

DEBEM**Air Operated Diaphragm Pumps**

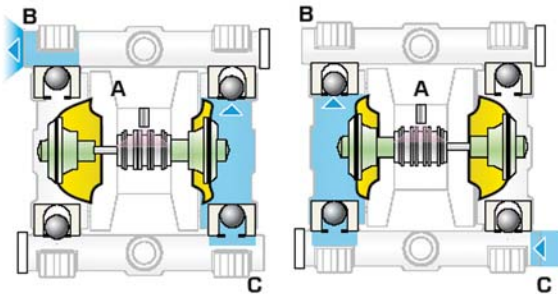
Flow Rates to 900 LPM (238 GPM), Pressure to 70 Meters (99.7 PSI)

DESCRIPTION

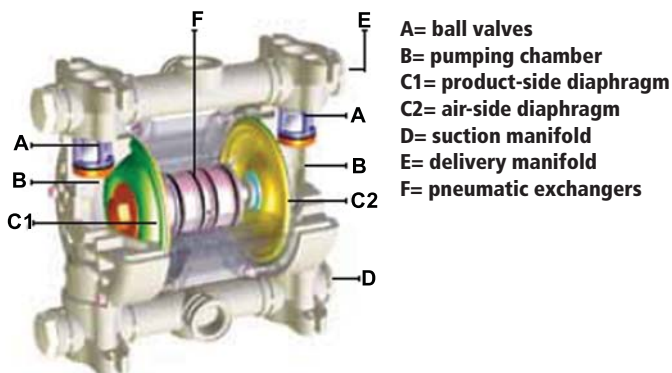
Debem air operated diaphragm pumps are characterized by exceptional performance, power and strength, making them ideal for pumping liquids with very high apparent viscosity up to 50000 cps (at 20°C), even if containing suspended solids.

The stall-prevention pneumatic system assures safe pump running and it does not require lubricated air. Self-priming dry capacity even with considerable suction head, fine tuning of speed without pressure loss and the possibility of dry operation without suffering damage mean that these pumps offer unrivalled versatility. In addition, the huge choice of construction materials allows selection of optimum chemical compatibility with the fluid and/or environment without neglecting the temperature range.

They are specifically designed for demanding applications with high humidity or in potentially explosive atmospheres (ATEX certification).

**PRINCIPLE OF OPERATION:**

The compressed air introduced by the pneumatic exchanger (A) behind one of the two diaphragms generates compression and pushes the product into the delivery duct (B), at the same time the opposing diaphragm that is integral with the exchanger shaft creates a vacuum and intakes the fluid (C). Once the stroke has been completed, the pneumatic exchanger diverts the compressed air behind the opposing diaphragm and the cycle is reversed.

**FEATURES**

- Available in PP, PVDF/ECTFE, Aluminum and AISI 316 Stainless Steel
- Use in potentially-explosive atmospheres (ATEX zone 1-2 certification)
- Suitable for demanding applications and high-humidity environments
 - Dry operation
 - Dry self-priming
- Actuated using non-lubricated air
- Stall-prevention pneumatic circuit
- Adjustable flow rate and head pressure
- Twin-manifold option (two suction and two delivery)
- User-friendly maintenance and parts replacement
- Excellent performance and value for money

PNEUMATIC EXCHANGERS

The heart of an air-operated diaphragm pump consists of the pneumatic exchanger that Debem has succeeded in developing and innovating in a revolutionary manner, patenting the most durable and reliable system the market currently has to offer. This device introduces compressed air to alter the pressure balance of the diaphragms assisted by a stall-prevention circuit that ensures optimum performance even under the most critical conditions. It has an extremely compact footprint and the small number of components ensures exceptional sturdiness and service life even under the most exacting conditions. The air passages are carefully designed and optimized to prevent the formation of ice even in low-temperature and high-head pressure applications.

The pneumatic exchanger is an integrated system with a single central cartridge that does not require additional external components.



DIAPHRAGMS



Diaphragms are the components subjected to greatest stress during suction and pumping, when they must also withstand the liquid's chemical attack and temperature. Correct assessment and selection is therefore crucial for diaphragm service life, investment decisions and maintenance costs. A modern process of design, destructive testing and careful analysis of results has enabled Debem to develop LONG LIFE new generation diaphragms. The shape and profile of these products provides a greater working surface and improved load redistribution, thus reducing material stress and yield to a minimum.

Rubber Diaphragms

They are made from rubber compounds with special additives that improve chemical properties as well as mechanical bending and strength characteristics. These diaphragms have a nylon backing cloth that improves stress distribution:

NBR: inexpensive and particularly suited to petroleum- and oil-based liquids;
EPDM: good acid, alkaline and abrasion resistance, as well as good flexibility even at low temperatures.

Thermoplastic Diaphragms

They are made from thermoplastic polymers that provide high mechanical stress resistance and distribution.

HYTREL®: good abrasion resistance and suitable for food processing.

SANTOPRENE®: excellent acid and alkaline resistance, high flexural strength and good abrasion resistance.

PTFE Diaphragm

This material is noted for its excellent resistance to high temperatures, chemicals and corrosive agents. Debem PTFE diaphragms are subjected to a double heat treatment in order to increase elasticity and service life. Each batch undergoes random destructive testing in order to verify its performance. This diaphragm can be fitted together with one of those previously mentioned in order to increase resistance to the liquid's corrosive chemicals and temperature.

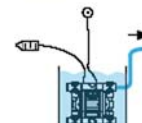
Hytrel® is a registered trademark of DuPont.
Santoprene® is a registered trademark of Exxon Mobile.

INSTALLATION

Diaphragm pumps should be bolted horizontally to the feet or holes provided with the exchanger shaft positioned horizontally.



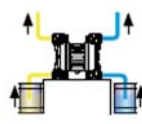
Self-priming (max. viscosity 10000 cps at 20° C)



Immersed (max. viscosity 50000 cps at 20° C)



Drum transfer (max. viscosity 10000 cps at 20° C)



Twin delivery manifold (max. viscosity 50000 cps at 20° C)



Positive suction head (max. viscosity 50000 cps at 20° C)



Twin suction and delivery manifold (max. viscosity 50000 cps at 20° C)

MODEL SERIES

Series B & Series M Plastic Pumps:

The plastic B range is designed for the chemical industry's most demanding applications including highly-aggressive liquids and acids.

Materials: PP - PVDF

Self-priming capacity: max 6m (19.7 ft)

Max. head: 70m (99.7 PSI)

Max. flow rate: 30 to 900 l/min (7.9 to 238 GPM)

Viscosity: up to 50000 cps

Series B & Series M Metal Pumps:

The metal BOXER range is designed for demanding applications throughout the paint sector and for solvent-based liquids.

Materials: Aluminium - AISI 316

Self-priming capacity: max 6m (19.7 ft)

Max. head: 70 m (99.7 PSI)

Max. flow rate: 30 to 900 l/min (7.9 to 238 GPM)

Viscosity: up to 50000 cps

Series CU Pumps:

This compact range with reduced footprint can be close-mounted where space is at a premium.

Materials: PP - ECTFE

Self-priming capacity: max 3m (3.94 ft)

Max. head: 70m (99.7 PSI)

Max. flow rate: 5 to 17 l/min (1.3 to 4.5 GPM)

Viscosity: up to 5000 cps