

# ARGAL AIR



***2"- 3"- 4" Metallic  
Air Operated  
Double Diaphragm Pumps***

**FROM SMALL TO BIG SIZES**

The production program of ARGAL is enriched by the new air operated double diaphragm pumps of the range called “**ARGALAIR**” with the new sizes of 2”, 3” and 4” in both versions metallic and non metallic FRP composite-~~FRP~~. This catalogue describes specifically the construction of stainless steel AISI 316L and, on request, of other precious metal alloys.

**MAIN CHARACTERISTICS**

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

- APPLICATIONS**
- Dewatering
  - Water Evacuation
  - Loading/Unloading
    - Injection
    - Filter Press
    - Oil Transfer
    - Fuel Transfer

**ATEX**

**ARGALAIR** pumps fulfil the requirement of ATEX Directive 94/9/EC with the following rating:  
 II 2/2 GD c IIB T4 (2”);  
 II -/2 GD c IIB T4 (3” 4”).

**MATERIALS PROFILE**

**Pump Casings**

Standard version of **ARGALAIR** pumps has both the pump casings and central housing in stainless steel AISI 316L (ASTM-A351, A743, A744) made by precision casting. On request the pump casings are available in the super alloys such as:  
 Hastelloy C (ASTM-A494, A990);  
 Monel (ASTM-A494, A990);  
 Duplex (ASTM-A890, A995).

**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.

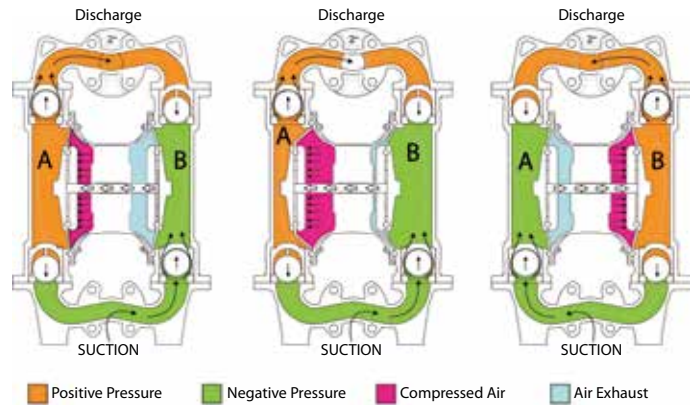
**Pneumatic valve** The original drive and distribution system of the air supplied is totally made of high performance synthetic polymers and composed of only 5 parts. The air distributor and the pilot spool are integrated in a mono-block valve. These parts are wear resistant and self-lubricating. They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



**OPERATING TEMPERATURE**

table 1

Diagrams 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

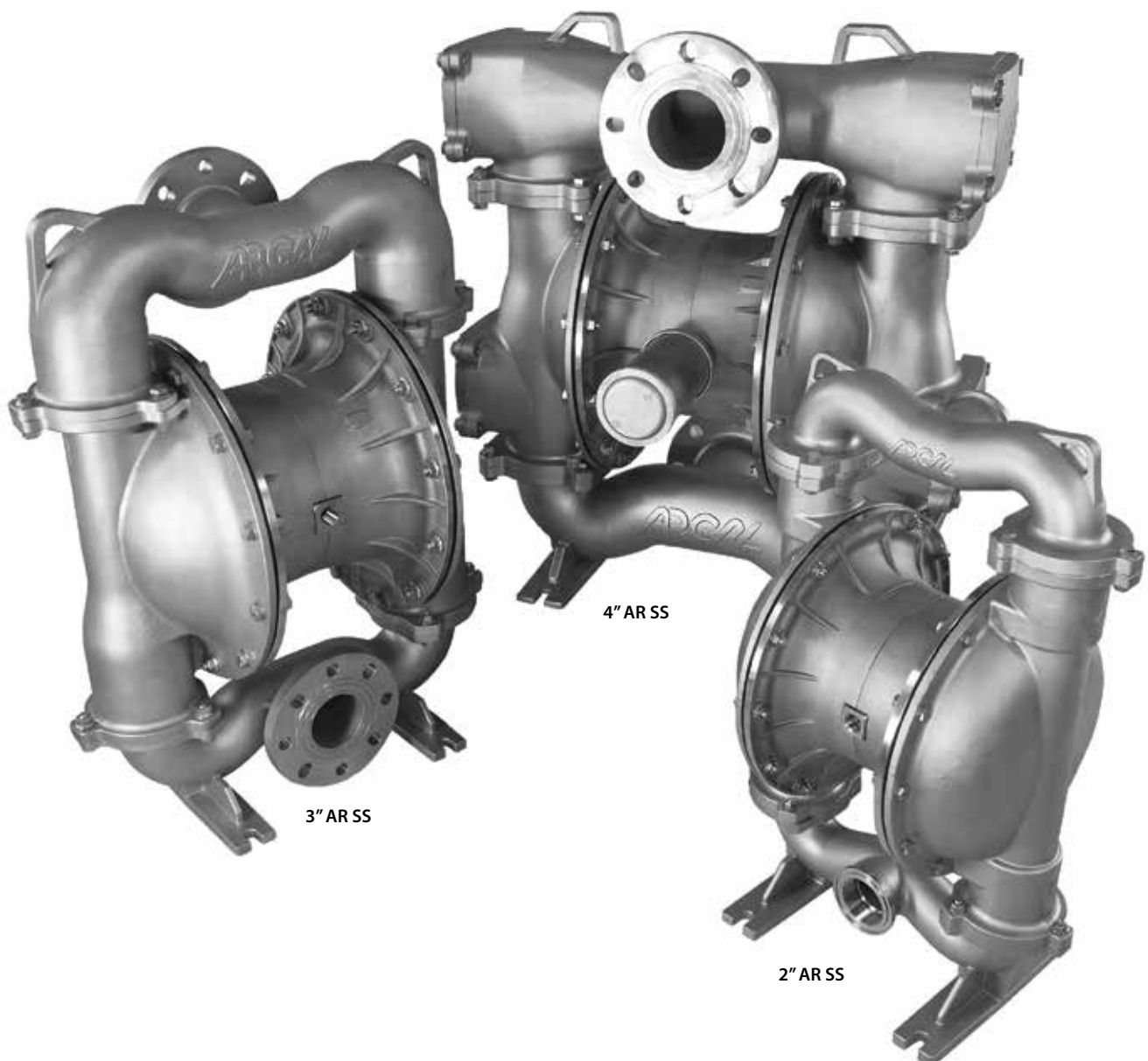


The pneumatic distribution system sends compressed air behind one of the two diaphragms (**A**), which pushes the fluid towards the delivery circuit. Simultaneously, the opposite diaphragm (**B**) is in the intake phase as it is dragged by the shaft that connects it to diaphragm (**A**), under pressure; 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.



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



**FULLY STAINLESS STEEL**

3" AR SS

4" AR SS

2" AR SS

**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 - Pneumatic and electric control valves - Anti-vibration mountings - Stainless steel pump trolley.

## AR 2" SS

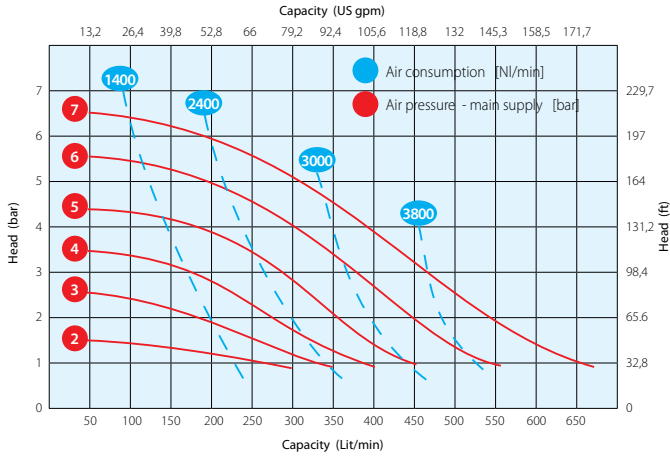


table 2

Tecnical data	
Maximum Capacity Litres/Minute	680
Materials of Pump Housings & Central Casing	AISI 316L
Fluid Port (ISO-ANSI Flange) Intake & Discharge Connections	2"
Air Inlet	1/2" female NPT
Air Exhaust (included silencer)	3/4" female NPT
Maximum Working Pressure	7 bar
Maximum Cycles per Minutes	140
Max. Discharge Volume/Cycles	3,7 litres
Maximum Solids Particle Size	9 mm.
Suction Lift (dry)	6 meters

## AR 3" SS

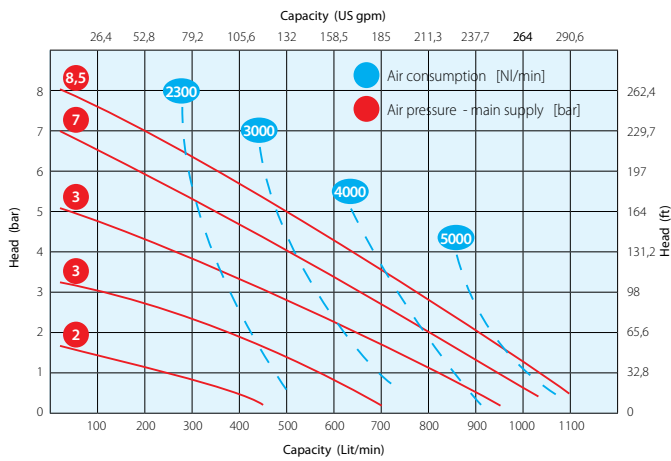
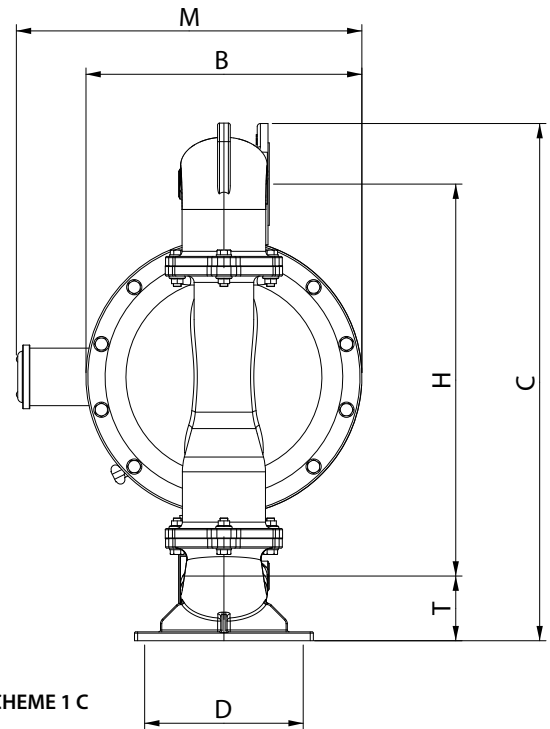
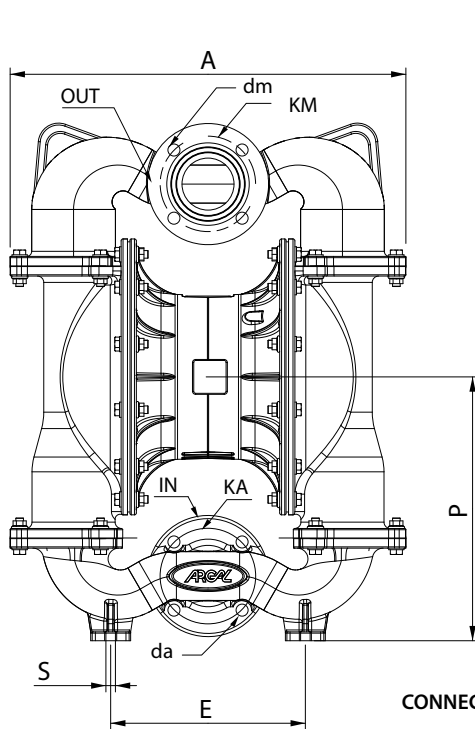


table 3

Tecnical 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



CONNECTION SCHEME 1 C

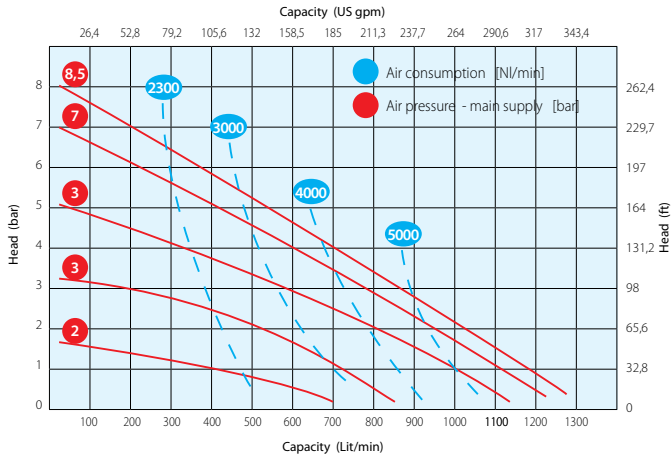
### DIMENSIONS

table 4

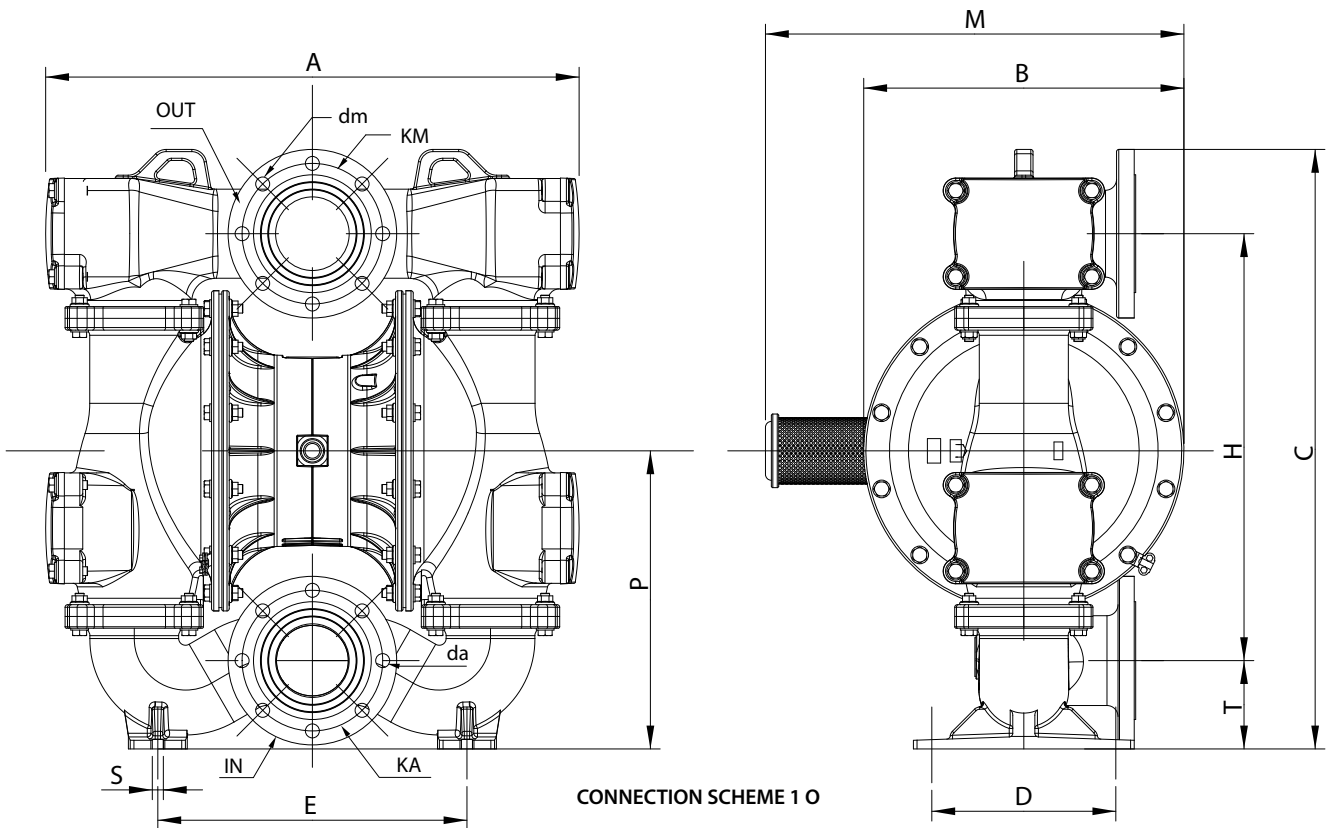
	A	B	C	D	E	H	S	T	M	KA ISO/ANSI	da	KM ISO/ANSI	dm
2"	440	340	707	220	255	552	15	79	460	125/121	19	125/121	19
3"	624	435	815	250	307	618	15	102	570	160/152	19	160/152	19

# AR 4" SS

table 4



Tecncal 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



DIMENSIONS

table 5

	A	B	C	D	E	H	S	T	M	KA ISO/ANSI	da	KM ISO/NSI	dm
4"	725	435	815	235	420	580	15	120	570	180/191	19	180/191	19

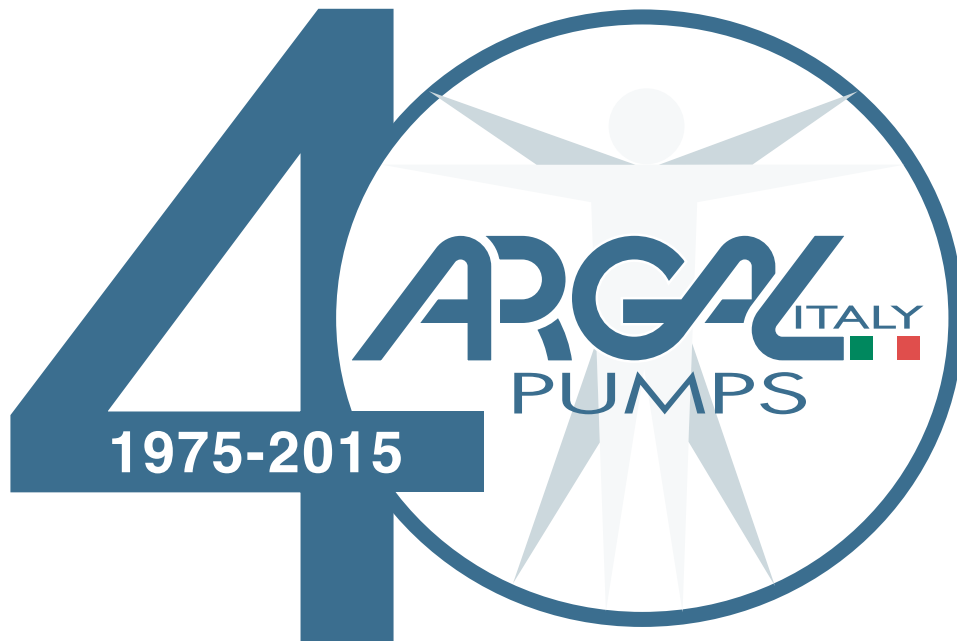
PUMP IDENTIFICATION LABEL

table 6



MODEL				MATERIALS								CONNECTIONS				
COD.	SIZE	COD.	DISTRIBUTOR	COD.	FLUID CHAMBER	COD.	DIAPHRAGMS	COD.	BALLS	COD.	SEATS	COD.	O-Rings	COD.	TYPE	SCHEME
ARGALAIR	2"	N	Standard	SS	AISI 316L	D	EPDM	D	EPDM	U	Polyurethane	D	EPDM	M	ANSI/ISO FLANGE	1 C std
	N					NBR	N	Pe UHMW	N	NBR						
	V					FKM	V	FKM	K	PVDF	V	FKM				
	DT					EPDM+PTFE	T	PTFE	SS	AISI 316L	F	FEP	1 O			
3"					NT	NBR+PTFE	SL	AISI 316L								
4"					VT	FKM+PTFE										

QUALITY EXPERIENCE  
INNOVATION



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



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