
Translation of the original instructions

Piston Dosing Pump

FEDOS LB

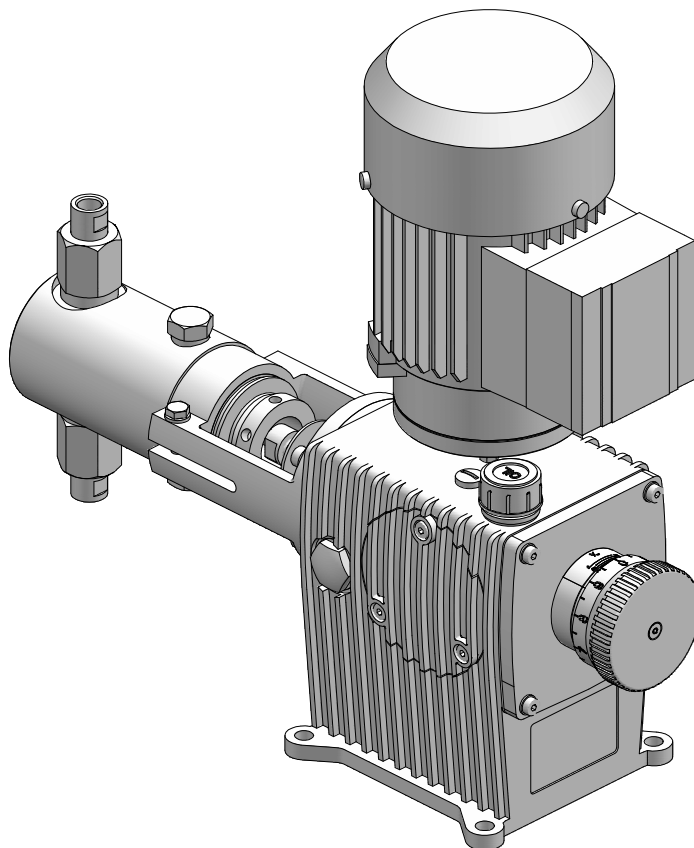


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1 About these operating instructions

This document:

- Is part of the product.
- Describes the safe and correct use of the product in all operating phases.
- Must be read completely before the product is commissioned.
- Must be read and applied by every person tasked with working on the product.
- Must be kept for the duration of the service life of the product.
- Must be passed on to any subsequent owner of the product.

1.1 Target groups

Target group	Task
Operator	1. Keep these operating instructions available at the place of use of the product, including for later use. 2. Instruct employees to read and comply with these instructions, especially the safety instructions and warnings. 3. Comply with additional system-related specifications and regulations.
Qualified personnel Trained persons	► Read, observe and follow these operating instructions, in particular the safety instructions and warnings.

Table 1: Target groups and their tasks

1.2 General non-discrimination

For better readability, these operating instructions always use the masculine form when referring to persons. However, all genders are addressed equally.

1.3 Warnings

Warnings are intended to help you recognise risks and avoid negative consequences. They are structured as follows in these operating instructions:

Warning sign

SIGNAL WORD

Type and source of danger

Consequences of non-compliance

► A safety precaution to be taken to eliminate the hazard.

Fig. 1: Design of warnings

Signal words

These operating instructions use the following signal words to emphasise the severity of possible injuries if the danger is ignored:



DANGER

Imminent danger

Non-compliance can result in death or serious injury.



WARNING

Possible danger

Non-compliance can lead to death or severe injuries.



CAUTION

Potentially hazardous situation

Non-compliance can result in minor injuries.



NOTE

Potentially hazardous situation

Non-compliance can result in damage to property or malfunctions.



INFORMATION

Information or recommendation

Simplifies handling or extends the service life of the product or system.

Warning signs used

These operating instructions use the following warning signs to indicate the type and source of danger:



General hazard



Danger from electrical voltage



Danger from corrosive substances



Danger from automatic startup



Risk of machine damage or malfunction



Danger of crushing

4

BA-10704-02 / 1 / 25/02/2026

1.4 Action steps

Action steps are structured as follows:

- ✓ This prerequisite must be met before you can start with the action steps.

- ▶ Single step

Multiple steps in sequence are structured as follows:

1. First step
 2. Second step
 - ↳ Intermediate result of a step
- 📌 Overall result

1.5 Cross-references

Cross-references are marked with an arrow.

Example: (→ Fig. 5)

1.6 Latest version

Please find the latest version of these operating instructions at www.lutz-jesco.com.

1.7 Copyright

The content of these operating instructions and the images contained in them are subject to the copyright protection of Lutz-Jesco GmbH.

2 Safety

2.1 General warnings

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

Safety instructions that warn against risks arising from specific activities or situations can be found in the respective sub-sections.



DANGER

Mortal danger from electric shock!

Wrongly connected or located cables or damaged ones can injure you.

- ▶ Connect the device only to a SCHUKO socket outlet protected by a ground fault circuit interrupter (GFCI).
- ▶ Replace damaged cables without delay.
- ▶ Do not use extension cables.
- ▶ Do not bury cables.
- ▶ Secure cables to avoid damage caused by other equipment.



DANGER

Danger to life through explosions!

When using dosing devices without ATEX certification in a potentially explosive area, explosions can occur that result in fatal injuries.

- ▶ Never use the device in potentially explosive areas.



WARNING

Danger from unsuitable materials

The materials of the dosing pump and hydraulic parts of the system must be suitable for the dosing medium that is used. Should this not be the case, the dosing media may leak.

- ▶ Make sure that the materials you are using are suitable for the dosing medium.
- ▶ Make sure that the lubricants, adhesives, sealants, etc. that you use are suitable for the dosing medium.



WARNING

Danger of automatic start up!

After the mains supply has been connected, residual dosing media in the dosing head can spray out.

- ▶ Before connecting the mains supply, connect the dosing lines.
- ▶ Check that all the screw connections have been tightened correctly and are leak-proof.



WARNING

Caustic burns or other burns through dosing media!

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

- ▶ Use sufficient personal protective equipment.
- ▶ Rinse the dosing 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.



CAUTION

Danger when changing the dosing medium!

Changing the dosing media can provoke unexpected reactions, damage to property and injury.

- ▶ Clean the dosing pump and the system parts in contact with the media thoroughly before changing the dosing medium.



CAUTION

Increased risk of accidents due to insufficient qualification of personnel!

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.

- ▶ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications.
- ▶ Prevent access to the system for unauthorised persons.



NOTE

Do not dispose of the device in the domestic waste!

Do not dispose of electric devices via the domestic waste.

- ▶ The device and its packaging must be disposed of in accordance with locally-valid laws and regulations.
- ▶ Dispose of different materials separately and ensure that they are recycled.

2.2 Hazards due to non-compliance with the safety instructions

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

The specific consequences can be:

- Failure of important functions of the product and the associated system
- Failure of required maintenance and repair methods
- Danger to persons
- Danger to the environment caused by leaking substances

2.3 Working in a safety-conscious manner

In addition to the safety instructions specified in these operating instructions, you must comply with additional safety regulations:

- Accident prevention regulations
- Safety and operating provisions
- Safety provisions for handling dangerous substances (particularly the safety data sheets of the dosing media)
- Environmental protection provisions
- Applicable standards and legislation

2.4 Personal protective equipment

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

The following protective equipment is recommended as a minimum:



Protective goggles



Protective clothing



Protective gloves

Table 2: Protective equipment required

Wear the protective equipment when performing the following tasks:

- Commissioning
- Working on the dosing pump during operation
- Shut-down
- Maintenance work
- Disposal

2.5 Personnel qualification

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

Anybody who works with the product must meet the conditions below:

- Attendance at all the training courses offered by the owner
- Personal suitability for the respective activity
- Sufficient qualification for the respective activity
- Training into the handling of the device

- Knowledge of safety equipment and the way this equipment functions
- Knowledge of these operating instructions, particularly the safety instructions and sections relevant for the activity
- Knowledge of fundamental regulations regarding health and safety and accident prevention

All persons must have one of the following minimum qualifications:

- Trained as a specialist to work independently with the product
- Sufficient training to work on the product under the supervision and guidance of a qualified specialist

These operating instructions differentiate between the following user groups:

Qualified personnel

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

Trained persons

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

Trained persons have attended all trainings offered by the operator.

2.5.1 Personnel tasks

Incorrect handling of the product can cause severe personal injury and damage to property. Therefore, ensure that all work is carried out by qualified personnel only.

The following table shows which qualifications are required for the corresponding activities.

Qualification	Activities
Qualified personnel	• Assembly • Hydraulic installation • Electrical installation • Commissioning • Shut-down • Troubleshooting • Maintenance • Repairs • Disposal
Trained persons	• Storage • Transportation • Operation • Troubleshooting

Table 3: Personnel tasks

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 product is operated in a manner that is not consistent with these operating instructions, particularly the safety information, action steps and the intended use.
- Information on usage and environment is not adhered to.
- People operate the product who are not adequately qualified to carry out their respective activities.
- No original spare parts or accessories of Lutz-Jesco GmbH are used.
- Unauthorised changes are made to the product by the user.
- 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.
- Maintenance and inspection intervals are not adhered to as required or not adhered to at all.

3.2 Intended purpose

The device is intended for the following purpose only: the conveying and dosing of liquids.

3.3 Principles

- Comply with the information pertaining to the operation and ambient conditions.
- 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. Please note, the stability of the components can change as a result of operating pressure and media temperature.



INFORMATION

Information on the suitability of materials combined with different dosing media can be found in the Compatibility Chart of Lutz-Jesco GmbH.

The information in this resistance list is based on information from the material manufacturers and on expertise obtained by Lutz-Jesco 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 under operating conditions with the chemicals that you use.

- 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 a corresponding rating plate or an appropriate EC Declaration of Conformity for potentially explosive atmospheres.

3.4 Prohibited dosing media

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

- Gaseous media
- Radioactive media
- Solid substances
- Combustible media
- All other media that are not suitable for delivery using this device

3.5 Foreseeable misuse

The following section specifies which applications of the device and its associated system constitute non-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 phases of the product's life cycle:

Incorrect assembly

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

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

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

Incorrect commissioning

- 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
- Recommissioning after maintenance work without restoring all of the protective equipment and fixtures etc.
- Inadequate protective clothing or none at all

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

Incorrect maintenance

- Carrying out maintenance during ongoing operation
- Carrying out work that is not described in the operating instructions
- 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 instructions
- 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
- Lines not fully reconnected
- Seals damaged or not fully installed
- No renewal of seals
- Non-compliance with safety data sheets
- Inadequate protective clothing or none at all

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

Incorrect disposal

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

4 Product description

4.1 Properties

The FEDOS LB is a piston dosing pump designed for use when precise dosing results are required.

It is characterized by the following properties:

- Capacity range of 0.5 to 30 l/h at a back pressure of up to 100 bar
- Reproducible dosing precision of $\pm 2\%$
- Operating modes: Manual mode
- The delivery rate can be set between 0 – 100%

4.2 Scope of delivery

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

The scope of delivery includes:

- Dosing pump FEDOS LB
- Mains cable
- Operating instructions
- Inspection report and test certificate (optional)
- Accessory kit (optional)

4.3 Structure of the dosing pump

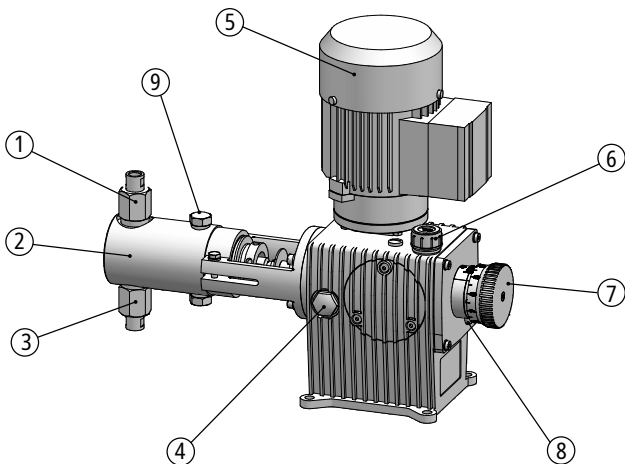


Fig. 2: Structure of the dosing pump

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
9 Flushing connector	

4.4 Function description

The FEDOS LB is used when no control is required for constant dosing. For this the voltage supply is connected directly to the terminal box of the motor. To adapt the dosing capacity the stroke length can be adjusted manually from 0 & 100%, or the motor speed is controlled by means of a separate frequency converter. The FEDOS LB is optionally available with remote electrical stroke-length adjustment (ATE servomotor).

4.5 Rating plate

The rating plate clearly identifies the product and provides important information such as the manufacturer, product designation, year of manufacture and technical and safety-relevant data. The rating plate must be kept legible for the duration of the service life of the product.

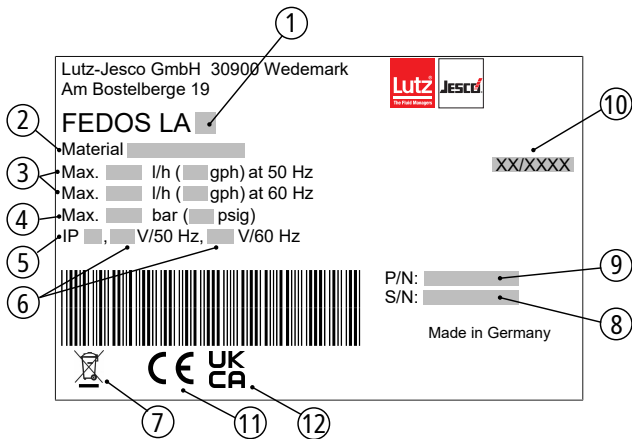


Fig. 3: FEDOS LB rating plate

1 Product type, nominal size	2 Material of the dosing head/seals
3 Maximum delivery rate at 50 and 60 Hz	4 Maximum backpressure
5 Protection class	6 Power supply
7 WEEE label	8 Serial number
9 Part number	10 Month/year of manufacture
11 Label showing conformity with applicable European directives	12 Label showing conformity with applicable UK directives

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.

Information		FEDOS LB size						
		05	1	2	5	8	16	30
Delivery capacity 50 Hz	l/h	0.55	1.52	2.1	4.6	7.7	15.5	28.5
Delivery capacity 60 Hz		0.67	1.82	2.47	5.5	9.2	18.6	34.2
Gear ratio		55	20	20	20	12	12	12
Max. stroke frequency	rpm	26	72	72	72	120	120	120
Stroke length		7.5	7.5	10	10	10	10	10
Piston diameter		8			12		17	23
Stroke volume	ml/stroke	0.377	0.377	0.502	1.13	1.13	2.269	4.153
Max. pressure	bar	40						25
Max. pressure**	bar	100				80	40	25

Table 4: Delivery capacity FEDOS LB

** High-pressure version

5.2 Operating conditions and limits

Information		FEDOS 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

Table 5: 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.

** Spring-loaded valves must be used if the viscosity exceeds ~300 mPa·s.

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

5.3 Approved media temperatures

Information		FEDOS LB (all sizes)
Dosing head made of stainless steel (1.4571)	°C	0 – 80

Table 6: Approved media temperatures

5.4 Other data

Information		FEDOS LB size						
		0.5	1	2	5	8	16	30
Weight*	kg	8.2	8.7		9.4			10.3
Piston diameter	mm	4	8		12		17	23
Stroke length	mm	10	7.5	10				
Protection class		IP55						

Information		FEDOS LB size						
		0.5	1	2	5	8	16	30
Valve nominal values		DN3/DN4	DN6					

Table 7: Other data FEDOS LB

*Specifications without motor

5.5 Motor data

Information			FEDOS LB Size 05-30 with 230 V or 120 V alternat- ing current motors with oper- ating capacitor	FEDOS LB Size 05-30 with three-phase motors 400 V or 230 V	FEDOS LB Size 05-30 with three-phase motors 400 V or 230 V for frequency in- verter operation
Power output	KW	50 Hz	0.18	0.12	0.18
		60 Hz	0.12	0.14	0.21
Speed	min-1	50 Hz	1395	1390	1350
		60 Hz	1680	1685	1685
Nominal current	A	50 Hz	1.4	0.77(D)/0.44(Y)	1.08(D)/0.62(Y)
		60 Hz	2.6	0.42	0.6
Voltage			V 1~	V 3~	V 3~
			230/120	50 Hz – 400/230 60 Hz – 460/270	50 Hz – 400/230 60 Hz – 460/270
Mains voltage			DIN EC 60038	DIN EC 60038	DIN EC 60038
Frequency		Hz	50/60	50/60	50/60
Operating mode			S1	S1	S1
Protection class			IP55	IP55	IP55
Insulation class			F	F	F
Size			63	63	63
Flange diameter		mm	90	90	90
Shaft		mm	Ø11 x 23	Ø11 x 23	Ø11 x 23
Cooling				IC 411	IC 411
Weight		kg	230 V – 5.5 120 V – 4.5	4.1	5

5.6 Electric servomotors

Information		All sizes			
		Servomotor Type NL 0608		Servomotor Type NL 0608 PMR 2-LC	
Design		Reversible AC motor with maintenance-free gearbox, internal gear disengagement			
Use		For controllers with switching output (3-point step control)		For controllers with constant output 0(4) – 20 mA	
Voltage	V1 ~	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 feed-back signal for remote display		0 - 1000 Ω, max. 2 W		0(4) – 20 mA	

*Corresponding presetting available as an option or subsequently adjustable



NOTE

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

6 Dimensions

All dimensions in millimetres (mm).

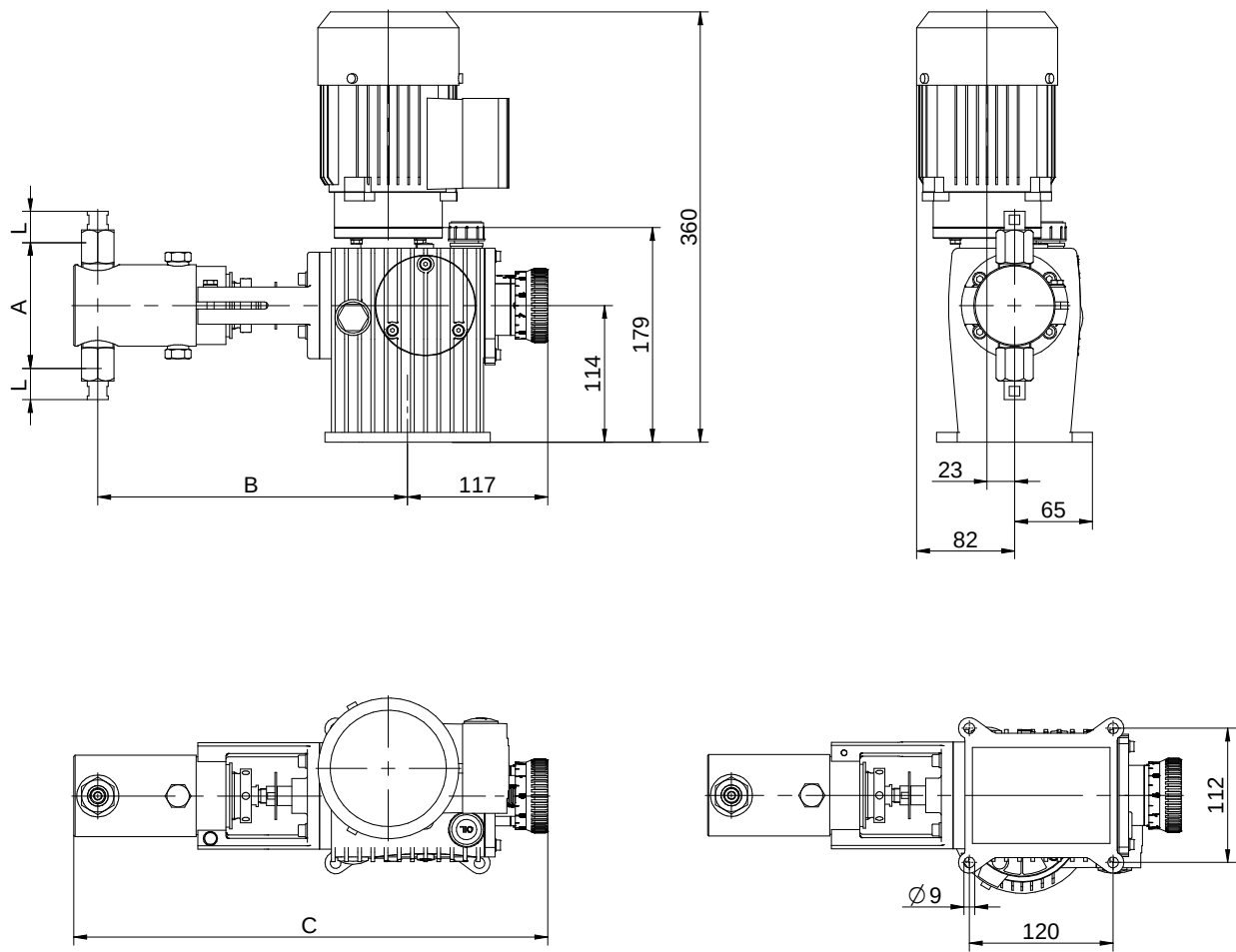


Fig. 4: Dimensions FEDOS LB

Scale	FEDOS LB size						
	05	1	2	5	8	16	30
A	105						
B	260						
C	400						
L	Depends on the connection type and size						

Table 8: Dimensions FEDOS LB

7 Transportation



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.

Please observe the following conditions when transporting the device:

- Clean the device thoroughly before transporting it. In the case of hazardous dosing media, you must also neutralise and decontaminate it.
- Dismantle all accessories.
- Close all openings so that no foreign objects can get into the device.
- Ensure that you send the device in suitable packaging, preferably in the original packaging.
- If the device is to be returned to the supplier/manufacturer, please note the documents to be enclosed.

8 Storage

Storing the dosing pump correctly extends its service life. Avoid negative influences such as extreme temperatures, high humidity, dust, chemicals, etc.

Storage conditions

- The storage place must be cold, dry, dust-free and moderately ventilated.
- Temperatures must be between +2°C and +40°C (for PP and PVDF dosing heads, between +2°C and +60°C).
- The relative humidity must be below 90%.

9 Installation



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 IP55.
- ▶ 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. Especially the oil level glass, the oil inlet and the oil drain.

Installation instructions

When installing, follow the basic principles below:

- The valves must be vertical: Pressure valve at top, suction valve at bottom. Observe the arrows on the valves. The dosing head and the valves must be positioned so that the arrows point vertically upwards.
- You should install the dosing pump at a convenient height for operation.
- The dosing pump must not be fitted to a wall without a wall bracket.
- The dosing pump 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. Ensure a sufficient air flow for cooling purposes.
- The maximum ambient temperature must be complied with. If necessary, radiant heat from surrounding equipment must be screened.
- Avoid exposure to direct sunlight.
- The dosing pump is not intended for outdoor use unless appropriate protective measures have been taken to prevent dust and water from entering the housing.
- Note the dimensions of the mounting holes.
- Install the dosing pump with the feet on a level surface.
- The tightening torque for the fastening bolts is 15 Nm.

9.1 Installation on a wall console

9.2 Hydraulic installation

This section describes the hydraulic parts of a system that you should install or 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!

A diaphragm rupture, blocked pressure lines or material unsuitable for the dosing medium can result in the discharge of the dosing medium. Depending on the type and hazardousness of the dosing medium, this can result in injury.

- ▶ 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!

High peak pressures can lead to piping vibrating and cause them to snap. This can result in injury from piping or escaping dosing media.

- ▶ Install pulsation dampeners.



NOTE

Damage to drives due to overloading

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.

- ▶ Ensure that the pressure on the discharge side is at least 1 bar than on the suction side.

**NOTE****Locking of threads**

Stainless steel and plastic parts (particularly those made of PVC) that are screwed together in a detachable connection (e.g. dosing head and valves) can become stuck. This makes them difficult to release.

- Grease the corresponding parts with a lubricant (e.g. PTFE spray) before screwing them together. Ensure that the lubricant is compatible with the dosing medium.

9.2.1 Design of the system

Please note the following points when designing your system:

- Take into account the technical data of the dosing pump (→ Technical data [► 11]) and design your system accordingly (e.g. when planning the pipeline, consider pressure loss with respect to nominal width and length).
- Design the entire system, including the dosing pump integrated within it, in such a way that no part of the system or any buildings can be permanently damaged if the dosing medium escapes due to the failure of wearing parts (e.g. worn diaphragms) or burst hoses.
- 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 at the end of the process, the dosing pump must be locked electrically and 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.

9.2.2 System piping

Please note the following points when setting up your system's piping:

- The system piping must not exert any force on the connections and valves of the dosing pump.
- This means that steel piping should be connected to the dosing pump via 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.

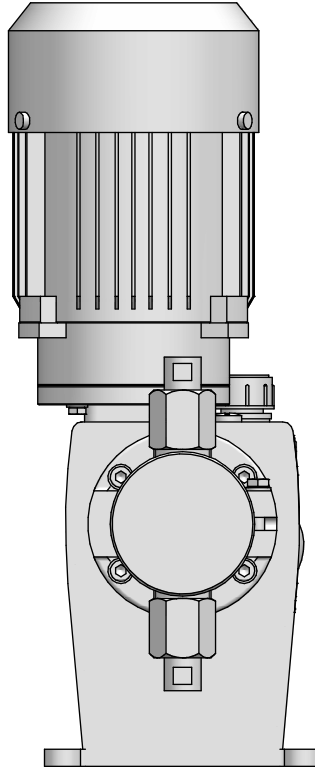
9.2.3 Suction and pressure valves

Fig. 5: 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

9.2.4 Flushing water connection

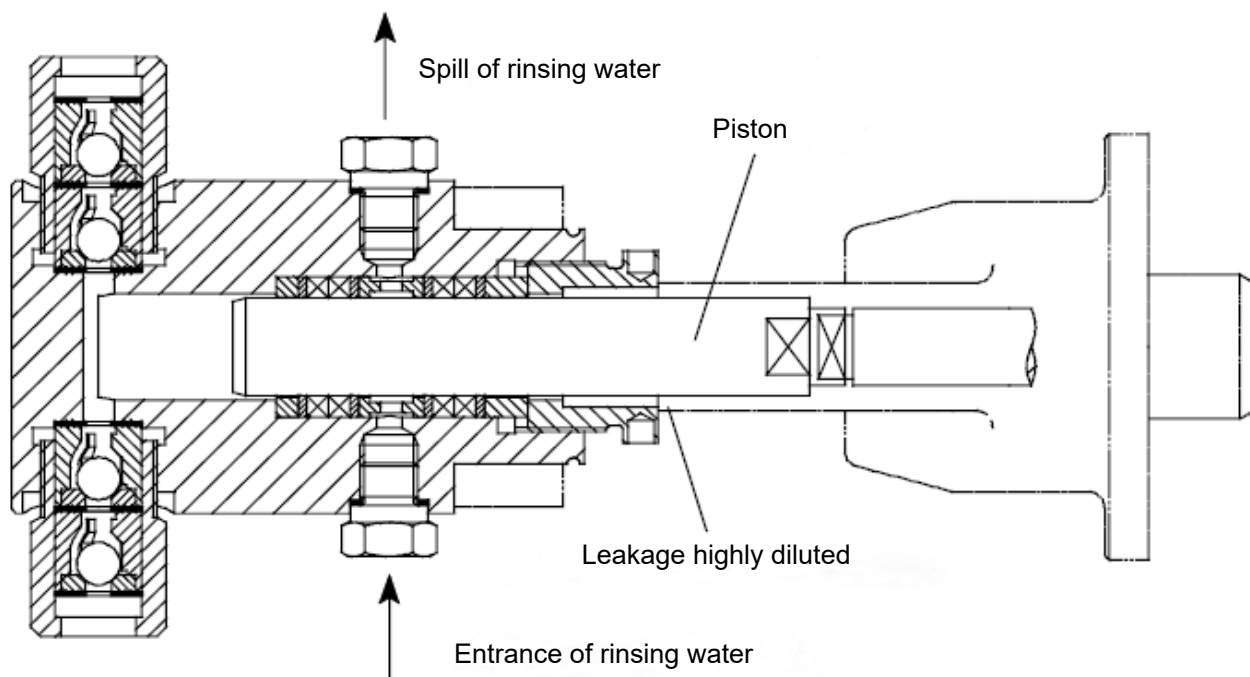


Fig. 6: Flushing water connection (new)

The leakage means that piston pumps must not be used in conjunction with toxic and highly aggressive media. However, flushing the packing skirt thoroughly with water will reduce the concentration of the leaked toxic media to an insignificant concentration. This means that piston pumps can then be used to pump the aforementioned media. However, the use of the flushing depends to a large degree on the local conditions and the nature of the medium. When using abrasive media, it may be advisable to build up a pressure at the piston flushing skirt that is higher than the operating pressure, in order to flush any particles that may enter towards the medium.

9.2.5 Hydraulic accessories

The following subchapter is intended to provide an overview of the installation options.

Please note that these operating instructions are no substitute for the documentation supplied with the accessories. Comply with the safety instructions and all further instructions provided by the product documentation.

9.2.5.1 Injection nozzle

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

Injection nozzles have the following 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 crystallise, it is advisable to carry out installation into the main line from the bottom. This prevents air bubbles from being trapped.
- Some dosing media tend to soil the injection nozzle. This can result in blockages. In cases like this, it is advisable to install an injection nozzle that is easy to dismantle and block off.

When installing the injection nozzle, comply with the instructions provided in the operating instructions.

9.2.5.2 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.

9.2.5.3 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 depressurised pipelines.

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 back-pressure.

9.2.5.4 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

Pulsation dampers also perform important safety functions by preventing pressure peaks which cause the piping to vibrate and tear.

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.

9.2.5.5 Level control

Level monitoring of suction-side feeding of the dosing medium to prevent the tank being sucked dry and to ensure that it can be topped up again in good time.

9.2.5.6 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.

9.2.5.7 Suction pressure regulator

A suction pressure regulator may be necessary if the suction-side installation of the system produces 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.
- Emptying the dosing tank in case of 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.

The installation of a suction pressure regulator prevents these problems. 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.

9.3 Electrical installation



DANGER

Mortal danger from electric shock!

It must be possible to disconnect the dosing pump from the power supply immediately, in order to prevent dangers following an accident or a technical defect.

- ▶ 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.

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



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.



NOTE

Insufficient electromagnetic compatibility

When you connect the dosing pump to a socket without an attached protective earth, it is not possible to guarantee the interference radiation and interference immunity according to EMC regulations.

- Only connect the dosing pump to sockets with an attached protective earth.

9.3.1 Principles

Observe the following principles during the electrical installation:

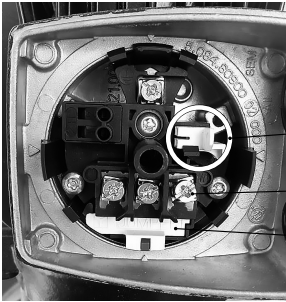
- The electrical connection comply with local regulations.
- Cable type and cross-section of the supply lines must be chosen according to the motor data.
- We recommend using gland connections with strain-relief clamp.
- The required protection degree must be ensured by installing the connections professionally.
- 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.
- The motor must be connected to the termination box in accordance with the circuit diagram.



INFORMATION

In individual cases, the motor can be fitted with a terminal strip with only three terminals. In this case, use the appropriate adapter, which is located in the housing (→ following image). Make sure that the

correct symbol for a star connection or delta connection is on the adapter.



9.3.1.1 Three-phase motors

Connection	Phases
Star connection	3 ~
Delta connection	3 ~

Table 9: Three-phase motors circuit diagrams

9.3.1.2 AC motors

Connection	Phases
Star connection	1~
Delta connection	1~

Table 10: Alternating current motor circuit diagrams

9.3.2 Rotational direction of the motor

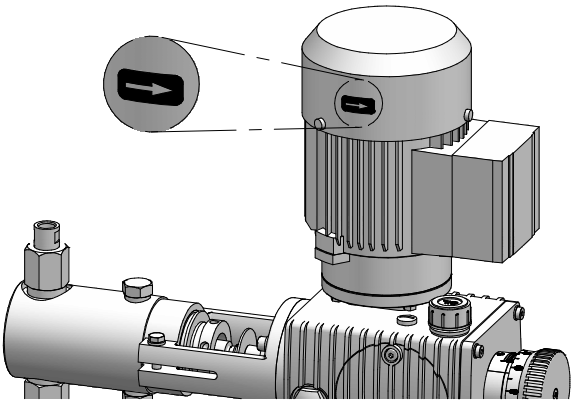


Fig. 7: Rotational direction arrow on the motor

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

9.3.3 ATE servomotor for stroke length adjustment

Comply with the specifications of the operating instructions of the ATE servomotor.

10 Operation



WARNING

Caustic burns or other burns through dosing media!

After the mains supply has been connected, 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.



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.



INFORMATION

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.

Furthermore, it is advisable to prime the pump without back-pressure. For this purpose, we recommend installing a relief valve on the discharge side of the dosing pump.

FEDOS LB	Filling volume
05 – 30	0.25 l

Table 11: Amount of oil to be filled

- ✓ The dosing pump has been fitted and installed correctly.
- ✓ All the mechanical fastenings have been inspected to ensure adequate load-bearing capacity.
- ✓ The dosing head screws have been tightened with the correct torque.
- ✓ 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.
- ✓ Required equipment ✖ is to hand: Gear oil of viscosity class ISO-VG460 in accordance with DIN 51519 (corresponds to SAE 140 in accordance with DIN 51512).

1. Unscrew and remove the closing bolt (1) from the oil inlet (2).
 2. Pour the oil into the oil inlet (→ Table 11: Amount of oil to be filled [► 23]). Check the oil level in the oil level glass (3) at the same time. The oil level should reach to the middle of the oil level glass.
 3. Screw the closing bolt tight
 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.
- ☑ The dosing pump is commissioned.

10.1 Putting the dosing pump into operation

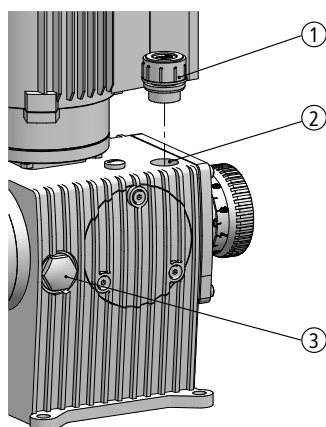


Fig. 8: Dosing pump oil inlet

10.2 Stroke length adjustment

The desired delivery rate of the dosing pump is set using the stroke length adjustment. Turning the adjustment knob adjusts the stroke 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).

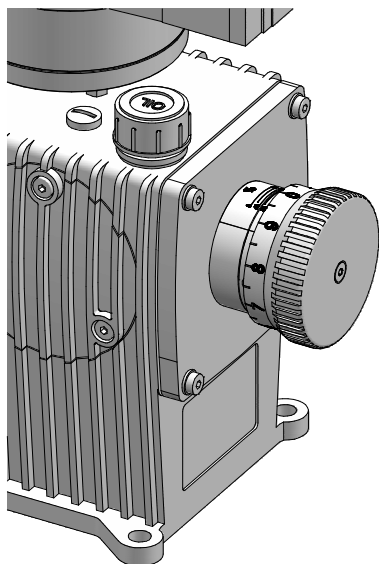


Fig. 9: Stroke length adjustment

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).

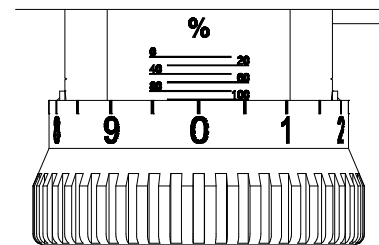


Fig. 10: Scale of the stroke length setting

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

Table 12: Stroke adjustment scale

11 Maintenance

Products from Lutz-Jesco GmbH are manufactured to the highest quality standards and have a long service life. However, some parts are subject to operational wear.

This means that regular inspections are necessary to ensure a long operating life of the product. Regular maintenance protects the product against operational disruptions.



DANGER

Mortal danger from electric shock!

Live parts can inflict fatal injuries.

- ▶ Before carrying out any maintenance work, always disconnect the device from the power supply.
- ▶ Secure the system to prevent it from being switched on by accident.
- ▶ The protective conductor (earth) may only be removed during the last step.
- ▶ After maintenance work, all earthing measures must be restored.

11.1 Maintenance intervals

To avoid malfunctions, you need to carry out regular maintenance on the dosing pump. This table gives you an overview of maintenance work and the intervals at which you must carry it out. Instructions on this maintenance work are provided in the sub-sections.

Interval	Maintenance
Regularly	• Check the oil level in the oil level glass. • Check that piping is seated firmly • Clean suction and pressure valves • Check that electrical connections are not damaged • Tighten up dosing head bolts • Check diaphragm for leakage due to rupture • Check the dosing pump for unusual noises during operation, unusual temperatures or smells • Check servo motor
After a year or the first 5,000 operating hours	• Oil change
After two years or the first 10,000 operating hours	• Oil change

Table 13: Maintenance intervals

11.2 Changing the oil

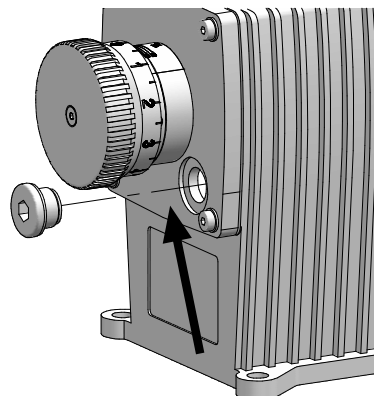


Fig. 11: Draining oil on the dosing pump

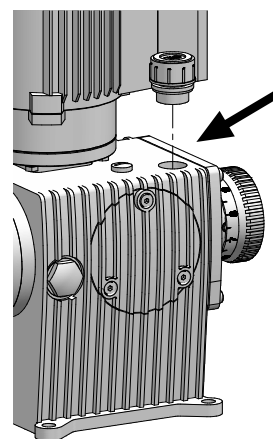


Fig. 12: Dosing pump oil inlet

Model	Filling volume
FEDOS LB	0.25 l

Table 14: Fill levels

- ✓ A suitable oil collecting tank is held ready.
 - ✓ Required equipment ✂ is to hand: Gear oil of the viscosity class ISO VG 460 / SAE 140.
1. Unscrew and remove the closing bolt from the oil drain.
 2. Completely drain the gear oil from the housing into oil collection container.
 3. Place the washer seal on the oil drain and screw the closing bolt tight.
 4. Unscrew the closing screw a from the oil inlet and remove the washer seal.
 5. Pour the oil into the oil inlet (→ Table 14: Fill levels [▶ 25]). Check the oil level in the oil level glass at the same time. The oil level should reach to the middle of the oil level glass.
- ☞ Oil changed.

11.3 Changing the piston



WARNING

Danger of crushing!

Piston movements can cause crushing injuries to hands.

- ▶ Do not reach into the area of the piston.
- ▶ Only ever perform work in the area of the piston when the dosing pump has been switched off.



NOTE

Possibility of damage to the device!

The use of the incorrect packing material can cause damage to the device due to leakage.

- ▶ Match the packing material to be used to the application purpose in terms of system pressure.
- ▶ Match the packing material to the chemical in terms of resistance.

✓ Required equipment ✖ is to hand: Open-end spanner AF 10

1. Switch off the dosing pump.
2. Loosen the clamping screws on the clamping flange using an AF10 open-end spanner.
3. Loosen the gland connection (7) with an appropriate tool. The screw connection can be loosened easily using two cotter pin drives d6 inserted into two opposite drillholes in the gland connection.

4. Pull the dosing head (1) from the holder in the axial direction.
NOTE! Slight rotary movements of the dosing head make dismantling easier.

5. Unscrew and remove the piston (8) from the piston rod using two open-end spanners. Use one open-end spanner to fix the piston rod and the other to unscrew the piston from the piston rod.

6. Grease the thread of the new piston with Molykote DX.

7. Now screw the new piston (8) into the piston rod.

8. To change the packing, unscrew the gland connection completely from the dosing head.

9. Pull out the defective packing using a packing extractor. Alternatively you can use a hook to remove the old packing.

10. Clean the packing area.

11. Install the new packing rings with staggered gaps. In doing so, observe the correct sequence of support ring, supporting disc, packing rings and another supporting disc.

12. Screw the gland back on hand tight.

13. Push the dosing head (1) into alignment with the piston (8) and the holding flange.

14. Secure the dosing head in the end position with clamping screws. **NOTE! Make sure that the valves are aligned vertically.**

15. Tighten the gland connection (7) carefully.

✎ Piston replaced.

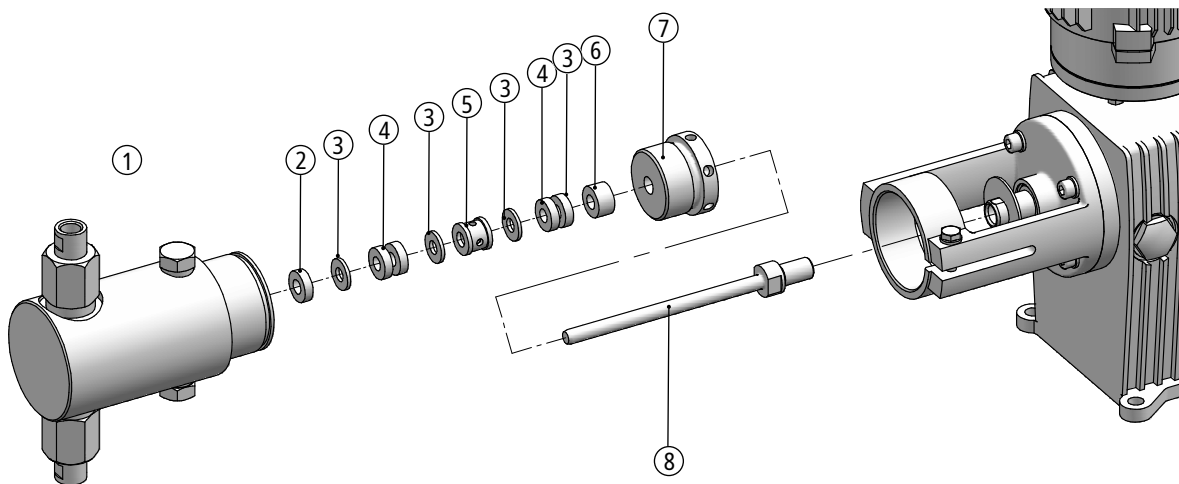


Fig. 13: Replacing the piston

1 Dosing head with pressure and suction valve	2 Support ring
3 Supporting disc	4 Packing ring
5 Piston flushing skirt	6 Pressure ring
7 Gland connection	8 Piston

11.4 Cleaning of suction and pressure valves

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

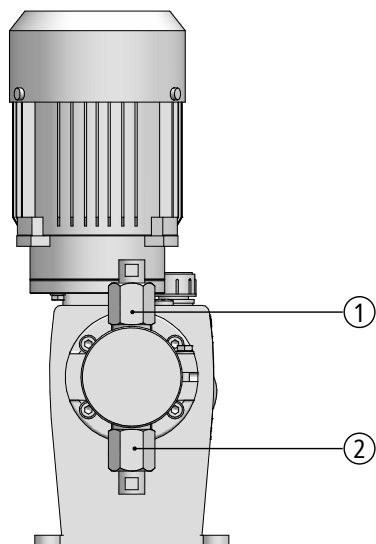


Fig. 14: Suction and pressure valve



INFORMATION

Suction (2) and pressure valves (1) 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. Ensure that the seals or O-rings are correctly seated inside the valves and the dosing head.



WARNING

Danger from old seals!

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.

12 Troubleshooting

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

12.1 Dosing pump not delivering or output too low

Possible cause	Measures for resolution
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 lift too high.	• Set the dosing pump to feed or reduce the suction head. • Install the pulsation dampener on the suction side. • 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.
Power supply interrupted.	Restore the power supply.
The technical data of the drive motor does not match that of the power supply.	Check the electrical installation.
Back pressure too high (on pressure-side connection).	• Clean blocked injection nozzle. • Install pulsation damper to reduce pressure peaks resulting from over-long pipes. • Check function of safety valves.

Table 15: Dosing pump not delivering or output too low

12.2 Dosing pump does not prime

Possible cause	Measures for resolution
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 lift too high.	• Set the dosing pump to feed or reduce the suction head. • Install the pulsation dampener on the suction side. • 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.
Power supply interrupted.	Restore the power supply.
Valves dry.	• Dampen the dosing head and the valves. • Vent the dosing head.

Possible cause	Measures for resolution
Air in the suction line with simultaneous pressure on the pressure valve.	Vent the dosing head or the lines.

Table 16: Dosing pump does not prime

12.3 Delivery rate varies

Possible cause	Measures for resolution
Valve leaking or blocked	• 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	• Possibly reduce the concentration of the dosing medium or increase the temperature. • Install spring-loaded valves. • Increase the pipe diameter.
The technical data of the drive motor does not match that of the power supply.	Check the electrical installation.
Pressure on suction side too high.	Install a back-pressure valve in the pressure line.
Pressure peaks due to acceleration with long lines.	• Install a suction pressure regulator. • Install a pulsation damper.
Imprecise dosing due to changeable positive and negative suction heads.	Install a suction pressure regulator.
Back pressure too high (on pressure-side connection).	• Clean blocked injection nozzle. • Install pulsation damper to reduce pressure peaks resulting from over-long pipes. • Check function of safety valves.

Table 17: Delivery rate varies

12.4 No stroke movement observed

Possible cause	Measures for resolution
Diaphragm return spring broken.	Contact the manufacturer.
Power supply interrupted.	Restore the power supply.
The technical data of the drive motor does not match that of the power supply.	Check the electrical installation.

Table 18: No stroke movement observed

12.5 Dosing pump delivery rate too high

Possible cause	Measures for resolution
Pressure on suction side too high.	Install a back-pressure valve in the pressure line.
Pressure peaks due to acceleration with long lines.	• Install a suction pressure regulator. • Install a pulsation damper.

Table 19: Dosing pump delivery rate too high

12.6 Heavy leakage on the dosing pump

Possible cause	Measures for resolution
Packing not tightened strong enough.	Tighten gland stud carefully.

Possible cause	Measures for resolution
Piston has longitudinal grooves due to normal wear.	Replace piston and packing.
Excessive wear due to abrasive medium.	Replace PTFE packing with Aramid packing.

12.7 Loud noises on the dosing pump

Possible cause	Measures for resolution
Drive components worn.	Contact the manufacturer.

Table 20: Loud noises on the dosing pump

12.8 The drive is overloaded

Possible cause	Measures for resolution
Shut-off valves closed	Open the shut-off valves. Inspect the dosing pump for possible damage.
The technical data of the drive motor does not match that of the power supply.	Check the electrical installation.
Pressure peaks due to acceleration with long lines.	• Install a suction pressure regulator. • Install a pulsation damper.
Back pressure too high (on pressure-side connection).	• Clean blocked injection nozzle. • Install pulsation damper to reduce pressure peaks resulting from over-long pipes. • Check function of safety valves.

Table 21: The drive is overloaded

12.9 Motor hums and does not start.

Possible cause	Measures for resolution
The technical data of the drive motor does not match that of the power supply.	Check the electrical installation.
Back pressure too high (on pressure-side connection).	• Clean blocked injection nozzle. • Install pulsation damper to reduce pressure peaks resulting from over-long pipes. • Check function of safety valves.
No or insufficient oil in the gearbox	Fill up the gearbox oil.

Table 22: Motor hums and does not start.

13 Shutdown and disposal

13.1 Decommissioning the dosing pump

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. Depressurise 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.

13.2 Shutting down in an emergency

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

13.3 Disposal of old equipment

Observe the following instructions when disposing of an old device:

- Clean the device thoroughly. In the case of hazardous dosing media, you must also neutralise and decontaminate it.
- Dispose of dosing medium residue properly.
- You must dispose of the device in accordance with local laws and regulations. It should not be disposed of as domestic waste!

As the disposal regulations may differ from country to country, please consult your supplier if necessary.

14 Spare parts



NOTE

Spare parts sets in a range of material combinations are listed in the current Lutz-Jesco GmbH price list.

15 Delivery characteristic curves

This section is intended to give you an idea of the delivery capacity that the dosing pump can achieve at specific backpressures. 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 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.

At 60 Hz operation, values are increased by a factor of 1.2.

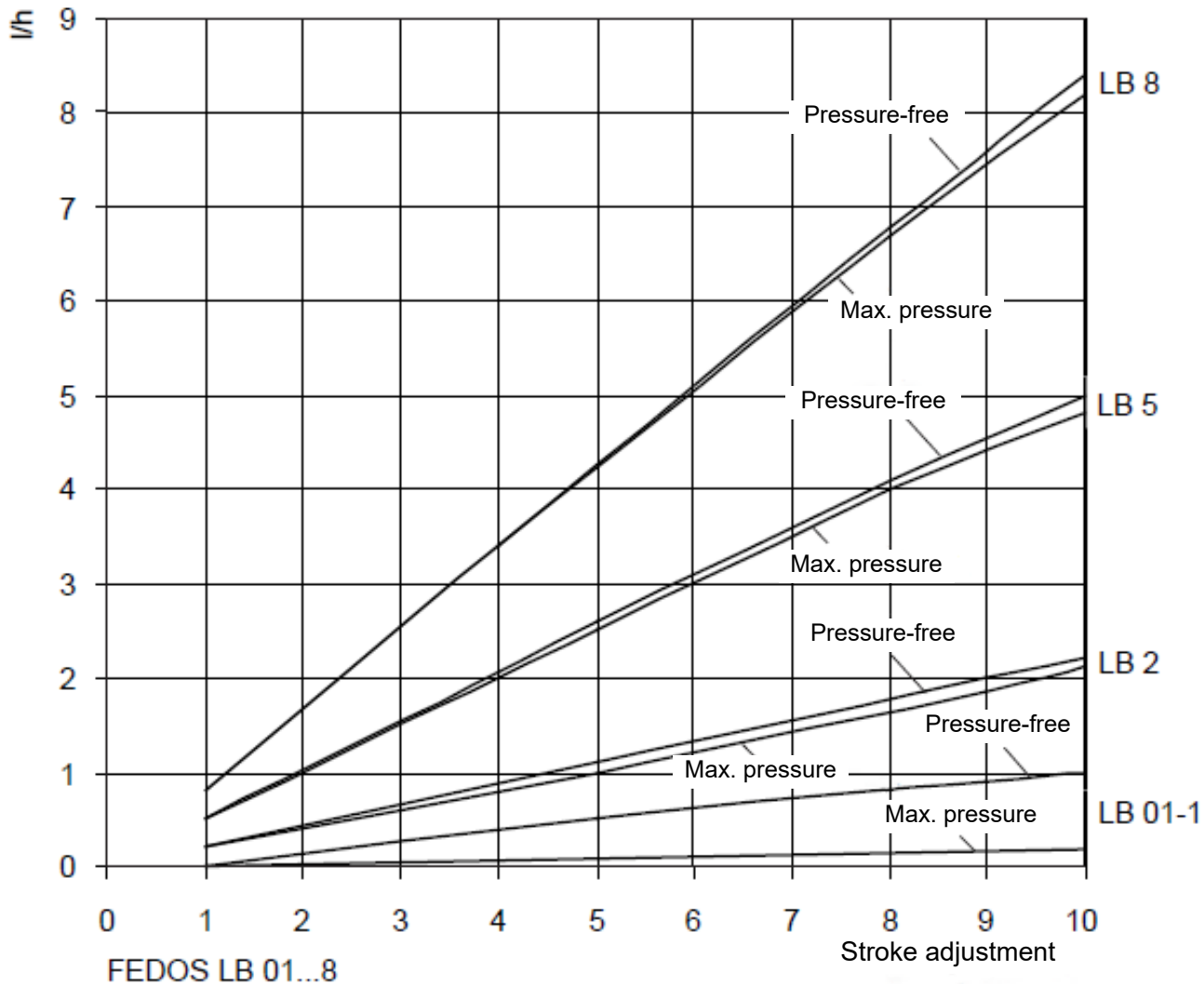


Fig. 15: Delivery characteristic curve FEDOS LB 01-8 (new)

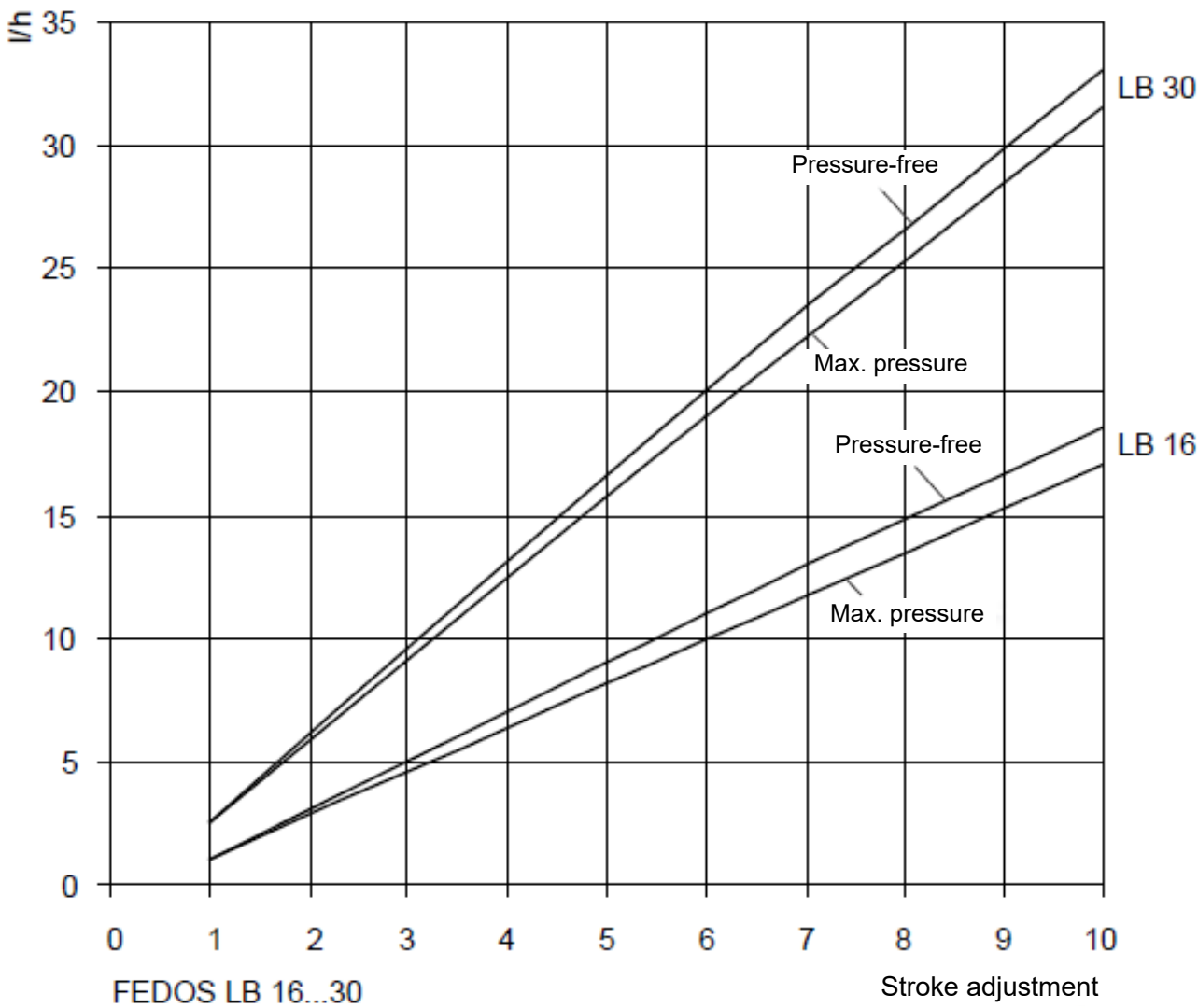


Fig. 16: Delivery characteristic curve FEDOS LB 16-30 (new)

16 EU declaration of conformity



(DE) EG-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 EG-Richtlinien entspricht. Bei einer nicht mit uns abgestimmten Änderung am Gerät verliert diese Erklärung ihre Gültigkeit.

(EN) EC 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 EC 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 CE

Nous déclarons sous notre propre responsabilité que le produit ci-dessous mentionné répond aux exigences essentielles de sécurité et de santé des directives CE 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 CE

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 CE

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 CE indicadas.

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

Bezeichnung des Gerätes:

Motor-Kolbendosierpumpe

Description of the unit:

Motor-driven piston Dosing Pump

Désignation du matériel:

Pompe doseuse à piston entraînée par moteur Bomba

Descripción de la mercancía:

Dosificadora de piston accionada por motor

Designação do aparelho:

Bomba doseadora de pistão motorizada

Typ:

FEDOS LB

Type:

EG-Richtlinien:

2006/42/EG, 2014/34/EU

EC directives:

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:

DIN EN ISO 12100:2011-03, DIN EN 809:2012-10

Harmonized standards:

Es werden weiter folgenden Normen für „Drehende elektrische Maschinen“ nach EU Vorgabe eingehalten.

The following standards for "Rotating electrical machines" are also complied with in accordance with EU regulations.

Dokumentationsbevollmächtigter:

Lutz-Jesco GmbH

Authorised person for documentation:

Heinz Lutz
Geschäftsführer / Chief Executive Officer
Lutz-Jesco GmbH
Wedemark, 03.04.2023

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

Fig. 17: EU Declaration of Conformity FEDOS LB

17 Decontamination declaration

Due to legal regulations for the protection of our employees and operating facilities, we need the completed and signed declaration of decontamination in order to process your return.

- 1. Copy this page and complete it **for each device separately!**
- 2. Attach the declaration to the outside of the packaging.
- 3. Return the device.

Decontamination declaration

We forward the following device for repairs:

Device designation:

Part no.:

Order no.:

Date of delivery:

Reason for repair:

Medium dosed

Description:

Irritant: ☐ Yes ☐ No

Properties:

Corrosive: ☐ Yes ☐ No

We hereby certify that the device has been thoroughly cleaned inside and out before being returned, contains no hazardous chemical, biological and radioactive agents and has been drained of oil.

If the manufacturer has to perform additional cleaning, we shall be invoiced the costs incurred.

We certify that the aforementioned information is correct and complete and that the device will be returned in accordance with legal requirements.

Company / Address:

Phone:

Fax:

E-mail:

Customer no.:

Contact person:

Date, Signature:

BA-10704-02 / 1 / 25/02/2026

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Notes



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