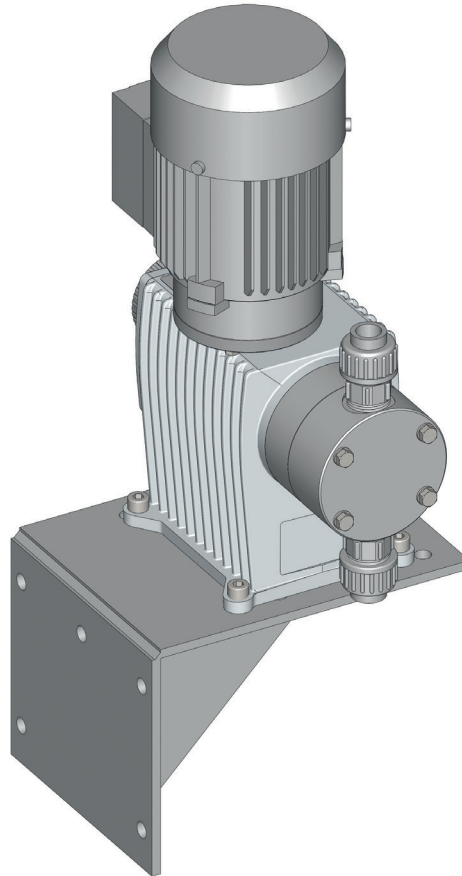



Fig. 8: Installation on a wall console


To reduce the structure-borne noise, the dosing pump is bolted to the wall bracket using rubber elements. The materials necessary for this are included with the wall bracket.


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8 Hydraulic installations

In this chapter, you will find information about the hydraulic parts of a system that you should install or that can install additionally. In many cases, you must install hydraulic accessories to be able to use all the functions that the dosing pump offers, to guarantee functional safety or to achieve a high level of dosing precision.


	WARNING
Caustic burns or other burns through dosing media!	
<p>A diaphragm rupture, blocked pressure lines or the use of material not suitable for the dosing medium can result in the discharge of dosing medium. Depending on the type and hazardousness of the dosing medium, this can result in injury.</p> <ul style="list-style-type: none"> ⇒ Wear the recommended personal protective equipment. ⇒ Make sure that the materials you are using are suitable for the dosing medium. ⇒ Make sure that the lubricants, adhesives, sealants, etc. that you use are suitable for the dosing medium. ⇒ Install a leakage drain. ⇒ Install pressure relief valves. 	

	CAUTION
Danger of personal injury and material damage!	
<p>High peak pressures can lead to piping vibrating and cause them to snap. This can result in injury from piping or escaping dosing media.</p> <ul style="list-style-type: none"> ⇒ Install pulsation dampeners. 	

	PLEASE NOTE
Damage to drives due to overloading	
<p>The pressure conditions between the suction and discharge sides must be balanced; otherwise, overloading can result. This can lead to uncontrolled dosing processes, damage to the piping and to the dosing pump.</p> <ul style="list-style-type: none"> ⇒ Ensure that the pressure on the discharge side is at least 1 bar than on the suction side. 	

	PLEASE NOTE
Locking of threads	
<p>Stainless steel and plastic parts (particularly those made of PVC) that are bolted together in a detachable connection (e.g. the dosing head and the valves) can lock. This makes them difficult to release.</p> <ul style="list-style-type: none"> ⇒ Before bolting, grease the corresponding parts with a lubricant (e.g. PTFE spray). Ensure that the lubricant is compatible with the dosing medium. 	

Warning notice for installation in an explosive risk zone:

	DANGER!
Danger to life through explosions!	
<p>Systems without a pressure relief valve fitted produce an increased safety risk in an explosive risk zone. Explosions could occur if system parts heat up during an overload or by sparks which may be created if drive parts were to break.</p> <ul style="list-style-type: none"> ⇒ Install a pressure relief valve on the pressure side of the dosing pump. 	

8.1 Design of the system

- The dosing pumps technical data (see chapter 5 “Technical data” on page 12) must be taken into account and the plant s layout must be set up appropriately (e.g. pressure loss when rating the lines with regard to their nominal diameter and length).
- The entire system and its integrated dosing pump must be designed in such a way that an escaping dosing medium (due to the failure of wearing parts such as the diaphragm, or burst hoses) does not lead to permanent damage to system parts or the premises.
- The leakage opening of the dosing head must be visible so that you can detect a diaphragm rupture. It must be possible for the outflow from the leakage drain to be on a free downwards gradient.
- If you use hazardous dosing media, the installation must be designed such that no disproportionately high consequential damages arise due to dosing media escaping.
- To avoid dosing errors after the end of the process, the dosing pump must be locked hydraulically.
- To allow you to easily inspect the pressure conditions in the system, you should provide connections for pressure gauges close to the suction and pressure valves.

8.2 System piping

- The system piping must not exert any force on the connections and

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valves of the dosing pump.

- This means that steel piping should be connected to the dosing pump by means of flexible pipe sections.
- The nominal diameters of the pipework and the installed fittings should be rated the same as or greater than the nominal diameters of the dosing pump's suction and pressure valves.
- The suction line should be kept as short as possible.
- You should avoid intertwined hoses.
- Avoid loops, since air bubbles can collect.

8.3 Suction and pressure valves

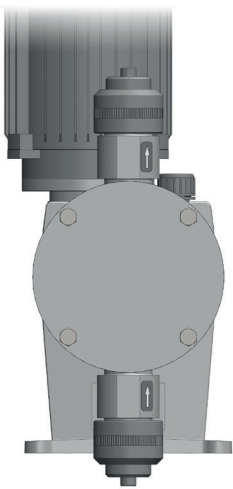


Fig. 9: Dosing head with suction and pressure valves

The suction and pressure valves are hydraulic connections to the dosing pump onto which the suction line or pressure line are attached.

These are double-ball bearing or spring-loaded valves which can only work properly when mounted in a vertical direction. The condition of the valves has a significant impact on the function and the dosing accuracy of the dosing pump.

All valves have arrows on them, these indicate the flow direction. These arrows must always point upwards.

For this reason, when connecting the dosing lines to the dosing pump, observe the alignment:

- Pressure valve above the dosing head
- Suction valve under the dosing head

8.4 Connecting a leakage drain

Lutz-Jesco GmbH dosing pumps are produced to the highest of quality standards with a long service life. However, some parts are subject to operational wear. This is the case particularly with the diaphragms that are continuously subjected to forces during the suction and discharge strokes and to the effects of the dosing medium.

If a diaphragm ruptures, the dosing medium starts to leak. This leakage is drained via the leakage opening. There is an opening on the dosing head's flange for this purpose.

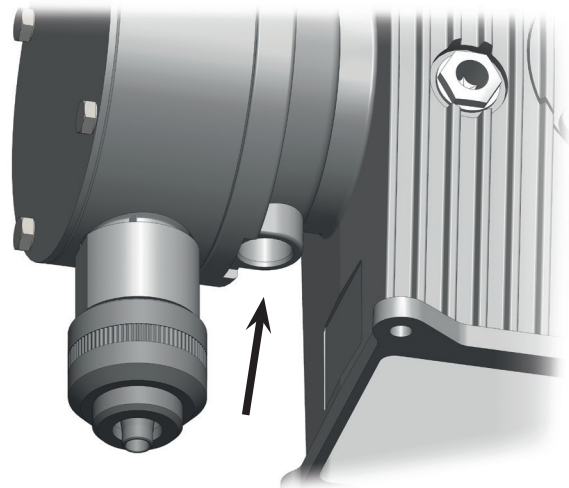


Fig. 10: Leakage drain opening

We recommend using a diaphragm rupture sensor.

	DANGER!
Danger to life through explosions!	
If a diaphragm rupture sensor is installed in an explosive risk zone, sparks may be produced when the electrical circuit closes. Explosions may result which could result in fatal injuries.	
⇒ Only use electrical or electronic devices which are intrinsically safe ignition protected.	

	PLEASE NOTE
Damage to drives due to effervescent media	
If a hose is connected to the leakage drain and it is routed back into the dosing tank, effervescent media can enter the drive and damage it.	
⇒ Collect the leakage in a collecting pan.	
⇒ As an alternative, you can route the leakage back to the dosing tank using a funnel. You should install the funnel at an adequate distance from the leakage opening.	

8.5 Hydraulic accessories

The following chapter is intended to give you an overview of installation options.

Please note that these operating instructions are no substitute for the instructions supplied with the accessories in each case. The corresponding documentation supplied with the product applies to safety information and provides exact instructions on assembly.

8.5.1 Injection nozzle

If the pressure line enters a main line, it is advisable to install an injection nozzle.

Injection nozzles have three main functions:

- Dosing the medium into a main line
- Preventing flowback into the pressure line through a non-return valve

Notes on assembly:

- Double-ball injection nozzles must be installed into the main line vertically from the bottom. You can install hose and spring-loaded injection nozzles any way you like.
- With dosing media that tend to crystallize, it is advisable to carry out installation into the main line from the bottom. This prevents air bubbles from being trapped.
- Many dosing media tend to contaminate the injection nozzles, which can lead to blockages. In cases like this, it is advisable to install an injection nozzle that is easy to dismantle and block off.

8.5.2 Pressure-relief valve

Pressure relief valves have an important safety function for protecting the dosing pump and the associated pipes and fittings. The dosing pump can generate a pressure that is many times the rated one. A blocked pressure line can lead to dosing medium escaping.

An improperly high pressure can occur if:

- The shut-off valves are closed even though the dosing pump is running
- Pipes block

At an appropriate pressure, a pressure relief valve opens a bypass line and protects the system in this way from damage caused by over-pressure.

Notes on assembly:

- The line for returning dosing medium from the pressure relief valve must be routed to the dosing tank or to a collecting pan.
- The pressure in the dosing tank must not be too high so that it is possible to accommodate the returned dosing medium.
- As an alternative, the system can return dosing medium into the suction line in front of the dosing pump. In this case, there must not be a non-return valve or a foot valve in the suction line.
- You should install the pressure relief valve as close as possible to the dosing head.

8.5.3 Back-pressure valve

Back-pressure control valves are necessary if:

- There are considerably fluctuating system pressures

- The pressure on the suction side is higher than on the discharge side or if you intend to carry out dosing into depressurized lines.

In cases like this, if you do not use a back-pressure valve, imprecise dosing results will occur or overloading will result. The back-pressure valve solves these problems by generating a defined, constant backpressure.

In some circumstances, a back-pressure valve is unnecessary if you use a hose injection nozzle and if the backpressure that it generates is adequate.

8.5.4 Pulsation dampener

Pulsation dampeners have the following functions:

- Damping pulsating delivery flows for processes that require low-pulsation dosing
- Reducing the throughflow resistance with long pipelines

When installed on the suction side:

- Damping of acceleration mass forces and with this reduction of wear on the dosing pump
- Preventing cavitation (pull-off of the liquid column) due to too high acceleration

However, pulsation dampeners also have important safety functions, since they prevent pressure peaks from arising that lead to piping vibration and cause them to snap.

This problem can occur:

- With the high amplitudes of the vibrations
- When using long pipes (the severity of the pulsation increases with the length of the pipe)
- when using rigid piping instead of elastic hoses.

Notes on assembly:

- You should carry out assembly in the direct vicinity of the location where you want to damp the pressure peaks (directly in front of the suction valve or directly behind the pressure valve).
- Pulsation dampeners should be installed with throttle valves or back-pressure valves installed directly behind them. By setting the valves appropriately, you can further-optimize damping of the pulsations.
- To prevent unnecessary pipe friction losses, you should lay the connecting line straight and in accordance with the rated width of the pulsation dampener.
- You must separately fasten relatively large pulsation dampeners and ones with hose connections.
- Pipelines must not transfer any mechanical tensions onto the pulsation dampener.

8.5.5 Priming aid

Priming aids are particularly advisable:

- In the case of dosing pumps with small volumetric displacements per stroke or with low stroke length settings
- With high suction heights
- With highly dense dosing media
- At priming for the first time due to dry valves and air in the suction line and the dosing head
- In dosing systems with frequent downtimes

Further advantages resulting from priming aids:

- Preventing cavitation in the suction line
- Gas removal
- Optical dosing control with small amounts
- Smoothing of the suction flow

8.5.6 Dosing of suspensions

When dosing suspensions, the dosing head must be rinsed regularly to prevent depositing. To do this, you install a feed line for the rinsing medium (water) in the suction side installation.

8.5.7 Suction pressure regulator

A suction pressure regulator may be necessary if the suction-side installation of the system demonstrates a varying suction pressure or supply pressure:

- Dosing pumps that are installed above dosing tanks deliver less as the tank empties, since the suction head increases.
- Dosing pumps that are installed below dosing tanks deliver less as the tank empties, since the positive delivery pressure reduces.

Further problems that can occur:

- Greater wear on the dosing pump, e.g. diaphragm rupture due to the effects of heavy forces with particularly high tanks and high-density dosing media
- Idling of the dosing tank in the case of a diaphragm rupture or pipe breakage
- Impermissibly high forces in the pump transmission that occur when dosing pumps receive the dosing medium directly from the pressure line
- Reduced performance or destruction of fittings due to cavitation with long suction lines

Installing a suction pressure regulator is a remedy for the problems above. The suction pressure regulator is opened by the dosing pump's suction pressure. This ensures that no dosing medium can flow if the dosing pump is not running or no vacuum can be generated following a pipe fracture.

Notes on assembly:

- When using a large suction pressure regulator, you should provide a pulsation dampener on the suction side.

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9 Electrical installation

DANGER!

Mortal danger from electric shock!

If there is an electrical accident, you must disconnect the dosing pump from the mains as quickly as possible.

⇒ Install an emergency stop switch or integrate the dosing pump into the plant safety concept.

CAUTION

Danger of automatic start up!

The dosing pump does not have an ON/OFF switch and may start to pump as soon as it is connected to the mains supply. This means that dosing medium can escape. Depending on the type and hazardousness of the dosing medium, this can result in damage to property or to injury.

⇒ Install an emergency stop switch or integrate the dosing pump into the plant safety concept.

PLEASE NOTE

Damage due to incorrect mains voltage

The dosing pump can be damaged if you connect it to the wrong mains voltage.

⇒ Observe the information on the mains supply that is given on the rating plate.

Safety instructions for installation in a potentially explosive atmosphere:

DANGER!

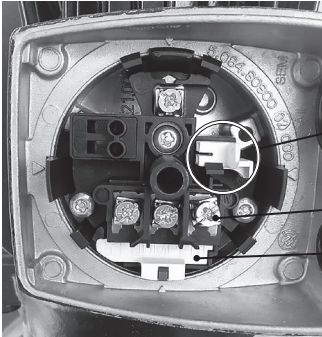
Danger to life through explosions!

Explosions may result which could result in fatal injuries.

⇒ Earth the dosing pump, drive motor and all metal parts along the suction and pressure piping route.

- If an ATEX certified motor is being used, you must also observe the enclosed motor operating instructions.
- The motor must be connected to the termination box in accordance with the circuit diagram.

i In individual cases, the motor can be fitted with a terminal strip with only three terminals. In this case, use the appropriate adapter located in the housing (see image). Make sure that the correct symbol for a Y-connection or a delta connection is on the adapter.

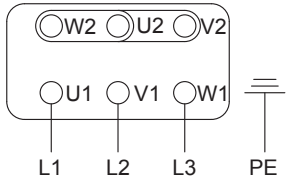
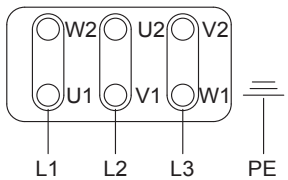


Adapter for replacement

Terminal strip

Installed adapter

9.1.1 Three-phase motors

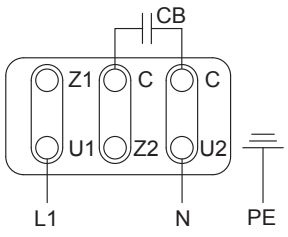
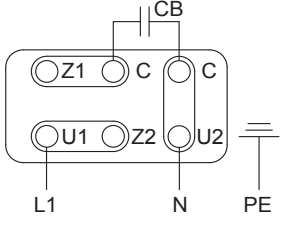
Connection	Phases	MEMDOS LB
Star connection 	3 ~	4 – 1010
Delta connection 	3 ~	4 – 1010

Tab. 21: Three-phase motors circuit diagrams

9.1 Drive motor connection

- The electrical connection comply with local regulations.
- Cable type and cross-section of the supply lines must be chosen according to the motor data.
- We recommend using gland connections with strain-relief clamp.
- The required protection degree must be ensured by installing the connections professionally.
- The motor must be protected by a suitable motor protection switch.
- The dosing pump must be earthed via a PE conductor for the connection to the termination box.

9.1.2 AC motors

Connection	Phases	MEMDOS LB
<p>Star connection</p> 	1 ~	4 – 1010
<p>Delta connection</p> 	1 ~	4 – 1010

Tab. 22: Alternating current motor circuit diagrams

9.1.3 Rotational direction of the motor

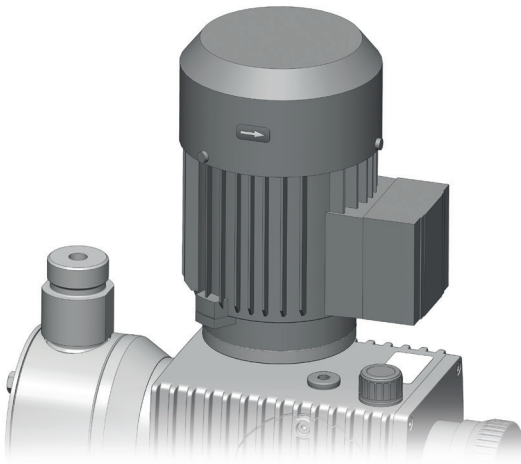


Fig. 11: Rotational direction arrow on the motor

The arrow indicates the rotational direction of the motor which should be set-up.

MEMDOS LB	Direction of rotation
4 – 80, 150	Counter -clockwise
110, 160 – 1010	Clockwise

Tab. 23: Comply with the rotation direction!

9.2 Connection of electric servomotor

Please follow the installation instructions in the operating manual for the electric servomotor.

10 Control

Stroke length adjustment

The desired delivery rate of the dosing pump is set using the stroke length adjustment. Turning the adjustment knob adjusts the hub length and so increases or decreases the amount of dosing media from the dosing head.

The stroke length can be adjusted while the pump is running or while it is turned off (in depressurized condition).

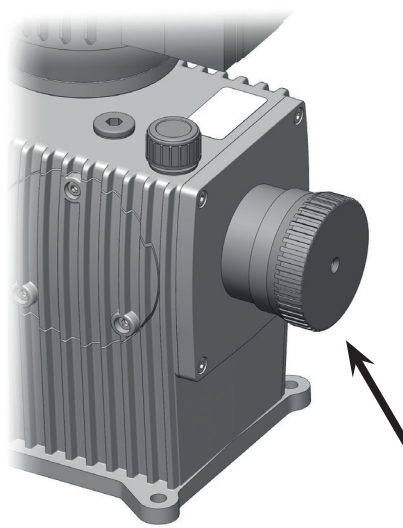


Fig. 12: Stroke length adjustment

Direction of rotation	Effect
Clockwise	Stroke length is reduced, delivery rate decreases
Counter -clockwise	Stroke length is raised, delivery rate increases

Tab. 24: Stroke length adjustment

The scale on the stroke length adjustment shows the value of the setting in percentage terms from 0% (stopped) to 100% (maximum possible stroke length).

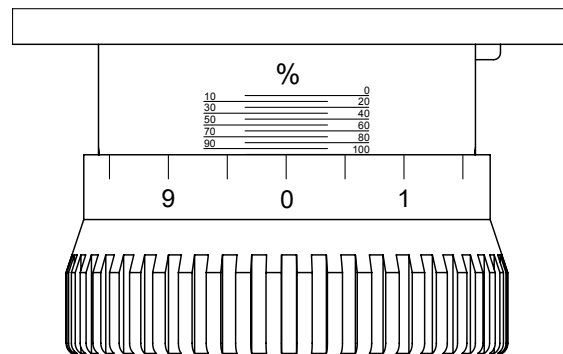


Fig. 13: Stroke adjustment scale

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11 Operation

WARNING

Caustic burns or other burns through dosing media!

After connecting the mains supply, residual dosing media in the dosing head can spray out.

- ⇒ Wear the recommended personal protective equipment.
- ⇒ Make sure that the materials you are using are suitable for the dosing medium.
- ⇒ Make sure that the lubricants, adhesives, sealants, etc. that you use are suitable for the dosing medium.
- ⇒ Install a leakage drain.
- ⇒ Install pressure relief valves.

CAUTION

Danger of automatic start up!

The dosing pump does not have an ON/OFF switch and may start to pump as soon as it is connected to the mains supply. This means that dosing medium can escape. Depending on the type and hazardousness of the dosing medium, this can result in injury.

- ⇒ Set the stroke length setting to 0% before disconnecting it from the power supply.
- ⇒ Ensure that the dosing pump has been installed correctly before connecting it to the mains supply.

PLEASE NOTE

Overheating of the motor

If the fan cover is removed or is defective, insufficient motor cooling is provided.

- ⇒ Before starting the dosing pump, ensure that the motor fan cover is fitted and fully functional.

11.1 Commissioning the dosing pump

i For initial commissioning, it is advisable to use water as the dosing medium to check that the system is leak-proof and that the dosing pump is functioning correctly. Check first whether undesirable reactions could occur between the actual dosing medium and the water.

At initial commissioning, it is advisable to prime the pump without backpressure. For this purpose, we recommend installing a relief valve on the discharge side of the dosing pump.

Precondition for action:

- ✓ The dosing pump was fitted and installed in accordance with the sections “Fitting the dosing pump”, “Hydraulic installation” and “Electrical installation”.
 - ✓ All the mechanical fastenings have been inspected to ensure adequate load-bearing capacity.
 - ✓ The dosing head screws have been tightened with the correct torque (see chapter “Tab. 28: Dosing head bolt torque” on page 33).
 - ✓ All the hydraulic sections have been inspected to ensure they are adequately leak-proof and that the through flow direction is correct.
 - ✓ The drive motor and all associated additional equipment is checked for proper connection.
 - ✓ Personnel have read all the operating instructions and understood them completely.
- ✘ You need gear oil of viscosity class ISO-VG460 according to DIN 51519 (corresponds to SAE 140 according to DIN 51512).

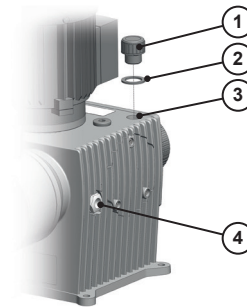


Fig. 14: Dosing pump oil inlet

Perform the following working steps:

1. Unscrew the closing screw (1) from the oil inlet (2) and remove the seal (3).
2. Fill oil in the oil inlet. Check the oil level in the oil level glass (4) at the same time. The oil level should reach to c. the middle of the oil level glass.

The following volumes are required:

MEMDOS LB	Filling volumes
4 – 80, 150	0.25 l
110, 160 – 1010	0.75 l

Tab. 25: Fill levels oil

3. Place the washer seal onto the oil inlet and tighten up the closing screw.
4. Open the shut-off valves on the suction and discharge sides if present.
5. Connect the dosing pump to the power supply.
 - ▶ The dosing pump is ready for use.
6. Turn the stroke length adjustment slowly counter-clockwise until the dosing pump draws in enough and dosing starts.
7. Calibrating the dosing pump. Section “15 Delivery characteristic curves” on page 38 provides an introduction.

✓ **The dosing pump is commissioned.**

11.2 Commissioning the electric servomotor

MEMDOS LB dosing pumps with electric servomotor are supplied pre-assembled and mechanically pre-configured. The limit switches of the electric servomotor do not require adjustment.

The electric servomotor should only be adjusted if the dosing pump is in operation.

Precondition for action:

- ✓ The dosing pump has been assembled and installed in accordance with chapter "Installing the Dosing Pump" on page 22, chapter "Hydraulic installations" on page 23 and chapter "Electrical installation" on page 27.
- ✓ The dosing pump was commissioned in accordance with section "Commissioning the dosing pump" on page 29.
- ✓ The electric installation of the servomotor was carried out in accordance with the associated operating manual.

Perform the following working steps:

1. Connect the servomotor with the regulating equipment.
 2. Put the regulating equipment into operation.
 3. Adjust the control parameters for the electric servomotor in accordance with the system requirements.
- ✓ **Electric servomotor commissioned**

11.3 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.
- ✓ **Dosing pump is decommissioned.**

11.4 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 system.
- 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.

11.5 Storage

Storing the dosing pump correctly extends 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 moderately ventilated.
- Temperatures between + 2 °C and + 40 °C (for PP and PVDF dosing heads, between + 2 °C and + 60 °C)
- Relative air humidity must not exceed 90 %

11.6 Transportation



PLEASE NOTE

Machine damage caused by leaking oil

The oil inlet at the dosing pump cannot be closed completely tightly. Oil may leak if the device is not transported in an upright position. This might cause damage to the control unit or the motor.

⇒ Drain the oil completely through the oil outlet before you transport the dosing pump.

Perform the following working steps:

- The unit should be thoroughly cleaned. Any dangerous dosing media must be additionally neutralised and decontaminated.
- All accessories should be dismantled.
- All openings should be closed, so that no foreign objects can get into the system.
- The dosing pump must be suitably packed, preferably in the original packing, for transportation.

If the device is sent back to the manufacturer, please follow chapters 19 "Declaration of no objection" on page 43 and 20 "Warranty claim" on page 44.

11.7 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 dosing pump must be disposed of in accordance with applicable local laws and regulations. The device 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.

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12 Maintenance

Dosing pumps by Lutz-Jesco are manufactured 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.

DANGER!

Mortal danger from electric shock!

Live parts can inflict fatal injuries.

- ⇒ Before carrying out any maintenance work, always disconnect the dosing pump from the power supply.
- ⇒ Secure the dosing pump from accidental power-up.
- ⇒ The protective conductor (earth) may only be removed during the last step.
- ⇒ After maintenance work, all earthing measures must be restored.

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.

- ⇒ Wear the recommended personal protective equipment.
- ⇒ Rinse the dosing pump with a medium (e.g. water) which does not pose any risk.
- ⇒ Release pressure in hydraulic parts.
- ⇒ Before connecting the mains supply, connect the dosing lines.
- ⇒ Check that all the 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.

- ⇒ Carry out maintenance work at the recommended intervals.

The following safety instructions apply for explosive risk areas:

DANGER!

Danger to life through explosions!

Sparks may be formed during repair work by contact between tools or components.

- ⇒ Only use tools which are suitable for use in explosive risk zones 1 and 2.

DANGER!

Danger to life through explosions!

Friction in parts of the dosing pump or system which are made of non-conducting plastic, can cause electrostatic charging.

- ⇒ Clean plastic parts carefully with a damp cloth.

DANGER!

Danger to life through explosions!

The dosing pump can run hot if there is not enough oil. This could result in explosions occurring in explosive risk areas.

- ⇒ Regularly check the oil level.
- ⇒ If oil is leaking, the leak must be immediately fixed and the dosing pump taken out of operation.

12.1 Maintenance intervals

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

Maintenance work to be carried out	Frequency
Check the oil level in the oil level glass	Regularly
Change the oil	<ul style="list-style-type: none"> ■ Change the first filling after 5,000 operating hours or 1 year, whichever comes first. ■ A further oil change after 10,000 operating hours or 2 years, whichever comes first.
Check that piping is seated firmly	Regularly
Check that suction and pressure valves are seated firmly	Regularly

Tab. 26: Maintenance information and maintenance intervals

Maintenance work to be carried out	Frequency
Clean suction and pressure valves	Regularly
Check that electrical connections are not damaged	Regularly
Tighten up dosing head bolts	<ul style="list-style-type: none"> ■ Regularly ■ Before initial commissioning ■ After each diaphragm change
Check diaphragm for leakage due to rupture	Regularly (as long as no leak monitoring system is installed)
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.)	When unacceptable levels of wear are detected
Rinse out and clean the dosing pump	<ul style="list-style-type: none"> ■ Before changing diaphragms ■ Before taking out of service for a long period of time ■ After feeding aggressive, sticky, crystallising or contaminated liquids
Checking the electric servomotor	Regularly

Tab. 26: Maintenance information and maintenance intervals

12.2 Change the oil

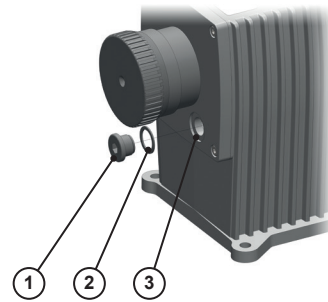


Fig. 15: Draining oil on the dosing pump

Precondition for action:

- ✓ A suitable oil collecting tank is held ready.
- ✗ Gear oil of the viscosity class ISO-VG460 (SAE 140).

Perform the following working steps:

1. Unscrew the closing screw (1) from the oil outlet (3) and remove the seal (2).
2. Let all of the gear oil drain from the housing.
3. Place the washer seal onto the oil outlet and tighten up the closing screw.

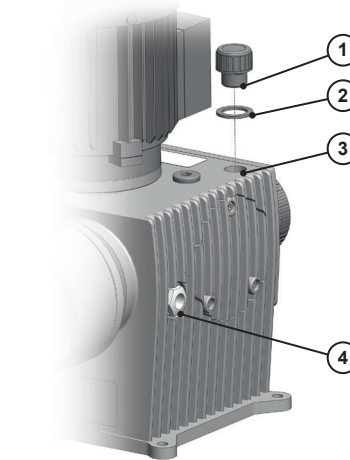


Fig. 16: Dosing pump oil inlet

4. Unscrew the closing screw (1) from the oil inlet (2) and remove the seal (3).
5. Fill oil in the oil inlet. Check the oil level in the oil level glass (4) at the same time. The oil level should reach to c. the middle of the oil level glass.

The following volumes are required:

MEMDOS LB	Filling volumes
4 – 80, 150	0.25 l
110, 160 – 1010	0.75 l

Tab. 27: Fill levels oil

6. Place the washer seal onto the oil inlet and tighten up the closing screw.

✓ **Oil change complete.**

12.3 Tighten up dosing head bolts

PLEASE NOTE

Machine damage caused by leaking oil

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

⇒ Tighten up the screws to a suitable torque, in accordance with the following table.

The torque needed for each MEMDOS LB type or the diaphragm size:

MEMDOS LB	Diaphragm rupture diameter	Torque (± 10%)
4 – 20	52 mm	2 Nm
4-HP – 20-HP	52 mm	3 Nm
35 – 60	64 mm	3 Nm
80 – 160	90 mm	6 Nm
210 – 260	120 mm	6 Nm
310 – 400	150 mm	10 Nm
510 – 1010	185 mm	12 Nm

Tab. 28: Dosing head bolt torque

Perform the following working steps:

1. Remove the dosing head screw (7) with a suitable tool. Support the dosing head whilst doing so and if necessary, the pressure plate (6), so that these parts do not fall.
2. Remove the dosing head and any pressure plate.

12.4.2 Remove the old diaphragm

Perform the following working steps:

1. Confirm the clockwise stroke length adjustment in the direction 0%. When activating the motor, the adjustment can be activated more easily. Should the drive not be connected to the network, the motor can be turned by hand on the fan wheel with a dismantled fan cowl.
2. Holding the diaphragm (4) on its edge, pull it from the diaphragm flange and turn it out in an anti-clockwise fashion. If it is difficult to move, use pincers on the diaphragm edge. Threads which are difficult to move can be hit lightly on the face of the diaphragm centre in order to loosen the connection.

✓ **Diaphragm removed.**

12.4.3 Install a new diaphragm

PLEASE NOTE

Damage to the dosing head/diaphragm leaks

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

⇒ Tighten the screws to a torque of 180 Ncm.

12.4 Diaphragm replacement

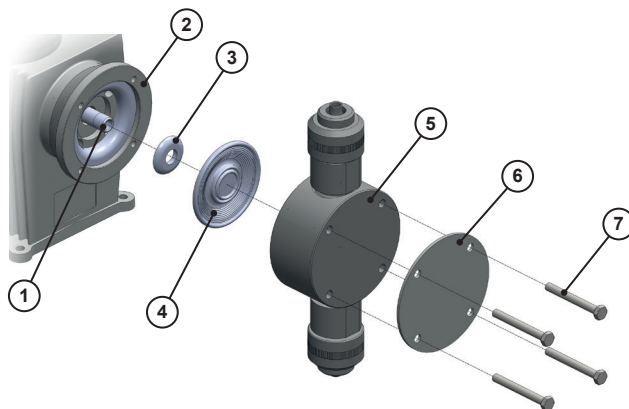


Fig. 17: Diaphragm replacement

12.4.1 Preparation

Precondition for action:

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

Precondition for action:

- ✓ Diaphragm rod (1), diaphragm flange (2) and any necessary support plate (3) were cleaned thoroughly and checked for damage and wear. Any remaining medium residue or surface damage could cause premature wear to the diaphragm.
- ✓ The diaphragm (4) thread was lightly greased (e.g. Molycote Longterm W2).

Perform the following working steps:


1. Push the support plate (3) onto the membrane threaded supports with the curved side facing the threaded pin of the diaphragm.
2. Screw the diaphragm (4) together with the support plate clockwise until it is securely fitted in the membrane rod.
3. Before screwing on the dosing head, it is first necessary to approach a neutral position in the rear end position of the diaphragm.
4. With the MEMDOS LB, turn the stroke adjustment in an anti-clockwise direction in the direction 100 %. The membrane enters the diaphragm flange.

5. Place the dosing head (5) and the pressure plate (6) in front of the diaphragm flange. Watch for the weight of the dosing head during large pumping operations; especially with the stainless steel version. Where necessary, support the dosing head at the correct height.
6. Lead the fastening screws through the drill holes in the dosing head and tighten them cross-wise e.g. top left – bottom right – top right – bottom left.

✓ **Diaphragm change finished.**

12.5 Clean suction and pressure valves

Contaminated valves affect the dosing precision and this means that you should clean the valves on a regular basis.

 Suction and pressure valves differ in the sequence of assembly of the individual parts. Disassemble them one at a time to prevent parts being mixed up.

Finally, screw the valves at first finger-tight into the dosing head. While doing this, ensure that the seals or O-rings are correctly seated inside the valves and the dosing head.



WARNING

Caustic burns or other burns through dosing media!

If valves are serviced without replacing the seals, it can lead to leakage and to an eventual escape of the dosing media.

⇒ Replace the seals when maintaining the valves.

Required torque for tightening plastic valves into the dosing head:

MEMDOS LB	Torque (± 10%)
4 – 20	3 Nm
4-HP – 20-HP	3 Nm
35 – 60	5 Nm
80 – 260	15 Nm
310 – 400	15 Nm
510 – 1010	20 Nm

Tab. 29: Valve torque

For stainless steel valves with fibre seals or seals made of PTFE, the given torque values are the minimum values. Due to their elastic deformation, these must be re-tightened several times.

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13 Troubleshooting

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

13.1 Type of fault

13.1.1 Dosing pump not delivering or output too low

Possible cause	Remedy
Wrong type of dosing pump selected	→ Check the dosing pump's technical data and if necessary select a type with a higher delivery capacity.
Valve leaking or blocked	→ Clean the valve and vent the dosing pump. → Tighten the screw connections.
Valve installed incorrectly	→ Reassemble the valve. Ensure that the valve balls are located above the valve seats.
Valve damaged (e.g. valve balls)	→ Remove the damaged parts or install a new valve.
Suction line is leaking	→ Seal the leak locations or replace the parts.
Suction line is blocked (e.g. screen in foot valve)	→ Clean the suction line.
Shut-off valves closed	→ Open the shut-off valves. Inspect the dosing pump for possible damage.
Suction head too high	→ Set the dosing pump to feed or reduce the suction head. → Install a priming aid.
Viscosity too high	→ Possibly reduce the concentration of the dosing medium or increase the temperature. → Install spring-loaded valves. → Increase the pipe diameter.
Current supply interrupted	→ Reconnect the current supply
The drive motor's electrical data does not match that of the mains supply	→ Check the electrical installation.
System backpressure 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.

Tab. 30: Type of fault: Dosing pump not delivering or output too low

13.1.2 Dosing pump does not prime

Possible cause	Remedy
Valve leaking or blocked	→ Clean the valve and vent the dosing pump. → Tighten the screw connections.
Valve installed incorrectly	→ Reassemble the valve. Ensure that the valve balls are located above the valve seats.
Valve damaged (e.g. valve balls)	→ Remove the damaged parts or install a new valve.
Suction line is leaking	→ Seal the leak locations or replace the parts.
Suction line is blocked (e.g. screen in foot valve)	→ Clean the suction line.
Shut-off valves closed	→ Open the shut-off valves. Inspect the dosing pump for possible damage.
Suction head too high	→ Set the dosing pump to feed or reduce the suction head. → Install a priming aid.
Viscosity too high	→ Possibly reduce the concentration of the dosing medium or increase the temperature. → Install spring-loaded valves. → Increase the pipe diameter.
Current supply interrupted	→ Reconnect the current supply
Dry the valves	→ Dampen the dosing head and the valves → Vent the dosing head.
Air in the suction line with simultaneous pressure on the pressure valve	→ Vent the dosing head or the lines.

Tab. 31: Type of fault: Dosing pump does not prime

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13.1.3 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)	➔ Remove the damaged parts or install a new valve.
Suction line is leaking	➔ Seal the leak locations or replace the parts.
Suction line is blocked (e.g. screen in foot valve)	➔ 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 drive motor's electrical data does not match that of the mains supply	➔ Check the electrical installation.
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.
Imprecise dosing due to changeable positive and negative suction heads.	➔ Install a suction pressure regulator.
System backpressure 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 the safety valves.

Tab. 32: Type of fault: Delivery rate varies

13.1.4 No stroke movement observed

Possible cause	Remedy
Dosing pump set to zero stroke.	➔ Set the stroke length adjusting knob correctly.
Diaphragm return spring broken.	➔ Contact the manufacturer.
Current supply interrupted	➔ Reconnect the current supply
The drive motor's electrical data does not match that of the mains supply	➔ Check the electrical installation.

Tab. 33: Type of fault: No stroke movement observed

13.1.5 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.

Tab. 34: Type of fault: Dosing pump delivery rate too high

13.1.6 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.
The materials are not suitable for the dosing medium being used	➔ Check the resistance of the materials.
Diaphragm not screwed up to the end stop on the diaphragm rod	➔ Screw a new diaphragm up to the end stop.
System backpressure 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	➔ Clean the dosing head.

Tab. 35: Type of fault: Diaphragm is torn or tears too often

13.1.7 Loud noises on the dosing pump

Possible cause	Remedy
Drive components worn	➔ Contact the manufacturer.

Tab. 36: Type of fault: Loud noises on the dosing pump

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13.1.8 The drive is overloaded

Possible cause	Remedy
Shut-off valves closed	→ Open the shut-off valves. Inspect the dosing pump for possible damage.
The drive motor's electrical data does not match that of the mains supply	→ Check the electrical installation.
Pressure peaks due to acceleration with long suction lines	→ Install a suction pressure regulator.
System backpressure 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.

Tab. 37: Type of fault: The drive is overloaded

13.1.9 Motor hums and does not start.

Possible cause	Remedy
The drive motor's electrical data does not match that of the mains supply	→ Check the electrical installation.
Capacitor defective, wrong size or connected incorrectly.	→ Connect the capacitor correctly or replace.
System backpressure 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.
No or insufficient oil in the gearbox	→ Fill up the gearbox oil.

Tab. 38: Type of fault: Motor hums and does not start.

14 Spare parts

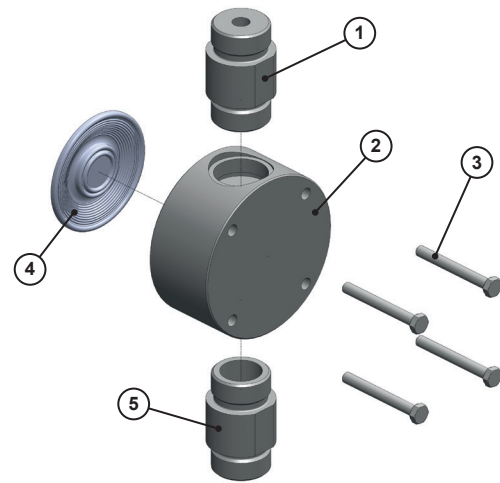


Fig. 18: Spare parts

Required sets for a complete service:

- 1 diaphragm spare parts kit
- 1 dosing head spare parts kit including valves

14.1 Diaphragm spare parts kits

Diaphragm spare parts set containing:

- 1 Diaphragm (item 4)
- 1 set of dosing head screws (pos. 3)

14.2 Dosing head spare parts kits including valves

Dosing head spare parts set including screws consisting of:

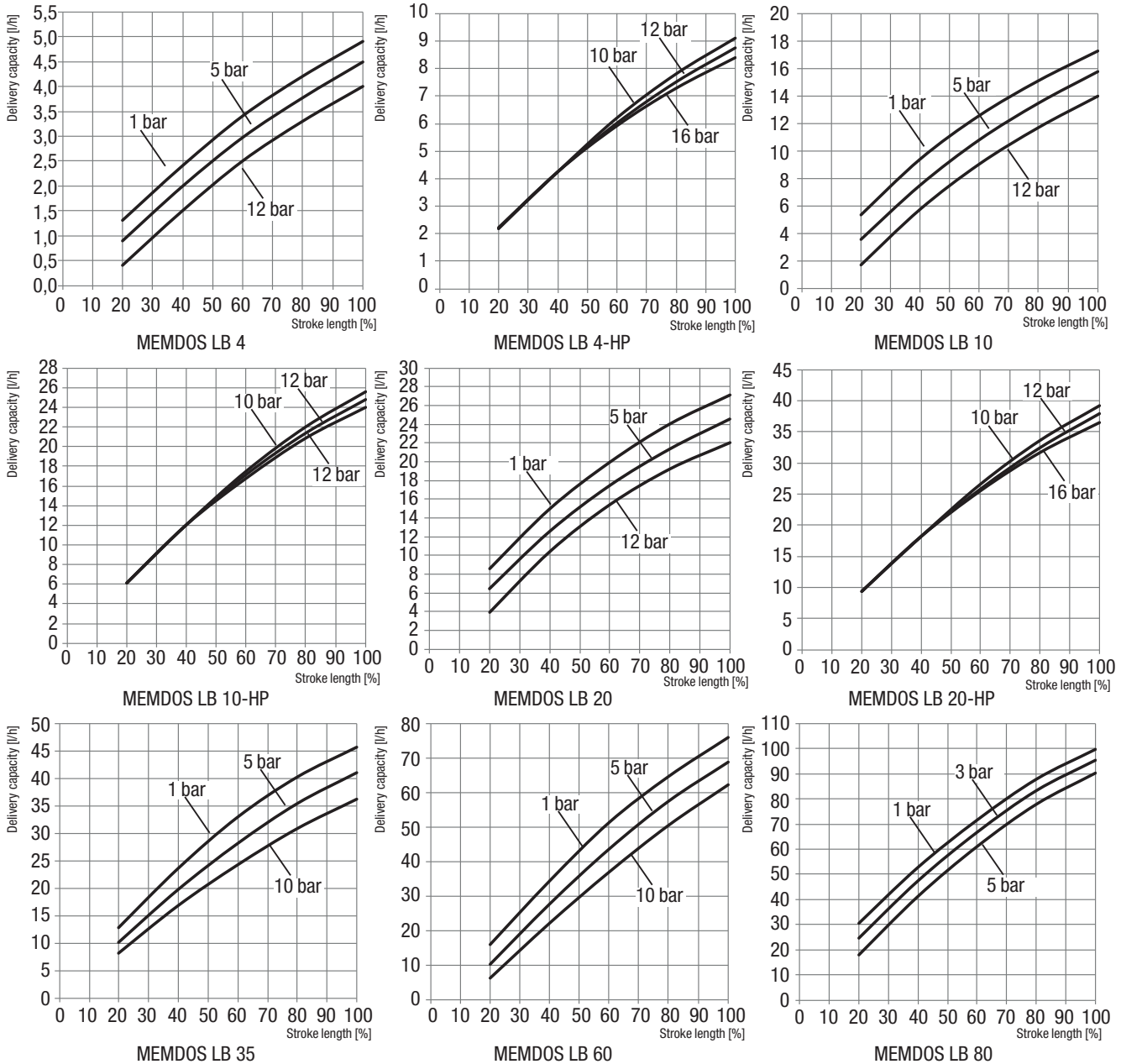
- Dosing head (item 2)
- Valves (pos. 1 and 5)
- 1 set of dosing head screws (pos. 3)



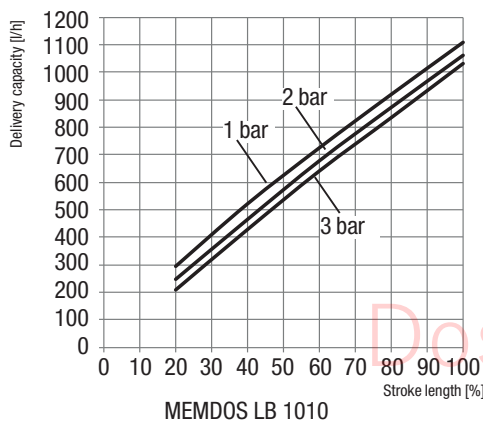
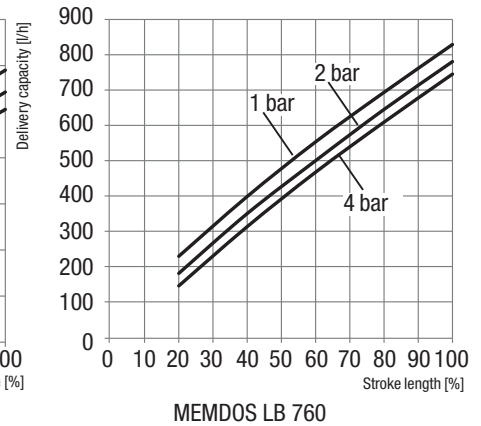
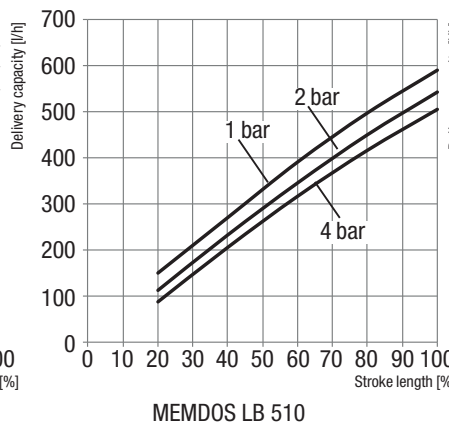
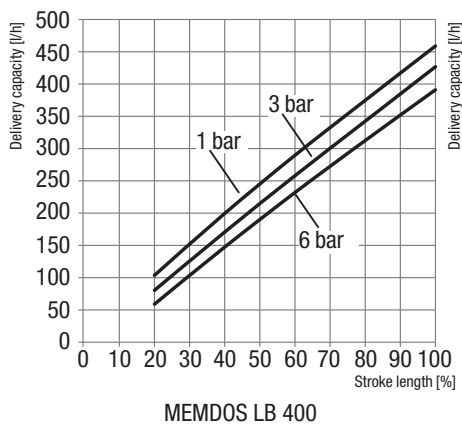
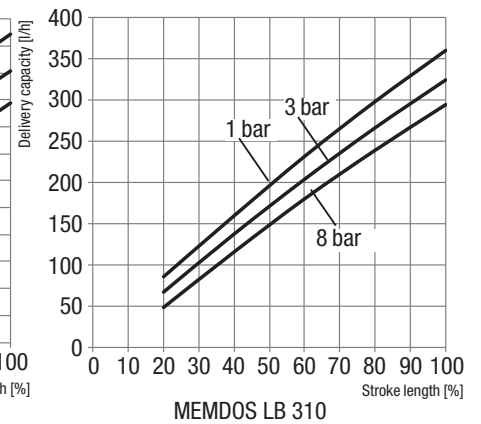
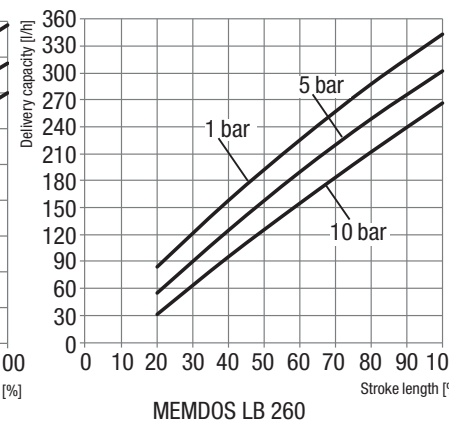
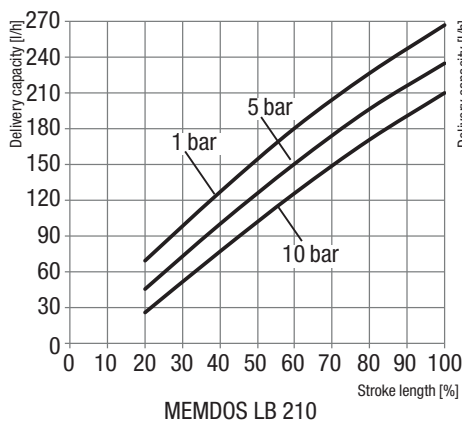
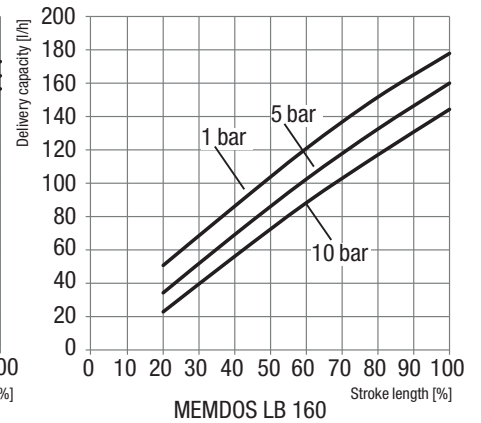
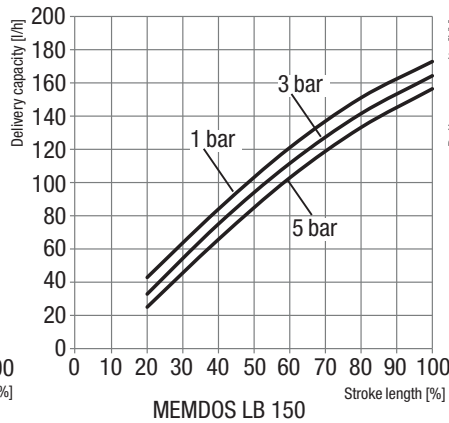
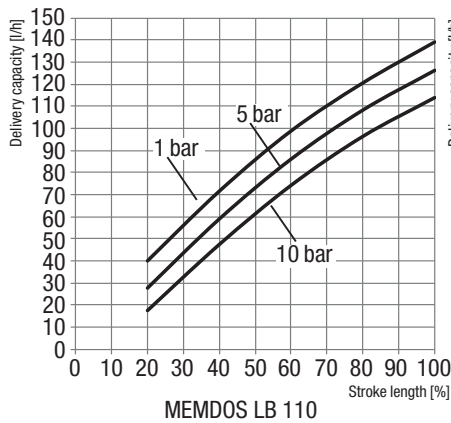
Dosing heads and spare parts are available in various materials and material combinations. Further information is available from the manufacturer.

15 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.



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16 EU declaration of conformity MEMDOS LB



(DE) EU-Konformitätserklärung

Hiermit erklären wir, dass das nachfolgend bezeichnete Gerät aufgrund seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der aufgeführten EU-Richtlinien entspricht. Bei einer nicht mit uns abgestimmten Änderung am Gerät verliert diese Erklärung ihre Gültigkeit.

(EN) EU Declaration of Conformity

We hereby certify that the device described in the following complies with the relevant fundamental safety and sanitary requirements and the listed EU regulations due to the concept and design of the version sold by us.

If the device is modified without our consent, this declaration loses its validity.

(FR) Déclaration de conformité UE

Nous déclarons sous notre propre responsabilité que le produit ci-dessous mentionné répond aux exigences essentielles de sécurité et de santé des directives UE énumérées aussi bien sur le plan de sa conception et de son type de construction que du modèle que nous avons mis en circulation.

Cette déclaration perdra sa validité en cas d'une modification effectuée sur le produit sans notre accord explicite.

(ES) Declaración de conformidad UE

Por la presente declaramos que, dados la concepción y los aspectos constructivos del modelo puesto por nosotros en circulación, el aparato mencionado a continuación cumple con los requisitos sanitarios y de seguridad vigentes de las directivas de la U.E. citadas a continuación.

Esta declaración será invalidada por cambios en el aparato realizados sin nuestro consentimiento.

(PT) Declaração de conformidade UE

Declaramos pelo presente documento que o equipamento a seguir descrito, devido à sua concepção e ao tipo de construção daí resultante, bem como a versão por nós lançada no mercado, cumpre as exigências básicas aplicáveis de segurança e de saúde das directivas UE indicadas.

A presente declaração perde a sua validade em caso de alteração ao equipamento não autorizada por nós.

Bezeichnung des Gerätes:

Motor-Membrandosierpumpe

Description of the unit:

Motor-driven diaphragm dosing pump

Désignation du matériel:

Pompe doseuse à membrane entraînée par moteur

Descripción de la mercancia:

Bomba dosificadora de membrana accionada por motor

Designação do aparelho:

Bomba doseadora de membrana a motor

Typ:

Type:

MEMDOS LB

EG-Richtlinien:

EC directives:

2006/42/EG, 2014/34/EU

Die Schutzziele der Niederspannungsrichtlinie 2014/35/EU wurden gemäß Anhang I, Nr. 1.5.1 der Maschinenrichtlinie 2006/42/EG eingehalten.

The protective aims of the Low Voltage Directive 2014/35/EU were adhered to in accordance with Annex I, No. 1.5.1 of the Machinery Directive 2006/42/EC.

Harmonisierte Normen:

Harmonized standards:

DIN EN ISO 12100:2011-03, DIN EN 809:2012-10,
DIN EN 13463-1:2009-07, DIN EN 13463-5:2011-10, DIN EN 13463-8:2004-01

Dokumentationsbevollmächtigter:

Authorized person for documentation:

Lutz-Jesco GmbH

Heinz Lutz
Geschäftsführer / Chief Executive Officer
Lutz-Jesco GmbH
Wedemark, 01.10.2018

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

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17 EU declaration of conformity MEMDOS LB Ex



(DE) EU-Konformitätserklärung

Hiermit erklären wir, dass das nachfolgend bezeichnete Gerät aufgrund seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der aufgeführten EU-Richtlinien entspricht. Bei einer nicht mit uns abgestimmten Änderung am Gerät verliert diese Erklärung ihre Gültigkeit.

(EN) EU Declaration of Conformity

We hereby certify that the device described in the following complies with the relevant fundamental safety and sanitary requirements and the listed EU regulations due to the concept and design of the version sold by us.
If the device is modified without our consent, this declaration loses its validity.

(FR) Déclaration de conformité UE

Nous déclarons sous notre propre responsabilité que le produit ci-dessous mentionné répond aux exigences essentielles de sécurité et de santé des directives UE énumérées aussi bien sur le plan de sa conception et de son type de construction que du modèle que nous avons mis en circulation.
Cette déclaration perdra sa validité en cas d'une modification effectuée sur le produit sans notre accord explicite.

(ES) Declaración de conformidad UE

Por la presente declaramos que, dados la concepción y los aspectos constructivos del modelo puesto por nosotros en circulación, el aparato mencionado a continuación cumple con los requisitos sanitarios y de seguridad vigentes de las directivas de la U.E. citadas a continuación.
Esta declaración será invalidada por cambios en el aparato realizados sin nuestro consentimiento.

Bezeichnung des Gerätes:

Motor-Membrandosierpumpe

Description of the unit:

Motor-driven diaphragm dosing pump

Désignation du matériel:

Pompe doseuse à membrane entraînée par moteur

Descripción de la mercancía:

Bomba dosificadora de membrana accionada por motor

Typ: Type:

MEMDOS LB Ex 4 – 1010, MEMDOS LB 4-HP Ex – 20-HP Ex

Registriernummer: Registration number:

PTB 12 ATEX D036

Ex-Kennzeichnung: Ex label:

Dosierpumpe ohne Motor / Dosing pump without motor:

Ⓜ II 2G Ex h IIC T4

Dosierpumpe mit Motor für Betrieb in Zone 1 / Dosing pump with motor for operation in zone 1:

Ⓜ II 2G Ex db eb IIC T4

Dosierpumpe mit Motor für Betrieb in Zone 2 / Dosing pump with motor for operation in zone 2:

Ⓜ II 2G Ex eb IIC T3

Das Gesamtsystem hat in Summe keinen höheren Schutzgrad als die verwendeten Motoren für sich. Der zulässige Einsatzbereich definiert sich somit über den Schutzgrad der Motoren. Dieser wird am Typenschild des Motors vom Hersteller separat ausgewiesen.

In total, the complete system does not have a higher protection class than the motors used in it. The permissible scope of application is therefore defined by the protection class of the motors. This is specified separately by the manufacturer on the rating plate on the motor.

EG-Richtlinien: EC directives:

2014/30/EU, 2014/35/EU

Die Schutzziele der Niederspannungsrichtlinie 2014/35/EU wurden gemäß Anhang I, Nr. 1.5.1 der Maschinenrichtlinie 2006/42/EG eingehalten.

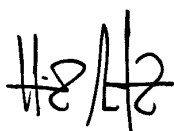
The protective aims of the Low Voltage Directive 2014/35/EU were adhered to in accordance with Annex I, No. 1.5.1 of the Machinery Directive 2006/42/EC.

Harmonisierte Normen: Harmonized standards:

DIN EN ISO 12100:2011-03, DIN EN 809:2012-10,
DIN EN ISO 80079-36:2016-12, DIN EN ISO 80079-37:2016-12

Dokumentationsbevollmächtigter: Authorized person for documentation:

Lutz-Jesco GmbH



Heinz Lutz
Geschäftsführer / Chief Executive Officer
Lutz-Jesco GmbH
Wedemark, 02.12.2022

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

18 UK Conformity Assessed



UK Declaration of Conformity

We hereby certify that the device described in the following complies with the relevant fundamental safety and sanitary requirements and the listed UK regulations due to the concept and design of the version sold by us.
If the device is modified without our consent, this declaration loses its validity.

Description of the unit:	Motor-driven diaphragm dosing pump
Type:	MEMDOS LB
Directives:	2008 No. 1597, The Supply of Machinery (Safety) Regulations 2008 2016 No. 1107, The Equipment and Prospective Systems Intended for Use in Potentially Explosive Atmosphere Regulations 2016
Harmonized standards:	The protective aims of The Electrical Equipment (Safety) Regulations 2016 were adhered to in accordance with Annexes to the legislation Part 1 No. 1.5.1 of The Supply Machinery (Safety) Regulations. BS EN 1092-1, BS EN 10216-2, BS EN 10253-2
Authorized person for documentation:	Lutz-Jesco GB Ltd. Unit C1, Loades Ecoparc, Blackhorse Road Exhall, Coventry CV7 9FW Great Britain

A handwritten signature in black ink, appearing to read 'H. Lutz', is written over the large 'UK' watermark.

Heinz Lutz
Chief Executive Officer
Lutz-Jesco GmbH
Wedemark, 28.07.2022

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

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19 Declaration of no objection

Declaration of no objection

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type: Part-no.:

Order No.: Date of delivery:

Reason for repair:

.....

.....

Dosing medium

Description: Irritating: Yes No

Properties: Corrosive: Yes No

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

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

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

Company / address: Phone:

..... Fax:

..... Email:

Customer No.: Contact person:

Date, Signature:

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20 Warranty claim

Warranty claim

Please copy and send it back with the unit!

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

Sender

Company: Phone: Date:

Address:

Contact person:

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

Device type: Serial number:

Nominal capacity / nominal pressure:

Description of fault:.....

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Service conditions of the device

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

.....
.....

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

.....
.....
.....
.....

Commissioning (date):

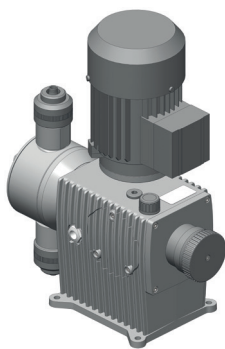
Duty period (approx. operating hours):

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

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21 Index

A		N	
Accessories	25	Notes for the Reader	4
Approved media temperature	13	O	
B		Operating conditions and limits	13
Back-pressure valve	25	Operation	29
C		P	
Clean suction and pressure valves	34	Personnel qualification	7
Commissioning the dosing pump	29	Pressure-relief valve	25
D		Priming aid	26
Declaration of no objection	42	Product description	10
Decommissioning the dosing pump	30	Product warranty	8
Delivery capacity data	12	Prohibited dosing media	8
Delivery characteristic curves	38	Pulsation dampener	25
Design of the system	23	R	
Diaphragms		Rating plate	11
Replace	33	S	
Spare parts set	37	Safety	5
Dimensioned drawings	19	Scope of delivery	10
Dimensions	19	Set up information	22
Disposal of old equipment	30	Shut-down	30
Dosing head		Shutting down in an emergency	30
Spare parts	37	Signal words	
Dosing media		Explanation	4
Approved media temperature	13	Spare parts	37
Prohibited dosing media	8	Specialist staff	7
E		Storage	30
Electrical installation	27	Structure of the dosing pump	10
F		Suction pressure regulator	26
Foreseeable misuse	9	Suspensions	26
Function description	10	System piping	23
G		T	
General warnings	5	Technical data	12
H		Temperatures	
Handling instructions		Approved ambient temperature	13
Marking	4	Approved media temperature	13
Hazards due to non-compliance with the safety instructions	6	Tighten up dosing head bolts	33
Hydraulic accessories	25	Transportation	30
Hydraulic installations	23	Troubleshooting	35
I		W	
Injection nozzle	25	Wall bracket	22
Installation		Warnings	
electrical	27	General warnings	5
hydraulic	23	Marking	4
Installing the Dosing Pump	22	Warning sign	
Intended purpose	8	Explanation	4
Intended use	8	Warranty claim	43
M		Working in a safety-conscious manner	6
Maintenance	31	DosingPump.ir	
Maintenance intervals	31		



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Operating instructions
MEMDOS LB

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