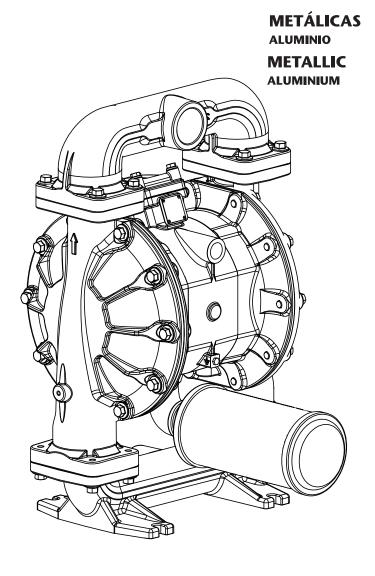
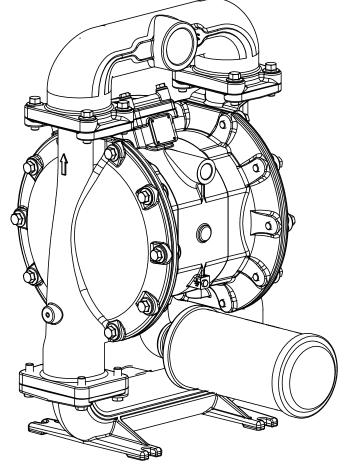




Parts and technical service guide Guía de servicio técnico y recambios



METÁLICAS
ACERO INOXIDABLE
METALLIC
STAINLESS STEEL



EN

2" DOUBLE DIAPHRAGM PUMP UP20 (630 l/min-166 gal/min)

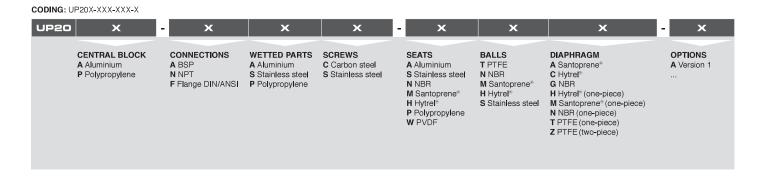
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ES

BOMBA DE DOBLE DIAFRAGMA 2" UP20 (630 I/min-166 gal/min)

13

CODING / CODIFICACIÓN

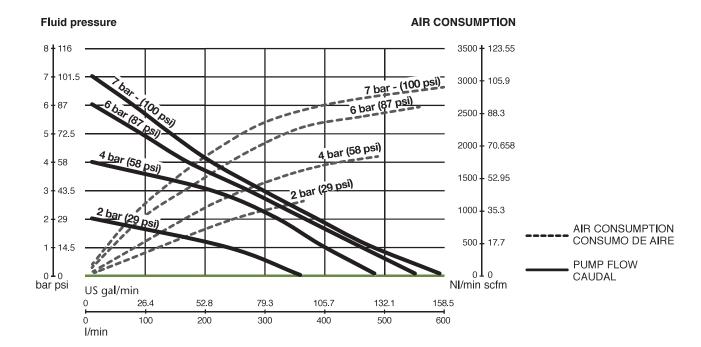


CODING: LIP20X-XXX-XXX-X UP20 X X X PARTES PARTE CENTRAL CONEXIONES **TORNILLOS ASIENTOS BOLAS DIAFRAGMAS** OPCIONES HUMEDAS A Aluminio **A** Aluminio **P** Polipropileno A BSP **A** Aluminio T PTFE A Santoprene® C Acero A Versión 1 **S** Acero inoxidable **N** NBR C Hytrel® G NBR N NPT S Acero inoxidable S Acero inoxidable N NBR F Brida DIN/ANSI P Polipropileno M Santoprene® M Santoprene®
H Hytrel®
P Polypropylene H Hytrel® H Hytrel® (una pieza)
S Acero inoxidable M Santoprene® (una pieza) N NBR (una pieza) W PVDF **T** PTFE (una pieza) **Z** PTFE (dos piezas)

TECHNICAL DATA / DATOS TÉCNICOS

			UP20
	RATIO	RATIO	1:1
	MAXIMUM FREE FLOW	MÁXIMO CAUDAL SALIDA LIBRE	630 I/min. (166 Us gal)
	DELIVERY PER STROKE	DESPLAZAMIENTO POR EMBOLADA	2,5 l. (0,66 gal)
0	AIR PRESSURE OPERATING RANGE	RANGO DE PRESIÓN	1,5 - 7 bar (22 - 100 psi)
19-13:30	SOLID IN SUSPENSION MAX SIZE	MAX. TAMAÑO DE PARTÍCULAS EN SUSPENSIÓN	6,4 mm (1/4 in)
05	MAXIMUM SUCTION HEAD	ALTURA MÁXIMA DE SUCCIÓN	5 m (16 ft) dry / 8 m (26,2 ft) wet
2020			Aluminium / Aluminio: 46 Kg (101 lb)
	WEIGHT	PESO	Stainless Steel / Acero inoxidable: 76Kg (168 lb)
			2" BSP (F) o 2" NPT (F)
	FLUID INLET/OUTLET	ENTRADA DE FLUIDO/CONEXIONES DE	3/4" BSP (F)
	CONNECTIONS	SALIDA	1-1/2" NPT (F)
	AIR INLET	ENTRADA DE AIRE	0 - 70 °C (32 - 158 F)
	TEMPERATURE RANGE	RANGO DE TEMPERATURAS DE TRABAJO	32 -158 °F (0 - 70 °C)

(oz, ft, gal/min) all in EEUU units (oz, ft, gal/min) todo en unidades EEUU



^{*}Tested at room temperature, using water. Flooded pump with 3.5 inches (80 mm), positive suction head. *Ensayo realizado con agua a temperatura ambiente y bomba inundada en 80 mm de succión positiva.

DIMENSIONS / DIMENSIONES

METALLIC: ALUMINIUM / STAINLESS STEEL METÁLICA: ALUMINIO / ACERO INOXIDABLE

536

217/64

465

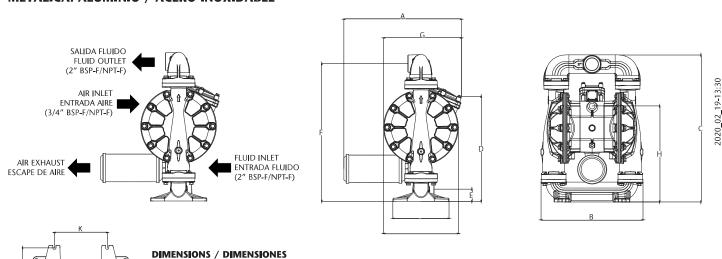
18⁵/₁₆"

672

2629/64

480

18⁵⁷⁄₆₄"



230

91/16

15

19/32"

21/8

630

24⁵1/₆₄"

355

13³¹/₃₂"

438

171/4

340

131/4"

255

103/64

256

105/64



WARNINGS AND CAUTIONS

In this document you will find warnings and cautions for installation, use and maintenance of the pumps. Here's the meaning of symbols you may find in this document and general warnings that you should keep in mind.



WARNING: This symbol aware that there is a danger of serious bodily injury or death if you ignore the warning described. **CAUTION:** This symbol aware that there is a danger of personal injury or property damage if you ignore the caution described.



WARNING: CAREFULLY READ THE INSTRUCTIONS AND WARNINGS BEFORE OPERATING THE EQUIPMENT!

- This equipment is for professional use only.
- Do not degrade the integrity of the equipment. Use only original replacement components from Samoa Industrial, S.A.
- Fluids not suitable for the pump can cause damage to the pump unit and involve risk of serious personal injury. Always consult Samoa Industrial, S.A. if you have any questions about the compatibility within the fluids and the pump materials, including elastomers.
- Install and use the pump according to all local and national regulations and abide all health and safety laws or legislation.
- The pump can produce fluid pressures equal to the air supply pressure. Do not exceed the maximum allowable pressure of 115 psi (8 bar) air supply. The total hydraulic pressure (differential pressure + system) should never exceed 115 psi (8 bar).
- Never use a pump that leaks, that is damaged, that is corroded or otherwise it may lack the capacity to contain the fluid.
- Frequently check that the bolts on the diaphragm cover of the pump are torqued correctly.
- Do not use a model with aluminium wetted surfaces to pump fluids for human consumption, there is a possibility of trace contamination of lead.

- Danger of explosion if used 1,1,1-trichloroethane, methylene chloride or other halogenated hydrocarbon solvents with aluminium wetted materials. It could cause serious injury and property damage.
- Inside the pump, diaphragms separate the fluid that is being pumped from the air supply. If a diaphragm breaks, the fluid can leak out of the air exhaust and contaminate the environment.
- When handling hazardous fluids, always route the air exhaust into a suitable container and locate it in a safe place. (Optional conection system at customer's request. Not supplied with the unit).
- When the fluid source level is situated higher than the pump, (flooded suction), the outlet tank must be at a higher level than the product to prevent spills.
- For pumps handling hazardous fluids that are a danger to humans or to the environment, install a suitable container surrounding the pump to prevent any leaks or spills.
- Ensure that the operators of this equipment are trained on the operation and limitations. Use safety equipment as safety goggles or other equipment required.

DESCRIPTION

Air operated double diaphragm pumps are air-powered, reciprocating positive displacement pumps with two pumping chambers. Two diaphragms, centrally located in the chambers, separate the compressed air (dry side) from the fluid being pumped (wet side). A shaft transmits the reciprocating motion of one diaphragm to the other. A directional valve alternatively distributes the air from one chamber to the other; thus a reciprocating movement of the diaphragms is created. With each stroke, fluid is discharged by one of the diaphragms whilst the opposite diaphragm sucks new fluid into the expanding chamber. Check valves, two on the discharge side and two on the suction side, control and direct the fluid flow.

MATERIAL	TEMPERATURE RANGE
PTFE	5 °C - 105 °C / 41 °F - 221 °F
NBR	10 °C - 80 °C / 50 °F - 176 °F
Acetal	10 °C - 90 °C / 50 °F - 194 °F
Hytre l ®	10 °C - 90 °C / 50 °F - 194 °F
Neopreno	-18 °C - 93 °C / 0 °F - 200 °F
Santoprene®	-29 °C - 135 °C / -20 °F - 275 °F
Viton®	-10 °C - 120 °C / -4 °F - 248 °F
Polypropylene	10 °C - 80 °C / 50 °F - 176 °F

INSTALLATION

- $\frac{8}{2} \text{ INSTALLATION RECOMMENDATIONS}$ 8 Remove the pump from its package and install it on the chosen location.
- · Try to minimize the suction head. Install the pump as close as possible to the fluid being pumped.
- Remember to have enough space around the pump to perform maintenance tasks.
- Keep in mind to connect the inlet and outlet of the pump correctly.
- In case of diaphragm pump failure, the air exhaust will expel the product being pumped.
- When the pump is installed in a place where a spill of fluid can cause an environmental impact, the exhaust should be directed to a place where this spill could be contained.
- When installing the pump in its place, use brackets to secure its base.
- Fasten all bolts with the torques contained in this manual.

UP PUMPS ARE VERY EASILY CONFIGURED AND EASY TO INSTALL

FLOODED:

The pumping system was designed with positive pressure at the inlet. This is the best possible installation when you need to evacuate the liquid from the drum or tank, or when working with viscous fluids. Not recommended for hazardous fluids.

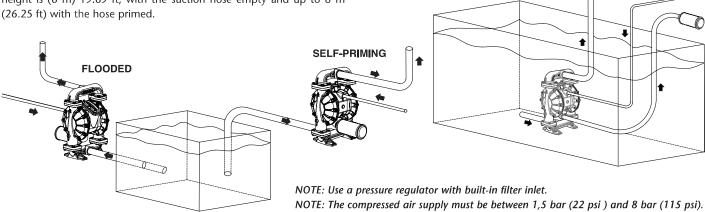
SELF-PRIMING:

Pump is designed to generate vacuum. It is possible to evacuate all the air from a hose or pipe without damaging the pump. Maximum suction height is (6 m) 19.69 ft, with the suction hose empty and up to 8 m (26.25 ft) with the hose primed.

SUBMERGED:

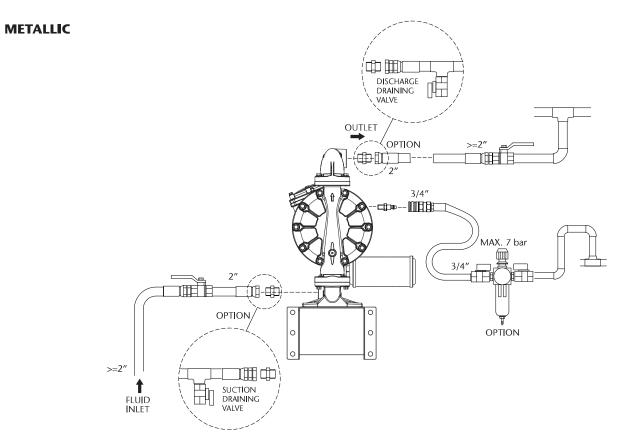
All pumps can be immersed in fluids. It is important to verify that all components that are in contact with the fluid are chemically compatible. In this case, air exhaust and fluid must be carried by hoses (optional air connection).

SUBMERGED



RECOMMENDED INSTALLATION

The figure below shows the recommended configuration for the installation of a diaphragm pump. Read the warnings and recommendations of the previous page before starting.

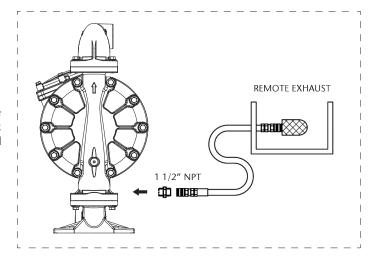


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AIR EXHAUST DISPOSAL

WARNING

- Optional kit is required for remote exhaust.
- Remove the standard muffler in pump part drawing.
- Place 1 1/2" fitting M-M.
- Connect a hose to the new exhaust port and install the muffler at the end of the hose. Use a hose with the same diameter as the exhaust port 1 1/2" NPT. (If the hose is more than 1.5 m (5 feet), consult your local distributor or Samoa Industrial, S.A.).
- Have a moat, a protective housing, etc. at the end of the hose.



AIR CONNECTION



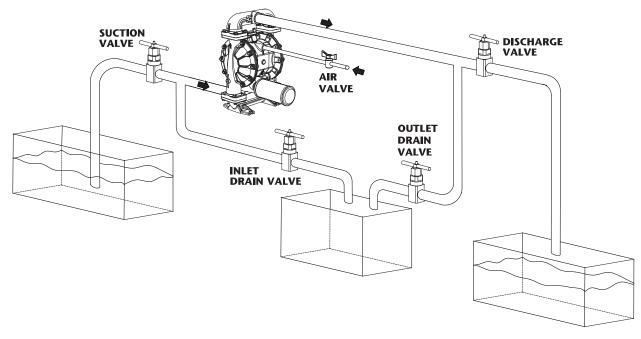
WARNING: To ensure that the air supply is sufficient to meet the demand of the pump, the diameter of the pipe must be equal to the diameter of the supply port of the pump. Choose auxiliary air treatment equipment and fittings with sufficient airflow to exceed the air consumption of the pump. In addition, peripheral air treatment equipment must be installed as close as possible to the pump unit. The use of a coupler to connect the hoses aids future operation and maintenance tasks.

THIS PUMP IS SELF-PRIMING

To prime it the first time, you must connect the air pump supply to a low pressure using the pressure regulators while keeping the outlet valve open. When fluid begins to flow from the pump outlet, the pump is primed. For regulation of fluid pressure, the unit must be supplied with an air pressure between 1,5 and 7 bar (22 and 100 psi). Adjust the discharge valve on the discharge side to control flow. For the performance characteristics of the pump see the capacity curve.

STOPPING THE PUMP FOR MAINTENANCE TASKS

- Stop the air supply.
- Make sure for your safety that the air valve is closed.
- Close the discharge valve and the suction valve. Open inlet and outlet drain valves.
- Open the air valve of the pump, running bring on the pump and flushing the remaining fluid.
- Close the air valve.
- After ensuring that the pump was turned off and the pressure was released, pump is ready for its maintenance.



GROUNDING THE PUMP

When installing the pump, be sure to perform grounding in the specified location.

Also connect ground wires for the auxiliary equipment and piping. Use a grounding cable of at least 12 gauge (2.0 mm2).

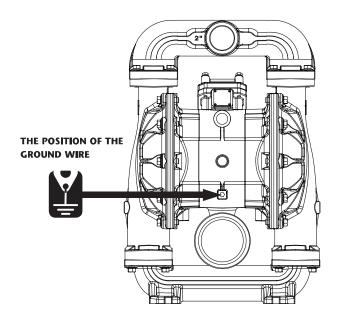
If the pump you have purchased is valid for Atex, a specific Atex manual will accompany this one. Read this manual before operating the pump. If the unit is marked with the symbol $\langle \underline{\xi} x \rangle$, it can be used in potentially explosive atmospheres. Below this symbol, in the nameplate of the pump, are indicated the areas for which the equipment is approved. You will also find the maximum allowable surface temperature in the same plate.



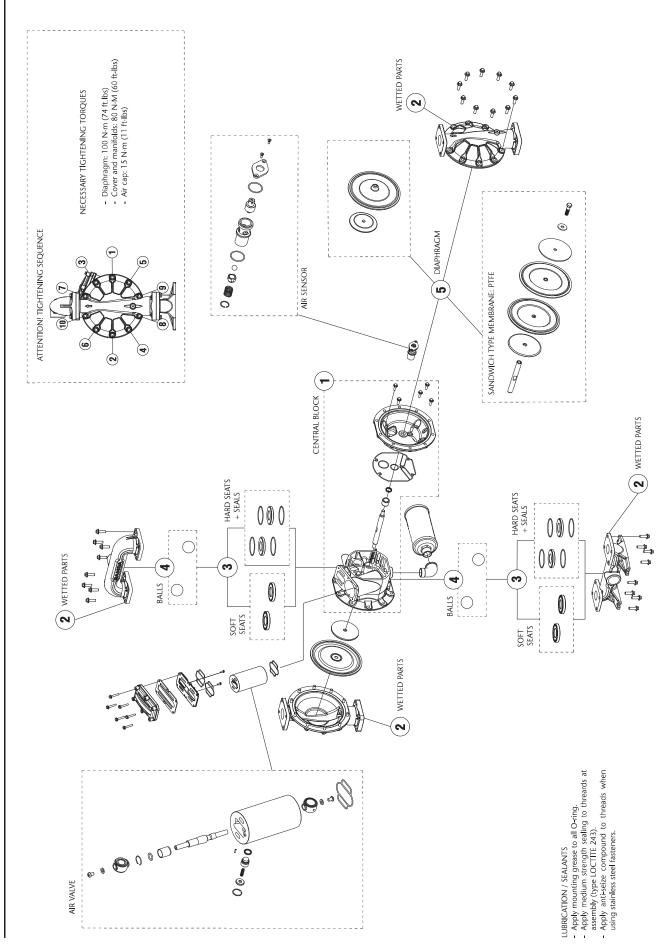
WARNING

Connect grounding wires to the pump, piping and all other equipment too.

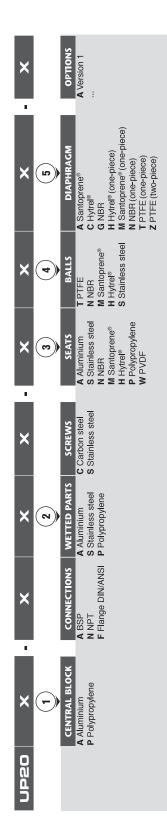
When the pump operates ungrounded or with an incorrect connection, friction between parts and abrasion caused by some fluids that flow inside the pump, can generate static electricity. Moreover, according to the type of fluid pump and the installation environment (such as gases in the air or the type of the surrounding facilities) static electricity can cause fire or electric shock.



UP20 METALLIC PUMP PARTS DRAWING



METALLIC PUMP



	PUSH ROD	802833	00/000	
	AIR CAP	558707	558712	
	LATERAL CENTRAL BODY	558706	558711	
	ENTRAL BLOCK	CENTRAL BODY	558705	558710
CENTRA	AIR EXHAUST	02033	230/05	
	AIR SENSORS	558702		
	AIR VALVE	558700	558701	
_				

)				CENIKAL BLOCK	¥.			
	AIR VALVE	AIR SENSORS	AIR EXHAUST		CENTRAL BODY	LATERAL CENTRAL BODY	AIR CAP	PUSH ROD
V	558700	502833	00033		558705	558706	558707	802833
۵	558701	20/966	338/03		558710	558711	558712	228/08
				WETTED PA	WETTED PARTS REPAIR KIT	RKIT		
		INLET MANIFOLD	NIFOLD	OUTLET N	OUTLET MANIFOLD		VI DINIGO	***
	DIAPTIKACIMI COVEK	BSP THREAD	BSP THREAD NPT THREAD	BSP THREAD NPT THREAD	NPT THR		NOMERICAL CODING SSAAAA	V V V
V	558715	558716	558717	558720	558721			
S	558730	558731	558732	558735	558736	9		

BALL VALVE REPAIR KIT	ODE NUMERICAL CODING 55XXXX	.70	771	DIAPHRAGMS REPAIR KIT
	KIT CODE	H 558770	M 558771	(5)

<u>۔</u>		
	PIQ	DIAPHRAGMS REPAIR KIT
	KIT CODE	NUMERICAL CODING 55XXX
I	558780	
Σ	558781	
z	558782	
T	558783	

TECHNICAL CHARACTERISTICS LABEL

NUMERICAL CODING 55XXXX

KIT CODE

SEATS

SEALS က

z > 558752 558753

558751

558760

I

558754 558761

SEALS & SEATS REPAIR KIT



MODEL: 55XXXX (numerical coding) UP20X-XXX-XXX-X (alphanumeric coding)

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TROUBLESHOOTING

CAUSE	RECOMMENDED MEASURE
THE PUMP DOES NOT WORK	
The discharge valve on the discharge side is not open.	Open the discharge valve on the discharge side.
No air supply.	Turn on the compressor and open the air valve and air regulator.
The air supply pressure is low.	Check the compressor and the configuration of the air line.
Air leaks in connecting elements.	Check the connection elements and the tightening of the screws.
The air pipes or ancillary equipment is clogged with mud.	Check and clean the air line.
The exhaust port (muffler) of the pump is clogged with mud.	Check and clean the exhaust port and muffler.
The fluid pipe is clogged with mud.	Check and clean the fluid line.
Pump is clogged with mud.	Remove, inspect and clean the pump.

THE PUMP RUNS BUT NO FLUID COMES OUT		
The valve on the suction side is not open.	Open the valve on the suction side.	
Too much suction or discharge height.	Confirm the configuration of the pipe and reduce the height of the	
	same.	
Fluid pipe discharge side (including the filter) is clogged with mud.	Check and clean the fluid line.	
Pump is clogged with mud.	Dismantle the pump, check and clean.	
The ball and ball seat is worn or damaged.	Inspect and replace parts.	

THE FLOW IS DECREASING		
The air supply pressure is low.	Check the compressor and the configuration of the air line.	
The air line or peripheral equipment clogged with mud.	Check and clean the air line.	
Valve discharge side drive will not open normally.	Adjust the discharge valve discharge side.	
The air mixes with the fluid.	Replenish fluid and check the configuration of the pipe on the suction side.	
Cavitation occurs.	Adjust air supply pressure and discharge pressure and reduce the suction.	
Vibrations.	Adjust air supply pressure and discharge pressure. Reduce the flow of the inlet valve to adjust pressure and volume of fluid.	
Ice formation in the air exhaust.	Remove ice from the air bypass valve and check and clean the air filter. Use a pipe in the exhaust air that the ice does not form in the muffler.	
The fluid line (including the filter) plugged with mud.	Check and clean the fluid pipe and strainer.	
The exhaust port (muffler) of the pump is clogged with mud.	Check and clean the exhaust port and muffler.	
Pump is clogged with mud.	Remove, inspect and clean the pump body.	

LEAKAGE OF FLUID THROUGH THE HOLLOW EXHAUST (SILENCER)	
The diaphragm is damaged.	Remove and inspect the pump and replace the diaphragm.

IRREGULAR NOISE	
The air supply pressure is too high.	Adjust air supply pressure.
The pump is clogged with sludge particles larger than the diameter allowed.	Remove, check and clean the pump.

IRREGULAR VIBRATION	
The elements of connection and the support of the pump are loose.	Review each element of connection and tighten the screws.
The air supply pressure is too high.	Adjust air supply pressure.
The range and ball valve vibrates.	Adjust air supply pressure and exhaust pressure.

	IN FLUID WITH AIR BUBBLES		
2.7	Diaphragm damaged.	Replace diaphragm.	
_	Suction hose loose or broken.	Tighten or replace.	

POWERED AIR LEAK PRESSURE OF 1,5 TO 8 BAR (22 TO 115 PSI)		
1	Wear air valve.	Replace air valve.

NO START-UP AND IS LEAKING AIR WITHOUT CYCLES	
Stiff air sensors.	Change air sensor.
Wear air valve.	Replace.

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TORQUES NECESSARY FOR THE PROPER FUNCTIONING OF THE PUMP

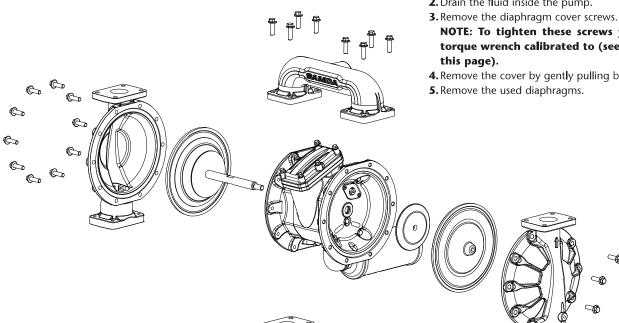
For proper operation of the pump and to prevent accidents which may damage equipment and in the worst case, people, you must periodically review the torques of the diaphragms covers and the DIRECTIONAL VALVE. In the next table are shown the appropriate torques for this purpose:

TORQUES UP20	Cover and manifolds	80 N·m (60 ft.lbs)
	Air cap	15 N·m (11 ft.lbs)
	Diaphragms	100 N·m (74 ft.lbs)

(1) CAUTION!: DO NOT OVERTIGHTEN FASTENERS.

DIAPHRAGM MAINTENANCE

Before any intervention: DISCONNECT AIR SUPPLY OF THE PUMP. IT IS NOT NECESSARY TO REMOVE THE PUMP FROM THE FLUID LINE. ANTICIPATE A POSSITE LEAKAGE OF FLUID INSIDE THE PUMP.

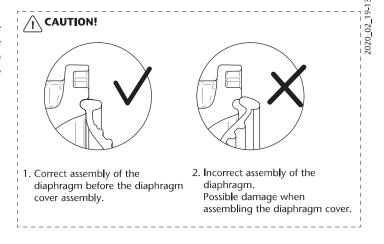


REMOVING THE DIAPHRAGM:

- 1. Close inlet and discharge fluid valves.
- 2. Drain the fluid inside the pump.
 - NOTE: To tighten these screws you must use a torque wrench calibrated to (see torque table in
- 4. Remove the cover by gently pulling back.
- 5. Remove the used diaphragms.

INSTALLING THE NEW DIAPHRAGMS - ASSEMBLING PROCEDURE

 \bigcap **CAUTION:** Follow next procedure to ensure the diaphragms are correctly installed. If not followed diaphragm bead could be extruded out of its housing with the resulting damage over the diaphragm bead and thus possible fluid leaks or premature diaphragm failure.

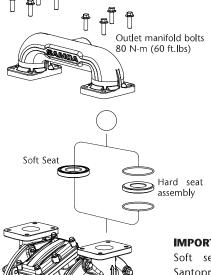


PUSHING ROD/CENTRAL BUSHING AND SEAL MAINTENANCE

BALL VALVES AND SEATS MAINTENANCE

- 1. Close fluid valves.
- 2. Drain the fluid from inside the pump. Anticipate a drainage of fluid from inside the pump.
- 3. Remove the inlet and outlet manifolds. Take note of the orientation of the manifolds.
- **4.** Install a new set of valves or seats according to these assembly drawings. Tighten the manifold bolts with a maximum torque of 80 N·m (60 ft.lbs).

IMPORTANT: Always approximate manifold bolts before final tightening.

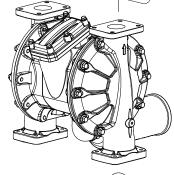


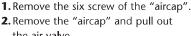
IMPORTANT:

Soft seats (NBR, Hytrel® and Santoprene®) don't need extra seals and the seat is simetric.

Hard seats (PP, POM, PVDF, aluminum, stainless steel), use additional o-rings for sealing.

Balls must be always assembled over the seat.

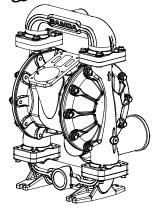


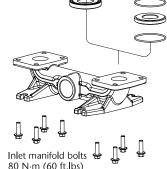


- the air valve.
- 3. Place the bottom gasket in the new air valve.
- 4. Insert the new air valve.

AIR VALVE **MAINTENANCE**

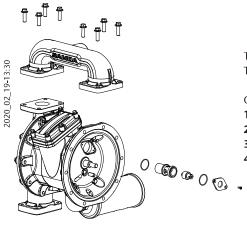
- 5. Place the "aircap" with the gaskets in its housing.
- 6. Tighten the screws with a maximum torque of 15 N·m (11 ft.lbs).





IMPORTANT: When doing a pump maintenance that implies manifold disassembling and pump is fitted with PTFE o-rings (white colour), they must be replaced by new ones in order to avoid fluid leakages".

AIR SENSOR MAINTENANCE

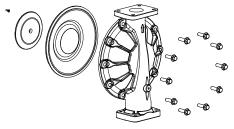


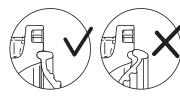
The air sensors are on the central body.

To access them, follow the procedure for "Replacing diaphragms".

Once removed the covers following procedure:

- **1.** Remove the two screws that secure the air sensor to the top.
- 2. Remove all components of the sensor. Clean the area.
- **3.**Introduce new components in the order shown.
- **4.** Fit the remaining components in reverse order. Fit the sensor cover and tighten the screws.





IMPORTANT:

Follow the diaphragm maintenance procedure to ensure no damage in the diaphragm during its assembly.

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NOTES / NOTAS 2020_02_19-13:30

SAMOA INDUSTRIAL, S.A., Pol. Ind. Porceyo, I-14 \cdot Camino del Fontán, 831 \cdot 33392 - Gijón - Spain, declares that the product(s):

554XXX

conform(s) with the EU Directive(s):

2006/42/EC

ES

SAMOA INDUSTRIAL, S.A., Pol. Ind. Porceyo, I-14 · Camino del Fontán, 831 · 33392 - Gijón - España, declara que el(los) producto(s):

554XXX

cumple(n) con la(s) Directiva(s) de la Unión Europea:

2006/42/CE

For SAMOA INDUSTRIAL, S.A. Por SAMOA INDUSTRIAL, S.A.

Pedro E. Prallong Álvarez Production Director Director de Producción