



DME and DMS

DIGITAL DOSING™



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Performance range, DME

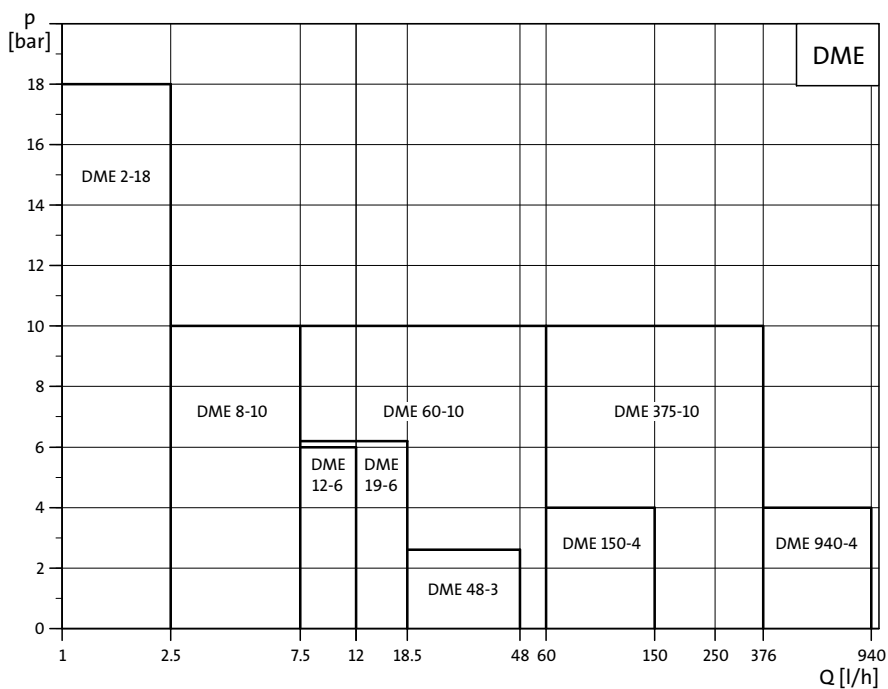


Fig. 1 Performance range, DME

Note: The maximum capacity is available at the pumps maximum counter-pressure if the pump has been calibrated to the actual installation.

Performance range, DMS

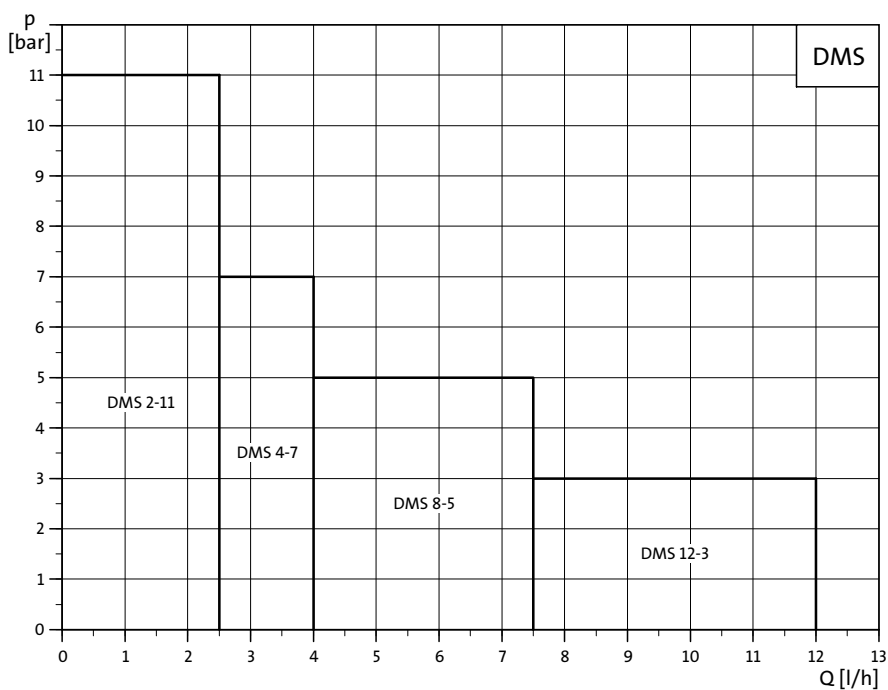


Fig. 2 Performance range, DMS

Note: The maximum capacity is available at the pumps maximum counter-pressure if the pump has been calibrated to the actual installation.

TM02 7811 4103

TM02 7810 4103

DME and DMS



Fig. 3 DME and DMS

TM03 8020 0207

Digital Dosing

Digital Dosing represents state-of-the-art technology. This patented Grundfos solution sets new standards, including new principles and methods.

Precise and easy setting

The operator can easily install and set the pump to discharge exactly the quantity of dosing liquid required in the application. In the display, the setting of the pump is read out directly in ml/h or l/h, pulse or batch, and the operation mode is easily identified by means of icons.

Unique technology

A unique drive and microprocessor control ensure that dosing liquids are discharged precisely and with low pulsation even when the pump is operating with high viscosity or degassing liquids. Instead of the conventional stroke length adjustment, the capacity of the DME is regulated by automatic adjustment of the motor speed during the discharge stroke and by fixed suction stroke speed, ensuring optimal and uniform mixing. The capacity of the DMS is regulated by automatic regulation of the stroke frequency.

Fewer variants to cover all needs

The pumps feature powerful variable speed motor, a turn-down ratio of 1:1000/1:800 and a complete control interface including the following:

- full pulse control
- pulse batch control
- internal timer batch control
- analog 0/4-20 mA control
- level control
- fieldbus communication module.

This ensures that the DME pumps cover the range from 0 to 940 litres per hour up to 18 bar. The switch mode power supply ensures that the same pump is working precisely, irrespective of the mains supply (100-240 V; 50-60 Hz).

The DMS version with synchronous motor and a turn-down ratio of 1:100 (consisting of four pump sizes and three control versions) cover the range from 0 to 12 l/h. The DMS-A pumps have external pulse, analog 0/4-20 mA and level control interface; the DMS-AR is a DMS-A pump equipped with an alarm relay output. The DMS-B version is without external control interface. The DMS-D is without control and user interface.

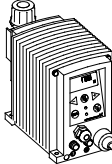
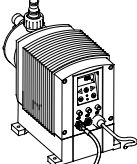
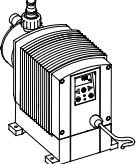
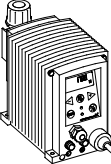
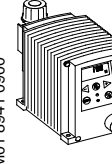
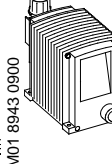
The DME and DMS dosing pumps feature diaphragm dosing head with integrated vent valve, suction and discharge ball valves.

The pumps are fitted with power cable and plug.

Type key

| Example | DME | 2 | - | 18 | A | - | PP | / | E | / | C | - | F | - | 1 | 1 | 1 | F | |
|--------------------------------|-----|---|---|----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|--------------------------------------|
| Type range | | | | | | | | | | | | | | | | | | | Mains plug |
| Maximum capacity [l/h] | | | | | | | | | | | | | | | | | | | F EU (Schuko) |
| Maximum pressure [bar] | | | | | | | | | | | | | | | | | | | B USA, Canada (120 V) |
| Control variant | | | | | | | | | | | | | | | | | | | G UK |
| A | | | | | | | | | | | | | | | | | | | I Australia |
| AR A + alarm relay | | | | | | | | | | | | | | | | | | | E Switzerland |
| AP A + PROFIBUS | | | | | | | | | | | | | | | | | | | J Japan |
| AG A + GENibus | | | | | | | | | | | | | | | | | | | |
| B Basic | | | | | | | | | | | | | | | | | | | |
| D Only on/off | | | | | | | | | | | | | | | | | | | |
| Dosing head material | | | | | | | | | | | | | | | | | | | Connection, suction/discharge |
| PP Polypropylene | | | | | | | | | | | | | | | | | | | 1 Tubing 6/9 4/6 mm |
| PV PVDF | | | | | | | | | | | | | | | | | | | 2 Tubing 6/9 6/12 9/12 mm |
| SS Stainless steel | | | | | | | | | | | | | | | | | | | 3 Tubing 4/6 mm |
| Gasket material | | | | | | | | | | | | | | | | | | | 4 Tubing 6/9 mm |
| E EPDM | | | | | | | | | | | | | | | | | | | 5 Tubing 6/12 mm |
| T PTFE | | | | | | | | | | | | | | | | | | | 6 Tubing 9/12 mm |
| V FKM | | | | | | | | | | | | | | | | | | | 7 Hose clamp d. 6 mm |
| Valve ball material | | | | | | | | | | | | | | | | | | | 8 Hose clamp d. 9 mm |
| C Ceramic | | | | | | | | | | | | | | | | | | | 9 Hose clamp d. 16 mm |
| SS Stainless steel, DIN 1.4401 | | | | | | | | | | | | | | | | | | | A Threaded Rp 1/4 |
| G Glass | | | | | | | | | | | | | | | | | | | B Threaded Rp 3/8 |
| T PTFE | | | | | | | | | | | | | | | | | | | C Threaded Rp 1/2 |
| Y Hastelloy C-22 | | | | | | | | | | | | | | | | | | | D Threaded Rp 1 |
| Control panel position | | | | | | | | | | | | | | | | | | | E Cementing d 10 mm |
| F Front-fitted | | | | | | | | | | | | | | | | | | | F Cementing d 12 mm |
| S Side-fitted | | | | | | | | | | | | | | | | | | | G Cementing d 16 mm |
| X No control panel | | | | | | | | | | | | | | | | | | | H Cementing d 20 mm |
| Supply voltage | | | | | | | | | | | | | | | | | | | I Cementing d 25 mm |
| 1 1 x 230 V, 50 Hz | | | | | | | | | | | | | | | | | | | J Cementing d 32 mm |
| 2 1 x 120 V, 60 Hz | | | | | | | | | | | | | | | | | | | K Cementing d 40 mm |
| 3 1 x 100-240 V, 50-60 Hz | | | | | | | | | | | | | | | | | | | L Flange DN 15 |
| 6 1 x 110 V, 50 Hz | | | | | | | | | | | | | | | | | | | M Flange DN 25 |
| 8 1 x 100 V, 50/60 Hz | | | | | | | | | | | | | | | | | | | N Tubing 8/12 mm |
| 9 1 x 200 V, 50/60 Hz | | | | | | | | | | | | | | | | | | | O 1/2" 150 LBS flange |
| | | | | | | | | | | | | | | | | | | | Q Tubing 19/27 mm + 25/34 mm |
| | | | | | | | | | | | | | | | | | | | V Threaded 1/4" NPT |
| | | | | | | | | | | | | | | | | | | | W Tubing 32/41 mm + 38/48 mm |
| | | | | | | | | | | | | | | | | | | | Y Threaded 3/8" NPT |
| | | | | | | | | | | | | | | | | | | | A1 Threaded Rp 3/4 |
| | | | | | | | | | | | | | | | | | | | A2 Threaded Rp 1 1/4 |
| | | | | | | | | | | | | | | | | | | | A3 Threaded 3/4" NPT |
| | | | | | | | | | | | | | | | | | | | A4 Threaded 1 1/4" NPT |
| | | | | | | | | | | | | | | | | | | | C2 Piping 8/10 mm |
| | | | | | | | | | | | | | | | | | | | Valves |
| | | | | | | | | | | | | | | | | | | | 1 Standard valve |
| | | | | | | | | | | | | | | | | | | | 2 Spring-loaded valve |

Overview of functions

| | DME | | | DMS | | |
|--|---|---|---|--|---|---|
| | 0-48 l/h | 60-940 l/h AR | 60-940 l/h B | Variant A | Variant B | Variant D |
| |  |  |  |  |  |  |
| | TM01 8941 0900 | TM02 8337 4903 | TM02 8338 4903 | TM01 8941 0900 | TM01 8943 0900 | TM02 8973 1304 |
| Capacity control, see page 7 | | | | | | |
| Internal stroke-frequency control | • | • | • | • | • | |
| Internal stroke-speed control | • | • | • | | | |
| Control panel, see page 9 | | | | | | |
| Capacity setting in litres, millilitres or US gallons | • | • | • | • | • | |
| Display with background light and soft-touch buttons | • | • | • | • | • | |
| Easy set-up menu with language options | • | • | • | • | • | |
| On/off button | • | • | • | • | • | |
| Maximum capacity button (priming) | • | • | • | • | • | |
| Green indicator light for operating indication | • | • | • | • | • | |
| Red indicator light for fault indication | • | • | • | • | • | |
| Control panel lock | • | • | • | • | • | |
| Side-fitted as an option | • | • | • | • | | |
| Operating modes, see page 12 | | | | | | |
| Manual control | • | • | • | • | • | |
| Pulse control | • | • | | • | | |
| Analog 0/4-20 mA control | • | • | | • | | |
| Timer-based batch control | • | • | | | | |
| Pulse-based batch control | • | • | | | | |
| Functions, see page 15 | | | | | | |
| Dosing monitoring | • | • | | • | | |
| Dual-level control | • | • | | • | | |
| Calibration of pump to actual installation | • | • | • | • | • | |
| Anti-cavitation (reduced suction speed) | • | • | • | | | |
| Capacity limitation | • | • | • | | | |
| Counters for strokes, operating hours and power on/off | • | • | • | • | • | |
| Fieldbus communication | • | • | | | | |
| Overload protection | | • | • | | | |
| Error message in display | | • | • | | | |
| Leakage sensor | | • | | | | |
| Dosing signal output | | • | | | | |
| Power supply, page 15 | | | | | | |
| Switch-mode power supply | • | • | • | | | |
| Inputs/outputs, see page 18 | | | | | | |
| Input for pulse control | • | • | | • | | |
| Input for analog 0/4-20 mA control | • | • | | • | | |
| Input for dual-level control | • | • | | • | | |
| Input for external start/stop | • | • | | • | | |
| Alarm relay output (variant AR) | • | • | | • | | |
| Dosing output | | • | | | | |
| Input for external on/off switch | • | • | | • | | |

Functional description, DME

The electronically controlled variable-speed motor of the DME pumps provides optimum control of the stroke speed. As shown in the figure below, the duration of each suction stroke is constant while the duration of each discharge stroke varies according to the capacity set, resulting in optimum discharge flow in any operating situation.

The advantages are as follows:

- The pump always operates at full stroke length, irrespective of the capacity set; this ensures optimum accuracy, priming and suction.
- A capacity range of 1:1000 (0-48 l/h) for each pump size.
- A capacity range of 1:800 (60-940 l/h) for each pump size.
- Even and constant dosing ensuring an optimum mixing ratio at the injection point.
- Significant reduction of pressure surges, preventing mechanical stress on diaphragm, tubes, connections and other dosing parts exposed to leakage and wear.
- The installation is less affected by long suction and discharge lines.
- Easier dosing of highly viscous and gas-containing liquids.

The optimum dosing control shown below takes place in any operating mode.

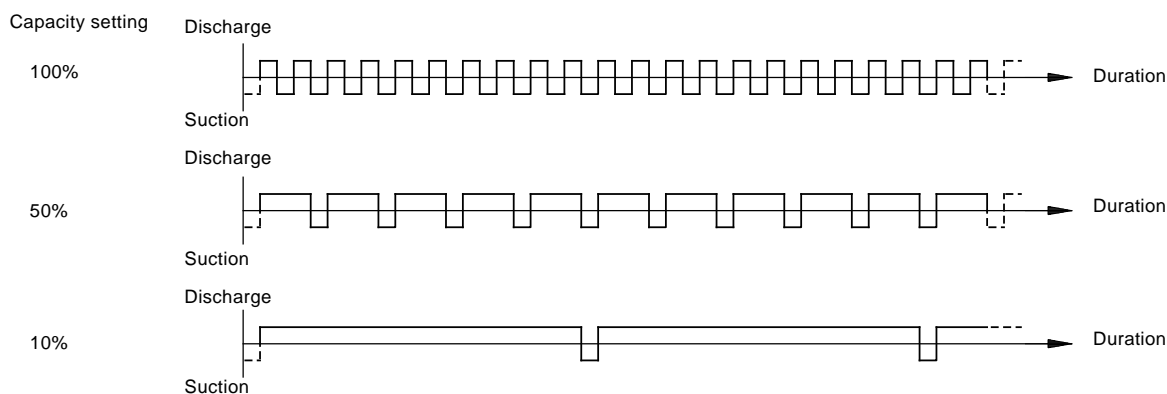


Fig. 4 Relation between stroke-frequency adjustment and capacity for DME

TM01 8944 0900

Functional description, DMS

The electronically-controlled, synchronous motor of the DMS pumps offers almost the same advantages as those of DME pumps. As shown in the figure below, the suction and discharge stroke speeds are constant while the stroke frequency varies according to the capacity set.

The sinusoidal movement of the diaphragm offers the following advantages:

- The pump always operates at full stroke length, irrespective of the capacity set; this ensures optimum accuracy, priming and suction.
- A capacity range of 1:100 for each pump size.
- Reduction of pressure surges, preventing mechanical stress on diaphragm, tubes, connections and other dosing parts exposed to leakage and wear.
- The installation is less affected by long suction and discharge lines.
- Easier dosing of highly viscous and gas-containing liquids.

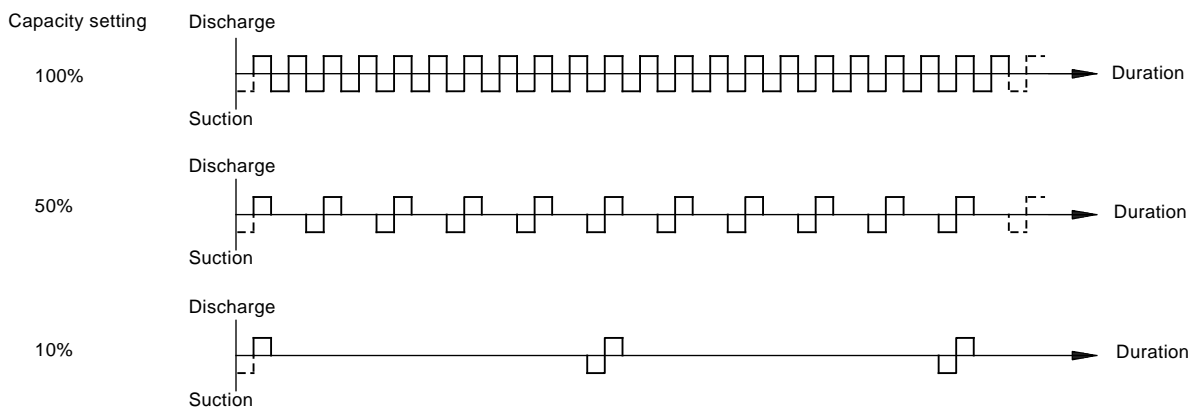


Fig. 5 Relation between stroke-frequency adjustment and capacity for DMS

TM01 8945 0900

Control panel

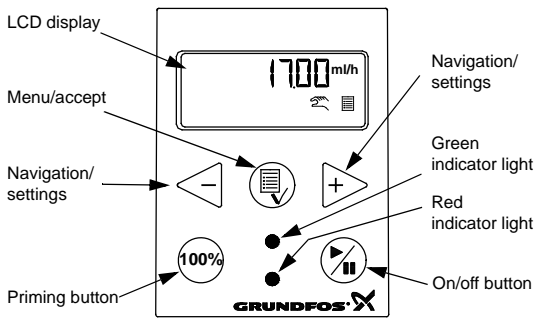


Fig. 6 Control panel

TM01 8946 1202

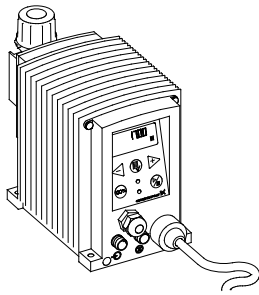


Fig. 7 Front-fitted control panel

TM01 8941 0900

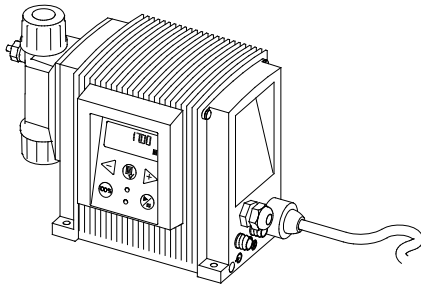


Fig. 8 Side-fitted control panel (not including DMS-B)

TM01 8949 0900

Priming button

If the maximum capacity is required over a short period of time, for example during start-up, press the 100% button on the pump control panel. When the button is released, the pump automatically returns to the previous operating mode.

To set the pump to run for a specific number of seconds at maximum capacity, press the 100% and + buttons simultaneously. The remaining number of seconds appear in the display. This feature is useful when flushing the pump. The maximum value is 300 seconds.

To stop the pump before the set time has passed, press the 100% button.

Indicator lights and alarm relay output (0-48 l/h)

The green and red indicator lights on the control panel indicate operation or fault.

DME-AR and DMS-AR pumps can activate an external alarm signal by means of a built-in alarm relay. The alarm signal is activated by means of an internal potential-free contact.

The indicator lights and the alarm relay output indicate the operating state of the pump. See this overview:
















| Operating state | Green indicator light | Red indicator light | Display | Alarm relay output ★ ¹ |
|--|-----------------------|---------------------|-------------------|-----------------------------------|
| 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 ★ ² | On | On | Normal indication | |
| Empty tank ★ ² | Off | On | Normal indication | |
| Analog signal < 2 mA | Off | On | Normal indication | |
| Insufficient dosing according to the signal from the dosing monitor ★ ³ | On | On | Normal indication | |
| More pulses than capacity | On | On | Normal indication | |
| Overheated | Off | On | MAX TEMP | |

★¹ Applies only to control variant AR.

★² Requires connection to level sensors.

★³ Requires activation of the dosing monitoring function and connection to a dosing monitor.

Indicator lights and alarm relay output (60-940 l/h)

| Operating state | Green indicator light | Red indicator light | Display | Alarm relay output ^{★1} |
|---|-----------------------|---------------------|-------------------|---|
| 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 ^{★2} | On | On | LOW |  |
| Empty tank ^{★2} | Off | On | EMPTY |  |
| Analog signal < 2 mA | Off | On | NO mA |  |
| Insufficient dosing according to signal from dosing monitor ^{★3} | On | On | NO FLOW |  |
| Overheating | Off | On | MAX TEMP |  |
| Internal communication failure | Off | On | INT COM |  |
| Internal Hall failure ^{★4} | Off | On | HALL |  |
| Diaphragm failure (leakage) ^{★5} | Off | On | LEAK-AGE |  |
| Max. pressure exceeded ^{★5} | Off ^{★6} | On | OVER-LOAD |  |
| More pulses than capacity | On | On | MAX FLOW |  |
| No detection of motor rotation ^{★4} | On | On | ORIGO |  |

^{★1} Applies only to control variant AR.

^{★2} Requires connection to level sensors.


^{★3} Requires activation of the dosing monitoring function and connection to a dosing monitor.

^{★4} Please contact a Grundfos service centre.

^{★5} After the fault has been rectified, press  to reset alarms.

^{★6} The pump makes 10 attempts to restart before going into permanent off mode.

Menu

The DME and DMS dosing pumps feature a user-friendly menu. To activate the menu, press the  button. During initial start-up, all menu texts appear in the English language. You can set the menu to display other languages, see page 15.

This example applies to DME pumps:

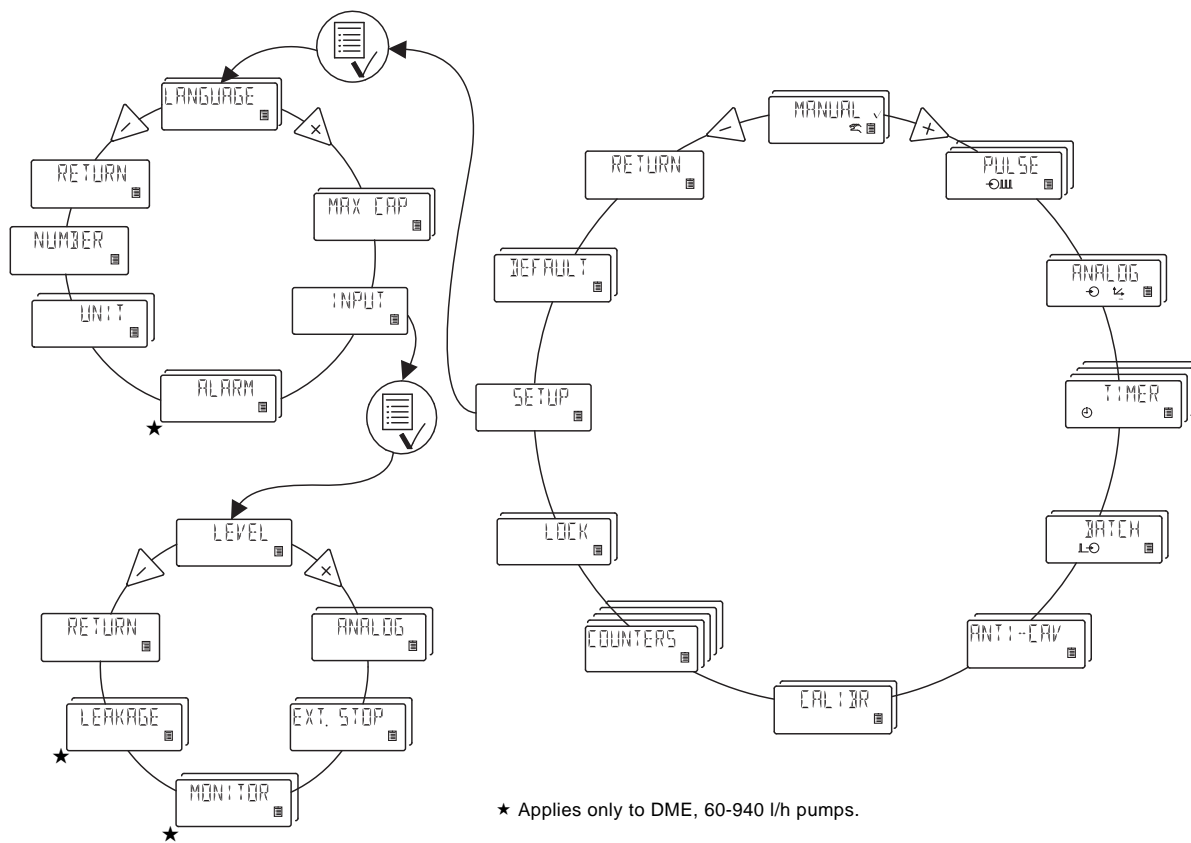


Fig. 9 Menu overview

D68se

Operating modes

Manual control

The pump ensures constant dosing according to the quantity set in l/h or ml/h by means of the \leftarrow and \rightarrow buttons. The pump automatically changes between the measuring units.

Setting range, DME

| DME pump | Setting range | |
|----------|---------------|----------|
| | From [ml/h] | To [l/h] |
| DME 2 | 2.5 | 2.5 |
| DME 8 | 7.5 | 7.5 |
| DME 12 | 12 | 12 |
| DME 19 | 18.5 | 18.5 |
| DME 48 | 48 | 48 |
| DME 60 | 75 | 60 |
| DME 150 | 200 | 150 |
| DME 375 | 500 | 376 |
| DME 940 | 1200 | 940 |

When the anti cavitation functions is enabled the maximum flow is reduced. See page 26-27.

Setting range, DMS

| DMS pump | Setting range | |
|----------|---------------|----------|
| | From [ml/h] | To [l/h] |
| DMS 2 | 25 | 2.5 |
| DMS 4 | 40 | 4 |
| DMS 6 | 75 | 7.5 |
| DMS 12 | 120 | 12 |

Pulse control

Applies to DME-A and DMS-A

The pump doses according to an external pulse signal, for example from a water meter.

There is no direct relation between pulses and dosing strokes. The pump automatically calculates its optimal speed to ensure the required quantity is dosed for each pulse. The quantity to be dosed is set in ml/pulse. The pump adjusts its speed and/or stroke frequency according to two factors:

- frequency of external pulses
- the set quantity per pulse.

Setting range, DME

| DME pump | Setting range [ml/pulse] |
|------------|--------------------------|
| DME 2-18 | 0.000023 - 5.0 |
| DME 8-10 | 0.000069 - 15.0 |
| DME 12-6 | 0.000111 - 24.0 |
| DME 19-6 | 0.000204 - 37.0 |
| DME 48-3 | 0.000530 - 96.0 |
| DME 60-10 | 0.000625 - 120 |
| DME 150-4 | 0.00156 - 300 |
| DME 375-10 | 0.00392 - 750 |
| DME 940-4 | 0.00980 - 1880 |

Setting range, DMS

| DMS pump | Setting range [ml/pulse] |
|----------|--------------------------|
| DMS 2 | 0.00232 - 50 |
| DMS 4 | 0.00370 - 80 |
| DMS 8 | 0.00695 - 150 |
| DMS 12 | 0.01110 - 240 |

Analog 0/4-20 mA control

Applies to DME-A and DMS-A

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

| Setting | Input signal | Dosed quantity as a percentage of the max. capacity* |
|----------------|--------------|--|
| 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% |

* If a maximum capacity limitation has been set, the dosed quantity is a percentage of the set capacity limitation, see page 14.

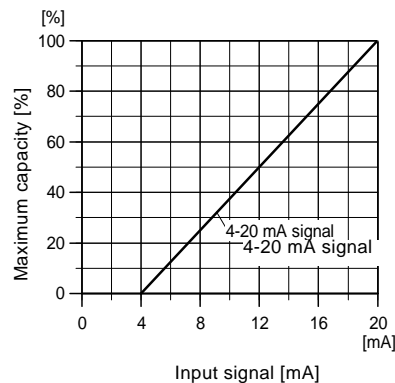


Fig. 10 4-20 mA control

TM01 8218 0100

Timer-based batch control

Applies to DME-A

The set quantity is dosed in batches at maximum capacity or the set 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 one minute. IN must be higher than the time required to perform one batch. If IN is lower than the time required, the next batch will be ignored.

In case of supply failure, the set dosing quantity, the IN time and the remaining NX time are stored. When the supply is reconnected, the pump starts up with the NX time at the time of the supply failure. Thus, the timer cycle continues, but it will be delayed according to the time of the supply failure.

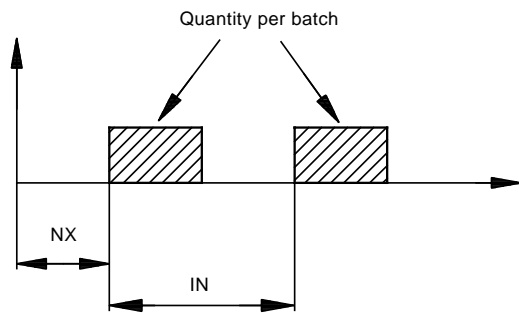


Fig. 11 Timer-based batch control

Setting range, DME

| DME pump | Setting range | |
|----------|-----------------|--------------|
| | From [ml/batch] | To [l/batch] |
| DME 2 | 0.23 | 5 |
| DME 8 | 0.69 | 15 |
| DME 12 | 1.11 | 24 |
| DME 19 | 2.04 | 37 |
| DME 48 | 5.3 | 96 |
| DME 60 | 6.25 | 120 |
| DME 150 | 15.6 | 300 |
| DME 375 | 39.1 | 750 |
| DME 940 | 97.9 | 1880 |

Pulse-based batch control

Applies to DME-A

The set quantity is dosed in batches at maximum capacity or the set capacity limitation. The quantity is dosed every time the pump receives an external pulse. If the pump receives new pulses before the batch is completed, these pulses will be ignored.

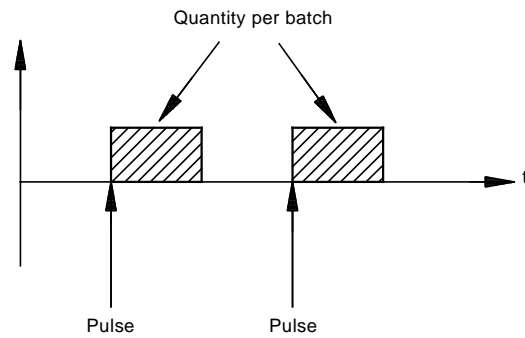


Fig. 12 Pulse-based batch control

Setting range, DME

| DME pump | Setting range | |
|----------|-----------------|--------------|
| | From [ml/batch] | To [l/batch] |
| DME 2 | 0.23 | 5 |
| DME 8 | 0.69 | 15 |
| DME 12 | 1.11 | 24 |
| DME 19 | 2.04 | 37 |
| DME 48 | 5.3 | 96 |
| DME 60 | 6.25 | 120 |
| DME 150 | 15.6 | 300 |
| DME 375 | 39.1 | 750 |
| DME 940 | 97.9 | 1880 |

TM01 8947 0900

TM01 8942 0900

Anti-cavitation

When the anti-cavitation function is selected, the pump extends and smooths its suction stroke. This results in a softer suction stroke.

The anti-cavitation function is used in these situations:

- when pumping high-viscosity liquids
- when pumping degassing liquids
- when the suction tube is long
- when the suction lift is high.

DME (0-48 l/h)

The maximum capacity is reduced when the anti-cavitation function is selected, See page 26 for details.

DME (60-940 l/h)

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

When using the anti-cavitation function, the maximum pump capacity is reduced. See page 27 for details.

Maximum capacity limitation

Applies to DME

Maximum capacity limitation makes it possible to reduce the maximum capacity (MAX. CAP). It influences the functions in which the pump normally operates at maximum capacity. Under normal operating conditions, the pump cannot operate at a capacity higher than the one stated in the display. This does not apply to the priming button.

The maximum capacity limitation function allows a large pump to be set to operate as a much smaller pump. Together with the 1:1000/1:800 capacity range, this function allows the following:

1. To utilize the smooth and even dosing characteristics of the pump at low capacities to achieve
 - improved chemical mixing
 - improved dosing through long discharge tubes
 - improved dosing of high-viscosity liquids.
2. To improve the dosing of gas-containing liquids: In a large pump, as compared to a small pump, the displaced volume (1) is much larger than the non-displaced volume (2). See fig. 13.

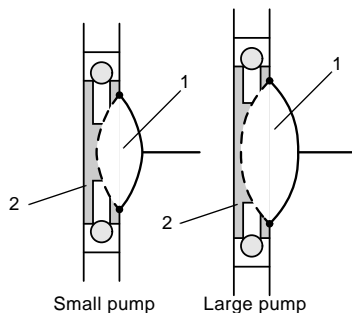


Fig. 13 Anti-cavitation

TM02 0158 3301

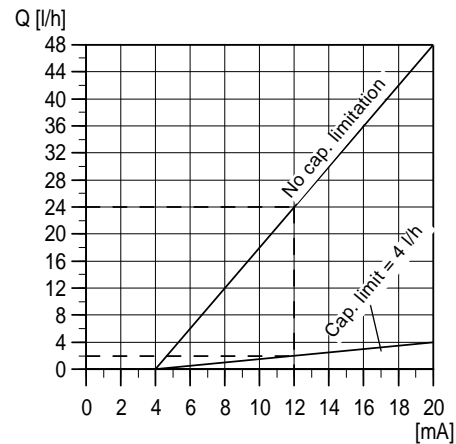
3. To cover several needs with just one pump size.
4. To adapt the pump to a 4-20 mA signal control with 4 mA corresponding to 0% and 20 mA to the set maximum capacity.

This allows you to use for example a DME 48 for dosing a very small quantity of liquid without having to change the input signal. See the example below.

Example

A DME 48 receives a 12 mA input signal from a control instrument. This results in a 50% output (according to the analog curve on page 12) and a capacity of 24 l/h. A new situation occurs where it is only necessary to dose 2 l/h.

The maximum capacity limitation is set to 4 l/h. The pump is still receiving a 12 mA signal resulting in a 50% output and a capacity of 2 l/h.



TM01 9638 2700

Fig. 14 Maximum capacity limitation

The maximum capacity limitation also reduces the pump speed in timer-based batch control, pulse-based batch control and during calibration where the pump usually operates at maximum capacity.

Calibration

After start-up, the dosing pumps can be calibrated for the actual installation to ensure that the displayed value (millilitres or litres) is correct. A calibration program in the set-up menu facilitates calibration.

Counters

The pump can display non-resettable counters for:

- **"Quantity"**
Accumulated dosed quantity in litres or US gallons.
- **"Strokes"**
Accumulated number of dosing strokes.
- **"Hours"**
Accumulated number of operating hours (power on).
- **"Power ON"**
Accumulated number of times the mains supply has been switched on.

Languages

The display text can be displayed in one of the following languages chosen in the set-up menu:

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

Integrated vent valve

The DME and DMS dosing pumps are provided with an integrated vent valve. The valve makes it very easy to prime the pump during start-up:

On DME and DMS, 0-48 l/h the vent valve must be connected to the tank by means of a 4/6 mm PVC tubing. See fig. 15.

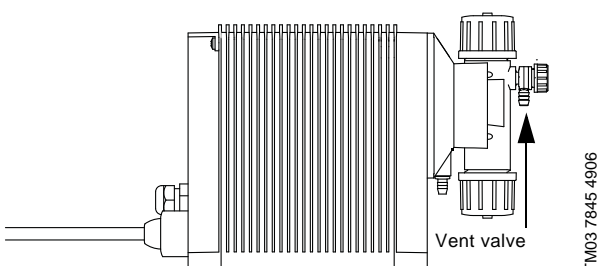


Fig. 15 Integrated vent valve, DME and DMS 0-48 l/h

On DME 60-940 l/h the vent valve must be connected to the tank by means of a 15/20 mm PVC tubing. See fig. 16.

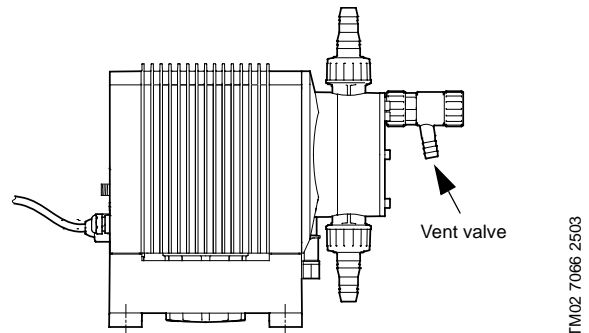


Fig. 16 Integrated vent valve, DME 60-940 l/h

Switch-mode power supply

The DME pump incorporates a switch-mode power supply. This makes the pump independent of variations in supply voltage and frequency.

Operating range: 1 x 100-240 V, 50-60 Hz.

Level control

Applies to DME-A and DMS-A

The pump can be connected to a level control unit for monitoring of the chemical level in the tank. The pump can react to two level signals. The following table shows the pump reactions to the sensor signals:

| Level sensors | Pump reaction |
|------------------------|---|
| Upper sensor activated | <ul style="list-style-type: none"> • Red indicator light is on. • Pump is running. • Alarm relay is activated.★ |
| Lower sensor activated | <ul style="list-style-type: none"> • Red indicator light is on. • Pump stops. • Alarm relay is activated.★ |

★ Applies to control variant AR

Bus communication

Applies to DME

The pump is available with a built-in module for bus communication with GENIBus (variant AG, up to 48 l/h only) or PROFIBUS DP (variant AP) systems. These modules enable remote monitoring and setting via the fieldbus system.

All DME features are available via bus communication. The PROFIBUS GDS-file can be downloaded from www.grundfosalldos.com.

Diaphragm leakage sensor (60-940 l/h)

The pump can be fitted with a diaphragm leakage sensor. The sensor detects leakage from the diaphragm. The sensor should be connected to the drain hole of the pump head. In case of leakage of the diaphragm, the signal from the sensor generates an alarm in the pump and the alarm relay is activated.

Dosing monitoring

General description



GRA1031

Fig. 17 Dosing monitor mounted on pump discharge side

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.

DME/DMS 2 to 48: The dosing monitor should be connected to the "low level" input (pins 2 and 3). This input must be configured for dosing monitoring. Consequently, it cannot be used as a level input.

DME 60 to 150: The dosing monitor should be connected to the input for dosing monitoring (pins 4 and 5). 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.

Definitions

Correct dosing stroke: A pulse from the dosing monitor corresponds to the internal stroke signal within acceptable time.

Incorrect dosing stroke: There is no pulse from the dosing monitor corresponding to the internal stroke signal within the acceptable time (the pump is not pumping).

Logic

If a number of incorrect dosing strokes are performed, the pump will continue operating, but it will change over to alarm mode. The red indicator light will be on and the alarm output, if any, will be activated (variant AR).

When a correct dosing stroke is detected, the red indicator light is turned off and the alarm output, if any, is deactivated.

Control panel lock

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

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

Units

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

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 shown 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.
- Under the QUANTITY menu item in the COUNTERS menu, the dosed quantity is indicated in gallons (gal).

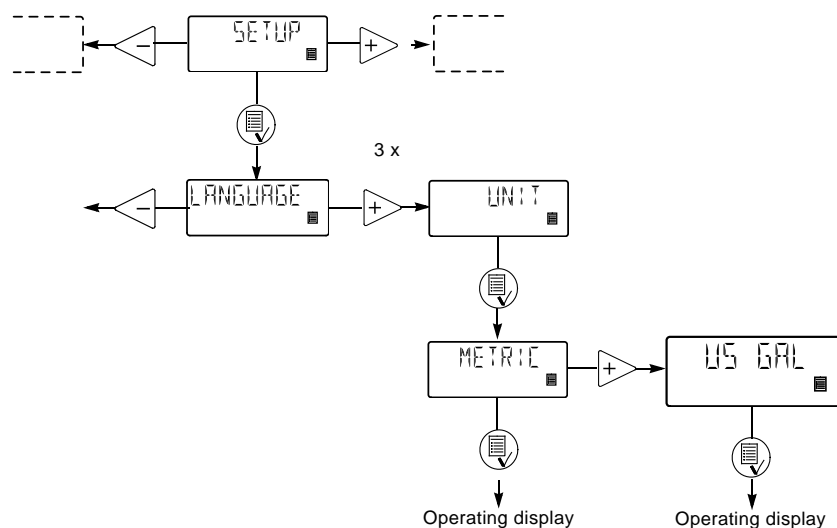
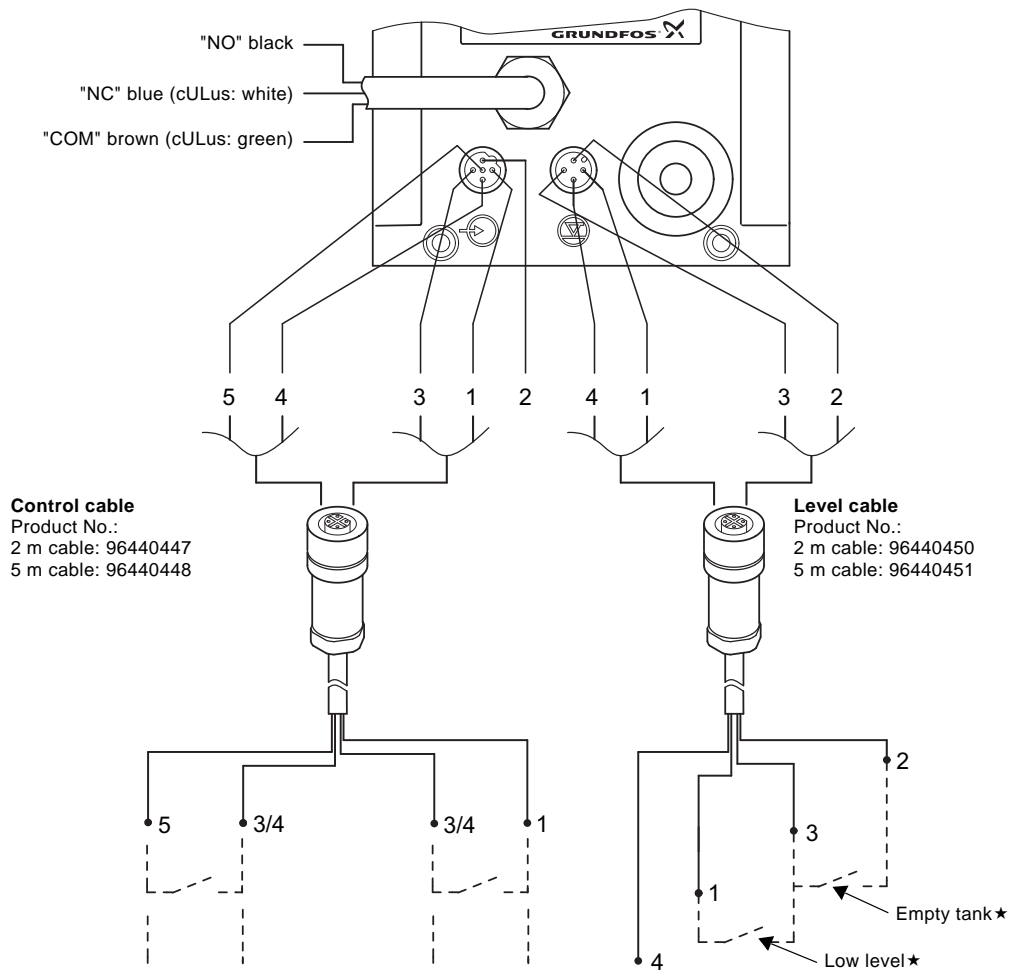


Fig. 18 Possible units settings

Wiring diagram, DME and DMS-A (0-48 l/h)

See pages 26 and 28 for input/output data.



★The level switch contacts (normally open) must be closed at low level/empty tank.

TM03 7853 5006

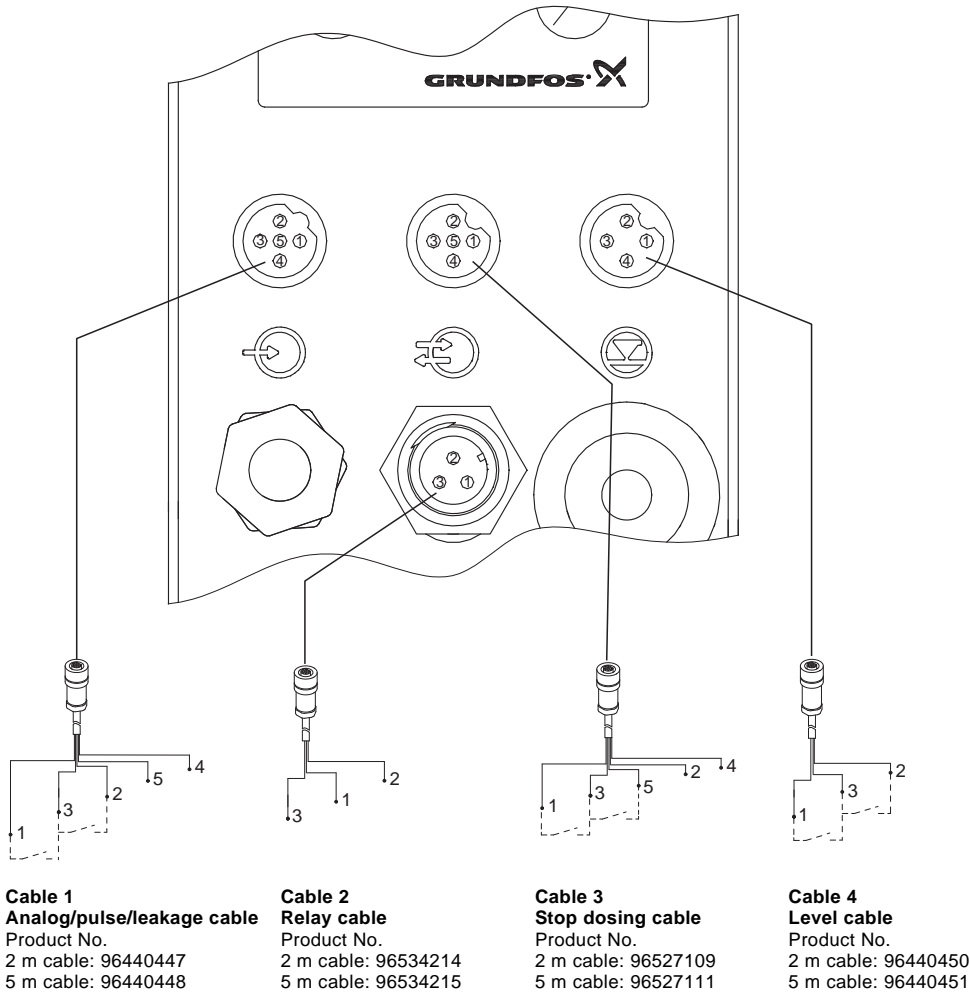
Control input

| Number/colour | Pin holes | | | | | Plug type |
|----------------------------|-----------|---------|-------------|--------------|--------------|--------------|
| | 1/brown | 2/white | 3/blue, +5V | 4/black, GND | 5/grey | |
| Function | | | | | | |
| Pulse | X | | X | | | Contact |
| Pulse | 5V | | | GND | | Supply 5 VDC |
| Analog | | | | (-) mA input | (+) mA input | mA signal |
| Batch | X | | X | | | Contact |
| Batch | 5V | | | GND | | Supply 5 VDC |
| External start/stop | | | | | | |
| Only pulse/batch mode | | | X | | X | Contact |
| Only pulse/batch mode | | | | GND | 5V | Supply 5 VDC |
| All other modes | X | | X | | | Contact |
| All other modes | 5V | | | GND | | Supply 5 VDC |

Level input

| Number/colour | Pin holes | | | | | Plug type |
|-------------------|-----------|---------|-------------|--------------|--------------|--------------|
| | 1/brown | 2/white | 3/blue, +5V | 4/black, GND | 5/grey | |
| Function | | | | | | |
| Low level | X | | X | | | Contact |
| Low level | 5V | | | GND | | Supply 5 VDC |
| Empty tank | | X | X | | (+) mA input | Contact |
| Empty tank | 5V | | | GND | | Supply 5 VDC |
| Dosing monitoring | | X | X | | | Contact |
| Dosing monitoring | 5V | | | GND | | Supply 5 VDC |

Wiring diagram, DME-A (60-940 l/h)



TM02 7069 2503

Cable 1: Analog, pulse and leakage input

| Number/colour | Pin holes | | | | | Plug type |
|-----------------|-----------|---------|-------------|--------------|--------------|--------------|
| | 1/brown | 2/white | 3/blue, +5V | 4/black, GND | 5/grey | |
| Function | | | | | | |
| Pulse | X | | X | | | Contact |
| Pulse | 5V | | | GND | | Supply 5 VDC |
| Analog | | | | (-) mA input | (+) mA input | mA signal |
| Batch | X | | X | | | Contact |
| Batch | 5V | | | GND | | Supply 5 VDC |
| Leakage | | X | X | | | Contact |
| Leakage | | 5V | | GND | | Supply 5 VDC |

Cable 2: Output for alarm relay

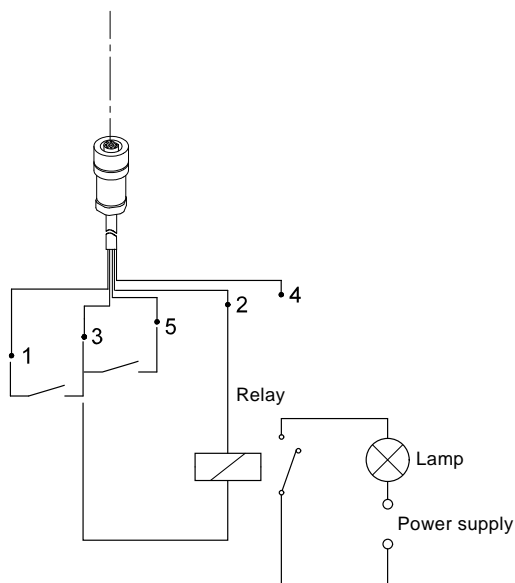
| Number/colour | Pin holes | | |
|--------------------|-----------|---------------|-----------------|
| | 1/brown | 2/white | 3/blue |
| Function | | | |
| Alarm relay output | Common | Normally open | Normally closed |

Cable 3: Stop dosing input and dosing monitor or dosing output

| Number/colour | Pin holes | | | | | Plug type |
|------------------------------|-----------|-----------------|-------------|--------------|--------|--------------|
| | 1/brown | 2/white | 3/blue, +5V | 4/black, GND | 5/grey | |
| Function | | | | | | |
| Stop input | X | | X | | | Contact |
| Stop input | 5V | | | GND | | Supply 5 VDC |
| Dosing monitoring | | | X | | X | Contact |
| Dosing monitoring | | | | GND | 5V | Supply 5 VDC |
| Dosing output (pump running) | | Open collector★ | X | GND | | NPN |

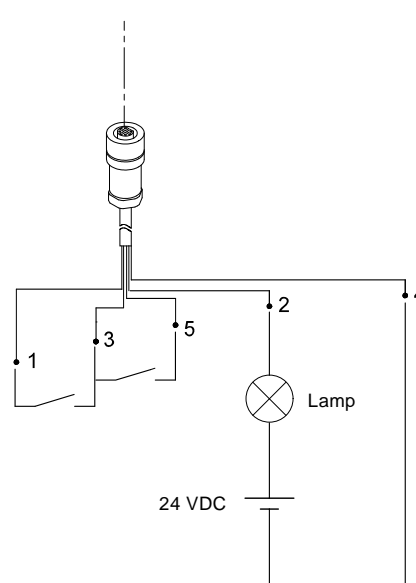
★ Open collector can be used for a relay or a lamp.

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



TM03 7868 5006

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



TM03 7869 5006

Cable 4: Level input

| Number/colour | Pin holes | | | | | Plug type |
|-----------------|-----------|---------|-------------|--------------|--------|--------------|
| | 1/brown | 2/white | 3/blue, +5V | 4/black, GND | 5/grey | |
| Function | | | | | | |
| Low level | X★ | | X★ | | | Contact |
| Low level | 5V | | | GND | | Supply 5 VDC |
| Empty tank | | X★ | X★ | | | Contact |
| Empty tank | | 5V | | GND | | Supply 5 VDC |

★ The function for the potential free contact set can be chosen from the display (NO = Normally Open and NC = Normally Closed).

DME (0-48 l/h)

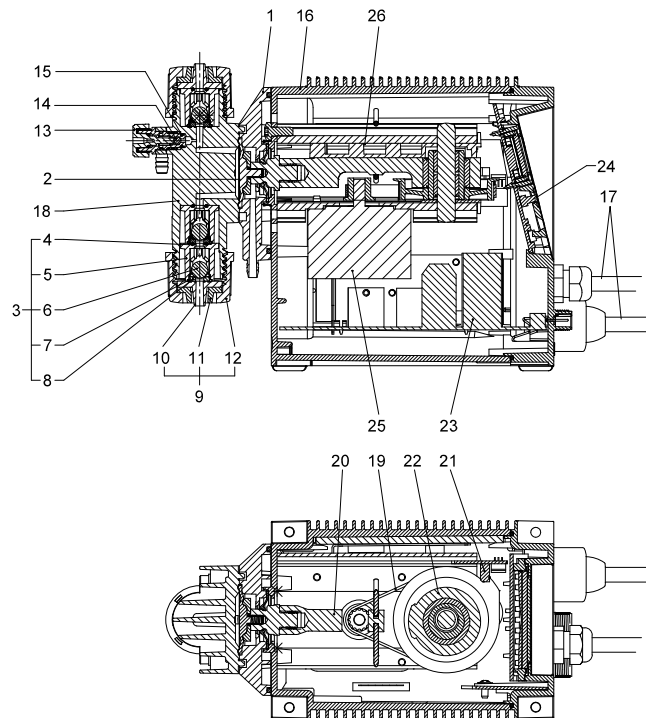


Fig. 19 Sectional drawing, DME (0-48 l/h)

TM03 7854 5006

Construction

The DME pump is a motor-driven diaphragm dosing pump consisting of the following main parts:

Dosing head: Designed with a minimum of clearance space to optimise the priming and deaerating capabilities. The dosing head has built-in valve housings.

Valves: Double-ball suction valve and single-ball discharge valve. Spring-loaded valves are available as an option.

Vent valve: For priming and deaeration complete with connection for a 4/6 mm tubing.

Connections: Sturdy and easy-to-use connections for various sizes of tubing, pipe thread or pipe cementing.

Diaphragm: PTFE-coated, textile-reinforced EPDM diaphragm designed for long life.

Back plate: With separation chamber, safety diaphragm and drain hole.

Drive unit: With diaphragm connecting rod, crank, belt-drive and stepper motor, all mounted on a sturdy frame.

Cabinet: Containing drive unit, electronics, control panel and various electrical connections.

Material specification

| Pos. | Description | Material options |
|------|---------------------------------------|--------------------------------------|
| 1 | Back plate | PPE/PS 20% glass fibre |
| 2 | Diaphragm | Textile-reinforced EPDM, PTFE-coated |
| 3 | Valve complete | – |
| 4 | O-ring | EPDM/FKM/PTFE |
| 5★ | Valve casing | PP/PVDF/Stainless steel 1.4401 |
| 6 | Valve ball | Ceramic/Stainless steel 1.4401 |
| 7 | Valve seat disk | EPDM/FKM/PTFE |
| 8 | Valve seat ring | PP/PVDF/Stainless steel 1.4401 |
| 9 | Connection complete | – |
| 10 | Cone/thread piece/ cementing piece | PP/PVDF/Stainless steel 1.4401/PVC |
| 11 | Clamping ring | PP/PVDF |
| 12 | Union nut | PP/PVDF/Stainless steel 1.4401 |
| 13 | Vent valve | PP/PVDF |
| 14 | Vent valve ball | Ceramic/PTFE |
| 15 | Vent valve O-ring | EPDM/FKM |
| 16 | Cabinet | PPE/PS 20% glass fibre |
| 17 | Power/alarm cable | Rubber |
| 18 | Dosing head | PP/PVDF/Stainless steel 1.4401 |
| 19 | Drive belt | Rubber, polyamide-reinforced |
| 20 | Connecting rod | Steel |
| 21 | Origo sensor | – |
| 22 | Crank shaft | Steel |
| 23 | Power PCB | – |
| 24 | Operation PCB | – |
| 25 | Stepper motor | – |
| 26 | Drive frame | Aluminium |

★ The pump can be supplied with spring-loaded valves.
Spring material: Hastelloy.

DME (60-940 l/h)

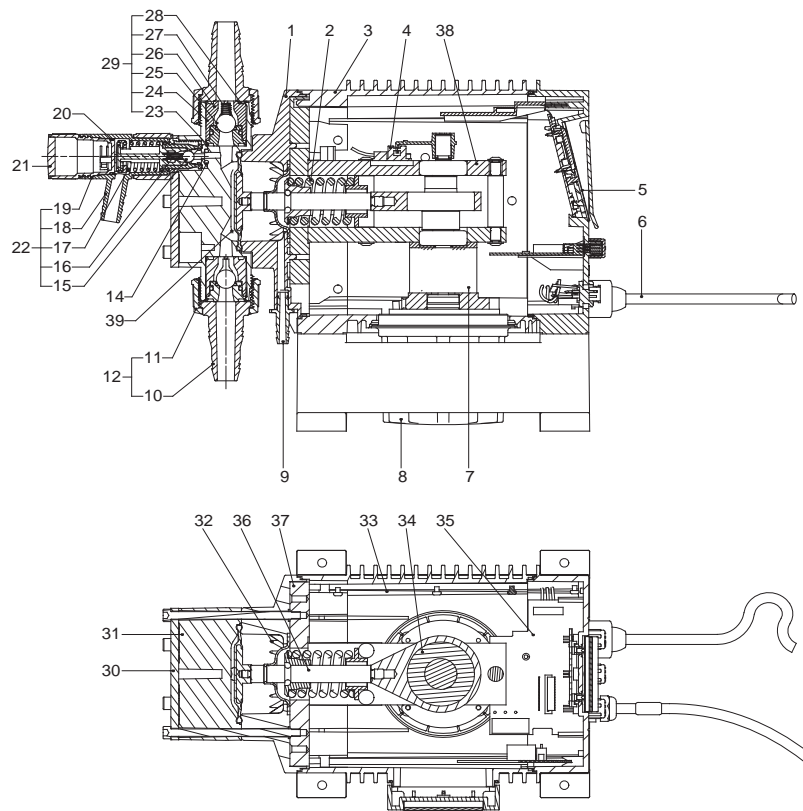


Fig. 20 Sectional drawing, DME (60-940 l/h)

TM02 8599 5006

Material specification

| Pos. | Description | Material options |
|------|---|------------------------|
| 1 | Back plate | PPE/PS 20% glass fibre |
| 2 | Spring | DIN 17223 TYPE C |
| 3 | Cabinet | PPE/PS 20% glass fibre |
| 4 | Origo sensor | – |
| 5 | Operation PCB (printed circuit board) | – |
| 6 | Power cable | Rubber |
| 7 | Gear | – |
| 8 | BLDC motor | – |
| 9 | Drain hole or leakage sensor | – |
| 10 | DME 60 and DME 150 19/25 mm hose nozzle | PP/PVDF |
| | DME 375 and DME 940 connection with internal thread 1 1/4" NPT / Rp 1 1/4 | PP/PVDF |
| 11 | Union nut | PP/PVDF |
| 12 | Connection complete | – |
| 14 | O-ring | EPDM/FKM |
| 15 | Venting valve ball | Ceramic |
| 16 | Spring | Hastelloy C |
| 17 | Spring | Hastelloy C |
| 18 | Venting valve house | PP/PVDF |
| 19 | Venting valve tap | PP/PVDF |
| 20 | O-ring | EPDM/FKM |
| 21 | End cover | Steel |
| 22 | Venting valve complete | – |
| 23 | O-ring | EPDM/FKM |
| 24 | Valve seat | PP/PVDF/SS 1.4401/PTFE |

| Pos. | Description | Material options |
|------|-----------------------------------|--|
| 25 | Valve ball | Ceramic/Glass/SS 1.4401/ Hastelloy C/PTFE |
| 26 | Valve casing | PP/PVDF/SS 1.4401 |
| 27★ | Spring | Hastelloy C |
| 28 | O-ring | EPDM/FKM/PTFE |
| 29 | Valve complete | – |
| 30★★ | Steel plate | Steel |
| 31 | Dosing head | PP/PVDF/SS 1.4401 |
| 32 | Safety membrane | – |
| 33 | Power PCB (printed circuit board) | – |
| 34 | Crank shaft | Steel |
| 35 | I/O PCB (printed circuit board) | – |
| 36 | Connecting rod | Steel |
| 37 | Steel plate | Steel |
| 38 | Steel frame | Steel |
| 39 | Diaphragm | Textile-reinforced EPDM, PTFE-coated |

★ The pump is available with spring-loaded valves.
Spring material: Hastelloy.

★★ The steel plate is not included in stainless-steel dosing head version.

DMS (0-12 l/h)

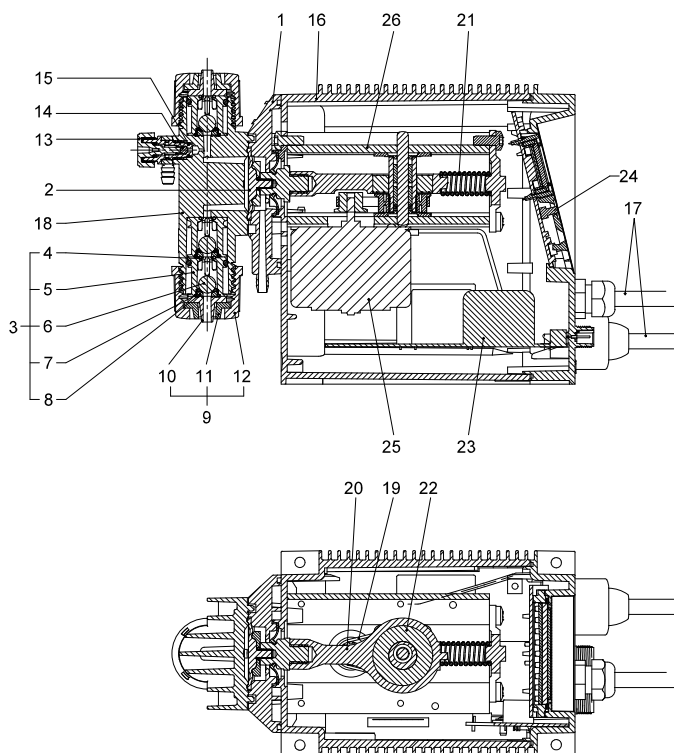


Fig. 21 Sectional drawing, DMS

TM03 7855 5006

Construction

The DMS pump is a motor-driven diaphragm dosing pump consisting of the following main parts:

Dosing head: Designed with a minimum of clearance space to optimise the priming and deaerating capability. The dosing head has built-in valve housings.

Valves: Double-ball suction valve and single-ball discharge valve. Spring-loaded valves are available as an option.

Vent valve: For priming and deaeration complete with connection for a 4/6 mm tubing.

Connections: Sturdy and easy-to-use connections for various sizes of tubing, pipe thread or pipe cementing.

Diaphragm: PTFE-coated, textile-reinforced EPDM diaphragm designed for long life.

Back plate: With separation chamber, safety diaphragm and drain hole.

Drive unit: With diaphragm connecting rod, crank, belt-drive and synchronous motor, all mounted on a sturdy frame.

Cabinet: Containing drive unit, electronics, control panel and various electrical connections (DMS-A).

Material specification

| Pos. | Description | Material options |
|------|---------------------------------------|--------------------------------------|
| 1 | Back plate | PPE/PS 20% glass fibre |
| 2 | Diaphragm | Textile-reinforced EPDM, PTFE-coated |
| 3 | Valve complete | - |
| 4 | O-ring | EPDM/FKM/PTFE |
| 5★ | Valve casing | PP/PVDF/Stainless steel |
| 6 | Valve ball | Ceramic/Stainless steel 1.4401 |
| 7 | Valve seat disk | EPDM/FKM/PTFE |
| 8 | Valve seat O-ring | PP/PVDF/Stainless steel 1.4401 |
| 9 | Connection complete | - |
| 10 | Cone/thread piece/ cementing piece | PP/PVDF/Stainless steel 1.4401/PVC |
| 11 | Clamping ring | PP/PVDF |
| 12 | Union nut | PP/PVDF/Stainless steel 1.4401 |
| 13 | Vent valve | PP/PVDF |
| 14 | Vent valve ball | Ceramic/PTFE |
| 15 | Vent valve O-ring | EPDM/FKM |
| 16 | Cabinet | PPE/PS 20% glass fibre |
| 17 | Power/alarm cable | Rubber |
| 18 | Dosing head | PP/PVDF/Stainless steel 1.4401 |
| 19 | Drive belt | Rubber, polyamide-reinforced |
| 20 | Connecting rod | Steel |
| 21 | Dosing stroke auxiliary spring | - |
| 22 | Crank shaft | Steel |
| 23 | Power PCB | - |
| 24 | Operation PCB | - |
| 25 | Synchronous motor | - |
| 26 | Drive frame | Aluminium |

★ The pump is available with spring-loaded valves.
Spring material: Hastelloy.

DME and DMS (0-48 l/h) with front-fitted control panel

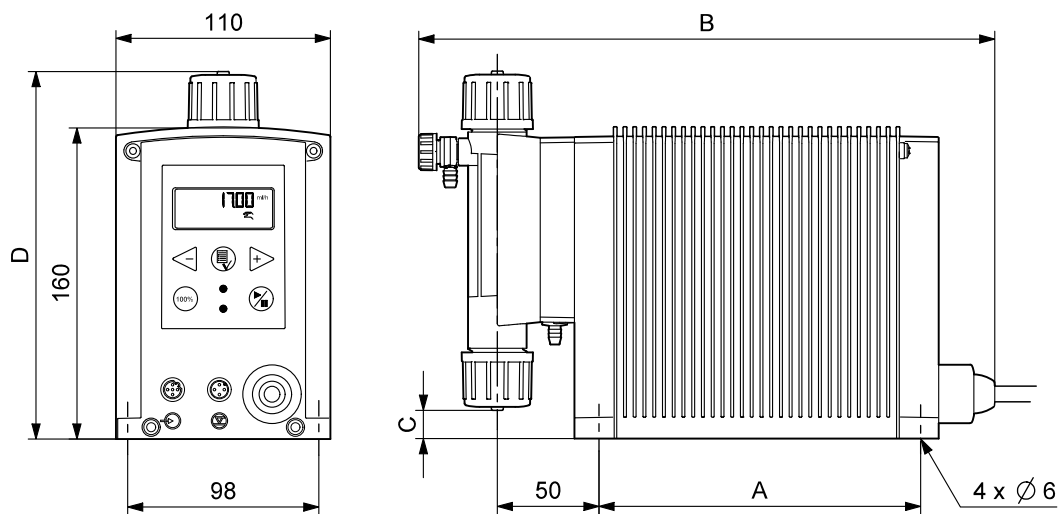


Fig. 22 DME and DMS (0-48 l/h) with front-fitted control panel

TM03 7850 4906

DME and DMS (0-48 l/h) with side-fitted control panel

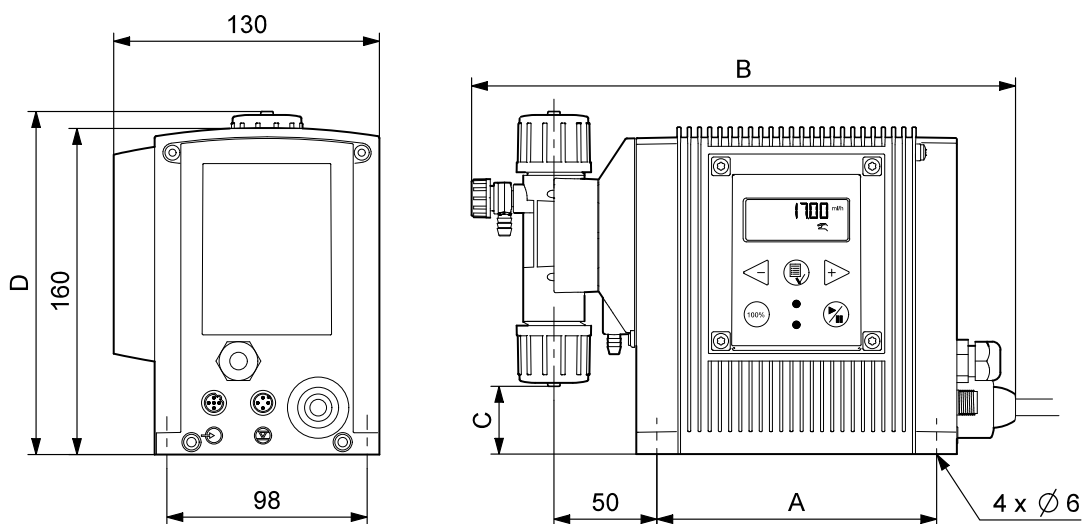


Fig. 23 DME and DMS (0-48 l/h) with side-fitted control panel

TM03 7851 4906

| Pump type | Dimensions [mm] | | | | | |
|-----------|-----------------|-------|----------------|------------------|--------|--------|
| | DME 2 DMS 2 | DMS 4 | DME 8 DMS 8 | DME 12 DMS 12 | DME 19 | DME 48 |
| A | | | 137 | | | 192 |
| B | | | 245 | | | 300 |
| C | | | 36 | | | 15 |
| D | | | 168 | | | 188 |

DME (60 and 150 l/h)

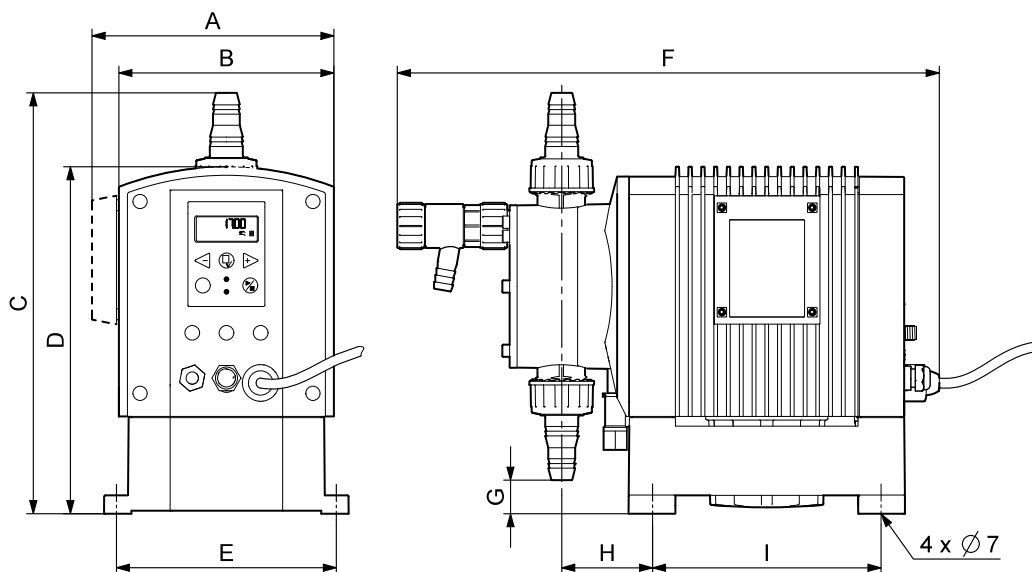


Fig. 24 DME (60 and 150 l/h)

TM02 7062 5106

DME (375 and 940 l/h)

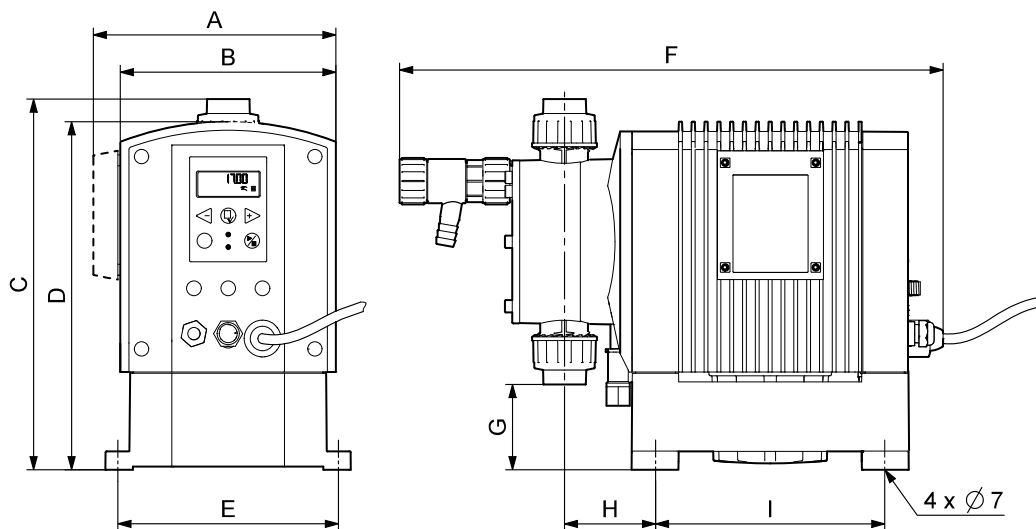


Fig. 25 DME (375 and 940 l/h)

TM03 7884 5006

| Pump type | Dimensions [mm] | | | |
|-----------|-----------------|---------|---------|---------|
| | DME 60 | DME 150 | DME 375 | DME 940 |
| A | 198 | 198 | 238 | 238 |
| B | 176 | 176 | 218 | 218 |
| C | 331 | 345 | 410 | 430 |
| D | 284 | 284 | 364 | 364 |
| E | 180 | 180 | 230 | 230 |
| F | 444 | 444 | 543 | 543 |
| G | 41 | 28 | 95 | 75 |
| H | 74 | 74 | 95 | 95 |
| I | 187 | 187 | 246 | 246 |

DME 375 and 940 are equipped with 1 1/4" thread connections

DME (0-48 l/h)

| Pump | | DME 2 | DME 8 | DME 12 | DME 19 | DME 48 | |
|---------------------------|---|--|-------|--------|--------|--------|-------|
| Mechanical data | Maximum capacity without anti-cavitation ★ ¹ | [l/h] | 2.5 | 7.5 | 12 | 18.5 | 48 |
| | | [gph] | 0.66 | 1.98 | 3.71 | 4.88 | 12.68 |
| | Maximum capacity with anti-cavitation ★ ¹ | [l/h] | 1.8 | 5.6 | 9 | 14.5 | 37 |
| | | [gph] | 0.49 | 1.48 | 2.78 | 3.66 | 9.51 |
| | Maximum pressure | [bar] | 18 | 10 | 6 | 6.2 | 2.6 |
| | | [psi] | 261 | 145 | 87 | 90 | 38 |
| | Maximum stroke frequency ★ ² [stroke/min] | | 180 | 180 | 180 | 151 | 151 |
| | Maximum suction lift during operation [m] | | 6 | | | | |
| | Maximum suction lift when priming with wet valves [m] | | 1.8 | 3 | 3 | 3 | 3 |
| | Maximum viscosity with spring-loaded valves ★ ³ [mPas] (= cP) | | 500 | 500 | 500 | 500 | 100 |
| | Maximum viscosity without spring-loaded valves ★ ³ [mPas] (= cP) | | 200 | 200 | 200 | 200 | 100 |
| | Maximum liquid temperature [°C] | | 50 | | | | |
| | Minimum liquid temperature [°C] | | 0 | | | | |
| | Maximum ambient temperature [°C] | | 45 | | | | |
| | Minimum ambient temperature [°C] | | 0 | | | | |
| Accuracy of repeatability | | ±1% | | | | | |
| Weight and size | Weight [kg] | 2.3 | 2.3 | 2.3 | 3.4 | 3.4 | |
| | Diaphragm diameter [mm] | 28 | 38 | 43.5 | 55 | 77 | |
| | Supply voltage [V] | 1 x 100-240 V, 50-60 Hz | | | | | |
| Electrical data | Maximum current consumption [A] | at 100 V | 0.27 | | 0.35 | | |
| | | at 230 V | 0.16 | | 0.26 | | |
| | Maximum power consumption P ₁ [W] | | 16.2 | | 22.1 | | |
| | Enclosure class | | IP65 | | | | |
| Insulation class | | B | | | | | |
| 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] | | 250 | | | | |
| | Maximum loop resistance in pulse signal circuit [Ω] | | 350 | | | | |
| | Maximum loop resistance in level signal circuit [Ω] | | 350 | | | | |
| Signal output | Maximum load of alarm relay output, at ohmic load [A] | | 2 | | | | |
| | Maximum voltage, alarm relay output [V] ★ ⁴ | | 250 | | | | |
| Sound pressure level | The sound pressure level of the pump is lower than [db(A)] | | 70 | | | | |
| Approvals | | CE, VDE, cULus, NSF61, PSE, TSU, GHOST | | | | | |

★¹ At any counter-pressure if the pump is calibrated to the actual installation.

★² The maximum stroke frequency varies according to calibration.

★³ Maximum suction lift: 1 metre.

★⁴ Maximum voltage for cULus approved pumps: 42 V.

DME (60-940 l/h)

| Pump | | DME 60 | DME 150 | DME 375 | DME 940 |
|----------------------|---|---|---------|---------|---------|
| Mechanical data | Maximum capacity [l/h] | 60 | 150 | 376 | 940 |
| | Maximum capacity with anti-cavitation 75% [l/h] | 45 | 112 | 282 | 705 |
| | Maximum capacity with anti-cavitation 50% (approx.) [l/h] | 33.4 | 83.5 | 210 | 525 |
| | Maximum capacity with anti-cavitation 25% (approx.) [l/h] | 16.1 | 40.4 | 101 | 252 |
| | Maximum pressure [bar] | 10 | 4 | 10 | 4 |
| | Maximum stroke frequency [stroke/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 ★ ¹ [mPas] (= cP) | 3000 mPas at 50% capacity | | | |
| | Maximum viscosity without spring-loaded valves ★ ¹ [mPas] (= cP) | 200 | | | |
| | Maximum liquid temperature [°C] | 50 | | | |
| | Minimum liquid temperature [°C] | 0 | | | |
| | Maximum ambient temperature [°C] | 45 | | | |
| | Minimum ambient temperature [°C] | -10 | | | |
| | Accuracy of repeatability | ±1% | | | |
| Weight and size | Weight [kg] | 11.4 | 11.8 | 21 | 22.5 |
| | Diaphragm diameter [mm] | 79 | 106 | 124 | 173 |
| Electrical data | Supply voltage [V] | 1 x 100-240 V, 50-60 Hz | | | |
| | Maximum current consumption [A] | at 100 V | 1.25 | | 2.40 |
| | | at 230 V | 0.67 | | 1.0 |
| | Maximum power consumption P ₁ [W] | 67.1 | | 240 | |
| Enclosure class | IP 65 | | | | |
| Insulation class | B | | | | |
| Cable data | Supply cable | 1.5 metre | | | |
| 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] | 250 | | | |
| | Maximum loop resistance in pulse signal circuit [Ω] | 350 | | | |
| Signal output | Maximum load of alarm relay output, at ohmic load [A] | 2 | | | |
| | Maximum voltage, alarm relay output [V] | 42 | | | |
| Sound pressure level | The sound pressure level of the pump is lower than [dB(A)] | 70 | | | |
| Approvals | | DME 60-150 CE, cCSAus, PSE, GHOST DME 375-940: CE, cCSAus, GHOST | | | |

★¹ Maximum suction lift: 1 metre.

DMS (0-12 l/h)

| Pump | | DMS 2 | DMS 4 | DMS 8 | DMS 12 | | |
|---|--|---|--------------------------------|--------------|----------|----------|--|
| Maximum capacity ★ ¹ | DMS-A and AR, B | [l/h] | 2.5 | 4 | 7.5 | 12 | |
| | | [gph] | 0.66 | 1.05 | 1.98 | 3.71 | |
| | DMS-D (50 Hz) | [l/h] | 3.3 ±20% | 5.7 ±18% | 8.7 ±8% | 13.7 ±6% | |
| | | [gph] | 0.87 ±20% | 1.5 ±18% | 2.3 ±8% | 3.6 ±6% | |
| | DMS-D (60 Hz) | [l/h] | 3.9 ±20% | 6.9 ±18% | 10.4 ±8% | 16.4 ±6% | |
| | | [gph] | 1.03 ±20% | 1.82 ±18% | 2.75 ±8% | 4.33 ±6% | |
| | Maximum pressure | [bar] | 11 | 7 | 5.4 | 3.4 | |
| | | [psi] | 160 | 102 | 78 | 49 | |
| | Mechanical data | Maximum stroke frequency ★ ² [stroke/min] | DMS-A and AR, B | 180 | | | |
| | | | DMS-D (50 Hz) DMS-D (60 Hz) | 187.5 225 | | | |
| Maximum suction lift during operation [m] | | 6 | | | | | |
| Maximum suction lift when priming with wet valves [m] | | 1.8 | 2 | 3 | 3 | | |
| Maximum viscosity with spring-loaded valves ★ ³ [mPas] (= cP) | | 500 | | | | | |
| Maximum viscosity without spring-loaded valves ★ ³ [mPas] (= cP) | 200 | | | | | | |
| Maximum liquid temperature [°C] | 50 | | | | | | |
| Minimum liquid temperature [°C] | 0 | | | | | | |
| Maximum ambient temperature [°C] | 45 | | | | | | |
| Minimum ambient temperature [°C] | 0 | | | | | | |
| Accuracy of repeatability | ±1% | | | | | | |
| Weight and size | Weight [kg] | 2.3 | | | | | |
| | Diaphragm diameter [mm] | 28 | 32 | 38 | 42.5 | | |
| Electrical data | Supply voltage | 1 x 230 V -13%/+10%, 50 Hz | | | | | |
| | | 1 x 120 V -12%/+8%, 60 Hz | | | | | |
| | | 1 x 100 V ±6%, 50/60 Hz | | | | | |
| | Maximum current consumption [A] | at 100 V | 0.2 | | | | |
| | | at 120 V | 0.17 | | | | |
| at 230 V | | 0.09 | | | | | |
| Maximum power consumption P ₁ [W] | 20 | | | | | | |
| Enclosure class | IP 65 | | | | | | |
| Insulation class | F | | | | | | |
| Signal input | Voltage in level sensor input [VDC] | 5 | | | | | |
| | Voltage in pulse input [VDC] | 5 | | | | | |
| | Minimum pulse-repetition period [ms] | 3.3 | | | | | |
| | Impedance in 0/4-20 mA analog input [Ω] | 250 | | | | | |
| | Maximum loop resistance in pulse signal circuit [Ω] | 350 | | | | | |
| Signal output | Maximum load of alarm relay output at ohmic load [A] | 2 | | | | | |
| | Maximum voltage, alarm relay output [V] | 250 | | | | | |
| Sound pressure level | The sound pressure level of the pump is lower than [db(A)] | 70 | | | | | |
| Approvals | | CE, VDE, cULus, NSF61, PSE, TSU, GHOST DMS-D: only CE ★ ⁴ | | | | | |

★¹ Irrespective of counter-pressure if the pump is calibrated to the actual installation.

★² The maximum stroke frequency varies according to calibration.

★³ Maximum suction lift: 1 metre.

★⁴ DMS-D: Only CE and VDE.

DME (0-48 l/h), standard range

Power supply: 1 x 100-240 V, 50-60 Hz
(switch mode).

Mains plug: EU (Schuko).

Valves: Double-ball on suction side, single-ball on discharge side.

| Max. capacity [l/h] ★ ¹ | Max. pressure [bar] | Materials ★ ² | | | Connection ★ ³ | Control panel position | Type designation (variant A)★ ⁴ | Product number | | | |
|------------------------------------|---------------------|--------------------------|---------|-------------|---------------------------|------------------------|--|--|--------------------------------------|----------|----------|
| | | Pump head | Gaskets | Valve balls | | | | Without alarm relay output (variant A) | With alarm relay output (variant AR) | | |
| 2.5 (1.8) | 18 | PP | EPDM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DME 2-18 A-PP/E/C-F-3111F | 96434879 | 96434885 | | |
| | | | | | | Side-fitted | DME 2-18 A-PP/E/C-S-3111F | 96434882 | 96434888 | | |
| | | PP | FKM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DME 2-18 A-PP/V/C-F-3111F | 96443981 | 96443987 | | |
| | | | | | | Side-fitted | DME 2-18 A-PP/V/C-S-3111F | 96443984 | 96443990 | | |
| | | PVDF | FKM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DME 2-18 A-PV/V/C-F-3111F | 96434899 | 96434905 | | |
| | | | | | | Side-fitted | DME 2-18 A-PV/V/C-S-3111F | 96434902 | 96434908 | | |
| | | SS 1.4401 | FKM | SS 1.4401 | Rp <u>1/4</u> | Front-fitted | DME 2-18 A-SS/V/SS-F-31AAF | 96437423 | 96437429 | | |
| | | | | | | Side-fitted | DME 2-18 A-SS/V/SS-S-31AAF | 96437426 | 96437432 | | |
| | | 7.5 (5.6) | 10 | PP | EPDM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DME 8-10 A-PP/E/C-F-3111F | 96434880 | 96434886 |
| | | | | | | | | Side-fitted | DME 8-10 A-PP/E/C-S-3111F | 96434883 | 96434889 |
| PP | FKM | | | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DME 8-10 A-PP/V/C-F-3111F | 96443982 | 96443988 | | |
| | | | | | | Side-fitted | DME 8-10 A-PP/V/C-S-3111F | 96443985 | 96443991 | | |
| PVDF | FKM | | | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DME 8-10 A-PV/V/C-F-3111F | 96434900 | 96434906 | | |
| | | | | | | Side-fitted | DME 8-10 A-PV/V/C-S-3111F | 96434903 | 96434909 | | |
| SS 1.4401 | FKM | | | SS 1.4401 | Rp <u>1/4</u> | Front-fitted | DME 8-10 A-SS/V/SS-F-31AAF | 96437424 | 96437430 | | |
| | | | | | | Side-fitted | DME 8-10 A-SS/V/SS-S-31AAF | 96437427 | 96437433 | | |
| 12 (9) | 6 | | | PP | EPDM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DME 12-6 A-PP/E/C-F-3111F | 96434881 | 96434887 |
| | | | | | | | | Side-fitted | DME 12-6 A-PP/E/C-S-3111F | 96434884 | 96434890 |
| | | PP | FKM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DME 12-6 A-PP/V/C-F-3111F | 96443983 | 96443989 | | |
| | | | | | | Side-fitted | DME 12-6 A-PP/V/C-S-3111F | 96443986 | 96443992 | | |
| | | PVDF | FKM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DME 12-6 A-PV/V/C-F-3111F | 96434901 | 96434907 | | |
| | | | | | | Side-fitted | DME 12-6 A-PV/V/C-S-3111F | 96434904 | 96434910 | | |
| | | SS 1.4401 | FKM | SS 1.4401 | Rp <u>1/4</u> | Front-fitted | DME 12-6 A-SS/V/SS-F-31AAF | 96437425 | 96437431 | | |
| | | | | | | Side-fitted | DME 12-6 A-SS/V/SS-S-31AAF | 96437428 | 96437434 | | |
| | | 18.5 (14.5) | 6.2 | PP | EPDM | Ceramic | <u>6/9</u> , 9/12 | Front-fitted | DME 19-6 A-PP/E/C-F-3122F | 96434891 | 96434895 |
| | | | | | | | | Side-fitted | DME 19-6 A-PP/E/C-S-3122F | 96434893 | 96434897 |
| PP | FKM | | | Ceramic | <u>6/9</u> , 9/12 | Front-fitted | DME 19-6 A-PP/V/C-F-3122F | 96443993 | 96443997 | | |
| | | | | | | Side-fitted | DME 19-6 A-PP/V/C-S-3122F | 96443995 | 96443999 | | |
| PVDF | FKM | | | Ceramic | <u>6/9</u> , 9/12 | Front-fitted | DME 19-6 A-PV/V/C-F-3122F | 96434911 | 96434915 | | |
| | | | | | | Side-fitted | DME 19-6 A-PV/V/C-S-3122F | 96434913 | 96434917 | | |
| SS 1.4401 | FKM | | | SS 1.4401 | Rp <u>3/8</u> | Front-fitted | DME 19-6 A-SS/V/SS-F-31BBF | 96437435 | 96437439 | | |
| | | | | | | Side-fitted | DME 19-6 A-SS/V/SS-S-31BBF | 96437437 | 96437441 | | |
| 48 (37) | 2.6 | | | PP | EPDM | Ceramic | 6/9, <u>9/12</u> | Front-fitted | DME 48-3 A-PP/E/C-F-3122F | 96434892 | 96434896 |
| | | | | | | | | Side-fitted | DME 48-3 A-PP/E/C-S-3122F | 96434894 | 96434898 |
| | | PP | FKM | Ceramic | 6/9, <u>9/12</u> | Front-fitted | DME 48-3 A-PP/V/C-F-3122F | 96443994 | 96443998 | | |
| | | | | | | Side-fitted | DME 48-3 A-PP/V/C-S-3122F | 96443996 | 96444000 | | |
| | | PVDF | FKM | Ceramic | 6/9, 9/12 | Front-fitted | DME 48-3 A-PV/V/C-F-3122F | 96434912 | 96434916 | | |
| | | | | | | Side-fitted | DME 48-3 A-PV/V/C-S-3122F | 96434914 | 96434918 | | |
| | | SS 1.4401 | FKM | SS 1.4401 | Rp <u>3/8</u> | Front-fitted | DME 48-3 A-SS/V/SS-F-31BBF | 96437436 | 96437440 | | |
| | | | | | | Side-fitted | DME 48-3 A-SS/V/SS-S-31BBF | 96437438 | 96437442 | | |

★¹ Values in brackets are maximum capacity if the anti-cavitation function has been selected.

★² See list of pumped liquids on page 37.

★³ Underlined sizes are factory-fitted connections; other connections are supplied with the pump as standard.
4/6, 6/9 and 9/12 are compression fittings for inner/outer tubing diameters stated in mm.
Rp 1/4 and Rp 3/8 connections have internal thread for pipe connection.

★⁴ Also available in AR-version.

DME (0-48 l/h), non-standard range

Example in bold: DME 2-18 A-SS/V/SS-F-32AAF

| Maximum capacity and pressure ^{★2} | Control variant | Materials of dosing head, gaskets and valve balls | Control panel position | Motor voltage | Valves | Suction/discharge connection | Mains plug |
|---|-----------------|---|-------------------------------------|---|-----------------------------------|---|--|
| [l/h] - [bar] | See page 6 | Dosing head: PP = Polypropylene PV = PVDF SS = Stainless steel 1.4401 Gaskets: E = EPDM V = FKM T = PTFE Valve balls: C = Ceramic SS = Stainless steel 1.4401 T = PTFE | F = Front-fitted S = Side-fitted | 2 = 1x120 V, 60 Hz 3 = 1x100-240 V, 50-60 Hz | 1 = Standard 2 = Spring-loaded | 1 = Tubing 4/6+ 6/9 mm 2 = Tubing 6/9+6/12 +9/12 mm 3 = Tubing 4/6 mm 4 = Tubing 6/9 mm 5 = Tubing 6/12 mm 6 = Tubing 9/12 mm T = Tubing 0.17"/0.25" R = Tubing 0.25"/0.375" S = Tubing 0.375"/0.5" A = Threaded Rp 1/4 B = Threaded Rp 3/8 V = Threaded 1/4" NPT Y = Threaded 3/8" NPT E = Cementing d.10 mm F = Cementing d.12 mm | F = EU B = USA+ CAN G = UK I = AU E = CH J = JP |

| DME | Pump head | Gasket | Ball | | | | | | | |
|----------------------|---|----------|--------|---------|------------|--------|--------|---|---|----------------------------|
| 2-18 8-10 12-6 | A AR AP ^{★1} AG ^{★1} | PP PV | E V | C SS | -F- -S- | 2 3 | 1 2 | 1 | 1 | F B G I E J |
| | | PV | T | T | | | | 2 | 2 | |
| | | SS | E V | SS | | | | 2 | 2 | |
| | | | | | | | | 3 | 3 | |
| | | | | | | | | 4 | 4 | |
| | | | | | | | | 5 | 5 | |
| 19-6 48-3 | A AR AP ^{★1} AG ^{★1} | PP PV | E V | C SS | -F- -S- | 2 3 | 1 2 | 6 | 6 | |
| | | PV | T | T | | | | A | A | |
| | | SS | E V | SS | | | | E | E | |
| | | | | | | | | F | F | |
| | | | | | | | | A | A | |
| | | | | | | | | B | B | |

★¹ Pumps equipped with bus communication module, see page 15.

★² 2-18: 2.5 l/h, 18 bar
8-10: 7.5 l/h, 10 bar
12-6: 12 l/h, 6 bar
19-6: 18.5 l/h, 6.2 bar
48-3: 48 l/h, 2.6 bar

DME (60-940 l/h), standard range

Power supply: 1 x 100-240 V, 50-60 Hz switch-mode).

Mains plug: EU (Schuko).

Valves: Single-ball on suction side; single-ball on discharge side.

| Max. capacity [l/h] | Max. pressure [bar] | Control variant | Materials | | | Connection ★ | Control panel position | Type designation | Product number | | | |
|---------------------|---------------------|-----------------|-----------|---------|-------------|----------------|------------------------|---------------------------------|----------------|--------------|--------------------------------|----------|
| | | | Pump head | Gaskets | Valve balls | | | | | | | |
| 60 | 10 | AR | PP | EPDM | Ceramic | 19/27 25/34 | Front-fitted | DME 60-10 AR-PP/E/C-F-31QQF | 96524874 | | | |
| | | | | | | | Side-fitted | DME 60-10 AR-PP/E/C-S-31QQF | 96524879 | | | |
| | | | PP | FKM | Ceramic | 19/27 25/34 | Front-fitted | DME 60-10 AR-PP/V/C-F-31QQF | 96524910 | | | |
| | | | | | | | Side-fitted | DME 60-10 AR-PP/V/C-S-31QQF | 96524911 | | | |
| | | | PVDF | FKM | Ceramic | 19/27 25/34 | Front-fitted | DME 60-10 AR-PV/V/C-F-31QQF | 96524912 | | | |
| | | | | | | | Side-fitted | DME 60-10 AR-PV/V/C-S-31QQF | 96524913 | | | |
| | | | SS | PTFE | SS 1.4401 | Rp 3/4 | Front-fitted | DME 60-10 AR-SS/T/SS-F-31A1A1F | 97503509 | | | |
| | | | | | | | Side-fitted | DME 60-10 AR-SS/T/SS-S-31A1A1F | 97503521 | | | |
| | | | 60 | 10 | B | PP | EPDM | Ceramic | 19/27 25/34 | Front-fitted | DME 60-10 B-PP/E/C-F-31QQF | 96524916 |
| | | | | | | | | | | Side-fitted | DME 60-10 B-PP/E/C-S-31QQF | 96524917 |
| PP | FKM | Ceramic | | | | 19/27 25/34 | Front-fitted | DME 60-10 B-PP/V/C-F-31QQF | 96524918 | | | |
| | | | | | | | Side-fitted | DME 60-10 B-PP/V/C-S-31QQF | 96524919 | | | |
| PVDF | FKM | Ceramic | | | | 19/27 25/34 | Front-fitted | DME 60-10 B-PV/V/C-F-31QQF | 96524920 | | | |
| | | | | | | | Side-fitted | DME 60-10 B-PV/V/C-S-31QQF | 96524921 | | | |
| SS | PTFE | SS 1.4401 | | | | Rp 3/4 | Front-fitted | DME 60-10 B-SS/T/SS-F-31A1A1F | 97503522 | | | |
| | | | | | | | Side-fitted | DME 60-10 B-SS/T/SS-S-31A1A1F | 97503523 | | | |
| 150 | 4 | AR | | | | PP | EPDM | Ceramic | 19/27 25/34 | Front-fitted | DME 150-4 AR-PP/E/C-F-31QQF | 96524925 |
| | | | | | | | | | | Side-fitted | DME 150-4 AR-PP/E/C-S-31QQF | 96524926 |
| | | | PP | FKM | Ceramic | 19/27 25/34 | Front-fitted | DME 150-4 AR-PP/V/C-F-31QQF | 96524927 | | | |
| | | | | | | | Side-fitted | DME 150-4 AR-PP/V/C-S-31QQF | 96524928 | | | |
| | | | PVDF | FKM | Ceramic | 19/27 25/34 | Front-fitted | DME 150-4 AR-PV/V/C-F-31QQF | 96524929 | | | |
| | | | | | | | Side-fitted | DME 150-4 AR-PV/V/C-S-31QQF | 96524930 | | | |
| | | | SS | PTFE | SS 1.4401 | Rp 3/4 | Front-fitted | DME 150-4 AR-SS/T/SS-F-31A1A1F | 96987376 | | | |
| | | | | | | | Side-fitted | DME 150-4 AR-SS/T/SS-S-31A1A1F | 97503525 | | | |
| | | | 150 | 4 | B | PP | EPDM | Ceramic | 19/27 25/34 | Front-fitted | DME 150-4 B-PP/E/C-F-31QQF | 96524933 |
| | | | | | | | | | | Side-fitted | DME 150-4 B-PP/E/C-S-31QQF | 96524934 |
| PP | FKM | Ceramic | | | | 19/27 25/34 | Front-fitted | DME 150-4 B-PP/V/C-F-31QQF | 96524935 | | | |
| | | | | | | | Side-fitted | DME 150-4 B-PP/V/C-S-31QQF | 96524936 | | | |
| PVDF | FKM | Ceramic | | | | 19/27 25/34 | Front-fitted | DME 150-4 B-PV/V/C-F-31QQF | 96524937 | | | |
| | | | | | | | Side-fitted | DME 150-4 B-PV/V/C-S-31QQF | 96524938 | | | |
| SS | PTFE | SS 1.4401 | | | | Rp 3/4 | Front-fitted | DME 150-4 B-SS/T/SS-F-31A1A1F | 97503526 | | | |
| | | | | | | | Side-fitted | DME 150-4 B-SS/T/SS-S-31A1A1F | 97503529 | | | |
| 376 | 10 | AR | | | | PP | EPDM | Glass | Rp 1 1/4 | Front-fitted | DME 375-10 AR-PP/E/G-F-31A2A2F | 96524941 |
| | | | | | | | | | | Side-fitted | DME 375-10 AR-PP/E/G-S-31A2A2F | 96524942 |
| | | | PP | FKM | Glass | Rp 1 1/4 | Front-fitted | DME 375-10 AR-PP/V/G-F-31A2A2F | 96524943 | | | |
| | | | | | | | Side-fitted | DME 375-10 AR-PP/V/G-S-31A2A2F | 96524944 | | | |
| | | | PVDF | FKM | Glass | Rp 1 1/4 | Front-fitted | DME 375-10 AR-PV/V/G-F-31A2A2F | 96524945 | | | |
| | | | | | | | Side-fitted | DME 375-10 AR-PV/V/G-S-31A2A2F | 96524946 | | | |
| | | | SS | PTFE | SS 1.4401 | Rp 1 1/4 | Front-fitted | DME 375-10 AR-SS/T/SS-F-31A2A2F | 96987377 | | | |
| | | | | | | | Side-fitted | DME 375-10 AR-SS/T/SS-S-31A2A2F | 95703530 | | | |
| | | | 376 | 10 | B | PP | EPDM | Glass | Rp 1 1/4 | Front-fitted | DME 375-10 B-PP/E/G-F-31A2A2F | 96524949 |
| | | | | | | | | | | Side-fitted | DME 375-10 B-PP/E/G-S-31A2A2F | 96524950 |
| PP | FKM | Glass | | | | Rp 1 1/4 | Front-fitted | DME 375-10 B-PP/V/G-F-31A2A2F | 96524951 | | | |
| | | | | | | | Side-fitted | DME 375-10 B-PP/V/G-S-31A2A2F | 96524952 | | | |
| PVDF | FKM | Glass | | | | Rp 1 1/4 | Front-fitted | DME 375-10 B-PV/V/G-F-31A2A2F | 96524953 | | | |
| | | | | | | | Side-fitted | DME 375-10 B-PV/V/G-S-31A2A2F | 96524954 | | | |
| SS | PTFE | SS 1.4401 | | | | Rp 1 1/4 | Front-fitted | DME 375-10 B-SS/T/SS-F-31A2A2F | 97503531 | | | |
| | | | | | | | Side-fitted | DME 375-10 B-SS/T/SS-S-31A2A2F | 97503532 | | | |

| | | | | | | | | | |
|-----|---|----|------|------|-----------|----------|--------------|--------------------------------|----------|
| 940 | 4 | AR | PP | EPDM | Glass | Rp 1 1/4 | Front-fitted | DME 940-4 AR-PP/E/G-F-31A2A2F | 96524958 |
| | | | | | | | Side-fitted | DME 940-4 AR-PP/E/G-S-31A2A2F | 96524959 |
| | | | PP | FKM | Glass | Rp 1 1/4 | Front-fitted | DME940-4 AR-PP/V/G-F-31A2A2F | 96524960 |
| | | | | | | | Side-fitted | DME 940-4 AR-PP/V/G-S-31A2A2F | 96524961 |
| | | | PVDF | FKM | Glass | Rp 1 1/4 | Front-fitted | DME 940-4 AR-PV/V/G-F-31A2A2F | 96524962 |
| | | | | | | | Side-fitted | DME 940-4 AR-PV/V/G-S-31A2A2F | 96524963 |
| | | | SS | PTFE | SS 1.4401 | Rp 1 1/4 | Front-fitted | DME 940-4 AR-SS/T/SS-F-31A2A2F | 97503533 |
| | | | | | | | Side-fitted | DME 940-4 AR-SS/T/SS-S-31A2A2F | 97503534 |
| 940 | 4 | B | PP | EPDM | Glass | Rp 1 1/4 | Front-fitted | DME 940-4 B-PP/E/G-F-31A2A2F | 96524966 |
| | | | | | | | Side-fitted | DME 940-4 B-PP/E/G-S-31A2A2F | 96524967 |
| | | | PP | FKM | Glass | Rp 1 1/4 | Front-fitted | DME 940-4 B-PP/V/G-F-31A2A2F | 96524968 |
| | | | | | | | Side-fitted | DME 940-4 B-PP/V/G-S-31A2A2F | 96524969 |
| | | | PVDF | FKM | Glass | Rp 1 1/4 | Front-fitted | DME 940-4 B-PV/V/G-F-31A2A2F | 96524980 |
| | | | | | | | Side-fitted | DME 940-4 B-PV/V/G-S-31A2A2F | 96524981 |
| | | | SS | PTFE | SS 1.4401 | Rp 1 1/4 | Front-fitted | DME 940-4 B-SS/T/SS-F-31A2A2F | 97503537 |
| | | | | | | | Side-fitted | DME 940-4 B-SS/T/SS-S-31A2A2F | 97503538 |

★ 19/27, 25/34, 32/41 and 38/48 are inner/outer tubing diameters in mm for hose clamp connectors.
Rp 3/4 and Rp 1 1/4 connections have internal thread for pipe connection.

DME (60-940 l/h), non-standard range

Example in bold: DME 150-4 AR SS/V/SS-F-32A1A1F

| Maximum capacity and pressure ★ ² | Control variant | Materials of dosing head, gaskets and valve balls | Control panel position | Motor voltage | Valves | Connection suction/ discharge | Mains plug |
|---|-----------------|--|-------------------------------------|---|-----------------------------------|---|---|
| [l/h] - [bar] | See page 6 | Dosing head: PP = Polypropylene PV = PVDF SS = Stainless steel 1.4401 Gaskets: E = EPDM V = FKM T = PTFE Valve balls: C = Ceramic SS = Stainless steel 1.4401 G = Glass T = PTFE | F = Front-fitted S = Side-fitted | 2 = 1 x 120 V, 60 Hz 3 = 1 x 100-240 V, 50-60 Hz | 1 = Standard 2 = Spring-loaded | Q = 19/27+ 25/34 mm A1 = Threaded, Rp 3/4 A2 = Threaded, Rp 1 1/4 A3 = Threaded 3/4" NPT A4 = Threaded 1 1/4" NPT | F = EU (DIN) B = USA+CAN G = UK I = AU E = CH J = JP |

| DME | Pump head | Gasket | Ball | | | | | | |
|-----------------|-----------------------------|----------|-------------|-------------------|------------|--------|--------|---------------|----------------------------|
| 60-10 150-4 | B AR AP★ ¹ | PP PV | E V T | C T SS | -F- -S- | 2 3 | 1 2 | Q A1 A3 | F B G I E J |
| | | SS | E V T | SS | | | | | |
| 375-10 940-4 | B AR AP★ ¹ | PP PV | E V T | C G T SS | -F- -S- | 2 3 | 1 2 | A2 A4 | |
| | | SS | E V T | SS | | | | | |

★¹ Pumps equipped with bus communication module, see page 15.

★² 60-10: 60 l/h, 10 bar
150-4: 150 l/h, 4 bar
375-10: 375 l/h, 10 bar
940-4: 940 l/h, 4 bar

DMS (0-12 l/h), standard range

Power supply: 1 x 230 V, 50 Hz.

Mains plug: EU (Schuko).

Valves: Double-ball on suction side, single-ball on discharge side.

| Max. capacity [l/h] | Max. pressure [bar] | Control variant ^{★1} | Materials ^{★2} | | | Connection ^{★3} | Control panel position | Type designation (variants A ^{★4} and B) | Product number | | |
|---------------------|---------------------|-------------------------------|-------------------------|--------------|----------------------------|------------------------------|----------------------------|---|---------------------------------|-------------------------------|-----------|
| | | | Pump head | Gaskets | Valve balls | | | | Without alarm relay (variant A) | With alarm relay (variant AR) | Variant D |
| 2.5 | 11 | A AR | PP | EPDM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 2-11 A-PP/E/C-F-1111F | 96437450 | 96446959 | |
| | | | | | | | | Side-fitted | DMS 2-11 A-PP/E/C-S-1111F | 96437451 | 96446960 |
| | | | PP | FKM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 2-11 A-PP/V/C-F-1111F | 96443969 | 96446961 | |
| | | | | | | | | Side-fitted | DMS 2-11 A-PP/V/C-S-1111F | 96443970 | 96446962 |
| | | | PVDF | FKM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 2-11 A-PV/V/C-F-1111F | 96437458 | 96446963 | |
| | | | | | | | | Side-fitted | DMS 2-11 A-PV/V/C-S-1111F | 96437459 | 96446964 |
| | | SS 1.4401 | FKM | SS 1.4401 | Rp 1/4 | Front-fitted | DMS 2-11 A-SS/V/SS-F-11AAF | 96437466 | 96446965 | | |
| | | | | | | | Side-fitted | DMS 2-11 A-SS/V/SS-S-11AAF | 96437467 | 96446966 | |
| | | B | PP | EPDM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 2-11 B-PP/E/C-F-1111F | 96437474 | - | |
| | | | | | | | | Side-fitted | DMS 2-11 B-PP/E/C-S-1111F | 96437475 | - |
| | | | PP | FKM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 2-11 B-PP/V/C-F-1111F | 96443977 | - | |
| | | | | | | | | Side-fitted | DMS 2-11 B-PP/V/C-S-1111F | 96443978 | - |
| PVDF | FKM | | Ceramic | 4/6, 6/9 | Front-fitted | DMS 2-11 B-PV/V/C-F-1111F | 96437478 | - | | | |
| | | | | | | Side-fitted | DMS 2-11 B-PV/V/C-S-1111F | 96437479 | - | | |
| SS 1.4401 | FKM | SS 1.4401 | Rp 1/4 | Front-fitted | DMS 2-11 B-SS/V/SS-F-11AAF | 96437482 | - | | | | |
| | | | | | Side-fitted | DMS 2-11 B-SS/V/SS-S-11AAF | 96437483 | - | | | |
| 3.3 | 11 | D | PP | EPDM | Ceramic | 4/6, 6/9 | x | DMS 2-11 D-PP/E/C-X-1111F | | | 96476529 |
| | | | | | | | | Side-fitted | DMS 2-11 D-PP/E/C-S-X-1111F | | |
| | | | PP | FKM | Ceramic | 4/6, 6/9 | x | DMS 2-11 D-PP/V/C-X-1111F | | | 96476532 |
| | | | | | | | | Side-fitted | DMS 2-11 D-PP/V/C-S-X-1111F | | |
| | | | PVDF | FKM | Ceramic | 4/6, 6/9 | x | DMS 2-11 D-PV/V/C-X-1111F | | | 96476533 |
| | | | | | | | | Side-fitted | DMS 2-11 D-PV/V/C-S-X-1111F | | |
| SS 1.4401 | FKM | SS 1.4401 | Rp 1/4 | x | DMS 2-11 D-SS/V/SS-X-11AAF | | | 96476534 | | | |
| | | | | | Side-fitted | DMS 2-11 D-SS/V/SS-S-X-11AAF | | | 96476535 | | |
| 4 | 7 | A AR | PP | EPDM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 4-7 A-PP/E/C-F-1111F | 96437452 | 96446967 | |
| | | | | | | | | Side-fitted | DMS 4-7 A-PP/E/C-S-1111F | 96437453 | 96446968 |
| | | | PP | FKM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 4-7 A-PP/V/C-F-1111F | 96443971 | 96446969 | |
| | | | | | | | | Side-fitted | DMS 4-7 A-PP/V/C-S-1111F | 96443972 | 96446970 |
| | | | PVDF | FKM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 4-7 A-PV/V/C-F-1111F | 96437460 | 96446971 | |
| | | | | | | | | Side-fitted | DMS 4-7 A-PV/V/C-S-1111F | 96437461 | 96446972 |
| | | SS 1.4401 | FKM | SS 1.4401 | Rp 1/4 | Front-fitted | DMS 4-7 A-SS/V/SS-F-11AAF | 96437468 | 96446973 | | |
| | | | | | | | Side-fitted | DMS 4-7 A-SS/V/SS-S-11AAF | 96437469 | 96446974 | |
| | | B | PP | EPDM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 4-7 B-PP/E/C-F-1111F | 96437475 | - | |
| | | | | | | | | Side-fitted | DMS 4-7 B-PP/E/C-S-1111F | 96437476 | - |
| | | | PP | FKM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 4-7 B-PP/V/C-F-1111F | 96443978 | - | |
| | | | | | | | | Side-fitted | DMS 4-7 B-PP/V/C-S-1111F | 96443979 | - |
| PVDF | FKM | | Ceramic | 4/6, 6/9 | Front-fitted | DMS 4-7 B-PV/V/C-F-1111F | 96437479 | - | | | |
| | | | | | | Side-fitted | DMS 4-7 B-PV/V/C-S-1111F | 96437480 | - | | |
| SS 1.4401 | FKM | SS 1.4401 | Rp 1/4 | Front-fitted | DMS 4-7 B-SS/V/SS-F-11AAF | 96437483 | - | | | | |
| | | | | | Side-fitted | DMS 4-7 B-SS/V/SS-S-11AAF | 96437484 | - | | | |
| 5.7 | 11 | D | PP | EPDM | Ceramic | 4/6, 6/9 | x | DMS 4-7 D-PP/E/C-X-1111F | | | 96476535 |
| | | | | | | | | Side-fitted | DMS 4-7 D-PP/E/C-S-X-1111F | | |
| | | | PP | FKM | Ceramic | 4/6, 6/9 | x | DMS 4-7 D-PP/V/C-X-1111F | | | 96476536 |
| | | | | | | | | Side-fitted | DMS 4-7 D-PP/V/C-S-X-1111F | | |
| | | | PVDF | FKM | Ceramic | 4/6, 6/9 | x | DMS 4-7 D-PV/V/C-X-1111F | | | 96476537 |
| | | | | | | | | Side-fitted | DMS 4-7 D-PV/V/C-S-X-1111F | | |
| SS 1.4401 | FKM | SS 1.4401 | Rp 1/4 | x | DMS 4-7 D-SS/V/SS-X-11AAF | | | 96476538 | | | |
| | | | | | Side-fitted | DMS 4-7 D-SS/V/SS-S-X-11AAF | | | 96476539 | | |
| 7.5 | 11 | A AR | PP | EPDM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 8-5 A-PP/E/C-F-1111F | 96437454 | 96446975 | |
| | | | | | | | | Side-fitted | DMS 8-5 A-PP/E/C-S-1111F | 96437455 | 96446976 |
| | | | PP | FKM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 8-5 A-PP/V/C-F-1111F | 96443973 | 96446977 | |
| | | | | | | | | Side-fitted | DMS 8-5 A-PP/V/C-S-1111F | 96443974 | 96446978 |
| | | | PVDF | FKM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 8-5 A-PV/V/C-F-1111F | 96437462 | 96446979 | |
| | | | | | | | | Side-fitted | DMS 8-5 A-PV/V/C-S-1111F | 96437463 | 96446980 |
| | | SS 1.4401 | FKM | SS 1.4401 | Rp 1/4 | Front-fitted | DMS 8-5 A-SS/V/SS-F-11AAF | 96437470 | 96446981 | | |
| | | | | | | | Side-fitted | DMS 8-5 A-SS/V/SS-S-11AAF | 96437471 | 96446982 | |
| | | B | PP | EPDM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 8-5 B-PP/E/C-F-1111F | 96437476 | - | |
| | | | | | | | | Side-fitted | DMS 8-5 B-PP/E/C-S-1111F | 96437477 | - |
| | | | PP | FKM | Ceramic | 4/6, 6/9 | Front-fitted | DMS 8-5 B-PP/V/C-F-1111F | 96443979 | - | |
| | | | | | | | | Side-fitted | DMS 8-5 B-PP/V/C-S-1111F | 96443980 | - |
| PVDF | FKM | | Ceramic | 4/6, 6/9 | Front-fitted | DMS 8-5 B-PV/V/C-F-1111F | 96437480 | - | | | |
| | | | | | | Side-fitted | DMS 8-5 B-PV/V/C-S-1111F | 96437481 | - | | |
| SS 1.4401 | FKM | SS 1.4401 | Rp 1/4 | Front-fitted | DMS 8-5 B-SS/V/SS-F-11AAF | 96437484 | - | | | | |
| | | | | | Side-fitted | DMS 8-5 B-SS/V/SS-S-11AAF | 96437485 | - | | | |
| 8.7 | 11 | D | PP | EPDM | Ceramic | 4/6, 6/9 | x | DMS 8-5 D-PP/E/C-X-1111F | | | 96476540 |
| | | | | | | | | Side-fitted | DMS 8-5 D-PP/E/C-S-X-1111F | | |
| | | | PP | FKM | Ceramic | 4/6, 6/9 | x | DMS 8-5 D-PP/V/C-X-1111F | | | 96476541 |
| | | | | | | | | Side-fitted | DMS 8-5 D-PP/V/C-S-X-1111F | | |
| | | | PVDF | FKM | Ceramic | 4/6, 6/9 | x | DMS 8-5 D-PV/V/C-X-1111F | | | 96476542 |
| | | | | | | | | Side-fitted | DMS 8-5 D-PV/V/C-S-X-1111F | | |
| SS 1.4401 | FKM | SS 1.4401 | Rp 1/4 | x | DMS 8-5 D-SS/V/SS-X-11AAF | | | 96476543 | | | |
| | | | | | Side-fitted | DMS 8-5 D-SS/V/SS-S-X-11AAF | | | 96476544 | | |

| Max. capacity [l/h] | Max. pressure [bar] | Control variant ★ ¹ | Materials ★ ² | | | Connection ★ ³ | Control panel position | Type designation (variants A ★ ⁴ and B) | Product number | | | |
|---------------------|---------------------|-----------------------------------|--------------------------|---------------|-----------------|------------------------------|---------------------------|---|------------------------------------|----------------------------------|-----------|----------|
| | | | Pump head | Gaskets | Valve balls | | | | Without alarm relay (variant A) | With alarm relay (variant AR) | Variant D | |
| 12 | 3.4 | A | PP | EPDM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DMS 12-3 A-PP/E/C-F-1111F | 96437456 | 96446951 | | |
| | | | | | | | Side-fitted | DMS 12-3 A-PP/E/C-S-1111F | 96437457 | 96446952 | | |
| | | AR | PP | FKM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DMS 12-3 A-PP/V/C-F-1111F | 96443975 | 96446953 | | |
| | | | | | | | Side-fitted | DMS 12-3 A-PP/V/C-S-1111F | 96443976 | 96446954 | | |
| | | PVDF | FKM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DMS 12-3 A-PV/V/C-F-1111F | 96437464 | 96446955 | | | |
| | | | | | | Side-fitted | DMS 12-3 A-PV/V/C-S-1111F | 96437465 | 96446956 | | | |
| | SS 1.4401 | FKM | SS 1.4401 | Rp <u>1/4</u> | Front-fitted | DMS 12-3 A-SS/V/SS-F-11AAF | 96437472 | 96446957 | | | | |
| | | | | | Side-fitted | DMS 12-3 A-SS/V/SS-S-11AAF | 96437473 | 96446958 | | | | |
| | 13.7 | 3.4 | B | PP | EPDM | Ceramic | 4/6, <u>6/9</u> | Front-fitted | DMS 12-3 B-PP/E/C-F-1111F | 96437477 | - | |
| | | | | | | | | Front-fitted | DMS 12-3 B-PP/V/C-F-1111F | 96443980 | - | |
| | | | | | | | | Front-fitted | DMS 12-3 B-PV/V/C-F-1111F | 96437481 | - | |
| | | | D | PP | FKM | Ceramic | 4/6, 6/9 | x | Front-fitted | DMS 12-3 B-SS/V/SS-F-11AAF | 96437485 | - |
| Front-fitted | | | | | | | | | DMS 12-3 D-PP/E/C-X-1111F | | | 96473184 |
| Front-fitted | | | | | | | | | DMS 12-3 D-PP/V/C-X-1111F | | | 96476544 |
| SS 1.4401 | FKM | SS 1.4401 | Rp <u>1/4</u> | x | Front-fitted | DMS 12-3 D-PV/V/C-X-1111F | | | 96476545 | | | |
| | | | | | Front-fitted | DMS 12-3 D-SS/V/SS-X-11AAF | | | 96476546 | | | |

★¹ See description of control variants on page 6.

★² See list of pumped liquids on page 37.

★³ Underlined sizes are factory-fitted connections; other sizes are supplied with the pump as standard.
4/6 and 6/9 are compression fittings for inner/outer tubing diameters stated in mm.
Rp 1/4 connection have internal thread for pipe connection.

★⁴ Also available in AR version.

DMS (0-12 l/h), non-standard range

Example in bold: **DMS 4-7 A-PP/V/C-S-1244F**

| Max. capacity and pressure★ ² [l/h] - [bar] | Control variant | Materials of dosing head, gaskets and valve balls | Control panel position | Motor voltage | Valves | Suction/discharge connection | Mains plug |
|---|-----------------|---|---|--|-----------------------------------|---|---|
| | See page 6 | Dosing head: PP = Polypropylene PV = PVDF SS = Stainless steel 1.4401 Gaskets: E = EPDM V = FKM T = PTFE Valve balls: C = Ceramic SS = Stainless steel 1.4401 T = PTFE | F = Front-fitted S = Side-fitted X = No control panel | 1 = 1 x 230 V, 50 Hz 2 = 1 x 120 V, 60 Hz | 1 = Standard 2 = Spring-loaded | 1 = Tubing 4/6+6/9 mm 2 = Tubing 6/9+6/12 +9/12 mm 3 = Tubing 4/6 mm 4 = Tubing 6/9 mm 5 = Tubing 6/12 mm 6 = Tubing 9/12 mm T = Tubing 0.17"/0.25" R = Tubing 0.25"/0.375" S = Tubing 0.375"/0.5" A = Threaded Rp 1/4 B = Threaded Rp 3/8 B = Threaded Rp 3/8 V = Threaded 1/4" NPT Y = Threaded 3/8" NPT E = Cementing d.10 mm F = Cementing d.12 mm | F = EU B = USA+CAN G = UK I = AU E = CH J = JP |

| DMS | Pump head | Gasket | Ball | | | | | | | |
|----------------------------|-----------|----------|--------|----------|------------|--------|--------|--|--|----------------------------|
| 2-11 4-7 8-5 12-3 | A-AR | PP PV | E V | LC SS | -F- -S- | 1 2 | 1 2 | 1 2 3 4 5 6 T R S A (PVC) E (PVC) F (PVC) | 1 2 3 4 5 6 T R S A (PVC) E (PVC) F (PVC) | F B G I E J |
| | | PV | T | T | | | | | | |
| | | SS | E V | SS | -F- -S- | 1 2 | 1 2 | A B V Y | A B V Y | |
| | B | PP PV | E V | C SS | -F- | 1 2 | 1 2 | 1 2 3 4 5 6 T R S A (PVC) E (PVC) F (PVC) | 1 2 3 4 5 6 T R S A (PVC) E (PVC) F (PVC) | F B G I E J |
| | | PV | T | T | | | | | | |
| | | SS | E V | SS | -F- | 1 2 | 1 2 | A B V Y | A B V Y | |
| | D | PP PV | E V | C SS | -X- | 1 2 | 1 2 | 1 2 3 4 5 6 T R S A (PVC) E (PVC) F (PVC) | 1 2 3 4 5 6 T R S A (PVC) E (PVC) F (PVC) | F J |
| | | PV | T | T | | | | | | |
| | | SS | E V | SS | -X- | 1 2 | 1 2 | A B V Y | A B V Y | |

★² 2-11: 2.5 l/h, 11 bar
4-7: 4 l/h, 7 bar
8-5: 7.5 l/h, 5.4 bar
12-3: 12 l/h, 3.4 bar

List of pumped liquids

The resistance table below is intended as a general guide for material resistance (at room temperature), and does not replace testing of the chemicals and pump materials under specific working conditions.

The data shown are based on information from various sources available, but many factors (purity, temperature, abrasive particles, etc.) may affect the chemical resistance of a given material.

Note: Some of the liquids in this table may be toxic, corrosive or hazardous.

Note: Please be careful when handling these liquids.

| Pumped liquid (20°C) | | | Materials | | | | | | | | | | |
|---------------------------------|---|-----------------|--------------|------|-----------|-----|--------|------|-----|------|-------------|---------|-------|
| Description | Chemical formula | Concentration % | Pump housing | | | | Gasket | | | | | Ball | |
| | | | PP | PVDF | SS 1.4401 | PVC | FKM | EPDM | CSM | PTFE | Centellen C | Ceramic | Glass |
| Acetic acid | CH ₃ COOH | 25 | ● | ● | ● | ● | - | ○ | ○ | ● | ○ | ● | ● |
| | | 60 | ● | ● | ● | ● | - | ○ | - | ● | ○ | ● | ● |
| | | 85 | ● | ● | ● | - | - | - | - | ● | ○ | ● | ● |
| Aluminium chloride | AlCl ₃ | 40 | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | |
| Aluminium sulphate | Al ₂ (SO ₄) ₃ | 60 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| Ammonia, aqueous | NH ₄ OH | 28 | ● | ● | ● | ● | - | ● | ● | ● | ○ | ● | - |
| Calcium hydroxide★ ⁷ | Ca(OH) ₂ | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | - |
| Chromic acid★ ⁵ | H ₂ CrO ₄ | 20 | ○ | ● | - | ● | ● | ● | ● | ● | ● | ● | ● |
| | | 10 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | 30 | - | ● | - | ● | ● | ○ | ● | ● | ○ | ● | ● |
| | | 40 | - | ● | - | ● | ● | - | ● | ● | ○ | ● | ● |
| | | 50 | - | ● | - | ● | ● | - | ● | ● | ○ | ● | ● |
| Copper sulphate | CuSO ₄ | 30 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| Ferric chloride★ ³ | FeCl ₃ | 100 | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | |
| Ferric sulphate★ ³ | Fe ₂ (SO ₄) ₃ | 100 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| Ferrous chloride | FeCl ₂ | 100 | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | |
| Ferrous sulphate | FeSO ₄ | 50 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| Hydrochloric acid | HCl | < 25 | ● | ● | - | ● | ○ | ● | ● | ● | ● | ● | ● |
| | | 25-37 | ● | ● | - | ● | - | ● | - | ● | ○ | ● | ● |
| Hydrogen peroxide | H ₂ O ₂ | 30 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | 10 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | 30 | ● | ● | ● | ● | ● | ● | ● | ● | - | ● | ● |
| Nitric acid | HNO ₃ | 40 | ○ | ● | ● | ● | ● | ● | - | ● | - | ● | ● |
| | | 70 | - | ● | ● | - | ● | - | - | ● | - | ● | ● |
| | | 5 | ● | ● | - | ● | - | ● | ● | ● | ● | ● | ● |
| Peracetic acid | CH ₃ COOOH | 5 | ● | ● | - | ● | - | ● | ● | ● | ● | ● | |
| Potassium hydroxide | KOH | 50 | ● | - | ● | ● | - | ● | ● | ● | ○ | ● | - |
| Potassium permanganate | KMnO ₄ | 10 | ● | ● | ● | ● | - | ● | ● | ● | ● | ● | |
| Sodium chlorate | NaClO ₃ | 30 | ● | ● | ● | ● | ○ | ● | ● | ● | ● | ● | |
| Sodium chloride | NaCl | 30 | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | |
| Sodium chlorite | NaClO ₂ | 20 | ● | ○ | - | - | ● | ● | ● | ● | ● | ● | |
| Sodium hydroxide | NaOH | 20 | ● | ○ | ● | ● | ● | ● | ● | ● | ○ | ● | - |
| | | 30 | ● | - | ● | ● | ● | ● | ● | ● | ○ | ● | - |
| | | 50 | ● | - | ● | ● | ● | ● | ● | ● | ○ | ● | - |
| Sodium hypochlorite | NaOCl | 20 | ○ | ● | - | ● | ● | ● | ● | ● | ● | ● | |
| Sodium sulphide | Na ₂ S | 30 | ● | ● | ● | ● | ● | ● | ● | ● | ● | - | |
| Sodium sulphite★ ⁶ | Na ₂ SO ₃ | 20 | ● | ● | ● | ● | ● | ● | ● | ● | ● | - | |
| Sulphurous acid | H ₂ SO ₃ | 6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | |
| Sulphuric acid★ ⁴ | H ₂ SO ₄ | < 80 | ● | ● | - | ○ | ● | ○ | ● | ● | ○ | ● | ○ |
| | | 80-98 | ○ | ● | - | - | ● | - | - | ● | ● | ● | - |

● Resistant

○ Limited resistance

- Not resistant

★³ Risk of crystallisation.

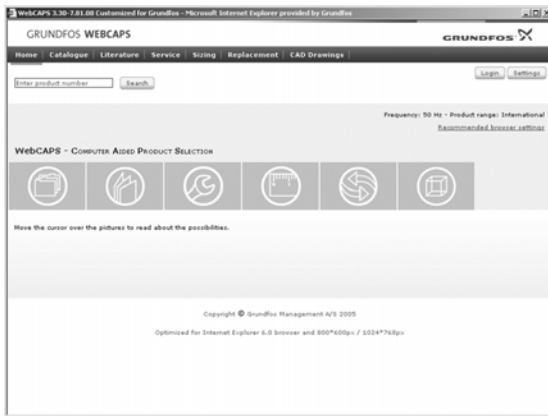
★⁴ Reacts violently with water and generates much heat. (Pump should be absolutely dry before dosing sulphuric acid.)

★⁵ Must be fluoride-free when glass balls are used.

★⁶ In neutral solutions.

★⁷ Saturated solution 0.1%.

WebCAPS



WebCAPS is a **Web-based Computer Aided Product Selection** program available on www.grundfos.com.

WebCAPS contains detailed information on more than 185 000 Grundfos products in more than 20 languages.

In WebCAPS, all information is divided into 6 sections:

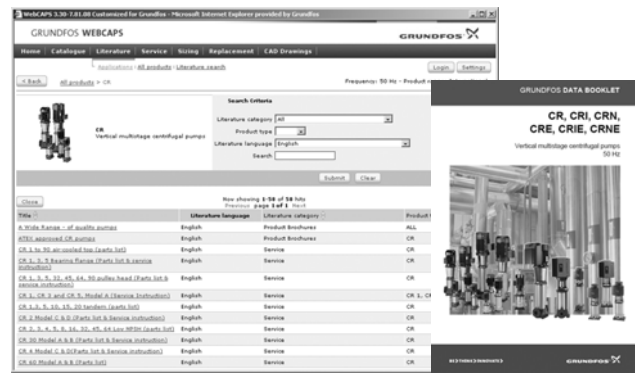
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

With a starting point in areas of applications and pump types, this section contains

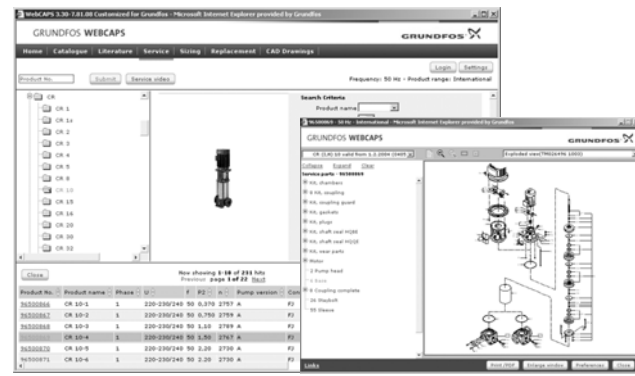
- technical data
- curves (QH, Eta, P1, P2, etc) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

In this section you can access all the latest documents of a given pump, such as

- data booklets
- Installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures, etc.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and cancelled Grundfos pumps. Furthermore, this section contains service videos showing you how to replace service parts.



Sizing

With a starting point in different application areas and installation examples, this section gives easy step-by-step instructions in how to

- select the most suitable and efficient pump for your installation
- carry out advanced calculations based on energy consumption, payback periods, load profiles, lifecycle costs, etc.
- analyse your selected pump via the built-in lifecycle cost tool
- determine the flow velocity in wastewater applications, etc.

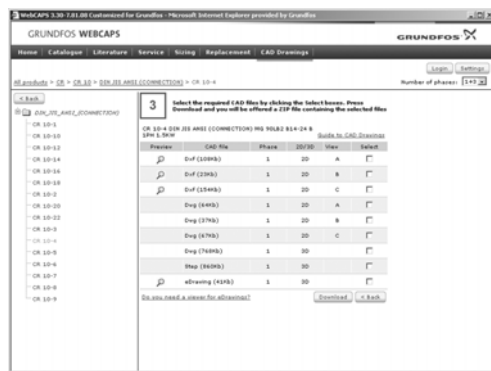


Replacement

In this section you find a guide to select and compare replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump.

The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. After having specified the installed pump, the guide suggests a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings

In this section it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

The following formats are available in WebCAPS:

2-dimensional drawings

- .dxf, wireframe drawings
- .dwg, wireframe drawings.

3-dimensional drawings

- .dwg, wireframe drawings (without surfaces)
- .stp, solid drawings (with surfaces)
- .eprt, E-drawings.

WinCAPS



Fig. 26 WinCAPS CD-ROM

WinCAPS is a **Windows-based Computer Aided Product Selection** program containing detailed information on more than 185,000 Grundfos products in more than 22 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no Internet connection is available.

WinCAPS is available on CD-ROM and updated once a year.



| | |
|---------------------|----|
| V7164097 0809 | GB |
| Repl. V7164097 0107 | |

Subject to alterations.