

Almatec® E2.0 Series

HIGH PURITY AIR-OPERATED DOUBLE-DIAPHRAGM PUMPS

PRODUCT BROCHURE

PSG a DOVER company

ALMATEC®

Where Innovation Flows



Milestones in Almatec's History

1984
Almatec®'s production site was established in Essen, Germany, where it began specializing in the production of air-operated double diaphragm pumps.

1992
The expanding company has moved into a new, spacious facility in Kamp-Lintfort, Germany, featuring 2,200 m² of production and office space.

2004
It became a member of the Dover Corporation.

2008
Almatec becomes a pump brand within PSG®, a Dover company, and expands its production area by 1,000 m² thanks to a new production hall.

2009
It launched E Series Pumps, designed for high purity fluid transfer.

2018
The company relocates to Duisburg, Germany; new headquarters provides roughly 70% more space, including a much larger manufacturing facility and an ISO Class 7 cleanroom.

2025
It released the E2.0 Series, building on the classic E series. Product optimization and upgrades were implemented, improving performance, overall structural consistency, and durability.





SAFETY. QUALITY. RELIABILITY.

ALMATEC®

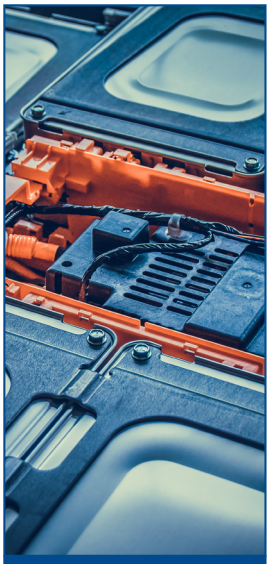
Offering one of the most comprehensive production programs of AODD pumps in the world, Almatec can be found across the globe in the most difficult and critical pumping applications. The main markets where Almatec pumps increasingly used are semiconductor, solar, battery, chemical process, ceramic, hygienic, paint & coatings and water treatment.



SEMICONDUCTOR



SOLAR



BATTERY



CHEMICALS



CERAMIC



HYGIENIC



PAINTS & COATINGS



WATER/WASTEWATER

ALMATEC®

Since its founding in 1984, Almatec® has set the standard for air-operated double-diaphragm pumps with outstanding product features.



Internationally Advanced Technology High Purity Air-operated Double-Diaphragm Pumps

Almatec® E2.0 Series | High Purity Air-Operated Double-Diaphragm Pumps



Almatec®, headquartered in Duisburg, Germany, is a globally recognized brand of PSG®. As a leading manufacturer of high-quality, high-purity air operated diaphragm pumps, Almatec® has a strong reputation for decades of technology and engineering excellence, synonymous with “high purity, safety and reliability”.

Since its inception in 1984, Almatec® has always been committed to delivering excellence, providing customers worldwide with high-performance, high-purity air-operated diaphragm pumps through continuous innovation and rigorous quality control.

The development of the Almatec® E2.0 series draws on PSG's years of technological expertise and market feedback. Through continuous design innovation and product iteration, the E2.0 series achieves exceptional performance. Its unique features include a center block construction, optimized wall thicknesses, flanged connections, innovative ring fastening structures, and more - fully meeting customers' stringent requirements for safety, durability, and high-purity chemical transfer. The E2.0 series is tailored to mainstream applications and offers a variety of customizable configurations. Additionally, it supports threaded and flange-connected impulse dampers, significantly enhancing operational stability and fluid transfer efficiency.

Whether in semiconductor manufacturing, photovoltaics, chemicals, pharmaceuticals or any other industry where the transfer of high-purity fluids is critical, Almatec® continues to lead the future of the air-operated diaphragm pump industry. With unmatched quality and customer-focused service, Almatec® remains a trusted partner to customers worldwide.

Almatec® E2.0 Series | At a Glance

Almatec® pumps efficiently transport a wide range of media including slurries, acids, alkalis, solvents, emulsions, solid-liquid mixtures, resins, powders and aqueous solutions. Whether the media is high or low viscosity, abrasive, thixotropic, hazardous, toxic, non-lubricating, hot, cold, shear-sensitive, or solid-containing, Almatec® pumps can handle it all with outstanding durability and reliability.

From semiconductor manufacturing, chemicals, pharmaceuticals, cosmetics, ceramics, surface treatment, to emergency services, power plants, refineries, mechanical engineering, textile industry, water treatment, waste treatment, paper industry, electronics and solar energy, Almatec® pumps offer flexible and efficient fluid transfer solutions for complex applications in a wide range of industries.

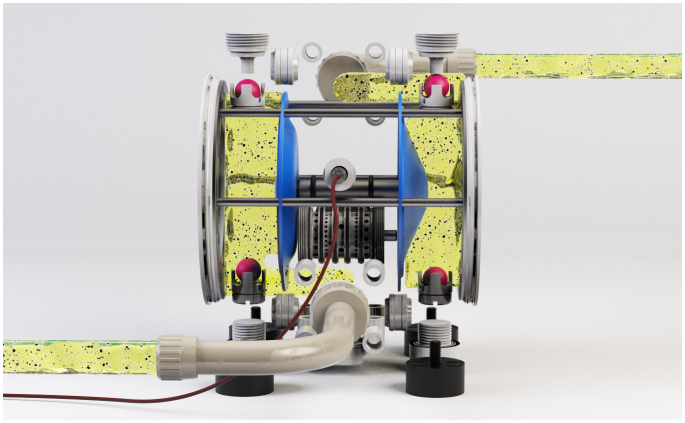
- Air-operated diaphragm pumps in solid design
- Housing made of PE or PTFE
- Interchangeability to the A or E Series
- Seven sizes from DN 8 to DN 80
- Max. capacities of 0.9 to 48 m^3/h
- Increased pump safety due to innovative ring-tightening structure
- Compared with the previous generation, the upgraded and optimized material of the fastening bolts improves the creep resistance, which further enhances the consistency and durability of the overall structure.
- Optional version for explosion-proof environments
- Exterior free of metal
- Various interfaces available
- Ball or cylinder check valves with identical interior design
- Maintenance-free and lubrication-free air control system PERSWING P® without dead centre.
- Diaphragm-less platen structure with metal core built into the diaphragm to avoid contact with the overcurrent medium.
- Prevents dry running and overloading, is self-priming, and is useful for supporting the transportation of solid particles.
- Gentle displacement
- Can be infinitely controlled via the air volume
- No drives, no rotating parts, no shaft seals
- Unattended operation with long service life
- New ergonomic handle in the center of the pump casing to improve operation efficiency.
- Optimized pump casing shape design, overall symmetry and beautiful, and enhance the structural balance and stability.
- Easy to start up
- Integrated muffler
- Recessed tie rods
- Shock absorber with internal threads on the bottom for direct mounting
- Low noise levels
- Optional features meeting requirements, such as:
  - Screw-on/Flanged Pulsation Damper
  - Draining System
  - Barrier Chamber System
  - Diaphragm Monitoring
  - Stroke Counter
  - Flange Connection
  - Transport Cart



ALMATEC® E2.0 SERIES
AIR-OPERATED DOUBLE-DIAPHRAGM PUMPS

Almatec Functional Principle

Based on the functional principle of double-diaphragm pumps, the basic configuration of Almatec E2.0 pumps consists of two external side housings with a center housing between them. Each of the side housings contains a product chamber that is separated from the center housing by a diaphragm. The two diaphragms are interconnected by a piston rod. Directed by an air-control system, they are alternately subjected to compressed air so that they move back and forth.



In the figure to the right, the compressed air has forced the left-hand diaphragm towards theproduct chamber and displaced the liquid from that chamber through the open valve at the top to the dischargeport. Liquid is simultaneously drawn in by the right-hand diaphragm, thus refilling the second product chamber. When the end of the stroke is reached, it reverses automatically and the cycle is repeated in the opposite direction. The liquid is drawn in by the left-hand diaphragm and displaced by the right-hand diaphragm. The liquid is displaced and thus conveyed – by the compressed air. The diaphragms merely serve as barriers and are not pressurized, this is of critical importance for the service life of the diaphragms.

Construction and Materials

NBR	EPDM	PTFE	PE	Chemical Resistance Overview	
+	+	+	+	WATER	
+	-	+	+	MINERAL OILS	
+	-	+	+	Vegetable oils, animal fats	Hydrocarbons
-	-	+	+	Fats	
-	-	+	0	Aromatics	
-	-	+	-	Halides	
-	-	+	0	Chloride	
0/-	0	+	+	Alcohols	
-	+	+	+	KETONES	
-	+	+	+	ESTERS	
-	+	+	+	ACIDS, DILUTED	
-	+	+	0	ACIDS, CONCENTRATED	
-	+	+	+	ALKALIS, DILUTED	
-	+	+	+	ALKALIS, CONCENTRATED	
0	+	+	+	Salts	

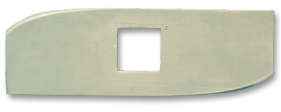
+ = tolerant 0 =generally tolerant
- = intolerant
All entries are for informational purposes only!

Almatec pumps are engineered with ruggedness and reliability at their core. Every key structural component is meticulously designed to ensure the pump body is sufficiently robust to meet the rigorous demands of reciprocating pumps during operation. Smart design enables the pump body to achieve optimal wall thickness in critical areas, guaranteeing both strength and long-term durability. Manufactured from solid plastic blocks, Almatec pumps are crafted to exacting tolerances using advanced CNC machining technology. This high-precision process not only enhances product quality but also significantly extends the pumps' service life. The increased static weight ensures exceptional operational smoothness without relying on external metal reinforcements, thus reducing complexity and potential maintenance costs.

Almatec pumps are constructed from high-purity PE materials and additive-free PTFE to ensure material purity and outstanding chemical resistance. Whether in the chemical industry or other demanding applications, Almatec pumps deliver trusted solutions with superior craftsmanship and quality.

- Housing: Conductive PE, PTFE, Conductive PTFE
- Diaphragms: EPDM, PTFE/EPDM Composite, Modified PTFE, NBR, ATEX Models
- Ball Valves: EPDM, PTFE, NBR, Stainless Steel
- Cylinder Valves: PTFE







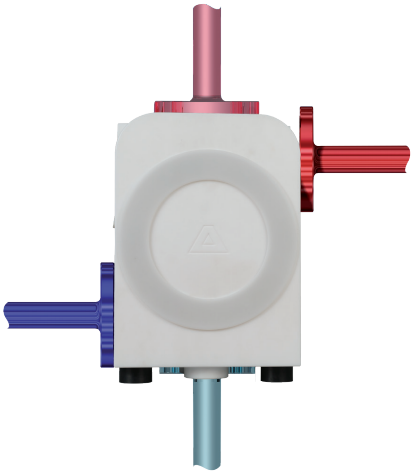
Polyethylene (PE) offers significantly better mechanical properties than polypropylene (PP), with abrasion resistance that is seven times greater than PP, 1.6 times that of steel, and far superior to cast iron and aluminum. This outstanding abrasion resistance makes it particularly effective in applications such as photovoltaic slurry delivery, electroplating pickling, printing inks, wet desulfurization lime slurry, and ceramic glaze transfer. These advantages not only extend equipment lifespan but also reduce maintenance costs, making PE an ideal material for demanding industries.

Conductive version | for Explosion-Proof Areas (ATEX Conformity)

The housings and internals of the conductive versions are made of PE or PTFE filled with conductive pigment which always remains below the limits set by the FDA. The pumps are to be grounded via a connection on the center housing, thus excluding the risk of electrostatic charges. Conductive pumps of the E-Series are ATEX conform. They can consequently be used without difficulty in gas and dust atmospheres and for flammable liquids.

Simple Design

The Almatec® E2.0 series air-operated diaphragm pumps comprise three solid casing components: an intermediate casing and two outer casings. These components are made of the same material (PE or PTFE), and the housing contains no metal components, ensuring the transmission of liquid media with high purity.



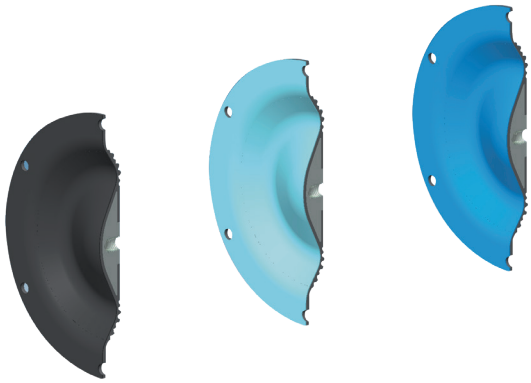
The product ports are designed with standard threads in the center housing, allowing various port configurations by adjusting the position of the center housing plug. The standard configuration features the suction port level at the bottom and the outlet port level at the top, meeting the requirements of most applications.

The housing components are secured using a ring-fastening structure. This design allows the bolts to apply pressure evenly to a ring of the same size as the diaphragm, resulting in more uniform force distribution. Combined with the optimized bolting material, this feature significantly enhances the pump's overall safety and reliability by accommodating greater torque tolerance.

The intermediate casing is equipped with a porous polyethylene muffler in the standard model. For electrically conductive pumps, a bronze muffler is used to meet the demands of different applications.

Integrated Diaphragm

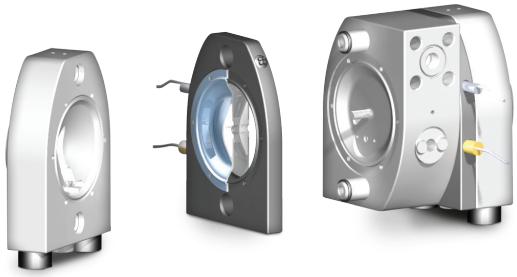
With its smooth diaphragm surface, which eliminates the need for additional seal spacer materials, and its monolithic metal core construction, Almatec completely eliminates the risk of leakage associated with traditional diaphragm platens. The design is optimized to leverage the properties of PTFE, enabling larger diameters, shorter strokes, and reduced bending loads, which significantly enhance service life and reliability.



Almatec diaphragms are available in a variety of material options, including PTFE/EPDM composite, EPDM, and NBR, to meet diverse industrial requirements. For demanding environments, Almatec® also offers specialty diaphragms made of modified PTFE designed to handle highly diffusive media (e.g., benzene, solvents) and vacuum self-priming applications. These diaphragms deliver exceptional chemical stability and operational performance.

Barrier Chamber Systems (Code BS)

The Almatec barrier chamber systems in sizes E10 to E50 meet high safety requirements. The individual diaphragm is replaced by two diaphragms arranged in tandem with a barrier chamber of conductive PE between them and filled with non-conductive liquid. The barrier chambers must always be filled entirely to transmit the air pressure to the medium. Therefore it is monitored by level sensors. If the diaphragm on the product side breaks, medium merely enters the barrier chamber and the non-conductive liquid flows into the medium. The change in conductivity of the barrier liquid is detected by sensors and signaled to a controller which triggers an alarm or disconnects the pump.





Diaphragm Monitor (Code D)

A capacitive sensor mounted in the pump muffler detects all fluids and in case of a diaphragm rupture it outputs a corresponding signal to a controller which then triggers an alarm or disconnects the pump via a connected solenoid valve.

External Control (Code Z)

Such a pump has neither an air control system nor a muffler, but can be controlled externally via a solenoid valve. The center housing has two separate air connections to ventilate and exhaust both working chambers. The solenoid valve is not part of the delivery.

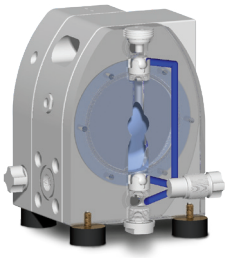


Pneumatic Expansion Compensation (Code EC)

Temperature changes can cause thermal expansion to occur in air-operated double-diaphragm (AODD) pump units engineered with plastic housings and metal connecting elements. Operating in wide temperature ranges – including many PTFE pump standard applications – can lower the tension of the connecting elements. Therefore, Almatec has introduced an "Expansion Compensation" option for its E-Series AODD pump line (code EC for E-Series pump sizes 15/25/40/50).

Special Diaphragms (Code L and P)

For the use of the pumps in the device group IIC (European ATEX regulation) without flanking measures diaphragms made of conductive PTFE/EPDM compound are available (Code L). For liquids with increased diffusion tendency (e.g. benzene, solvents) as well as for applications with priming out of a vacuum PTFE/EPDM compound diaphragms made of modified PTFE are obtainable (Code P).



Draining System (Code R)

The E-Series pumps of the sizes 15 to 50 are available with the special Almatec Draining System. This unit consists of a by-pass system in the side housings that can be activated easily either via hand-operated valves or pneumatically. The pump and piping can then be drained without having to be dismounted. The amount of cleaning agent and solvent required when changing products is reduced considerably, greatly reducing environmental pollution.

FKM Housing Gaskets (Code V)

Pumps with PTFE diaphragms can be equipped with housing gaskets made of FKM (FDA compliant) instead of FEP/FKM. These reasonably priced FKM gaskets cover the major part of applications requiring PTFE diaphragms.

Flange Fittings (Code F)

According to the safety standard all over the industry the pump sizes E 15 to E 80 can be equipped with thread bushings and flange-O-rings for flange connections to DIN or ANSI/PN 10.

EC1935/2004 Certification (Code H)

Since certifications are an important aspect in the hygienic market, an EC1935/2004 conformity declaration can be issued for Almatec pumps with PTFE internals for the applicability of the pump material for food contact.

Stroke Counter (Code C)

Almatec air-operated double diaphragm pumps can be used continuously or intermittently for hours, minutes or for an exact defined number of strokes. A sensor can be installed in the pump's center housing to accurately count the strokes. This is available in a pneumatic version as well.



Transport Carts

Many industrial applications need not only stationary air-operated diaphragm pumps but also mobile pumping units (e.g. for use as an emergency pump, as a short-dated replacement for a pump to be repaired or for decanting between two containers). For these purposes, a transport cart is available.

USP Class VI Certification (Code USP)

After receiving an increasing number of requests to state "USP Class VI" conformity for the wetted pump materials, Almatec has introduced the "Option Code USP" for defined material types. Whenever ordering such a pump, the customer can be sure to receive a clearly marked pump together with an according certificate. For more information on pump materials, please contact us.

Almatec E2.0 Series

PUMP SIZE		E 08	E 10	E 15	E 25	E 40	E 50
Dimensions, mm (inches):	L W H	88 (3.5) 128 (5.0) 129 (5.1)	110 (4.3) 147 (5.8) 169 (6.7)	166 (6.5) 189 (7.4) 240 (9.4)	220 (8.7) 255 (10.0) 320 (12.6)	304 (12.0) 353 (13.9) 432 (17.0)	399 (15.7) 430 (16.9) 552 (21.7)
Nominal Port Size Range Air connection	NPT BSP	1/4" R 1/8	3/8" R 1/8	1/2" R 1/4	1" R 1/4	1 1/2" R 1/2	2" R 1/2
Weight, kg (lb):	PE PTFE	- 2 (4)	- 5 (11)	7 (15) 14 (31)	15 (33) 34 (75)	34 (75) 76 (167.6)	66 (146) 152 (335.1)
Max. particle size of solids for pumps with ball valves	mm (in.)	2 (0.08)	3 (0.12)	4 (0.16)	6 (0.24)	9 (0.35)	11 (0.43)
Suction lift dry, mWC(ft): Suction lift dry, mWC(ft): Suction lift wet, mWC(ft):	Cylinder Valves Ball Valves	1 (3.3) 0.4 (1.3) 9 (29.5)	2 (6.6) 1 (3.3) 9 (29.5)	3 (9.8) 2 (6.6) 9.5 (31.2)	4 (13.1) 3 (9.8) 9.5 (31.2)	5 (16.4) 4 (13.1) 9.5 (31.2)	5 (16.4) 4 (13.1) 9.5 (31.2)
Max. driving and operating pressure	bar (psig)	7 (100)	7 (100)	7 (100)	7 (100)	7 (100)	7 (100)
Maximum Operating Temperature, °C (°F):	PE PTFE	- 100 (212)	- 100 (212)	70 (158) 120 (248)	70 (158) 120 (248)	70 (158) 120 (248)	70 (158) 120 (248)

These technical data apply to Almatec E2.0 Series standard pumps without optional equipment and dampers.

Code System

E 15 T T T - B

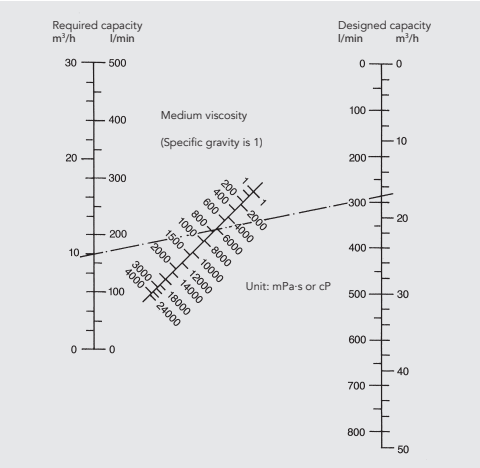
- B: Optional equipment (see page 8)
- T: Valve material (E=EPDM, T=PTFE, N=NBR, Z=PTFE-cylinder)
- T: Diaphragm material (E=EPDM, T=PTFE/EPDM composite, N=NBR)
- T: Housing material (E=PE, F=Conductive PE, T=PTFE, U=Conductive PTFE)
- 15: Port size
- E: Almatec Air-Operated Diaphragm Pumps

Viscosity and Pump Capacity

The capacity specified in the pump performance charts generally refers to water (1 mPa·s). 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.

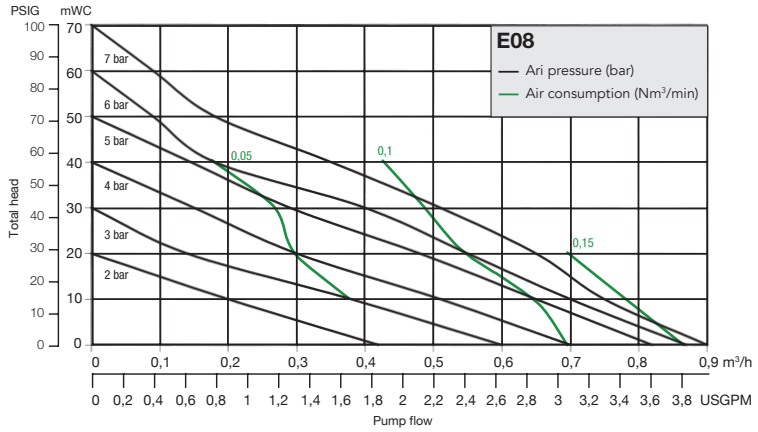
The example shown here is based on a required capacity of 10 m^3/h with a product viscosity of 6000 mPa·s. The dash-dotted line intersects the design capacity scale at 17 m^3/h.

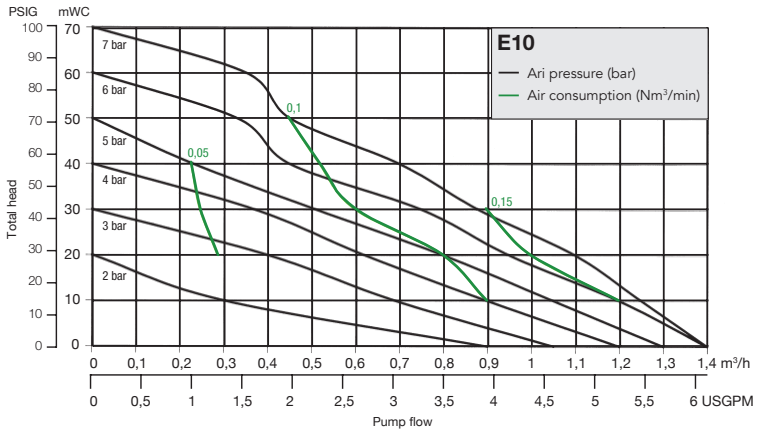
When handling viscous media, the highly increased necessary suction capacity has to be taken into consideration also. A sufficient size of cross-sections in the suction piping helps to avoid gasing as well as capillary effects. For media with high viscosity a mild positive suction pressure is to recommended.



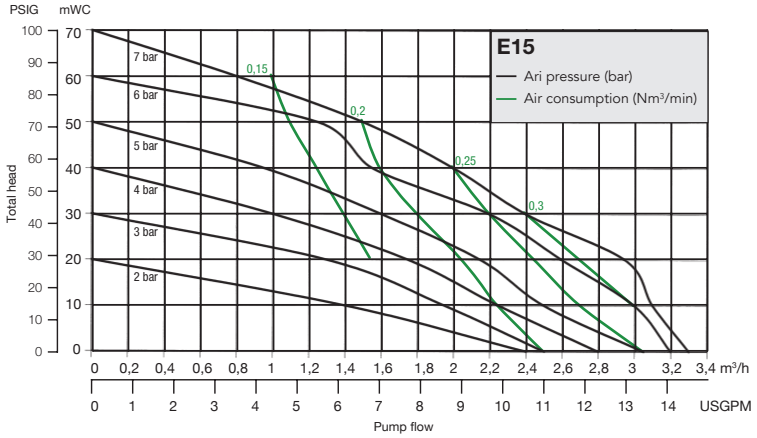
Performance Range

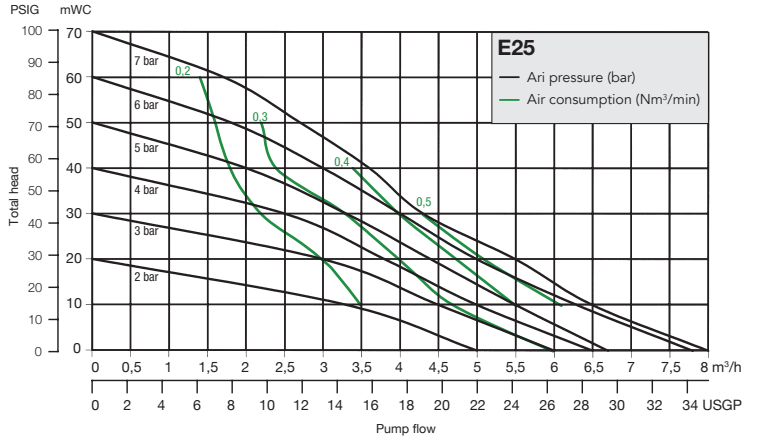
The data refer to water (20 °C), under using of different variations (e. g. ball valve model, damper preparation etc.), calibrated measuring equipment. The specified performance data are warranted by ALMATEC in accordance with DIN EN ISO 9906.

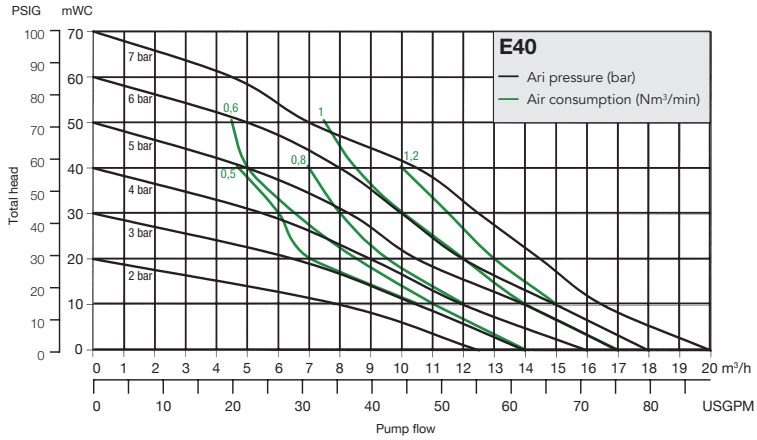


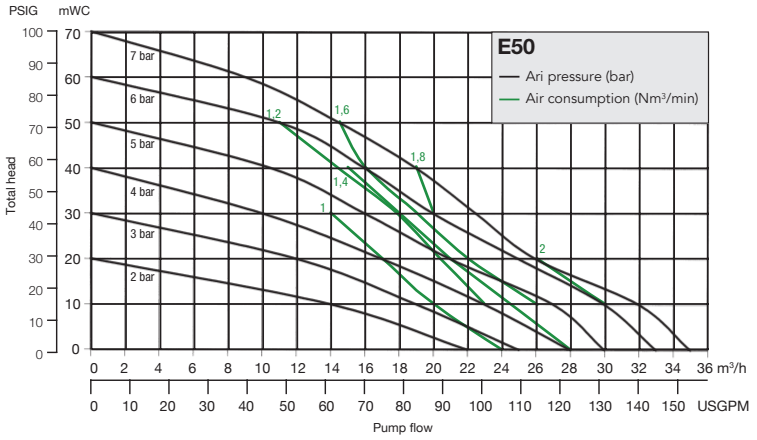





PSIG
mWC
E15
Ari pressure (bar)
Air consumption (Nm³/min)
7 bar
6 bar
5 bar
4 bar
3 bar
2 bar
0,15
0,2
0,25
0,3
Total head
0 0,2 0,4 0,6 0,8 1 1,2 1,4 1,6 1,8 2 2,2 2,4 2,6 2,8 3 3,2 3,4 m³/h
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 USGPM
Pump flow


PSIG
mWC
E25
Ari pressure (bar)
Air consumption (Nm³/min)
7 bar
6 bar
5 bar
4 bar
3 bar
2 bar
0,2
0,3
0,4
0,5
Total head
0 0,5 1 1,5 2 2,5 3 3,5 4 4,5 5 5,5 6 6,5 7 7,5 8 m³/h
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 USGP
Pump flow


PSIG
mWC
E40
Ari pressure (bar)
Air consumption (Nm³/min)
7 bar
6 bar
5 bar
4 bar
3 bar
2 bar
0,5
0,6
0,8
1
1,2
Total head
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 m³/h
0 10 20 30 40 50 60 70 80 USGPM
Pump flow


PSIG
mWC
E50
Ari pressure (bar)
Air consumption (Nm³/min)
7 bar
6 bar
5 bar
4 bar
3 bar
2 bar
1
1,2
1,4
1,6
1,8
2
Total head
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 m³/h
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 USGPM
Pump flow

ALMATEC

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