DME, Variant B

Installation and operating instructions

GB D F I E P GR NL S FIN DK

GB Declaration of Conformity

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

- Machinery Directive (2006/42/EC).
  Standards used: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009
- Low Voltage Directive (2006/95/EC).
  Standard used: EN 60204-1+A1: 2009.
- EMC Directive (2004/108/EC).
  Standards used: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

DK Overensstemmelseserklæring

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

- Maskindirektivet (2006/42/EF).
  Anvendt standarder: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009.
- Lavspændingsdirektivet (2006/95/EF).
  Anvendt standard: EN 60204-1+A1: 2009.
- EMC-direktivet (2004/108/EF).
  Anvendte standarder: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

DE Konformitätserklärung

Wir, Grundfos, erklären in alleiniger Verantwortung, dass die Produkte DME, auf die sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmen:

- Maschinenrichtlinie (2006/42/EG).
  Normen, die verwendet wurden: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009.
- Niederspannungsrichtlinie (2006/95/EG).
  Norm, die verwendet wurde: EN 60204-1+A1: 2009.
- EMV-Richtlinie (2004/108/EG).
  Normen, die verwendet wurden: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

GR Δήλωση Συμμόρφωσης

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:

- Οδηγία για μηχανήματα (2006/42/EC).
  Πρότυπα που χρησιμοποιήθηκαν: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009.
- Οδηγία χαμηλής τάσης (2006/95/EC).
  Πρότυπο που χρησιμοποιήθηκε: EN 60204-1+A1: 2009.
- Οδηγία Ηλεκτρομαγνητικής Συμβατότητας (EMC) (2004/108/EC).
  Πρότυπα που χρησιμοποιήθηκαν: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

ES Declaración de Conformidad

Nosotros, Grundfos, declaramos bajo nuestra entera responsabilidad que los productos DME, a los cuales se refiere esta declaración, están conformes con las Directivas del Consejo en la aproximación de las leyes de las Estados Miembros del EM:

- Directiva de Maquinaria (2006/42/CE).
  Normas aplicadas: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009.
- Directiva de Baja Tensión (2006/95/CE).
  Norma aplicada: EN 60204-1+A1: 2009.
- Directiva EMC (2004/108/CE).
  Normas aplicadas: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

FR Déclaration de Conformité

Nous, Grundfos, déclarons sous notre seule responsabilité, que les produits DME, auxquels se réfère cette déclaration, sont conformes aux Directives du Conseil concernant le rapprochement des législations des Etats membres CE relatives aux normes énoncées ci-dessous :

- Directive Machines (2006/42/CE).
  Normes utilisées : EN 809 : 1998, EN ISO 12100-1+A1 : 2009, EN ISO 12100-2+A1 : 2009.
- Directive Basse Tension (2006/95/CE).
  Norme utilisée : EN 60204-1+A1: 2009.
- Directive Compatibilité Electromagnétique CEM (2004/108/CE).
  Normes utilisées : EN 61000-6-2: 2005, EN 61000-6-4: 2007.

IT Dichiarazione di Conformità

Grundfos dichiara sotto la sua esclusiva responsabilità che i prodotti DME, ai quali si riferisce questa dichiarazione, sono conformi alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri CE:

- Direttiva Macchine (2006/42/CE).
  Norme applicate: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009.
- Direttiva Bassa Tensione (2006/95/CE).
  Norma applicata: EN 60204-1+A1: 2009.
- Direttiva EMC (2004/108/CE).
  Norme applicate: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

NL Overeenkomstigheidsverklaring

Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat de producten DME waarop deze verklaring betrekking heeft, in overeenstemming zijn met de Richtlijnen van de Raad in zake de onderlinge aanpassing van de wetgeving van de EG Lidstaten betreffende:

- Machine Richtlijn (2006/42/EC).
  Gebruikte normen: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009.
- Laagspannings Richtlijn (2006/95/EC).
  Gebruikte norm: EN 60204-1+A1: 2009.
- EMC Richtlijn (2004/108/EC).
  Gebruikte normen: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

PT Declaração de Conformidade

A Grundfos declara sob sua única responsabilidade que os produtos DME, aos quais diz respeito esta declaração, estão em conformidade com as seguintes Directivas do Conselho sobre a aproximação das legislações dos Estados Membros da CE:

- Directiva Máquinas (2006/42/CE).
  Normas utilizadas: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009.
- Directiva Baixa Tensão (2006/95/CE).
  Norma utilizada: EN 60204-1+A1: 2009.
- Directiva EMC (compatibilidade electromagnética) (2004/108/CE).
  Normas utilizadas: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

FI Vaatimustenmukaisuusvakuutus

Me, Grundfos, vakuutamme omalla vastuullamme, että tuotteet DME, joita tämä vakuutus koskee, ovat EY:n jäsenvaltioiden lainsäädännön yhdenmukaistamiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukaisia seuraavasti:

- Konedirektiivi (2006/42/EY).
  Sovellettavat standardit: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009.
- Pienjännitedirektiivi (2006/95/EY).
  Sovellettu standardi: EN 60204-1+A1: 2009.
- EMC-direktiivi (2004/108/EY).
  Sovellettavat standardit: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

SE Försäkran om överensstämmelse

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

- Maskindirektivet (2006/42/EG).
  Tillämpade standarder: EN 809: 1998, EN ISO 12100-1+A1: 2009, EN ISO 12100-2+A1: 2009.
- Lågspänningsdirektivet (2006/95/EG).
  Tillämpad standard: EN 60204-1+A1: 2009.
- EMC-direktivet (2004/108/EG).
  Tillämpade standarder: EN 61000-6-2: 2005, EN 61000-6-4: 2007.

Pfinztal, 15th July 2010

Ulrich Stemick
Technical Director
ALLDOS Eichler GmbH
Reetzstr. 85, D-76327 Pfinztal, Germany

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

DME, Variant B

Original installation and operating instructions.

GB

CONTENTS

Before beginning installation procedures, these installation and operating instructions should be studied carefully. The installation and operation should also be in accordance with local regulations and accepted codes of good practice.

1. 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 end 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.

1.1 Applications

The DME dosing pump is designed for handling chemicals within the following ranges of applications, among others:

- Drinking water treatment
- Wastewater treatment
- Cooling water treatment
- Washing systems
- Process water treatment
- Chemical industry.

1.2 Type key

(Cannot be used for pump configuration.)

Code	Example	DME	60 -	10	B -	PP/	E/	C -	F -	3	1	1	F
	Grundfos dosing pump												
	Maximum capacity [l/h]:												
	60												
	150												
	375												
	940												
	Maximum pressure [bar]:												
	10												
	4												
	10												
	4												
	Control variant:												
B	Basic												
	Dosing head material:												
PP	Polypropylene												
PV	PVDF												
SS	Stainless steel 1.4401												
	Gasket material:												
E	EPDM												
V	FKM												
	Valve ball material:												
C	Ceramics												
SS	Stainless steel 1.4401												
Y	Hestelloy® C												
	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:												
Q	Tubing 19/27 + 25/34												
V	Tubing 32/41 + 38/48												
	Mains plug:												
F	EU (Schuko)												
G	UK												
I	AU												
B	USA												
J	JP												
E	CH												

GB

2. Technical data

2.1 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]	4			
Maximum suction lift when priming with wet valves [m]	1.5			
Maximum viscosity with spring-loaded valves*[2] [mPas]	3000 mPas at 50% capacity			
Maximum viscosity without spring-loaded valves*[2] [mPas]	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

2.2 Electrical data

		DME 60	DME 150	DME 375	DME 940
Supply voltage [VAC]		1 x 100-240			
Maximum current consumption [A]	at 100 V	1.20		2.4	
	at 230 V	0.60		1.0	
Maximum power consumption P_1 [W]		61.33		240	
Frequency [Hz]		50-60			
Enclosure class		IP 65			
Insulation class		B			
Supply cable		1.5 m H05RN-F with plug			

2.3 Dimensions

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

3. Installation

3.1 Safety instructions

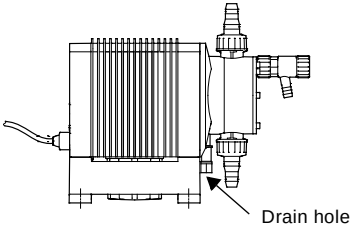
- Liquid is under pressure and may be hazardous.
- When working with chemicals, local safety rules and regulations must be observed (e.g. wear protective clothes).
- Before starting work on the dosing pump and system, disconnect the electricity supply to the pump, ensuring that it cannot be accidentally 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.

3.2 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.

3.3 Installation of pump

- See also the installation example in section *3.4*.
- **Note:** 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.
- 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.
  Note: It is important that the drain pipe/hole is not inserted direct into the tank contents, as gasses may penetrate into the pump.



TM02 8949 1104

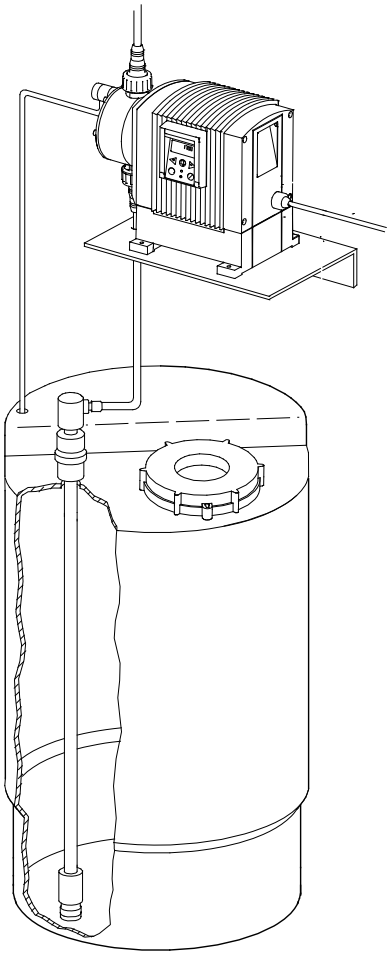
Fig. 1

3.4 Installation example

The drawing in fig. 2 shows an installation example.

GB

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.



TM02 8600 0604

Fig. 2

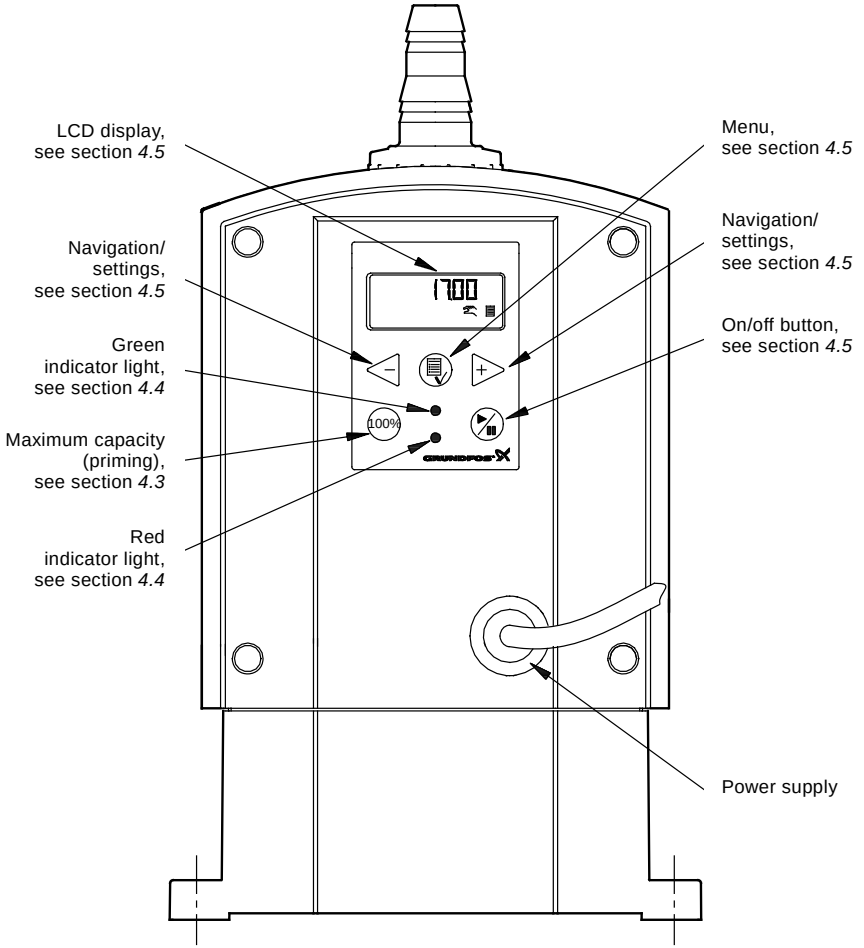
3.5 Electrical connection

- 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 *2.2*.

4. Functions

4.1 Control panel

GB



TM02 8601 0604

Fig. 3

GB

4.2 Start/stop of pump

The pump can be started/stopped locally on the pump control panel.

4.3 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.

4.4 Indicator lights

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

The functions of the indicator lights appear from the table below:

Condition	Green LED	Red LED	Display
Pump running	On	Off	Normal indication
Set to stop	Flashing	Off	Normal indication
Pump fault	Off	On	EEPROM
Supply failure	Off	Off	OFF
Overheating	Off	On	MAX. TEMP.
Internal communication fault	Off	On	INT. COM.
Internal Hall fault ★1	Off	On	HALL
Maximum pressure exceeded ★2	Off ★3	On	OVERLOAD
No motor rotation detected ★1	Off	On	ORIGO

★1 Please contact a Grundfos service centre.

★2 Alarms can be reset (RESET) when the faults have been corrected.

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

4.5 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 *4.12*.

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.

GB

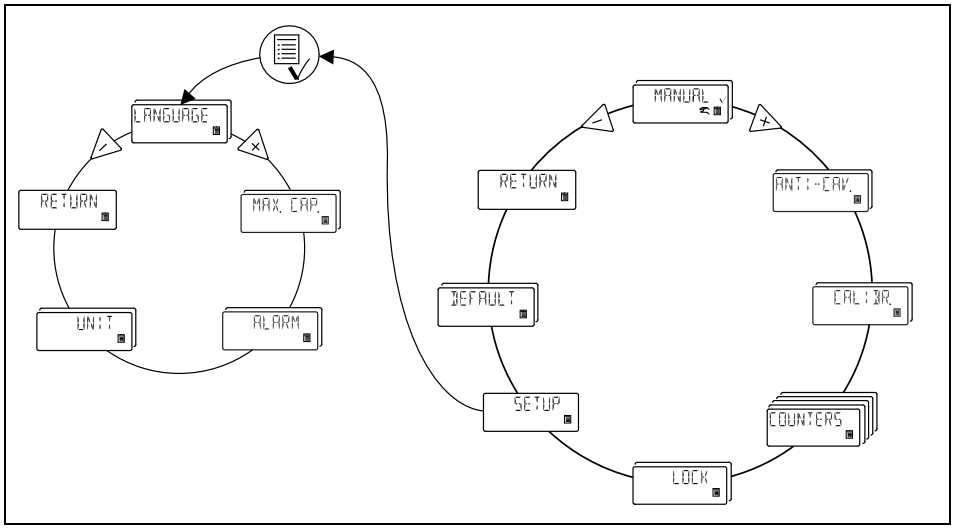
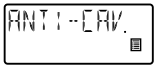
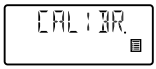


Fig. 4

See section *4.6*



See section *4.7*



See section *6.*

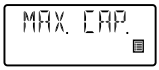
See section *4.9*

See section *4.15*

See section *4.10*

See section *4.11*

See section *4.12*



See section *4.8*

See section *4.13*

See section *4.14*

GB

4.6 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

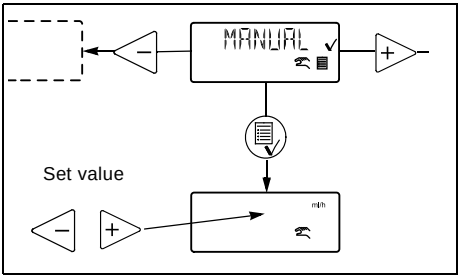


Fig. 5

4.7 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 and
- 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 *2.1 Mechanical data*.

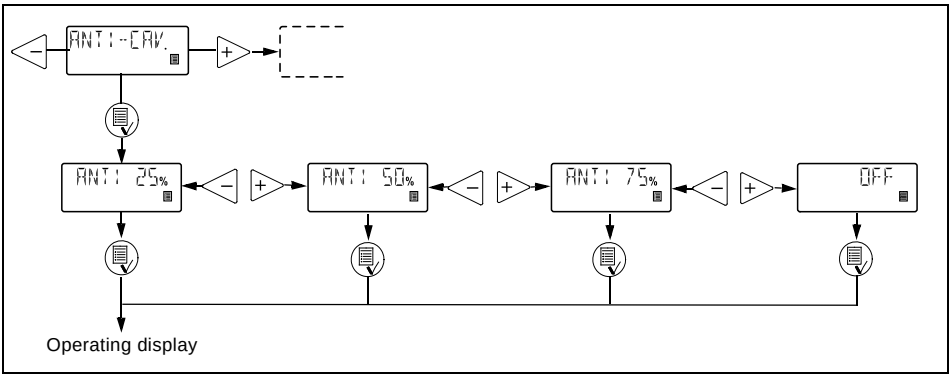


Fig. 6

4.8 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 *4.3*.

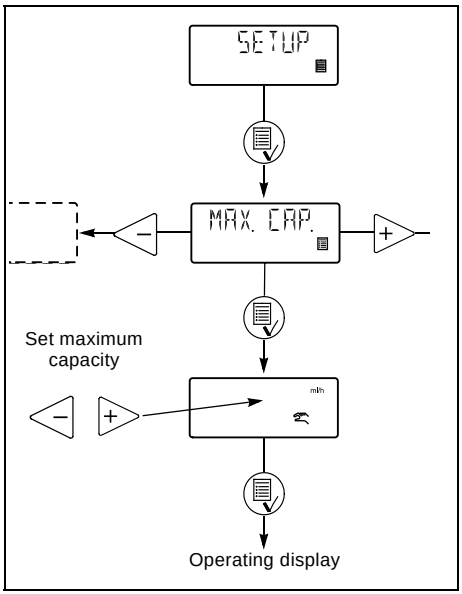


Fig. 7

4.9 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.

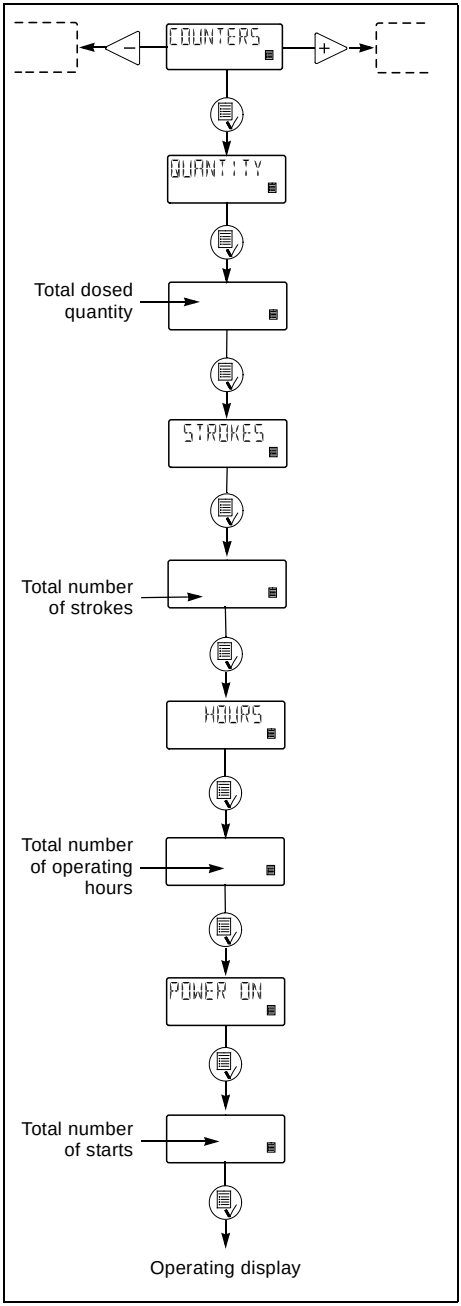


Fig. 8

4.10 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
Capacity limitation:	Maximum capacity
Alarm reset required to restart the pump	
Language:	English
Units:	Metric

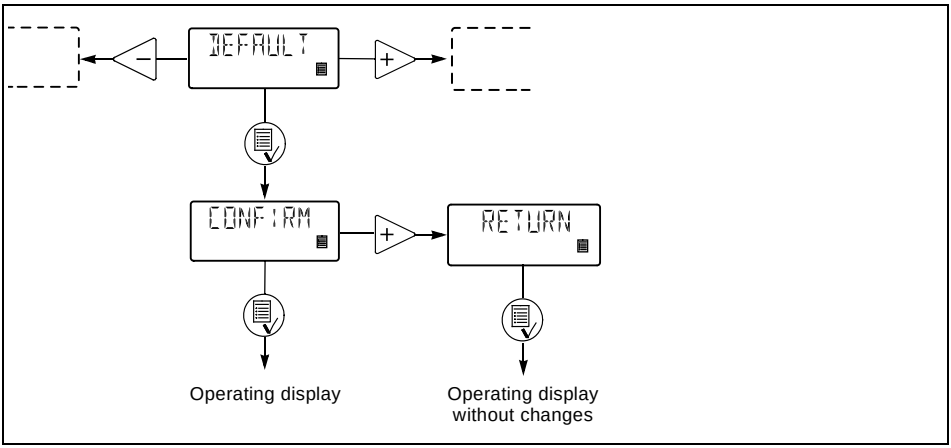


Fig. 9

4.11 Return

Fig. 10

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.

4.12 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

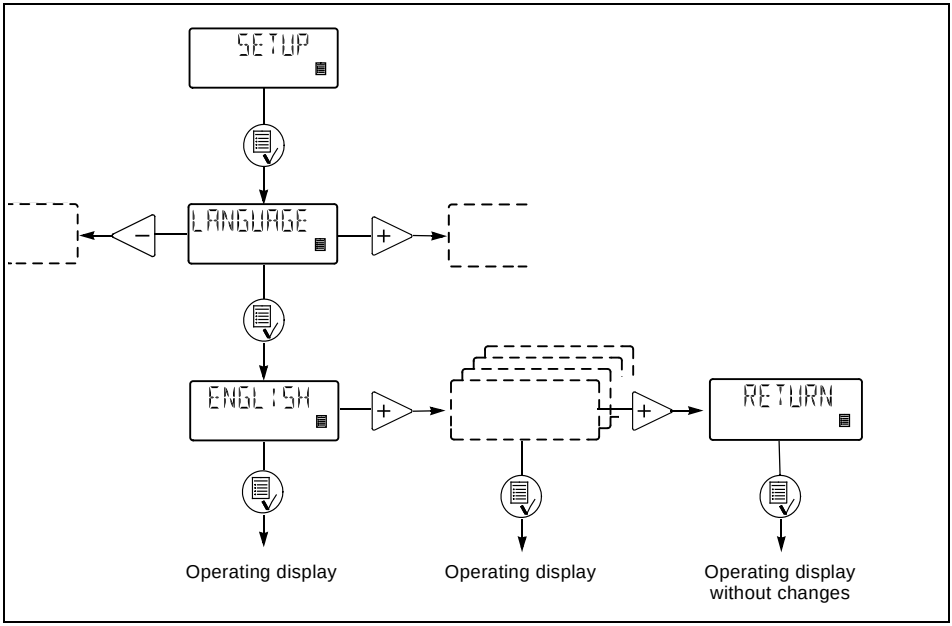


Fig. 11

4.13 Alarm

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

GB

4.14 Measuring units

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

Metric measuring units:

- Set the quantity to be dosed 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.
- Under the “QUANTITY” menu item in the “COUNTERS” menu, the dosed quantity is indicated in litres.

US measuring units:

- Set the quantity to be dosed in gallons per hour (gph).
- **For calibration**, set the quantity to be dosed in ml per 100 strokes.
- Under the “QUANTITY” menu item in the “COUNTERS” menu, the dosed quantity is indicated in US gallons (gal).

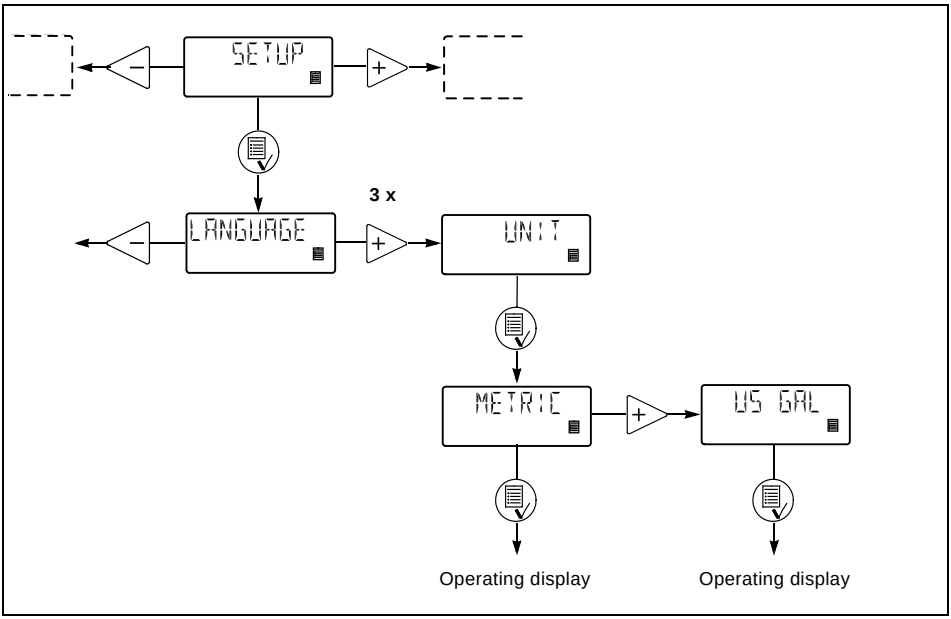


Fig. 12

4.15 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, “_ _ _ _” 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 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 “_ _ _ _”. 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 “_ _ _ _”. 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 (menu) 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 ((100%)-button).
- On/off button.

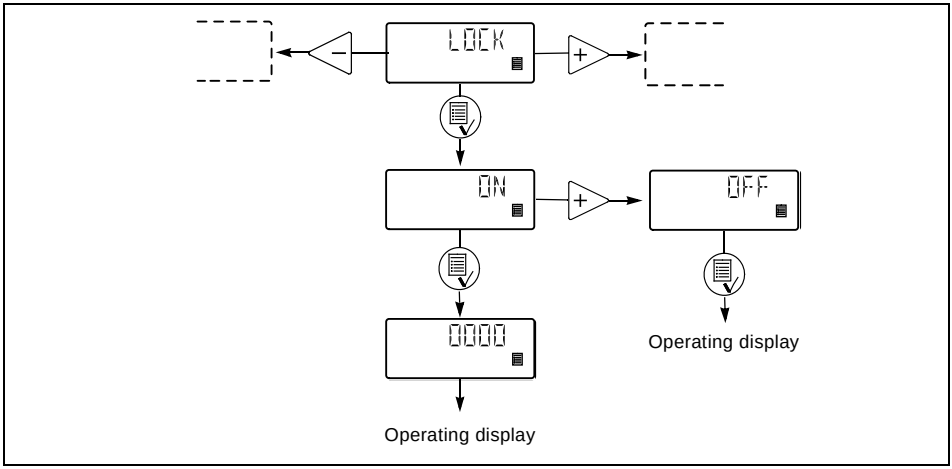


Fig. 13

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 (menu).
3. Enter or re-enter a code by means of the buttons (−), (+) and (menu).

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

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

1. Press (menu) once. “LOCKED” appears in the display for 2 seconds, followed by “_ _ _ _”.
2. Enter the code by means of the buttons (−), (+) and (menu)*.

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:

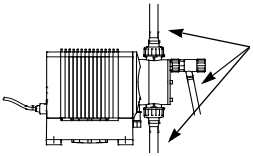
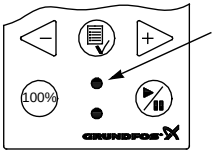
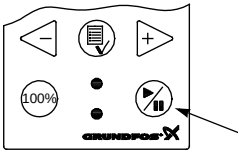
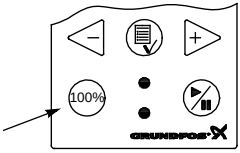
1. Unlock the control panel as described above.
2. Select “LOCK” in the menu.
3. Select “OFF” by means of the buttons (−) and (+) and confirm with (menu).

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

* The panel can always be unlocked with code 2583.

5. Start-up

GB

Step	Action
1	 **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.
2	 **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 *4.12*.
3	 **Start the pump:** • Start the pump by pressing the on/off button. • The green indicator light is permanently on.
4	 **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.
5	 **Calibration:** • When the pump has been primed and is running at the right counter pressure, calibrate the pump, see section *6.*

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

6. 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 *6.1*.
- **Check calibration**. See section *6.2*.

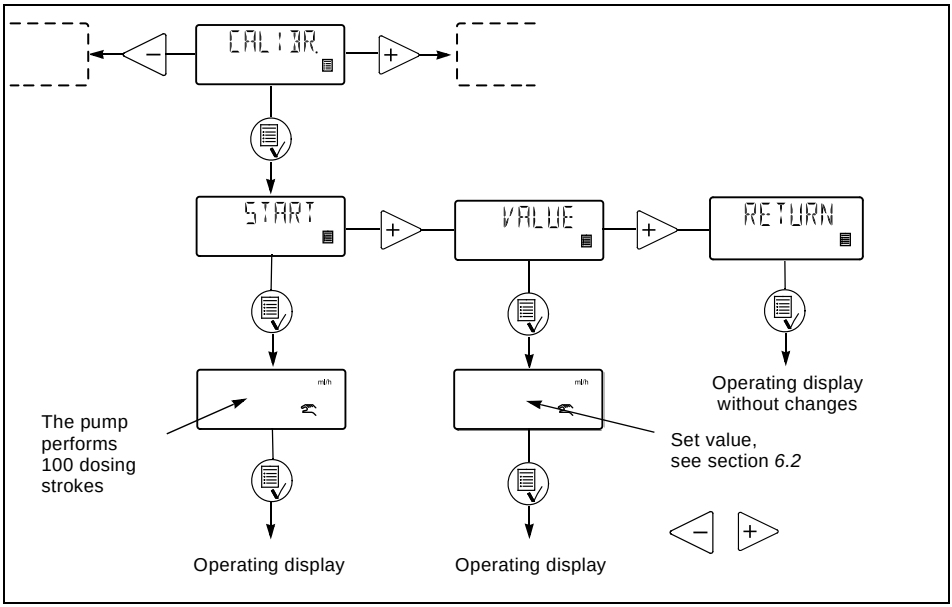


Fig. 14

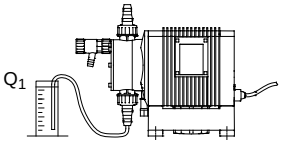
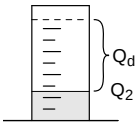
GB

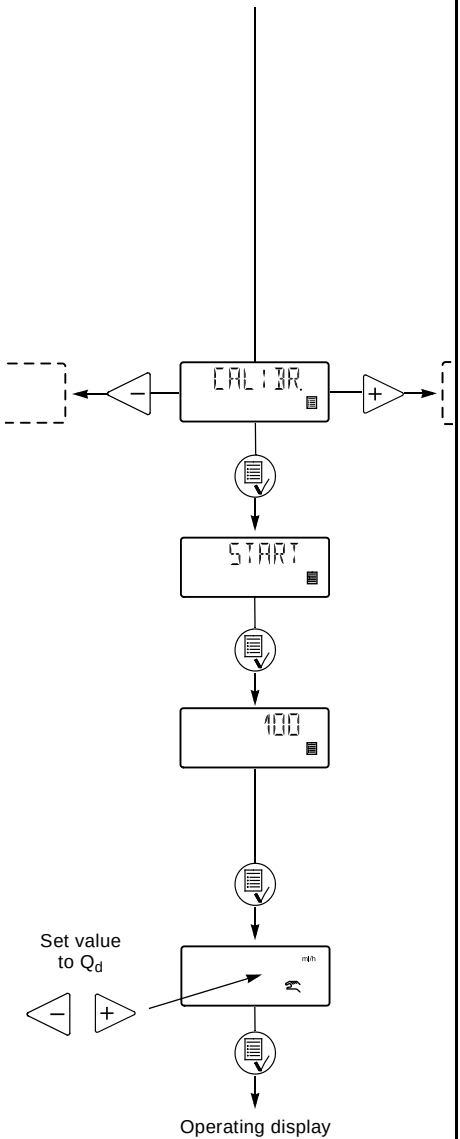
6.1 Direct calibration

Before calibration, make sure:

- that the pump is installed with foot valve, injection valve, etc. in the existing system.
- that the pump is running at the counter pressure it is supposed to operate at (adjust the counter pressure valve, if required).
- that 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 8947 1104	
6. Go to the calibration menu, see section *4.5*.	
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.	



6.2 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 *4.9*.
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 *4.9*.
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.

7. Maintenance

The pump is maintenance-free. However, it is recommended to keep the pump clean.

The dosing pump is produced according to the highest quality standards and has long life. The pump incorporates wear parts such as diaphragm, valve seat and valve balls.

To ensure long life and to reduce the risk of disturbance of operation, visual checks should be carried out regularly.

It is possible to order dosing heads, valves and diaphragms in materials which are suitable for the specific liquid to be pumped. See the product numbers at the end of these instructions.

8. Service

Before returning the pump to Grundfos for service, the **safety declaration** at the end of these instructions must be filled in by authorized personnel and attached to the pump in a visible position.

Note: If a pump has been used for a liquid which is injurious to health or toxic, the pump will be classified as contaminated.

If Grundfos is requested to service the pump, it must be ensured that the pump is free from substances that can be injurious to health or toxic. If the pump has been used for such substances, the pump must be cleaned before it is returned.

If proper cleaning is not possible, all relevant information about the chemical must be provided.

If the above is not fulfilled, Grundfos can refuse to accept the pump for service. Possible costs of returning the pump are paid by the customer.

The safety declaration can be found at the end of these instructions (only in English).

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

9. Fault finding chart

Fault	Cause	Remedy
The dosing has stopped or the output is too low.	Valves leaking or blocked.	Check and clean 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 *4.7*.
		Install a pipe/hose with larger cross-section.
		Fit spring-loaded valves.
	Pump out of calibration.	Calibrate the pump, see section *6.*
Pump dosing too little or too much.	Pump out of calibration.	Calibrate the pump, see section *6.*
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

Disposal of this product or parts of it must be carried out according to the following guidelines:

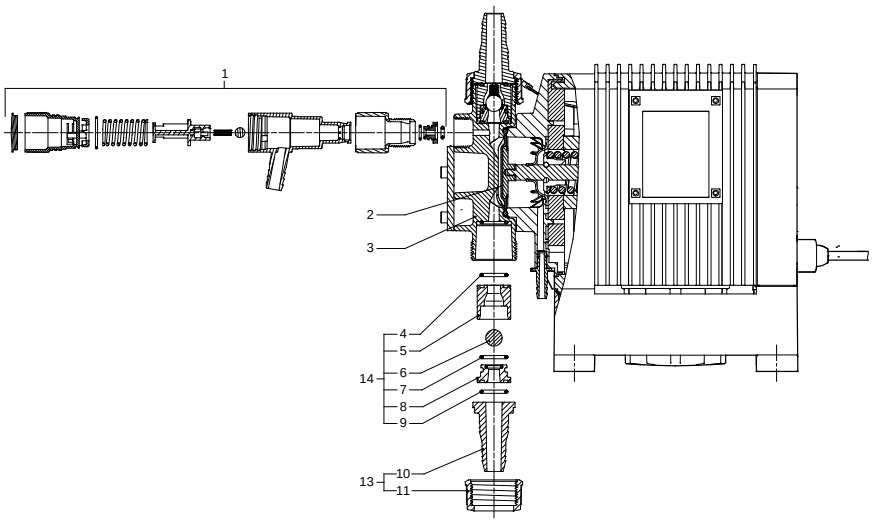
1. Use the local public or private waste collection service.
2. In case such waste collection service does not exist or cannot handle the materials used in the product, please deliver the product or any hazardous materials from it to your nearest Grundfos company or service workshop.

Service kits, DME

Pump size	Valves	Materials	Product numbers			
			Complete dosing head pos. 3+2x14+2 x13+2+1	Valves + diaphragm pos. 2+3x14	Diaphragm pos. 2	Valves pos. 2x14
DME 60	Standard	PP/EPDM/ceramics	96520454	96520364	96519470	96519442
		PP/FKM/ceramics	96520455	96520365	96519470	96519443
		PVDF/FKM/ceramics	96520456	96520366	96519470	96519444
		SS/FKM/SS	96520458	96520367	96519470	96519445
	Spring-loaded	PP/EPDM/ceramics	96520459	96520368	96519470	96519446
		PP/FKM/ceramics	96520460	96520369	96519470	96519447
		PVDF/FKM/ceramics	96520461	96520370	96519470	96519448
		SS/FKM/SS	96520462	96520371	96519470	96519449
DME 150	Standard	PP/EPDM/ceramics	96520463	96520372	96519471	96519442
		PP/FKM/ceramics	96520464	96520373	96519471	96519443
		PVDF/FKM/ceramics	96520465	96520374	96519471	96519444
		SS/FKM/SS	96520466	96520375	96519471	96519445
	Spring-loaded	PP/EPDM/ceramics	96520467	96520376	96519471	96519446
		PP/FKM/ceramics	96520468	96520377	96519471	96519447
		PVDF/FKM/ceramics	96520469	96520378	96519471	96519448
		SS/FKM/SS	96520470	96520379	96519471	96519449
DME 375	Standard	PP/EPDM/glass	96520471	96520380	96519472	96519452
		PP/FKM/glass	96520472	96520381	96519472	96519453
		PVDF/FKM/glass	96520473	96520382	96519472	96519454
		SS/FKM/SS	96520474	96520383	96519472	96519455
	Spring-loaded	PP/EPDM/glass	96520475	96520384	96519472	96519456
		PP/FKM/glass	96520476	96520385	96519472	96519457
		PVDFFKM/glass	96520477	96520386	96519472	96519458
		SS/FKM/SS	96520478	96520387	96519472	96519459
DME 940	Standard	PP/EPDM/glass	96520479	96520391	96519473	96519452
		PP/FKM/glass	96520480	96520393	96519473	96519453
		PVDF/FKM/glass	96520481	96520395	96519473	96519454
		SS/FKM/SS	96520482	96520397	96519473	96519455
	Spring-loaded	PP/EPDM/glass	96520483	96520399	96519473	96519456
		PP/FKM/glass	96520484	96520400	96519473	96519457
		PVDF/FKM/glass	96520485	96520401	96519473	96519458
		SS/FKM/SS	96520486	96520402	96519473	96519459

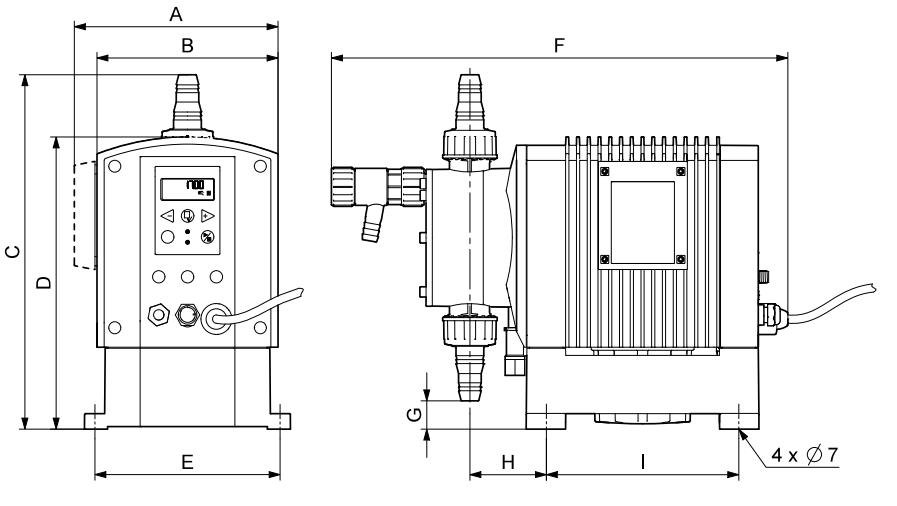
Front cover	96520502

Vent valve pos. 1	PP/EPDM/ceramics	96520488
	PP/FKM/ceramics	96520489
	PVDF/KFM/ceramics	96520500
	SS/KFM/SS	96520501



TM02 9004 1304

Dimensions



	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.

We hereby declare that this product:

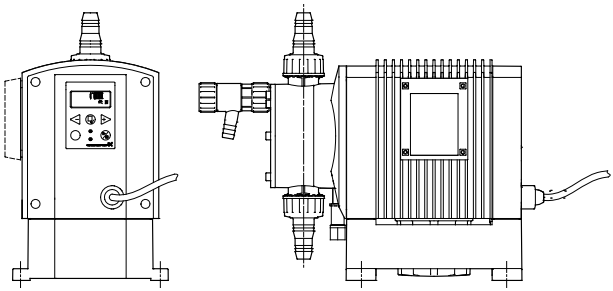
Product type:_____

Model number:_____
(see pump nameplate)

is free from hazardous chemicals, biological and radioactive substances.

Fault description

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



TM02 8957 1104

Please give a short description of the fault:

_____ _____

Date and signature Company stamp

Argentina
Bombas GRUNDFOS de Argentina S.A.
Ruta Panamericana km. 37.500 Lote 34A
1619 - Garin
Pcia. de Buenos Aires
Phone: +54-3327 414 444
Telefax: +54-3327 411 111

Australia
GRUNDFOS Pumps Pty. Ltd.
P.O. Box 2040
Regency Park
South Australia 5942
Phone: +61-8-8461-4611
Telefax: +61-8-8340 0155

Austria
GRUNDFOS Pumpen Vertrieb Ges.m.b.H.
Grundfosstraße 2
A-5082 Grödig/Salzburg
Tel.: +43-6246-883-0
Telefax: +43-6246-883-30

Belgium
N.V. GRUNDFOS Bellux S.A.
Boomsesteenweg 81-83
B-2630 Aartselaar
Tél.: +32-3-870 7300
Télécopie: +32-3-870 7301

Belorussia
Представительство ГРУНДФОС в Минске
220123, Минск,
ул. В. Хоружей, 22, оф. 1105
Тел.: +(37517) 233 97 65,
Факс: +(37517) 233 97 69
E-mail: grundfos_minsk@mail.ru

Bosnia/Herzegovina
GRUNDFOS Sarajevo
Trg Heroja 16,
BiH-71000 Sarajevo
Phone: +387 33 713 290
Telefax: +387 33 659 079
e-mail: grundfos@bih.net.ba

Brazil
BOMBAS GRUNDFOS DO BRASIL
Av. Humberto de Alencar Castelo Branco, 630
CEP 09850 - 300
São Bernardo do Campo - SP
Phone: +55-11 4393 5533
Telefax: +55-11 4343 5015

Bulgaria
Grundfos Bulgaria EOOD
Slatina District
Iztochna Tangenta street no. 100
BG - 1592 Sofia
Tel. +359 2 49 22 200
Fax. +359 2 49 22 201
email: bulgaria@grundfos.bg

Canada
GRUNDFOS Canada Inc.
2941 Brighton Road
Oakville, Ontario
L6H 6C9
Phone: +1-905 829 9533
Telefax: +1-905 829 9512

China
GRUNDFOS Pumps (Shanghai) Co. Ltd.
50/F Maxdo Center No. 8 XingYi Rd.
Hongqiao development Zone
Shanghai 200336
PRC
Phone: +86-021-612 252 22
Telefax: +86-021-612 253 33

Croatia
GRUNDFOS CROATIA d.o.o.
Cebini 37, Buzin
HR-10010 Zagreb
Phone: +385 1 6595 400
Telefax: +385 1 6595 499
www.grundfos.hr

Czech Republic
GRUNDFOS s.r.o.
Čajkovského 21
779 00 Olomouc
Phone: +420-585-716 111
Telefax: +420-585-716 299

Denmark
GRUNDFOS DK A/S
Martin Bachs Vej 3
DK-8850 Bjerringbro
Tlf.: +45-87 50 50 50
Telefax: +45-87 50 51 51
E-mail: info_GDK@grundfos.com
www.grundfos.com/DK

Estonia
GRUNDFOS Pumps Eesti OÜ
Peterburi tee 92G
11415 Tallinn
Tel: + 372 606 1690
Fax: + 372 606 1691

Finland
OY GRUNDFOS Pumput AB
Mestarintie 11
FIN-01730 Vantaa
Phone: +358-3066 5650
Telefax: +358-3066 56550

France
Pompes GRUNDFOS Distribution S.A.
Parc d'Activités de Chesnes
57, rue de Malacombe
F-38290 St. Quentin Fallavier (Lyon)
Tél.: +33-4 74 82 15 15
Télécopie: +33-4 74 94 10 51

Germany
GRUNDFOS GMBH
Schlüterstr. 33
40699 Erkrath
Tel.: +49-(0) 211 929 69-0
Telefax: +49-(0) 211 929 69-3799
e-mail: infoservice@grundfos.de
Service in Deutschland:
e-mail: kundendienst@grundfos.de

Greece
GRUNDFOS Hellas A.E.B.E.
20th km. Athinon-Markopoulou Av.
P.O. Box 71
GR-19002 Peania
Phone: +0030-210-66 83 400
Telefax: +0030-210-66 46 273

Hong Kong
GRUNDFOS Pumps (Hong Kong) Ltd.
Unit 1, Ground floor
Siu Wai Industrial Centre
29-33 Wing Hong Street &
68 King Lam Street, Cheung Sha Wan
Kowloon
Phone: +852-27861706 / 27861741
Telefax: +852-27858664

Hungary
GRUNDFOS Hungária Kft.
Park u. 8
H-2045 Törökbálint,
Phone: +36-23 511 110
Telefax: +36-23 511 111

India
GRUNDFOS Pumps India Private Limited
118 Old Mahabalipuram Road
Thoraipakkam
Chennai 600 096
Phone: +91-44 2496 6800

Indonesia
PT GRUNDFOS Pompa
Jl. Rawa Sumur III, Blok III / CC-1
Kawasan Industri, Pulogadung
Jakarta 13930
Phone: +62-21-460 6909
Telefax: +62-21-460 6910 / 460 6901

Ireland
GRUNDFOS (Ireland) Ltd.
Unit A, Merrywell Business Park
Ballymount Road Lower
Dublin 12
Phone: +353-1-4089 800
Telefax: +353-1-4089 830

Italy
GRUNDFOS Pompe Italia S.r.l.
Via Gran Sasso 4
I-20060 Truccazzano (Milano)
Tel.: +39-02-95838112
Telefax: +39-02-95309290 / 95838461

Japan
GRUNDFOS Pumps K.K.
Gotanda Metalion Bldg., 5F,
5-21-15, Higashi-gotanda
Shiagawa-ku, Tokyo
141-0022 Japan
Phone: +81 35 448 1391
Telefax: +81 35 448 9619

Korea
GRUNDFOS Pumps Korea Ltd.
6th Floor, Aju Building 679-5
Yeoksam-dong, Kangnam-ku, 135-916
Seoul, Korea
Phone: +82-2-5317 600
Telefax: +82-2-5633 725

Latvia
SIA GRUNDFOS Pumps Latvia
Deglava biznesa centrs
Augusta Deglava ielā 60, LV-1035, Rīga,
Tālr.: + 371 714 9640, 7 149 641
Fakss: + 371 914 9646

Lithuania
GRUNDFOS Pumps UAB
Smolensko g. 6
LT-03201 Vilnius
Tel: + 370 52 395 430
Fax: + 370 52 395 431

Malaysia
GRUNDFOS Pumps Sdn. Bhd.
7 Jalan Peguam U1/25
Glenmarie Industrial Park
40150 Shah Alam
Selangor
Phone: +60-3-5569 2922
Telefax: +60-3-5569 2866

México
Bombas GRUNDFOS de México S.A. de C.V.
Boulevard TLC No. 15
Parque Industrial Stiva Aeropuerto
Apodaca, N.L. 66600
Phone: +52-81-8144 4000
Telefax: +52-81-8144 4010

Netherlands
GRUNDFOS Netherlands
Veluwezoom 35
1326 AE Almere
Postbus 22015
1302 CA ALMERE
Tel.: +31-88-478 6336
Telefax: +31-88-478 6332
e-mail: info_gnl@grundfos.com

New Zealand
GRUNDFOS Pumps NZ Ltd.
17 Beatrice Tinsley Crescent
North Harbour Industrial Estate
Albany, Auckland
Phone: +64-9-415 3240
Telefax: +64-9-415 3250

Norway
GRUNDFOS Pumper A/S
Strømsveien 344
Postboks 235, Leirdal
N-1011 Oslo
Tlf.: +47-22 90 47 00
Telefax: +47-22 32 21 50

Poland
GRUNDFOS Pompy Sp. z o.o.
ul. Klonowa 23
Baranowo k. Poznania
PL-62-081 Przeźmierowo
Tel: (+48-61) 650 13 00
Fax: (+48-61) 650 13 50

Portugal
Bombas GRUNDFOS Portugal, S.A.
Rua Calvet de Magalhães, 241
Apartado 1079
P-2770-153 Paço de Arcos
Tel.: +351-21-440 76 00
Telefax: +351-21-440 76 90

România
GRUNDFOS Pompe România SRL
Bd. Biruintei, nr 103
Pantelimon county Ilfov
Phone: +40 21 200 4100
Telefax: +40 21 200 4101
E-mail: romania@grundfos.ro

Russia
ООО Грундфос
Россия, 109544 Москва, ул. Школьная 39
Тел. (+7) 495 737 30 00, 564 88 00
Факс (+7) 495 737 75 36, 564 88 11
E-mail grundfos.moscow@grundfos.com

Serbia
GRUNDFOS Predstavništvo Beograd
Dr. Milutina Ivkovića 2a/29
YU-11000 Beograd
Phone: +381 11 26 47 877 / 11 26 47 496
Telefax: +381 11 26 48 340

Singapore
GRUNDFOS (Singapore) Pte. Ltd.
24 Tuas West Road
Jurong Town
Singapore 638381
Phone: +65-6865 1222
Telefax: +65-6861 8402

Slovenia
GRUNDFOS d.o.o.
Šlandrova 8b, SI-1231 Ljubljana-Črnuče
Phone: +386 1 568 0610
Telefax: +386 1 568 0619
E-mail: slovenia@grundfos.si

South Africa
Corner Mountjoy and George Allen Roads
Wilbart Ext. 2
Bedfordview 2008
Phone: (+27) 11 579 4800
Fax: (+27) 11 455 6066
E-mail: lsmart@grundfos.com

Spain
Bombas GRUNDFOS España S.A.
Camino de la Fuentecilla, s/n
E-28110 Algete (Madrid)
Tel.: +34-91-848 8800
Telefax: +34-91-628 0465

Sweden
GRUNDFOS AB
Box 333 (Lunnagårdsgatan 6)
431 24 Mölndal
Tel.: +46(0)771-32 23 00
Telefax: +46(0)31-331 94 60

Switzerland
GRUNDFOS Pumpen AG
Bruggacherstrasse 10
CH-8117 Fällanden/ZH
Tel.: +41-1-806 8111
Telefax: +41-1-806 8115

Taiwan
GRUNDFOS Pumps (Taiwan) Ltd.
7 Floor, 219 Min-Chuan Road
Taichung, Taiwan, R.O.C.
Phone: +886-4-2305 0868
Telefax: +886-4-2305 0878

Thailand
GRUNDFOS (Thailand) Ltd.
92 Chaloem Phrakiat Rama 9 Road,
Dokmai, Pravej, Bangkok 10250
Phone: +66-2-725 8999
Telefax: +66-2-725 8998

Turkey
GRUNDFOS POMPA San. ve Tic. Ltd. Sti.
Gebze Organize Sanayi Bölgesi
Ihsan dede Caddesi,
2. yol 200. Sokak No. 204
41490 Gebze/ Kocaeli
Phone: +90 - 262-679 7979
Telefax: +90 - 262-679 7905
E-mail: satis@grundfos.com

Ukraine
ТОВ ГРУНДФОС УКРАЇНА
01010 Київ, вул. Московська 8б,
Тел.:(+38 044) 390 40 50
Фах.: (+38 044) 390 40 59
E-mail: ukraine@grundfos.com

United Arab Emirates
GRUNDFOS Gulf Distribution
P.O. Box 16768
Jebel Ali Free Zone
Dubai
Phone: +971-4- 8815 166
Telefax: +971-4-8815 136

United Kingdom
GRUNDFOS Pumps Ltd.
Grovebury Road
Leighton Buzzard/Beds. LU7 8TL
Phone: +44-1525-850000
Telefax: +44-1525-850011

U.S.A.
GRUNDFOS Pumps Corporation
17100 West 118th Terrace
Olathe, Kansas 66061
Phone: +1-913-227-3400
Telefax: +1-913-227-3500

Usbekistan
Представительство ГРУНДФОС в Ташкенте
700000 Ташкент ул.Усмана Носира 1-й тупик 5
Телефон: (3712) 55-68-15
Факс: (3712) 53-36-35

Addresses revised 11.06.2010

96527416 0710
Repl. 96527416 0304

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