DME, Variant AR (60-940 l/h)

Installation and operating instructions



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Original installation and operating instructions.

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Warning

Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

1. Safety instructions

These installation and operating instructions contain general instructions that must be observed during installation, operation and maintenance of the pump. It must therefore be read by the installation engineer and the relevant qualified operator prior to installation and start-up, and must be available at the installation location at all times.

1.1 Symbols used in this document

Warning

If these safety instructions are not observed, it may result in personal injury.

Caution ***If these safety instructions are not observed, it may result in malfunction or damage to the equipment.***

Note ***Notes or instructions that make the job easier and ensure safe operation.***

1.2 Qualification and training of personnel

The personnel responsible for the installation, operation and service must be appropriately qualified for these tasks. Areas of responsibility, levels of authority and the supervision of the personnel must be precisely defined by the operator. If necessary, the personnel must be trained appropriately.

Risks of not observing the safety instructions

Non-observance of the safety instructions may have dangerous consequences for the personnel, the environment and the pump and may result in the loss of any claims for damages.

It may lead to the following hazards:

- Personal injury from exposure to electrical, mechanical and chemical influences.
- Damage to the environment and personal injury from leakage of harmful substances.

1.3 Safety instructions for the operator/ user

The safety instructions described in these instructions, existing national regulations on health protection, environmental protection and for accident prevention and any internal working, operating and safety regulations of the operator must be observed.

Information attached to the pump must be observed.

Leakages of dangerous substances must be disposed of in a way that is not harmful to the personnel or the environment.

Damage caused by electrical energy must be prevented, see the regulations of the local electricity supply company.

Caution ***Before starting work on the pump, the pump must be disconnected from the power supply. The system must be pressureless!***

Note ***The mains plug is the separator separating the pump from the mains.***

Only orginal accessories and original spare parts should be used. Using other parts can result in exemption from liability for any resulting consequences.

1.4 Safety of the system in the event of a failure in the dosing pump

The dosing pump was designed according to the latest technologies and is carefully manufactured and tested.

If it fails regardless of this, the safety of the overall system must be ensured. Use the relevant monitoring and control functions for this.

Caution ***Make sure that any chemicals that are released from the pump or any damaged lines do not cause damage to system parts and buildings.***

The installation of leak monitoring solutions and drip trays is recommended.

1.5 Dosing chemicals

Warning



Before switching the supply voltage back on, the dosing lines must be connected in such a way that any chemicals in the dosing head cannot spray out and put people at risk.

The dosing medium is pressurised and can be harmful to health and the environment.

Warning



When working with chemicals, the accident prevention regulations applicable at the installation site should be applied (e.g. wearing protective clothing).

Observe the chemical manufacturer's safety data sheets and safety instructions when handling chemicals!

Warning



The pump must be equipped with a diaphragm leakage detection when used for crystallising media.

Caution ***A deaeration hose, which is routed into a container, e.g. a drip tray, must be connected to the deaeration valve.***

Caution ***The dosing medium must be in liquid aggregate state!***

Observe the freezing and boiling points of the dosing medium!

The resistance of the parts that come into contact with the dosing medium, such as the dosing head, valve ball, gaskets and lines, depends on the medium, media temperature and operating pressure.

Caution ***Ensure that parts in contact with the dosing medium are resistant to the dosing medium under operating conditions, see data booklet!***

Should you have any questions regarding the material resistance and suitability of the pump for specific dosing media, please contact Grundfos.

1.6 Diaphragm breakage

If the diaphragm leaks or is broken, dosing liquid escapes from the drain opening (fig. 1) on the dosing head. Observe section *8.4 Diaphragm breakage*.

Warning

Danger of explosion, if dosing liquid has entered the pump housing!

Operation with damaged diaphragm can lead to dosing liquid entering the pump housing.



In case of diaphragm breakage, immediately separate the pump from the power supply!

Make sure the pump cannot be put back into operation by accident!

Dismantle the dosing head without connecting the pump to the power supply and make sure no dosing liquid has entered the pump housing. Proceed as described in section 8.3.2 Dismantling the diaphragm and valves.

To avoid any danger resulting from diaphragm breakage, observe the following:

- Perform regular maintenance.
  See section *8.1 Regular maintenance*.
- Never operate the pump with blocked or soiled drain opening.
  – If the drain opening is blocked or soiled, proceed as described in section *8.3.2 Dismantling the diaphragm and valves*.
- Never attach a hose to the drain opening. If a hose is attached to the drain opening, it is impossible to recognise escaping dosing liquid.
- Take suitable precautions to prevent harm to health and damage to property from escaping dosing liquid.
- Never operate the pump with damaged or loose dosing head screws.

1.7 Operation with loose dosing head screws

Warning

Danger of explosion, if dosing liquid has entered the pump housing!

Operation with damaged or loose dosing head screws can lead to dosing liquid entering the pump housing.



If the pump was operated with damaged or loose dosing head screws, immediately separate the pump from the power supply!

Make sure the pump cannot be put back into operation by accident!

Dismantle the dosing head without connecting the pump to the power supply and make sure no dosing liquid has entered the pump housing. Proceed as described in section 8.3.2 Dismantling the diaphragm and valves.

2. General description

The Grundfos DME dosing pump is a self-priming diaphragm pump.

The pump consists of:

- a **cabinet** incorporating the drive unit and electronics,
- a **dosing head** with back plate, diaphragm, valves, connections and vent valve,
- a **control panel** incorporating display and buttons. The control panel is fitted either to the front or to the side of the cabinet.

The motor is controlled in such a way that the dosing gets as even and constant as possible, irrespective of the capacity range in which the pump is operating.

This is carried out as follows:

The speed of the suction stroke is kept constant and the stroke relatively short, irrespective of the capacity. Contrary to conventional pumps, which generate the dosing stroke as a short pulse, the duration of the dosing stroke will be as long as possible. Thus, an even dosing without peak values is ensured. As the pump is always dosing at full stroke length, it ensures the same high accuracy and suction capability, irrespective of the capacity, which is infinitely variable in the ratio of 1:800.

The pump features an LCD display and a user-friendly control panel which gives access to the pump functions.

2.1 Applications

The pump is suitable for liquid, non-abrasive, non-flammable and non-combustible media strictly in accordance with the instructions in these installation and operating instructions.

Areas of application (among others)

- drinking water treatment
- wastewater treatment
- cooling water treatment
- washing systems
- process water treatment
- chemical industry.

2.2 Improper operating methods

The operational safety of the pump is only guaranteed if it is used in accordance with section *2.1 Applications*.



Warning

Other applications or the operation of pumps in ambient and operating conditions, which are not approved, are considered improper and are not permitted. Grundfos cannot be held liable for any damage resulting from incorrect use.



Warning

The pump must be equipped with a diaphragm leakage detection when used for crystallising media.



Warning

The pump is NOT approved for operation in potentially explosive areas!



Warning

A sunscreen is required for outdoor installation!

2.3 Type key

(Cannot be used for pump configuration.)

Code	Example	DME	60 -	10	AR -	PP/	E/	C -	F -	3	1	1	F
	Pump range												
	Maximum capacity [l/h]:												
	60												
	150												
	375												
	940												
	Maximum pressure [bar]:												
	4												
	10												
	Control variant:												
AR	Standard												
AP	Standard + Profibus												
	Dosing head material:												
PP	Polypropylene												
PV	PVDF												
SS	Stainless steel 1.4401												
	Gasket material:												
E	EPDM												
T	PTFE												
V	FKM												
	Valve ball material:												
C	Ceramics												
G	Glass												
SS	Stainless steel 1.4401												
T	PTFE												
	Control panel:												
F	Front-fitted												
S	Side-fitted												
	Voltage:												
3	1 x 100-240 V, 50/60 Hz												
	Valves:												
1	Standard valve												
2	Spring-loaded valve												
	Connection, suction/discharge:												
A1	Threaded Rp 3/4												
A2	Threaded Rp 1 1/4												
Q	Tubing 19/27 mm + 25/34 mm												
	Mains plug:												
F	EU (Schuko)												
G	UK												
I	AU												
B	USA												
J	JP												
E	CH												
L	Argentina												

3. Technical data

3.1 Mechanical data

	DME 60	DME 150	DME 375	DME 940
Maximum capacity*1 [l/h]	60	150	376	940
Maximum capacity with anti-cavitation 75 %*1 [l/h]	45	112	282	705
Maximum capacity with anti-cavitation 50 %*1 [l/h]	33.4	83.5	210	525
Maximum capacity with anti-cavitation 25 %*1 [l/h]	16.1	40.4	101	252
Maximum pressure [bar]	10	4	10	4
Maximum stroke rate per minute [strokes/min.]	160			
Maximum suction lift during operation [m]	6			
Maximum suction lift when priming with wet valves [m]	1.5			
Maximum viscosity with spring-loaded valves [mPa s]*2	3000 [mPa s] at 50 % capacity			
Maximum viscosity without spring-loaded valves [mPa s]*2	200			
Diaphragm diameter [mm]	79	106	124	173
Liquid temperature [°C]	0 to 50			
Ambient temperature [°C]	0 to 45			
Accuracy of repeatability	± 1 %			
Sound pressure level [dB(A)]	< 70			

*1 Irrespective of counter pressure

*2 Maximum suction lift 1 metre

3.2 Electrical data

		DME 60	DME 150	DME 375	DME 940
Supply voltage [VAC]		1 x 100-240 V			
Maximum current consumption [A]	at 100 V	1.25		2.4	
	at 230 V	0.67		1.0	
Maximum power consumption P_1 [W]		67.1		240	
Frequency [Hz]		50/60			
Enclosure class		IP65			
Installation category		II			
Pollution degree		2			
Insulation class		B			
Supply cable		1.5 m H05RN-F with plug			

3.3 Input/output data

The pump offers various input and output options, depending on control variant.

Signal input	
Voltage in level sensor input [VDC]	5
Voltage in pulse input [VDC]	5
Minimum pulse-repetition period [ms]	3.3
Impedance in analog 0/4-20 mA input [Ω] The analog input requires a signal which is isolated from frame. Min. resistance to frame: 50 kΩ	250
Maximum loop resistance in pulse signal circuit [Ω]	250
Maximum loop resistance in level signal circuit [Ω]	250
Signal output	
Maximum load of alarm relay output, at ohmic load [A]	2
Maximum voltage, alarm relay output [V]	42

3.4 Dimensions

See dimensions at the end of these instructions.
All dimensions are in mm.

4. Installation

4.1 Safety instructions



- Liquid is under pressure and may be hazardous.
- When working with chemicals, local safety rules and regulations must be observed (e.g. wear protective clothes).
- Before starting work on the dosing pump and system, disconnect the electricity supply to the pump, ensuring that it cannot be accidentally switched on. Before reconnecting the electricity supply, make sure that the dosing hose is positioned in such a way that any chemical left in the dosing head is not ejected, thereby exposing persons to danger.
- If the vent valve in the dosing head is used, it must be connected to a hose which is led back to the tank.
- When changing a chemical, make sure that the materials of the dosing pump and system are resistant to the new chemical. If there is any risk of chemical reaction between the two types of chemicals, clean the pump and system thoroughly before adding the new chemical. Proceed as follows:
  Place the suction tube in water and press the 100% button until residual chemical has been removed.
  Note: When the buttons 100% and + are pressed simultaneously, the pump can be set to run for a specific number of seconds at maximum capacity. The remaining number of seconds will appear in the display. The maximum value is 300 seconds.

4.2 Installation environment

- Exposure to direct sunlight should be avoided. This applies especially to pumps with plastic dosing heads, as this material can be damaged by sunlight.
- If the pump is installed outside, an enclosure or similar protection is required to protect the pump against rain and similar weathers.

4.3 Installation of pump

- See also the installation example in section *4.4 Installation example*.

Caution ***The dosing head may contain water from the factory test. If a liquid which must not come into contact with water is to be dosed, it is recommended to let the pump run with another liquid to remove the water from the dosing head before installation.***

Caution ***Cross-tighten the dosing head screws with a torque wrench once before commissioning and again after 2-5 operating hours at 5.5 Nm (+ 0.5/- 0 Nm).***

- Always install the pump on the supporting foot with vertical suction and discharge ports.
- Always use suitable tools for the mounting of plastic parts. Never apply unnecessary force.
- Make sure that the dosing pump and system are designed in such a way that neither system equipment nor buildings are damaged in case of leakage from the pump or rupture of hoses/pipes. The installation of leakage hoses and collecting tanks is recommended.
- Make sure that the drain hole in the dosing head points downwards, see fig. 1.

Caution ***Never attach a hose to the drain opening.***

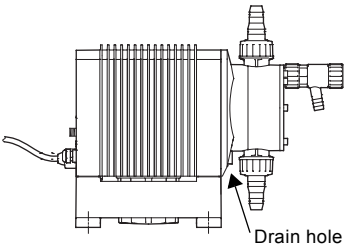
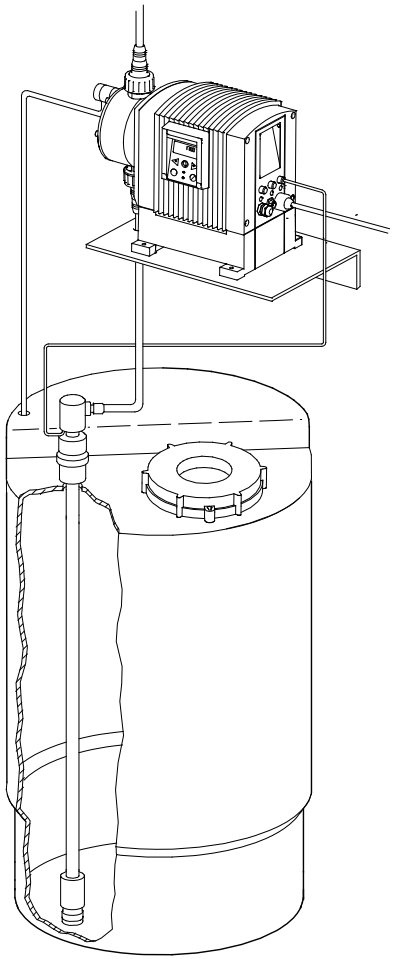


Fig. 1

4.4 Installation example

The drawing in fig. 2 shows an installation example.

The DME pump can be installed in many different ways. The sketch below shows an example with side-fitted control panel. The tank is a Grundfos chemical tank with a Grundfos level control unit.



TM02 7065 0604

Fig. 2

4.5 Electrical connection

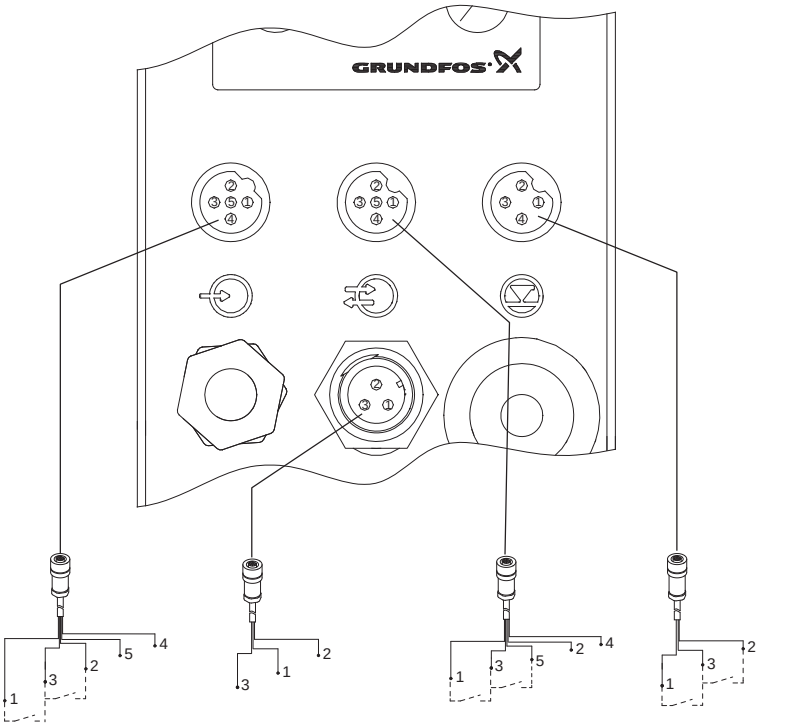
- The electrical connection of the pump should be carried out by qualified persons in accordance with local regulations.
- For electrical data of the pump, see section *3.2 Electrical data*.
- Do not lay signal cables, if any, together with power cables.

Warning

Danger to life due to non-tripping of the residual current device (RCD)!

If the pump is connected to an electric installation where a residual current device (RCD) is used as an additional protection, this RCD must trip when earth fault currents with DC content (pulsating DC) and smooth DC earth fault currents occur. This means that a RCD type B, sensitive to universal current, must be used.

4.6 Connection overview



Cable 1,
See table below

Cable 2,
See table below

Cable 3,
See table below

Cable 4,
See table below

Fig. 3

Cable 1: Input for analog signal, pulse signal and diaphragm leakage

Number / colour	**1 / brown**	**2 / white**	**3 / blue**	**4 / black**	**5 / grey**
Function					
Analog				(-) 4-20 mA input	(+) 4-20 mA input
Pulse	Potential-free		Potential-free		
Pulse	5 V			Ground	
Number / colour		**2 / black**	**3 / brown**	**4 / blue**	
Diaphragm leakage*		5 V	PNP	Ground	

* Grundfos diaphragm leakage sensor, product number 96534443.

Cable 2: Alarm relay output

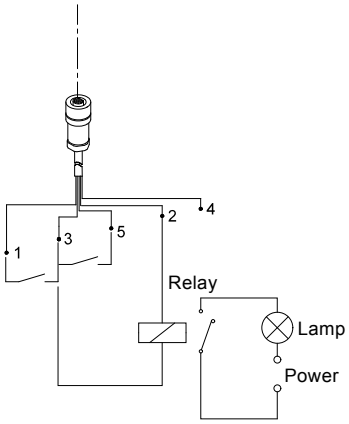
Number / colour	**1 / brown**	**2 / white**	**3 / blue**
Function			
Alarm relay	Common	Normally open	Normally closed

Cable 3: Input for dosing stop and dosing monitoring or dosing output

Number / colour	1 / brown	2 / white	3 / blue	4 / black	5 / grey
Function					
Dosing stop (input)	5 V			Ground	
Dosing stop (input)	Potential-free		Potential-free		
Dosing monitoring			Potential-free		Potential-free
Dosing monitoring				Ground	5 V
Dosing output (pump running)		Open collector (NPN)*		Ground	

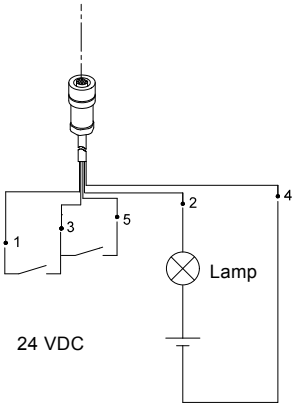
* Open collector (NPN) can be used for a relay or a lamp.

1. Using the internal 5 VDC power supply: Max. current: 100 mA



TM03 7868 5006

2. Using an external power supply: Max. 24 VDC - 100 mA



TM03 7869 5006

Fig. 4

Cable 4: Level input

Number / colour	1 / brown	2 / white	3 / blue	4 / black
Function				
Empty tank	Potential-free*		Potential-free*	
Empty tank	5 V			Ground
Low level		Potential-free*	Potential-free*	
Low level		5 V		Ground

* The function of the potential-free contact sets can be selected via the control panel (NO = normally open and NC = normally closed), see section *5.21 Input setup*.

5. Functions

5.1 Control panel

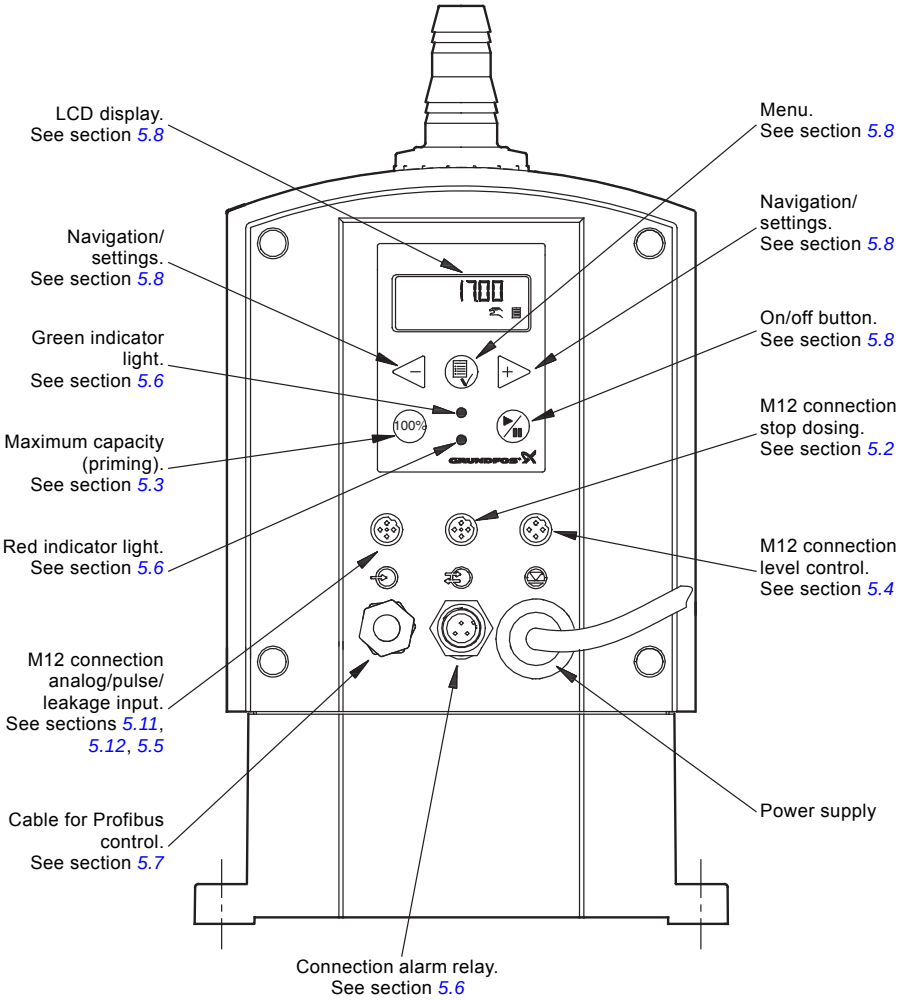


Fig. 5

5.2 Start/stop of pump

The pump can be started/stopped in two different ways:

- Locally on the pump control panel.
- By means of an external on/off switch. See connection overview in section *4.6 Connection overview*.

5.3 Priming/venting of pump

The pump control panel incorporates a 100% button. Press this button if the maximum pump capacity is required over a short period, e.g. during start-up. When the button is released, the pump automatically returns to the previous operating mode.

During priming/venting, it is recommended to let the pump run without a counter pressure or to open the vent valve.

Note: When the buttons 100% and ▷ are pressed simultaneously, the pump can be set to run for a specific number of seconds at maximum capacity. The remaining number of seconds will appear in the display. The maximum value is 300 seconds.

5.4 Level control

The pump can be fitted with a level control unit for monitoring of the chemical level in the tank.

The pump can react to two level signals. The pump will react differently, depending on the influence on the individual level sensors.

Level sensors	Pump reaction
Upper sensor activated (closed contact)	• Red indicator light is on. • Pump **running**. • Alarm relay activated.
Lower sensor activated (closed contact)	• Red indicator light is on. • Pump **stopped**. • Alarm relay activated.

For connection of the level control unit and alarm output, see section *4.6 Connection overview*.

5.5 Diaphragm leakage sensor

The pump can be fitted with a diaphragm leakage sensor, which detects diaphragm leakage.

The sensor should be connected to the drain hole in the dosing head.

In case of diaphragm leakage, the signal from the sensor generates an alarm and the alarm relay will be activated. See also section *5.6 Alarm output and indicator lights*.

For connection of the diaphragm leakage sensor, see section *4.6 Connection overview*.

5.6 Alarm output and indicator lights

The green and red indicator lights on the pump are used for operating and fault indication.

In control variant "AR", the pump can activate an external alarm signal by means of a built-in alarm relay which must only be connected to a safety extra low voltage (SELV) connection.

Note

Connect the alarm relay only to voltages which comply with the SELV requirements in EN/IEC 60 335-1.

The alarm signal is activated by means of an internal potential-free contact.

The functions of the indicator lights and the built-in alarm relay appear from the table below.

Condition	Green LED	Red LED	Display	Alarm output
Pump running	On	Off	Normal indication	
Set to stop	Flashing	Off	Normal indication	
Pump fault	Off	On	EEPROM	
Supply failure	Off	Off	Off	
Pump running, low chemical level ★1	On	On	LOW	
Empty tank ★1	Off	On	EMPTY	
Analog signal < 2 mA	Off	On	NO mA	
The pump is running, but the dosed is too small according to the signal from the dosing monitor ★2	On	On	NO FLOW	
Overheating	Off	On	MAX. TEMP.	
Internal communication fault	Off	On	INT. COM.	
Internal Hall fault ★3	Off	On	HALL	
Diaphragm leakage ★4	Off	On	LEAKAGE	
Maximum pressure exceeded ★4	Off ★5	On	OVERLOAD	

Condition	Green LED	Red LED	Display	Alarm output
More pulses than capacity	On	On	MAX. FLOW	
No motor rotation detected ★3	Off	On	ORIGO	

★1 Requires connection to level sensors. See section *5.22 Empty tank (alarm)*.

★2 Requires activation of the dosing monitoring function and connection to a dosing monitor.

★3 Please contact a Grundfos service centre.

★4 Alarms can be reset when the faults have been corrected.

★5 The pump will make 10 attempts to restart before going into permanent OFF mode.

5.7 Fieldbus communication

The pump can be configured for fieldbus applications (Profibus). Apart from the usual installation and operating instructions, Profibus pumps are supplied with a special Profibus installation and operating instructions.

5.8 Menu

The pump features a user-friendly menu which is activated by pressing the ☰ button. During start-up, all texts will appear in English language. To select language, see section *5.20 Language*.

All menu items are described in the following sections. When ✓ appears at a menu item, it means that this item is activated. By selecting "RETURN" anywhere in the menu structure, you will return to the operating display without changes.

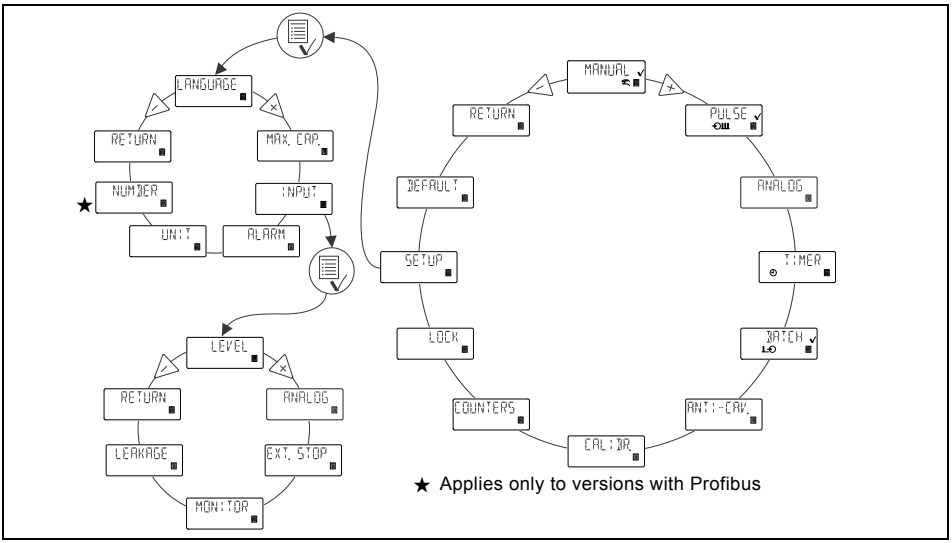


Fig. 6

MANUAL ✓	See section *5.10*	LOCK	See section *5.25*
PULSE ✓	See section *5.11*	DEFAULT	See section *5.18*
ANALOG	See section *5.12*	RETURN	See section *5.19*
TIMER	See section *5.13*	LANGUAGE	See section *5.20*
BATCH ✓	See section *5.14*	MAX. CAP.	See section *5.16*
ANTI-CAV.	See section *5.15*	INPUT	See section *5.21*
CALIBR.	See section *7.*	ALARM	See section *5.22*
COUNTERS	See section *5.17*	UNIT	See section *5.23*

5.9 Operating modes

Note: The displayed l and ml values are only reliable if the pump has been calibrated to the actual installation, see section *7. Calibration*.

The pump can run in five different operating modes:

- **Manual**
- **Pulse**
- **Analog**
- **Timer** (internal batch control)
- **Batch** (external batch control)

See description in the following sections.

5.10 Manual

The pump is dosing as constantly and evenly as possible, without any external signals.

Set the quantity to be dosed in l/h or ml/h. The pump automatically changes between the measuring units.

Setting range:

DME 60: 75 ml/h - 60 l/h
DME 150: 200 ml/h - 150 l/h
DME 375: 500 ml/h - 375 l/h
DME 940: 1200 ml/h - 940 l/h

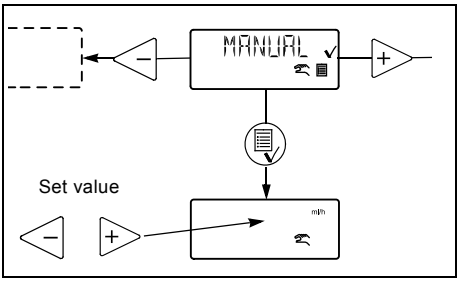


Fig. 7

5.11 Pulse

The pump is dosing according to an external pulse signal, i.e. a water meter with pulse output or a controller.

Set the quantity to be dosed per pulse in ml/pulse. The pump adjusts its capacity according to two factors:

- Frequency of external pulses.
- The set quantity per pulse.

The pump measures the time between two pulses and then calculates the speed giving the capacity required (set quantity per pulse multiplied by the pulse frequency).

The pump does not start until it has received the second pulse, and thus it delivers a constant flow as in the case of "manual" control. The pump calculates a speed for each pulse received.

The pump stops

- when the time between two pulses is three times longer than the time between the two previous pulses, or
- if the time between two pulses exceeds 2 minutes.

The pump will operate at the latest calculated speed until one of the two cases occurs.

The pump stops at the point reached in its duty cycle and starts at this point again having received two new pulses.

Setting range:

DME 60: 0.000625 ml/pulse - 120 ml/pulse
DME 150: 0.00156 ml/pulse - 300 ml/pulse
DME 375: 0.00392 ml/pulse - 750 ml/pulse
DME 940: 0.00980 ml/pulse - 1880 ml/pulse

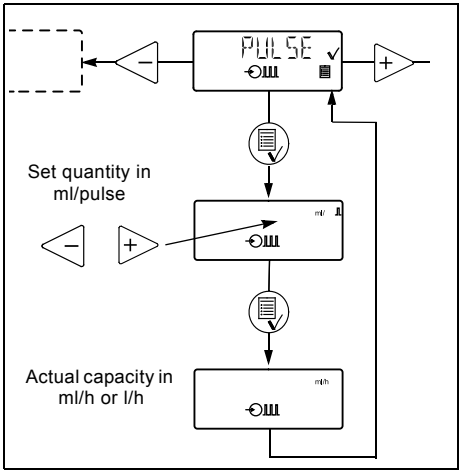


Fig. 8

If the set quantity per pulse multiplied by the pulse frequency exceeds the pump capacity, the pump will run at maximum capacity. Excess pulses will be ignored and "MAX. FLOW" will appear in the display.

5.12 Analog

The pump is dosing according to an external analog signal. The dosed quantity is proportional to the input value in mA.

4-20 (default):	4 mA =	0 %.
	20 mA =	100 %.
20-4:	4 mA =	100 %.
	20 mA =	0 %.
0-20:	0 mA =	0 %.
	20 mA =	100 %.
20-0:	0 mA =	100 %.
	20 mA =	0 %.

See fig. 9.

The capacity limitation will influence the capacity. 100 % corresponds to the maximum capacity of the pump or the set maximum capacity, see section *5.16 Capacity limitation*.

The analog input requires a signal which is isolated from frame. Min. resistance to frame: 50 kΩ.

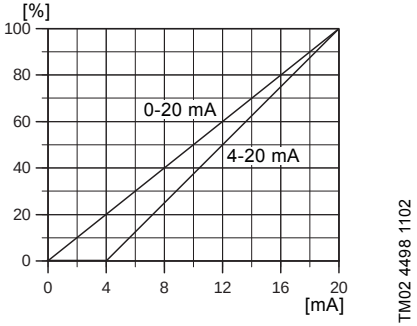


Fig. 9

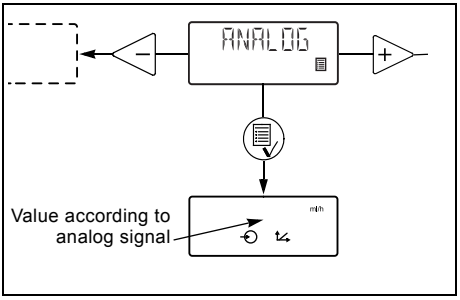


Fig. 10

If 4-20 mA or 20-4 mA is selected and the signal falls below 2 mA, the pump will indicate a fault.
This situation occurs if the connection is interrupted, for instance if the wire is damaged.

Change the analog mode as illustrated in fig. 11:

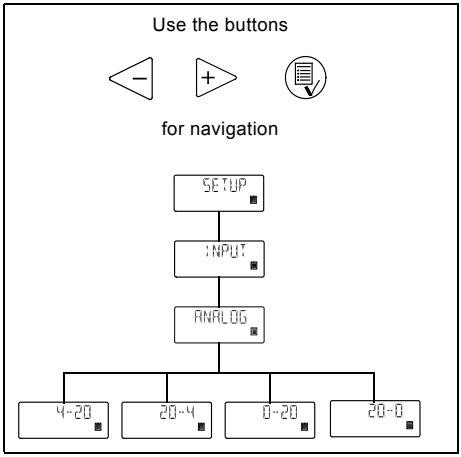


Fig. 11

5.13 Timer

The pump is dosing the set quantity in batches at the maximum capacity or the set maximum capacity, see section *5.16 Capacity limitation*.

The time until the first dosing "NX" and the following sequences "IN" can be set in minutes, hours and days. The maximum time limit is 9 days, 23 hours and 59 minutes (9:23:59). The lowest acceptable value is 1 minute. The internal timer continues even if the pump is stopped by means of the on/off button, empty tank or stop signal, see fig. 12.

During operation, "NX" will always count down from "IN" to zero. In this way, the remaining time until the next batch can always be read.

"IN" must be higher than the time required to perform one batch. If "IN" is lower, the next batch will be ignored.

In case of supply failure, the set quantity to be dosed, the "IN" time and the remaining "NX" time are stored. When the supply is reconnected, the pump will start up with the "NX" time at the time of the supply failure. In this way, the timer cycle will continue, but it has been delayed by the duration of the supply failure.

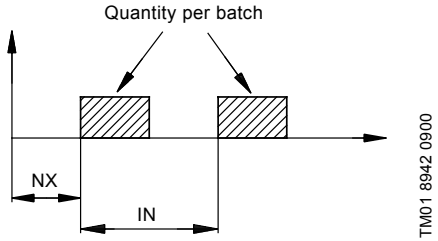


Fig. 12

Setting range:

DME 60: 6.25 ml/batch - 120 l/batch
DME 150: 15.6 ml/batch - 300 l/batch
DME 375: 39.1 ml/batch - 750 l/batch
DME 940: 97.9 ml/batch - 1880 l/batch

Only values corresponding to complete dosing strokes (according to the calibration factor) can be selected. The minimum setting depends on the calibration factor. The minimum setting shown above corresponds to the default calibration value.

Example:

If the calibration factor is 625 (= 6.25 ml/stroke), the minimum settable value in timer or batch mode will be 6.25 ml (= 1 stroke) -> the next will be 12.5 ml (= 2 strokes), etc.

These steps will continue up to a value corresponding to 100 dosing strokes. Above this value, the setting range has standard steps as in other operating modes.

If the calibration factor is changed after the setting of timer or batch mode, the pump will automatically recalculate a new number of dosing strokes per batch and change the display value to the nearest possible value compared to the first one set.

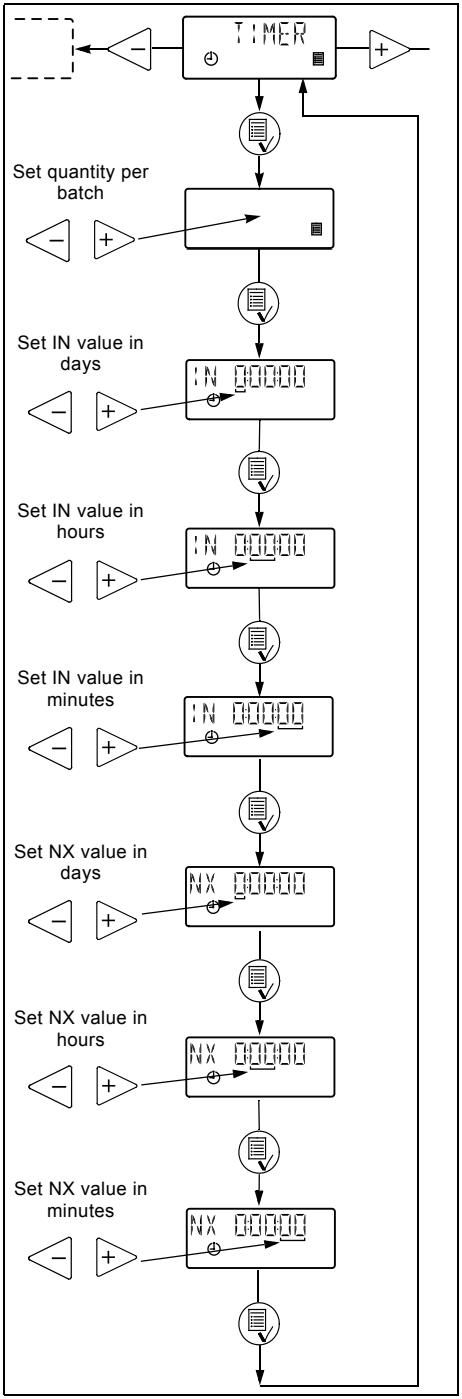


Fig. 13

5.14 Batch

The pump is dosing the set quantity in batches at the maximum capacity or the set maximum capacity, see section *5.16 Capacity limitation*.

The quantity is dosed every time the pump receives an external pulse.

If the pump receives new pulses before the previous batch is performed, these pulses will be ignored.

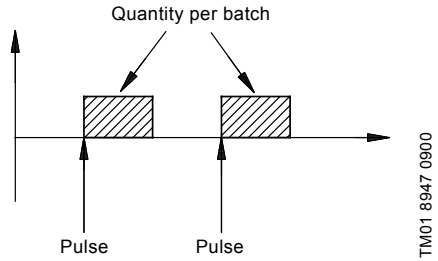


Fig. 14

The setting range is the same as for Timer, see section *5.13 Timer*.

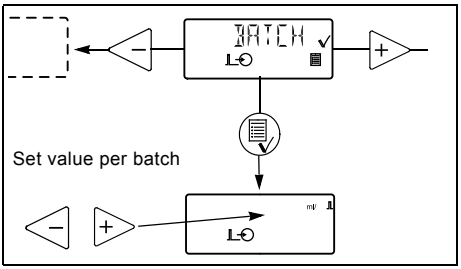


Fig. 15

5.15 Anti-cavitation

The pump features an anti-cavitation function. When this function is selected, the pump extends its suction stroke, resulting in optimized priming.

The anti-cavitation function is used:

- when pumping liquids of high viscosity
- in the case of a long suction tube
- in the case of a high suction lift.

Depending on the circumstances, the motor speed during the suction stroke can be reduced by 75 %, 50 % or 25 % compared to the normal motor speed during the suction stroke.

The maximum pump capacity is reduced when the anti-cavitation function is selected. See section *3.1 Mechanical data*.

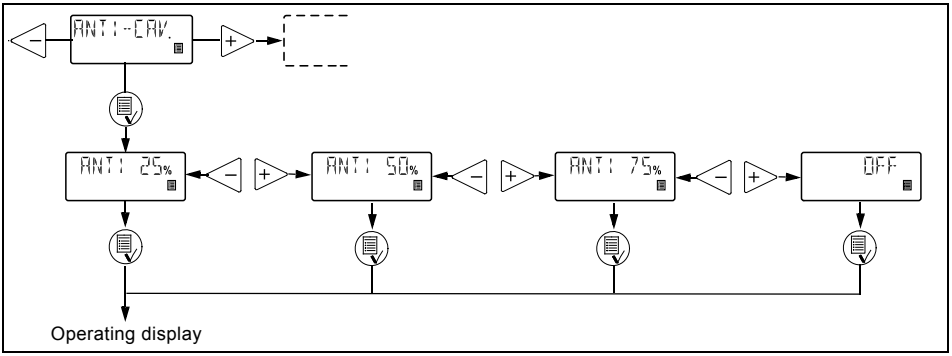


Fig. 16

5.16 Capacity limitation

This function offers the possibility of reducing the maximum pump capacity (MAX. CAP.). It influences the functions in which the pump is normally operating at maximum capacity.

Under normal operating conditions, the pump cannot operate at a capacity which is higher than the one stated in the display. This does not apply to the maximum capacity button (100%), see section *5.3 Priming/venting of pump*.

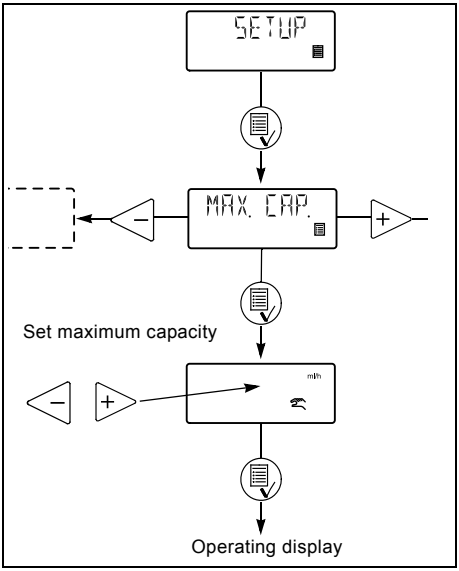


Fig. 17

5.17 Counters

The pump can display "non-resettable" counters for:

- "**QUANTITY**"
  Accumulated value of dosed quantity in litres or US gallons.
- "**STROKES**"
  Accumulated number of dosing strokes.
- "**HOURS**"
  Accumulated number of operating hours.
- "**POWER ON**"
  Accumulated number of times the electricity supply has been switched on.

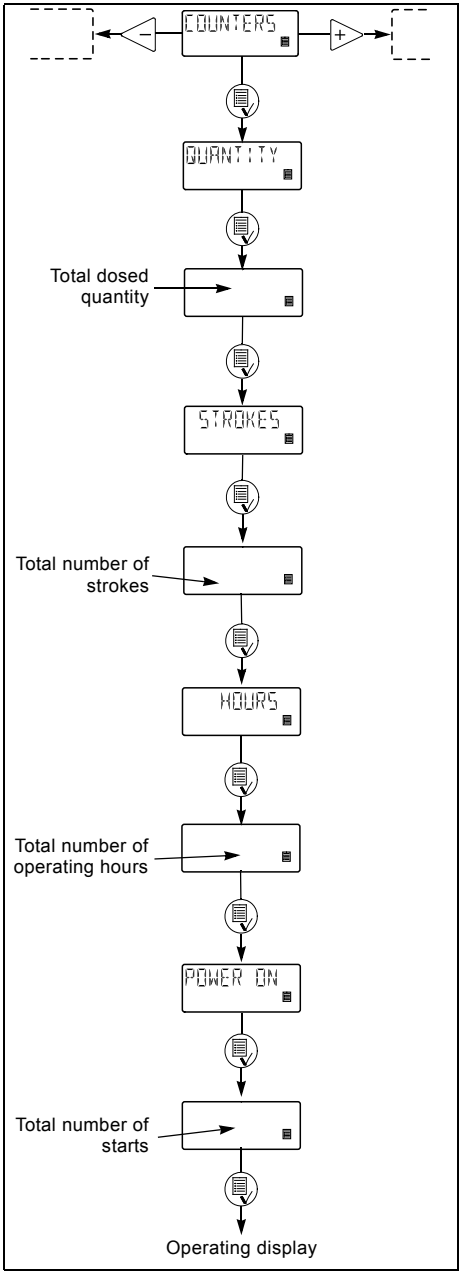


Fig. 18

5.18 Resetting

When "DEFAULT" is activated, the pump will return to the factory settings.

Note: The calibration is also set back to the default setting. This means that a new calibration is required when the "DEFAULT" function has been used.

Default settings are the factory settings of standard pumps. Select "DEFAULT" in the "SETUP" menu.

Default settings:

Operating mode:	Manual
Capacity:	Maximum capacity
Control panel lock:	Unlocked
Default lock code:	2583
Anti-cavitation:	Not active
Analog signal:	4-20 mA
Digital inputs:	NO (normally open)
Capacity limitation:	Maximum capacity
Alarm reset required to restart the pump	
Dosing monitoring:	Off
Language:	English
Units:	Metric

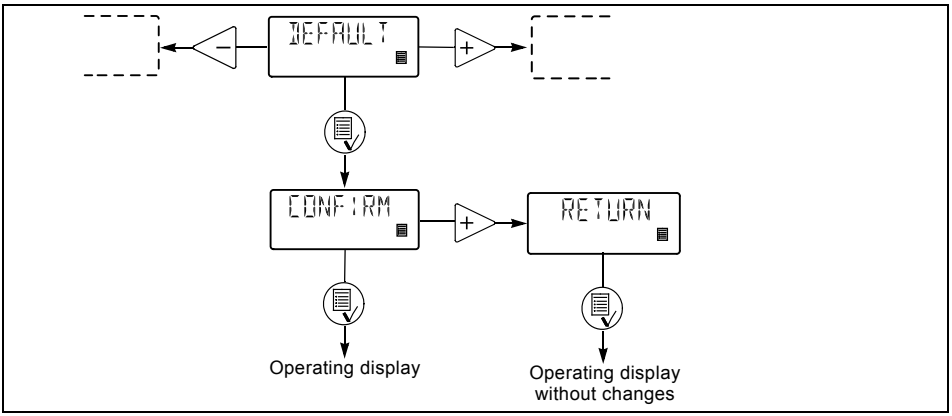


Fig. 19

5.19 Return



Fig. 20

The "RETURN" function makes it possible to return from any level in the menu to the operating display without changes after the menu functions have been used.

5.20 Language

The display text can be displayed in one of the following languages:

- English
- German
- French
- Italian
- Spanish
- Portuguese
- Dutch
- Swedish
- Finnish
- Danish
- Czech
- Slovak
- Polish
- Russian

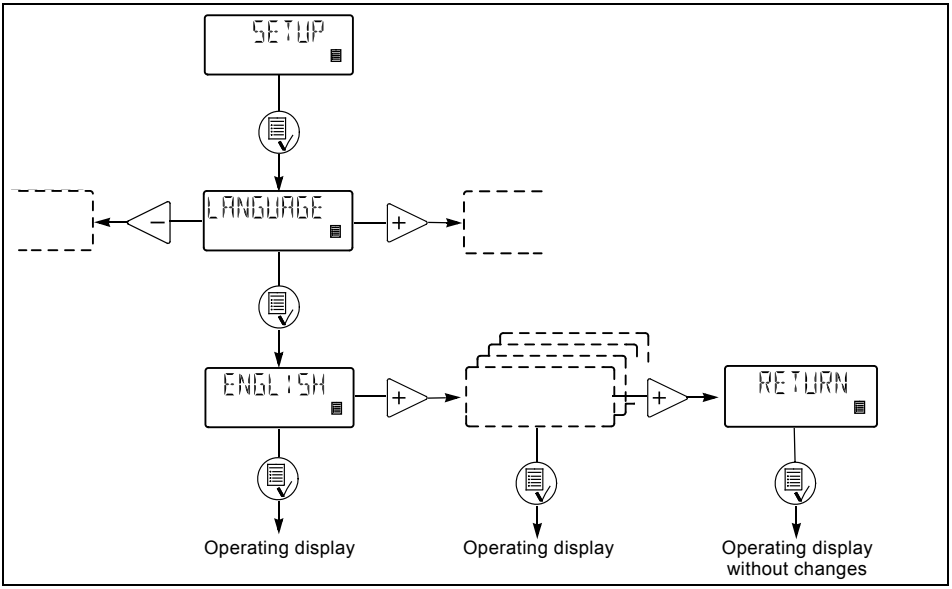


Fig. 21

5.21 Input setup

Fig. 22 shows all possible settings.

The inputs for level, stop dosing and diaphragm leakage can be changed from NO (normally open) to NC (normally closed) function. If changed, the inputs must be short-circuited in normal operation.
The dosing monitoring input can be changed from "OFF" to "ON".

For the analog input, one of the following signal types can be selected:

- 4-20 mA (default)
- 20-4 mA
- 0-20 mA
- 20-0 mA.

See also section *5.12 Analog*.

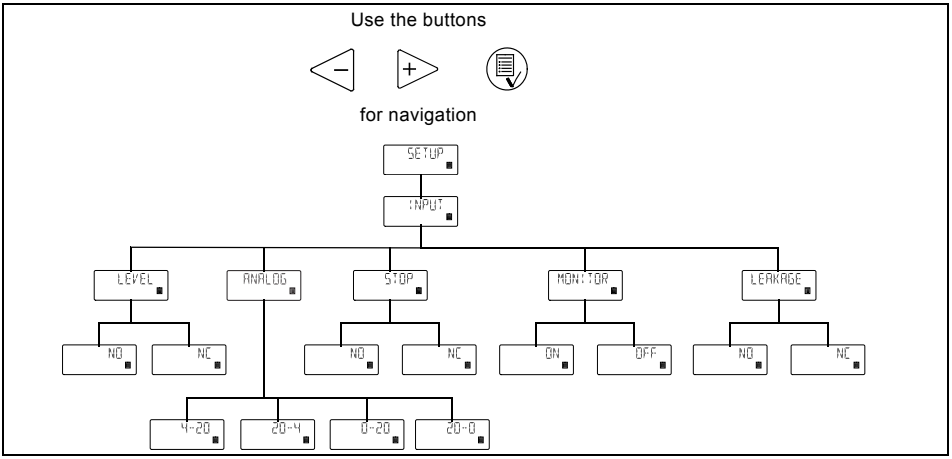


Fig. 22

5.22 Empty tank (alarm)

The alarm function can be set to "AUT. RES." or "MAN. RES.". This function is used when the level sensor indicates "EMPTY".

The alarm can be reset automatically (AUT. RES.) or manually (MAN. RES.).

For more information about other alarm functions, see section *5.6 Alarm output and indicator lights*.

5.23 Measuring units

It is possible to select metric units (litre/millilitre) or US units (gallons).

Metric measuring units:

- **In manual and analog modes**, set the quantity to be dosed in litres per hour (l/h) or millilitres per hour (ml/h).
- **In pulse mode**, set the quantity to be dosed in ml/pulse. The actual capacity is indicated in litres per hour (l/h) or millilitres per hour (ml/h).
- **For calibration**, set the quantity to be dosed in ml per 100 strokes.
- **In timer and batch modes**, set the quantity to be dosed in litres (l) or millilitres (ml).
- Under the "QUANTITY" menu item in the "COUNTERS" menu, the dosed quantity is indicated in litres.

US measuring units:

- **In manual and analog modes**, set the quantity to be dosed in gallons per hour (gph).
- **In pulse mode**, set the quantity to be dosed in ml/pulse. The actual capacity is indicated in gallons per hour (gph).
- **For calibration**, set the quantity to be dosed in ml per 100 strokes.
- **In timer and batch modes**, set the quantity to be dosed in gallons (gal).
- Under the "QUANTITY" menu item in the "COUNTERS" menu, the dosed quantity is indicated in US gallons (gal).

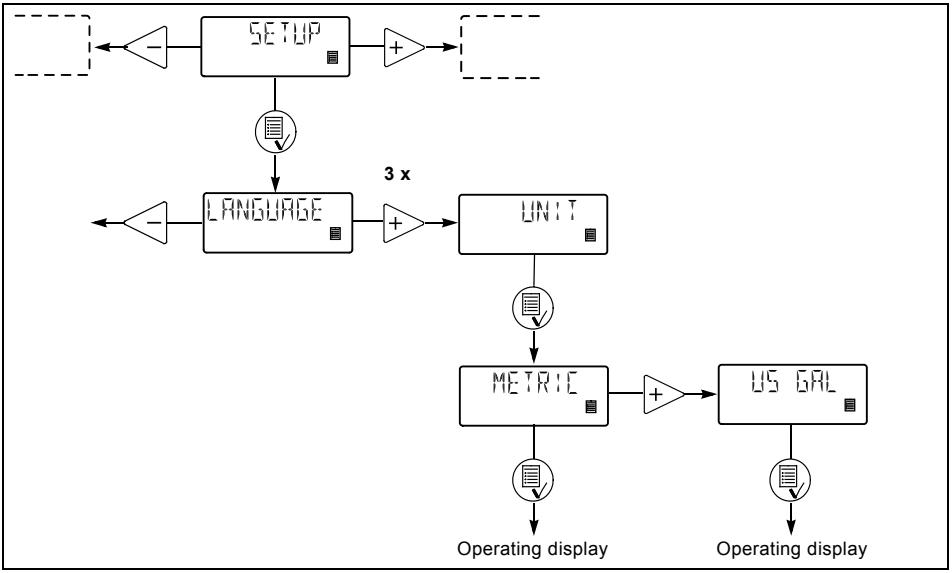


Fig. 23

5.24 Dosing monitoring

The pump incorporates a dosing monitoring input (see connection overview in fig. 3).

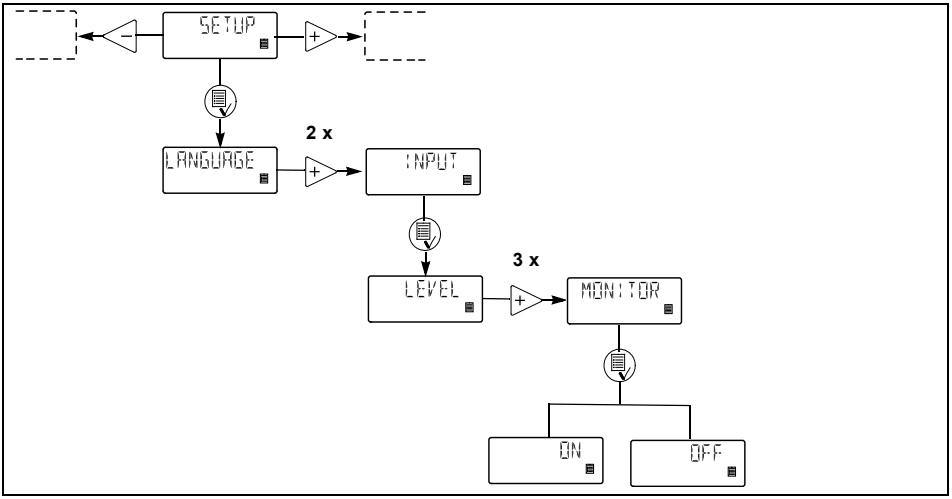


Fig. 24

The pump can be fitted with a dosing monitor, which detects ineffective dosing strokes.

The dosing monitor is designed to monitor the dosing of liquids which may cause gas accumulation in the dosing head, thus stopping the dosing process even if the pump is still operating.

During the dosing process, the dosing monitor gives pulse signals to the monitor input so that the pump can compare performed dosing strokes (from internal stroke sensor) with externally measured physical strokes (from the dosing monitor). If an external dosing stroke is not measured as a result of the internal dosing stroke, this is considered a fault that may have been provoked by empty tank or gas in the dosing head.

The dosing monitor should be connected to the input for dosing monitoring. This input must be configured for dosing monitoring. Once the input has been set to dosing monitoring and a dosing monitor has been connected and set, the dosing monitoring function will be active.

5.25 Control panel lock

It is possible to lock the buttons on the control panel to prevent malfunction of the pump. The locking function can be set to "ON" or "OFF". The default setting is "OFF".

A PIN code must be entered to change from "OFF" to "ON". When "ON" is selected for the first time, "0000" will appear in the display. If a code has already been entered, it will appear when an attempt to change to "ON" is made. This code can either be re-entered or changed.

If no code has been entered, a code must be set in the same way as the "NX" and "IN" values described in section *5.13 Timer*.

If a code has already been entered, active digits are flashing.

If attempts are made to operate the pump in locked condition, "LOCKED" will appear in the display for 2 seconds, followed by "0000". A code must be entered. If the entering of a code has not been started within 10 seconds, the operating display without changes will appear.

If a wrong code is entered, "LOCKED" will appear in the display for 2 seconds, followed by "0000". A new code must be entered. If the entering of a code has not been started within 10 seconds, the operating display without changes will appear. This display will also appear if the entering of the correct code exceeds 2 minutes.

If the locking function has been activated but the control panel is unlocked, the control panel will be locked automatically if it is not operated for 2 minutes.

The locking function can also be reactivated by selecting "ON" in the "LOCK" menu. The previously entered code will then appear and must be re-entered by pressing the button four times. The code can also be changed.

The control panel can be unlocked either by means of the selected code or the factory code 2583.

The following buttons and inputs are still active when the panel is locked:

- Priming (-button).
- On/off button.
- All external inputs.

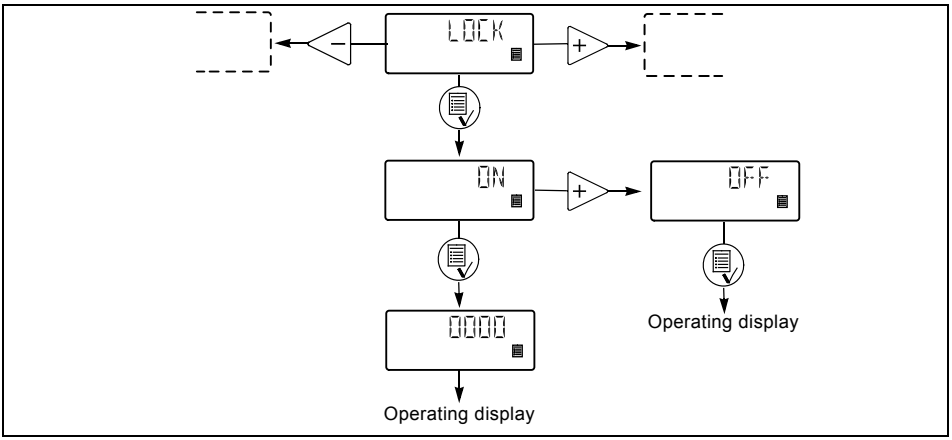


Fig. 25

Activating the locking function and locking the control panel:

1. Select "LOCK" in the menu.
2. Select "ON" by means of the buttons and and confirm with .
3. Enter or re-enter a code by means of the buttons , and .

The locking function has now been activated and the control panel is locked.

Unlocking the control panel (without deactivating the locking function):

1. Press once. "LOCKED" appears in the display for 2 seconds, followed by "0000".
2. Enter the code by means of the buttons , and *.

The control panel has now been unlocked and will automatically be locked again if the control panel is not operated for 2 minutes.

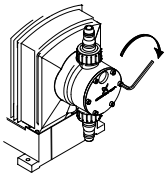
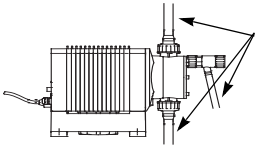
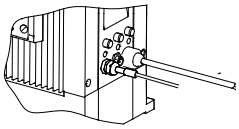
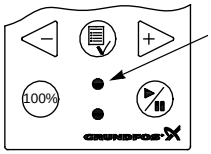
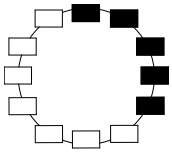
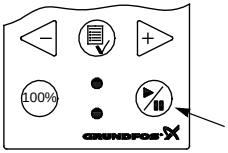
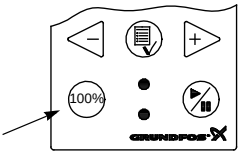
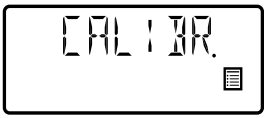
Deactivating the locking function:

1. Unlock the control panel as described above.
2. Select "LOCK" in the menu.
3. Select "OFF" by means of the buttons and and confirm with .

The locking function has now been deactivated and the control panel is unlocked.

* The panel can always be unlocked with code 2583.

6. Start-up

Step		Action
1		**Prior to start-up, retighten the dosing head screws:** • Cross-tighten the dosing head screws with a torque wrench once before commissioning and again after 2-5 operating hours at 5.5 Nm (+ 0.5/- 0 Nm).
2		**Connect the hoses/pipes:** • Connect the suction and dosing tubes/pipes to the pump. • Connect a tube to the vent valve, if required, and lead the hose to the tank. • Never attach a hose to the drain opening.
3		**Connect the cables:** • Connect the control/level cables, if any, to the pump, see section *4.6 Connection overview*.
4		**Switch on the electricity supply:** • The display is on. • The green indicator light is flashing (the pump has stopped). • Select language, if required, see section *5.20 Language*.
5		**Select the operating mode (see section *5.9 Operating modes*):** • Manual. • Pulse. • Analog. • Timer. • Batch.
6		**Start the pump:** • Start the pump by pressing the on/off button. • The green indicator light is permanently on.
7		**Priming/venting:** • Press the 100% button on the pump control panel and let the pump run without a counter pressure. Open the vent valve, if required. When the buttons 100% and + are pressed simultaneously during priming, the pump can be set to run for a specific number of seconds at maximum capacity.
8		**Calibration:** • When the pump has been primed and is running at the right counter pressure, calibrate the pump, see section *7. Calibration*.

If the pump is not operating satisfactorily, see section *9. Fault finding chart*.

7. Calibration

It is important that the pump is calibrated after installation to ensure that the correct value (ml/h or l/h) appears in the display.

The calibration can be carried out in two different ways:

- **Direct calibration**.
  The dosed quantity of 100 strokes is measured directly. See section *7.1 Direct calibration*.
- **Check calibration**. See section *7.2 Check calibration*.

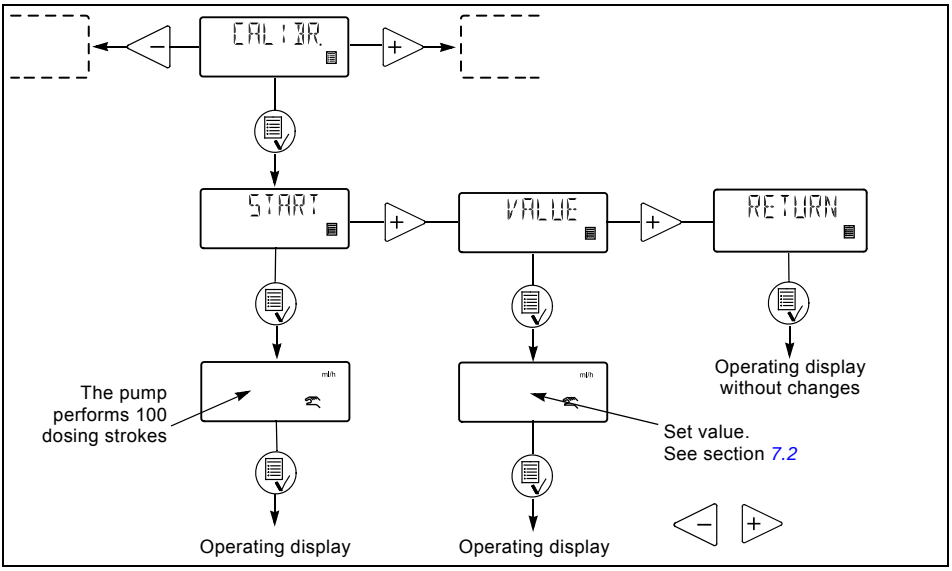


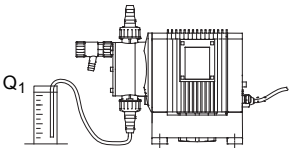
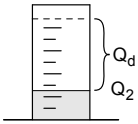
Fig. 26

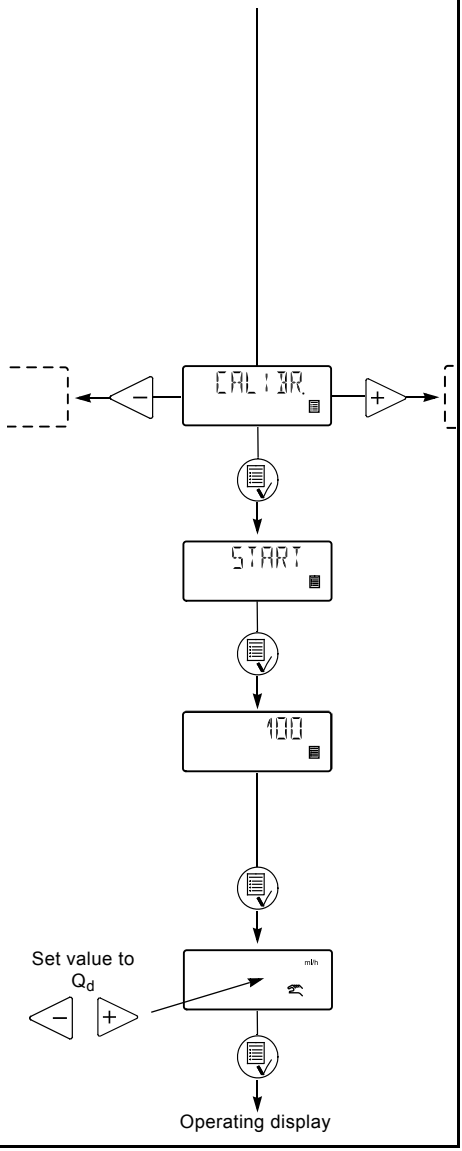
7.1 Direct calibration

Before calibration, make sure that:

- the pump is installed with foot valve, injection valve, etc. in the existing system.
- the pump is running at the counter pressure it is supposed to operate at (adjust the counter pressure valve, if required).
- the pump is operating with the correct suction lift.

To carry out a direct calibration, proceed as follows:

Action	Pump display
1. Prime the dosing head and the suction tubing.	
2. Stop the pump. The green LED is flashing.	
3. Fill a graduated glass with dosing liquid, Q_1. DME 60: approx. 1.5 l DME 150: approx. 2.5 l DME 375: approx. 6 l DME 940: approx. 14 l	
4. Read and note the quantity Q_1.	
5. Place the suction tubing in the graduated glass.  TM02 7067 0315	
6. Go to the calibration menu, see section *5.8 Menu*.	
7. Press the button twice.	
8. The pump is performing 100 dosing strokes.	
9. The factory-calibration value appears in the display.	
10. Remove the suction tubing from the graduated glass and read Q_2. 	
11. Set the display value to $Q_d = Q_1 - Q_2$.	
12. Confirm with the button.	
13. The pump is now calibrated and returns to the operating display.	



7.2 Check calibration

In check calibration, the calibration value is calculated by reading the consumption of chemical in a specific period and comparing this with the number of dosing strokes performed in the same period.

This calibration method is very accurate and especially suitable for check calibration after long periods of operation or if direct calibration is impossible. The calibration can for instance be carried out when the chemical tank is replaced or filled.

To carry out a check calibration, proceed as follows:

1. Stop the pump by pressing the button.
2. Read the counter and note the number of dosing strokes, see section *5.17 Counters*.
3. Read and note the quantity in the chemical tank.
4. Start the pump by pressing the button and let it run for at least 1 hour. The longer the pump is operating, the more accurate the calibration will be.
5. Stop the pump by pressing the button.
6. Read the counter and note the number of dosing strokes, see section *5.17 Counters*.
7. Read and note the quantity in the chemical tank.
8. Calculate the dosed quantity in ml and the number of dosing strokes performed during the operating period.
9. Calculate the calibration value as follows: (dosed quantity in ml/dosing strokes) x 100.
10. Set the calculated value in the calibration menu.

8. Service

In order to ensure a long service life and dosing accuracy, wearing parts such as diaphragms and valves must be regularly checked for signs of wear. Where necessary, replace worn parts with original spare parts made from suitable materials.

Should you have any questions, please contact your service partner.

8.1 Regular maintenance

Interval	Task
Daily	Check, if liquid leaks from the drain opening (fig. 1) and if the drain opening is blocked or soiled. If so, follow the instructions given in section *8.4 Diaphragm breakage*.
	Check, if liquid leaks from the dosing head or valves. If the pump was operated with damaged or loose dosing head screws, immediately separate the pump from the power supply! Follow the instructions given in section *8.5 Operation with loose dosing head screws*. If necessary, tighten valves and cap nuts, or perform service (see *8.3 Perform service*).
Weekly	Clean all pump surfaces with a dry and clean cloth.
Every 3 months	Check dosing head screws. If necessary, cross-tighten dosing head screws with a torque wrench at 5.5 Nm (+ 0.5/- 0 Nm). Replace damaged screws immediately.
Every 2 years or 8000 operating hours*	Replace diaphragm and valves (see *8.3 Perform service*)

* For media which result in increased wear, the service interval must be shortened.

8.2 Cleaning

If necessary, clean all pump surfaces with a dry and clean cloth.

8.3 Perform service

Only spare parts and accessories from Grundfos should be used for maintenance. The usage of non-original spare parts and accessories renders any liability for resulting damages null and void.

Further information about carrying out maintenance can be found in the service kit catalog on our homepage (www.grundfos.com).

Warning

Risk of chemical burns!

When dosing dangerous media, observe the corresponding precautions in the safety data sheets!

Wear protective clothing (gloves and goggles) when working on the dosing head, connections or lines!

Do not allow any chemicals to leak from the pump. Collect and dispose of all chemicals correctly!

Caution

Before any work to the pump, the pump must be disconnected from the power supply. The system must be pressureless!

8.3.1 Dosing head overview

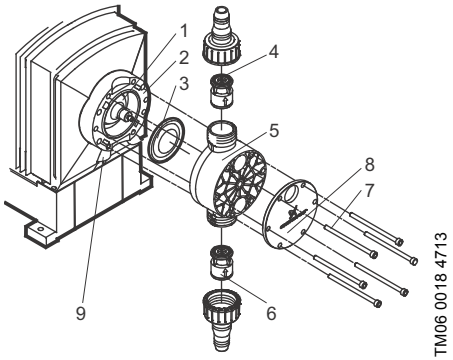


Fig. 27 Dosing head, exploded view (without deaeration valve)

1	Safety diaphragm
2	Flange
3	Diaphragm
4	Valve on discharge side
5	Dosing head
6	Valve on suction side
7	Screws
8	Dosing head front plate (only PP, PVDF)
9	Drain opening

8.3.2 Dismantling the diaphragm and valves

Before dismantling, read section *8.4 Diaphragm breakage* and section *8.5 Operation with loose dosing head screws* thoroughly.

Warning

Danger of explosion, if dosing liquid has entered the pump housing!

If the diaphragm is possibly damaged or if the pump was operated with damaged or loose dosing head screws, don't connect the pump to the power supply!

This section refers to fig. 27.

1. Make system pressureless.
2. Empty the dosing head before maintenance and flush it, if necessary.
3. Take suitable steps to ensure that the returning liquid is safely collected.
4. Dismantle suction, pressure and deaeration hoses.
5. Unscrew deaeration valve.
6. Dismantle valves on suction and discharge side (4, 6).
7. Loosen screws (7) on the dosing head (5).
8. Remove the screws, in case of PP or PVDF dosing head together with the front plate (8).
9. Remove the dosing head (5).
10. Unscrew diaphragm (3) counter-clockwise and remove it.
11. Make sure the drain opening (9) is not blocked or soiled. Clean if necessary.
12. Check the safety diaphragm (1) for wear and damage.

If nothing indicates that dosing liquid has entered the pump housing, and if the safety diaphragm is not worn or damaged, go on as described in section *8.3.3 Reassembling the diaphragm and valves*. Otherwise proceed as described in section *8.4.1 Dosing liquid in the pump housing*.

8.3.3 Reassembling the diaphragm and valves

Caution

Please observe as well section 4. Installation, 5.3 Priming/venting of pump and 6. Start-up!

The pump must only be reassembled, if nothing indicates that dosing liquid has entered the pump housing. Otherwise proceed as described in section *8.4.1 Dosing liquid in the pump housing*.

This section refers to fig. 27.

1. Screw on new diaphragm (3) clockwise.
2. Attach the dosing head (5).
3. Install screws (7), in case of PP or PVDF dosing head together with the front plate (8), and cross-tighten with a torque wrench.
   – Torque: 5.5 Nm (+ 0.5/- 0 Nm).
4. Install new valves (4, 6).
   – Observe the flow direction (indicated by an arrow on the valve)!
5. Install the deaeration valve.
6. Connect suction, pressure and deaeration hoses.

Caution

Cross-tighten the dosing head screws with a torque wrench once before commissioning and again after 2-5 operating hours at 5.5 Nm (+ 0.5/- 0 Nm).

7. Deaerate dosing pump (see section *5.3 Priming/ venting of pump*).

8.4 Diaphragm breakage

If the diaphragm leaks or is broken, dosing liquid escapes from the drain opening (fig. 27, pos. 9) on the dosing head flange.

In case of diaphragm breakage, the safety diaphragm (fig. 27, pos. 1) protects the pump housing against ingress of dosing liquid.

When dosing crystallising liquids the drain opening can be blocked by crystallisation. If the pump is not taken out of operation immediately, a pressure can build up between the diaphragm (fig. 27, pos. 3) and the safety diaphragm in the flange (fig. 27, pos. 1). The pressure can press dosing liquid through the safety diaphragm into the pump housing.

Most dosing liquids don't cause any danger when entering the pump housing. However a view liquids can cause a chemical reaction with inner parts of the pump. In the worst case, this reaction can produce explosive gases in the pump housing.

Warning

Danger of explosion, if dosing liquid has entered the pump housing!

Operation with damaged diaphragm can lead to dosing liquid entering the pump housing.

In case of diaphragm breakage, immediately separate the pump from the power supply!

Make sure the pump cannot be put back into operation by accident!

Dismantle the dosing head without connecting the pump to the power supply and make sure no dosing liquid has entered the pump housing. Proceed as described in section 8.3.2 Dismantling the diaphragm and valves.

To avoid any danger resulting from diaphragm breakage, observe the following:

- Perform regular maintenance. See section *8.1 Regular maintenance*.
- Never operate the pump with blocked or soiled drain opening.
  – If the drain opening is blocked or soiled, proceed as described in section *8.3.2 Dismantling the diaphragm and valves*.
- Never attach a hose to the drain opening. If a hose is attached to the drain opening, it is impossible to recognise escaping dosing liquid.
- Take suitable precautions to prevent harm to health and damage to property from escaping dosing liquid.
- Never operate the pump with damaged or loose dosing head screws.

8.4.1 Dosing liquid in the pump housing

Warning



Danger of explosion!

Immediately separate the pump from the power supply!

Make sure the pump cannot be put back into operation by accident!

If dosing liquid has entered the pump housing, or if the safety diaphragm is damaged or worn:

- Send the pump to Grundfos for repair, following the instructions given in section *8.6 Repairs*.
- If a repair isn't economically reasonable, dispose of the pump observing the information in section *10. Disposal*.

8.5 Operation with loose dosing head screws

Warning

Danger of explosion, if dosing liquid has entered the pump housing!

Operation with damaged or loose dosing head screws can lead to dosing liquid entering the pump housing.

If the pump was operated with damaged or loose dosing head screws, immediately separate the pump from the power supply!

Make sure the pump cannot be put back into operation by accident!

Dismantle the dosing head without connecting the pump to the power supply and make sure no dosing liquid has entered the pump housing. Proceed as described in section 8.3.2 Dismantling the diaphragm and valves.

8.6 Repairs

Warning



The pump housing must only be opened by personnel authorised by Grundfos!

Repairs must only be carried out by authorised and qualified personnel!

Switch off the pump and disconnect it from the voltage supply before carrying out maintenance work and repairs!

Note

The replacement of the supply cable must be carried out by an authorised Grundfos service workshop.

After consulting Grundfos, please send the pump, together with the safety declaration completed by a specialist, to Grundfos. The safety declaration can be found at the end of these instructions. It must be copied, completed and attached to the pump.

The pump must be cleaned prior to dispatch!

Caution

If dosing liquid has possibly entered the pump housing, state that explicitly in the safety declaration! Observe section 8.4 Diaphragm breakage.

If the above requirements are not met, Grundfos may refuse to accept delivery of the pump. The shipping costs will be charged to the sender.

9. Fault finding chart

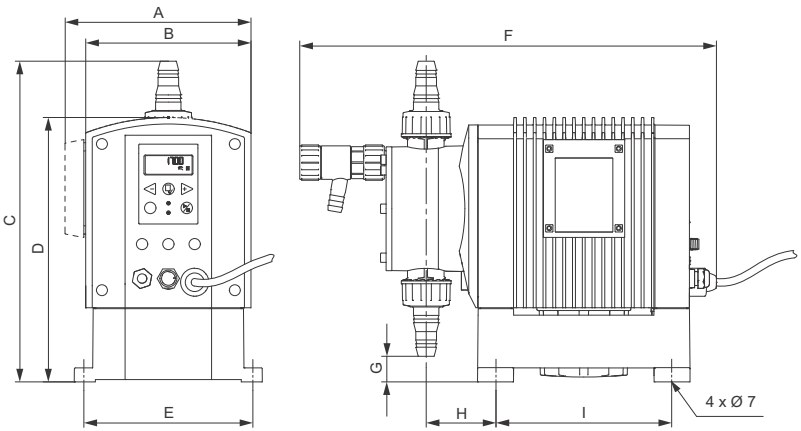
Fault	Cause	Remedy
The dosing has stopped or the output is too low.	Valves leaking or blocked.	Check and clean the valves.
	Valves incorrectly installed.	Remove and fit valves. Check that the arrow on the valve casing is pointing in the liquid flow direction. Check that all O-rings have been fitted correctly.
	Suction valve or suction pipe/hose leaking or blocked.	Clean and seal the suction pipe/hose.
	Suction lift too high.	Install the pump in a lower position.
		Install a priming tank.
	Viscosity too high.	Select the anti-cavitation function, see section *5.15 Anti-cavitation*.
		Install a pipe/hose with larger cross-section.
		Fit spring-loaded valves.
	Pump out of calibration.	Calibrate the pump, see section *7. Calibration*.
Pump dosing too little or too much.	Pump out of calibration.	Calibrate the pump, see section *7. Calibration*.
Pump dosing irregularly.	Valves leaking or blocked.	Check and clean the valves.
Leakage from drain hole.	Diaphragm defective.	Install a new diaphragm.
Frequent diaphragm failures.	Diaphragm not fastened properly.	Install a new diaphragm and ensure that the diaphragm is fastened properly.
	Counter-pressure too high (measured at the pump discharge port).	Check the system. Check the injection valve.
	Sediment in dosing head.	Clean/flush the dosing head.

10. Disposal

This product and all its associated parts must be disposed of in an environmentally friendly manner. Use appropriate waste collection services. If there is no such facility or the facility refuses to accept the materials used in the product, the product can be sent to the nearest Grundfos company or Grundfos service centre.

Subject to alterations.

Dimensions



TM02 7062 0315

	DME 60	DME 150	DME 375	DME 940
A = [mm]	176	176	238	238
B = [mm]	198	198	218	218
C = [mm]	331	345	471	496
D = [mm]	284	284	364	364
E = [mm]	180	180	230	230
F = [mm]	444	444	540	539
G = [mm]	41	28	31	6
H = [mm]	74	74	95	95
I = [mm]	187	187	246	246

Safety declaration

Please copy, fill in and sign this sheet and attach it to the pump returned for service.

Note ***Fill in this document using english or german language.***

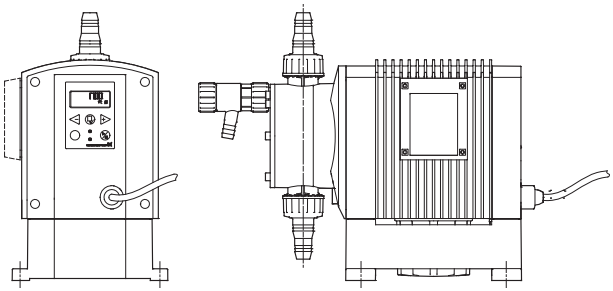
Product type (nameplate) _____

Model number (nameplate) _____

Dosing medium _____

Fault description

Please make a circle around the damaged parts.
In the case of an electrical or functional fault, please mark the cabinet.



TM02 8957 0315

Please describe the error/cause of the error in brief.

☐ Dosing liquid has possibly entered the pump housing.
The pump must not be connected to the power supply! Danger of explosion!

We hereby declare that the pump has been cleaned and is completely free from chemical, biological and radioactive substances.

_____
Date and signature

_____
Company stamp

Declaration of conformity

GB: EC declaration of conformity
We, Grundfos, declare under our sole responsibility that the product DME, to which this declaration relates, is in conformity with these Council directives on the approximation of the laws of the EC member states:

DK: EF-overensstemmelseserklæring
Vi, Grundfos, erklærer under ansvar at produktet DME som denne erklæring omhandler, er i overensstemmelse med disse af Rådets direktiver om indbyrdes tilnærmelse til EF-medlemsstaternes lovgivning:

DE: EG-Konformitätserklärung
Wir, Grundfos, erklären in alleiniger Verantwortung, dass das Produkt DME, auf das sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmt:

GR: Δήλωση συμμόρφωσης ΕC
Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα DME, στα οποία αναφέρεται η παρούσα δήλωση, συμμορφώνονται με τις εξής Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΕ:

ES: Declaración CE de conformidad
Nosotros, Grundfos, declaramos bajo nuestra propia responsabilidad que el producto DME, al cual se refiere esta declaración, está conforme con las Directivas del Consejo en la aproximación de las leyes de los Estados Miembros del EM:

FR: Déclaration de conformité CE
Nous, Grundfos, déclarons sous notre seule responsabilité, que le produit DME, auquel se réfère cette déclaration, est conforme aux Directives du Conseil concernant le rapprochement des législations des Etats membres CE relatives aux normes énoncées ci-dessous:

IT: Dichiarazione di conformità CE
Grundfos dichiara sotto la sua esclusiva responsabilità che il prodotto DME, al quale si riferisce questa dichiarazione, è conforme alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri CE:

NL: EC overeenkomstigheidsverklaring
Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat het product DME waarop deze verklaring betrekking heeft, in overeenstemming is met de Richtlijnen van de Raad in zake de onderlinge aanpassing van de wetgeving van de EG lidstaten betreffende:

NO: EU samsvarserklæring
Vi, Grundfos, erklærer under vårt eneansvar at produktet DME, som denne erklæringen gjelder, er i samsvar med rådets direktiver om tilnærming av forordninger i EU-landene:

PT: Declaração de conformidade CE
A Grundfos declara sob sua única responsabilidade que o produto DME, ao qual diz respeito esta declaração, está em conformidade com as seguintes Directivas do Conselho sobre a aproximação das legislações dos Estados Membros da CE:

FI: EY-vaatimustenmukaisuusvakuutus
Me, Grundfos, vakuutamme omalla vastuullamme, että tuote DME, jota tämä vakuutus koskee, on EY:n jäsenvaltioiden lainsäädännön yhdenmukaistamiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukainen seuraavasti:

SE: EG-försäkran om överensstämmelse
Vi, Grundfos, försäkrar under ansvar att produkten DME, som omfattas av denna försäkran, är i överensstämmelse med rådets direktiv om inbördes närmande till EU-medlemsstaternas lagstiftning, avseende:

CN: EC 产品合格声明书
我们格兰富在我们的全权责任下声明，产品 DME，即该合格证所指之产品，符合欧共体使其成员国法律趋于一致的以下欧共理事会指令：

JP: EC 適合宣言
Grundfos は、その責任の下に、DME **製品が EC 加盟諸国の法規に関連する、以下の評議会指令に適合していることを宣言します：**

- Machinery Directive (2006/42/EC).
  Standards used: EN 809:1998, DIN EN ISO 12100:2010, EN 60204-1:2011-1.
- EMC Directive (2004/108/EC).
  Standards used: EN 61326-1:2006, EN 61000-3-2:2006+A1:2009+A2:2009, EN 61000-3-3:2008.

This EC declaration of conformity is only valid when published as part of the Grundfos installation and operating instructions.

Pfinztal, 1st February 2015

Ulrich Stemick
Technical Director
Grundfos Water Treatment GmbH
Reetzstr. 85, D-76327 Pfinztal, Germany

Person authorised to compile technical file and empowered to sign the EC declaration of conformity.

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