

# DELLMECO®

AODD DIAPHRAGM PUMPS

## Air Operated Double Diaphragm Pumps



## PUMP FEATURES

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



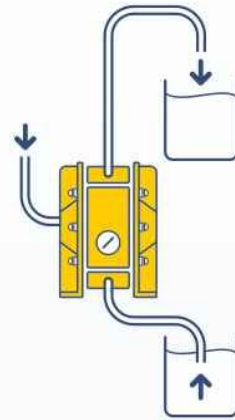
- Compact, solid design - low space required
- Pumps abrasive and shear-sensitive materials. Low internal velocities handle abrasive liquids with no damage to the pump. The gentle pumping does not shear fragile materials
- Pumps move everything from water to very viscous liquids with solids
- Sealless - 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



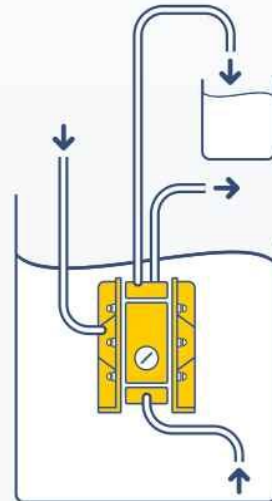
### SELF PRIMING APPLICATION

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.



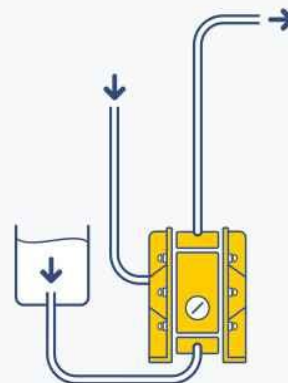
### SUBMERGED OPERATION

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

<b>DM 15/55 PTS-DM 1</b>	
<b>DM</b> - Dellmeco Pump <b>15</b> - Port dimension, DN <b>55</b> - Max capacity l/min at 8 bar	<b>DM 1 - Optional equipment:</b> <b>BC1</b> - Barrier Chamber with sensors (Napur) <b>BC2</b> - Barrier Chamber as BC1 with controllers <b>BC3</b> - Barrier Chamber as BC2, ATEX  <b>DM1</b> - Diaphragm Monitoring, Namur – ATEX <b>DM2</b> - Diaphragm Monitoring with controller <b>F1</b> - Flange Connection PN 10 with EPDM O-ring <b>F2</b> - Flange Connection PN 10 with NBR O-ring <b>F3</b> - Flange Connection PN 10 with FEP/FPM O-ring <b>F7</b> - Flange Connection PN10 DIN 2576 <b>F8</b> - Flange Connection ANSI 150 RF-SO <b>F9</b> - Flange Connection PN16 DIN 2277/2278 <b>SC1</b> - Stroke sensor, ATEX <b>SC2</b> - SC1 plus stroke counter <b>SC3</b> - SC1 plus stroke counter - ATEX <b>SC5</b> - Stroke counting pneumatical with pressure transmitter <b>SC6</b> - SC5 plus stroke counter  <b>BF1</b> - Back flushing system, hand operated, EPDM seals <b>BF2</b> - Back flushing system, hand operated, PTFE seals <b>BF3</b> - Back flushing system, hand operated, FPM seals <b>BF4</b> - Back flushing system, pneumatical, EPDM seals <b>Bf5</b> - Back flushing system, pneumatical, PTFE seals <b>AF1, AF2</b> - Air filter, regulator, valve, nipple, connector  <b>D</b> - Drum pump <b>HJ</b> - Heating Jacket <b>HP</b> - High Pressure <b>MV</b> - pump with solenoid valve <b>S</b> - Sleeve with split connections <b>P</b> - Powder pump <b>T</b> - Trolley <b>CLEAN</b> - the Clean package to meet enlarged purity requirements for special pump applications
<b>P - Housing material:</b>  <b>A</b> - Aluminium <b>B</b> - Aluminium coated with PTFE <b>C</b> - Cast Iron <b>H</b> - AISI 316L Hygienic <b>P</b> - PE <b>R</b> - PE conductive <b>S</b> - AISI 316 Industrial <b>T</b> - PTFE <b>Z</b> - PTFE conductive	
<b>T - Diaphragm material: (all conductive)</b>  <b>E</b> - EPDM <b>N</b> - NBR <b>T</b> - TFM/PTFE	
<b>S - Material and kind of valve:</b>  <b>E</b> - EPDM, ball valve <b>N</b> - NBR, ball valve <b>S</b> - AISI 316, ball valve <b>T</b> - PTFE, ball valve <b>U</b> - Polyurethane, ball valve <b>F</b> - PTFE, cylinder valve <b>P</b> - PE, cylinder valve <b>C</b> - Ceramic, ball valve	

## MATERIALS PROFILE

MATERIALS PROFILE	OPERATING TEMPERATURES		
	MIN	MAX	
<b>NBR</b> 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.  <b>EPDM</b> Shows very good water and chemical resistance. Has poor resistance to oil and solvents, but is fair in ketones and alcohols.  <b>Virgin PTFE.</b> 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.

## A. 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 Nm<sup>3</sup>/min at 6 bar)

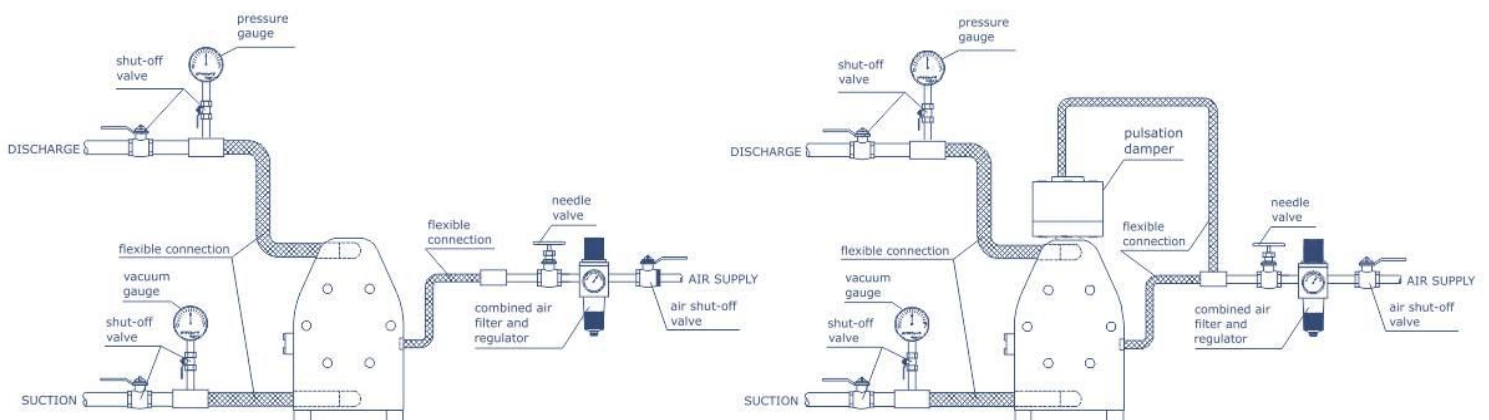


1" Pump - Performance Curve  
Performance based on water at 20°C

## B. 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.

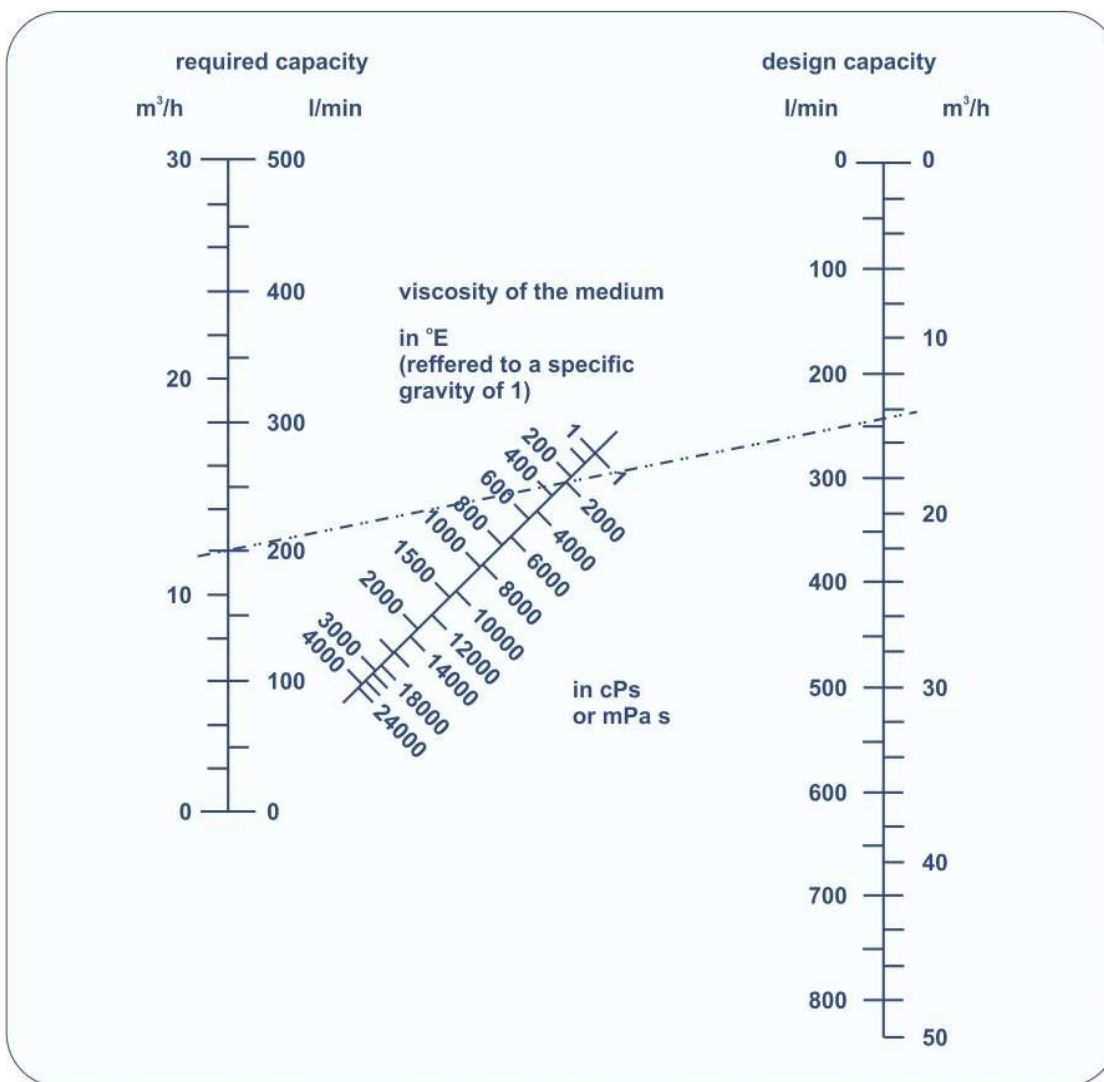
### C. REDUCTION OF FLOW RATE

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

### 2. Flexible installations

- BSP as standard,
- PN10, PN16, AISI316, ANSI, NPT, 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

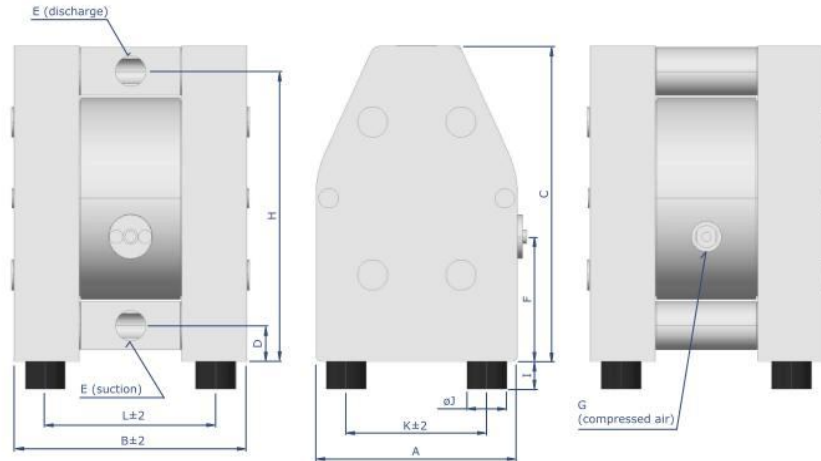
### 4. Perfect diaphragm

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



## POLYETHYLENE AND PTFE MATERIALS

### 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 80/800	480	580	800	100	G 3"	388	R 3/4"	690	40	75	395	495

## PUMP CODE

	08/10	10/25	15/55	25/125	40/315	50/565	80/800
Max capacity (l/min)	10	25	55	125	315	565	800
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	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, 2.0 m for rod valves

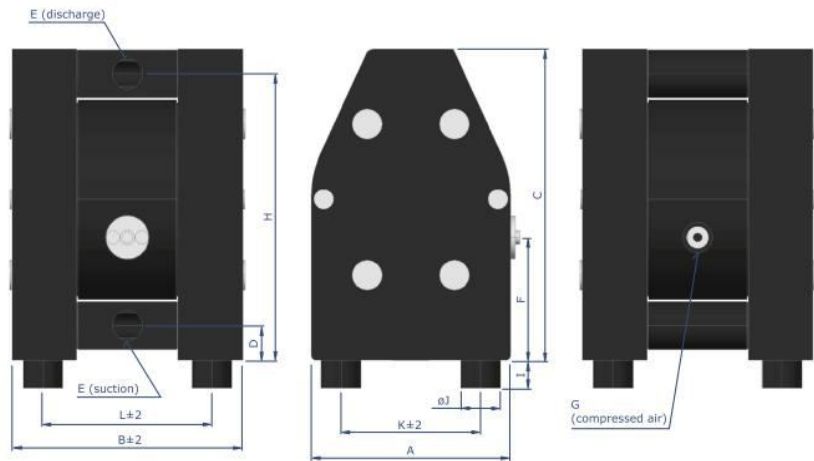




## WHERE ATEX IS REQUIRED

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.

## 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 80/800	480	580	800	100	G 3"	388	R 3/4"	690	40	75	395	495

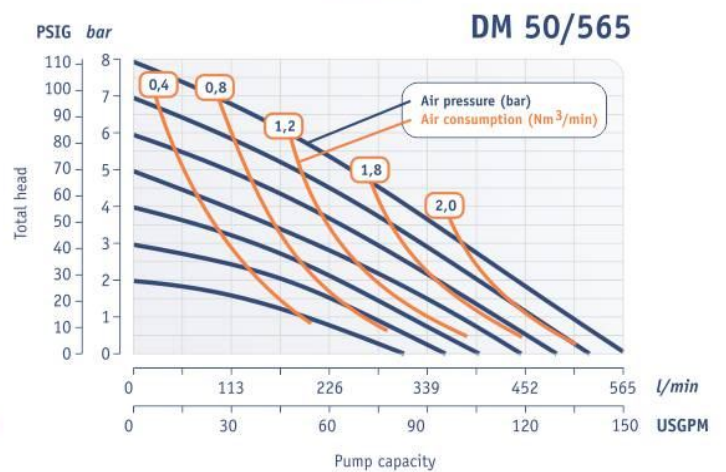
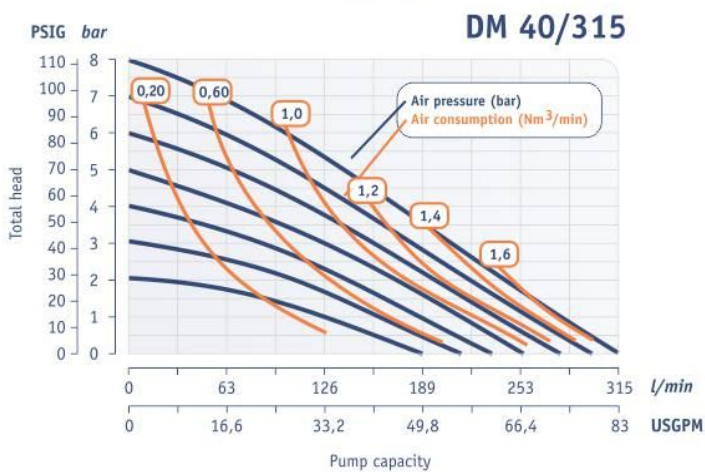
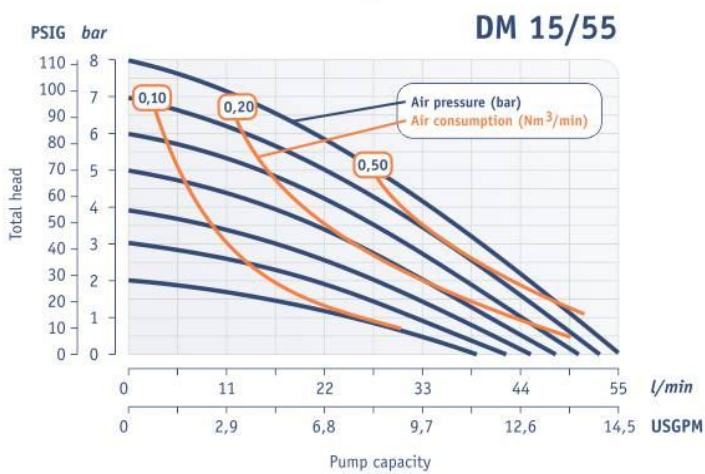
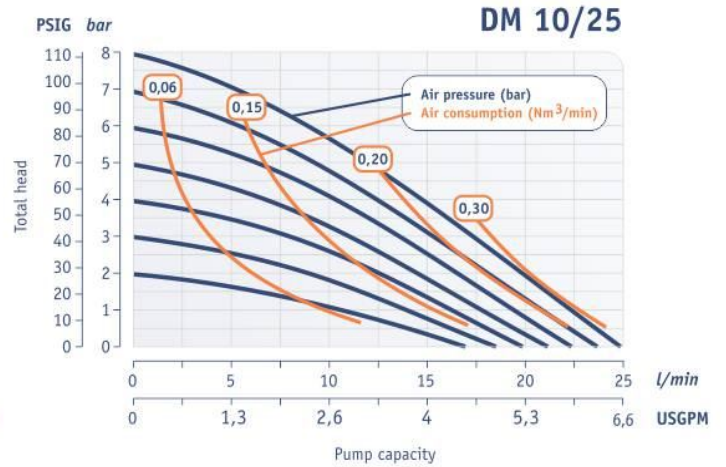
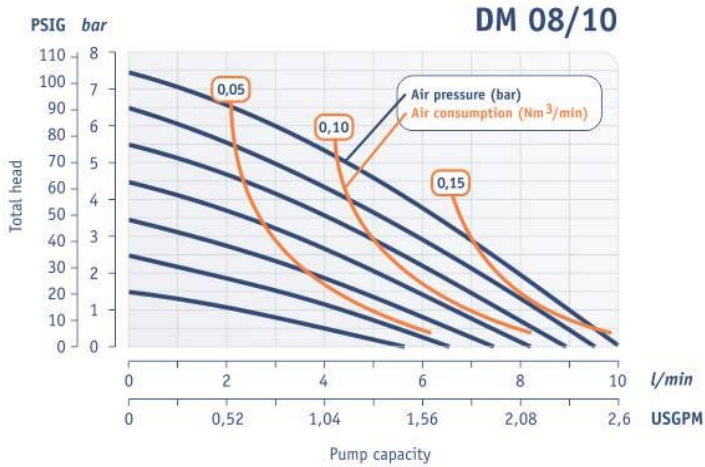
## ATEX II 2GD TX

## PUMP CODE

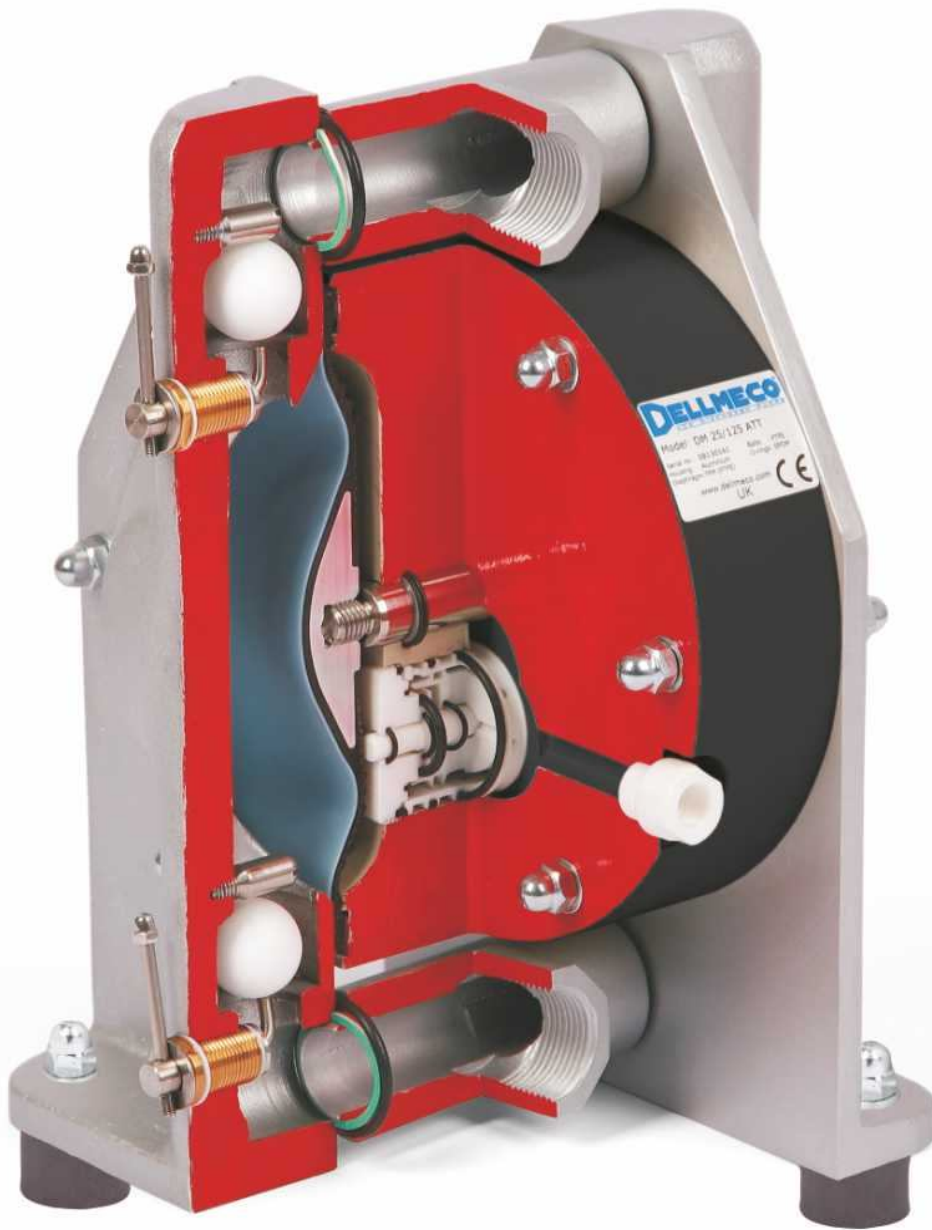
	08/10	10/25	15/55	25/125	40/315	50/565	80/800
Max capacity (l/min)	10	25	55	125	315	565	800
Max pressure (bar)	8						
Nominal port size	1/4"	3/8"	1/2"	1"	1 1/2"	2"	3"
Air connection	R 1/8"	R 1/8"	R 1/4"	R 1/4"	R 1/2"	R 1/2"	R 3/4"
Suction lift dry (mWC)	0.5/1.5*	2.0	3.0	4.0	4.0	5.0	5.0
Suction lift 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	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, 2.0 m for rod valves

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.



## METAL PUMPS



### 1. Designed to succeed

- temperatures up to 120 °C
- pressure up to 14 bar
- lubrication-free operation
- low air consumption

### 2. Flexible installations

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

### 3. Solid and strong

- gentle pumping action
- viscous product transfer
- the valve seat made of AISI 316 is integrated with pump housing

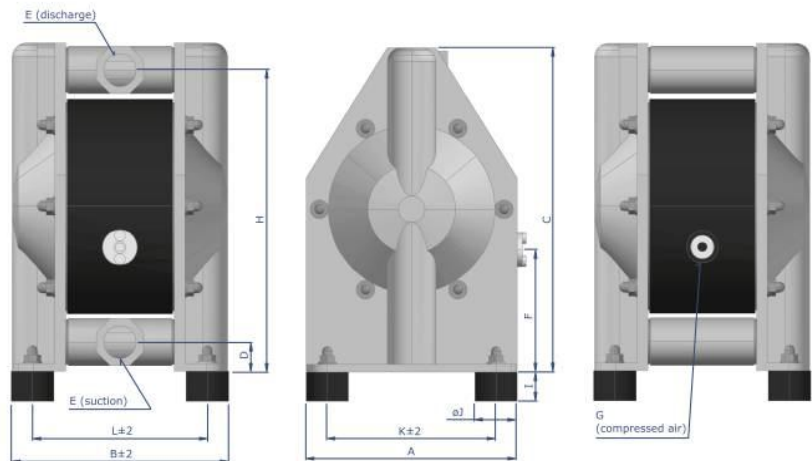
### 4. Perfect diaphragm

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



## ALUMINIUM, ALUMINIUM WITH PTFE, CAST IRON

### DIMENSIONAL DRAWING



DIMENSIONS	A	B	C	D	E	F	G	H	I	∅J	K	L
DM 15/25	104	122	166	17	G 1/2"	85	R 1/8"	153	10	15	84	98
DM 20/75	150	171	230	21	G 3/4"	84	R 1/4"	212	18	30	116	133
DM 25/125	200	202	305	27	G 1"	115	R 1/4"	280	28	40	160	164
DM 40/315	273	267	417	34	G 1 1/2"	110	R 1/2"	382	28	40	220	213
DM 50/565	352	345	546	48	G 2"	165	R 1/2"	501	30	60	282	281
DM 80/850	477	530	847	89	G 3"	364	R 3/4"	775	40	75	396	449

## TECHNICAL DATA

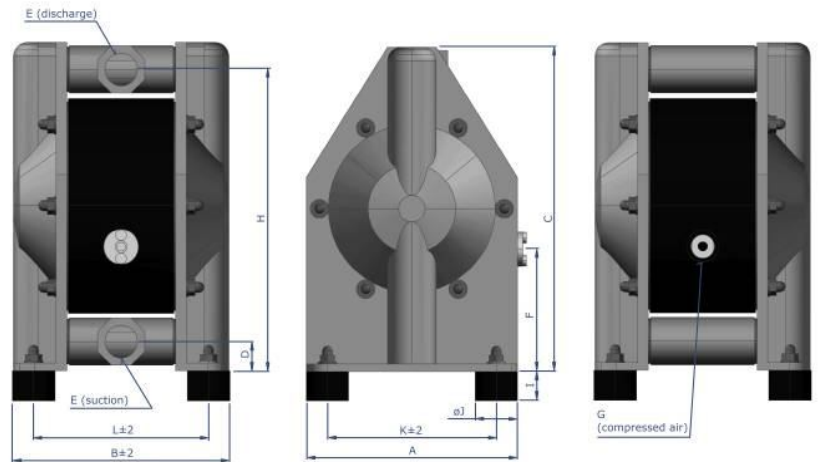
	15/25	20/75	25/125	40/315	50/565	80/850 **
Max capacity (l/min)	25	75	125	315	565	850
Max pressure (bar)	8					
Nominal port size	1/2"	3/4"	1"	1 1/2"	2"	3"
Air connection	R 1/8"	R 1/4"	R 1/4"	R 1/2"	R 1/2"	R 3/4"
Suction lift dry (mWC)	2.0	3.0	4.0	4.0	5.0	5.0
Suction lift wet (mWC)	9.0					8.0
Max diameter solids (mm)	3	4	7	10	12	15
Temperature limits - NBR, EPDM (°C)	80					
Temperature limits - PTFE (°C)	120					110
Weight - Alu (kg)	1.9	4.9	8	18	33	97
Material of pump housing	Aluminium, Aluminium Coated with PTFE, Cast Iron					Aluminium
Diaphragm options	NBR, EPDM or TFM/PTFE					
Valve balls	NBR, EPDM, PTFE, AISI 316, PU					NBR, EPDM, PTFE
O-rings	NBR, EPDM, or FEP/FPM					

\*\* - Aluminium version only



## STAINLESS STEEL AISI 316 - INDUSTRIAL

### DIMENSIONAL DRAWING



DIMENSIONS	A	B	C	D	E	F	G	H	I	ØJ	K	L
DM 20/75	150	171	230	21	G 3/4"	86	R 1/4"	212	18	30	118	139
DM 25/125	200	202	306	29	G 1"	117	R 1/4"	282	28	40	160	164
DM 40/315	270	267	412	34	G 1 1/2"	110	R 1/2"	380	28	40	213	213
DM 50/565	350	345	538	48	G 2"	165	R 1/2"	493	30	60	286	285

## TECHNICAL DATA

	20/75	25/125	40/315	50/565
Max capacity (l/min)	75	125	315	565
Max pressure (bar)	8			
Nominal port size	3/4"	1"	1 1/2"	2"
Air connection	R 1/4"	R 1/4"	R 1/2"	R 1/2"
Suction lift dry (mWC)	3.0	4.0	4.0	5.0
Suction lift wet (mWC)	9.0			
Max diameter solids (mm)	4	7	10	12
Temperature limits - NBR, EPDM (°C)	80			
Temperature limits - PTFE (°C)	120			
Weight - AISI 316 (kg)	9.5	14	31	70
Material of pump housing	AISI 316			
Diaphragm options	NBR, EPDM or TFM/PTFE			
Valve balls	NBR, EPDM, PTFE, AISI 316, PU			
O-rings	NBR, EPDM, or FEP/FPM			

## SPECIAL MATERIAL VERSIONS



Aluminium coated with PTFE as alternative solution for AISI 316 pumps.  
Pump connection are made of AISI 316.  
Especially suitable for print and ink industry.



Cast iron Pump with PE-conductive (polyethylene conductive) center section.

## METAL PUMPS OPTIONS



Metal pump with heating jacket.



Metal pump with handle for drum option.

