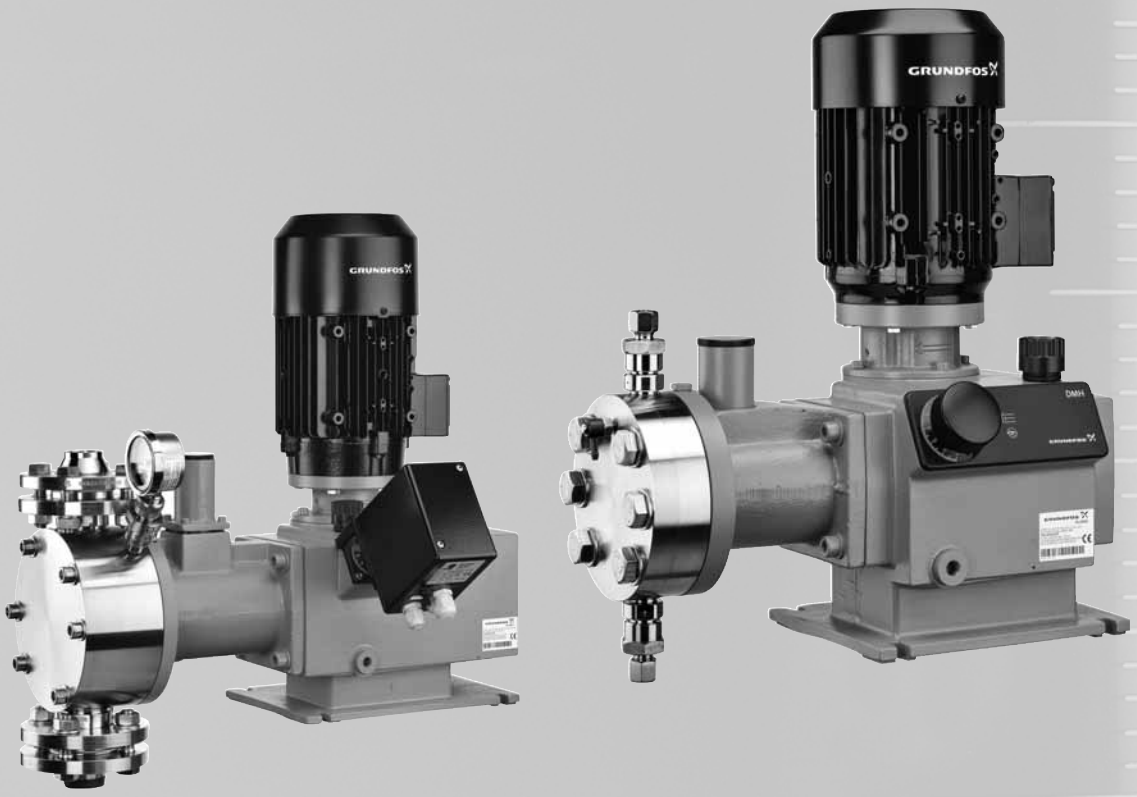
DMH

Hydraulically actuated piston diaphragm dosing pumps and accessories
50 Hz



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1. Product introduction

Performance range

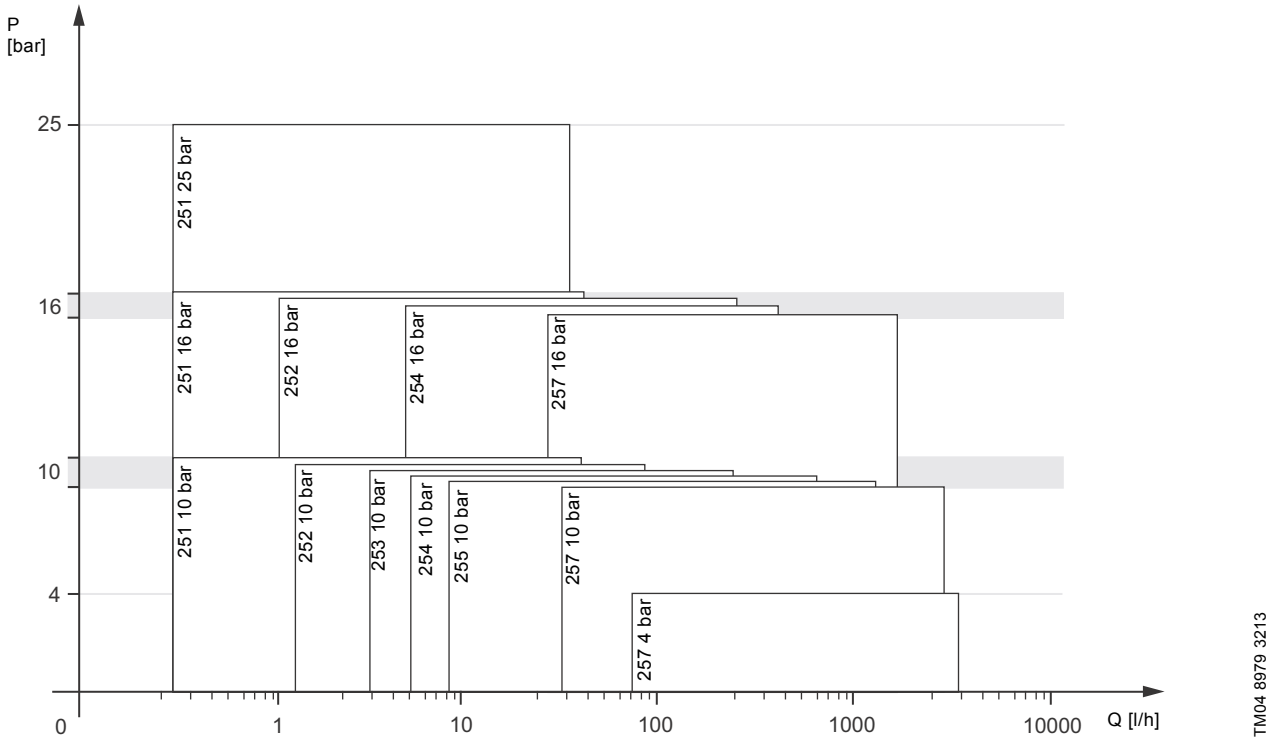


Fig. 1 DMH 25x performance range

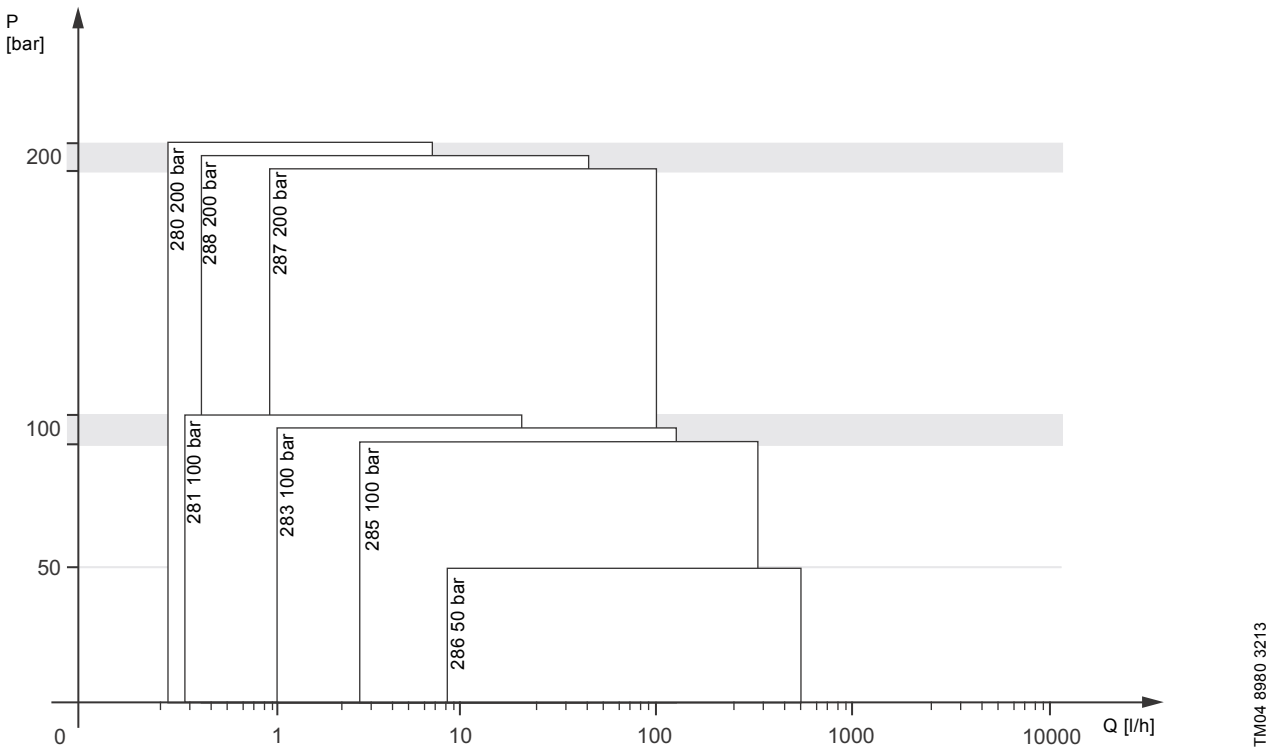
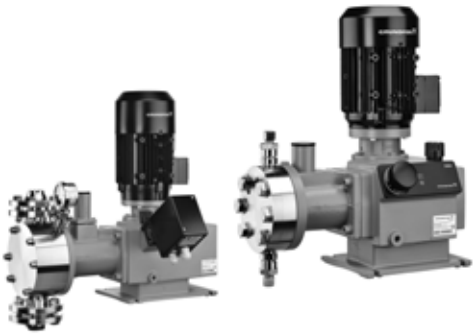


Fig. 2 DMH 28x performance range

Features and benefits



TM04 8986 3413

Fig. 1 DMH model 257 and 288

The preferred choice for complex tasks

The Grundfos DMH range is a series of extremely strong, robust pumps for applications requiring reliable dosing and high-pressure capability, such as process engineering. The DMH 28x models have been especially designed for high-pressure applications from 50 up to 200 bar. The range is highly versatile: it covers a wide flow range and offers a variety of dosing head sizes, materials and accessories. Customers worldwide have enjoyed years of trouble-free operation from their DMH pumps.

Accurate dosing - all the time

DMH pumps have a very high dosing accuracy and allow an exact reproducibility. The dosing flow variation and linearity deviation are below 1 % of the rated flow, especially at high pressures.

Smooth and low-pulsation dosing

The DMH range combines sophisticated drive technology and gear kinematics to ensure smooth and low-pulsation dosing. This means less stress to all system components, such as tubes and valves, and leads to longer service intervals for the entire system.

Motors and VFD

DMH pumps are equipped with high-torque electric motors.

Motors complying with ATEX are available on request.

For voltages and more details, please see the type key. Motors for higher ambient temperature, higher humidity, motors with forced ventilation and anti-condensation heaters as well as VIK motors are available on request.

For applications with specific motor requirements, the versatile DMH range offers high-quality motors with VFD, if required.

Pumps without motor are available on request.

Perfect material selection for housing and wetted parts

The DMH models have a robust cast-aluminium housing with epoxy coating to meet all application needs (grey cast-iron if API 675 is required). Investment costs and running costs for spare parts are kept low over the years: A wide choice of materials for dosing head, valves and accessories allow selecting exactly the degree of chemical resistance required. All wetted parts must be resistant to the chemicals used. The diaphragm is made of full-PTFE material

Safe and trouble-free operation

The serially integrated pressure-relief valve and active diaphragm protection system (AMS) keep the pump and entire system protected against overpressure, if the outlet line is blocked. In addition, the degassing valve at the pump guarantees high functional safety of the pump, the installation and the whole process. Due to their aluminium enclosure and the piston diaphragm technology, DMH pumps have a very long operating life and long service intervals.

Approvals and certificates

For potentially explosive areas we offer EX-classified or ATEX-certified motors and pumps. For applications in the petrochemistry we provide special versions of our DMH dosing pumps with API 675 certificates.

Flexibility in pump configuration and applications

A number of different product configurations are available to match requirements. Flexible control concept for flow rate: manual or automatic stroke-length adjustment with electric servomotor. Pumps fitted with double diaphragm with failure indication, or special dosing heads with electrical heating. Universal fields of application are possible for this pump series due to the full-PTFE dosing diaphragm. Wetted parts are available in material combinations that suit virtually all dosing tasks. Choose the best configuration for your specific dosing task.

Ready for tough application areas

Power plants

- Dosing of various chemicals for the treatment of boiler feed water, cooling water and process water (raw water purification, chemicals for ion-exchangers, supplementary water treatment, effluent water neutralization).
- Dosing of ammonia, hydrazine, phosphates in high-pressure areas (e.g. boiler feed water).

Petrochemical, oil and gas industry, refineries

- Dosing of chemicals for treatment of cleaning water and process water
- Dosing of wax as lubricant in oil-pipelines
- Dosing of inhibitors and anticorrosion chemicals to protect oil pipelines
- Dosing of additives and catalysts
- Odorisation of gas for safety in case of leakages.

Treatment of process water and drinking water

- Rough environments (hot climate, desert, outdoor installations)
- Higher flow and pressure ratings.

EX/ATEX pumps

EX zones

- ATEX Directive, Group II, category 2 (zone 1/21)
- ATEX Directive, Group II, category 3 (zone 2/22).

Dosing of flammable liquids

EX/ATEX DMH pumps with the following configuration can be used for dosing of flammable liquids: Stainless-steel dosing heads and valves, and stainless-steel design of the diaphragm leakage detection in the explosion-proof design with evaluator.

- Dosing of alcohol or methanol in wastewater treatment
- Cleaning of kerosene and petrol in mechanical engineering and airport areas
- Dosing of ethanol and methanol
- Dosing of food-grade alcohol for disinfection in meat and bread packaging.

API 675 certificates

DMH pumps can be certified according to API 675. Deviations include for example:

- The steady-state flow accuracy is within ± 1 % of the rated capacity
- Several DMH pump models have cap screws
- Several DMH pump models have internal socket-type bolting
- DMH pumps are available with threaded DIN/EN or NPT connections (DN 4 up to DN 20). DN 32 slip-on flanges are used.
- Double diaphragm is filled with paraffin oil
- DIN/EN code is applied for metal parts of DMH
- Enclosure is made of grey-cast iron
- Dosing head is made of PVC, PP, PVDF, or stainless steel
- For shipment, threaded openings are covered with plastic caps.

2. Identification

Type key

Example: DMH 220-10 B-PVC/V/G-X-E1B8B8

	Code	Description	Remark
Type	DMH	Hydraulic piston diaphragm dosing pump	
Maximum flow	220	220 l/h maximum capacity of the pump	Example
Maximum pressure	10	Maximum counterpressure 10 bar	Example
Number of dosing heads		Single-head	
	/2	Double-head	
Control variant	B	Standard (manual control)	DMH models 25x, 28x
	S1	Stroke counter NAMUR, NC output	DMH model 25x, 28x
	AR	AR control unit, electronic (puls, analog, remote, tank-empty, dosing control, leakage detection)	DMH models 25x[1)], 28x[1)]
	AT3	Servomotor, 1 x 230 V, 50/60 Hz, 4-20 mA control	DMH models 25x, 28x
	AT6	Servomotor, 1 x 230 V, 50/60 Hz, 4-20 mA control, EX II2G Ex db IIB T4	DMH models 25x, 28x
Dosing head variant	PP	Polypropylene	DMH models 25x
	PV	PVDF (polyvinylidene fluoride)	DMH models 25x
	SS	Stainless steel, 1.4571 (EN 10027-2) 316Ti (AISI)	DMH models 25x, 28x
	PVC	Polyvinyl chloride	DMH models 25x
	PP-L	PP, with diaphragm leakage detection	DMH models 25x
	PV-L	PVDF, with diaphragm leakage detection	DMH models 25x
	SS-L	SS, with diaphragm leakage detection	DMH models 25x, 28x
	PVC-L	PVC, with diaphragm leakage detection	DMH models 25x
Gasket material	E	EPDM	DMH models 25x, 28x
	V	FKM	DMH models 25x, 28x
	T	PTFE	DMH models 25x, 28x
Valve ball material	G	Glass	DMH models 25x
	T	PTFE	DMH models 25x
	SS	Stainless steel, 1.4401 (EN 10027-2) 316Ti (AISI)	DMH models 25x, 28x
	C	Ceramic	DMH models 25x, 28x
Control panel position (VFD or AR position)	X	No control panel (without AR, without VFD)	DMH models 25x, 28x
Supply voltage	E	3 x 230/400 V, 50 Hz, 460 V, 60 Hz (IE2, motors ≥ 0.75 kW) 3 x 230/400 V, 50/60 Hz, 440-480 V, 60 Hz (motors < 0.75 kW)	DMH models 25x, 28x
	G	1 x 230 V, 50/60 Hz (motors ≤ 0.09 kW) 1 x 230 V, 50 Hz (motors 0.18 - 0.37 kW) (1 phase)	DMH models 25x, 28x
	0	Without motor, IEC flange	DMH models 25x, 28x
	4	3 x 230/400 V 50 Hz (Ex)	DMH models 25x, 28x
Valve type	1	Standard valves, not spring-loaded (inlet/outlet side)	DMH models 25x, 28x
	2	Spring-loaded valves (inlet and outlet valve: 0.05 bar)	DMH model 28x
	4	Spring loaded, 0.8 bar (outlet side); Standard (inlet side)	DMH models 25x, 28x
Connections (outlet/inlet)	B1	G 5/8, hose 6/12 mm, pipe cementing diameter 12 mm (PVC)	DMH models 25x
	A	G 5/8, pipe threaded Rp 1/4, female (SS)	DMH models 25x, 28x
	B3	G 5/8, pipe welding diameter 16 mm (PP, PVDF)	DMH models 251, 252
	B2	G 5/4, hose, 13/20 mm, pipe cementing diameter 25 mm (PVC)	DMH models 25x [2)]
	A1	G 5/4, pipe threaded Rp 3/4, female (SS)	DMH models 25x [2)], 28x
	B4	G 5/4, pipe welding diameter 25 mm (PP, PVDF)	DMH models 25x [2)]
	B8	Flange DN 32, pipe cementing diameter 40 mm (PVC)	DMH models 25x
	B5	Flange DN 32, pipe welding diameter 40 mm (PP, PVDF)	DMH models 25x
	C1	Flange DN 32, pipe welding diameter 40 mm (SS)	DMH models 25x
	B6	G 3/8, pipe 4/6 mm (SS)	DMH model 28x
	B9	G 5/4 - hose tubing 19/27	DMH models 25x
	C2	G 5/8 - pipe 8/10 mm (SS)	DMH models 28x
Mains plug (1-phase motors)		No plug for 3AC	DMH models 25x, 28x
	X	No plug for 1AC and AR	DMH models 25x, 28x
	F	EU (safety) for 1AC and AR	DMH models 25x, 28x

	Code	Description	Remark
Motor variant		Standard motor	DMH models 25x, 28x
	E0	Motor with PTC, prepared for operation with frequency converter	DMH models 25x, 28x
	E1	Motor for EX, type II 2G EEx e II T3	DMH models 25x, 28x
	E2	Motor for EX, type II 2GD EEx de IIC T4, without PTC	DMH models 25x, 28x
	E5	Motor for EX, type II 2GD EEx de IIC T4, with PTC	DMH models 25x, 28x
	E3	Pump with API approval	DMH models 25x, 28x
	FA	VFD (Variable Frequency Drive)	DMH models 25x, 28x
Pump housing		Aluminium	DMH models 25x, 28x

Other variants on request.

1) Only for pumps of ≤ 0,18 kW (model 251, 252, 253, 280, 281)

2) Not for inlet side of DMH 550-10 pump, DMH 270-10 with PTC
They have a flange DN 32 on inlet side

3. Functions and options

Capacity control

Depending on the application, DMH pumps can be equipped with different functions for setting and controlling the capacity:

- DMH B: Manual stroke-length control
- All DMH pumps can be fitted with a servomotor for remote stroke-length control
- Motor speed control with integrated frequency converter (VFD)
- DMH AR: Electronic unit for automatic stroke frequency control, pulse control, analog signals, alarm relay (available for DMH models 251, 252, 253, 280, 281)

Capacity control by stroke-length adjustment

The capacity is controlled manually by means of the stroke-length adjustment knob, or electrically by a servomotor. The stroke frequency remains constant.

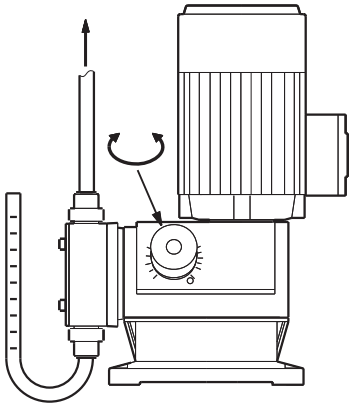


Fig. 2 Capacity control by stroke-length adjustment knob

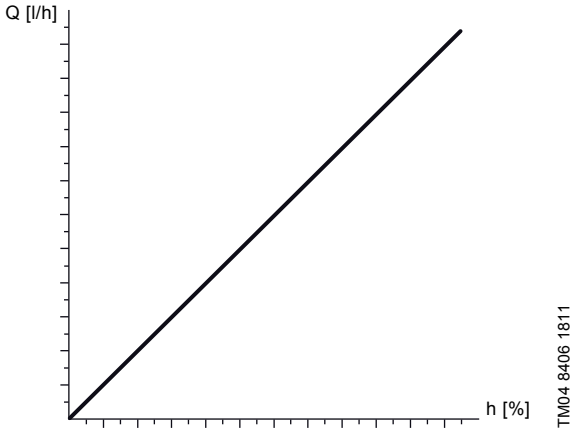


Fig. 3 Relation of stroke length and capacity

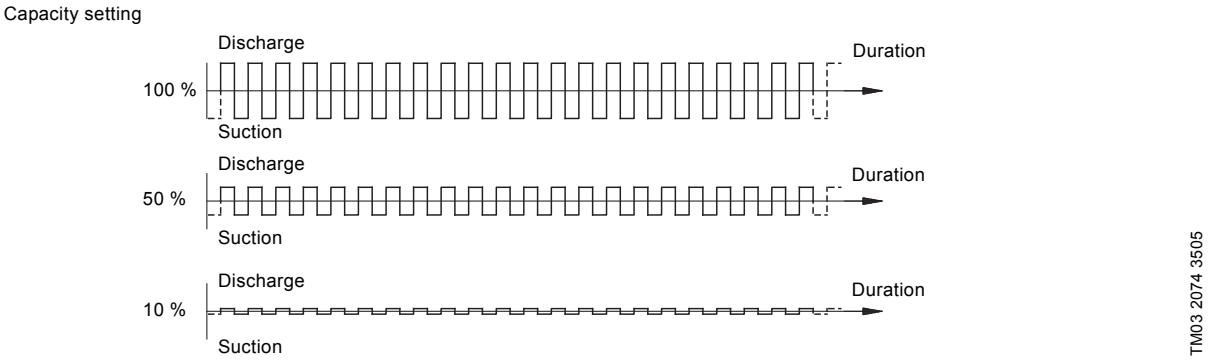


Fig. 4 Relation of stroke-length adjustment - capacity

Capacity control with frequency converter (VFD)

The capacity of DMH pumps can be adjusted by changing the motor speed.

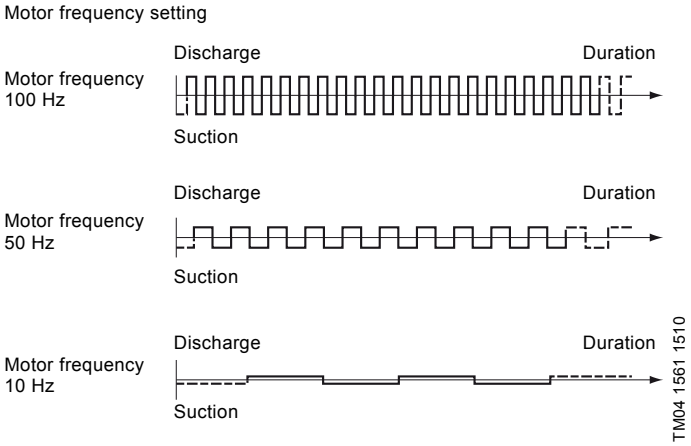


Fig. 5 Relation of motor frequency setting - capacity

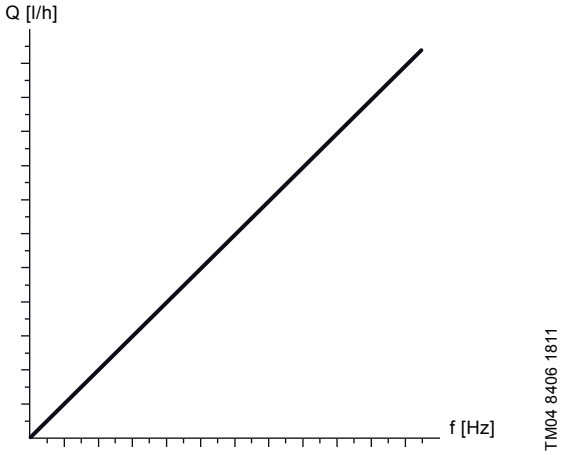


Fig. 6 Relation of motor frequency - capacity

Capacity control with AR electronics

The capacity of the DMH models 251, 252, 253, 280 and 281 with single-phase motor and AR electronics can be controlled by regulation of the pause time between strokes. This is carried out by analog or pulse signals or via manual stroke frequency adjustment.

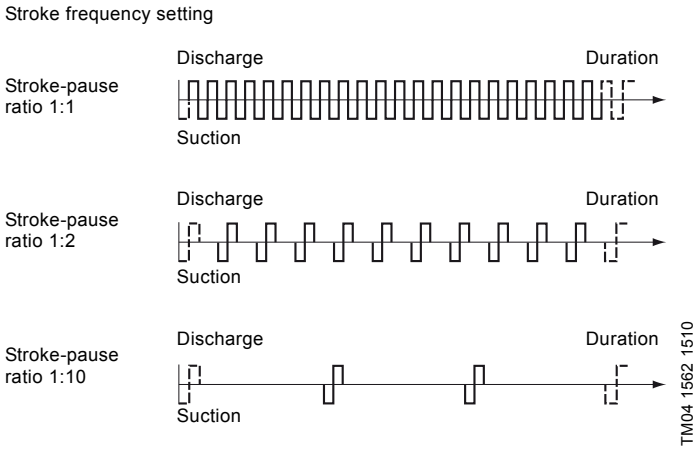


Fig. 7 Relation of stroke frequency setting - capacity

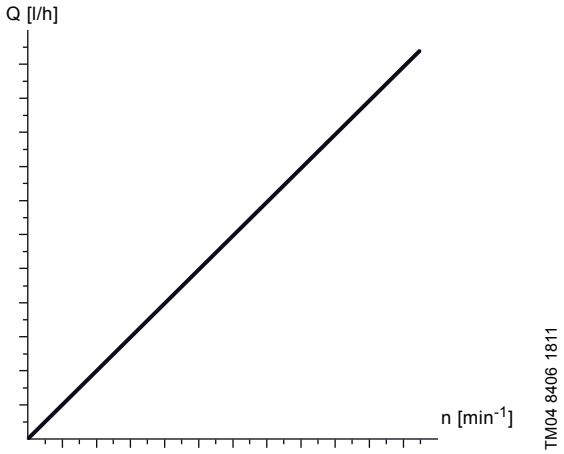


Fig. 8 Relation of stroke frequency - capacity

Electric servomotor

To facilitate automatic control of the flow rate, the DMH pumps can be equipped with an electric servomotor in a metal housing (IP65). The electric servomotor primarily consists of an overload-proof motor, reduction gear and min/max limit switches.

The electric servomotor is connected to the control slide of the dosing pump. This adjusts the active stroke length and the corresponding dosing flow.

The electric servomotor is available as ATEX version, EX II2G Ex db IIB T4 for potentially explosive zones.

Variants

- Electric servomotors with different operating voltages
- Electric servomotors with 4-20 mA control and output signal and manual/automatic switch
- Electric servomotors with 1000 Ω feedback potentiometer.

TM05 9715 4413

Fig. 9 Servomotor

TM04 8402 1711

Fig. 10 DMH pump with servomotor

AR control unit

Convenient electronic unit in a plastic housing (IP65) for DMH models 251, 252, 253, 280 and 281 with single-phase motors. The AR control unit is mounted on the terminal box of the motor.

Control modes

- Manual control: stroke frequency is manually adjustable from 1 up to the maximum strokes per minute
- Pulse signal control: multiplier 1:n (n strokes per incoming pulse) and divisor n:1 (1 stroke per n incoming pulses), memory function (stores a maximum of 65,000 pulses)
- 0/4-20 mA analog signal control: adjustment of stroke frequency in proportion to the current signal, weighting of current input is possible.

Inputs

- Pulse signal
- Analog signal
- Remote on/off
- Tank-empty sensor
- Dosing controller and diaphragm leakage sensor.

Outputs

- Analog signal
- Error signal (fault)
- Stroke signal
- Low-level signal.

TM04 8603 3912

Fig. 11 AR control unit on DMH

Stroke sensor

DMH pumps with stroke sensor are especially designed for batch dosing and other mixing or filling tasks.

An optional inductive stroke sensor with NAMUR output can be mounted in the gear cover of a DMH pump.

Pump model	Sensor	Supply voltage	Connection	Type key code
DMH 25x DMH 28x	Namur	U_0: 8.2 V	Cable, PVC, 2 m, 0.75 mm^2	S1

AMS diaphragm protection system

The unique diaphragm protection system AMS has a tactile surface (5) which touches the dosing diaphragm (4). If the inlet or outlet line is blocked due to a fault in the system, the tactile surface closes the hydraulic chamber (6). Although the piston (7) continues moving, the diaphragm cannot be overstretched.

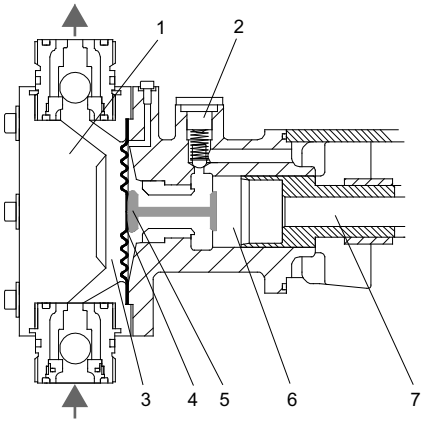


Fig. 12 AMS diaphragm protection system

Legend

Pos.	Description
1	Dosing head
2	Pressure relief valve
3	Dosing chamber
4	Dosing diaphragm
5	AMS diaphragm protection system
6	Hydraulic chamber
7	Piston

Diaphragm leakage detection

DMH piston diaphragm dosing pumps with diaphragm leakage detection are equipped with

- dosing head with double-diaphragm system
- contact pressure gauge with non-return valve.

Double-diaphragm system

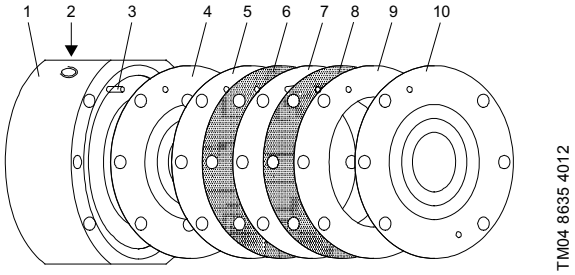


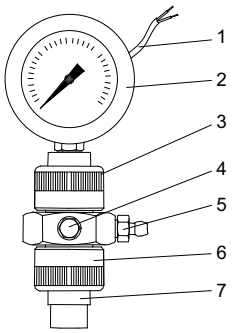
Fig. 13 Double-diaphragm system

Pos.	Description
1	Dosing head
2	Contact pressure gauge (installation position)
3	Clamping sleeves
4	Diaphragm on the dosing head side
5	Covering ring
6	Sealing ring
7	Intermediate disk
8	Sealing ring
9	Covering ring
10	Diaphragm on the pump side

Contact pressure gauge with non-return valve

TM05 9714 4413

Fig. 14 Contact pressure gauge on a DMH dosing head



TM04 8612 4012

Fig. 15 Contact pressure gauge

Pos.	Description
1	Contact output
2	Contact pressure gauge
3	Union nut
4	Connection for earth cable
5	Deaeration screw
6	Union nut
7	Non-return valve with ball

Functional principle

The non-return valve and the gap between the diaphragms are filled with paraffin oil (separating agent) at the factory. If one of the diaphragms breaks, dosing medium or hydraulic oil flows into the gap between the diaphragms, and then into the valve.

The system pressure is applied to the valve, and the contact pressure gauge is activated. A potential-free reed contact can trigger an alarm or switch off the pump.

TM04 8613 3912

Fig. 16 DMH with contact pressure gauge for diaphragm leakage detection

Frequency converter (VFD)

DMH pumps with integrated frequency converter provide extended capacity range and functionality. All VFD variants include analog and digital inputs/outputs and an integrated potentiometer for precise and easy setting of speed and flow as well as control and self-monitoring functions.

TM06 6738 2316

Fig. 17 DMH pump with frequency converter

Parameter box

VFD accessory: handheld controller for easy and fast parametrisation and programming.

TM06 6739 2316

Fig. 18 Parameter box

The parameter box is a convenient and compact control panel for text-controlled commissioning, parameterisation and control of the VFD. The parameter box is connected with a RJ12 patch cable directly to the frequency converter via the RJ12 diagnostic socket. A USB 2.0 connection cable, series-A plug to series-B plug, is required to connect a PC or laptop.

Technical data		Product number
Control voltage	4.5 VDC to 30 VDC	98711813
Power consumption	Approx. 1.3 W	
Display	Plain text display	
Interfaces	RJ12	
Ambient temperature	0 °C to +40 °C	
Protection class	IP54[1)]	
Dimensions (L x W x D)	117 x 73 x 24 mm	
Weight	Approx. 0.2 kg	
Connection cable length	Approx. 2 m	

1) On plug socket IP20

Functions of the Variable Frequency Drive

Key type code	FA
VFD type	**VFD basic**
Operation modes	
Manual speed/flow control (local by potentiometer)	●
Analog control 0/4-20 mA (remote by water meter, PLC, etc.)	●
Profibus	*
Profinet	*
Functions	
Process controller	*
PI control, integrated	*
Closed-loop control	*
Field connection of sensors / actuators	*
Connect sensor 4-20 mA (e.g. pH, disinfection, etc.)	*
Decentral Drive Solution, motor mounted frequency inverter	●
Best EMC protection class C1	●
Diagnostic LEDs	●
Overtemperature alarm	●
Short-circuit monitoring	●
Earth connection fault monitoring	●
Overvoltage and undervoltage protection	●
Overload protection	●
RS232/RS485 interface via RJ12 plug	●
Inputs	
Manual control (AI1), local operation (deaearation)	●
Operation mode manual control (DI2)	●
Analog control, 0/4-20 mA (AI2)	●
Operation mode analog control, 0/4-20 mA (DI3)	●
External ON/OFF (DI1)	●
Low-level signal (DI4)	*
Empty-tank signal (DI5)	*
Additional analog input (2 x AI)	*
Additional digital input (4 x DI)	*
Outputs	
Feedback 0/4-20 mA (AO)	*
Operation (DO1)	●
Alarm (DO2)	●
Additional digital output (2 x DO)	*

* This feature is available with another VFD type

4. Construction

General information

DMH pumps are positive displacement pumps with hydraulic diaphragm motion. The DMH range contains the low-pressure DMH models 25x up to 25 bar and the high-pressure DMH models 28x up to 200 bar. The pump range includes drive assemblies in three housing sizes as well as single-head and double-head pumps.

Sectional drawings

DMH models 251, 252

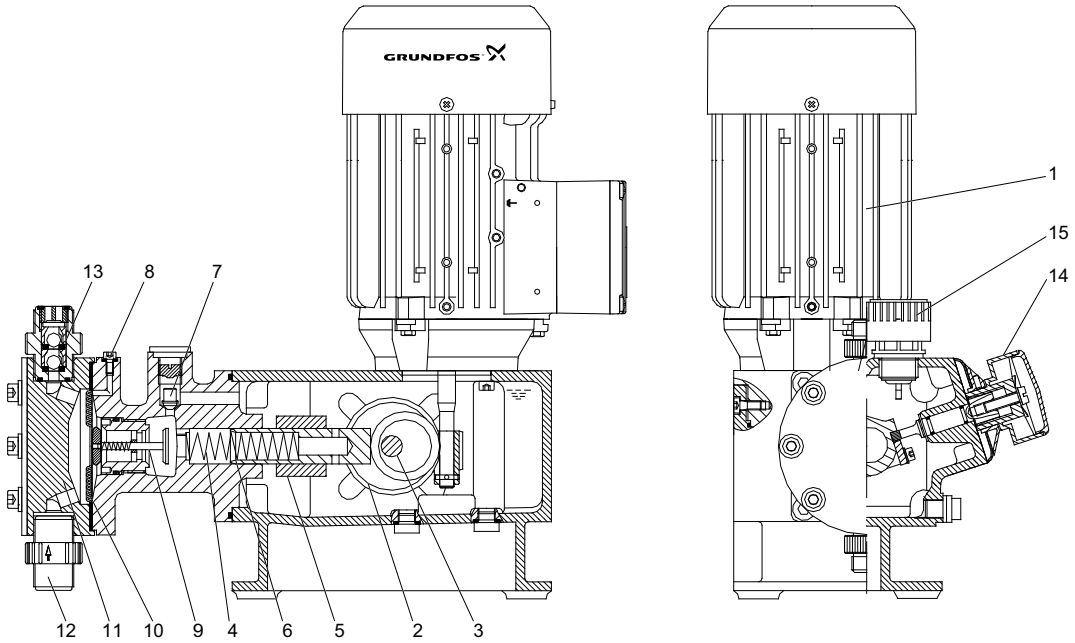


Fig. 19 Sectional drawing, DMH models 251, 252

DMH model 253

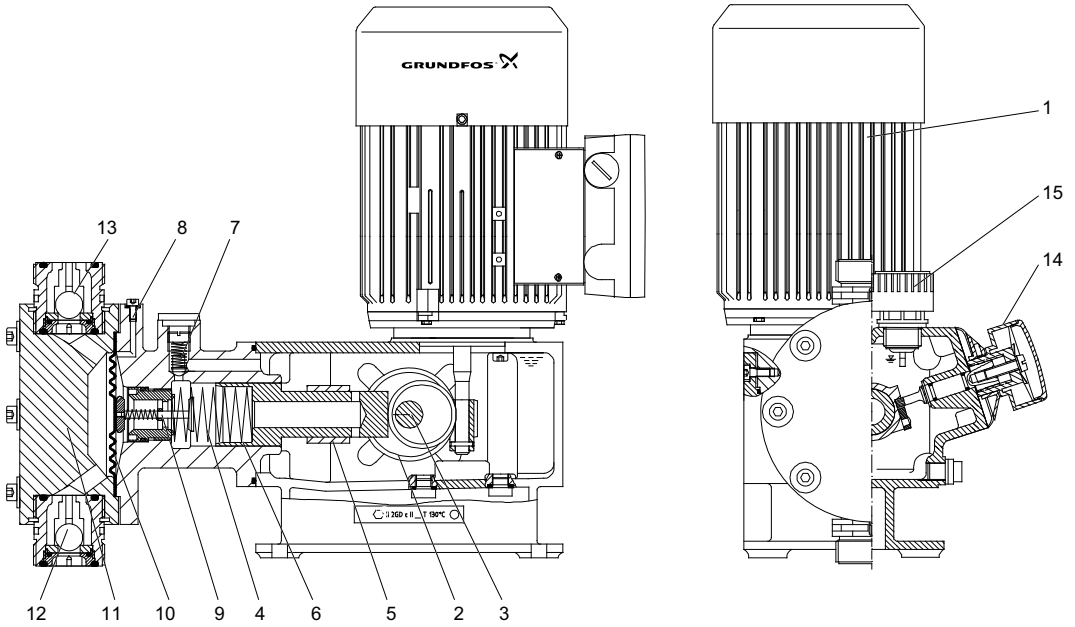


Fig. 20 Sectional drawing, DMH model 253

DMH model 254

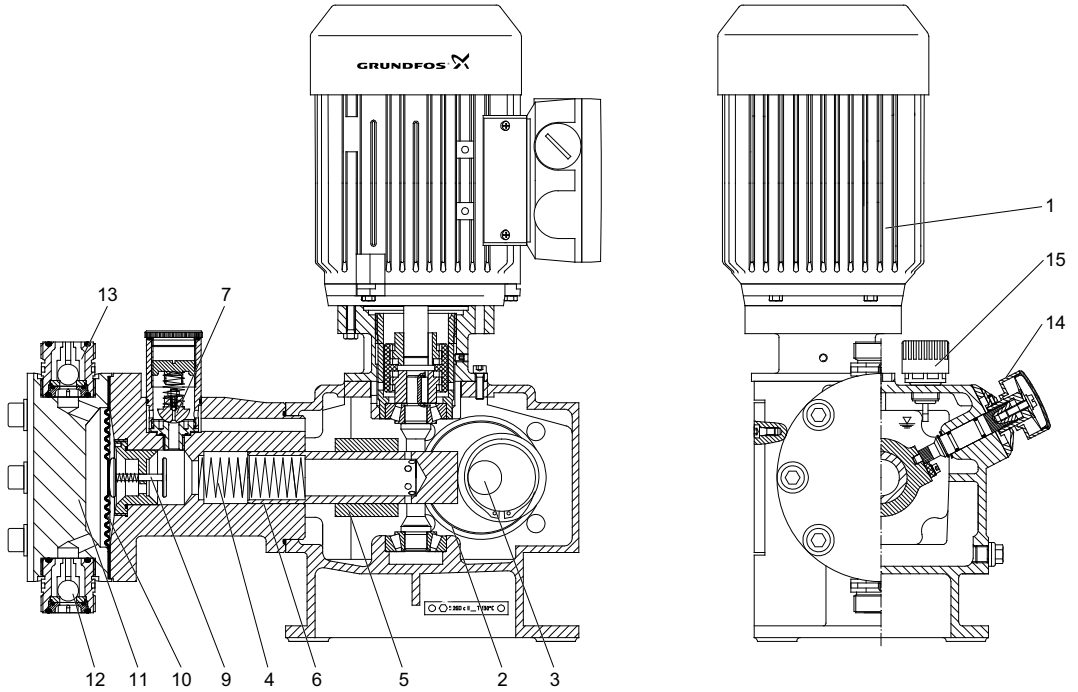


Fig. 21 Sectional drawing, DMH model 254

DMH model 255

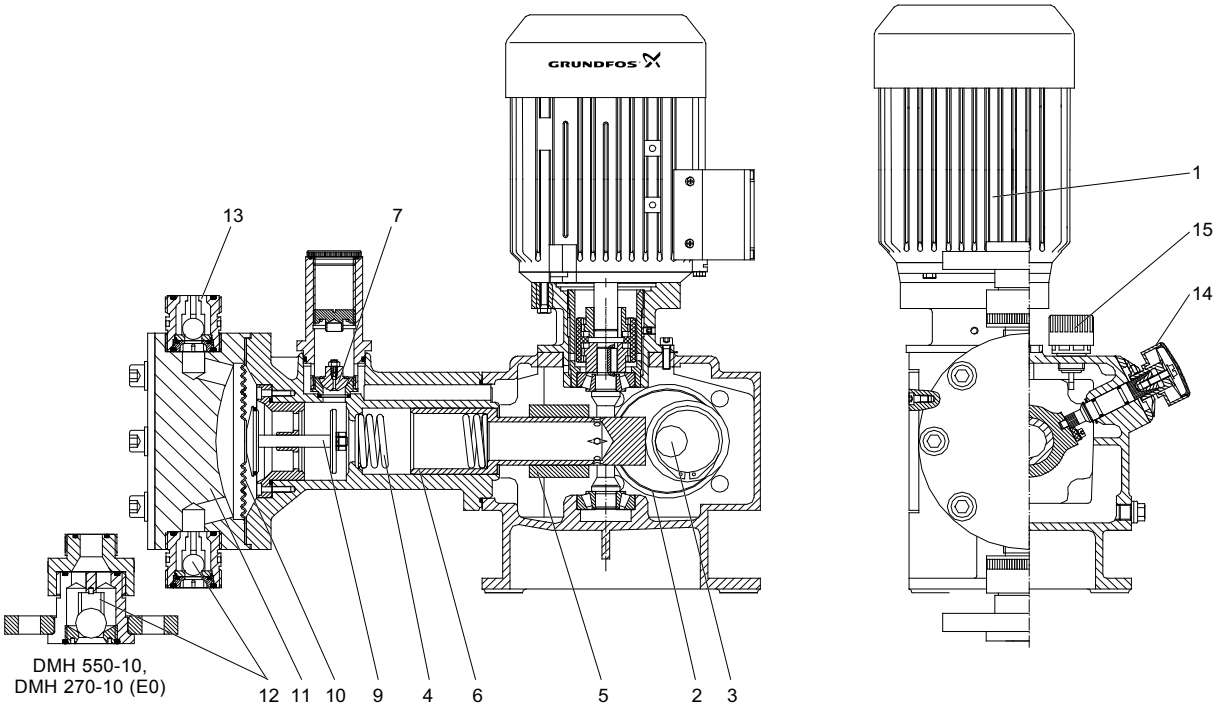


Fig. 22 Sectional drawing, DMH model 255

DMH model 257

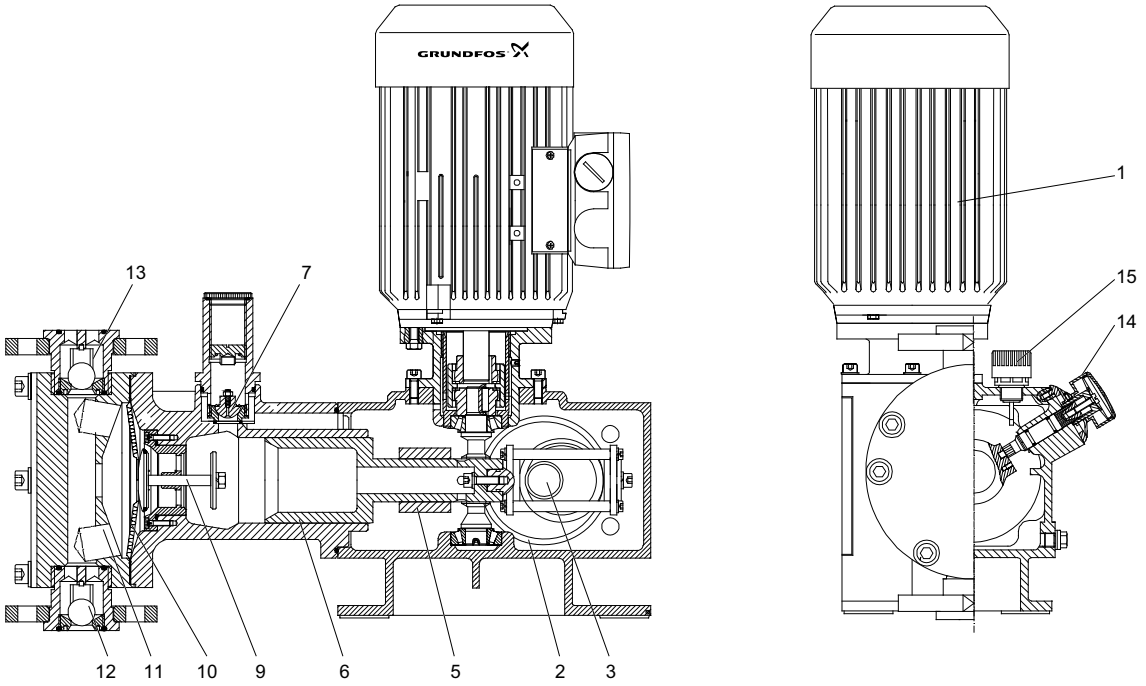


Fig. 23 Sectional drawing, DMH model 257

DMH model 280

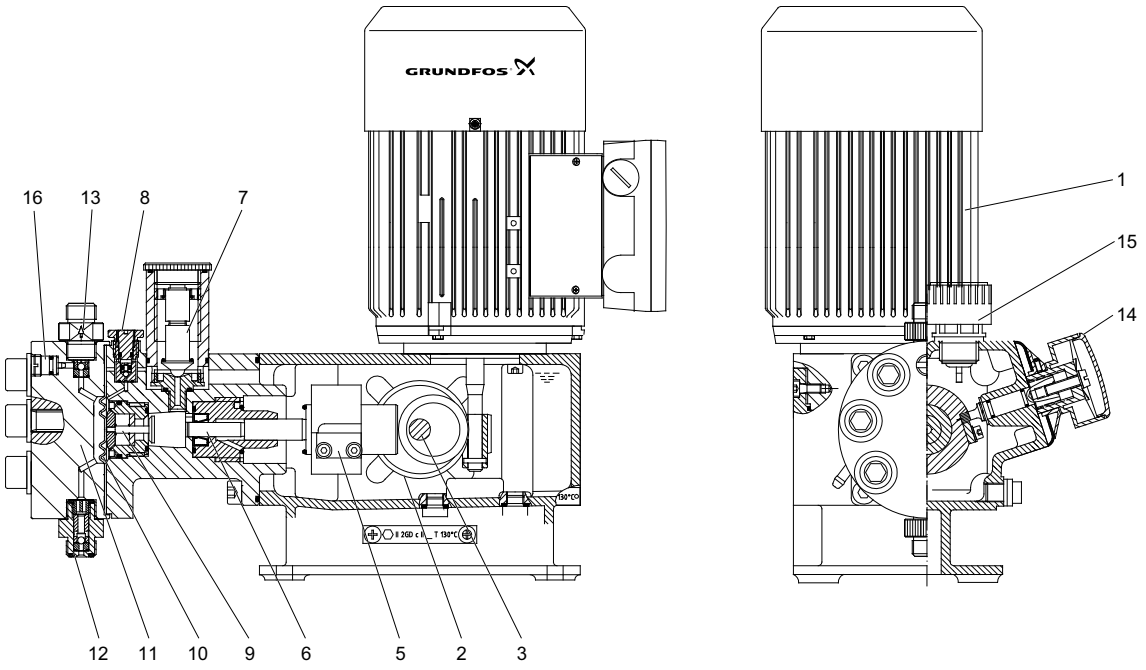


Fig. 24 Sectional drawing, DMH model 280

DMH models 283, 288

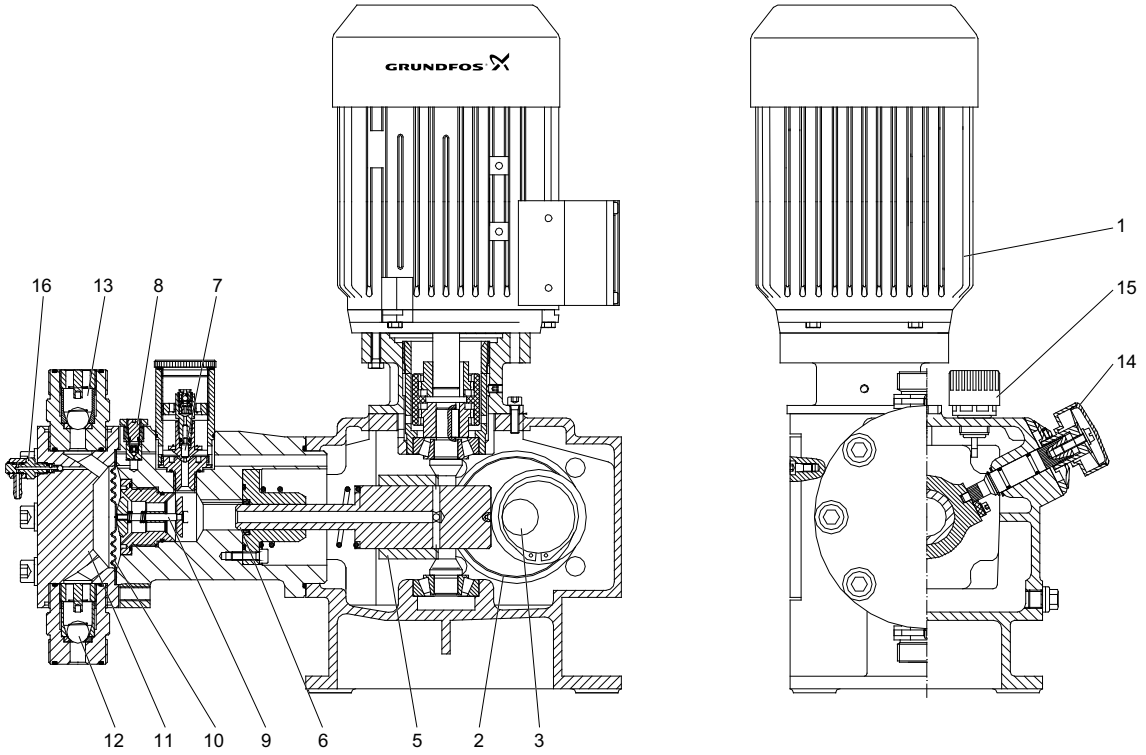


Fig. 25 Sectional drawing, DMH models 283, 288

DMH models 285, 286, 287

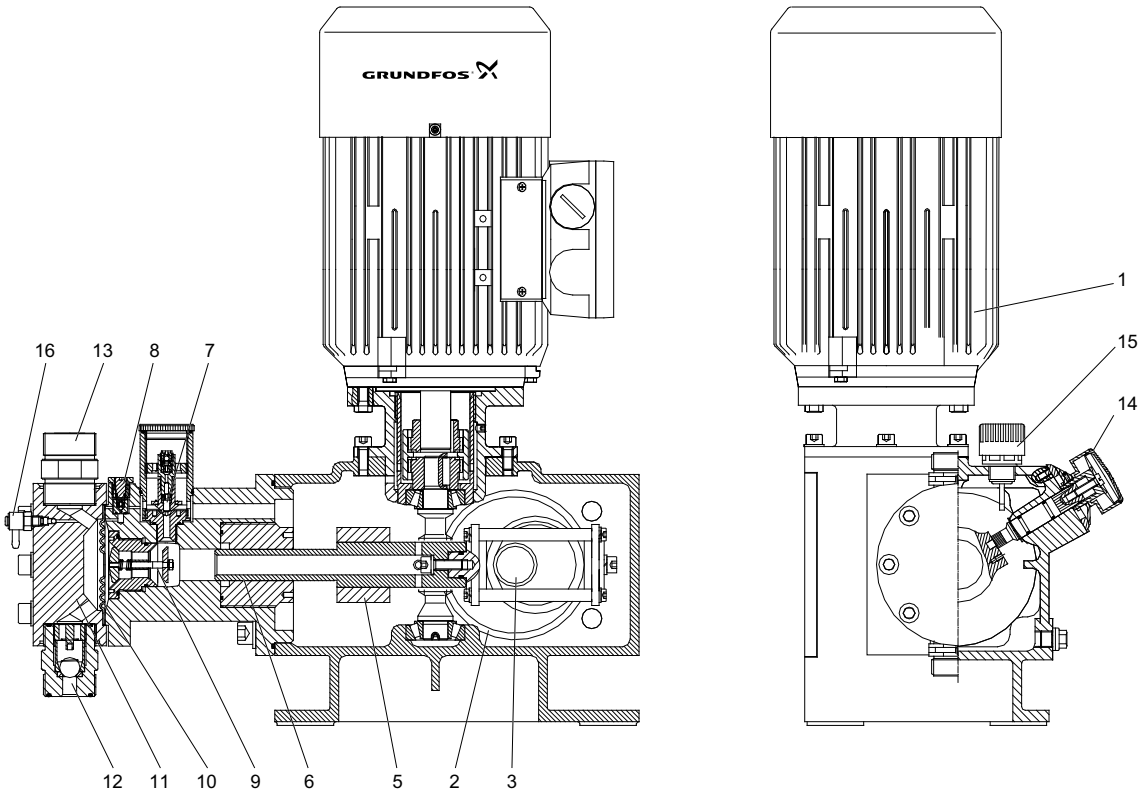


Fig. 26 Sectional drawing, DMH models 285, 286, 287

Legend of sectional drawings

Pos.	Description
1	Motor
2	Worm gearing
3	Eccentric
4	Return spring (not for all models)
5	Control slide
6	Piston
7	Combined pressure relief and degassing valve
8	Oil degassing valve
9	Diaphragm protection system (AMS)
10	Dosing diaphragm
11	Dosing head
12	Inlet valve
13	Outlet valve
14	Stroke-length adjustment knob
15	Venting screw with oil-level gauge
16	Dosing head venting valve (priming)

Functional principle

- The rotational movement of the motor (1) is converted via the worm gearing (2) and eccentric (3) into the oscillating suction and stroke movement of the piston (6).
- The piston has a hollow bore and a row of radial control holes, which provide a hydraulic connection between the drive area and the piston stroke area. The control slide (5) envelops the holes during the stroke and seals the stroke area from the drive area. The hydraulic excursion of the solid PTFE diaphragm (10) displaces an equivalent volume of dosing medium from the dosing head (11) into the dosing line. With the suction stroke, the piston creates a low pressure, which propagates in the dosing head; the ball valve (13) on the outlet side closes and the dosing medium flows through the inlet valve (12) into the dosing head.
- The stroke volume size is solely determined by the position of the control slide. The active stroke length and corresponding average dosing flow can be changed continuously and linearly from 10 to 100 % using the stroke-length adjustment knob and vernier scale (14).
- The safety valve (7) is both a pressure relief valve and a permanent hydraulic oil degassing valve. It opens if the counterpressure in the dosing system is impermissibly high, and thus protects the pump from overloading. The degassing valve ensures a constant, high dosing accuracy.
- The unique diaphragm protection system AMS (9) has a tactile surface which touches the dosing diaphragm (10). If the inlet or outlet line is blocked due to a fault in the system, the tactile surface closes the hydraulic chamber. Although the piston (6) continues moving, the diaphragm cannot be overstretched. The integrated pressure relief valve closes, and the diaphragm oscillates freely in the dosing head.

5. Technical data

Dimensions

DMH models 251 to 257

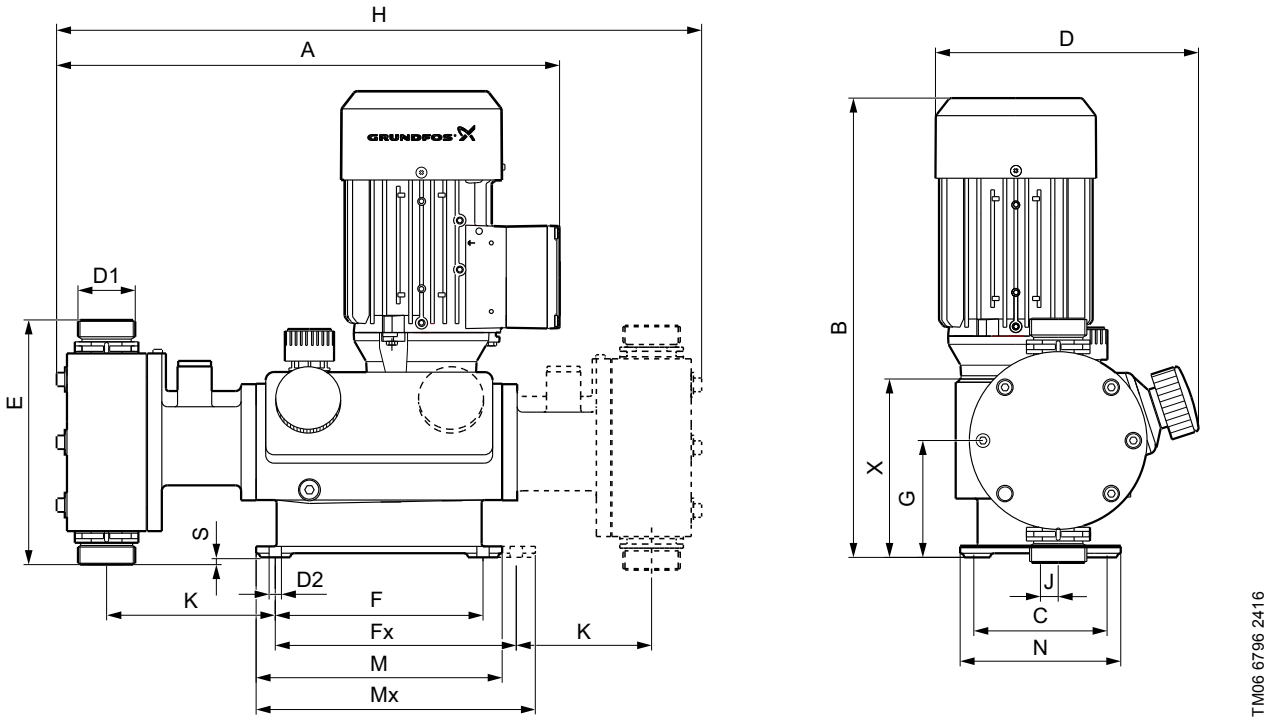


Fig. 27 Dimensions, DMH models 251 to 257

DMH model	A	B	C	D	D1	D2	E	F	Fx	G	H	J	K	M	Mx	N	S[1]	X
	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
251	345	336	97.5	192	G 5/8	9	160	152	152	85.5	432	16	116	180	180	117.5	5.9	130.5
252	345	336	97.5	192	G 5/8	9	160	152	152	85.5	432	16	116	180	180	117.5	5.9	130.5
253	368	335	97.5	192	G 5/4	9	179	152	152	84	472	13	124	180	180	117.5	-5.4	130.5
254	436	492	156	252	G 5/4	9	207	185	260	126	718	10	187	225	300	180	22	258
255 (except Type DMH 550-10)	510	492	156	254	G 5/4	9	234	185	260	126	869	10	253	225	300	180	10.5	258
255 (type DMH 550-10)	510	492	156	254	G5/4; flange DN 32	9	283	185	260	126	869	10	253	225	300	180	-41	258
257	589	572	170	278	flange DN 32	9	280	241	333	128.5	980	25	262	290	382	194.5	-12	271

[1] A negative value means that the connection of the inlet valve is below the base plate of the pump.

DMH models 280 to 288

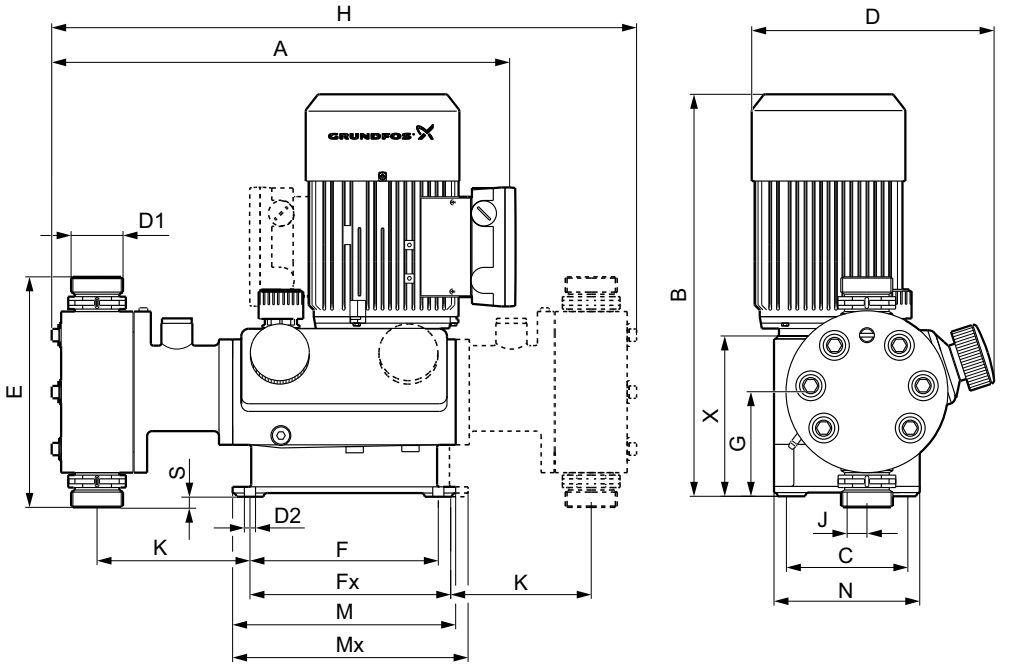


Fig. 28 Dimensions, DMH models 280 to 288

DMH model	A [mm]	B [mm]	C [mm]	D [mm]	D1	D2 [mm]	E [mm]	F [mm]	Fx [mm]	G [mm]	H [mm]	J [mm]	K [mm]	M [mm]	Mx [mm]	N [mm]	S[1] [mm]	X [mm]
280	365	336	97.5	192	G 3/8	9	142	152	152	85.5	465	16	114	180	180	117.5	14.5	130.5
281	348	336	97.5	192	G 5/8	9	155	152	152	85.5	432	16	114	180	180	117.5	8	130.5
283	437	493	156	254	G 5/4	9	211	185	260	126	706	10	182	225	300	180	20.5	258
285	510	553	145.5	274	G 5/4	9	179	240	333	129	820	25	187	290	382	194.5	39	271
286	510	553	145.5	274	G 5/4	9	234	240	333	129	820	25	191	290	382	194.5	11.5	271
287	490	553	170	274	G 5/8	9	208	240	333	129	814	25	176	290	382	194.5	24.5	271
288	425	492	156	155.5	G 5/8	9	208	185	260	126	700	10	173	225	300	180	22	258

[1] A negative value means that the connection of the inlet valve is below the base plate of the pump.

Weights

DMH model	Weight [kg]			
	Single-head pump		Double-head pump	
	SS	PVC, PVDF, PP	SS	PVC, PVDF, PP
251	16	12	21	17
252	16	12	21	17
253	19	14	30	21
254	41	35	65	51
255	50	38	88	63
257	96	75	143	108
280	17	-	23	-
281	16	-	24	-
283	38	-	63	-
285	68	-	90	-
286	85	-	95	-
287	70	-	105	-
288	36	-	60	-

The weights are approximate, and vary according to pump variants.

Motor power

DMH model	Capacity [l/h]	Counter-pressure [bar]	Motor power [kW]	
			50 Hz	100 Hz (VFD)
251	All	10	0.09	0.09
251	All	16, 25	0.09	0.18
252	All	10	0.09	0.18
252	All	16	0.18	0.18
253	All	All	0.18	0.18
254	All	10	0.55	0.55
254	All	16	0.55	0.75
255	194 (50 Hz), 387 (100 Hz)	All	0.55	0.55
255	270 (50 Hz), 540 (100 Hz)	All	0.55	0.75
257	All	All	1.1[1]	1.5[2]
280	All	All	0.18	0.18
281	All	All	0.18	0.18
283	All	All	0.55	0.55
285	All	All	1.1	1.5
286	All	All	1.1	1.5
287	All	All	1.1	1.5
288	All	All	0.55	0.55

1 Double-head pump: 1.5 kW

2 Double-head pump: 2.2 kW

Flange sizes for pumps without motor

DMH model	IEC	NEMA	Pump housing size
251	BG 63 B5 BG 71 B5	56C	1 (small)
252			
253			
280			
281			
254	BG 80 B14	56C	2 (medium)
255			
283			
288			
257	BG 90 B14 BG 100 B14	145 TC	3 (large)
285			
286			
287			

Pump protection class

The motor protection defines the pump protection class.

Motor capacity	Protection rating
up to 0.18 kW (1 AC and 3 AC)	IP65
0.55 - 2.2 kW (3 AC)	IP55 or IP65 (depending on motor version)

Sound pressure

DMH model	Sound pressure level [dB(A)]*
251	55 ± 5
252	55 ± 5
253	65 ± 5
254	65 ± 5
255	75 ± 5
257	75 ± 5
280	55 ± 5
281	55 ± 5
283	65 ± 5
285	75 ± 5
286	75 ± 5
287	75 ± 5
288	65 ± 5

* Tested according to DIN 45635-01-KL3.

Accuracy

DMH model	Dosing flow fluctuation	Linearity deviation
251 to 257	± 1.5 %	± 2 %
280 to 288	± 1 %	± 1 %

The values in the table above are in % of the full-scale value (max. dosing flow), based on the following conditions:

- Dosing flow within 10 to 100 % of the max. value
- Dosing medium: water
- Fully vented dosing head
- Standard version of pump.

Temperature of dosing medium

Material of dosing head	Minimum temperature	Maximum temperature			
		p < 10 bar	p < 16 bar	p < 25 bar	p < 200 bar
	[°C]	[°C]	[°C]	[°C]	[°C]
PVC	0	40	20	-	
Stainless steel, 1.4571 (EN 10027-2), 316Ti (AISI)[1]	-10	90	90	90	90
Stainless steel, 2.4610 (EN 10027-2)[1]	-10	90	90	90	90
PP	0	40	20	-	-
PVDF[2]	-10	60	20	-	-

1 For SIP/CIP applications, a temperature of 145 °C at a counterpressure of max. 2 bar is permissible for a short period (15 minutes.).
(SIP = Steaming-In-Place/Sterilisation)
(CIP = Cleaning-In-Place)

2 At 70 °C, the maximum counterpressure is 9 bar.

6. Pump selection

1. Select a DMH model from the *Performance data* tables. The DMH models 25x and 28x are also available as double head versions. Double-head versions have twice the capacity listed in the table.
2. Look into the DMH *Catalogue variants (selection)* tables to find the suitable product number.
3. If you cannot find the DMH dosing pump there, select a suitable variant from the *Catalogue variants* tables.

Performance data

The values in the tables are based on the following conditions:

- 50 Hz
- Fully vented dosing head
- 400 V motor, 3-phase
- Viscosity similar to water
- VFD variable frequency drive: double max. capacity

The maximum permissible viscosity at operating temperature are aproximate and applies to:

- Flooded suction
- Newtonian fluids
- Non-degassing media
- Media without suspended matter
- Media with a density similar to water.

Note: If the max.suction lift is 0 m, the pump must be installed with flooded suction.

Note: The viscosity increases with decreasing temperature! We recommend to test the performance with the respective medium.

Max. counterpressure: 4 bar

DMH model	Pump type	Capacity	Stroke frequency	Stroke volume	Max. inlet pressure	Max. suction lift	Max. viscosity	VFD possible (100 Hz, PTC)
		[l/h]	[n/min]	[ml]	[bar]	[m]	[mPas]	[l/h]
257	DMH 750-4	750	73	171	0.8	0	50	•
	DMH 1500-4	1500	146	171	0.8	0	5	-

Max. counterpressure: 10 bar

DMH model	Pump type	Capacity	Stroke frequency	Stroke volume	Max. inlet pressure	Max. suction lift	Max. viscosity	VFD possible (100 Hz, PTC)
		[l/h]	[n/min]	[ml]	[bar]	[m]	[mPas]	[l/h]
251	DMH 2,4-10	2.4	14	3.3	8	1	300	•
	DMH 5,0-10	5	29	3.3	8	1	300	•
	DMH 13-10	13	63	3.3	8	1	300	•
	DMH 19-10	19	96	3.3	8	1	100	-
	DMH 24-10	24	120	3.3	8	1	50	-
252	DMH 11-10	11	29	6.4	8	1	300	•
	DMH 24-10	24	63	6.4	8	1	300	•
	DMH 37-10	37	96	6.4	8	1	100	-
	DMH 46-10	46	120	6.4	8	1	50	-
253	DMH 21-10	21	29	11.3	5	1	300	•
	DMH 43-10	43	63	11.3	5	1	300	•
	DMH 67-10	67	96	11.3	5	1	100	-
	DMH 83-10	83	120	11.3	5	1	10	-
	DMH 100-10	100	144	11.3	5	0	10	-
254	DMH 50-10	50	26	32	5	1	300	•
	DMH 102-10	102	54	32	5	1	300	•
	DMH 143-10	143	75	32	5	1	100	•
	DMH 175-10	175	92	32	5	1	100	-
	DMH 213-10	213	112	32	5	1	100	-
	DMH 291-10	291	153	32	5	0	5	-
255	DMH 194-10	194	54	60	0.8	0	200	•
	DMH 270-10	270	75	60	0.8	0	100	•
	DMH 332-10	332	92	60	0.8	0	100	-
	DMH 403-10	403	112	60	0.8	0	100	-
	DMH 550-10	550	153	60	0.8	0	5	-

DMH model	Pump type	Capacity	Stroke frequency	Stroke volume	Max. inlet pressure	Max. suction lift	Max. viscosity	VFD possible (100 Hz, PTC)
		[l/h]	[n/min]	[ml]	[bar]	[m]	[mPas]	[l/h]
257	DMH 220-10	220	28	131	0.8	1	200	●
	DMH 440-10	440	56	131	0.8	1	200	●
	DMH 575-10	575	73	131	0.8	1	50	●
	DMH 770-10	770	98	131	0.8	1	50	-
	DMH 880-10	880	112	131	0.8	0	50	-
	DMH 1150-10	1150	146	131	0.8	0	5	-

Max. counterpressure: 16 bar

DMH model	Pump type	Capacity	Stroke frequency	Stroke volume	Max. inlet pressure	Max. suction lift	Max. viscosity	VFD possible (100 Hz, PTC)
		[l/h]	[n/min]	[ml]	[bar]	[m]	[mPas]	[l/h]
251	DMH 2,3-16	2.3	14	3.1	8	1	300	●
	DMH 4,9-16	4.9	29	3.1	8	1	300	●
	DMH 12-16	12	63	3.1	8	1	300	●
	DMH 18-16	18	96	3.1	8	1	100	-
	DMH 23-16	23	120	3.1	8	1	50	-
252	DMH 10-16	10	29	6.3	8	1	300	●
	DMH 23-16	23	63	6.3	8	1	50	●
	DMH 36-16	36	96	6.3	8	1	100	-
	DMH 45-16	45	120	6.3	8	1	50	-
	DMH 54-16	54	144	6.3	8	1	50	-
254	DMH 97-16	97	54	30	5	1	300	●
	DMH 136-16	136	75	30	5	1	100	●
	DMH 166-16	165	92	30	5	1	100	-
	DMH 202-16	202	112	30	5	1	100	-
	DMH 276-16	276	153	30	5	0	5	-
257	DMH 272-16	272	56	78.2	0.8	1	200	●
	DMH 340-16	340	73	78.2	0.8	0	100	●
	DMH 450-16	450	98	78.2	0.8	1	50	-
	DMH 520-16	520	112	78.2	0.8	0	50	-
	DMH 680-16	680	146	78.2	0.8	0	5	-

Max. counterpressure: 25 bar

DMH model	Pump type	Capacity	Stroke frequency	Stroke volume	Max. inlet pressure	Max. suction lift	Max. viscosity	VFD possible (100 Hz, PTC)
		[l/h]	[n/min]	[ml]	[bar]	[m]	[mPas]	[l/h]
251	DMH 2,2-25	2.2	14	2.9	8	1	300	●
	DMH 4,5-25	4.5	29	2.9	8	1	300	●
	DMH 11-25	11	63	2.9	8	1	300	●
	DMH 17-25	17	96	2.9	8	1	100	-
	DMH 21-25	21	120	2.9	8	1	50	-

Max. counterpressure: 50 bar

DMH model	Pump type	Capacity	Stroke frequency	Stroke volume	Max. inlet pressure	Max. suction lift	Max. viscosity	VFD possible (100 Hz, PTC)
		[l/h]	[n/min]	[ml]	[bar]	[m]	[mPas]	[l/h]
286	DMH 85-50	85	56	25.3	5	1	100	●
	DMH 111-50	111	73	25.3	5	1	50	●
	DMH 170-50	170	112	25.3	5	1	50	-
	DMH 222-50	222	146	25.3	5	1	5	-

Max. counterpressure: 100 bar

DMH model	Pump type	Capacity	Stroke frequency	Stroke volume	Max. inlet pressure	Max. suction lift	Max. viscosity	VFD possible (100 Hz, PTC)
		[l/h]	[n/min]	[ml]	[bar]	[m]	[mPas]	[l/h]
281	DMH 2-100	2	29	1.1	1	0	5	●
	DMH 4,2-100	4.2	63	1.1	10	1	100	●
	DMH 6,4-100	6.4	96	1.1	10	1	50	-
	DMH 8-100	8	120	1.1	10	1	5	-
	DMH 9,6-100	9.6	144	1.1	10	1	5	-
283	DMH 10-100	10	27	6	5	1	100	●
	DMH 19-100	19	54	6	5	1	100	●
	DMH 27-100	27	75	6	5	1	50	●
	DMH 33-100	33	92	6	5	1	50	-
	DMH 40-100	40	112	6	5	1	50	-
	DMH 55-100	55	153	6	5	1	5	-
285	DMH 20-100	20	28	12	5	1	100	●
	DMH 40-100	40	56	12	5	1	50	●
	DMH 52-100	52	73	12	5	1	50	●
	DMH 70-100	70	98	12	5	1	50	-
	DMH 80-100	80	112	12	5	1	50	-
	DMH 105-100	105	146	12	5	1	5	-

Max. counterpressure: 200 bar

DMH model	Pump type	Capacity	Stroke frequency	Stroke volume	Max. inlet pressure	Max. suction lift	Max. viscosity	VFD possible (100 Hz, PTC)
		[l/h]	[n/min]	[ml]	[bar]	[m]	[mPas]	[l/h]
280	DMH 1,3-200	1.45	63	0.36	1	0	5	●
	DMH 2,2-200	2.22	96	0.36	1	0	5	-
	DMH 2,5-200	2.81	120	0.36	1	0	5	-
	DMH 3,3-200	3.42	144	0.36	5	1	5	-
287	DMH 9-200	9	28	5.3	5	1	100	●
	DMH 18-200	18	56	5.3	5	1	100	●
	DMH 23-200	23	73	5.3	5	1	50	●
	DMH 31-200	31	98	5.3	5	1	50	-
	DMH 36-200	36	112	5.3	5	1	50	-
	DMH 50-200	50	146	5.3	5	1	5	-
288	DMH 3,3-200	3.6	26	2.33	5	1	100	●
	DMH 7,5-200	7.5	54	2.33	5	1	100	●
	DMH 10-200	10.4	75	2.33	5	1	50	●
	DMH 13-200	12.8	92	2.33	5	1	50	-
	DMH 15-200	15.5	112	2.33	5	1	50	-
	DMH 21-200	21	153	2.33	5	1	5	-

Catalogue variants (selection)

The following tables show a selection of DMH pumps for typical applications. The listed DMH pumps are fitted with:

- Manual control mode (B)
- Standard three-phase motor, aluminium housing (E/X)
- FKM gaskets (V)
- PVC or SS (stainless steel) dosing heads, depending on the maximum counterpressure of the pump

For other configurations, please see the *Catalogue variants* tables.

Max. counterpressure: 4 bar

DMH model	Pump type	Capacity [l/h]	Material			Control variant	Type key	Product number	
			Dosing head	Gaskets	Valve balls			With standard motor	With integrated VFD "FA"
257	DMH 750-4	750	PVC	FKM	Glass	B	DMH 750-4 B-PVC/V/G-X-E1B8B8	95718128	95750315
	DMH 1500-4	1500	PVC	FKM	Glass	B	DMH 1500-4 B-PVC/V/G-X-E1B8B8	95729554	-

Max. counterpressure: 10 bar

DMH model	Pump type	Capacity [l/h]	Material			Control variant	Type key	Product number	
			Dosing head	Gaskets	Valve balls			With standard motor	With integrated VFD "FA"
251	DMH 2,4-10	2.4	PVC	FKM	Glass	B	DMH 2,4-10 B-PVC/V/G-X-E1B1B1	96686414	on request
	DMH 5,0-10	5	PVC	FKM	Glass	B	DMH 5,0-10 B-PVC/V/G-X-E1B1B1	96722524	
	DMH 13-10	13	PVC	FKM	Glass	B	DMH 13-10 B-PVC/V/G-X-E1B1B1	96686294	95751325
	DMH 19-10	19	PVC	FKM	Glass	B	DMH 19-10 B-PVC/V/G-X-E1B1B1	96686366	-
	DMH 24-10	24	PVC	FKM	Glass	B	DMH 24-10 B-PVC/V/G-X-E1B1B1	96722194	-
252	DMH 11-10	11	PVC	FKM	Glass	B	DMH 11-10 B-PVC/V/G-X-E1B1B1	96722749	on request
	DMH 24-10	24	PVC	FKM	Glass	B	DMH 24-10 B-PVC/V/G-X-E1B1B1	96686649	95747064
	DMH 37-10	37	PVC	FKM	Glass	B	DMH 37-10 B-PVC/V/G-X-E1B1B1	96639979	-
	DMH 46-10	46	PVC	FKM	Glass	B	DMH 46-10 B-PVC/V/G-X-E1B1B1	96686730	-
253	DMH 21-10	21	PVC	FKM	Glass	B	DMH 21-10 B-PVC/V/G-X-E1B2B2	96686803	on request
	DMH 43-10	43	PVC	FKM	Glass	B	DMH 43-10 B-PVC/V/G-X-E1B2B2	96686821	95751326
	DMH 67-10	67	PVC	FKM	Glass	B	DMH 67-10 B-PVC/V/G-X-E1B2B2	96686861	-
	DMH 83-10	83	PVC	FKM	Glass	B	DMH 83-10 B-PVC/V/G-X-E1B2B2	96686896	-
	DMH 100-10	100	PVC	FKM	Glass	B	DMH 100-10 B-PVC/V/G-X-E1B2B2	96723492	-
254	DMH 50-10	50	PVC	FKM	Glass	B	DMH 50-10 B-PVC/V/G-X-E1B2B2	96687080	on request
	DMH 102-10	102	PVC	FKM	Glass	B	DMH 102-10 B-PVC/V/G-X-E1B2B2	96686924	
	DMH 143-10	143	PVC	FKM	Glass	B	DMH 143-10 B-PVC/V/G-X-E1B2B2	96686958	95750618
	DMH 175-10	175	PVC	FKM	Glass	B	DMH 175-10 B-PVC/V/G-X-E1B2B2	96686991	-
	DMH 213-10	213	PVC	FKM	Glass	B	DMH 213-10 B-PVC/V/G-X-E1B2B2	96687022	-
	DMH 291-10	291	PVC	FKM	Glass	B	DMH 291-10 B-PVC/V/G-X-E1B2B2	96693506	-
255	DMH 194-10	194	PVC	FKM	Glass	B	DMH 194-10 B-PVC/V/G-X-E1B2B2	96687102	on request
	DMH 270-10	270	PVC	FKM	Glass	B	DMH 270-10 B-PVC/V/G-X-E1B2B2	96687118	95750621
	DMH 332-10	332	PVC	FKM	Glass	B	DMH 332-10 B-PVC/V/G-X-E1B2B2	96687150	-
	DMH 403-10	403	PVC	FKM	Glass	B	DMH 403-10 B-PVC/V/G-X-E1B2B2	96687172	-
	DMH 550-10	550	PVC	FKM	Glass	B	DMH 550-10 B-PVC/V/G-X-E7B2B8	96638698	-
257	DMH 220-10	220	PVC	FKM	Glass	B	DMH 220-10 B-PVC/V/G-X-E1B8B8	96687345	on request
	DMH 440-10	440	PVC	FKM	Glass	B	DMH 440-10 B-PVC/V/G-X-E1B8B8	96659624	
	DMH 575-10	575	PVC	FKM	Glass	B	DMH 575-10 B-PVC/V/G-X-X1B8B8	96687413	95751327
	DMH 770-10	770	PVC	FKM	Glass	B	DMH 770-10 B-PVC/V/G-X-X1B8B8	95729532	-
	DMH 880-10	880	PVC	FKM	Glass	B	DMH 880-10 B-PVC/V/G-X-X1B8B8	95732687	-
	DMH 1150-10	1150	PVC	FKM	Glass	B	DMH 1150-10 B-PVC/V/G-X-X1B8B8	95734638	-

Max. counterpressure: 16 bar

DMH model	Pump type	Capacity [l/h]	Material			Control variant	Type key	Product number	
			Dosing head	Gaskets	Valve balls			With standard motor	With integrated VFD "FA"
251	DMH 2,3-16	2.3	PVC	FKM	Glass	B	DMH 2,3-16 B-PVC/V/G-X-E1B1B1	96721789	on request
	DMH 4,9-16	4.9	PVC	FKM	Glass	B	DMH 4,9-16 B-PVC/V/G-X-E1B1B1	96722374	
	DMH 12-16	12	PVC	FKM	Glass	B	DMH 12-16 B-PVC/V/G-X-E1B1B1	96693504	95751328
	DMH 18-16	18	PVC	FKM	Glass	B	DMH 18-16 B-PVC/V/G-X-E1B1B1	96721489	-
	DMH 23-16	23	PVC	FKM	Glass	B	DMH 23-16 B-PVC/V/G-X-E1B1B1	96635923	-
252	DMH 10-16	10	PVC	FKM	Glass	B	DMH 10-16 B-PVC/V/G-X-E1B1B1	96722635	on request
	DMH 23-16	23	PVC	FKM	Glass	B	DMH 23-16 B-PVC/V/G-X-E1B1B1	96686643	95751329
	DMH 36-16	36	PVC	FKM	Glass	B	DMH 36-16 B-PVC/V/G-X-E1B1B1	96723034	-
	DMH 45-16	45	PVC	FKM	Glass	B	DMH 45-16 B-PVC/V/G-X-E1B1B1	96686720	-
	DMH 54-16	54	PVC	FKM	Glass	B	DMH 54-16 B-PVC/V/G-X-E1B1B1	96723422	-
254	DMH 97-16	97	SS	FKM	SS	B	DMH 97-16 B-SS/V/SS-X-E1A1A1	96724418	on request
	DMH 136-16	136	SS	FKM	SS	B	DMH 136-16 B-SS/V/SS-X-E1A1A1	96634874	95751330
	DMH 166-16	165	SS	FKM	SS	B	DMH 166-16 B-SS/V/SS-X-E1A1A1	96631575	-
	DMH 202-16	202	SS	FKM	SS	B	DMH 202-16 B-SS/V/SS-X-E1A1A1	96634877	-
	DMH 276-16	276	SS	FKM	SS	B	DMH 276-16 B-SS/V/SS-X-E1A1A1	96724311	-
257	DMH 272-16	272	SS	FKM	SS	B	DMH 272-16 B-SS/V/SS-X-E1C1C1	95730636	on request
	DMH 340-16	340	SS	FKM	SS	B	DMH 340-16 B-SS/V/SS-X-X1C1C1	95725671	95747174
	DMH 450-16	450	SS	FKM	SS	B	DMH 450-16 B-SS/V/SS-X-E1C1C1	95726182	-
	DMH 520-16	520	SS	FKM	SS	B	DMH 520-16 B-SS/V/SS-X-X1C1C1	95740939	-
	DMH 680-16	680	SS	FKM	SS	B	DMH 680-16 B-SS/V/SS-X-X1C1C1	95734887	-

Max. counterpressure: 25 bar

DMH model	Pump type	Capacity [l/h]	Material			Control variant	Type key	Product number	
			Dosing head	Gaskets	Valve balls			With standard motor	With integrated VFD "FA"
251	DMH 2,2-25	2.2	SS	FKM	SS	B	DMH 2,2-25 B-SS/V/SS-X-E1AA	96721690	on request
	DMH 4,5-25	4.5	SS	FKM	SS	B	DMH 4,5-25 B-SS/V/SS-X-E1AA	96652976	
	DMH 11-25	11	SS	FKM	SS	B	DMH 11-25 B-SS/V/SS-X-E1AA	96697936	95750143
	DMH 17-25	17	SS	FKM	SS	B	DMH 17-25 B-SS/V/SS-X-E1AA	96631576	-
	DMH 21-25	21	SS	FKM	SS	B	DMH 21-25 B-SS/V/SS-X-E1AA	96612100	-

Max. counterpressure: 50 bar

DMH model	Pump type	Capacity [l/h]	Material			Control variant	Type key	Product number	
			Dosing head	Gaskets	Valve balls			With standard motor	With integrated VFD "FA"
286	DMH 85-50	85	SS	FKM	SS	B	DMH 85-50 B-SS/V/SS-X-E1A1A1	96625411	on request
	DMH 111-50	111	SS	FKM	SS	B	DMH 111-50 B-SS/V/SS-X-E1A1A1	96725545	95751331
	DMH 170-50	170	SS	FKM	SS	B	DMH 170-50 B-SS/V/SS-X-E1A1A1	96725567	-
	DMH 222-50	222	SS	FKM	SS	B	DMH 222-50 B-SS/V/SS-X-E1A1A1	96725581	-

Max. counterpressure: 100 bar

DMH model	Pump type	Capacity [l/h]	Material			Control variant	Type key	Product number	
			Dosing head	Gaskets	Valve balls			With standard motor	With integrated VFD "FA"
281	DMH 2-100	2	SS	FKM	SS	B	DMH 2-100 B-SS/V/SS-X-E2AA	96725320	on request
	DMH 4,2-100	4.2	SS	FKM	SS	B	DMH 4,2-100 B-SS/V/SS-X-E2AA	96690802	95751332
	DMH 6,4-100	6.4	SS	FKM	SS	B	DMH 6,4-100 B-SS/V/SS-X-E2AA	95712075	-
	DMH 8-100	8	SS	FKM	SS	B	DMH 8-100 B-SS/V/SS-X-E2AA	96644732	-
	DMH 9,6-100	9.6	SS	FKM	SS	B	DMH 9,6-100 B-SS/V/SS-X-E2AA	96725401	-
283	DMH 10-100	10	SS	FKM	SS	B	DMH 10-100 B-SS/V/SS-X-E2A1A1	96725412	on request
	DMH 19-100	19	SS	FKM	SS	B	DMH 19-100 B-SS/V/SS-X-E2A1A1	96628474	
	DMH 27-100	27	SS	FKM	SS	B	DMH 27-100 B-SS/V/SS-X-E2A1A1	96635241	95751333
	DMH 33-100	33	SS	FKM	SS	B	DMH 33-100 B-SS/V/SS-X-E2A1A1	96725462	-
	DMH 40-100	40	SS	FKM	SS	B	DMH 40-100 B-SS/V/SS-X-E2A1A1	96648548	-
	DMH 55-100	55	SS	FKM	SS	B	DMH 55-100 B-SS/V/SS-X-E2A1A1	96725487	-

DMH model	Pump type	Capacity [l/h]	Material			Control variant	Type key	Product number	
			Dosing head	Gaskets	Valve balls			With standard motor	With integrated VFD "FA"
285	DMH 20-100	20	SS	FKM	SS	B	DMH 20-100 B-SS/V/SS-X-E2A1A1	96693088	on request
	DMH 40-100	40	SS	FKM	SS	B	DMH 40-100 B-SS/V/SS-X-E2A1A1	96725512	
	DMH 52-100	52	SS	FKM	SS	B	DMH 52-100 B-SS/V/SS-X-E2A1A1	96693089	95751334
	DMH 70-100	70	SS	FKM	SS	B	DMH 70-100 B-SS/V/SS-X-E2A1A1	96725529	-
	DMH 80-100	80	SS	FKM	SS	B	DMH 80-100 B-SS/V/SS-X-E2A1A1	96627873	-
	DMH 105-100	105	SS	FKM	SS	B	DMH 105-100 B-SS/V/SS-X-E2A1A1	96654766	-

Max. counterpressure: 200 bar

DMH model	Pump type	Capacity [l/h]	Material			Control variant	Type key	Product number	
			Dosing head	Gaskets	Valve balls			With standard motor	With integrated VFD "FA"
280	DMH 1,3-200	1.45	SS	FKM	C	B	DMH 1,3-200 B-SS/V/SS-X-E2B6B6	96725285	95751335
	DMH 2,2-200	2.22	SS	FKM	C	B	DMH 2,2-200 B-SS/V/SS-X-E2B6B6	96725292	-
	DMH 2,5-200	2.81	SS	FKM	C	B	DMH 2,5-200 B-SS/V/SS-X-E2B6B6	96641031	-
	DMH 3,3-200	3.42	SS	FKM	C	B	DMH 3,3-200 B-SS/V/SS-X-E2B6B6	96725300	-
287	DMH 9-200	9	SS	FKM	SS	B	DMH 9-200 B-SS/V/SS-X-E2C2C2	96693087	on request
	DMH 18-200	18	SS	FKM	SS	B	DMH 18-200 B-SS/V/SS-X-E2C2C2	96690786	
	DMH 23-200	23	SS	FKM	SS	B	DMH 23-200 B-SS/V/SS-X-E2C2C2	96725613	95751336
	DMH 31-200	31	SS	FKM	SS	B	DMH 31-200 B-SS/V/SS-X-E2C2C2	96725618	-
	DMH 36-200	36	SS	FKM	SS	B	DMH 36-200 B-SS/V/SS-X-E2C2C2	96725622	-
	DMH 50-200	50	SS	FKM	SS	B	DMH 50-200 B-SS/V/SS-X-E2C2C2	96653917	-
288	DMH 3,3-200	3.6	SS	FKM	SS	B	DMH 3,3-200 B-SS/V/SS-X-E2C2C2	96725660	on request
	DMH 7,5-200	7.5	SS	FKM	SS	B	DMH 7,5-200 B-SS/V/SS-X-E2C2C2	96725664	
	DMH 10-200	10.4	SS	FKM	SS	B	DMH 10-200 B-SS/V/SS-X-E2C2C2	96725643	95751337
	DMH 13-200	12.8	SS	FKM	SS	B	DMH 13-200 B-SS/V/SS-X-E2C2C2	96725649	-
	DMH 15-200	15.5	SS	FKM	SS	B	DMH 15-200 B-SS/V/SS-X-E2C2C2	96725653	-
	DMH 21-200	21	SS	FKM	SS	B	DMH 21-200 B-SS/V/SS-X-E2C2C2	96690789	-

Catalogue variants

The tables below show the catalogue variants of single-head and double-head DMH pumps. Other DMH versions are available on request:

- Control variants
- Dosing head materials
- Supply voltages
- Valve types
- Connections
- Mains plugs
- Motor variants
- Pumps with API certificate
- Pumps with ATEX certificate

DMH model 251 (DN 8)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 2,4-10 DMH 5,0-10 DMH 13-10 DMH 19-10 DMH 24-10 DMH 2,3-16 DMH 4,9-16 DMH 12-16 DMH 18-16 DMH 23-16	B AT3	PP PP-L	E	C SS T	X	E	1 4	B3B3	X	- E0 FA	
			V	C G		G	1 4	B3B3	X F I	- FA	
		PV PV-L	T	C T							
		PVC PVC-L	E	C SS T	X	E	1 4	B1B1	X	- E0 FA	
			T	C T		G	1 4	B1B1	X F I	- FA	
			V	C G SS							
		SS SS-L	T V E	SS	X	E	1 4	AA	X	- E0 FA	
						G	1 4	AA	X F I	- FA	
	AR	PP PP-L	E	C SS	F S	G	1 4	B3B3	X F I	-	
			V	C G							
		PV PV-L	T	C T							
		PVC PVC-L	E	C SS T	F S	G	1 4	B1B1	X F I	-	
			T	C T							
			V	C G SS							
		SS SS-L	E T V	SS	F S	G	1 4	B1B1	X F I	-	
DMH 2,2-25 DMH 4,5-25 DMH 11-25 DMH 17-25 DMH 21-25	B AT3	SS SS-L	E T	SS	X	E	1 4	AA	X	- E0 FA	
			V			G	1 4	AA	X F I	- FA	
	AR	SS SS-L	E T V	SS	F S	G	1 4	AA	X F I	-	

DMH model 252 (DN 8)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 11-10 DMH 24-10 DMH 37-10 DMH 46-10 DMH 10-16 DMH 23-16 DMH 36-16 DMH 45-16 DMH 54-16	B AT3	PP PP-L	E	C	X	E	1 4	B3B3	X	- E0 FA	
				SS							
				T							
			V	C		G	1 4	B3B3	X F I	-	
				G						FA	
		PV PV-L	T	C							
				T							
		PVC PVC-L	E	C	X	E	1 4	B1B1	X	- E0 FA	
				SS							
				T							
			T	C		G	1 4	B1B1	X F I	-	
				T						FA	
			V	C							
				G							
				SS							
		SS SS-L	E	SS	X	E	1 4	AA	X	- E0 FA	
			T			G	1 4	AA	X F I	-	
			V							FA	
	AR	PP PP-L	E	C	F S	G	1 4	B3B3	X F I	-	
				SS							
				T							
			V	C							
				G							
		PV PV-L	T	C							
				T							
		PVC PVC-L	E	C	F S	G	1 4	B1B1	X F I	-	
				SS							
				T							
			T	C							
				T							
			V	C							
				G							
				SS							
		SS SS-L	E	SS	F S	G	1 4	B1B1	X F I	-	
			T								
			V								

DMH model 253 (DN 20)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 21-10 DMH 43-10 DMH 67-10 DMH 83-10 DMH 100-10	B AT3	PP PP-L	E	C	X	E	1 4	B4B4	X	- E0 FA	
				SS							
				T							
			T	T		G	1 4	B4B4	X F I	- FA	
			V	G							
		PV PV-L	T	T							
		PVC PVC-L	E	SS	X	E	1 4	B2B2	X	- E0 FA	
				T							
			V	C		G	1 4	B2B2	X F I	- FA	
				G							
				SS							
		SS SS-L	E	SS	X	E	1 4	A1A1	X	- E0 FA	
			T	SS							
			V	SS		G	1 4	A1A1	X F I	- FA	
	AR	PP PP-L	E	C SS T	F S	G	1 4	B4B4	X F I	-	
			T	T							
			V	G							
		PV PV-L	T	T							
		PVC PVC-L	E	SS	F S	G	1 4	B2B2	X F I	-	
				T							
			V	C							
				G							
				SS							
		SS SS-L	E	SS	F S	G	1 4	A1A1	X F I	-	
			T	SS							
			V	SS							

DMH model 254 (DN 20)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 50-10 DMH 102-10 DMH 143-10 DMH 175-10 DMH 213-10 DMH 291-10	B AT3	PP PP-L	E	C	X	E	1 4	B4B4	X	- E0 FA	
				SS							
				T							
			T	T							
			V	G							
		PV PV-L	T	T							
		PVC PVC-L	E	SS	X	E	1 4	B2B2	X	- E0 FA	
				T							
			V	C							
				G							
				SS							
		SS SS-L	E	SS	X	E	1 4	A1A1	X	- E0 FA	
			T	SS							
			V	SS							
DMH 97-16 DMH 136-16 DMH 166-16 DMH 202-16 DMH 276-16	B AT3	SS SS-L	E	SS	X	E	1 4	A1A1	X	- E0 FA	
			T	SS							
			V	SS							

DMH model 255 (DN 20)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 194-10 DMH 270-10 DMH 332-10 DMH 403-10 DMH 550-10*	B AT3	PP PP-L	E	C	X	E	1 4 7*	B4B4*	X	- E0 FA	
				SS							
				T							
			T	T							
			V	G							
		PV PV-L	T	T							
		PVC PVC-L	E	SS	X	E	1 4 7*	B2B2*	X	- E0 FA	
				T							
			V	C							
				G							
				SS							
		SS SS-L	E	SS	X	E	1 4 7*	A1A1*	X	- E0 FA	
			T	SS							
			V	SS							

* For DMH 550-10 connection size for outlet/inlet is DN20/DN32 (e.g. B4B5, B2B8, A1C1), valve type 7

DMH model 257 (DN 32)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 750-4 DMH 1500-4	B AT3	PP PP-L	E	G	X	E	1 4	B5B5	X	- E0 FA	
				T							
			V	G							
		PV PV-L	T	T							
DMH 220-10 DMH 440-10 DMH 575-10 DMH 770-10 DMH 880-10 DMH 1150-10		PVC PVC-L	E	SS	X	E	1 4	B8B8	X	- E0 FA	
			V	G							
		SS SS-L	E	SS	X	E	1 4	C1C1	X	- E0 FA	
			T	SS							
				T							
			V	SS							
DMH 272-16 DMH 340-16 DMH 450-16 DMH 520-16 DMH 680-16	B AT3	SS SS-L	E	SS	X	E	1 4	C1C1	X	- E0 FA	
			T	SS							
				T							
			V	SS							

DMH model 280 (DN 4)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 1,3-200 DMH 2,2-200 DMH 2,5-200 DMH 3,3-200	B AT3	SS SS-L	E V T	C*	X	E	2	B6B6	X	- E0 FA	
						G	2	B6B6	X F I	- FA	
	AR	SS SS-L	E V T	C*	F S	G	2	B6B6	X F I	E	

* Stainless-steel (SS) ball in deaeration valve

DMH model 281 (DN 8)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 2-100 DMH 4,2-100 DMH 6,4-100 DMH 8-100 DMH 9,6-100	B AT3	SS SS-L	E V T	SS	X	E	2	AA	X	- E0 FA	
						G	2	AA	X F I	- FA	
	AR	SS SS-L	E V T	SS	F S	G	2	AA	X F I	E	

DMH model 283 (DN 20)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 10-100 DMH 19-100 DMH 27-100 DMH 33-100 DMH 40-100 DMH 55-100	B AT3	SS SS-L	E	SS	X	E	2	A1A1	X	- E0 FA	
			V	C							
				SS							
			T	SS							

DMH model 285 (DN 20)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 20-100 DMH 40-100 DMH 52-100 DMH 70-100 DMH 80-100 DMH 105-100	B AT3	SS SS-L	E	SS	X	E	2	A1A1	X	- E0 FA	
			V	C							
				SS							
			T	SS							

DMH model 286 (DN 20)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 85-50 DMH 111-50 DMH 170-50 DMH 222-50	B AT3	SS SS-L	E	SS	X	E	1 2	A1A1	X	- E0 FA	
			V	C							
				SS							
			T	SS							

DMH model 287 (DN 8)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 9-200 DMH 18-200 DMH 23-200 DMH 31-200 DMH 36-200 DMH 50-200	B AT3	SS SS-L	E V T	SS	X	E	2	C2C2	X	- E0 FA	

DMH model 288 (DN 8)

Max. flow - pressure [l/h]-[bar]	Control variant	Material			Control panel position	Supply voltage	Valve type	Connection outlet/inlet	Mains plug	Motor variant	Pump housing
		Dosing head	Gasket	Valve ball							
DMH 3,3-200 DMH 7,5-200 DMH 10-200 DMH 13-200 DMH 15-200 DMH 21-200	B AT3	SS SS-L	E V T	SS	X	E	2	C2C2	X	- E0 FA	

7. Selection of accessories

DMH models 251 to 257

DMH model	Connection size	Accessories chapter
251	G 5/8	*8. Accessories for small dosing pumps*
252	G 5/8	*8. Accessories for small dosing pumps*
253	G 5/4	*9. Accessories for large dosing pumps*
254	G 5/4	*9. Accessories for large dosing pumps*
255	G 5/4 G 5/4; flange DN 32	*9. Accessories for large dosing pumps*
257	Flange DN 32	*9. Accessories for large dosing pumps*

DMH models 280 to 288

DMH model	Connection size	Accessories chapter
280	G 3/8	*8. Accessories for small dosing pumps*
281	G 5/8	*8. Accessories for small dosing pumps*
283	G 5/4	*9. Accessories for large dosing pumps*
285	G 5/4	*9. Accessories for large dosing pumps*
286	G 5/4	*9. Accessories for large dosing pumps*
287	G 5/8	*8. Accessories for small dosing pumps*
288	G 5/8	*8. Accessories for small dosing pumps*

8. Accessories for small dosing pumps

Grundfos offer a comprehensive range of accessories covering every need when dosing with Grundfos pumps.

Installation kits for dosing pumps

An installation kit includes the following parts:

- Injection unit with spring-loaded non-return valve (see page 41)
- PE discharge hose, 6 m
- PVC suction hose, 2 m
- PVC deaeration hose, 2 m
- PE foot valve with strainer and weight, without or with level indication (see page 37).

In addition to the installation kit, please order an inlay kit for DMH pumps.

TM04 1600 0312

Fig. 29 Installation kit with foot valve without level indication

TM04 8469 0512

Fig. 30 Installation kit with foot valve with level indication

Technical data

Max. flow rate* [l/h]	Max. pressure [bar]	Size		Material of injection unit			Product number		
		Suction / discharge hose [mm]	Deaeration hose [mm]	Housing	Gasket	Ball	Foot valve without level indication	Foot valve with level indication	Inlay kit
7.5	13	4/6	4/6	PP	FKM	Ceramic	95730440	95730464	95730984
					EPDM	Ceramic	95730441	95730465	
				PVC	FKM	Ceramic	95730442	95730466	95730720
					EPDM	Ceramic	95730443	95730467	
					PTFE	Ceramic	95730444	95730468	
				PVDF	FKM	Ceramic	95730445	95730469	95730729
					EPDM	Ceramic	95730446	95730470	
					PTFE	Ceramic	95730447	95730471	
30	12	6/9	4/6	PP	FKM	Ceramic	95730448	95730472	95730713
					EPDM	Ceramic	95730449	95730473	
				PVC	FKM	Ceramic	95730450	95730474	95730723
					EPDM	Ceramic	95730451	95730475	
					PTFE	Ceramic	95730452	95730476	
				PVDF	FKM	Ceramic	95730453	95730477	95730732
					EPDM	Ceramic	95730454	95730478	
					PTFE	Ceramic	95730455	95730479	
60	9	9/12	4/6	PP	FKM	Ceramic	95730456	95730480	95730715
					EPDM	Ceramic	95730457	95730481	
				PVC	FKM	Ceramic	95730458	95730482	95730725
					EPDM	Ceramic	95730459	95730483	
					PTFE	Ceramic	95730460	95730484	
				PVDF	FKM	Ceramic	95730461	95730485	95730734
					EPDM	Ceramic	95730462	95730486	
					PTFE	Ceramic	95730463	95730487	

* Viscosity similar to water

Cables and plugs

Cables and plugs are used for the connection of the dosing pump to external control devices. For cables and plugs for large dosing pumps, please see page 50.

Hoses

Hoses are available in various materials, sizes and lengths.

TM04 8268 0411

Fig. 31 Hoses

Technical data

Max. flow rate* [l/h]	Size (internal/outside diameter) [mm]	Material	Max. pressure at 20 °C [bar]	Length [m]	Product number
7.5	4/6	PE	13	3	91835676
				10	91836504
				50	91835680
		PVC	0.5	3	96701733
				10	96702133
				50	96727418
		ETFE	20	3	95730337
				10	95730338
				50	95730339
17	5/8	PE	13	3	95730888
				10	96727393
				50	95730889
30	6/9	PE	12	3	96727409
				10	96727412
				50	96727415
		PVC	0.5	3	95730334
				10	95730335
				50	95730336
		ETFE	20	3	95730340
				10	95730341
				50	95730342
	6/12	PVC, textile-reinforced	23	3	96693751
				10	96653571
				50	91835686
60	9/12	PE	9	3	96727395
				10	96705657
				50	96727398
		PVC	0.5	3	96727434
				10	95730890
				50	95724702
		ETFE	13	3	95730343
				10	95730344
				50	95730345

* Viscosity similar to water

Foot valves

Foot valves are installed at the lower end of the suction hose. They are available either without level indication or with low-level and empty-tank indication.

Foot valves include:

- Weight
- Strainer (mesh size approx. 0.8 mm)
- Non-return valve
- Hose connection set: 4/6 mm, 6/9 mm, 6/12 mm and 9/12 mm
- Pipe connection set: threaded, Rp 1/4", female (stainless steel).

Foot valves with low-level and empty-tank indication include additionally:

- Reed-switch unit with two floaters
- 5 metres of cable with PE jacket
- M-12-plug-to-flat-plug adaptor (to connect to a DMH pump with AR control)
- PE cap, ∅58, for assembly in Grundfos cylindrical tanks, or for use with tank adaptors.

The switch mode of the low-level and empty-tank indication is factory-set to NO. The switch mode can be set to NC by turning the floaters upside down.

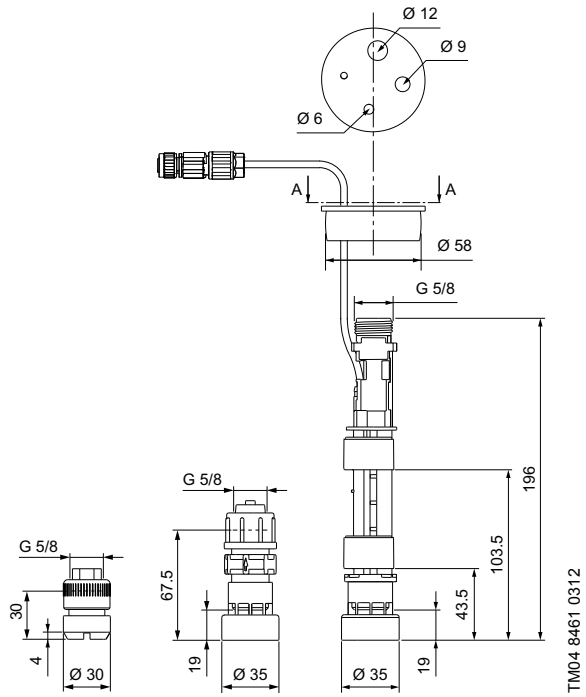
Electrical data of the level indication:

- Max. voltage: 48 V
- Max. current: 0.5 A
- Max. load: 10 VA.

TM04 8476 0512

Fig. 32 Left: foot valve without level indication; right: foot valve with level indication

Dimensions



TM04 8461 0312

Fig. 33 Left: stainless-steel foot valve; centre and right: PE or PVDF foot valve, dimensions

Technical data

Max. flow rate [l/h]	Material			Product number	
	Housing	Gasket	Ball	Without level indication	With level indication
60	PE	FKM, EPDM	Ceramic	98070951	98070966
		PTFE	Ceramic	98070952	98070967
	PVDF	FKM, EPDM	Ceramic	98070953	98070968
		PTFE	Ceramic	98070954	98070969
	SS	PTFE	SS	98070963	-

Suction lances

Suction lances are installed at the lower end of the suction hose. They are available either without level indication or with low-level and empty-tank indication. Their immersion depth is adjustable.

Suction lances include:

- Strainer (mesh size approx. 0.8 mm)
- Non-return valve
- Hose connection set: 4/6 mm, 6/9 mm, 6/12 mm and 9/12 mm
- Adjustable tank connection with holes for e.g. relief line.

Suction lances with low-level and empty-tank indication include additionally:

- Reed-switch unit with 2 floaters
- 5 metres of cable with PE jacket
- M-12-plug-to-flat-plug adaptor (to connect to a DMH pump with AR control).

The switch mode of the low-level and empty-tank indication is factory-set to NO. The switch mode can be set to NC by turning the floaters upside down.

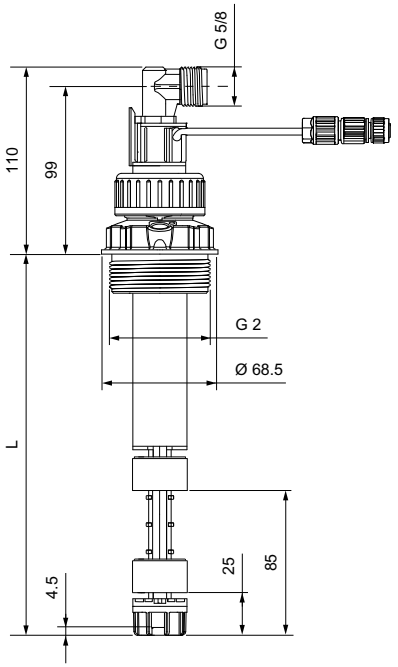
Electrical data of the level indication:

- Max. voltage: 48 V
- Max. current: 0.5 A
- Max. load: 10 VA.

TM04 8458 0312

Fig. 34 Suction lance

Dimensions



TM04 8460 0312

Fig. 35 Suction lance, dimensions

Dimensions / Selection

For dosing tank type	Tank volume [l]	Recommended immersion depth** (L) [mm]
Grundfos cylindrical tank	40	400
	60	500
	100	690
	200	690
	300	980
	500	1100
	1000	1200
Grundfos square tank	100	690
L-ring drum*	120	820
	220	980
Steel drum*	216	980
Standard jerricans according to EN 12712*	12, 33 (large cap)	400
	25, 30, 33	500
	60	690
IBC*	all sizes	1200

* Suitable adaptors see page 40.
** Please take into account the max. suction lift of the dosing pump.

Technical data

Max. flow rate [l/h]	Max. immersion depth* [mm]	Material			Product number	
		Housing	Gasket	Ball	Without level indication	With level indication
60	400	PE	FKM, EPDM	Ceramic	98070978	98071074
			PTFE	Ceramic	98070979	98071075
		PVDF	FKM, EPDM	Ceramic	98070980	98071076
			PTFE	Ceramic	98070981	98071077
	500	PE	FKM, EPDM	Ceramic	98070990	98071086
			PTFE	Ceramic	98070991	98071087
		PVDF	FKM, EPDM	Ceramic	98070992	98071088
			PTFE	Ceramic	98070993	98071089
	570	PE	FKM, EPDM	Ceramic	98071002	98071098
			PTFE	Ceramic	98071003	98071099
		PVDF	FKM, EPDM	Ceramic	98071004	98071100
			PTFE	Ceramic	98071005	98071101
	690	PE	FKM, EPDM	Ceramic	98071014	98071110
			PTFE	Ceramic	98071015	98071111
		PVDF	FKM, EPDM	Ceramic	98071016	98071112
			PTFE	Ceramic	98071017	98071113
	820	PE	FKM, EPDM	Ceramic	98071026	98071122
			PTFE	Ceramic	98071027	98071123
		PVDF	FKM, EPDM	Ceramic	98071028	98071124
			PTFE	Ceramic	98071029	98071125
	980	PE	FKM, EPDM	Ceramic	98071038	98071134
			PTFE	Ceramic	98071039	98071135
		PVDF	FKM, EPDM	Ceramic	98071040	98071136
			PTFE	Ceramic	98071041	98071137
	1100	PE	FKM, EPDM	Ceramic	98071050	98071146
			PTFE	Ceramic	98071051	98071147
		PVDF	FKM, EPDM	Ceramic	98071052	98071148
			PTFE	Ceramic	98071053	98071149
	1200	PE	FKM, EPDM	Ceramic	98071062	98071158
			PTFE	Ceramic	98071063	98071159
		PVDF	FKM, EPDM	Ceramic	98071064	98071160
			PTFE	Ceramic	98071065	98071161

* Minimum immersion depth for all sizes: approx. 140 mm

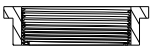
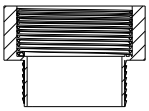
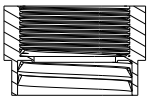
Accessories for suction lances and foot valves with level indication

Adaptors for containers

These adaptors allow the installation of standard suction lances (G 2 thread) and foot valves with level indication (PE cap) on different types of containers.

TM04 8506 0712

Technical data

Adaptor type		for container type	Remark	Product number
	TM04 8470 0512	Counter nut for tanks without threaded opening, e.g. 100-litre square tank or 1000-litre cylindrical tank	PVC, grey	98071170
	TM04 8471 0512	Containers with 2" NPT threaded opening	PVC, grey	98156690
		Drums with S 70 x 6 coarse thread (MAUSER 2")	PE, blue	98071171
		Drums with S 56 x 4 coarse thread (TriSure®)	PE, orange	98071172
	TM04 8473 0512	Jerricans with small opening (approx. ∅36), according to EN 12713	PE, green	98071173
		Jerricans with medium-sized opening (approx. ∅45), according to EN 12713	PE, yellow	98071174
		Jerricans with large opening (approx. ∅57), according to EN 12713	PE, brown	98071175
		US containers with bung hole of 63 mm (ASTM International)	PE, white	98071176
	TM04 8472 0512	IBC (Intermediate Bulk Container) with opening of ∅150, S 160 x 7	PE, black	98071177

Emission protection kits

Gas emitted by liquid in a container can cause bad odour and corrosion. Emission protection kits help avoid such problems. Suction lances can be retrofitted with emission protection kits.

Two variants are available:

- Emission protection kit with snifting valve: no gas can escape from the container, but air can be drawn in.
- Emission protection kit for use with filter: gas can escape from the container and air can be drawn in. The kit can be connected to a filter by means of a 4/6 mm hose.

They include:

- Gasket for the tank adaptor
- Snifting valve or hose nipple 4/6 mm (hose is not included)
- Gasket for the cable outlet.

Order data

Variant	Remark	Product number
Emission protection kit with snifting valve	can be retrofitted	98071178
Emission protection kit for use with filter	can be retrofitted	98071179

M-12-plug-to-flat-plug adaptor

The adaptor allows to connect suction lances or foot valves with level indication to pumps with a level input designed for flat plugs (e.g. DMX and DMH with AR control unit).

Order data

Description	Product number
M-12-plug-to-flat-plug adaptor	96635010

Injection units

Injection units connect the dosing line with the process line. They ensure a minimum counterpressure of 0.7 bar, and avoid backflow of the dosing medium.

In general, they include:

- Injection pipe. PP, PVC and PVDF versions can be shortened.
- Spring-loaded non-return valve with Tantal spring.
- Hose connection set: 4/6 mm, 6/9 mm, 6/12 mm, and 9/12 mm.
- Pipe connection set: threaded, Rp 1/4", female (stainless steel).

Standard injection units

Dimensions

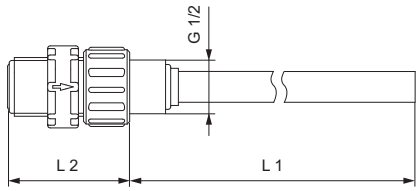


Fig. 36 Standard injection unit, PP, PVC, and PVDF version

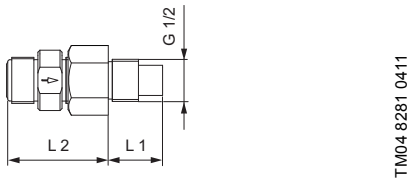


Fig. 37 Standard injection unit, stainless-steel version

Technical data

Max. flow rate [l/h]	Max. pressure [bar]	Material			Dimensions		Product number
		Housing	Gasket	Ball	L 1 [mm]	L 2 [mm]	
60	16	PP	FKM	Ceramic	100	47	95730904
			EPDM	Ceramic	100	47	95730908
		PVC	FKM	Ceramic	100	47	95730912
			EPDM	Ceramic	100	47	95730916
			PTFE	Ceramic	100	47	95730920
		PVDF	FKM	Ceramic	100	47	95730924
			EPDM	Ceramic	100	47	95730928
			PTFE	Ceramic	100	47	95730932
	100	Stainless steel	PTFE	Stainless steel	27	50	95730936
	16	PVC	FKM	Ceramic	300	47	95730940
			EPDM	Ceramic	300	47	95730944
			PTFE	Ceramic	300	47	95730948

Injection units with lip valve

Injection units with lip valve are typically used to add sodium hypochlorite solution to water with a high carbonate content. The FKM lip prevents crystallisation and blocking caused by alkali carbonate reactions at the point of injection.

Dimensions

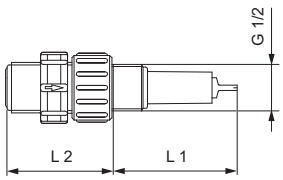


Fig. 38 Injection unit with lip valve

Technical data

Max. flow rate [l/h]	Max. pressure [bar]	Material			Dimensions		Product number
		Housing	Gasket	Ball	L 1 [mm]	L 2 [mm]	
60	16	PVC	FKM	Ceramic	55	59	95730964

Injection units with ball valve

Injection units with ball valve are used for applications where the injection point must be closable. The ball valve is placed between the injection pipe and the spring-loaded non-return valve. Thus, the dosing line can be completely disconnected from the process. The non-return valve can be disassembled and cleaned without stopping the process and emptying the process line.

Dimensions

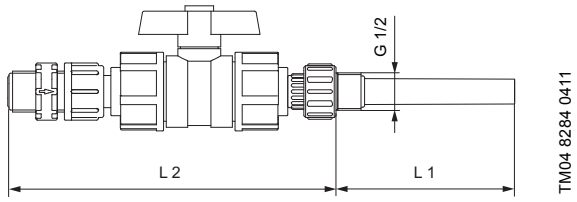


Fig. 39 Injection unit with ball valve

Technical data

Max. flow rate [l/h]	Max. pressure [bar]	Material			Dimensions		Product number
		Housing	Gasket	Ball	L 1 [mm]	L 2 [mm]	
60	16	PVC	FKM	Ceramic	100	183	95730952
			EPDM	Ceramic	100	183	95730956
	64	Stainless steel	PTFE	Stainless steel	27	138	95730960

Injection units, withdrawable for cleaning

These injection units are used where regular cleaning of the injection pipe is required. The construction allows the withdrawal of the injection unit from the process line and the cleaning of it, without stopping the water flow. The injection point can be closed with the integrated ball valve. The immersion depth of the injection pipe can be adjusted.

Dimensions

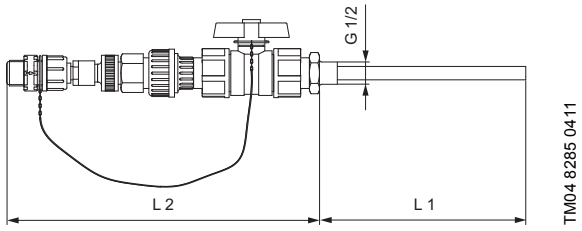


Fig. 40 Injection unit, withdrawable for cleaning

Technical data

Max. flow rate [l/h]	Max. pressure [bar]	Material			Dimensions		Product number
		Housing	Gasket	Ball	L 1 [mm]	L 2 [mm]	
60	10	PVC	FKM	Ceramic	185	280	95730968
			EPDM	Ceramic	185	280	95730972

Hot-injection units with ball valve

Hot-injection units with ball valve can be used for direct injection of dosing medium into processes with a temperature of up to 120 °C.

In addition, these injection units include:

- Injection pipe, stainless steel.
- Ball valve installed between the injection pipe and the cooling pipe, stainless steel.
- Bendable cooling pipe, stainless steel, length 1 m.

Dimensions

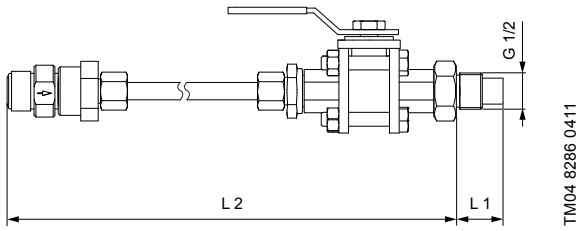


Fig. 41 Hot-injection unit with ball valve

Technical data

Max. flow rate [l/h]	Max. pressure [bar]	Material			Dimensions		Product number
		Housing	Gasket	Ball	L 1 [mm]	L 2 [mm]	
60	16	PVDF	PTFE	Ceramic	27	1158	95730976
	64	Stainless steel	PTFE	Stainless steel	27	1158	95730980

Multi-function valves, pressure relief valves, pressure loading valves

Multi-function valves combine the functions of pressure relief valves and pressure loading valves. In addition, they allow deaeration of the pump and emptying of the discharge line for maintenance.

Pressure relief valves, or safety valves, protect the pump and the discharge installations against excessive pressure. All pressurised dosing installations should include a pressure relief valve.

Pressure loading valves maintain a certain counterpressure for the pump. They are used in applications with too low counterpressure or no counterpressure at all. Pressure loading valves are also used to prevent syphoning, when the admission pressure is higher than the counterpressure. They provide a constant counterpressure for the dosing pump when the system pressure is fluctuating.

TM04 8287 0411

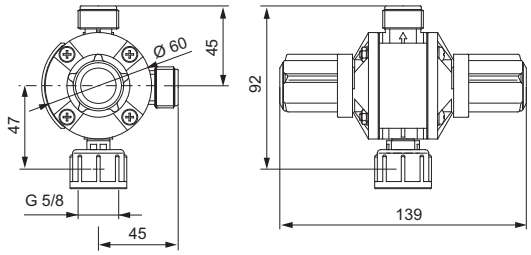
Fig. 42 Multi-function valve, pressure relief valve, pressure loading valve

Multi-function valves

A multi-function valve is mounted directly on the pump discharge side. The top connection is for the discharge line, the side connection leads the relief medium back into the tank.

- Loading pressure, adjustable from 1 to 4 bar, is factory-set to 3 bar.
- Relief pressure, adjustable from 7 to 16 bar, is factory-set to 10 bar or 16 bar.
- Maximum system pressure 16 bar.
- Hose connection set: 4/6 mm, 6/9 mm, 6/12 mm, and 9/12 mm.

Dimensions



TM04 8288 0411

Fig. 43 Multi-function valve

Technical data

Max. flow rate [l/h]	Material				Product number	
	Housing	Connections	Gasket	Diaphragm	Relief pressure 10 bar	Relief pressure 16 bar
60	PVDF	PP	FKM	PTFE	95704585	95730821
			EPDM	PTFE	95704591	95730822
		PVC	FKM	PTFE	95730807	95730823
			EPDM	PTFE	95730808	95730824
			PTFE	PTFE	95730809	95730825
		PVDF	FKM	PTFE	95730810	95730826
			EPDM	PTFE	95730811	95730827
			PTFE	PTFE	95730812	95730828

Pressure relief valves

Pressure relief valves are installed in the discharge line near the pump, using the 2 in-line connections. The side connection leads the relief medium back into the tank.

- Relief pressure, adjustable from 5 to 10 bar, is factory-set to 10 bar, or
- Relief pressure, adjustable from 7 to 16 bar, is factory-set to 16 bar.
- Maximum system pressure 16 bar.
- Hose connection set: 4/6 mm, 6/9 mm, 6/12 mm, and 9/12 mm.
- Pipe connection set: threaded, Rp 1/4", female (stainless steel).

Dimensions

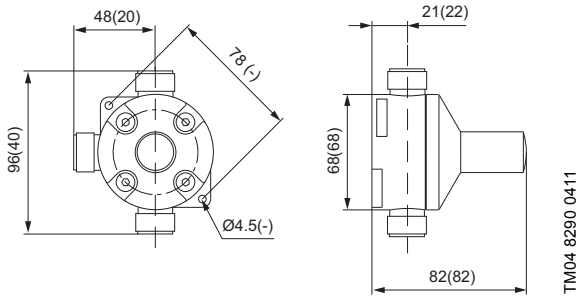


Fig. 44 Pressure relief valve. Dimensions in brackets apply to stainless-steel version.

Technical data

Max. flow rate [l/h]	Material			Product number	
	Diaphragm	Housing and connections	Gasket	Relief pressure 10 bar	Relief pressure 16 bar
60	PTFE	PP	FKM / EPDM	95730757	95730773
		PVC	FKM / EPDM	95730758	95730774
			PTFE	95730759	95730775
		PVDF	FKM / EPDM	95730760	95730776
			PTFE	95730761	95730777
		Stainless steel	No gaskets	95730771	95730783

Pressure loading valves

Pressure loading valves are installed in the discharge line after the pressure relief valve, and after the pulsation damper, if fitted.

- Loading pressure, adjustable from 1 to 5 bar, is factory-set to 3 bar.
- Maximum system pressure: 16 bar.
- Hose connection set: 4/6 mm, 6/9 mm, 6/12 mm, and 9/12 mm.
- Pipe connection set: threaded, Rp 1/4", female (stainless steel).

Dimensions

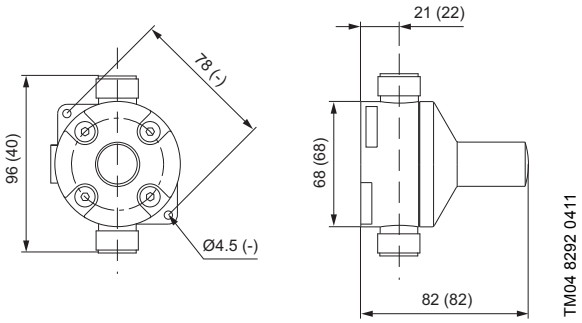


Fig. 45 Pressure loading valve. Dimensions in brackets apply to stainless-steel version.

Technical data

Max. flow rate [l/h]	Material			Product number
	Diaphragm	Housing and connections	Gasket	
60	PTFE	PP	FKM / EPDM	95730741
		PVC	FKM / EPDM	95730742
			PTFE	95730743
		PVDF	FKM / EPDM	95730744
			PTFE	95730745
		Stainless steel	No gaskets	95730751

Pump connection kits and inlay kits

Retrofit pump connection kits and inlay kits for the integration of Grundfos standard pumps into installations with various sizes of hoses or pipes.

A pump connection kit includes:

- 1 set of inlays
- 1 union nut.

An inlay kit includes:

- 2 sets of inlays.

Fig. 46 Left: pump connection kit; right: inlay kit

Technical data

Connection type	Size	Material	Product number	
			Connection kit	Inlay kit
Hose (cone and ring)	4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm	PP	97691902	-
		PVC	97691903	-
		PVDF	97691904	-
	0.17" x 1/4", 1/4" x 3/8", 3/8" x 1/2"	PP	97691905	-
		PVC	97691906	-
		PVDF	97691907	-
Hose (cone and ring)	4/6 mm, or 0.17" x 1/4"	PP	97702474	95730984
		PVC	97702485	95730720
		PVDF	97702495	95730729
	4/9 mm	PP	98153922	98153977
		PVC	98153944	98154006
		PVDF	98153949	98154029
	5/8 mm	PP	97702475	95730711
		PVC	97702486	95730721
		PVDF	97702496	95730730
	6/8 mm	PP	97702476	95730712
		PVC	97702487	95730722
		PVDF	97702497	95730731
	6/9 mm	PP	97702477	95730713
		PVC	97702488	95730723
		PVDF	97702498	95730732
	6/12 mm	PP	97702478	95730714
		PVC	97702489	95730724
		PVDF	97702499	95730733
	9/12 mm	PP	97702479	95730715
		PVC	97702490	95730725
		PVDF	97702500	95730734
	1/4" x 3/8	PP	97702482	95730718
		PVC	97702492	95730727
		PVDF	97702503	95730737
	3/8" x 1/2"	PP	97702483	95730719
		PVC	97702493	95730728
		PVDF	97702504	95730738
Hose (cutting ring type)	1/8" x 1/4"	PP	97702481	95730717
		PVDF	97702502	95730736
Pipe welding	External diameter 16 mm	PP	97702480	95730716
		PVDF	97702501	95730735
Pipe cementing	Internal diameter 12 mm	PVC	97702491	95730726
Pipe, threaded, male	1/2" NPT	PP	97702484	-
		PVC	97702494	-
		PVDF	97702505	-
		Stainless steel	97702508	-
Pipe, threaded, female	Rp 1/4"	Stainless steel	97702472	95730739
	1/4" NPT	Stainless steel	97702473	95730740
Pipe (cutting ring type)	4/6 mm	Stainless steel	97702506	-
	8/10 mm	Stainless steel	97702507	-

Adaptors

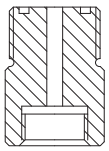
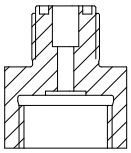
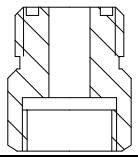
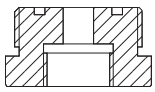
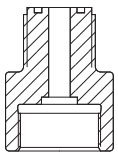
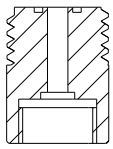
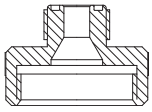
Threaded adaptors

Threaded adaptors are used to convert between different threaded connection sizes.

A threaded adaptor kit includes:

- 1 adaptor
- 1 O-ring.

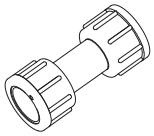
Technical data

Type		Threaded connection size		Material		Product number
		Female	Male	Housing	Gaskets	
	TM04 8296 0411	G 3/8	G 5/8	PP	FKM / EPDM	95730407
				PVC	FKM / EPDM	95730408
					PTFE	95730409
				PVDF	FKM / EPDM	95730410
					PTFE	95730411
	TM04 8297 0411	G 5/8	G 3/8	PP	FKM / EPDM	95730412
				PVC	FKM / EPDM	95730413
					PTFE	95730414
				PVDF	FKM / EPDM	95730415
					PTFE	95730416
	TM04 8298 0411	G 5/8	G 3/4	PP	FKM / EPDM	95730417
				PVC	FKM / EPDM	95730418
					PTFE	95730419
				PVDF	FKM / EPDM	95730420
					PTFE	95730421
	TM04 8299 0411	G 5/8	G 1 1/4	PP	FKM / EPDM	95730422
				PVC	FKM / EPDM	95730423
					PTFE	95730424
				PVDF	FKM / EPDM	95730425
					PTFE	95730426
	TM04 8300 0411	G 5/8	M 20 x 1.5	PP	FKM / EPDM	95730427
				PVC	FKM / EPDM	95730428
					PTFE	95730429
				PVDF	FKM / EPDM	95730430
					PTFE	95730431
	TM04 8475 0612	G 5/8	M 30 x 3.5	PVDF	FKM / EPDM	98154048
					PTFE	98154054
	TM04 8301 0411	G 1 1/4	G 5/8	PP	FKM / EPDM	95730432
				PVC	FKM / EPDM	95730433
					PTFE	95730434
				PVDF	FKM / EPDM	95730435
					PTFE	95730436

Union nut adaptors

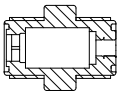
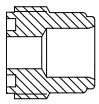
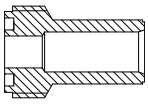
Union nut adaptors consist of a rigid pipe with union nuts on both ends. They have neither gaskets nor glued or welded connections.

Technical data

Type		Threaded connection size		Material	Product number
		Female	Female	Housing	
	TM04 8306 0411	G 5/8	G 5/8	PVC	95730437
				PP	95730438
				PVDF	95730439

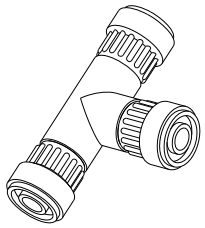
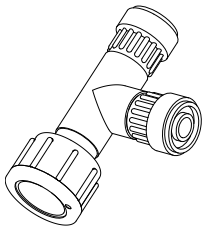
Hose-to-hose and hose-to-pipe adaptors

Technical data

Type		Description	Connections		Material		Product number
			Side 1	Side 2	Housing and connections	Gaskets	
	TM04 8302 0411	Valve housing with two male threads G 5/8	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm		PP	FKM / EPDM	95730367
					PVC	FKM / EPDM	95730368
						PTFE	95730369
					PVDF	FKM / EPDM	95730370
						PTFE	95730371
			Without		PP	FKM / EPDM	95730356
					PVC	FKM / EPDM	95730357
						PTFE	95730358
					PVDF	FKM / EPDM	95730359
						PTFE	95730360
			Without	Threaded Rp 1/4	Stainless steel	PTFE	95730361
	TM04 8360 0711	Pipe cementing end on one side, male thread G 5/8 on the other side	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm	Internal ∅12	PVC	FKM / EPDM	95730378
						PTFE	95730379
			Without	Internal ∅12	PVC	FKM / EPDM	95730365
						PTFE	95730366
	TM04 8303 0411	Pipe welding end on one side, male thread G 5/8 on the other side	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm	External ∅16	PP	FKM / EPDM	95730377
					PVDF	FKM / EPDM	95730380
						PTFE	95730381
			Without	External ∅16	PP	FKM / EPDM	95730362
					PVDF	FKM / EPDM	95730363
						PTFE	95730364

T-pieces

Technical data

Type		Description	Connections			Material		Product number
			Bottom	Top	Side	Housing and connections	Gaskets	
	TM04 8304 0411	Three male threads G 5/8	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm			PP	FKM / EPDM	95730387
						PVC	FKM / EPDM	95730388
							PTFE	95730389
						PVDF	FKM / EPDM	95730390
							PTFE	95730391
			-	Without	-	PP	FKM / EPDM	95730346
						PVC	FKM / EPDM	95730347
							PTFE	95730348
						PVDF	FKM / EPDM	95730349
							PTFE	95730350
	TM04 8305 0411	Two male threads G 5/8, one female connection with union nut	Union nut G 5/8	Without	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm	PP	FKM / EPDM	95730397
						PVC	FKM / EPDM	95730398
							PTFE	95730399
						PVDF	FKM / EPDM	95730400
							PTFE	95730401
					Without	PP	FKM / EPDM	95730351
						PVC	FKM / EPDM	95730352
							PTFE	95730353
						PVDF	FKM / EPDM	95730354
							PTFE	95730355

Water meter

The in-line water meter with potential-free pulse signal is suitable for use in flow-proportional dosing applications.

- Qn 1.5 and Qn 2.5 meters are of the multi-jet, dry dial type, for cold water up to 30 °C, or hot water up to 90 °C.
- Qn 15 meters and up are of the helical vane type, for cold water up to 50 °C, or hot water up to 120 °C.
- Max. pressure: 16 bar.

If the water meter is connected directly to the pump pulse input, use a control plug (PN 96698715).

- Qn 1.5 to Qn 15 meters are threaded.
- Qn 40 to Qn 150 meters are flanged.
- Cable length: 3 m.

TM04 8317 0411

Fig. 47 Water meter

Qn [m^3/h]	Pulse rate [l/pulse]	Maximum short-period capacity [m^3/h]	Maximum pressure [bar]	Transitional capacity with error ± 2 % [l/h]	Minimum capacity with error ± 5 % [l/h]	Product number			
						Maximum water temperature			
						30 °C	50 °C	90 °C	120 °C
1.5*	1	3	16	120	50	96446846	-	96446897	-
2.5*	2.5	5	16	200	70	96446847	-	96446898	-
15*	10	30	16	3000	450	-	96446848	-	96446899
1.5*	0.25	3	16	120	50	96482640	-	96482643	-
2.5*	0.25	5	16	200	70	96482641	-	96482644	-
15*	2.5	30	16	3000	450	96482642	-	96482645	-
40**	100	80	10	4000	700	-	96446849	-	96446900
60**	25	120	10	6000	1200	-	96446850	-	96446901
150**	100	300	10	12000	3000	-	96446851	-	96446902

* Maximum load, Reed contact: 30 VAC/VDC, 0.2 A.
** Maximum load, Namur contact: 8-12 VDC, 1 kOhm (requires external power supply).

Dimensions

Size	Connections	Installation kit connection	Port-to-port length [mm]	Port-to-port length incl. kit [mm]
Threaded connection				
Qn 1.5	G 3/4	G 1/2	165	245
Qn 2.5	G 1	G 3/4	190	288
Qn 15	G 2.5	G 2	300	438
Flanged connection				
Qn 40	DN 80		225	-
Qn 60	DN 100		250	-
Qn 150	DN 150		300	-

9. Accessories for large dosing pumps

Grundfos offer a comprehensive range of accessories covering every need when dosing with Grundfos pumps.

The following accessories are suitable for large dosing pumps, such as DMX and DMH with more than 50 l/h, DME and DDI 150-4.

To find the suitable hydraulic accessories for your pump, please compare the connection size and material combination of your pump with the data in this booklet.

- G 5/4 = G 1 1/4 = DN 20
- G 2 = DN 32

Overview of a dosing system

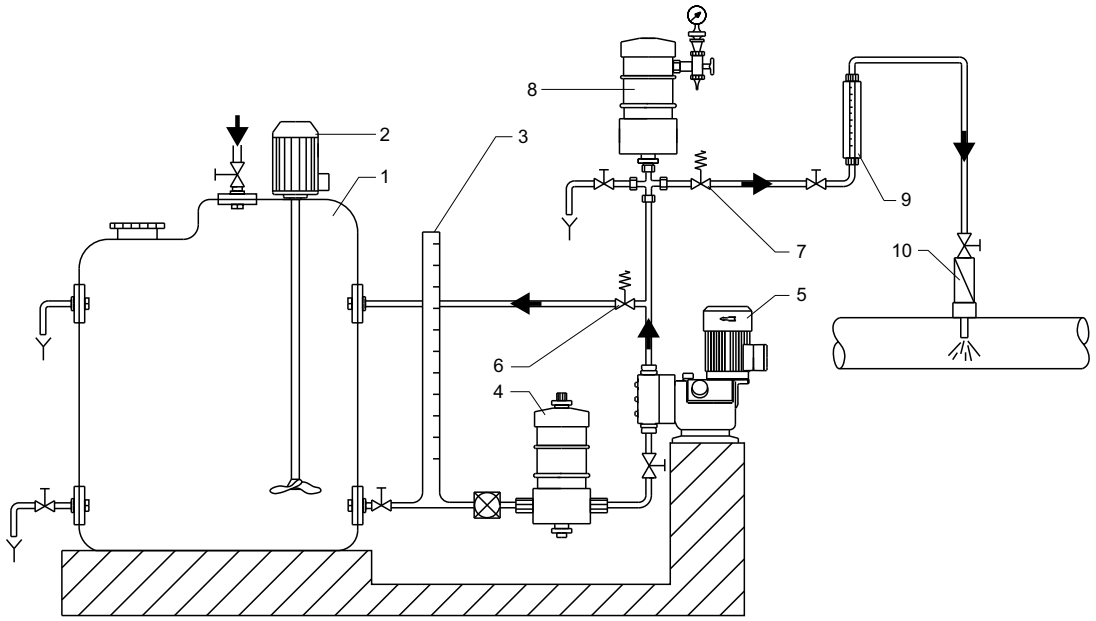


Fig. 48 Overview of a dosing system

Legend

Pos.	Component	Page
1	Dosing tank	
2	Electric stirrer	72
3	Lateral discharge device	
4	Pulsation damper, suction side	60
5	Dosing pump	
6	Pressure-relief valve	57
7	Pressure-loading valve	58
8	Pulsation damper, discharge side	62
9	Measuring glass	
10	Injection unit	56

Additional accessories

Accessories	Page
Hoses	51
Foot valve	52
Suction line	53
Level-control unit	55

Cables and plugs

The listed cables and plugs are suitable for the connection of a pump to external control devices, such as process controllers, flow meters, start/stop contacts and level sensors.

Cables and plugs for DMX and DMH pumps with AR control

Socket	Application		Pins	Plug type	Cable length [m]	Product number
④	Input	Analog pulse remote switch	4	Straight	2	96609014
					5	96609016
					No cable	96698715
				Angled	2	96693246
③	Output	Error relay (stroke or low-level relay)	4	Straight	2	96609017
					5	96609019
					No cable	96696198
				Angled	2	96698716
②	Output	Analog	5	Straight	2	96632921
					5	96632922
					No cable	96609031
				Angled	2	96699697
⑤	Input	Low-level; for DDI	4	Straight	-	96698715
		Empty tank; for DMX/DMH AR	2		Soldered cable	96679388
		Low-level; for DMX/DMH AR	3			96630345
	Adapter, flat-round	Low-level	4		-	96635010
⑥	Profibus	Y-connector; for DDI			-	96693735
		Terminating resistor			-	96693737
	Mains (DDI 222)	110-240 VAC	3	Angled	-	96698717

Hoses

Hoses in various materials, sizes and lengths for large dosing pumps.

TM01 8958 0900

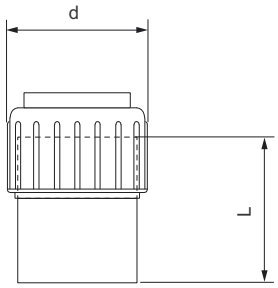
Fig. 49 Hoses

Technical data

Inside / outside diameter [mm]	Material	Max. pressure [bar]	Length [m]	Product number
12/19	PVC, textile-reinforced	15	10	96534489
15/20	PVC	0.5	2	96535081
16/24	PVC, textile-reinforced	14	10	96441200
19/27	PVC, textile-reinforced	12	1	96727425
			1.5	96727427
			3	96727426
			5	96699991
			10	96696200
			15	96727429
			25	96634866
			50	96695788
			100	96727428
25/34	PVC, textile-reinforced	10	5	96535070
			10	96441201
32/41	PVC, textile-reinforced	9	5	96535077
			10	96535079

Foot valves

Foot valves complete with non-return valve, strainer and hose or pipe connection for large dosing pumps.



TM04 8709 5112

Fig. 50 Foot valve

Technical data

Max. flow rate [l/h]	Connection size	Material			Connection		Dimensions		Product number	
		Body	Gasket	Ball	Type	Inside / outside diameter or thread	d [mm]	L [mm]	Foot valve	Valve kit
400	G 5/4 (G 1 1/4)	PP	EPDM	Ceramic	Hose clamp	19/27 mm, 25/34 mm	53	51	96527112	96731227
					Threaded	3/4" NPT		55	96566136	
		PP	FKM	Ceramic	Hose clamp	19/27 mm, 25/34 mm		51	96527113	96731229
					Threaded	3/4" NPT		55	96566138	
		PVDF	FKM	Ceramic	Hose clamp	19/27 mm, 25/34 mm		51	96527114	96731231
					Threaded	3/4" NPT		55	96566139	
		SS*	FKM	SS*	Threaded	3/4" NPT		55	96537921	-
1150	G 2	PP	EPDM	Glass	Threaded	Rp 1 1/4	71	81	96527115	96731232
					Threaded	1 1/4" NPT			96566145	
			FKM	Glass	Threaded	Rp 1 1/4			96527116	96731233
					Threaded	1 1/4" NPT			96566146	
		PVDF	FKM	Glass	Threaded	Rp 1 1/4			96527118	96731234
					Threaded	1 1/4" NPT			96566147	
		SS*	FKM	SS*	Threaded	Rp 1 1/4	71	73	96534454	96731235
					Threaded	1 1/4" NPT			96537970	

* Stainless steel 1.4401 (EN 10027-2)

Rigid suction lines

Grundfos offer a comprehensive range of rigid suction lines for a variety of chemical containers.

Rigid suction lines for stationary tanks

These suction lines are designed for the use with stationary tanks (e.g. Grundfos tanks). The length of the rigid pipe can be adapted to the customer's requirements. Rigid suction lines for stationary tanks have a foot valve with strainer. The pump is usually installed either directly on the tank, on a wall bracket or in a skid. Flooded suction is recommended.
Level switches are available as accessories and can be retrofitted.

Features

- Strainer included
- Available in different material combinations (see table)
- Available with different types of hoses.

Dimensions

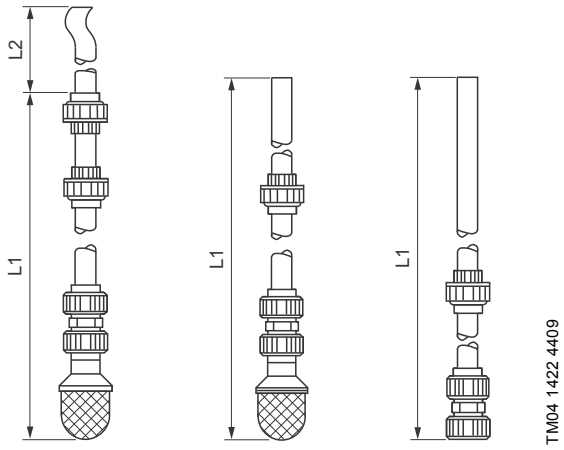


Fig. 51 Rigid suction lines for stationary tanks

Technical data

Connection size	Material				Pipe size	Hose size	Pipe length (L1)	Hose length (L2)	Product number
	Body	Seat	Ball	Gasket	[mm]	[mm]	[m]	[m]	
G 5/4	PVC	PTFE	Ceramic	PTFE	20/25	13/20	1	5	96693062
	PVC	SS*	SS**	EPDM	20/25	13/20	1	5	96694411
	PVC	PE	Glass	FKM	20/25	-	1	-	96646486
	PP	PTFE	Glass	FKM	20/25	-	1.3	-	96727272
	PVDF	PTFE	PTFE	PTFE	20/25	-	1.2	-	91835645
G 2	PVC	PE	Glass	FKM	32/40	-	1.25	-	96727281

* Stainless steel 1.4571 (EN 10027-2)
** Stainless steel 1.4401 (EN 10027-2)

Suitable level switches to clip on rigid suction lines

Reed contact level switch to clip on the suction line.

- For use as tank empty signal or as an additional level indication
- Cable length 2 metres
- Empty signal NO (normally open).

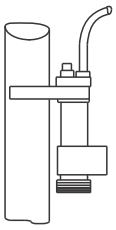


Fig. 52 Level switch

Connection size	Material	Plug	Product number
G 5/4	PVC	Flat	96635069
	PVC	Round	96725716
	PP	Flat	96725712
	PP	Round	96698387
G 2	PVC	Flat	96730129

Rigid suction lines for drums or tanks

These suction lines are easy to remove in case the tank of drum has to be replaced. The drum adapter fits with the most standard chemical drum bungs. The position of the drum adapter is adjustable and the pipe length suits most of the common drum or tank heights. The pump is usually installed on a wall bracket or in a skid.

Features

- Drum adapter with thread S 70 x 6
- Suitable for drum and tank heights up to 1100 mm
- Empty and low-level indication
- With flat plug for connection with DMX-AR, DMH-AR pump electronics
- Available with different PVC hose types (see table).

Dimensions

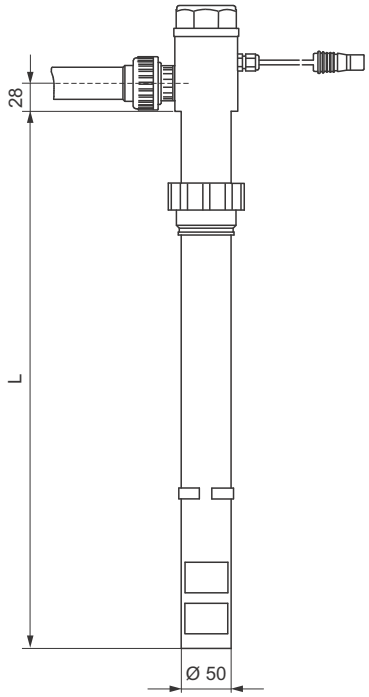


Fig. 53 Rigid suction line for drums or tanks

Technical data

Connection size	Contact position*		Material				Hose ID/OD[1)] [mm]	Length			Product number
	Empty	Low-level	Body	Seat	Ball	Gasket		Hose [m]	Pipe (L) [m]	Cable [m]	
G 5/4	NO	NO	PVC	PTFE	Glass	EPDM	13/20	5	0.6	5	96727286
						EPDM	13/20	5	1.2	3	96727287
						FKM	13/20	5	1.2	3	96727288
						EPDM	19/27	5	1.2	3	96727289
	NC	NC				EPDM	13/20	5	1.2	3	95707689
						FKM	13/20	5	1.2	3	95707688

* NO = Normally Open, NC = Normally Closed

1) ID = Inside Diameter, OD = Outside Diameter

Level-control units

Grundfos level-control units are suitable for dosing pumps with input for level-control.

The switch mode of the reed switch unit is factory-set to NO. The switch mode can be set to NC by turning the floater(s).

Electrical data

- Max. voltage: 48 V
- Max. current: 0.5 A
- Max. load: 10 VA.

Level-control unit for stirrer protection

Level-control units for stirrer protection are used for suction lances for pumps up to 60 l/h. They are clipped to the suction lances at the required switch-off height above the stirrer propeller.

Level-control units can also be used for overfill protection or as an additional tank level indication.

A level-control unit for stirrer protection includes:

- Reed switch unit with 1 floater
- 5 m cable with PE jacket and open wire ends
- Clip for suction lance
- Cable gland for mounting at the tank top.

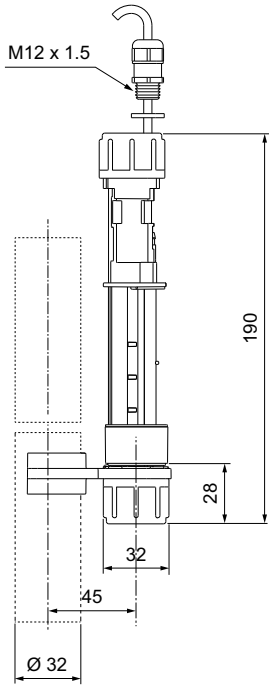


Fig. 54 Level-control unit for stirrer protection

Description	Material	Product number
Level switch for stirrer protection	PE	98306210

Flexible level-control unit

The flexible level-control unit is suitable for dosing pumps with level-control input and provides 2 level switches

A flexible level-control unit includes:

- Reed switch unit with 2 floaters
- 5 m of cable with PE jacket and M12 plug
- Weight that keeps the level-control unit in an upright position at the tank bottom
- PE cap, ∅58, for assembly in Grundfos cylindrical tanks, or for use with tank adaptors.

Dimensions

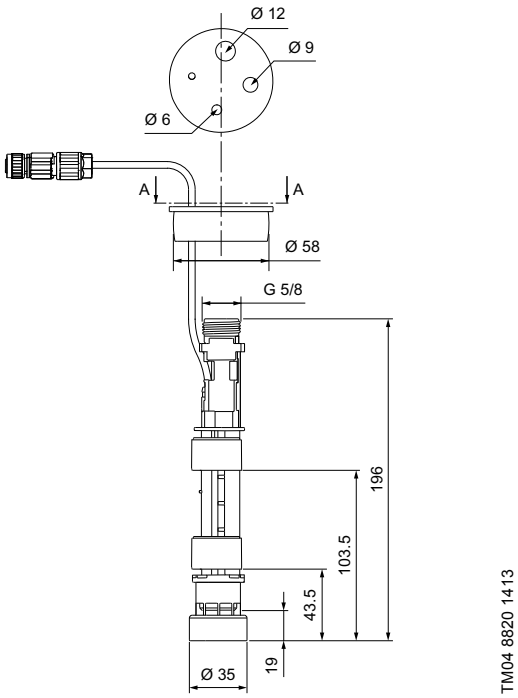


Fig. 55 Flexible level-control unit

Description	Material	Product number
Flexible level-control unit	PE	98375695

Injection units

Injection units, threaded pump connection G 5/4

Maximum flow: 500 l/h.

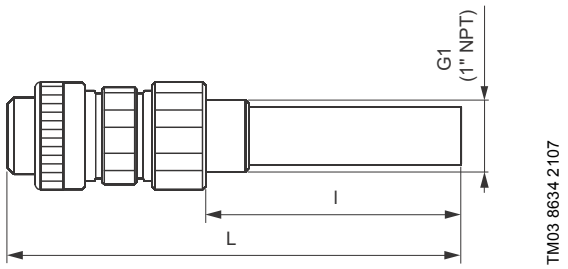


Fig. 56 Standard version, DN 20

Process connection size	Connection from dosing pump	Material				Dimensions		P_{max} [2] / T_{max} [3] [bar] / [°C]	Product number
	ID/OD [1] or thread	Body	Ball	Gasket	Seat	l [mm]	L [mm]		
G 1	Pipe Rp 3/4"	SS*	SS*	FKM	SS*	120	212	100 / 120	96688313
	Hose 13/20 mm pipe 20/25 mm	PVC	Glass	FKM	PTFE	60	140	10 / 20	96688308
	Hose 19/27 mm					60	117		96688309
	Hose 13/20 mm pipe 20/25 mm					200	280		96688310
	Hose 13/20 mm pipe 20/25 mm		PTFE	EPDM		60	142		96688311
	Hose 19/27 mm		Glass	FKM		200	-		96688315
	Pipe 20/25 mm	PP				60	189		96688312
	Hose 19/27 mm hose 25/34 mm					60	-	10 / 40	96688316
	Pipe 20/25 mm		PTFE	EPDM		60	-		96688317
	Pipe 20/25 mm	PVDF		PTFE		60	189	10 / 60	96688314
1" NPT	3/4" NPT male	SS*	SS*	FKM	SS*	120	212	100 / 120	96727298
	3/4" NPT female	PVC	Glass	FKM	PTFE	120	205	10 / 20	96727299
			PTFE	EPDM		120	-		96727300
		PVDF		PTFE		120	189	10 / 60	96727301

1) ID = Inside Diameter, OD = Outside Diameter
2) Maximum pressure
3) Maximum temperature
* Stainless steel 1.4301 (EN 10027-2)

Injection units, threaded pump connection G 2

Maximum flow: 1500 l/h.

The threaded parts are made of stainless steel.

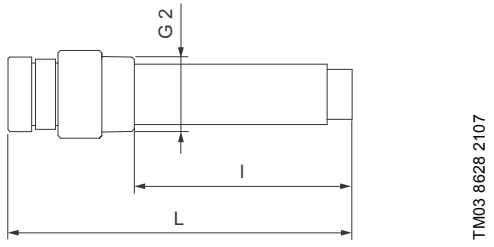


Fig. 57 Standard version, DN 32

Process connection size	Connection from dosing pump	Material				Dimensions		P_{max} [1] / T_{max} [2] [bar] / [°C]	Product number
		Body	Balls	Gasket	Seat	l [mm]	L [mm]		
G 2	G 2	PVC	Glass	FKM	PE	200	275	10 / 20	96688318

1) Maximum pressure
2) Maximum temperature

Pressure-relief valves

Pressure-relief valves G 5/4, G 2

The adjustable pressure-relief valve is suitable for installation in the discharge line.

The valve is fitted in a T-connection with the valve outlet connected to the tank. The valve functions as a pressure-relief valve or a safety valve, protecting the pump and the discharge line against excessive pressures.

- Diaphragm material: PTFE
- Pressure range: 0-10 bar.

GrA1041

Fig. 58 Pressure relief valve, G 5/4, G 2

Dimensions

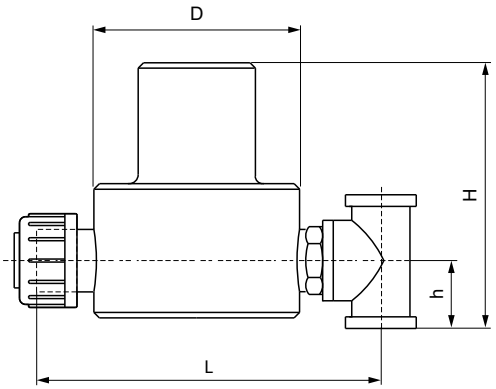


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Fig. 59 Pressure relief valve, G 5/4, G 2

Technical data

Max. flow rate [l/h]	Pump connection size	Material	Included connections	Dimensions				Product number
		Body/gasket	ID/OD[1] or thread	L [mm]	H [mm]	D [mm]	h [mm]	
400	G 5/4	PP/EPDM	Hose, 19/27 mm, 25/34 mm	153	144	90	28	96295888
		PP/FKM						96295889
		PVC/EPDM	Hose, 19/27 mm, 25/34 mm	149	144	90	28	96295890
		PVC/FKM						96295891
		SS*	Pipe, Rp 3/4"	-	144	134	28	96295892
1150	G 2	PP/EPDM	Pipe cementing diameter, 40 mm	229	218	129	70	96295893
		PP/FKM						96295894
		PVC/EPDM	Pipe cementing diameter, 40 mm	229	218	129	70	96295895
		PVC/FKM						96295896
		SS*	Pipe, Rp 1 1/4"	-	188	129	40	96295897

1) ID = Inside Diameter, OD = Outside Diameter

* Stainless steel 1.4571 (EN 10027-2)

Pressure-loading valves

G 5/4, G 2, flange DN 32

The adjustable pressure-loading valve is suitable for installation in the discharge line.

The valve is fitted in-line. It functions as a counter-pressure valve, optimising dosing accuracy into systems with fluctuating pressure. The valve also functions as an anti-siphoning valve when dosing into pressureless systems.

- Diaphragm material: PTFE
- Pressure range: 0-10 bar
- Opening pressure: adjustable between 1 and 5 bar, preset to 3 bar

GrA1037

Fig. 60 Pressure-loading valve, G 5/4 and G 2

Dimensions

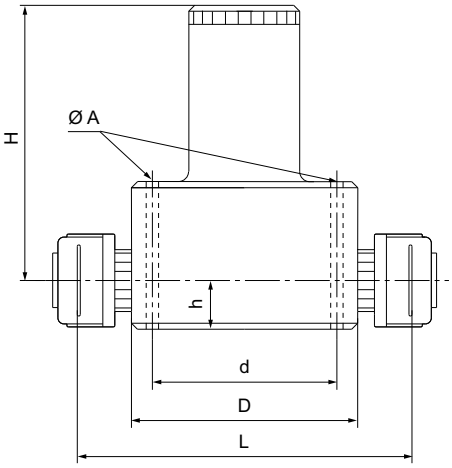

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Fig. 61 Pressure-loading valve, G 5/4 and G 2

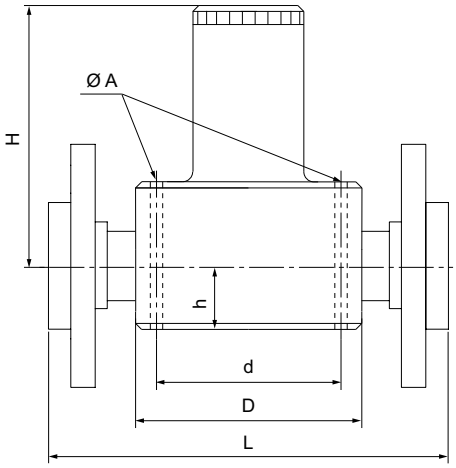

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Fig. 62 Pressure-loading valve, flange DN 32

Technical data

Max. flow rate [l/h]	Pump connection size	Material	Included connections	Dimensions						Product number
		Body/gasket	ID/OD[1] or thread	L [mm]	H [mm]	D [mm]	h [mm]	d [mm]	A [mm]	
400	G 5/4	PP/EPDM	Hose, 19/27 mm, 25/34 mm	153	144	90	28	72	6.6	96295903
		PP/FKM								96295904
		PVC/EPDM	Hose, 19/27 mm, 25/34 mm	149	144	90	28	72	6.6	96295905
		PVC/FKM								96295906
		SS*	Pipe, Rp 3/4"	-	144	134	28	72	6.6	96295907
1150	G 2	PP/EPDM	Pipe cementing diameter, 40 mm	229	218	129	70	105	8.4	96295908
		PP/FKM								96295909
		PVC/EPDM	Pipe cementing diameter, 40 mm	229	218	129	70	105	8.4	96295910
		PVC/FKM								96295911
		SS*	Pipe, Rp 1 1/4"	-	188	129	40	105	8.4	96295912
1150	Flange DN 32	PP/EPDM	Without counterflanges	229	218	129	70	105	8.4	96727371
		PP/FKM								96695919
		PVC/EPDM		229	218	129	70	105	8.4	96695696
		PVC/FKM								96695695
		SS*		206	188	129	40	105	8.4	96652055

1) ID = Inside Diameter, OD = Outside Diameter
* Stainless steel 1.4571 (EN 10027-2)

Pulsation dampers

Pulsation dampers are particularly suitable for long discharge lines and small-diameter lines.

Installed in the discharge line, pulsation dampers optimise dosing accuracy and protect the pump and discharge line against pressure surges.

Depending on the system pressure, the installation of a counter-pressure valve after the pulsation damper may be required to optimise its function.

Special pulsation dampers are available for suction lines.

Setting the pressure

Set the pressure in the pulsation damper by means of compressed air. The pressure must be the system pressure (p1) x 0.8.

The pressure on the liquid side of the pulsation damper should be 0 when the air side is filled with air. This applies both to the initial setting of the pressure as well as to later check-ups.

To facilitate the reading of the pulsation damper pressure, a pressure gauge can be fitted directly on the damper.

TM03 7870 5006

Fig. 63 Pulsation dampers

Suction-side pulsation dampers

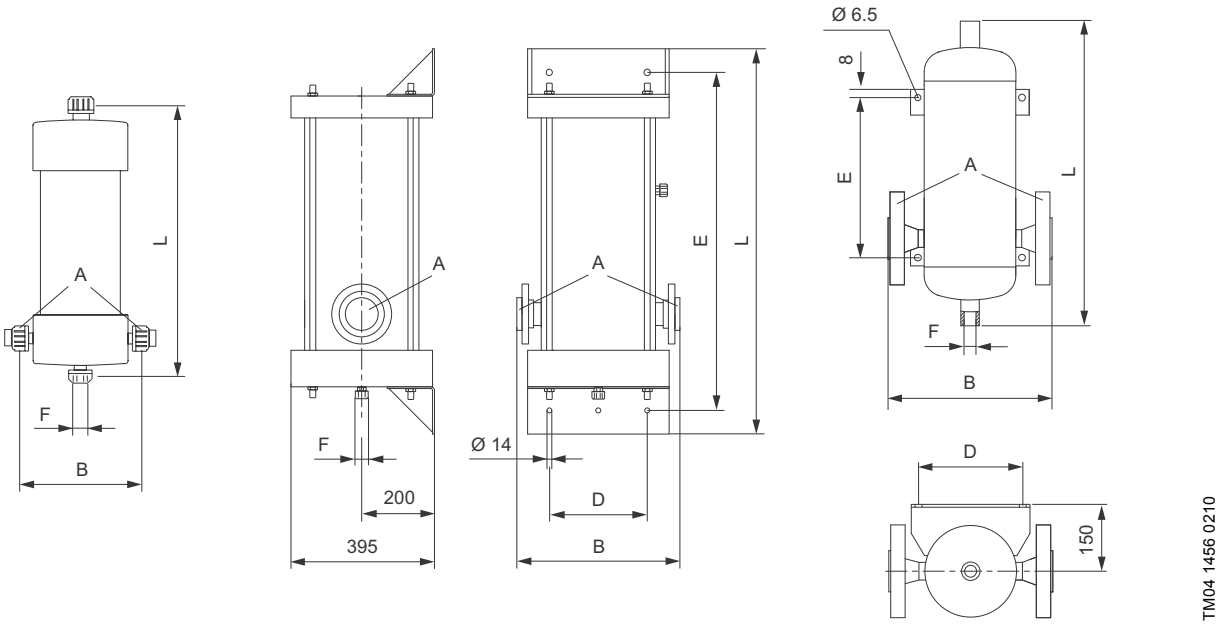


Fig. 64 Dimensions of suction-side pulsation dampers:
plastic, 1 to 20 litres (left), plastic, 40 litres (centre), stainless steel, 1 to 40 litres (right)

Selection of suction-side pulsation dampers

One suction-side pulsation damper can be used for more than one pump. In this case, sum up the stroke volumes of all pumps connected to the pulsation damper and select the suitable size accordingly.

Suitable for max. stroke volume* [ml]	Volume [l]	Material		P_{max}	Connection		Dimensions					Product number
		Body	Seals	[bar]	Thread or flange A	Hose or pipe ID/OD[1)] [mm]	B [mm]	D [mm]	E [mm]	F [mm]	L [mm]	
7	1	PVC	FKM	2	G 1	12/16, 16/20	160	-	-	DN 10	388	91835549
			EPDM	2	G 1	12/16, 16/20	160	-	-	DN 10	388	96688101
		PVDF	PTFE	6	G 3/4	14/16	145	-	-	DN 10	524	96690350
		SS**	-	40	Rp 1/4"	-	159	-	155	R 1/4"	295	96688107
45	3	PVC	FKM	2	G 1 1/2	20/25, 25/32	194	-	-	DN 10	643	96688102
			EPDM	2	G 1 1/2	20/25, 25/32	194	-	-	DN 10	643	96654767
		PVDF	PTFE	6	G 3/4	14/16	145	-	-	DN 10	1035	96688100
		SS**	-	40	Rp 3/4"	-	213	-	215	R 1/4"	375	96688108
131	5	PVC	FKM	2	G 2 1/4	32/40, 40/50	220	-	-	DN 10	900	96688103
			EPDM	2	G 2 1/4	32/40, 40/50	220	-	-	DN 10	900	96653755
		SS**	-	25	Rp 3/4"	-	248	170	245	R 1/4"	395	96688109
500	20	PP	FKM	6	Flange DN 50	-	320	200	-	DN 10	800	96688104
					Flange DN 65	-	320	200	-	DN 10	800	96688105
		SS**	-	6	Flange DN 50	-	363	273	255	R 1/4"	500	96688110
					Flange DN 65	-	363	273	255	R 1/4"	500	95702959
1000	40	PP	FKM	4	Flange DN 50	-	450	270	930	DN 10	1060	96638463
					Flange DN 65	-	450	270	930	DN 10	1060	96688106
		SS**	-	4	Flange DN 50	-	363	273	755	R 1/4"	1000	96688111
					Flange DN 65	-	363	273	755	R 1/4"	1000	96688112

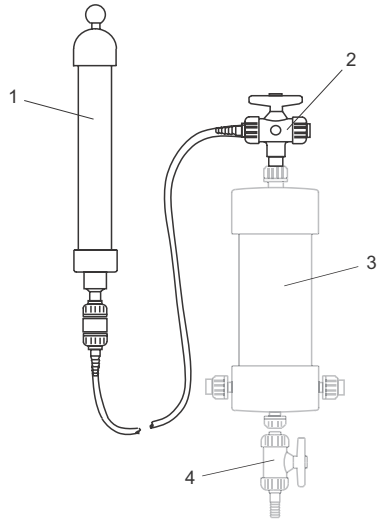
Note: Connections may not be standard pump connection sizes.

1) ID = Inside Diameter, OD = Outside Diameter

* Not suitable in every case, please check with calculation based on layout

** Stainless steel 1.4301 (EN 10027-2)

Accessories for suction-side pulsation dampers



TM04 1458 0210

Fig. 65 Manual vacuum pump with 3-way ball valve, pulsation damper and drain valve

Legend

Pos.	Description
1	Manual vacuum pump (suction aid)
2	3-way ball valve
3	Pulsation damper, 1 to 20 litres
4	Drain valve

TM04 1442 4909

Fig. 66 Manual vacuum pump with pulsation damper, plastic, 1 to 20 litres

Manual vacuum pump (suction aid)

Description	Product number
Manual vacuum pump with hose and 3-way ball valve (suction aid)	96653775

Aeration and drain valves

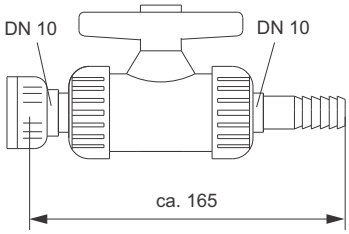


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Fig. 67 Aeration and drain valve

Description	Connections	Material		Product number
		Body	Gaskets	
Aeration and drain valve	DN 10	PVC	FKM	96638467
	DN 10	PVC	EPDM	96693605
	DN 10	PP	FKM	96727337
	DN 10	PVC	EPDM	96727338
	DN 10	PVDF	FKM	96704688

Discharge-side pulsation dampers without separating diaphragm

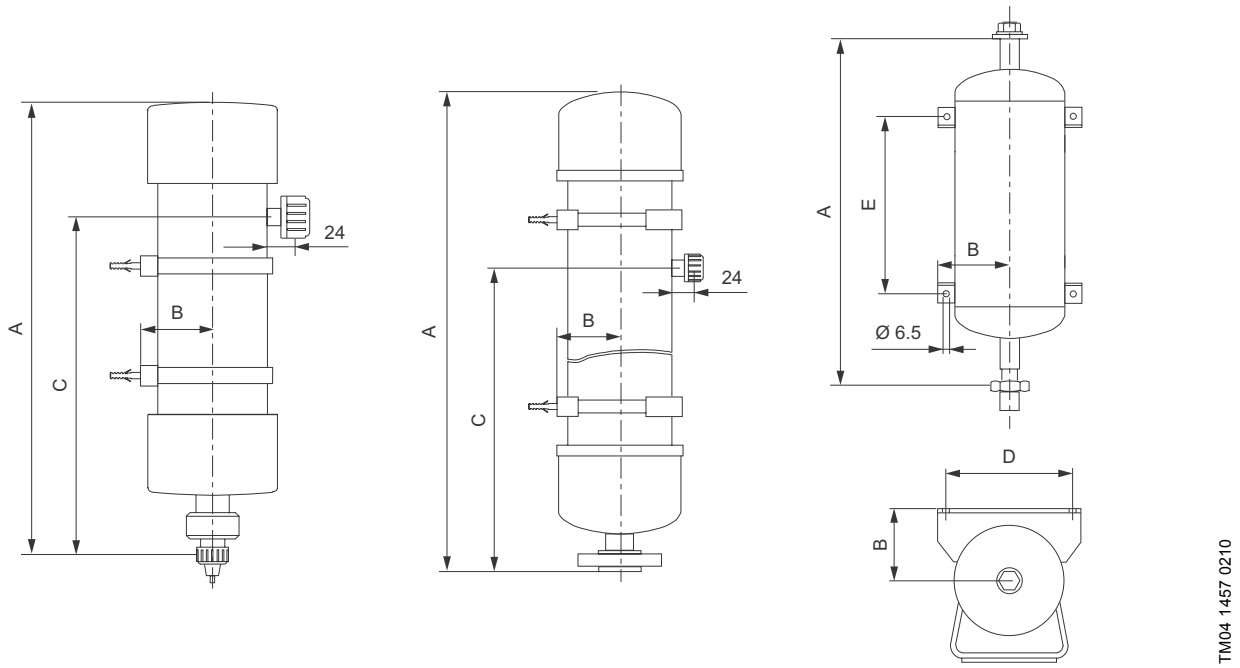


Fig. 68 Dimensions of discharge side pulsation dampers without separating diaphragm:
plastic 0.35 - 5.0 litres (left), plastic 10-40 litres (centre), stainless steel 0.35 - 40 litres (right)

Fig. 69 Discharge-side pulsation damper, plastic,
0.35 - 5.0 litres

Selection of discharge-side pulsation dampers without separating diaphragm

We recommend to use only one pump per discharge-side pulsation damper.

Suitable for max. stroke volume* [ml]	Volume [l]	Material		P_{max}	Connection			Dimensions					Product number
		Body	Seals	[bar]	Thread or flange	Hose ID/OD[1] [mm]	Pipe ID/OD[1] [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	
2	0.35	PVC	FKM	10	G 5/8	4/6	-	202	47	127	-	-	95700901
			EPDM	10	G 5/8	4/6	-	202	47	127	-	-	96688114
		PP	FKM	10	G 5/8	4/6	-	202	47	127	-	-	96727147
			EPDM	10	G 5/8	4/6	-	202	47	127	-	-	96727148
		PVDF	FKM	10	G 5/8	4/6	4/6	202	47	127	-	-	96727150
			EPDM	10	G 5/8	4/6	4/6	202	47	127	-	-	96727151
		SS**	-	16	Rp 1/4"	-	-	215	50	-	83	85	96727145
7	1	PVC	FKM	10	G 1 1/4	6/12	10/12	351	60	260	-	-	96688120
			EPDM	10	G 1 1/4	6/12	10/12	351	60	260	-	-	96688121
		PP	FKM	10	G 1 1/4	-	12/16	278	60	165	-	-	96688123
			EPDM	10	G 1 1/4	-	12/16	278	60	165	-	-	96688124
		PVDF	FKM	10	G 1 1/4	-	14/16	278	60	165	-	-	96688125
			EPDM	10	G 1 1/4	-	14/16	278	60	165	-	-	96619905
		SS**	-	16	Rp 1/4"	-	-	277	65	-	110	125	96688122
19	3	PVC	FKM	10	G 1 1/4	13/20	20/25	764	60	675	-	-	96688126
			EPDM	10	G 1 1/4	13/20	20/25	764	60	675	-	-	96688127
		PP	FKM	10	G 1 1/4	-	20/25	655	60	565	-	-	96688129
			EPDM	10	G 1 1/4	-	20/25	655	60	565	-	-	96688130
		PVDF	FKM	10	G 1 1/4	-	20/25	655	60	565	-	-	96688131
			EPDM	10	G 1 1/4	-	20/25	655	60	565	-	-	96688132
		SS**	-	16	Rp 3/4"	-	-	355	87	-	150	160	96688128
45	5	PVC	FKM	10	G 1 1/4	13/20	20/25	841	70	750	-	-	96688133
			EPDM	10	G 1 1/4	13/20	20/25	841	70	750	-	-	96654923
		PP	FKM	10	G 1 1/4	-	20/25	700	70	608	-	-	96688135
			EPDM	10	G 1 1/4	-	20/25	700	70	608	-	-	96688136
		PVDF	FKM	10	G 1 1/4	-	20/25	700	70	608	-	-	96688137
			EPDM	10	G 1 1/4	-	20/25	700	70	608	-	-	96688138
		SS**	-	16	Rp 3/4"	-	-	345	100	-	170	190	96688134
75	10	PVC	FKM	10	Flange DN 32	-	32/40	829	95	610	-	-	96688139
			EPDM	10		-	32/40	829	95	610	-	-	96688140
		PP	FKM	10	Flange DN 32	-	32/40	829	95	605	-	-	96688142
			EPDM	10		-	32/40	829	95	605	-	-	96688143
		PVDF	FKM	10	Flange DN 32	-	32/40	829	95	605	-	-	96688144
			EPDM	10		-	32/40	829	95	605	-	-	96688145
		SS**	-	16		-	-	633	100	-	170	460	96688141
131	20	PP	FKM	6	Flange DN 50	-	50/63	1056	108	812	-	-	96688146
					Flange DN 65	-	65/75	1056	108	812	-	-	96688149
			EPDM	6	Flange DN 50	-	50/63	1056	108	812	-	-	96688147
					Flange DN 65	-	65/75	1056	108	812	-	-	96688150
		SS**	-	6	Flange DN 50	-	-	525	150	-	270	310	96639884
					Flange DN 65	-	-	525	150	-	254	310	96688148
500	40	PP	FKM	4	Flange DN 65	-	65/75	896	166	662	-	-	96638405
			EPDM	4		-	65/75	896	166	662	-	-	96688152
		SS**	-	4		-	-	935	150	-	254	720	96688151

[1] ID = Inside Diameter, OD = Outside Diameter

* Not suitable in every case, please check with calculation based on layout

** Stainless steel 1.4301 (body), stainless steel 1.4571 (connections), according to EN 10027-2

Pressure gauge for discharge-side pulsation dampers

- Pressure gauges for pulsation dampers are available on request together with the respective pulsation damper.
- Pressure gauges for plastic pulsation dampers are equipped with diaphragm pressure transducers.

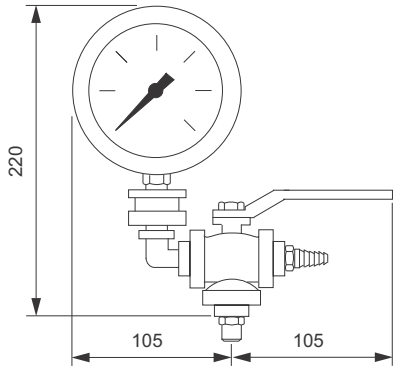


Fig. 70 Pressure gauge for discharge-side pulsation dampers, stainless steel

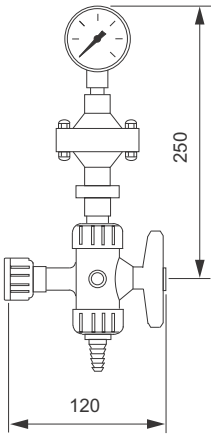
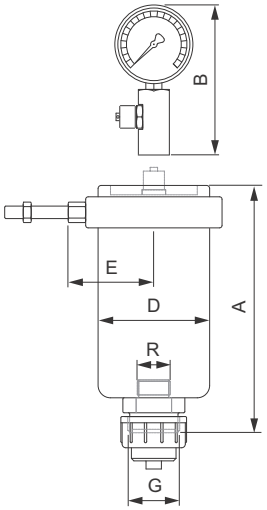


Fig. 71 Pressure gauge for discharge-side pulsation dampers, PVC / PP

Max. pressure [bar]	Material		Product number
	Body	Gaskets	
10	PVC	FKM	95731730
	PVC	EPDM	95731391
	PP	FKM	95731047
	PP	EPDM	98031546
	PVDF	FKM	98031547
	PVDF	EPDM	98031548
	SS*	-	98031549
40	SS*	-	98031550

* Stainless steel 1.4571 (EN 10027-2)

Discharge-side pulsation dampers with separating diaphragm



TM04 1459 0210

Fig. 72 Discharge-side pulsation damper with separating diaphragm with pressure gauge

TM04 1444 4909

Fig. 73 Discharge-side pulsation dampers

Selection of discharge-side pulsation dampers with separating diaphragm, DN 8

We recommend to use only one pump per discharge-side pulsation damper.

Suitable for max. stroke volume* [ml]	Volume [l]	Material		P_{max}	Connection				Dimensions [mm]				Product number
		Body	Diaphragm (Seals)	[bar]	G (ext.)	R (int.)	Hose ID/OD[1)]	Pipe ID/OD[1)] or thread	A	B	D	E	
2	0.07	PVC	FKM	10	G 5/8	G 3/8	4/6 mm 6/12 mm	10/12 mm	123	120	60	58	96688153
			EPDM	10	G 5/8	G 3/8	4/6 mm 6/12 mm	10/12 mm	123	120	60	58	96688154
		SS**	FKM	200	G 5/8	G 3/8		Rp 1/4"	118	136	55	53	96688155
			EPDM	200	G 5/8	G 3/8		Rp 1/4"	118	136	55	53	96688156
		PP	FKM	10	G 5/8	G 3/8		12/16 mm	123	120	60	58	96688157
			EPDM	10	G 5/8	G 3/8		12/16 mm	123	120	60	58	96688158
7	0.15	PVC	FKM	10	G 5/8	G 1/2	4/6 mm 6/12 mm	10/12 mm	160	120	80	67	96697351
			EPDM	10	G 5/8	G 1/2	4/6 mm 6/12 mm	10/12 mm	160	120	80	67	96688159
		SS**	FKM	180	G 5/8	G 1/2		Rp 1/4"	143	136	70	64	96688161
			EPDM	180	G 5/8	G 1/2		Rp 1/4"	143	136	70	64	96688163
		PP	FKM	10	G 5/8	G 1/2		12/16 mm	160	120	80	67	96688164
			EPDM	10	G 5/8	G 1/2		12/16 mm	160	120	80	67	96688165
		PVDF	PTFE	20	G 5/8	G 1/2		14/16 mm	206	136	64	58	96688166

1) ID = Inside Diameter, OD = Outside Diameter
* Not suitable in every case, please check with calculation based on layout
** Stainless steel 1.4404 (EN 10027-2)

Options

- Basic type without connections and mounting material
- Different connection
- Different pre-charge pressure
- With included pressure gauge.

All options are available on request.

Selection of discharge-side pulsation dampers with separating diaphragm, DN 20

We recommend to use only one pump per discharge-side pulsation damper.

Suitable for max. stroke volume* [ml]	Volume [l]	Material		P_{max}	Connections				Dimensions [mm]				Product number
		Body	Diaphragm (seals)	[bar]	G (ext.)	R (int.)	Hose ID/OD[1)]	Pipe ID/OD[1)] or thread	A	B	D	E	
19	0.35	PVC	FKM	10	G 1 1/4	G 3/4	13/20 mm		198	120	90	71	96688167
			EPDM	10	G 1 1/4	G 3/4	13/20 mm	20/25 mm	198	120	90	71	96688168
		SS**	FKM	130	G 1 1/4	G 1/2		Rp 3/4"	192	136	80	67	96688169
			EPDM	130	G 1 1/4	G 1/2		Rp 3/4"	192	136	80	67	96688171
		PP	FKM	10	G 1 1/4	G 3/4		20/25 mm	198	120	90	71	96688172
			EPDM	10	G 1 1/4	G 3/4		20/25 mm	198	120	90	71	96688173
	0.3	PVDF	PTFE	20	G 1 1/4	G 1/2		20/25 mm	270	136	78	67	96688175
45	0.65	PVC	FKM	10	G 1 1/4	G 3/4	13/20 mm	20/25 mm	258	120	100	78	96688176
			EPDM	10	G 1 1/4	G 3/4	13/20 mm	20/25 mm	258	120	100	78	96688177
		SS**	FKM	50	G 1 1/4	G 3/4		Rp 3/4"	233	136	90	67	96688179
			EPDM	50	G 1 1/4	G 3/4		Rp 3/4"	233	136	90	67	96688181
		PP	FKM	10	G 1 1/4	G 3/4		20/25 mm	258	120	100	78	96688183
			EPDM	10	G 1 1/4	G 3/4		20/25 mm	258	120	100	78	96688184
	0.7	PVDF	PTFE	20	G 1 1/4	G 3/4		20/25 mm	253	136	98	78	96688185
75	1.4	PVC	FKM	10	G 1 1/4	G 1	13/20 mm	20/25 mm	323	120	130	92	96688186
			EPDM	10	G 1 1/4	G 1	13/20 mm	20/25 mm	323	120	130	92	96688187
		SS**	FKM	40	G 1 1/4	G 3/4		Rp 3/4"	273	136	110	78	96688188
			EPDM	40	G 1 1/4	G 3/4		Rp 3/4"	273	136	110	78	96688189
		PP	FKM	10	G 1 1/4	G 1		20/25 mm	323	120	130	92	96688190
			EPDM	10	G 1 1/4	G 1		20/25 mm	323	120	130	92	96688191
		PVDF	PTFE	20	G 1 1/4	G 3/4		20/25 mm	323	136	112	84	96736538

1) ID = Inside Diameter, OD = Outside Diameter
* Not suitable in every case, please check with calculation based on layout
** Stainless steel 1.4404 (EN 10027-2)

Options

- Basic type without connections and mounting material
- Different connection
- Different pre-charge pressure
- With included pressure gauge

All options are available on request.

Selection of discharge-side pulsation dampers with separating diaphragm, DN 32 and DN 65

We recommend to use only one pump per discharge-side pulsation damper.

Suitable for max. stroke volume* [ml]	Volume [l]	Nominal width	Material		P_{max}	Connection			Dimensions [mm]				Product number
			Body	Diaphragm (seals)	[bar]	G (ext.)	R (int.)	Pipe ID/OD[1] or thread	A	B	D	E	
131	2.6	DN 32	PVC	FKM	10	G 2	G 1	32/40 mm	362	120	160	107	96688192
				EPDM	10	G 2	G 1	32/40 mm	362	120	160	107	96688193
			SS**	FKM	30	G 2	G 1	Rp 1 1/4"	332	136	140	90	96688194
				EPDM	30	G 2	G 1	Rp 1 1/4"	332	136	140	90	96688195
			PP	FKM	10	G 2	G 1	32/40 mm	362	120	160	107	96688196
				EPDM	10	G 2	G 1	32/40 mm	362	120	160	107	96688197
			PVDF	PTFE	20	G 2	G 1	32/40 mm	357	136	158	107	96727195
256	5.6	DN 32	PVC	FKM	10	G 2	G 1 1/2	32/40 mm	495	120	198	127	96688198
				EPDM	10	G 2	G 1 1/2	32/40 mm	495	120	198	127	96688199
			SS**	FKM	40	G 2	G 1 1/2	Rp 1 1/4"	451	136	170	127	96688200
				EPDM	40	G 2	G 1 1/2	Rp 1 1/4"	451	136	170	127	96688201
			PP	FKM	10	G 2	G 1 1/2	32/40 mm	495	120	198	127	96688202
				EPDM	10	G 2	G 1 1/2	32/40 mm	495	120	198	127	96688203
			PVDF	PTFE	20	G 2	G 1	32/40 mm	527	136	158	107	96688204
500	9.5	DN 65	PVC	FKM	10	G 2	G 2	65/75 mm	560	120	250	133	96688205
				EPDM	10	G 2	G 2	65/75 mm	560	120	250	133	96688206
			SS**	FKM	30	Flange	G 2		502	136	220	111/119	95702090
				EPDM	30	Flange	G 2		502	136	220	111/119	95702091
			PP	FKM	10	Flange	G 2		560	120	250	133	95702092
				EPDM	10	Flange	G 2		560	120	250	133	95702093
			PVDF	PTFE	20	Flange	G 1 1/4		525	136	212	111/113	95702094

1) ID = Inside Diameter, OD = Outside Diameter
* Not suitable in every case, please check with calculation based on layout
** Stainless steel 1.4404 (EN 10027-2)

Options

- Basic type without connections and mounting material
- Different connection
- Different pre-charge pressure
- With included pressure gauge

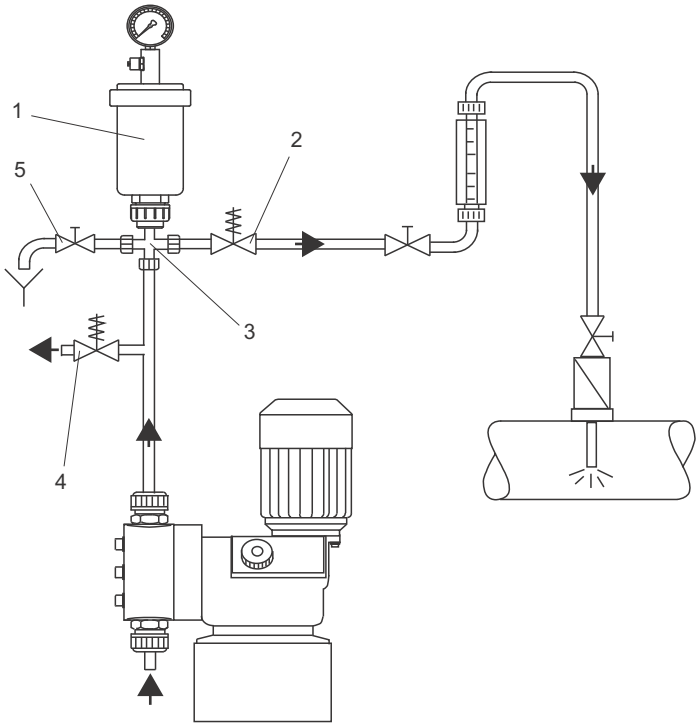
All options are available on request.

Pressure gauge for discharge-side pulsation dampers with separating diaphragm

The following pressure gauges fit for every size of discharge side pulsation damper with separating diaphragm, select suitable variant according to max. pressure of the damper.

Description	Pressure [bar]	Product number
Pressure gauge for discharge-side pulsation damper with separating diaphragm	10	95730263
	25	95730264
	60	98031543
	160	98031544
	250	98031545

Accessories for discharge side pulsation dampers



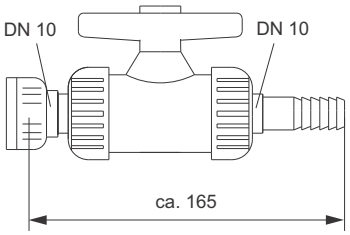
TM04 1451 0210

Fig. 74 Flow scheme of a discharge-side pulsation damper with separating diaphragm

Legend

Pos.	Description
1	Pulsation damper
2	Pressure loading valve
3	Cross piece
4	Pressure relief valve
5	Drain valve

Aeration and drain valves



TM04 1450 0210

Fig. 75 Aeration and drain valve

Description	Connections	Material		Product number
		Body	Gaskets	
Aeration and drain valve	DN 10	PVC	FKM	96638467
	DN 10	PVC	EPDM	96693605
	DN 10	PP	FKM	96727337
	DN 10	PVC	EPDM	96727338
	DN 10	PVDF	FKM	96704688

Cross pieces

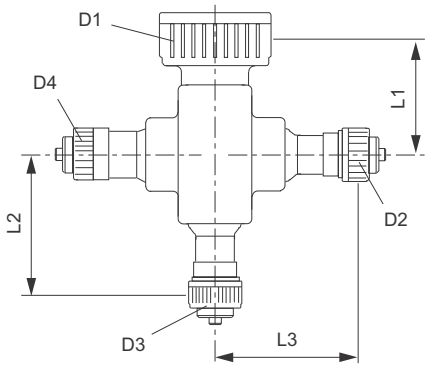


Fig. 76 Cross pieces G 5/8, G 3/4 and G 5/4

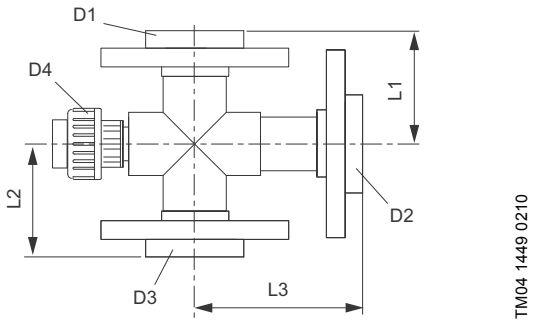


Fig. 77 Cross pieces with flanges

Pos.	Description
D1	Connection to pulsation damper
D2	Connection to discharge side
D3	Connection to dosing pump
D4	Connection to drain valve

Material	PN* [bar]	Connections				Dimensions [mm]				Product number
		D1	D2	D3	D4	L1	L2	L3	L4	
PVC	10	G 5/4	G 5/8**	G 5/8	DN 10 (G 3/4)	55	73	73	77	96699618
PVC	10	G 5/4	G 5/4	G 5/4	DN 10 (G 3/4)	55	55	55	77	96694022
PP	10	G 5/4	G 5/4	G 5/4	DN 10 (G 3/4)	62	62	55	77	96727346
PP	10	G 5/4	G 3/4	G 3/4	DN 10 (G 3/4)	62	62	61	55	96727347
PVDF	10	G 5/4	G 3/4	G 3/4	DN 10 (G 3/4)	62	62	55	55	96727348
PVDF	10	G 5/4	G 5/4	G 5/4	DN 10 (G 3/4)	62	62	61	55	96727349
PVC	10	Flange DN 32	Flange DN 32	Flange DN 32	G 5/4	85	85	125	83	96699615
PVC	10	Flange DN 50	Flange DN 50	Flange DN 50	G 5/4	113	113	115	139	96727350
PVC	10	G 5/8	G 5/8	G 5/8	G 5/8	66	73	73	77	96727351
PP	10	G 5/8	G 5/8	G 5/8	G 5/8	73	66	45	53	96727352

* at 20 °C
** use the G 5/8 reducing piece supplied

Other cross pieces on request.

Filling devices

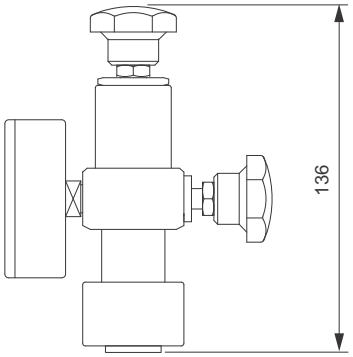


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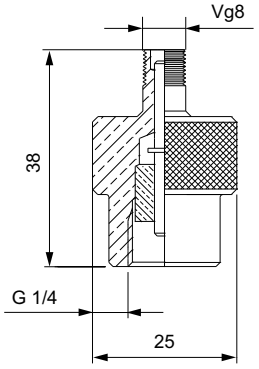
Fig. 78 Filling device



TM04 1355 2909

Fig. 79 Adapter for filling valve

Description	Product number
Adapter for filling valve (tyre valve) for pulsation dampers up to 8 bar, for use in conjunction with compressed-air filling device or pressure gauge	96727332
Compressed-air filling device for plastic pulsation dampers, for an existing compressed-air plant, control lever, pressure gauge and hose with filling valve, for use in conjunction with adapter	96727335
Compressed-air filling device for plastic pulsation dampers, with 6-litre compressed-air cylinder, control lever, pressure gauge and hose with filling valve, for use in conjunction with adapter	96699614
Filling device for plastic or stainless-steel pulsation dampers, with pressure gauge, up to 25 bar, compressed-air filled via G 1/4 connection	96727342
Filling device for stainless-steel pulsation dampers, with pressure gauge, up to 60 bar, compressed-air filled via G 1/4 connection	96727343
Filling device for stainless-steel pulsation dampers, with pressure gauge, up to 160 bar, compressed-air filled via G 1/4 connection	96727344
Filling device for stainless-steel pulsation dampers, with pressure gauge, up to 250 bar, compressed-air filled via G 1/4 connection	96727345

Pump connection kits

Retrofit pump connection kits and inlay kits for the integration of Grundfos standard pumps into installations with various sizes of hoses or pipes.

A pump connection kit includes:

- 1 set of inlays
- 1 union nut.

An inlay kit includes:

- 2 sets of inlays.

Connection kits for DMI, DDI, DMX and DMH dosing pumps

Connection size	Material	Hose ID/OD[1], material	Pipe ID/OD[1] or thread	Max. pressure [bar]	Product number
G 5/4	PP	-	20/25 mm	10	91835697
		19/27 mm, PVC 25/34 mm, PVC	-	10	96727574
	PVC	13/20 mm, PVC	-	10	91835696
		13/20 mm, PVC	20/25 mm	10	96704663
		19/27 mm, PVC	-	10	96679391
		19/27 mm, PVC 25/34 mm, PVC	-	10	96699969
		-	20/25 mm	16	96701989
		-	3/4" NPT	10	91835723
	PVDF	12/ mm, PTFE	-	4	96727620
		19/27 mm, PVC 25/34 mm, PVC	-	10	96727612
		-	20/25 mm	10	91835698
		-	3/4" NPT	10	91835726
	SS*	-	19/22 mm	100	96727555
		-	G 3/4	100	96700184
		-	3/4" NPT	100	91835724
	Y**	-	G 3/4	100	96727523
		-	3/4" NPT	100	91835725
G 2	PP	-	32/40 mm	10	96727596
	PP/PVC	-	32/40 mm	16	96727610
	PVC	32/42 mm, PVC	-	0	96727598
		-	32/40 mm	10	96700091
		-	1 1/4" NPT	10	91835730
	PVDF	-	32/40 mm	16	96727597
		-	1 1/4" NPT	10	96727541
	SS*	-	G 1 1/4	16	96727595
		-	1 1/4" NPT	16	91835729
Flange DN 32	PP	-	32/40 mm	10	96727589
	PP/PVC	-	32/40 mm	10	96727586
	PVC	-	32/40 mm	10	91835728
	PVDF	-	32/40 mm	16	96727588
	SS*	-	G 1 1/4	10	91835727
	Y**	-	G 1 1/4	10	96727609
DN 65	PP	-	65/75 mm	10	96727603
	PVC	-	65/75 mm	10	96727602
	SS*	-	65/75 mm	10	96727604

1) ID = Inside Diameter, OD = Outside Diameter
* Stainless steel 1.4571 (EN 10027-2)
** Alloy C-4 (NiMo16Cr16Ti) material number 2.4610 (EN 10027-2)

Electric stirrers

Electric stirrers are intended for the mixing and dissolving of non-abrasive, non-inflammable and non-explosive liquids. They ensure that the liquid in the dosing tank is mixed constantly. With a frequency of 50 Hz they run at 1500 rpm approximately, and are suitable for liquids with low to medium viscosity.

Different versions of electric stirrers are available:

- Stainless-steel version
- PP version with or without sealing flange
- Versions for various tank sizes from 60 litres up to 1000 litres.

Dimensions

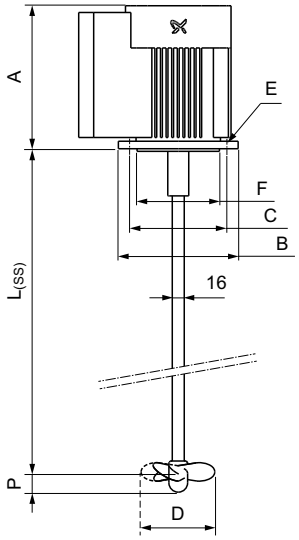


Fig. 80 Electric stirrer, stainless-steel version

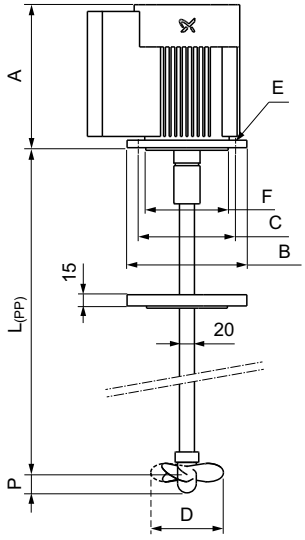


Fig. 81 Electric stirrer, PP version, with sealing flange

Electric stirrer	$L_{(SS)}$ [mm]	$L_{(PP)}$ [mm]	P [mm]	D [mm]	B [mm]	C [mm]	E [mm]	F [mm]	A [mm]
For 60-litre tank	450	452	25	88	140	115	9	95	210
For 100-litre tank	691	693	25	88	140	115	9	95	210
For 200.litre tank	698	700	25	100	160	130	9	110	191
For 300-litre tank	950	952	25	100	160	130	9	110	191
For 500-litre tank	1100	1102	28	125	160	130	9	110	191
For 1000-litre tank	1150	1152	28	125	200	165	11	130	231

Product data

Electric stirrer for tank size [l]	Nominal shaft length [mm]	Shaft type	Product number	
			Single-phase motor	Three-phase motor
60	450	SS	98164569	98165309
		PP	98164573	98165310
		PP, with sealing flange	98164575	98165318
100	690	SS	98164606	98165355
		PP	98164607	98165357
		PP, with sealing flange	98164609	98165382
200	690	SS	98164987	98165385
		PP	98164990	98165386
		PP, with sealing flange	98165152	98165391
300	950	SS	98165172	98165393
		PP	98165175	98165432
		PP, with sealing flange	98165177	98165433
500	1100	SS	98165253	98165435
		PP	98165258	98165436
		PP, with sealing flange	98165259	98165437
1000	1150	SS	98165287	98165439
		PP	98165290	98165440
		PP, with sealing flange	98165304	98165451

Motor data

Electric stirrer	Power rating [kW]	Motor phases	Voltage [V]	Frequency [Hz]	Enclosure class	Insulation class
For 60-litre tank, 100-litre tank	0.09	1	220-240	50/60	IP65	F
		3	220-240 / 380-420 (440-480)	50/60 (60)		
For 200-litre tank, 300-litre tank, 500-litre tank	0.25	1	220-230	50	IP55	F
		3	220-240 / 380-415	50/60		
For 1000-litre tank	0.55	1	220-230	50	IP55	F
		3	220-240 / 380-415	50/60		

Wall bracket

Wall bracket for easy installation of a dosing pump on a wall.

Dimensions

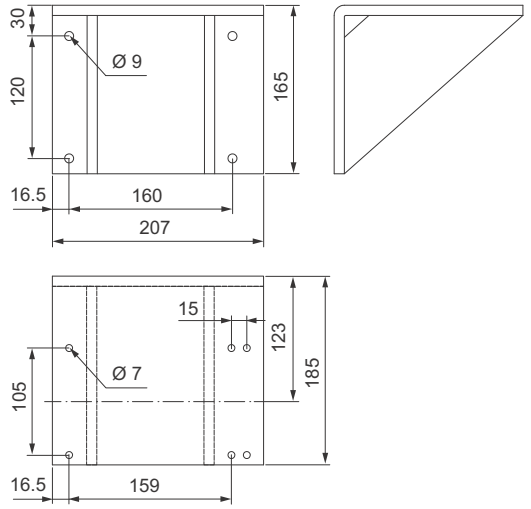


Fig. 82 Wall bracket for DDI 222 and DMX 221

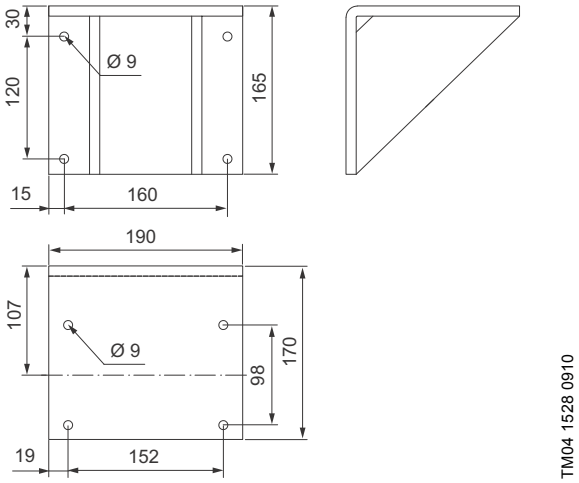


Fig. 83 Wall bracket for DMX 226 and DMH 251/251

For pump type	Material	Including fixing material for	Product number
DDI 222 and DMX 221	PP	Pump on bracket, bracket on wall	91836471
DMX 226M and DMH 251/252	PP	Pump on bracket, bracket on wall	96623672

10. 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. Please be careful when handling these liquids.

Pumped liquid (20 °C)			Material										
			Dosing head						Gasket			Ball	
Description	Chemical formula	Concentration [%]	PP	PVDF	SS 1.4571	SS 2.4610 (Alloy C-4)	SS PTFE-coated	PVC	FKM	EPDM	PTFE	Ceramic	Glass
Acetic acid	CH_3COOH	25	●	●	●	●	●	●	–	●	●	●	●
		60	●	●	●	●	●	●	–	●	●	●	●
		85	●	●	●	●	●	–	–	–	●	●	●
Aluminium chloride	$AlCl_3$	40	●	●	–	–	●	●	●	●	●	●	●
Aluminium sulphate	$Al_2(SO_4)_3$	60	●	●	●	●	●	●	●	●	●	●	–
Ammonia, aqueous	NH_4OH	28	●	–	●	●	●	●	–	●	●	●	–
Calcium hydroxide[5]	$Ca(OH)_2$		●	●	●	●	●	●	●	●	●	●	●
Calcium hypochlorite	$Ca(OCl)_2$	20	❍	●	–	●	●	●	●	●	●	●	●
Chromic acid[3]	H_2CrO_4	10	●	●	●	●	●	●	●	●	●	●	●
		30	–	●	–	–	●	●	●	❍	●	●	●
		50	–	●	–	–	●	●	●	–	●	●	●
Copper sulphate	$CuSO_4$	30	●	●	●	●	●	●	●	●	●	●	●
Ferric chloride[1]	$FeCl_3$	45	●	●	–	–	●	●	●	●	●	●	●
Ferric sulphate[1]	$Fe_2(SO_4)_3$	60	●	●	●	●	●	●	●	●	●	●	●
Ferrous chloride	FeCl2	37	●	●	–	–	●	●	●	●	●	●	●
Ferrous sulphate	$FeSO_4$	30	●	●	●	●	●	●	●	●	●	●	●
Fluosilicic acid	H_2SiF_6	40	●	●	❍	●	●	●	–	❍	●	●	–
Hydrochloric acid	HCl	< 25	●	●	–	●	●	●	●	●	●	●	●
		25-37	●	●	–	●	●	●	●	❍	●	●	●
Hydrogen peroxide	H_2O_2	30	●	●	●	●	●	●	●	●	●	●	●
Nitric acid	HNO_3	30	●	●	●	●	●	●	●	●	●	●	●
		40	❍	●	●	●	●	●	●	–	●	●	●
		70	–	●	●	●	●	–	●	–	●	●	●
Peracetic acid	CH_3COOOH	5-15	❍	●	●	●	●	❍	–	❍	●	●	●
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	12-15	–	●	–	❍[6]	●	●	●	●	●	●	●
Sodium sulphide	Na_2S	30	●	●	●	–	●	●	●	●	●	●	–
Sodium sulphite	Na_2SO_3	20	●	●	●	–	●	●	●	●	●	●	–
Sodium thiosulfate	Na_2S2O_3	10	●	●	●	●	●	●	●	●	●	●	●
Sulphurous acid	H_2SO_3	6	●	●	●	●	●	●	●	●	●	●	❍
Sulphuric acid[2]	H_2SO_4	< 80	●	●	–	●	●	●	●	❍	●	●	❍
		80-96	❍	●	–	●	●	●	●	–	●	●	–
		98	–	●	●	●	●	–	❍	–	●	●	–

● Resistant
❍ Limited resistance
– Not resistant

1 Risk of crystallisation
2 Reacts violently with water and generates much heat (pump must be absolutely dry before dosing sulphuric acid)
3 Must be fluoride-free when glass balls are used
5 Once the pump is stopped, calcium hydroxide will sediment rapidly
6 Not resistant for sodium hypochlorite generated on site

For further information, see "Pumped liquid guide".

11. Grundfos Product Center

Online search and sizing tool to help you make the right choice.

http://product-selection.grundfos.com

SIZING enables you to size a pump based on entered data and selection choices.

REPLACEMENT enables you to find a replacement product.
Search results will include information on

- the lowest purchase price
- the lowest energy consumption
- the lowest total life cycle cost.

CATALOGUE gives you access to the Grundfos product catalogue.

LIQUIDS enables you to find pumps designed for aggressive, flammable or other special liquids.

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc. in PDF format.

Subject to alterations.

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95724362 1016
ECM: 1187502

GRUNDFOS A/S
DK-8850 Bjerringbro . Denmark
Telephone: +45 87 50 14 00
www.grundfos.com

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