ARGAL AIR

ARGAL ITALY PUMPS

EU product
Made in Italy

3" - 4" Non-Metallic Fiberglass Air Operated Double Diaphragm Pumps

AODD PUMPS MADE OF COMPOSITES: THE FIRST AND UNIQUE OF THIS KIND IN THE WORLD.

Argal proposes in this catalog, the new pneumatic double diaphragm pumps ***ARGALAIR*** made of fiberglass (FRP) of the size of 3 "and 4" capable to deliver performance of 1100 and 1300 l/min respectively.

To date the market did not offer any product alike.

Thanks to the experience of the pneumatic pumps ASTRA from size ¼" to 2" and the know how acquired manufacturing the Fiberglass centrifugal pumps SATURN under his belt, Argal could design and propose first to market these new air pumps made of thermoset resins. The main functional characteristics and peculiarities of the air pumps and its main applications are widespread and generally known.

So far the market lacked a solid and effective proposal for pneumatic pumps of large sizes made of non-metallic materials.

Some competitors offer 3" pumps made of plastic with the physical- and mechanical limits intrinsic to the nature of the thermoplastic resins and to overcome these limitations resort to metal alloys with in turn have limits themselves (one overall the high cost).

THE COMPOSITES MADE ARGAL PUMPS, not suffering the limits mentioned above, are proposed as the solution of synthesis and/or alternative.

MAXIMUM CHEMICAL AND MECHANICAL RESISTANCE.

Are obtained deploying composite materials made of vinyl ester resins reinforced with long strand only glass fibres moulded with RTM technique in its factory located in Brescia.

Pumps and parts wet by the liquid pumped in particular have important prerogatives:

- high chemical resistance (the highest among resins, polyester);
- mechanical resistance comparable to some metal alloys;
- dimensional stability, characteristic of the thermosetting resins which during catalysis transform themselves irreversibly becoming insoluble and infusible;
- abrasion resistance and resistance to aging;
- resistance to low and high temperatures (from -30°C to + 110°C);
- lightness typical of composites which, because of differentiated modulus of elasticity for the various parts of the pump and with the minimum thickness of 20 mm exceed the hydrostatic tests from 20 to 50 bar;
- resistance to flame propagation in case of fire.

MAIN CHARACTERISTICS

Remarkable chemical and mechanical resistance:

- Can run dry
- Self-Priming
- Explosion-Proof
- Easy-to-Apply
- Submersible
- Stall free pneumatic circuit
- Lube free
- Minimal maintenance
- Adjustable flow
- Able for liquids with solids
- Pumping viscous liquids
- Limited evaporation pumping solvents

ATEX

ARGALAIR AODD pumps fulfil the requirements of ATEX Directive 94/9/EC with the following rating:"Zone 2" (II -/2GD c IIB T 4).

MATERIALS PROFILE

Pump Casings

Pump casings of ***ARGALAIR*** are of the following types of FRP:
V1G standard vinyl ester resin for general use;
V1A mixture of vinyl ester resin for abrasive liquids;
V1C mixture of vinyl ester resin for liquids with chlorine;
V1F mixture of vinyl ester resin for liquids with fluorine.

Central Housing

The central housinghosting all the parts to actuate the diaphragms and the control air distribution is in Stainless Steel AISI 316L (ASTM-A351, A743, A744) made by precision casting.

Elastomeric diaphragms

Deploy blend of rubbers embedding nylon made reinforcing mesh designed to increase their mechanical resistance. Most common elastomeric rubbers are nitrile (NBR), ethylene propylene diene monomer (EPDM) and fluorinated elastomer (FKM).

PTFE diaphragm

The PTFE is the fluorine-polymer material with the broadest chemical resistance.

Our PTFE diaphragms are manufactured with a special process to be flexible and resistant. In our AODD pumps one combined rear rubber diaphragm increases the resistance and service life of PTFE diaphragm.

This solution also offers the possibility to detect the diaphragm rupture by a sensor that can be supplied on request.

Pneumatic valve

The original drive and distribution system of the air supplied is totally made of high performance synthetic polymers and composed of only 5 parts. The air distributor and the pilot spool are integrated in a mono-block valve. These parts are wear resistant and self-lubricating. They don't require maintenance but is advisable to verify them only during periodicals checks to pumping parts.

Argal operates with ISO 9001:2000 Quality System certified by SQS-Iqnet.

ASSOPOMPE member of Europump

Additional Options

Batch dosing system. Pneumatic cycle counter contained in a waterproof box actuates an air operated double diaphragm pump for a pre settable number of cycles; simple, economical and effective device that coupled to an air operated double diaphragm delivers a full pneumatic batch dosing system.

Electronic batch dosing system. Electronic cycle counter instead of pneumatic compliant to ATEX regulation. Cycle counter with on/off switch output. Compact transducer to be installed at the foreseen pumps' connector delivers to cycle counter on / off signal.

Electric cycle counter. Compact transducer installable on a foreseen connection of the pump delivers on/off switch signal at any pumping cycle; this signal can be utilized as input for a remote cycle counter device that coupled to the air operated double diaphragm pump may constitute a simple and effective dosing system.

Electric cycle counter for Atex zone. The electric cycle counter for classified areas. Delivers the same functions of the on/off cycle counter dosing system above described but the transducer is an ATEX classified electronic probe to be installed on the pump by a dedicated adaptor.

Diaphragm rupture monitoring system. System can detect, via a sensor between two membranes, the breakage of one of them and send a danger signal.

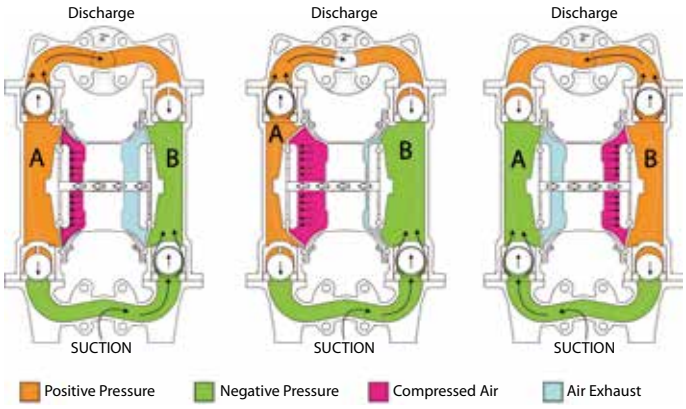
Pulsation dampener. The pulsation dampeners are mounted on the line where the liquid is delivered and reduce drastically pulsation, liquid hammers and vibration of the pump.

Accessories

Air regulator kit - Pneumantic and electric control valves - Anti-vibration mountings - Stainless steel pump trolley.

OPERATING TEMPERATURE table 1

Diaphragms material	Temp. °C min/max
EPDM	+100 -35
NBR	+80 -20
FKM	+120 -40
EPDM+PTFE	+120 -35
NBR+PTFE	+80 -20
FKM+PTFE	+120 -40
With Ball Seats in Pe UHMW	+80 -20 ÷ -35



The pneumatic distribution system sends compressed air behind one of the two diaphragms (**A**), which pushes the fluid towards the delivery circuit. Simultaneously, the opposite diaphragm (**B**) is in the intake phase as it is dragged by the shaft that connects it to diaphragm (A) under pressure; air presents behind diaphragm **(B)** is discharged into the environment through the flow rate regulator on the pump, while a pressure drop is created in the fluid chamber which 'sucks' the fluid from the suction circuit. When the diaphragm (A), under pressure, reaches the stroke limit, the distributor switches the two inputs to the chamber on the diaphragms air side, putting diaphragm **(B)** under pressure and diaphragm **(A)** in discharge. When the pump reaches its original starting point, each diaphragm has carried out one air discharge stroke and one fluid delivery stroke. This sequence of movements makes up a complete pumping cycle.

APPLICATIONS

Dewatering - Water Evacuation - Waste Sump pumps - Loading/Unloading - Injection - Filter Press - Oil Transfer.

AR 3" FRP

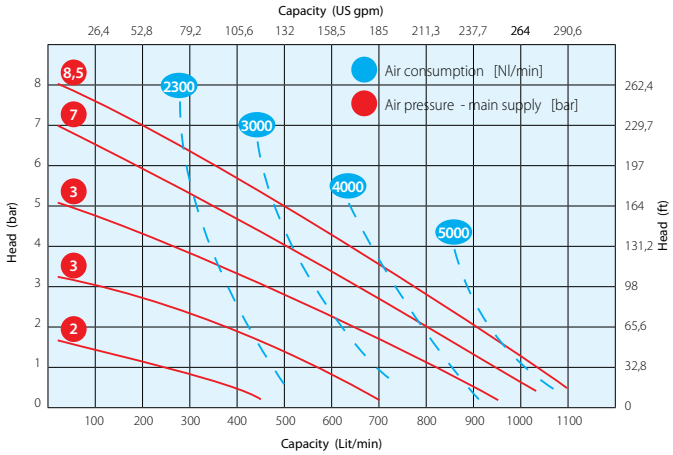


table 2

Technical data	
Maximum Capacity Litres/Minute	1100
Materials of Pump Housings & Central Casing	AISI 316L
Fluid Port (ISO-ANSI Flange) Intake & Discharge Connections	3"
Air Inlet	3/4" female NPT
Air Exhaust (included silencer)	1" female NPT
Maximum Working Pressure	8,5 bar
Maximum Cycles per Minutes	96
Max. Discharge Volume/Cycles	8,5 litres
Maximum Solids Particle Size	11 mm.
Suction Lift (dry)	6 meters

AR 4" FRP

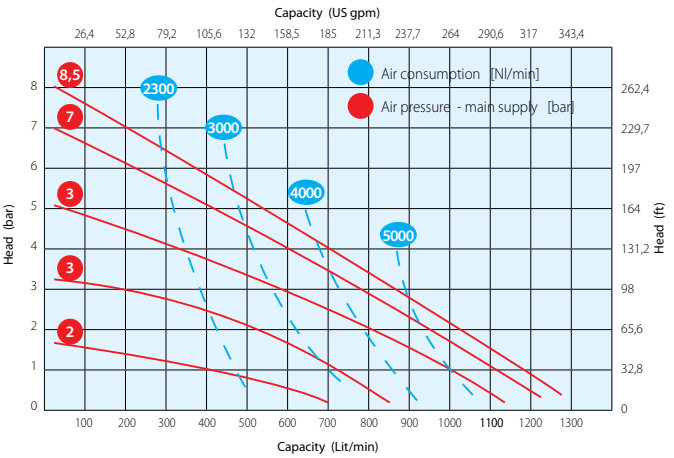
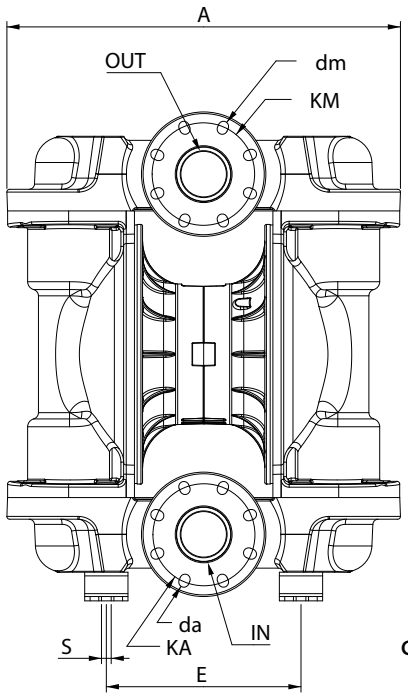
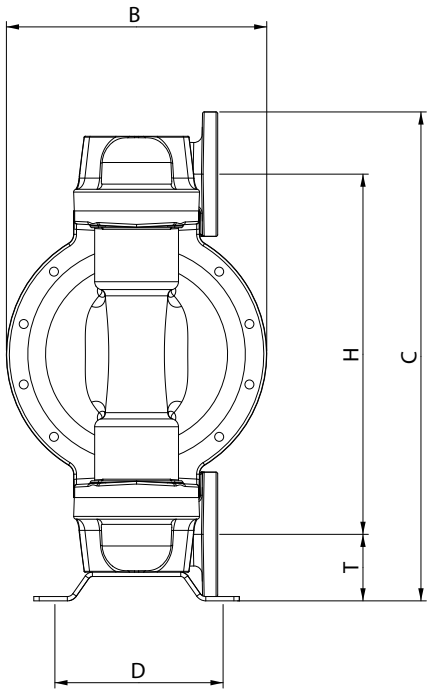


table 3

Technical data	
Maximum Capacity Litres/Minute	1280
Materials of Pump Housings & Central Casing	AISI 316L
Fluid Port (ISO-ANSI Flange) Intake & Discharge Connections	4"
Air Inlet	3/4" female NPT
Air Exhaust (included silencer)	1" female NPT
Maximum Working Pressure	8,5 bar
Maximum Cycles per Minutes	96
Max. Discharge Volume/Cycles	8,5 litres
Maximum Solids Particle Size	13 mm.
Suction Lift (dry)	4,5 meters





CONNECTION SCHEME 1 O

DIMENSIONS table 4

	A	B	C	D	E	H	S	T	KA ISO/ANSI	da	KM ISO/ANSI	dm
3"	662	436	803	270	340	596	17	107	160/152	19	160/152	19
4"	728	482	904	320	360	666	18	123	180/191	19	180/191	19

PUMP IDENTIFICATION LABEL table 5

AR	3"	FRP	D	D	U	D	M	1C

MODEL				MATERIALS										CONNECTIONS		
COD.	SIZE	COD.	DISTRIBUTOR	COD.	FLUID CHAMBER	COD.	DIAPHRAGMS	COD.	BALLS	COD.	SEATS	COD.	O-Rings	COD.	TYPE	SCHEME
ARGALAIR	3"	**N**	Standard	**FRP**	FIBER REINFORCED POLYESTER	**D**	EPDM	**D**	EPDM	**U**	Polyurethane	**D**	EPDM	**M**	ANSI/ISO FLANGE	1 C std
						N	NBR	**N**	NBR	**Z**	Pe UHMW	**N**	NBR			
						V	FKM	**V**	FKM	**K**	PVDF	**V**	FKM			
						DT	EPDM+PTFE	**T**	PTFE	**SL**	AISI 316L	**F**	FEP			
	4"					**NT**	NBR+PTFE	**SL**	AISI 316L							1 O
						VT	FKM+PTFE									

QUALITY EXPERIENCE INNOVATION

1975-2015

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HORIZONTAL & VERTICAL CENTRIFUGAL PUMPS
AODD PUMPS
PULSATION DAMPENERS
SELF-PRIMING PUMPS
SUBMERSIBLE PUMPS
FILTRATION SYSTEM

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