

DELLMECO®

AODD DIAPHRAGM PUMPS

Air Operated Double Diaphragm Pumps



APPLICATIONS

FOOD, PROCESSING,
BEVERAGE, BIOTECH
AND PHARMACEUTICAL



CHEMICAL AND
PETROCHEMICAL



PAINTS, RESINS
INKS AND COATINGS



OIL, GAS AND
AUTOMOTIVE



SURFACE
TREATMENT



CERAMIC
SLIP/GLAZE



SEWAGE
TREATMENT



DRY POWDER
HANDLING



MINING AND
CONSTRUCTION



PAPER
INDUSTRY



PUMP FEATURES

- ▶ Compact, solid design - low space required
- ▶ Pumps abrasive and shear-sensitive materials. Low internal velocities handle abrasive liquids with no damage to the pump. The gentle pumping does not shear fragile materials
- ▶ Pumps move everything from water to very viscous liquids with solids
- ▶ Sealless - are environmentally friendly, no seals or packing to leak
- ▶ Safe in hazardous areas - air driven - non sparking
- ▶ Can run dry without damage
- ▶ Self-priming to over 9 meters
- ▶ Variable flow - simply regulate the inlet air supply to adjust the pump flow from zero to max flow
- ▶ Pump stalls if discharge is closed and restarts when discharge is opened (no heat build-up, or wear). Expensive types of systems and pressure relief valves not required
- ▶ Composite, long life diaphragms for heavy applications (no diagram discs) are smooth and not interrupted by any seals whatsoever
- ▶ Operates without any lubrication
- ▶ Fully groundable
- ▶ Easy maintenance
- ▶ Certifications

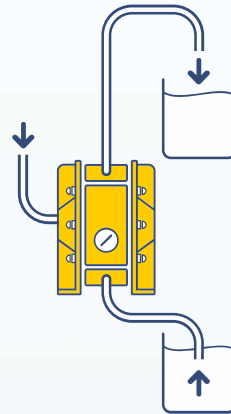
CE Ex ATEX



HOW TO INSTALL DELLMECO PUMPS

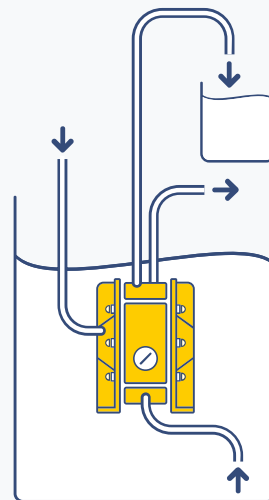
SELF PRIMING APPLICATION

Pumps range in suction lift capability for 5 meters dry, 9 meters can be reached in a primed condition. Suction lift will vary according to materials of construction and application parameters. All data is based on pumping water at 20°C.



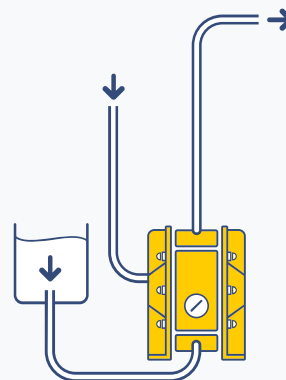
SUBMERGED OPERATION

All pumps can operate in full submersion. Construction materials must be compatible with the surrounding liquid and the exhaust must be placed above the liquid level.



POSITIVE SUCTION HEAD

Common as a method of drawing off the bottoms of holding tanks or clarifiers. Optimum inlet pressure should be kept at 0.2-0.3 bar.



PUMP CODE

DM 15/55 PTS-DM1

DM - Dellmeco Pump 15 - Port dimension, DN 55 - Max capacity l/min at 8 bar	DM 1 - Optional equipment BC1 - Barrier Chamber with sensors (Napur) BC2 - Barrier Chamber as BC1 with controllers BC3 - Barrier Chamber as BC2, ATEX DM1 - Diaphragm Monitoring, Napur – ATEX DM2 - Diaphragm Monitoring with controller F1 - Flange Connection PN 10 with EPDM O-ring F2 - Flange Connection PN 10 with NBR O-ring F3 - Flange Connection PN 10 with FEP/FPM O-ring F4 - Flange Connection JIS B2220 F7 - Flange Connection DIN 2576 Pn10 F8 - Flange Connection ANSI 150 RF-SO F9 - Flange Connection PN10/16 DIN 2277/2278 NPT - NPT Thread Connection SC1 - Stroke sensor, ATEX SC2 - SC1 plus stroke counter SC3 - SC1 plus stroke counter - ATEX SC5 - Stroke counting pneumatical with pressure transmitter SC6 - SC5 plus stroke counter BF1 - Back flushing system, hand operated, EPDM seals BF2 - Back flushing system, hand operated, PTFE seals BF3 - Back flushing system, hand operated, FPM seals BF4 - Back flushing system, pneumatical, EPDM seals BF5 - Back flushing system, pneumatical, PTFE seals AF1, AF2 - Air filter, regulator, valve, nipple, connector D - Drum pump HJ - Heating/Cooling Jacket HP - High Pressure MV - pump with solenoid valve P - Powder pump Ra - Additional polishing to Ra= 0,5 µm (Hygienic series only) S - Sleeve with split connections T - Trolley CLEAN - Clean package for special pump applications (to meet enlarged purity requirements)
P - Housing material: A - Aluminium B - Aluminium coated with PTFE C - Cast Iron H - AISI 316L Hygienic P - PE (Polyethylene) R - PE conductive S - AISI 316 Industrial T - PTFE (Polytetrafluoroethylene) Z - PTFE conductive	
T - Diaphragm material (all conductive): E - EPDM F - TFM/PFA N - NBR T - TFM/PTFE	
S - Material and kind of valve: C - Ceramic, ball valve E - EPDM, ball valve F - PTFE, cylinder valve N - NBR, ball valve P - PE, cylinder valve S - AISI 316, ball valve T - PTFE, ball valve U - Polyurethane, ball valve	

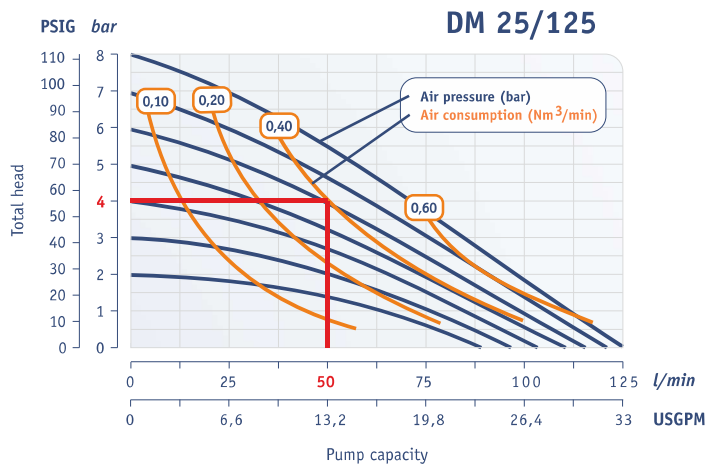
MATERIALS PROFILE

DIAPHRAGMS	OPERATING TEMPERATURES		WETTED PARTS
	MIN	MAX	
NBR General purpose, oil-resistant. Shows good solvent, oil, water, and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons EPDM Shows very good water and chemical resistance. Has poor resistance to oil and solvents, but is fair in ketones and alcohols. Virgin PTFE. Chemically inert, virtually impervious. Very few chemicals are known to chemically react with PTFE; molten alkali metals, turbulent liquid or gaseous fluorine and few fluoro-chemicals such as chlorine trifluoride or oxygen difluoride with readily liberate free fluorine at elevated temperatures.	-30°C	+90°C	PE (polyethylene) is very tough and exceedingly resistant to wear, its water absorption capacity is very low and it displays good general resistance to chemicals. Only such strong oxidants as nitric acid, oleum and halogens can damage PE. PE competes with PP (polypropylene) which is frequently used in the manufacture of pumps. Thermally and chemically speaking, there are virtually no differences between these two. However, the similarity ends where the mechanical properties are concerned: trials based on the sand-slurry method have shown that the abrasion resistance of the PE is 7 times higher than that of PP and even 1.6 times higher than that of steel. It is certainly also more wear-resistant than, for example, cast iron or aluminum. This high resistance to abrasion plays a vital role in many applications (e.g. pickling baths in the electroplating industry, printing inks, lime slurry for wet de-sulphurization, ceramic mass and glazes in the ceramic industry). PTFE is a thermoplastic polymer of tetrafluoroethylene. It has a smooth surface, a very low friction coefficient, is physiologically safe, can be used over a wide range of temperatures and displays virtually universal resistance to chemicals. However, pure PTFE has very little resistance to abrasion and tends to cold-flow.
	-40°C	+120°C	
	-37°C	+120°C	

Maximum and minimum temperatures are the limits for which these materials can be operated. Temperatures coupled with pressure affect the longevity of diaphragm pump components. Maximum life should not be expected at the extreme limits of the temperature ranges.

HOW TO SELECT PUMP SIZE

- 1) Enter Flow (l/min) and Head
(example: 50 l/min at 4 bar)
- 2) Approximate energy requirements in Pressure and Volume
(example: 0,40 Nm³/min at 6 bar)

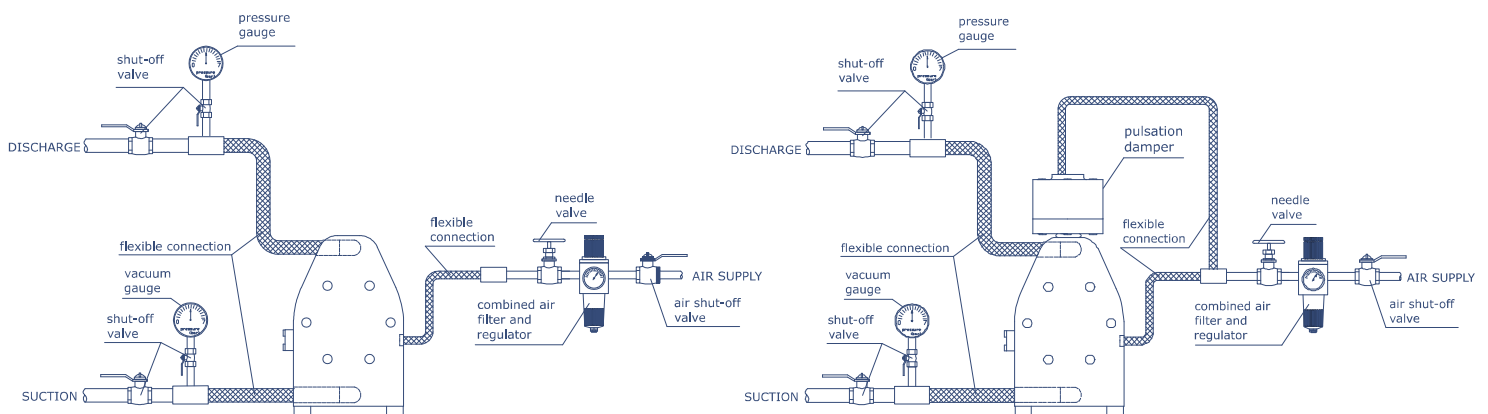


1" Pump - Performance Curve
Performance based on water at 20°C

RECOMMENDED INSTALLATION GUIDELINES

For best results DELLMECO recommends installing the pulsation damper on the discharge side of the pump.

To reduce piping and pump connection stresses, we recommend flexible connections on both inlet and outlet piping and air inlet connections.



- 1) Connect a flow valve and a drain valve to the fluid discharge port of the pump.
- 2) Connect a valve for maintenance to the fluid suction intake port of the pump.
- 3) Connect a hose to the valve on the suction-port side and the valve of the discharge-port side of the pump.
- 4) Connect a hose on the suction-side intake and the discharge-port side to the respective vessels.

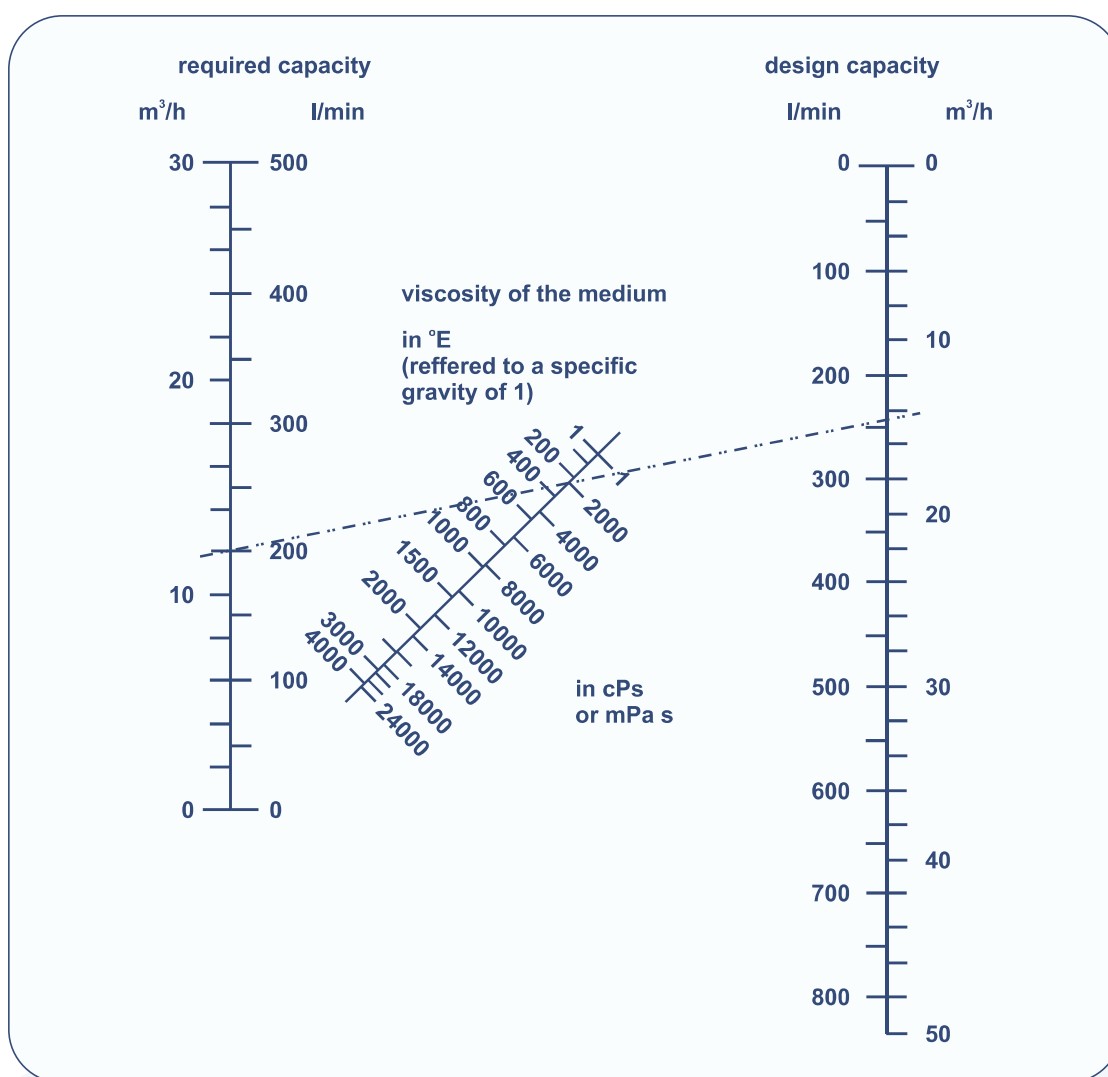
REDUCTION OF FLOW RATE

Product viscosity affects pump capacity.

The capacity specified in the pump performance charts generally refer to water (1cPs).

The value must be reduced correspondingly when pumping media with higher viscosity. The design capacity can be read off directly from the graph and the corresponding pump size selected shown below.

The example shown here is based on required capacity of 200 l/min with a product viscosity of 2000 cPs. The dash-dotted line intersects the design capacity scale at 248 l/min.



POLYETHYLENE AND PTFE PUMPS



1. Designed to succeed

- temperatures up to 120 °C
- pressure up to 14 bar
- lubrication-free operation
- low air consumption
- abrasion resistance (PE, PE conductive)

2. Flexible installations

- BSP as standard,
- PN10, PN16, ANSI, NPT, JIS, RJT, split manifold configurations available
- connections may rotate 180 °

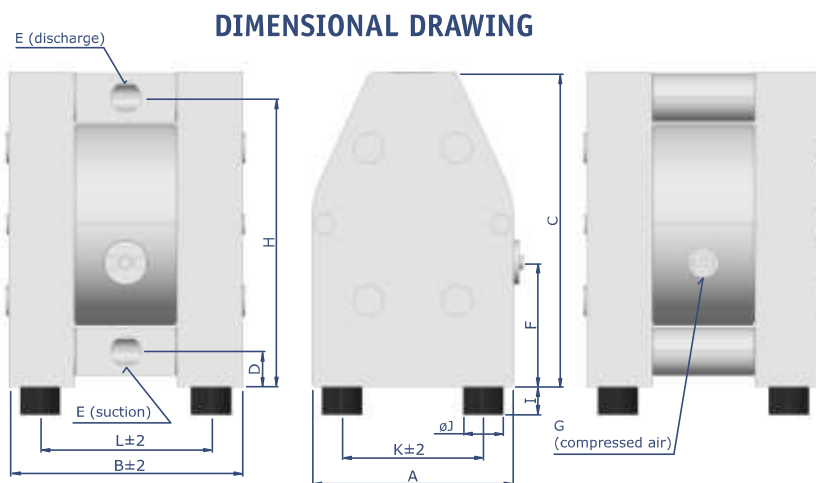
3. Solid and strong

- housing machined from a solid PE, PTFE (and conductive)
- withstanding aggressive chemicals
- gentle pumping action
- viscous product transfer

4. Perfect diaphragm

- completely smooth liquid-side surface (no hole)
- no metal in contact with the liquid
- material matching application

POLYETHYLENE AND PTFE MATERIALS



DIMENSIONS	A	B	C	D	E	F	G	H	I	ØJ	K	L
DM 08/10	70	113	120	15	G 1/4"	58	R 1/8"	107	10	15	50	86
DM 10/25	105	128	164	18	G 3/8"	84	R 1/8"	150	10	15	75	93
DM 15/55	153	177	235	25	G 1/2"	87	R 1/4"	217	18	30	112	136
DM 25/125	200	232	312	35	G 1"	123	R 1/4"	287	28	40	140	170
DM 40/315	270	312	426	42	G 1 1/2"	109	R 1/2"	388	30	60	190	227
DM 50/565	350	385	540	45	G 2"	158	R 1/2"	485	30	60	270	282
DM 80/850	480	580	800	100	G 3"	388	R 3/4"	690	40	75	395	495

TECHNICAL DATA

	08/10	10/25	15/55	25/125	40/315	50/565	80/850
Max capacity (l/min)	10	25	55	125	315	565	850
Max pressure (bar)	8						
Nominal port size	1/4"	3/8"	1/2"	1"	1 1/2"	2"	3"
Air connection	R 1/8"	R 1/8"	R 1/4"	R 1/4"	R 1/2"	R 1/2"	R 3/4"
Suction lift dry (mWC)	0,5 / 1,5*	2,0	3,0	4,0	4,0	5,0	5,0
Suction lift wet (mWC)	9,0						
Max diameter solids (mm)	2	3	4	7	10	12	15
Temperature limits - PE (°C)	70	70	70	70	70	70	70
Temperature limits - PTFE (°C)	110	110	120	120	120	120	-
Weight- PE (kg)	0,9	1,4	5	9	23	42	170
Weight - PTFE (kg)	1,4	2,4	7	16	43	87	-
Material of pump housing	PE, PTFE						PE
Diaphragm options	TFM/PTFE	NBR, EPDM or TFM/PTFE					
Valve balls	PTFE, AISI 316	NBR, EPDM, PTFE, AISI 316, PU					NBR, EPDM, PTFE
Rod valves	PTFE		PE or PTFE				-
O-rings	NBR, EPDM, FEP/FPM, PTFE+EPDM or PTFE+FPM						

* 0.5 m for ball valves, 1.5 m for rod valves

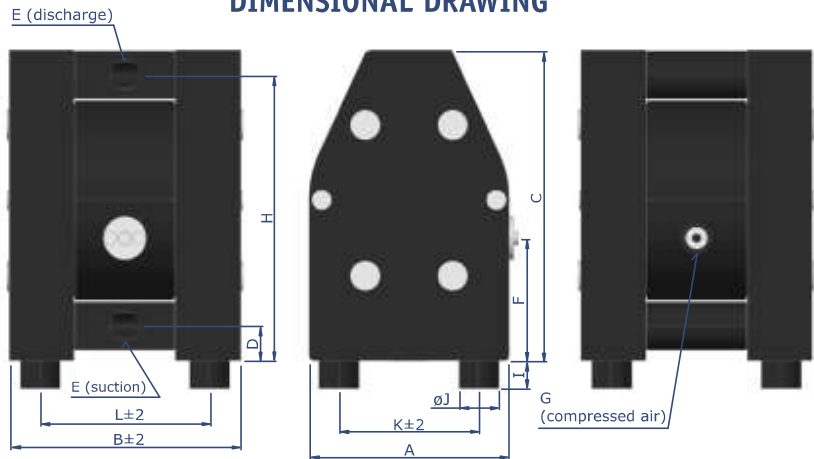
WHERE ATEX IS REQUIRED



The plastic pumps manufactured of conductive PE and PTFE are constructed to enable grounding of non-metallic pumps. This feature allows the pump to safely transfer solvents, alcohols and other volatile liquids without the danger of static electricity build-up. These features apply also to the aluminium, cast iron and AISI 316 pumps.

ATEX CE Ex II 2GD TX

DIMENSIONAL DRAWING



DIMENSIONS	A	B	C	D	E	F	G	H	I	ØJ	K	L
DM 08/10	70	113	120	15	G 1/4"	58	R 1/8"	107	10	15	50	86
DM 10/25	105	128	164	18	G 3/8"	84	R 1/8"	150	10	15	75	93
DM 15/55	153	177	235	25	G 1/2"	87	R 1/4"	217	18	30	112	136
DM 25/125	200	232	312	35	G 1"	123	R 1/4"	287	28	40	140	170
DM 40/315	270	312	426	42	G 1 1/2"	109	R 1/2"	388	30	60	190	227
DM 50/565	350	385	540	45	G 2"	158	R 1/2"	485	30	60	270	282
DM 80/850	480	580	800	100	G 3"	388	R 3/4"	690	40	75	395	495

ATEX pumps are designed to meet ATEX regulations for pneumatic diaphragm pumps handling flammable liquids. All material construction with approved NBR, EPDM or PTFE/TFM elastomers.

TECHNICAL DATA

	08/10	10/25	15/55	25/125	40/315	50/565	80/850
Max capacity (l/min)	10	25	55	125	315	565	850
Max pressure (bar)	8						
Nominal port size	1/4"	3/8"	1/2"	1"	1 1/2"	2"	3"
Air connection	R 1/8"	R 1/8"	R 1/4"	R 1/4"	R 1/2"	R 1/2"	R 3/4"
Suction lift dry (mWC)	0,5 / 1,5*	2,0	3,0	4,0	4,0	5,0	5,0
Suction lift wet (mWC)	9,0						
Max diameter solids (mm)	2	3	4	7	10	12	15
Temperature limits - PE (°C)	70	70	70	70	70	70	70
Temperature limits - PTFE (°C)	110	110	120	120	120	120	-
Weight- PE (kg)	0,9	1,4	5	9	23	42	170
Weight - PTFE (kg)	1,4	2,4	7	16	43	87	-
Material of pump housing	PE conductive, PTFE conductive						PE conductive
Diaphragm options	TFM/PTFE	NBR, EPDM or TFM/PTFE					
Valve balls	PTFE, AISI 316	NBR, EPDM, PTFE, AISI 316, PU					NBR, EPDM, PTFE
Rod valves	PTFE		PE or PTFE				-
O-rings	NBR, EPDM, FEP/FPM, PTFE conductive +EPDM or PTFE conductive +FPM						

* 0,5 m for ball valves, 1,5 m for rod valves

