



# ***DIAPHRAGM PUMPS***

n° 2015/M

# Why choose a diaphragm pump?

Pneumatic double-diaphragm pumps (ratio 1:1) are designed and manufactured for pumping a wide range of fluids even with **high viscosities and with suspended solids.**

In being **ATEX certified**, they can also be used for heavy applications such as in places with high humidity or with potentially explosive atmosphere.



- Atex certification available
- The wide range of materials used for the pumps makes it easy to identify the model having the best chemical compatibility with the fluid to be pumped and for the work environment (consult page 14).
- 1/2" with reinforced thread thanks to a stainless steel AISI 316 ring
- They do not become damaged in case of prolonged operation when empty



- Polypropylene and aluminum pumps with ball seats in stainless steel AISI 316 and polypropylene (depending on the model)
- All pumps are tested before the packaging to ensure the highest quality
- Self-priming capability
- Easy adjustment of delivery



# Technical characteristics



1

Ball valves designed to guarantee the total flow of the pumped fluid. **In the polypropylene and aluminum versions the ball seats are in stainless steel AISI 316 (1") or in stainless steel AISI 316 and polypropylene (1/2").**

2

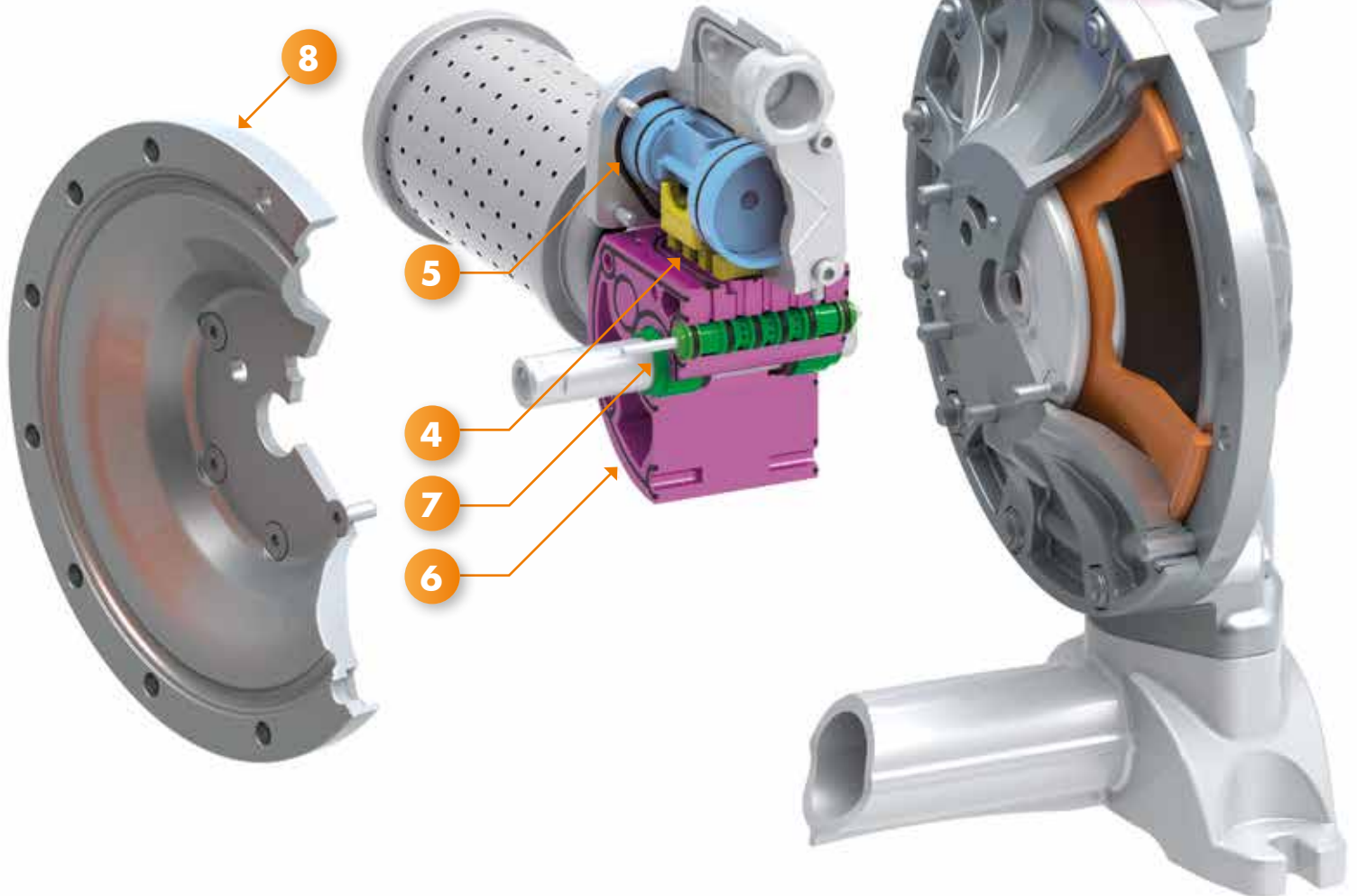
Total flow suction and delivery manifolds, to facilitate suction of the liquid in any situation, with threaded connections or flanged available in different diameters according to the pump models. **In the polypropylene and aluminum versions there is a stainless steel AISI 316 ring to reinforce the thread.**

The exploded view shows the main parts making up the diaphragm pumps, and their technical features.

Many models are available; although similar in type and appearance they differ for the type of materials used to ensure correct chemical compatibility according to the fluid to be pumped.



ATEX  
CERTIFICATION



**3** Diaphragms designed and produced with **different materials** according to the fluid to be pumped.

**4** The air distribution valve ensures **perfect operation** in any operating conditions.  
Some examples:  
- Minimum supply pressures (min. 2 bar)  
- Critical fluid and ambient temperatures  
- Supply pressure fluctuations

**5** Air distributor unit equipped with **anti-stall reversing piston**. This piston prevents the pump from stopping at a dead point, even in critical operating conditions.

**6** Pneumatic motor with **anti-ice device**. This allows the pump to maintain its performance, even if powered with untreated air.

**7** The pneumatic motor block of the pump does not require any type of lubrication because the moving parts are **self-lubricating**.







**8** Flanges created to withstand **heavy work conditions**.

**9** Industrial design, material in aluminum with **internal and external sand blasting and nickel-plating surface treatment**.  
Die-casting ensures a better structural and surface finish.

**Diaphragm pumps R. 1:1 for transferring fluids**, made from molding injected polypropylene with motor made in aluminum; they ensure lasting and reliable operation even in extreme conditions and with aggressive fluids.

**Note:** The max flow rate shown in the below graphics has been obtained by laboratory test.



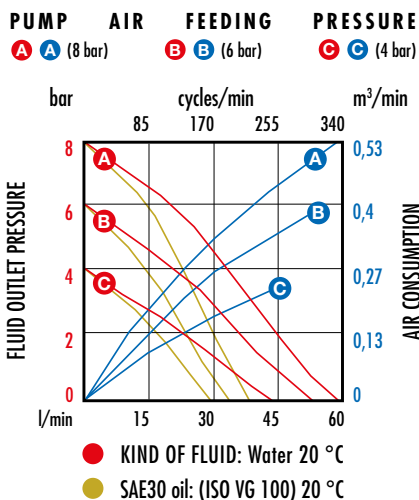
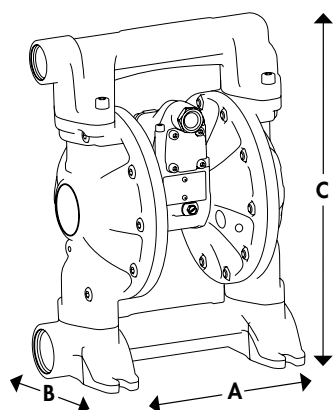
Series			120-PPAB	120-PPAB dual inlet
membranes	balls	seats	in Polypropylene - motor Aluminum	in Polypropylene - motor Aluminum
EPDM	Acetal	Polypropylene and AISI 316	P/N <b>OE2B3/16117EA5</b>	P/N <b>OE2B8/16117EA5</b>
Hytrel	Hytrel	Polypropylene and AISI 316	P/N <b>OE2B3/16117HH5</b>	P/N <b>OE2B8/16117HH5</b>
NBR	Hytrel	Polypropylene and AISI 316	P/N <b>OE2B3/16117NH5</b>	P/N <b>OE2B8/16117NH5</b>
Santoprene	Santoprene	Polypropylene and AISI 316	P/N <b>OE2B3/16117SS5</b>	P/N <b>OE2B8/16117SS5</b>
PTFE+Hytrel *	PTFE	Polypropylene and AISI 316	P/N <b>OE2B3/16117TT5</b>	P/N <b>OE2B8/16117TT5</b>
Max pressure			8 bar	8 bar
Max cycles per min			330 cpm	330 cpm
Litres per cycle **			0,188 l	0,188 l
Max suction lift			dry column 4,5 m - wet column 7,5 m	dry column 4,5 m - wet column 7,5 m
Max size pumpable solids			1,5 mm	1,5 mm
Max working temperature ***			65° C	65° C
Noise level			75 dB	75 dB
Max air consumption (m³/min)			0,50 m³/min	0,50 m³/min
Air working pressure			2 - 6 bar	2 - 6 bar
Air inlet connection			F 3/8" G	F 3/8" G
Air outlet connection (muffler)			F 1/2" G	F 1/2" G
Fluid inlet connection			F 3/4" G (F 1" G for drum)	<b>dual inlet F 3/4" G</b>
Fluid outlet connection			F 1/2" G	F 1/2" G
Balls for inlet and outlet				
Overall dimensions (A x B x C)			218 mm x 178,2 mm x 326 mm	220 mm x 178,2 mm x 327 mm
Packing - Weight			 N° 1 packing m³ 0,016  Kg 5,5	 N° 1 packing m³ 0,016  Kg 8

\* With PTFE membrane flow rate is 10 % lower

\*\* Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute

\*\*\* The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature

## PUMP DIMENSIONS





1" - 170 l/min

**Diaphragm pumps R. 1:1 for transferring fluids**, made from molding injected polypropylene with motor made in aluminum; they ensure lasting and reliable operation even in extreme conditions and with aggressive fluids.

**Note:** The max flow rate shown in the below graphics has been obtained by laboratory test.

WITH FLANGE 1"



WITH FLANGE 1"

WITH FLANGE 1"



WITH FLANGE 1"

Serie			1000-PPAB	1000-PPAB dual inlet
membranes	balls	seats	in Polypropylene - motor Aluminum	in Polypropylene - motor Aluminum
EPDM	Acetal	Stainless steel AISI 316	P/N OE2B4/26117EAI	P/N OE2B7/26117EAI
Hytrel	Hytrel	Stainless steel AISI 316	P/N OE2B4/26117HHI	P/N OE2B7/26117HHI
NBR	Hytrel	Stainless steel AISI 316	P/N OE2B4/26117NHI	P/N OE2B7/26117NHI
Santoprene	Santoprene	Stainless steel AISI 316	P/N OE2B4/26117SSI	P/N OE2B7/26117SSI
PTFE+Hytrel *	PTFE	Stainless steel AISI 316	P/N OE2B4/26117TTI	P/N OE2B7/26117TTI
Max pressure			8 bar	8 bar
Max cycles per min			300 cpm	300 cpm
Litres per cycle **			0,590 l	0,590 l
Max suction lift			dry column 5 m - wet column 7,5 m	dry column 5 m - wet column 7,5 m
Max size pumpable solids			3 mm	3 mm
Max working temperature ***			65° C	65° C
Noise level			75 dB	75 dB
Max air consumption (m³/min)			1,60 m³/min	1,60 m³/min
Air working pressure			2 - 6 bar	2 - 6 bar
Air inlet connection			F 3/8" G	F 3/8" G
Air outlet connection (muffler)			F 1/2" G	F 1/2" G
Fluid inlet connection			ANSI 150 - DIN PN 10 - JIS 10K 1" (25 mm) proneness to F 1.1/4" G thread	dual inlet ANSI 150 - DIN PN 10 - JIS 10K 1" (25 mm) proneness to F 1.1/4" G thread
Fluid outlet connection			ANSI 150 - DIN PN 10 - JIS 10K 1" (25 mm) proneness to F 1.1/4" G thread	ANSI 150 - DIN PN 10 - JIS 10K 1" (25 mm) proneness to F 1.1/4" G thread
Balls for inlet and outlet				
Overall dimensions (A x B x C)			300 mm x 200 mm x 430 mm	357 mm x 198,1 mm x 418,2 mm
Packing - Weight			N° 1 packing m³ 0,033 Kg 7	N° 1 packing m³ 0,033 Kg 12

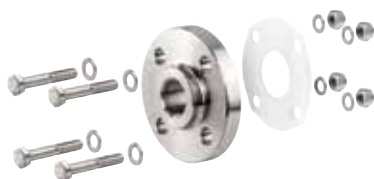
\* With PTFE membrane flow rate is 10 % lower

\*\* Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute

\*\*\* The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature

## ACCESSORY

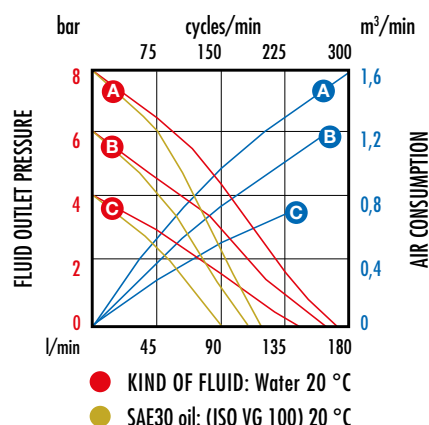
(to be ordered separately)



P/N OE32/95

Flange in stainless steel AISI 304 with F 1"G thread suitable for the plant connection

**PUMP AIR FEEDING PRESSURE**  
 A A (8 bar) B B (6 bar) C C (4 bar)



### Diaphragm pumps







R. 1:1 for transferring,  
made from die-cast  
aluminum; they ensure  
lasting and reliable  
operation with the most  
common automotive and  
industry fluids.

**Note:** The max flow rate  
shown in the below graphics  
has been obtained by  
laboratory test.

**1/2" F**

**3/4" F**
**1" F**

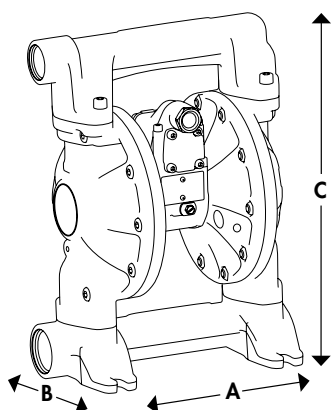
**1.1/4" F**

Series			120-AB	1000-AB
membranes	balls	seats	all Aluminum	all Aluminum
EPDM	Acetal	Acetal	P/N <b>OE3C1/16111EAA</b>	P/N <b>OE3C1/26111EAA</b>
Hytrel	Hytrel	Hytrel	P/N <b>OE3C1/16111HHH</b>	P/N <b>OE3C1/26111HHH</b>
NBR	Hytrel	Hytrel	P/N <b>OE3C1/16111NHH</b>	P/N <b>OE3C1/26111NHH</b>
Santoprene	Santoprene	Santoprene	P/N <b>OE3C1/16111SSS</b>	P/N <b>OE3C1/26111SSS</b>
PTFE+Hytrel *	PTFE	Polypropylene	P/N <b>OE3C1/16111TTP</b>	P/N <b>OE3C1/26111TTP</b>
Max pressure			8 bar	8 bar
Max cycles per min			400 cpm	300 cpm
Litres per cycle **			0,180 l	0,590 l
Max suction lift			dry column 4,5 m - wet column 7,5 m	dry column 5 m - wet column 7,5 m
Max size pumpable solids			1,5 mm	3 mm
Max working temperature ***			100° C	100° C
Noise level			75 dB	75 dB
Max air consumption (m³/min)			0,80 m³/min	1,40 m³/min
Air working pressure			2 - 6 bar	2 - 6 bar
Air inlet connection			F 3/8" G	F 3/8" G
Air outlet connection (muffler)			F 1/2" G	F 1/2" G
Fluid inlet connection			F 3/4" G	F 1.1/4" G
Fluid outlet connection			F 1/2" G	F 1" G
Balls for inlet and outlet				
Overall dimensions (A x B x C)			201 mm x 160 mm x 256 mm	260,5 mm x 201 mm x 345 mm
Packing - Weight			 N° 1 packing m³ 0,015  Kg 6,5	 N° 1 packing m³ 0,025  Kg 12

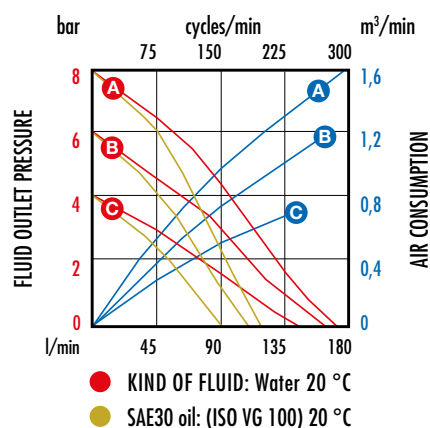
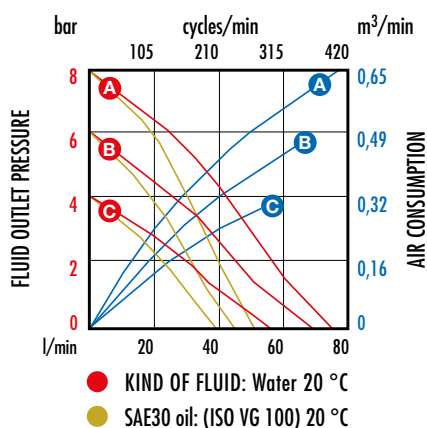
\* With PTFE membrane flow rate is 10 % lower

\*\* Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute

\*\*\* The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature



**PUMP AIR FEEDING PRESSURE**  
**A A (8 bar) B B (6 bar) C C (4 bar)**





1" - 170 l/min

1.1/4" - 200 l/min

## Diaphragm pumps

R. 1:1 for transferring, made from die-cast aluminum; they ensure lasting and reliable operation with the most common automotive and industry fluids.

**Note:** The max flow rate shown in the below graphics has been obtained by laboratory test.

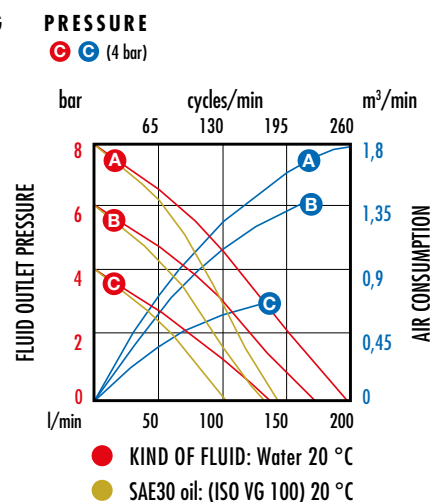
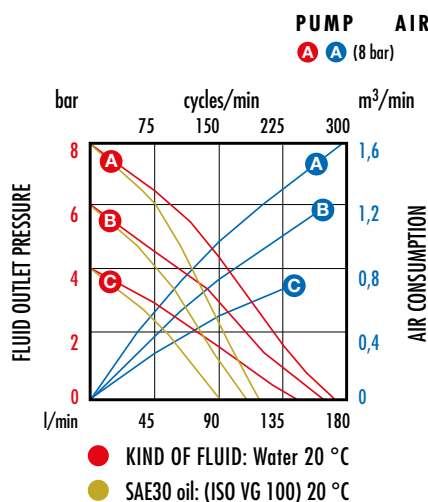
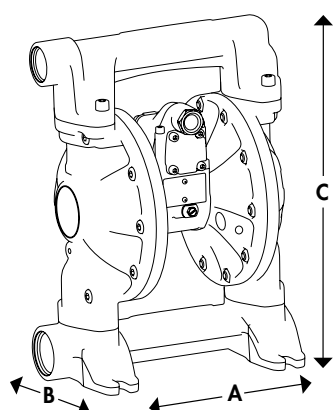


Series			1000-AB all Aluminum with multi-ported inlet/outlet	1140-AB all Aluminum
membranes	balls	seats		
EPDM	Acetal	Acetal	P/N OE3C3/26111EAA	P/N OE3C1/30111EAA
Hytrel	Hytrel	Hytrel	P/N OE3C3/26111HHH	P/N OE3C1/30111HHH
NBR	Hytrel	Hytrel	P/N OE3C3/26111NHH	P/N OE3C1/30111NHH
Santoprene	Santoprene	Santoprene	P/N OE3C3/26111SSS	P/N OE3C1/30111SSS
PTFE+Hytrel *	PTFE	Polypropylene	P/N OE3C3/26111TTP	P/N OE3C1/30111TTP
Max pressure			8 bar	8 bar
Max cycles per min			300 cpm	260 cpm
Litres per cycle **			0,590 l	0,800 l
Max suction lift			dry column 4,5 m - wet column 7,5 m	dry column 4,5 m - wet column 7,5 m
Max size pumpable solids			3 mm	3 mm
Max working temperature ***			100° C	100° C
Noise level			75 dB	75 dB
Max air consumption (m³/min)			1,40 m³/min	1,80 m³/min
Air working pressure			2 - 6 bar	2 - 6 bar
Air inlet connection			F 3/8" G	F 3/4" G
Air outlet connection (muffler)			F 1/2" G	F 1" G
Fluid inlet connection			4 x F 1" G	F 1.1/4" G
Fluid outlet connection			5 x F 1" G	F 1.1/4" G
Balls for inlet and outlet				
Overall dimensions (A x B x C)			280 mm x 200 mm x 352 mm	286 mm x 238 mm x 386 mm
Packing - Weight			⊠ N° 1 packing m³ 0,025 ⚖ Kg 13,5	⊠ N° 1 packing m³ 0,034 ⚖ Kg 15

\* With PTFE membrane flow rate is 10 % lower

\*\* Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute

\*\*\* The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature



**1.1/2" - 480 l/min**
**2" - 610 l/min**



Diaphragm pumps R. 1:1 for transferring, made from die-cast aluminum; they ensure lasting and reliable operation with the most common automotive and industry fluids.

Note: The max flow rate shown in the below graphics has been obtained by laboratory test.

**1.1/2" F**

**2" F**
**2" F**

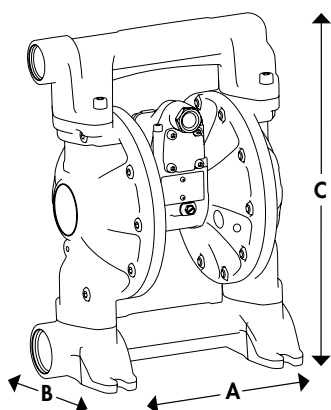
**2.1/2" F**

Series			1 120-AB all Aluminum	2000-AB all Aluminum
membranes	balls	seats	P/N <b>OE3C1/40111EAA</b> P/N <b>OE3C1/40111HHH</b> P/N <b>OE3C1/40111NHH</b> P/N <b>OE3C1/40111SSS</b> P/N <b>OE3C1/40111TTP</b>	P/N <b>OE3C1/50111EAA</b> P/N <b>OE3C1/50111HHH</b> P/N <b>OE3C1/50111NHH</b> P/N <b>OE3C1/50111SSS</b> P/N <b>OE3C1/50111TTP</b>
EPDM	Acetal	Acetal		
Hytrel	Hytrel	Hytrel		
NBR	Hytrel	Hytrel		
Santoprene	Santoprene	Santoprene		
PTFE+Hytrel *	PTFE	Polypropylene		
Max pressure			8 bar	8 bar
Max cycles per min			220 cpm	147 cpm
Litres per cycle **			2,150 l	4,150 l
Max suction lift			dry column 5 m - wet column 7,5 m	dry column 5 m - wet column 7,5 m
Max size pumpable solids			5,5 mm	6,5 mm
Max working temperature ***			100° C	100° C
Noise level			78 dB	82 dB
Max air consumption (m³/min)			3,40 m³/min	4,00 m³/min
Air working pressure			2 - 6 bar	2 - 6 bar
Air inlet connection			F 3/4" G	F 3/4" G
Air outlet connection (muffler)			F 1" G	F 1" G
Fluid inlet connection			F 2" G	F 2.1/2" G
Fluid outlet connection			F 1.1/2" G	F 2" G
Balls for inlet and outlet				
Overall dimensions (A x B x C)			350 mm x 402 mm x 514 mm	426,2 mm x 432 mm x 616 mm
Packing - Weight			☐ N° 1 packing m³ 0,065    ⚖ Kg 23,5	☐ N° 1 packing m³ 0,115    ⚖ Kg 43

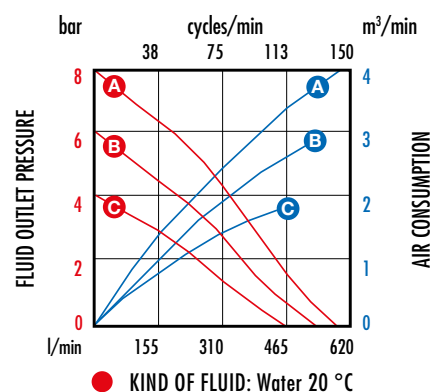
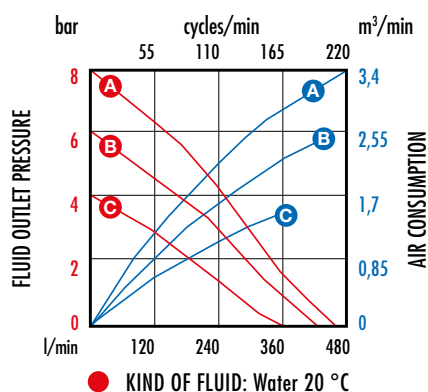
\* With PTFE membrane flow rate is 10 % lower

\*\* Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute

\*\*\* The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature



**PUMP AIR FEEDING PRESSURE**  
**A A (8 bar) B B (6 bar) C C (4 bar)**

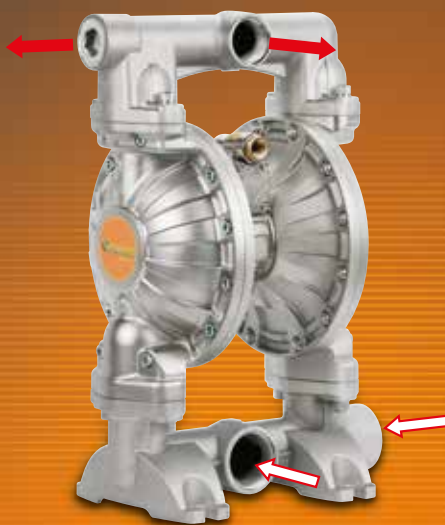


**2" - 610 l/min**

**2" F**

Diaphragm pumps R. 1:1 for transferring, made from die-cast aluminum; they ensure lasting and reliable operation with the most common automotive and industry fluids.

Note: The max flow rate shown in the below graphics has been obtained by laboratory test.



**2.1/2" F**

**2" - 580 l/min**

**MODULAR WITH FLANGE 2"**



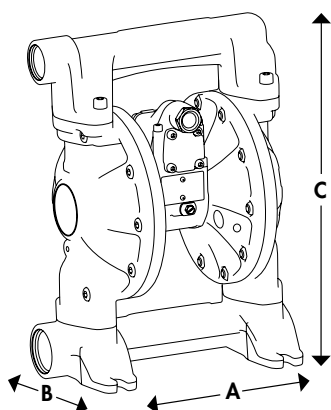
**MODULAR WITH FLANGE 2"**

Series			2000-AB all Aluminum with multi-ported inlet/outlet	2000-AB all Aluminum
membranes	balls	seats		
EPDM	Acetal	Acetal	P/N <b>OE3C3/50111EAA</b>	P/N <b>OE3C6/50111EAA</b>
Hytrel	Hytrel	Hytrel	P/N <b>OE3C3/50111HHH</b>	P/N <b>OE3C6/50111HHH</b>
NBR	Hytrel	Hytrel	P/N <b>OE3C3/50111NHH</b>	P/N <b>OE3C6/50111NHH</b>
Santoprene	Santoprene	Santoprene	P/N <b>OE3C3/50111SSS</b>	P/N <b>OE3C6/50111SSS</b>
PTFE+Hytrel *	PTFE	Polypropylene	P/N <b>OE3C3/50111TTP</b>	P/N <b>OE3C6/50111TTP</b>
Max pressure			8 bar	8 bar
Max cycles per min			147 cpm	147 cpm
Litres per cycle **			4,150 l	3,950 l
Max suction lift			dry column 5 m - wet column 7,5 m	dry column 5 m - wet column 7,5 m
Max size pumpable solids			6,5 mm	6,5 mm
Max working temperature ***			100° C	100° C
Noise level			82 dB	82 dB
Max air consumption (m³/min)			4,00 m³/min	4,00 m³/min
Air working pressure			2 - 6 bar	2 - 6 bar
Air inlet connection			F 3/4" G	F 3/4" G
Air outlet connection (muffler)			F 1" G	F 1" G
Fluid inlet connection			F 2.1/2" G	ANSI 150 - DIN PN 10 - JIS 10K 2" (50 mm)
Fluid outlet connection			F 2" G	ANSI 150 - DIN PN 10 - JIS 10K 2" (50 mm)
Balls for inlet and outlet				
Overall dimensions (A x B x C)			449 mm x 434 mm x 670,5 mm	409 mm x 432 mm x 709 mm
Packing - Weight			☐ N° 1 packing m³ 0,115    ⚖ Kg 45	☐ N° 1 packing m³ 0,129    ⚖ Kg 50

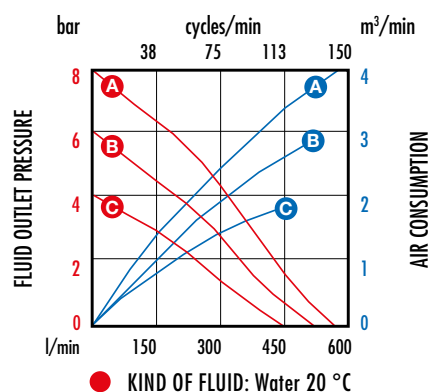
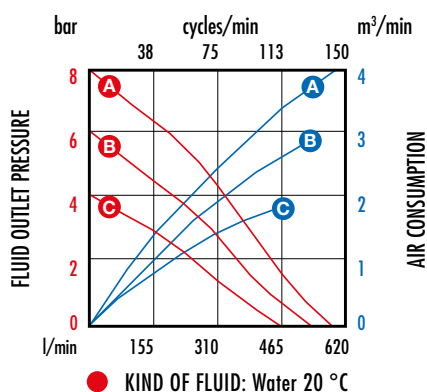
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**PUMP AIR FEEDING PRESSURE**  
**A A (8 bar) B B (6 bar) C C (4 bar)**

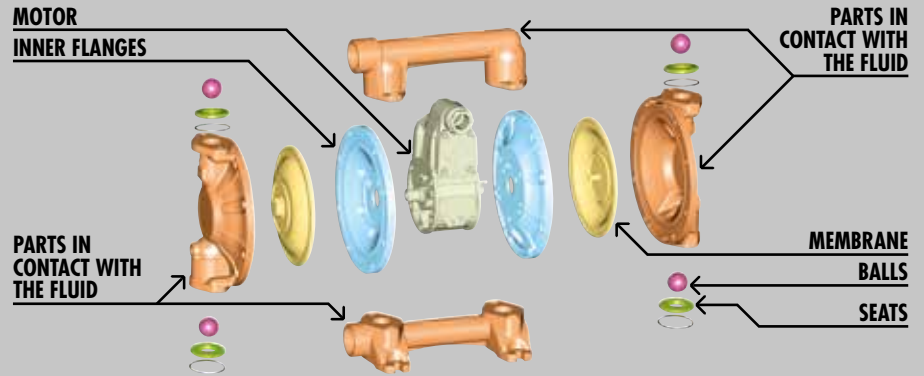




# PUMP CONFIGURATION

Exploded view of the pump, showing its main parts and thereby facilitating the choice for a custom configuration.

The table summarises the pump configurations available, allowing the user to create his own personalised code whenever the models listed on the leaflet do not meet the specific requirements.



Two types of ATEX certifications are available, for zone 2 or for zone 1, depending on the materials making up the pump.

II 3GD T4 cIIB X (for zone 2) II 2GD T4 cIIB X (for zone 1)

The valve seats are to be coupled to the balls and must ensure correct closing. Like the balls, they must be made from a material suitable for the fluid they come into contact with.

They open and close the flow of liquid as a result of the reciprocating movement of the follower plates. The material they are made from must be compatible with the fluid being pumped.

They are the only elastic parts of the pump, that suck and pump the liquid with their movement. The material they are made from must be selected in order to obtain the correct chemical compatibility with the liquid to be pumped.

These are all the rigid parts such as external flanges, manifolds and sleeves which are constantly in contact with the liquid to be pumped. Available in various materials, depending on the type of liquid.

These are not in contact with the pumped liquid, but only with the compressed air feeding the motor.

They can be threaded (G/BSP) or flanged, single, multiple and modular.

Defines the inside diameter of the manifold.

This is the heart of the pump, responsible for the reciprocating movement that create the flow of liquid.

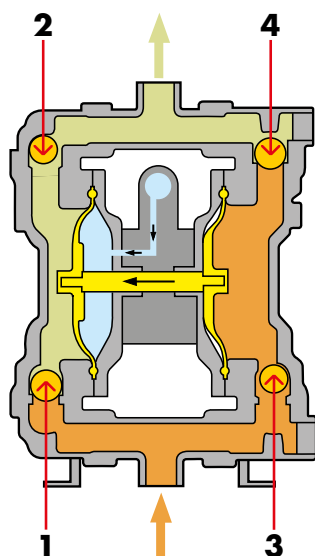
MATERIALS AND ATEX VERSIONS	MANIFOLD FOR INLET AND OUTLET	FLOW INSIDE DIAMETER	KIND OF MATERIALS					
			MOTOR	INNER FLANGES	PARTS IN CONTACT WITH THE FLUID	MEMBRANE	BALLS	SEATS
OE2B = polypropylene for Zone 2	1/ = G/BSP threaded connection	16 = 1/2"	1 = nichel plat. aluminum	1 = nichel plat. aluminum	1 = nichel plat. aluminum	E = EPDM	A = acetalic	A = acetalic
OE3C = aluminum for Zone 1	3/ = mult. G/BSP threaded con.	26 = 1"				H = hytrel	H = hytrel	H = hytrel
	4/ = connection with flange	30 = 1.1/4"			7 = polypropylene	N = NBR	S = santoprene	P = polypropylene
	6/ = multiple modular connection with flange	40 = 1.1/2"				S = santoprene	T = PTFE	S = santoprene
	7/ = dual inlet connection with flange	50 = 2"				T = PTFE + hytrel		1 = cylindrical acetalic
	8/ = dual inlet G/BSP threaded connection							2 = cylindrical polypropylene

## EXAMPLE OE3C1/16111EAA

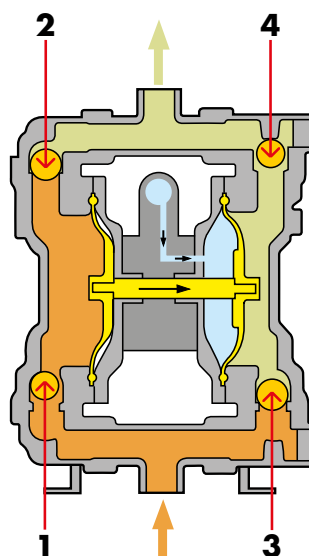
OE3C = aluminum for Zone 1	1/ = G/BSP threaded connection	16 = 1/2"	1 = nicle plat. aluminum	1 = nicle plat. aluminum	1 = nicle plat. aluminum	E = EPDM	A = acetalic	A = acetalic
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# INSTALLATION AND OPERATION

## SIMPLE AND EFFECTIVE (1:1 RATIO)



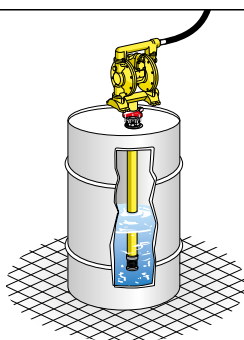
The slide valve of the air motor sends air (blue) to the left chamber which, pushing the membrane outwards, compressing the previously filled liquid (green). Through the effect of the pressure created valve **1** closes and valve **2** opens allowing the liquid to dispense (green). The right membrane then carries out the same movement by the shaft joining it to the left membrane, creating a vacuum. Through the effect of the vacuum, the valve **3** opens and the valve **4** closes, enabling suction of the liquid (orange).



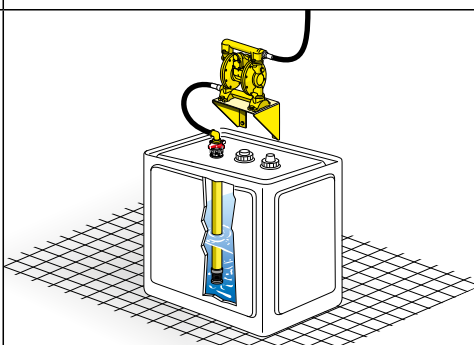
The slide valve of the air motor sends air (blue) to the right chamber which, pushing the membrane outwards, compressing the previously filled liquid (green). Through the effect of the pressure created valve **3** closes and valve **4** opens allowing the liquid to dispense (green). The left membrane then carries out the same movement by the shaft joining it to the right membrane, creating a vacuum. Through the effect of the vacuum, the valve **1** opens and the valve **2** closes, enabling suction of the liquid (orange).

## HOW TO INSTALL THE PUMP

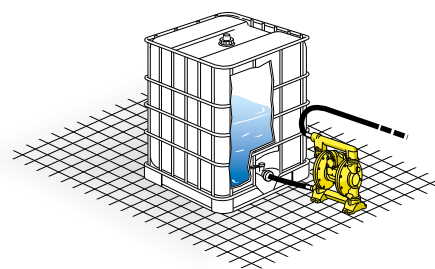
### PUMP INSTALLED ABOVE 200 I DRUM (with special bung adaptor).



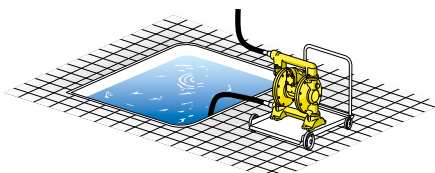
### SELF PRIMING PUMP INSTALLED ABOVE HEAD (NEGATIVE SUCTION) (pump may initially work with dry column without problem).



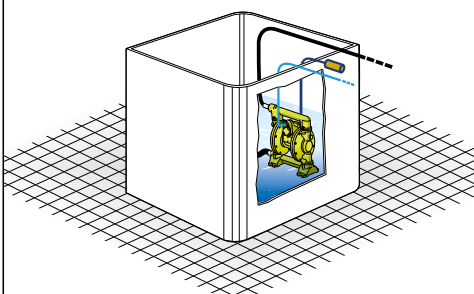
### PUMP INSTALLED BELOW HEAD (POSITIVE SUCTION) (when it is necessary to empty completely the container).



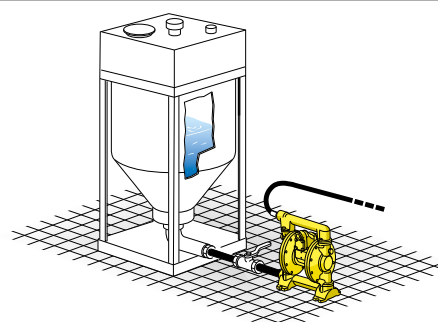
### PUMP INSTALLED ON A MOBILE UNIT (with a trolley or cart when pump must be often moved).



### SUBMERGED PUMP (it is necessary to check the chemical compatibility between pump material and liquid).

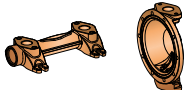
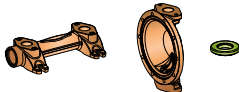


### PUMP INSTALLED ON HOPPER FOR HIGH VISCOSITY LIQUID (hopper's height and liquid density influence inlet pressure on the pump which must be not greater than 0.7 bar).




# WIDE CHOICE OF MATERIALS


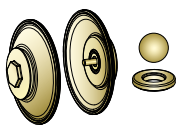
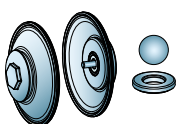

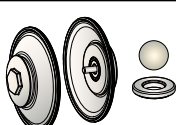

## PARTS IN CONTACT WITH FLUID

PUMP PARTS	MATERIALS	CHARACTERISTICS	TEMPERATURE MAX *
	<b>Nickel-plated aluminum</b>	<ul style="list-style-type: none"> <li>- average resistance to abrasion and corrosion</li> <li>- not intended for use with HHC (halogenated hydrocarbons)</li> </ul>	<b>+100 °C</b>
	<b>Polypropylene</b>	<ul style="list-style-type: none"> <li>- wide chemical compatibility</li> <li>- best alternative with aggressive fluids</li> </ul>	<b>+65 °C</b>

## CENTRAL MOTOR BLOCK

PUMP PARTS	MATERIALS	CHARACTERISTICS	TEMPERATURE MAX *
	<b>Nickel-plated aluminum</b>	<ul style="list-style-type: none"> <li>- high mechanical strength</li> <li>- electrically conductive material for ATEX directive</li> </ul>	<b>+100 °C</b>

## DIAPHRAGMS - SEATS - BALLS

	MATERIALS	CHARACTERISTICS AND STRENGTH POINTS	T. MAX *	DO NOT CHOOSE IF	SIMILAR NAMES ON THE MARKET
	<b>High Nitrile NBR</b>	<ul style="list-style-type: none"> <li>- high resistance to aliphatic hydrocarbons, oils and greases</li> <li>- good flexibility</li> </ul>	<b>+90 °C</b>	you are looking for resistance to many chemical agents	<b>Buna - N</b> <b>Geoplast</b>
	<b>Hytrel</b>	<ul style="list-style-type: none"> <li>- high tenacity and springback</li> <li>- high resistance to permanent deformation</li> <li>- good resistance to industrial chemical substances and solvents</li> <li>- excellent flexibility even at low temperature</li> </ul>	<b>+65 °C</b>	you work at high temperatures	<b>Sani - flex</b>
	<b>Santoprene</b>	<ul style="list-style-type: none"> <li>- excellent flexural and fatigue strength</li> <li>- excellent resistance to abrasion and laceration</li> <li>- excellent resistance to acids, alkalis and ageing</li> <li>- also usable at high temperatures</li> </ul>	<b>+110 °C</b>	you work with Kerosene, Diesel, Petrol, Freon, Benzene	<b>Wil - flex</b>
	<b>EPDM</b>	<ul style="list-style-type: none"> <li>- good compatibility with organic and non-organic acids</li> <li>- excellent resistance to heat and steam</li> <li>- insensitive to the action of oxidising agents</li> </ul>	<b>+110 °C</b>	you work with mineral oils and hydrocarbons	<b>Nordel</b> <b>Buna - Ep</b>
	<b>PTFE</b>	<ul style="list-style-type: none"> <li>- inert with nearly all chemical reagents</li> <li>- excellent heat resistance</li> <li>- excellent dielectric characteristics</li> <li>- excellent resistance to ageing</li> </ul>	<b>+120 °C</b>	you work at low temperatures	<b>Teflon®</b> <b>+ Hytrel</b>
	<b>Acetal resin</b>	<ul style="list-style-type: none"> <li>- high fatigue strength</li> <li>- high compressive strength</li> <li>- good dimensional stability (low humidity absorption)</li> <li>- resistance to alcohols and organic compounds</li> </ul>	<b>+150 °C</b>	you work in easy combustion environments	<b>Delrin</b>

\* The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature



# GUIDE TO CHOOSING A PUMP

## HOW TO CHOOSE A PUMP SUITABLE FOR ONE'S NEEDS

PUMP SIZE	DELIVERY (FLOW RATE)	MAX Ø SOLID PARTS	SERIES	
			POLYPROPYLENE	ALUMINUM
1/2"	60 l/min	1,5 mm	120-PPAB	120-AB
1"	170 l/min	3 mm	1000-PPAB	1000-AB
1.1/4"	200 l/min	3 mm	-	1140-AB
1.1/2"	480 l/min	5,5 mm	-	1120-AB
2"	610 l/min	6,5 mm	-	2000-AB

## TECHNICAL ASPECTS TO BE CONSIDERED FOR A CORRECT CHOICE OF PUMP

### PUMP SIZE

The size of a pump is closely linked to its maximum delivery: in fact, the larger the pump the greater the delivery.

### CHEMICAL COMPATIBILITY

Some parts of the pump are always in contact with the liquid to be pumped. Therefore the materials these parts are made from must be chemically compatible with the liquid.

### DIMENSIONS OF SUSPENDED SOLIDS

The maximum dimensions possible for suspended solids in the fluid to be pumped are specified in the technical tables of each diaphragm pump.

### WORKING TEMPERATURE

The maximum and minimum working temperatures take into account the physical characteristics of the various parts making up the pump and their interaction with the pumped liquid (consult the tables on page 14).

### ABRASION RESISTANCE



If the fluid to be pumped is very abrasive, the wear on parts that deteriorate quickly (e.g. diaphragms, balls, seats) can be reduced by choosing a pump larger than required. In this way the speed of the fluid inside the pump will be lower, thereby reducing the abrasion on the parts in contact with it.

### SYSTEM SIZE

In order to optimise the performance of the pump it is advisable to consider the following dimensional parameters relevant to the system:

- 1) Suction pipe: position the pump as close as possible to the point of suction; if this is not possible, the maximum vertical distance must not exceed the 6 m.
- 2) Delivery pipe: the pipe must be sized so as to avoid pressure losses; the internal diameter must be chosen according to the distance to be covered, the temperature and the viscosity of the fluid.

## ATEX CERTIFICATION

PRODUCT SERIES	DESCRIPTION	CERTIFICATION CLASS
<b>VERSION IN NON-CONDUCTIVE MATERIAL POLYPROPYLENE)</b>	Made from non-conductive plastic material and/or with non-conductive central body, or in metallic material with non-conductive central body.	 <b>IIB 3G / II 3GD c T 135°C</b> <b>(for zone 2)</b>
<b>VERSION IN CONDUCTIVE MATERIAL (ALUMINUM)</b>	Made with pump bodies and/or manifolds in conductive plastic materials (PP) and metallic materials (Aluminum, Stainless Steel).	 <b>IIB 2G / II 2GD c T 135°C</b> <b>(for zone 1)</b>

## AUTOMOTIVE

Oil, depleted oil, antifreeze, emulsified water, gas oil, petrol, Ad-blue.



## CAR WASH

Detergents, special detergents, waxes and mixtures, disposal of waste water, wheel rim washing.



## CHEMICAL INDUSTRY

Handling of fluids for plant maintenance and cleaning.



## PRINTING INDUSTRY

Transfer of inks, solvents, pigments, detergents and mixing.



## WASTE WATER TREATMENT INDUSTRY

Transfer of acids/caustic, flocking, coagulating agents. Purifiers of municipalised companies.



## AVIATION

Refuelling and fuel suction.



## FOOD INDUSTRY

Transfer of food liquids: mayonnaise, creams, jams, fruit, etc. (FDA certified stainless steel pumps).



## PAINT INDUSTRY

Transfer and mixing of paints for preparing cans and drums.



## SEMICONDUCTOR INDUSTRY

Handling of ultrapure water and electrolytic products.





## CERAMIC AND PORCELAIN

Transfer of glazes, etc.



## SHIPBUILDING

Dirty water, gas oil, in bilges or ballast.



## PHARMACEUTICAL INDUSTRY

Transfer of chemical substances, transfer of solids such as pills and powders (FDA certified pumps).



## TEXTILE INDUSTRY

Transfer and mixing of dyes, draining dirty waters.



## TANNING INDUSTRY

Transfer of depleted acids, dyes, waste waters.



## MINING AND CONSTRUCTION

Lubricants, gas oil, dirty waters.



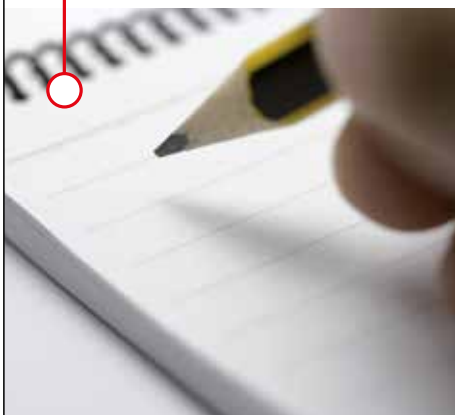
## PETROCHEMICAL INDUSTRY

Transfer of crude or refined oils, plant cleaning products.



## PAPER INDUSTRY

Transfer of glues, varnishes, chemical products, pulp, adhesives, sealants.



## METALWORKING INDUSTRY

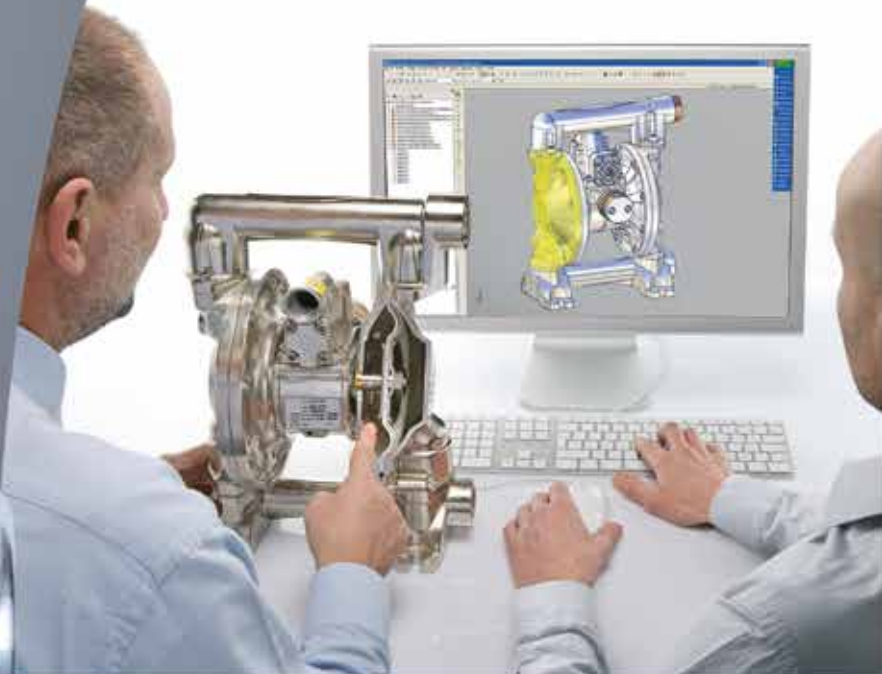
Pressing and die casting, transfer of die detaching agents.







research and  
development



specific  
tests





test bench for  
overall testing

