

## 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 - minimum space required
- ▶ Excellent for abrasive and shear-sensitive materials - low internal velocities mean abrasive liquids do not damage the pump and low shear for fragile applications like chemicals
- ▶ Can be used to pump water, viscous liquids with solids and even powders
- ▶ Sealless - no seals or packing to leak
- ▶ Safe in hazardous areas - air driven and non-sparking
- ▶ Can run dry without damage
- ▶ Self-priming to over 8 meters
- ▶ Variable flow - simply regulate the inlet air supply to adjust from zero to maximum flow
- ▶ Pump virtually stalls if discharge is closed and restarts when discharge is opened (no heat build-up or wear)
- ▶ Expensive systems for pressure relief are not required
- ▶ Composite, long life diaphragms (no discs) are smooth and not interrupted by seals
- ▶ Operates without lubrication
- ▶ Fully groundable
- ▶ Easy maintenance
- ▶ Internationally recognised certification



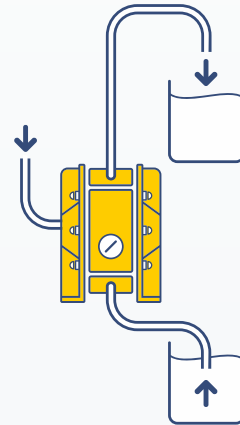
Management  
System  
ISO 9001:2008

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## HOW TO INSTALL DELLMECO PUMPS

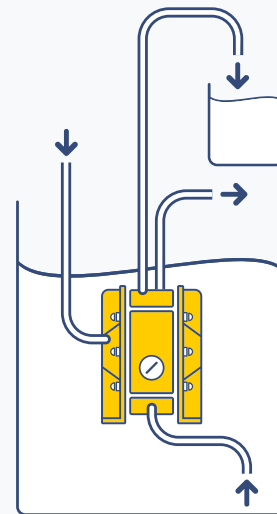
### SELF-PRIMING APPLICATION

The suction lift range is up to 8 meters. This will vary according to construction materials and application parameters. All data are based upon pumping water at 20°C.



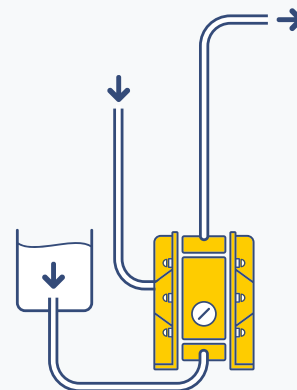
### SUBMERGED OPERATION

Our pumps can operate under full submersion. The construction materials must be suitable for the surrounding liquid and the outlet must be positioned above the liquid level.



### POSITIVE SUCTION HEAD

As a method for completely emptying holding tanks, clarifiers or similar containers. Optimum inlet pressure should be kept at 0.2-0.3 bar.



## PUMP CODE

e.g. DM 15/55 PTS-DM1

<p><b>DM - Dellmeco Pump</b>  <b>15 - Port dimension, DN</b>  <b>55 - Max capacity l/min at 8 bar</b></p>	<p><b>DM 1 - Optional equipment</b></p> <p>BC1 - Barrier Chamber with sensors (Namura)          Bc2 - Barrier Chamber as BC1 with controllers          BC3 - Barrier Chamber as Bc2 + ATEX          DM1 - Diaphragm Monitoring, Namur – 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 - Class 100 Clean-Room assembly for special pump applications (to meet added purity requirements)</p>
<p><b>P - Housing material:</b></p> <p>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</p>	
<p><b>T - Diaphragm material (all conductive):</b></p> <p>E - EPDM          F - TFM/PFA          N - NBR          T - TFM/PTFE</p>	
<p><b>S - Material and type of valve:</b></p> <p>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</p>	

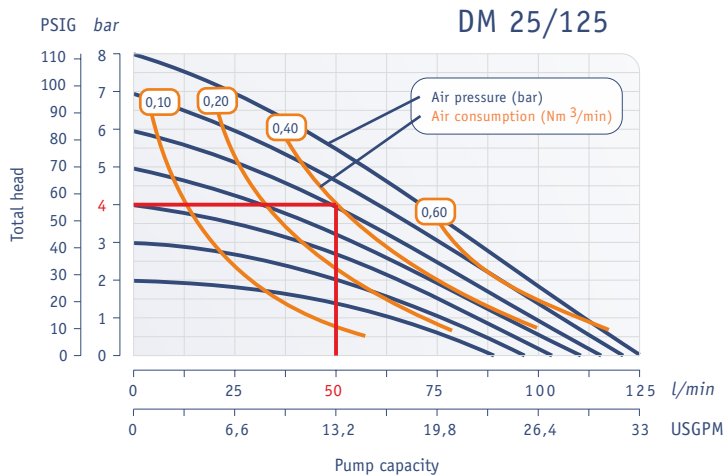
## MATERIALS PROFILE

DIAPHRAGMS	OPERATING TEMPERATURES MIN    MAX	WETTED PARTS
<p>NBR General purpose, shows good solvent, oil, water, and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and ketone (MEK), ozone, chlorinated hydrocarbons or nitro-hydrocarbons</p>	-30°C    +90°C	<p>PE (polyethylene) is very tough and resistant to wear, its water absorption capacity is low and it displays good general resistance to chemicals. Only such strong oxidants such as nitric acid, oleum and halogens can damage PE.</p>
<p>EPDM Shows very good water and chemical resistance. However, poor resistance to oil and solvents and medium resistance to ketones and alcohols.</p>	-40°C    +120°C	<p>PE competes with PP (polypropylene) and both are used in manufacturing pumps. They are thermally and chemically similar. However, the mechanical properties are different. Trials show that the abrasive resistance of PE is 7 times higher than that of PP and even 1.6 times higher than that of steel. It is also more 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 desulphurisation, ceramics and glazing).</p>
<p>Virgin PTFE. Chemically inert, virtually impervious. Very few chemicals are known to react with PTFE e.g. molten alkali metals, gaseous fluorine and some fluoro-chemicals readily liberate free fluorine at elevated temperatures.</p>	-37°C    +120°C	<p>PTFE (polytetrafluoroethylene) is a thermoplastic polymer. It has a smooth surface, very low friction coefficient and can be used over a wide range of temperatures. It also displays virtually universal resistance to chemicals. However, pure PTFE has a low resistance to abrasives and tends to 'cold-flow'.</p>

The temperature ranges given above are the limits for which these materials can be safely used. Both temperature and working pressure affects the longevity of AODD components. 'Preventive maintenance planning' (PMP) will increase the working lifespan at the extreme limits.

## HOW TO SELECT THE PUMP SIZE

- 1) Enter Flow (l/min) and Head  
(example: 50 l/min at 4bar)
- 2) Read off the approximate energy requirements in Volume and Pressure  
(example: 0.40 Nm<sup>3</sup>/min at 6bar)

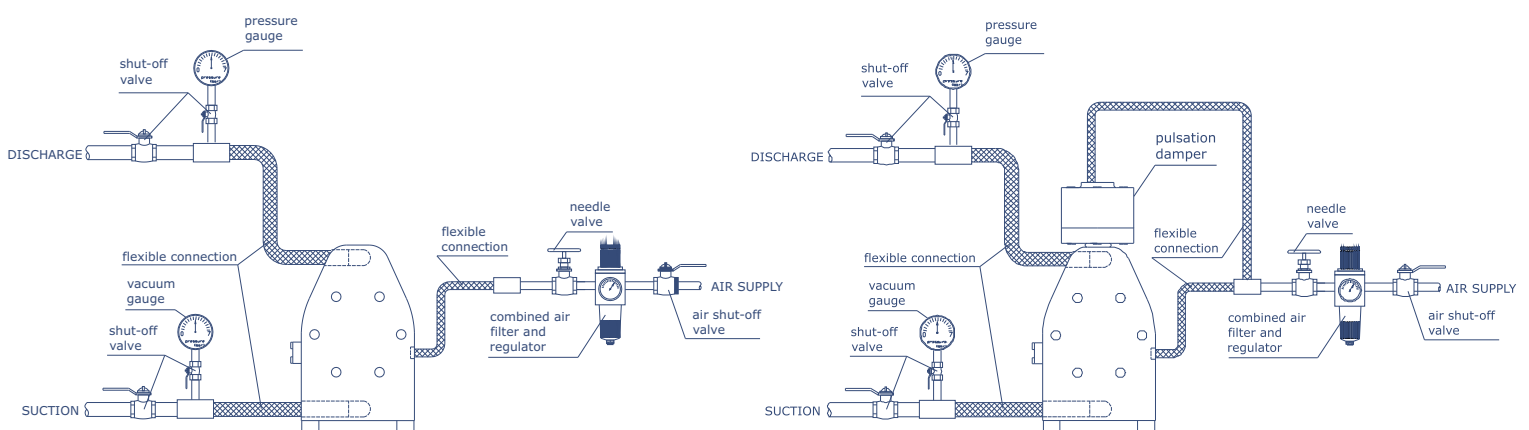


1" Pump - Performance Curve  
Performance based on water at 20°C

## RECOMMENDED INSTALLATION GUIDELINES

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

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



More detailed installation information is available upon request by our DELLMECO Technical Team

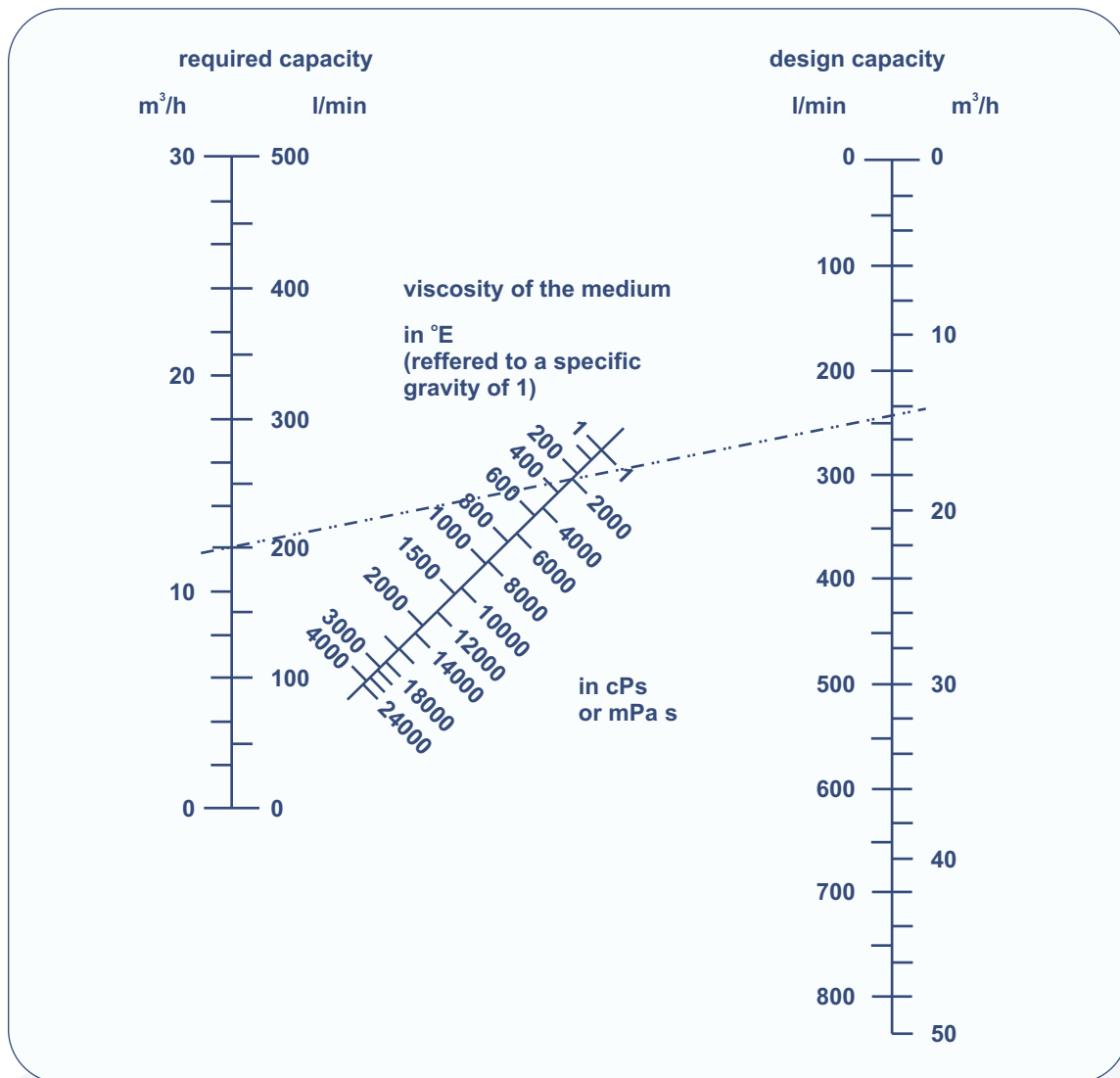
## REDUCTION OF FLOW RATE

The viscosity of the media affects pump capacity.

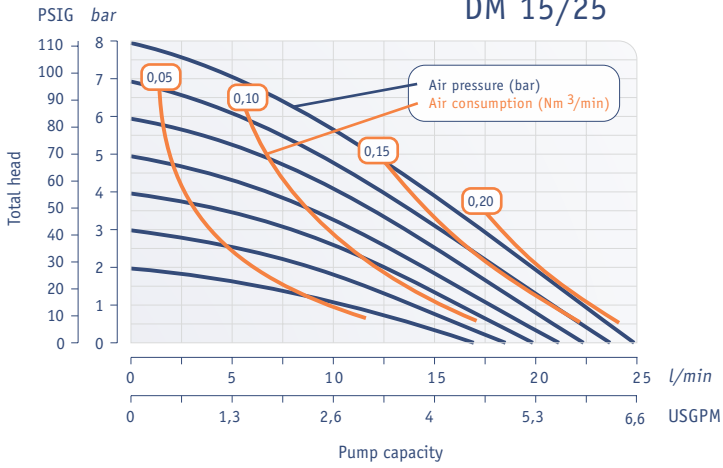
The capacities specified in the pump performance charts generally refer to water (1cPs).

The volume must be reduced accordingly when pumping media with higher viscosities. The design capacity can be read directly from the graph below and the corresponding pump size selected.

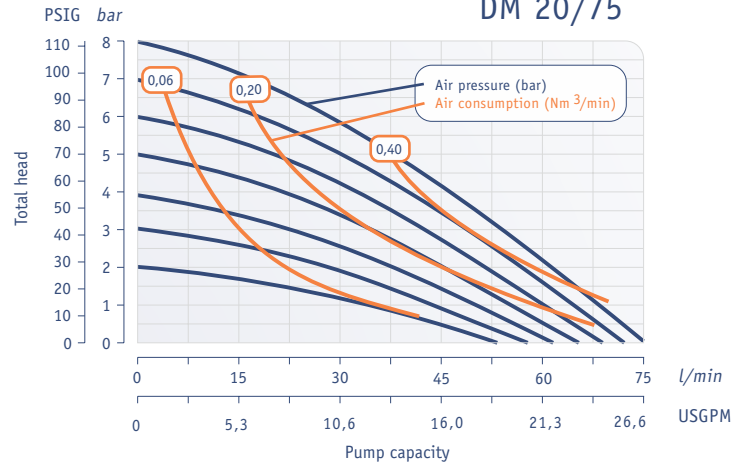
The example shown here is based upon a required capacity of 200 l/min with a product viscosity of 2000 cPs. The dotted line intersects the design capacity at 248 l/min.



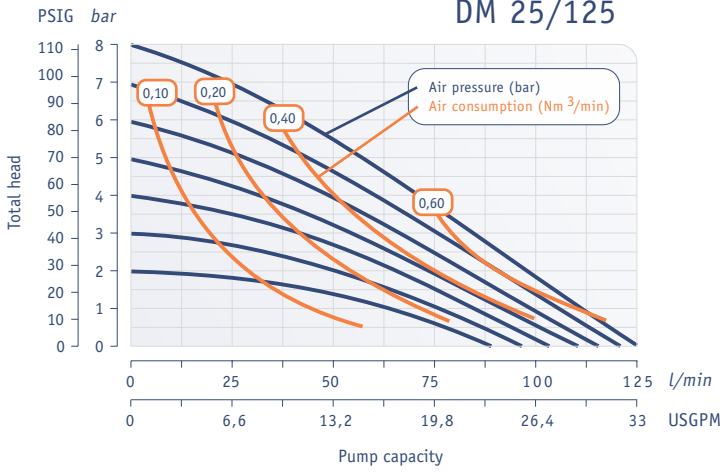
**DM 15/25**



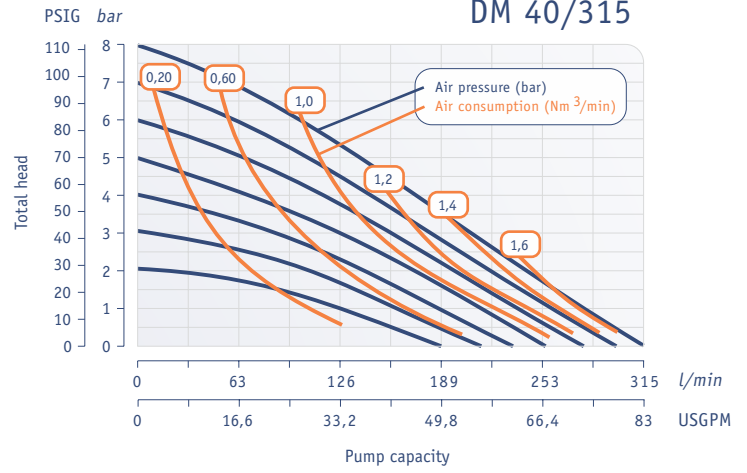
**DM 20/75**



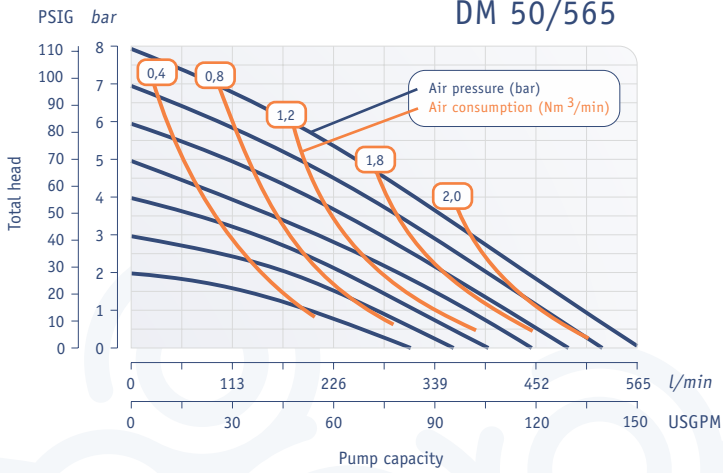
**DM 25/125**



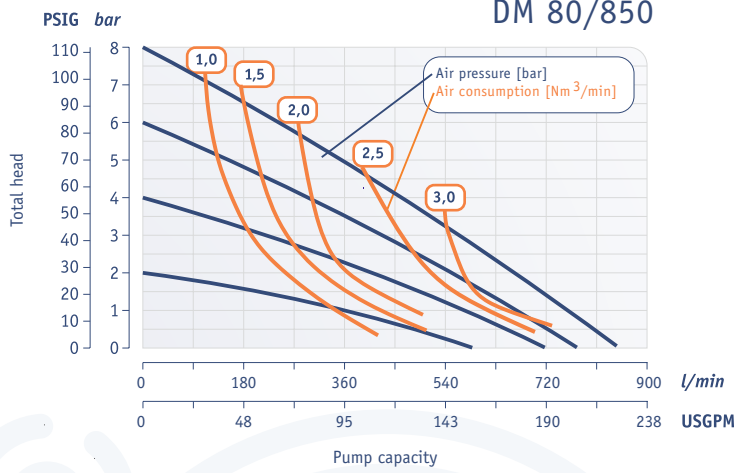
**DM 40/315**



**DM 50/565**



**DM 80/850**



## HYGIENIC PUMPS

### MAIN COMPONENTS



#### 1. Quick dismantling

The clamp system enables rapid dismantling without the need for tools.

#### 2. Plain surface

The 'sandwich' diaphragm has a plain surface which eliminates problems associated with microbial growth. The diaphragms are available in food grade material - pure TFM (PTFE).

#### 3. Superior finish

Both the media side and outside are electro-polished to obtain a superior hygienic finish. Other special surface finishes may be carried out according to requirements.

#### 4. Eco-air valve

The sealing system is lubrication-free, always keeping the unit and environment free from oil contamination.

#### 5. Variety of connection types

The pump is supplied as standard with connections according to DIN 11851. However, it can be equipped with almost any type of connections used in the hygienic sector such as TriClamp, SMS, RJT, JIS or ANSI.

#### 6. Pump designed for CIP and SIP systems

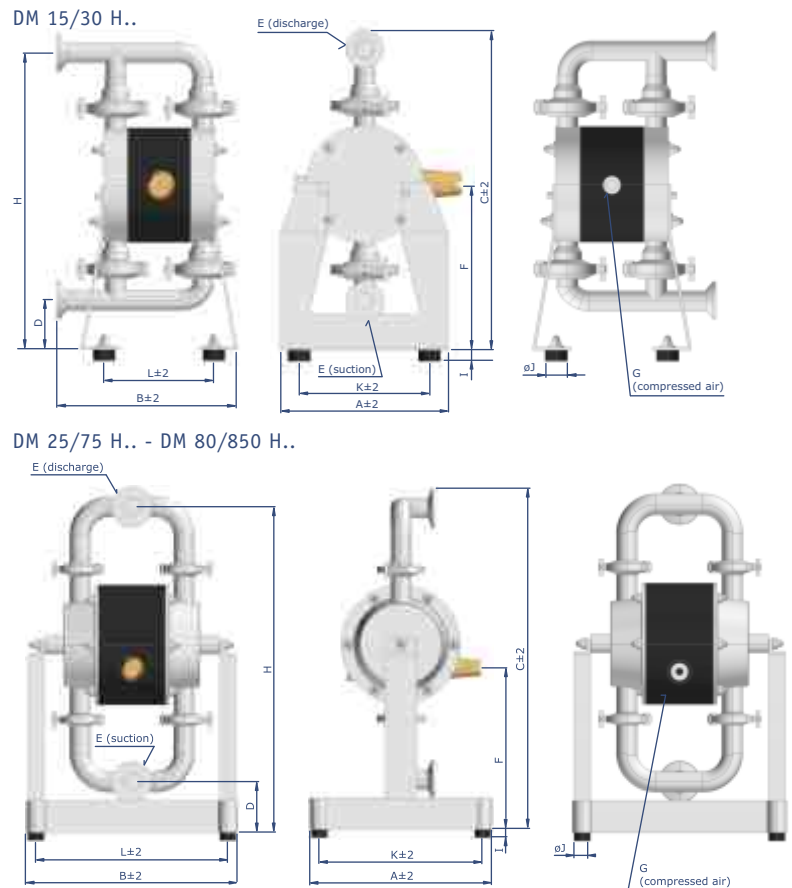
Cleaning-In-Place (CIP) and Sterilisation-In-Place (SIP) are designed for automatic cleaning and disinfection without major dismantling of the pump.

## AISI 316L POLISHED - HYGIENIC PUMP



Hygienic design made from electro-polished stainless steel to meet the requirements of sanitary standard operating procedures (SSOPs)

### DIMENSIONS



DIMENSIONS	A	B	C	D	E			F	G	H	I	ØJ	K	L
					TC	DN	SMS							
DM 15/30	150	165	299	46	1/2"	15	-	162	R 1/8"	282	18	30	116	103
DM 25/75	230	264	419	75	1"	25	25	204	R 1/4"	394	18	30	206	238
DM 40/125	256	287	465	67	1 1/2"	40	38	221	R 1/4"	440	18	30	226	257
DM 50/315	350	387	679	102	2"	50	51	247	R 1/2"	640	18	30	325	357
DM 65/565	350	459	888	126	2 1/2"	65	64	357	R 1/2"	842	18	30	326	435
DM 80/850	590	600	1310	129	3"	80	90	688	R 3/4"	1257	30	60	565	575

### TECHNICAL DATA

	15/30	25/75	40/125	50/315	65/565	80/850
Max capacity [L/min]	30	75	125	315	565	850
Max pressure [bar]	8					
Nominal port size acc. to DIN 11851	DN 15	DN 25	DN 40	DN 50	DN 65	DN 80
Optional connections	TriClamp, SMS, RJT, JIS, ANSI					
Air connection	R 1/8"	R 1/4"	R 1/4"	R 1/2"	R 1/2"	R 3/4"
Suction lift dry [mWC]	1.5	3.0	4.0	4.0	5.0	5.0
Suction lift wet [mWC]	8.0					
Max diameter solids [mm]	4	5	8	11	14	15
Temperature limits - NBR, EPDM [°C]	80					
Temperature limits - PTFE [°C]	120					
Weight [kg]	5	8	11	26	34	85
Material of pump housing	AISI 316L					
Material of centre housing	PE, PE conductive					
Diaphragm options	NBR, EPDM or TFM/PTFE					
Valve balls	NBR, EPDM, PTFE, AISI 316					NBR, EPDM, PTFE
Gaskets	Silicone, PTFE, EPDM, NBR					

#### Hygienic series

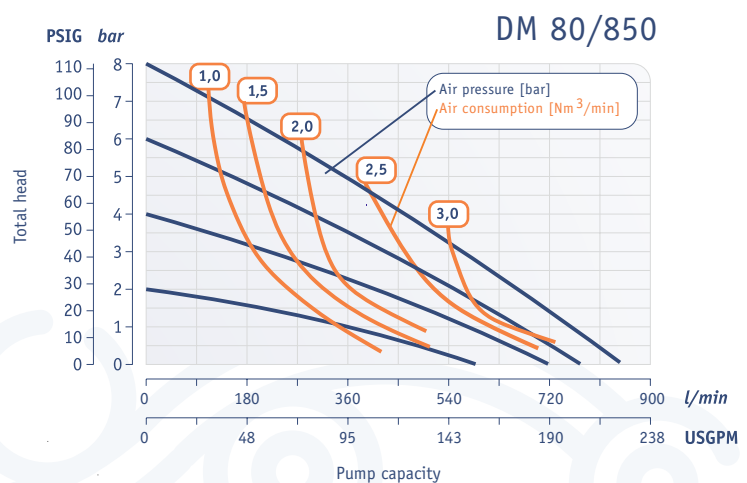
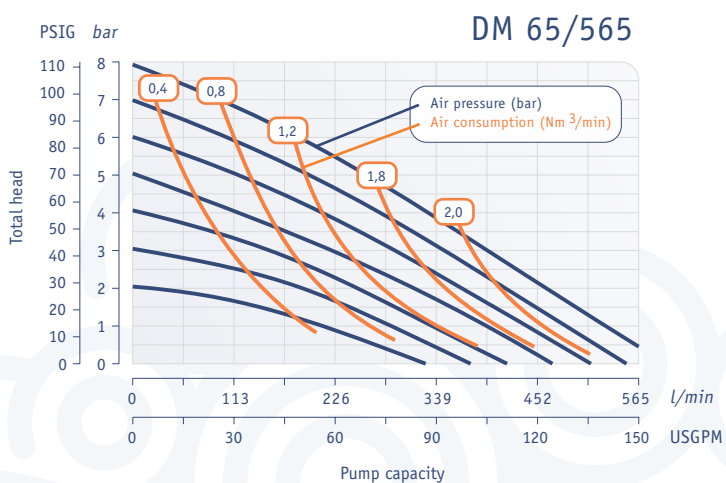
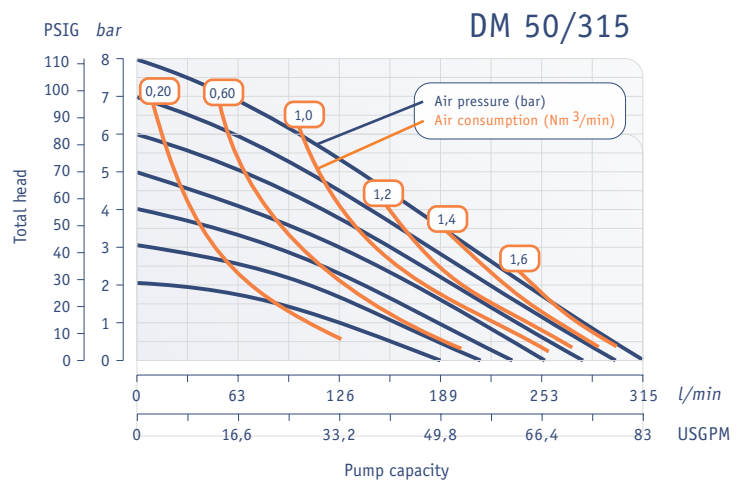
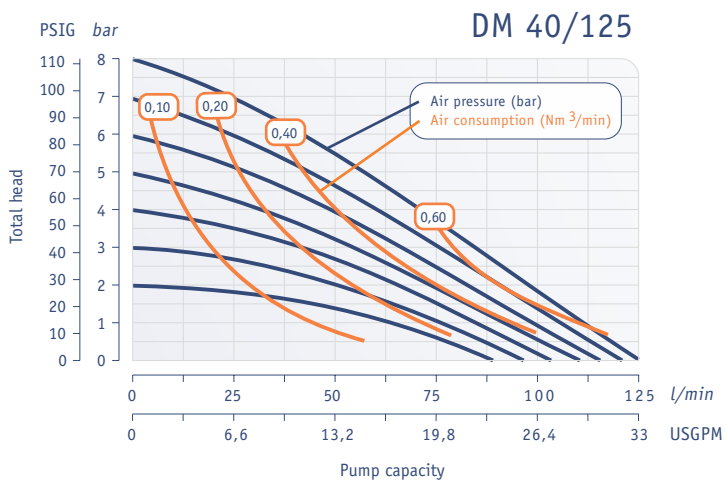
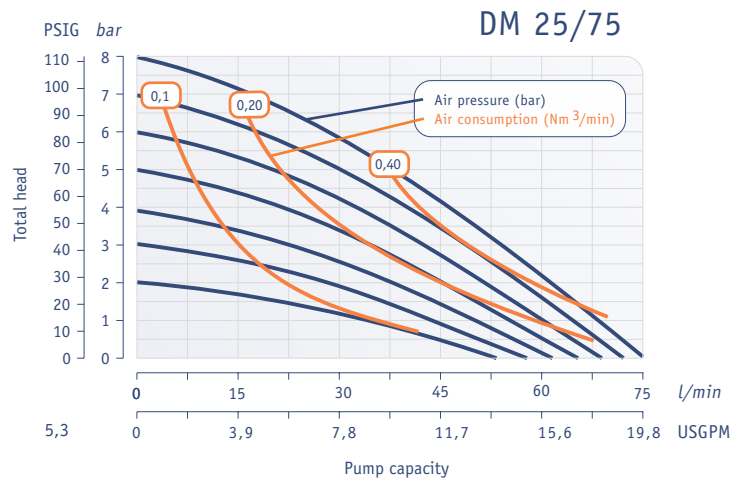
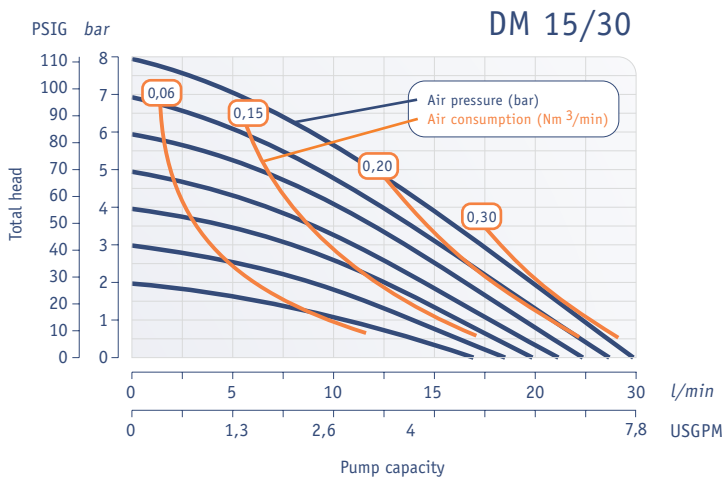
The hygienic series is especially designed to meet the requirements of the food, beverage, pharmaceutical and cosmetics industry. Some of the key features include a lubrication-free air distribution system as well as a maintenance-free ball check valve system.

#### Made for optimum cleanliness

Our design allows for optimum sanitary standard operating procedures (SSOPs) to be carried out. This includes total visual inspection of the wetted parts i.e. there are no hidden areas where microbes may grow. The manifold clamps and housing screws are simply removed for complete dismantling and cleaning.

These pumps are also designed for cleaning and sterilization in place (CIP and SIP options) as well as being easily drained.





## SPECIAL VERSIONS



### PUMP TROLLEY

Make your DELLMECO pump mobile. The trolley option is available for all pump sizes.



### HEATING/COOLING JACKET

The heating/cooling jacket is used when the pumped media has to maintain a specific high or low temperature throughout the process. A heating or cooling medium is continuously circulated and the jacket also covers all the wetted parts of the pump. This option is available for all our hygienic pump series.