

AIR OPERATED DIAPHRAGM PUMP **AP10**
(plastic design)

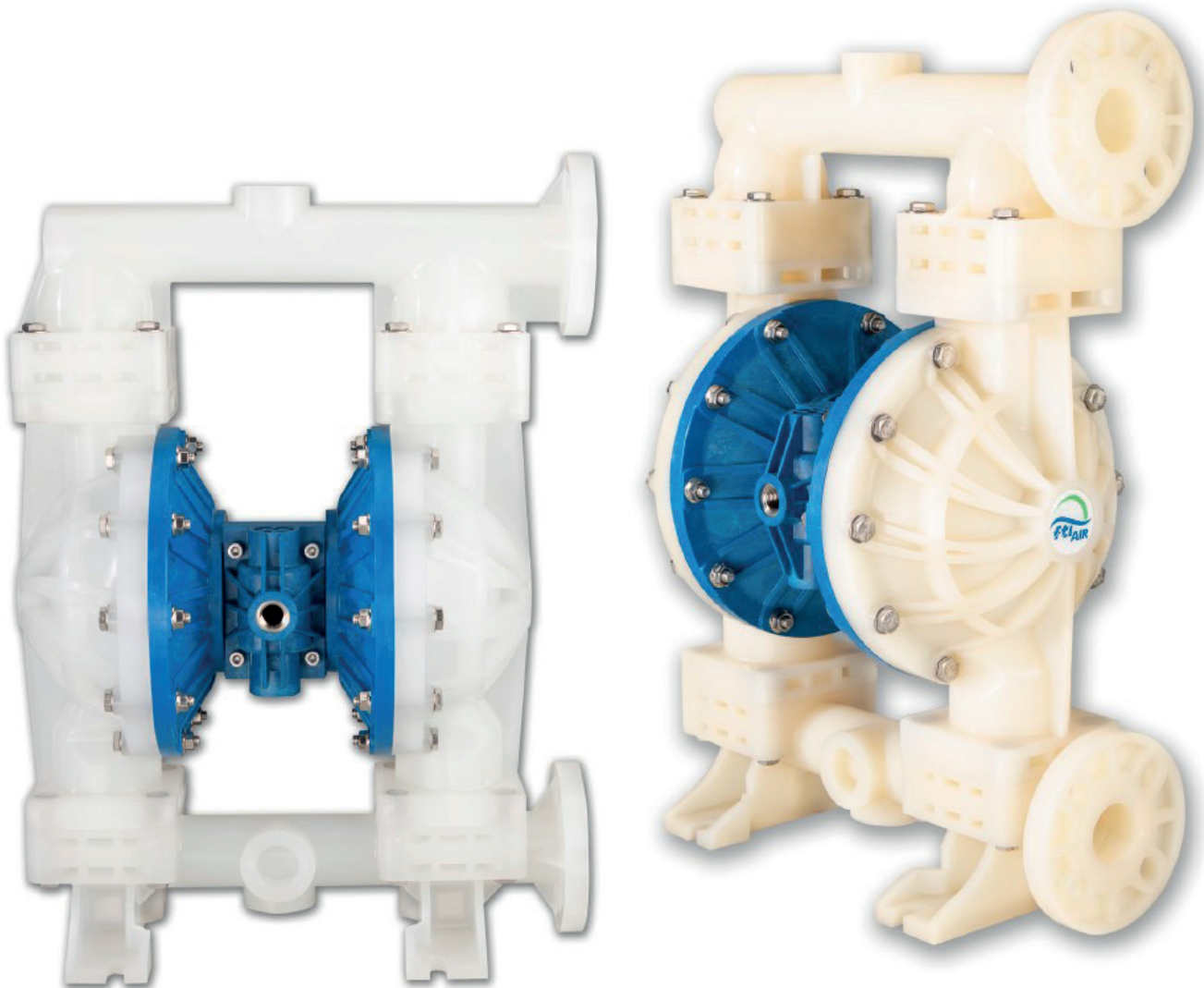


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IMPORTANT INFORMATION

Export Information

U.S. Export Administration Regulations, pursuant to ECCN 2B350, prohibit the export or re-export to certain enumerated countries of air operated double diaphragm pumps in which all wetted materials are constructed from fluoropolymers without first applying for and obtaining a license from the U.S. Bureau of Industry and Security (BIS). This affects all sera airPUMP pumps constructed from PVDF with PTFE balls and diaphragms. Please

Chemical Reaction Disclaimer

The user must exercise primary responsibility in selecting the product's materials of construction which are compatible with the fluid(s) that come(s) in contact with the product. The user may consult a manufacturer's representative/distributor agent to seek a recommendation of the product's material of construction that offers the optimum available chemical compatibility. However neither manufacturer nor agent shall be liable for product damage or failure, injuries, or any other damage or loss arising out of a reaction, interaction or any chemical effect that occurs between the materials of the product's construction and fluids that come into contact with the product's components.

Unpacking & Inspection

Unpack the pump and examine for any signs of shipping damage.
If damage is detected, save the packaging and notify the carrier immediately.
To install the pump, follow the installation instructions provided.

SAFETY PRECAUTIONS



EXPLOSION HAZARD

sera airPUMP with standard materials of construction should not be used with halogenated hydrocarbons. Halogenated hydrocarbon solvents can cause explosion when used with aluminum components in a closed (pressurized) system. sera airPUMPs with standard materials of construction contain aluminum components and will be affected by halogenated hydrocarbon solvents.

1-1-1 Trichloroethane and Methylene Chloride are the most common halogenated hydrocarbons. However, other halogenated hydrocarbon solvents are suspect if used either as part of paint or adhesive formulation, or for clean-up flushing. For applications that may involve halogenated hydrocarbons, contact sera to discuss the availability of alternative pump materials of construction.



WARNING

sera airPUMPs maximum temperature limits are based upon the material's mechanical stress only. Maximum temperature is application dependent. Consult a chemical resistance guide or the chemical manufacturer for chemical compatibility and temperature limits.



WARNING

Chemical Hazard. This pump is used for transferring many types of potentially dangerous chemicals. Always wear protective clothing, eye protection and follow standard safety procedures when handling corrosive or personally harmful materials. Proper procedures should be followed for draining and decontaminating the pump before disassembly and inspection of the pump. There may be small quantities of chemicals present during inspection.



WARNING

Never use a natural polypropylene or natural PVDF pump with flammable or combustible fluids/materials.



WARNING

Hot surfaces. **sera** airPUMPs are capable of handling liquids with temperatures as high as 104°C (220°F). This may cause the outer areas of the pump to become hot as well and could cause burns.



WARNING

If a diaphragm rupture occurs, material being pumped may be forced out of the air exhaust. Proper care should be taken, always wear protective clothing, eye protection & follow standard safety procedures.



WARNING

For polypropylene or PVDF pumps do not exceed 6.9 bar (100 psig) air supply and 8.3 bar (120 psig) for aluminum and stainless steel.



WARNING

When pumping hazardous liquids, or operating the pump in an enclosed room, it is important to pipe the exhaust air to a safe area.



WARNING

Pump exhaust may be loud and contain particles. Wear appropriate ear and eye protection. In the event of a diaphragm rupture material can be forced out of the air exhaust muffler. If product is hazardous or toxic, pipe exhaust to appropriate safe area.



CAUTION

Before attaching air supply to pump to make sure all airline debris is clear. It is recommended to use a minimum 5µ (micron) air filter before the air valve.



CAUTION

Do not over-tighten the air inlet fitting or muffler. Too much torque could damage the air valve or muffler plate.



CAUTION

Before maintenance or repair, close the compressed air line supply valve, bleed the pressure and disconnect air line from the pump. Discharge line may also be pressurized. Any pressure must be relieved prior to servicing. Remove suction / discharge lines & drain the pump.



CAUTION

If pump is used with materials that tend to solidify or settle, the pump should be flushed after each use to prevent damage.



CAUTION

Use only genuine **sera** replacement parts to assure compatibility and longest service life.



CAUTION

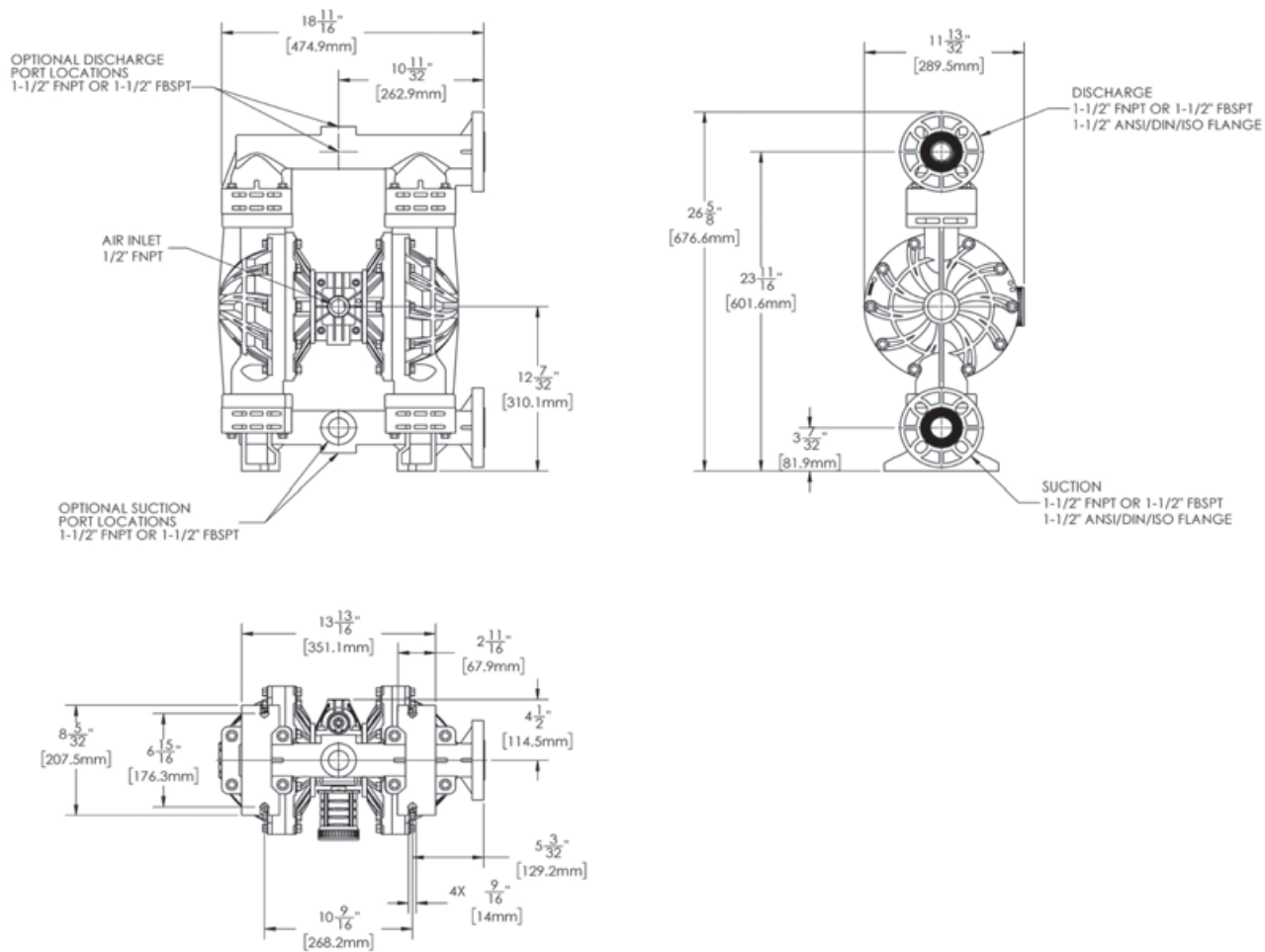
Check the temperature limits for all wetted components when choosing pump materials. See table below.

MATERIAL SPECIFICATION

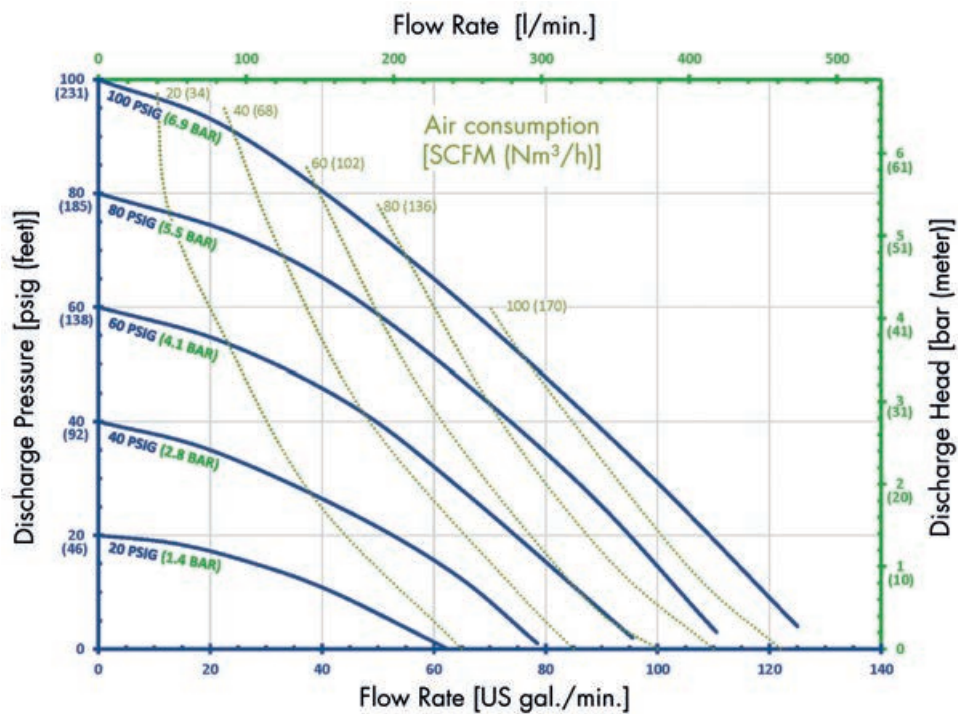
MATERIAL PROFILES

Material	Chemical composition	Description	Operating temperature	
			min.	max.
PP	Pure Polypropylene	Thermoplastic that is resistant to alkali and strong acids.	0°C (32°F)	70°C (158°F)
PVDF	Pure Polyvinylidene Fluoride	Strong fluoropolymer with excellent chemical resistance.	-12°C (10°F)	104°C (220°F)
Stainless Steel	316 Stainless Steel	Excellent chemical resistance, high tensile and impact strength, abrasion resistant.	Limited by other materials used	
Aluminium	ADC 12, LM24, LM25	Moderate chemical resistance with good impact strength and abrasion resistance.	Limited by other materials used	
Buna	Acrylonitrile-butadiene Rubber	General purpose elastomer. Resistant to oil, water, solvent, and hydraulic fluid.	-12°C (10°F)	88°C (190°F)
EPDM	Ethylene Propylene Diene Rubber	Good resistance to mild acids, detergents, alkalis, ketones, and alcohols.	-40°C (-40°F)	121°C (250°F)
FKM	Fluorocarbon Rubber	Good chemical resistance and high temperature properties. Resistant to most acids, aliphatic, aromatic, and halogenated hydrocarbons, oils, grease, and fuels.	-40°C (-40°F)	177°C (350°F)
Neopren	Chloroprene Rubber	General purpose elastomer with good resistance to moderate chemicals, oils, grease, solvents, and some refrigerants.	-18°C (0°F)	100°C (212°F)
Santopren	Fully cured EPDM rubber particles encapsulated in a polypropylene (PP) matrix	Thermoplastic elastomer with good abrasion resistance with chemical resistance to a wide range of solvents and chemicals. Injection molded with no fabric layer.	-40°C (-40°F)	107°C (225°F)
Hytrel	Thermoplastic polyester elastomer	Combines resistance and flexibility of elastomers with the strength of plastics. Resistant to acids, bases, amines, and glycols. Injection molded with no fabric layer.	-29°C (-20°F)	104°C (220°F)
PU	Polyester Urethane	Thermoplastic that exhibits excellent abrasion resistance. Injection molded with no fabric layer.	0°C (32°F)	66°C (150°F)
PTFE	Polytetrafluoroethylene	Chemically inert. Resistant to a wide range of chemicals.	4°C (40°F)	107°C (225°F)
FEP	Fluorinated Ethylene Propylene	Similar to PTFE in composition and chemical resistance. Used to encapsulate FKM o-rings for superior chemical resistance.	-40°C (-40°F)	107°C (225°F)

DIMENSIONS



CHARACTERISTIC CURVES



PERFORMANCE DATA

Air operated diaphragm pump AP15 (Plastic)

Max Flow Rate: 473 Litre/min. (125 gal/m)

Displacement Per Stroke: 0,91 Litre (0.24 gal)

Max Outlet Pressure: 6,9 bar (100 psig)

Max Particle Size: 0,7 bar (10 psig)

Noise Level: 9,7 mm (0.38")

Max Suction Lift (Water) dry: 5,5 mWS (18 ft.)
wet: 8,5 mWS (28 ft.)

Suction/Discharge Size: 1 1/2" ANSI/DIN/ISO-Flanges

Air Inlet/Exhaust Size: 1/2" FNPT / 3/4" FNPT

Air Consumption @ 6,9 bar: 170 Nm³/h (100 scfm)

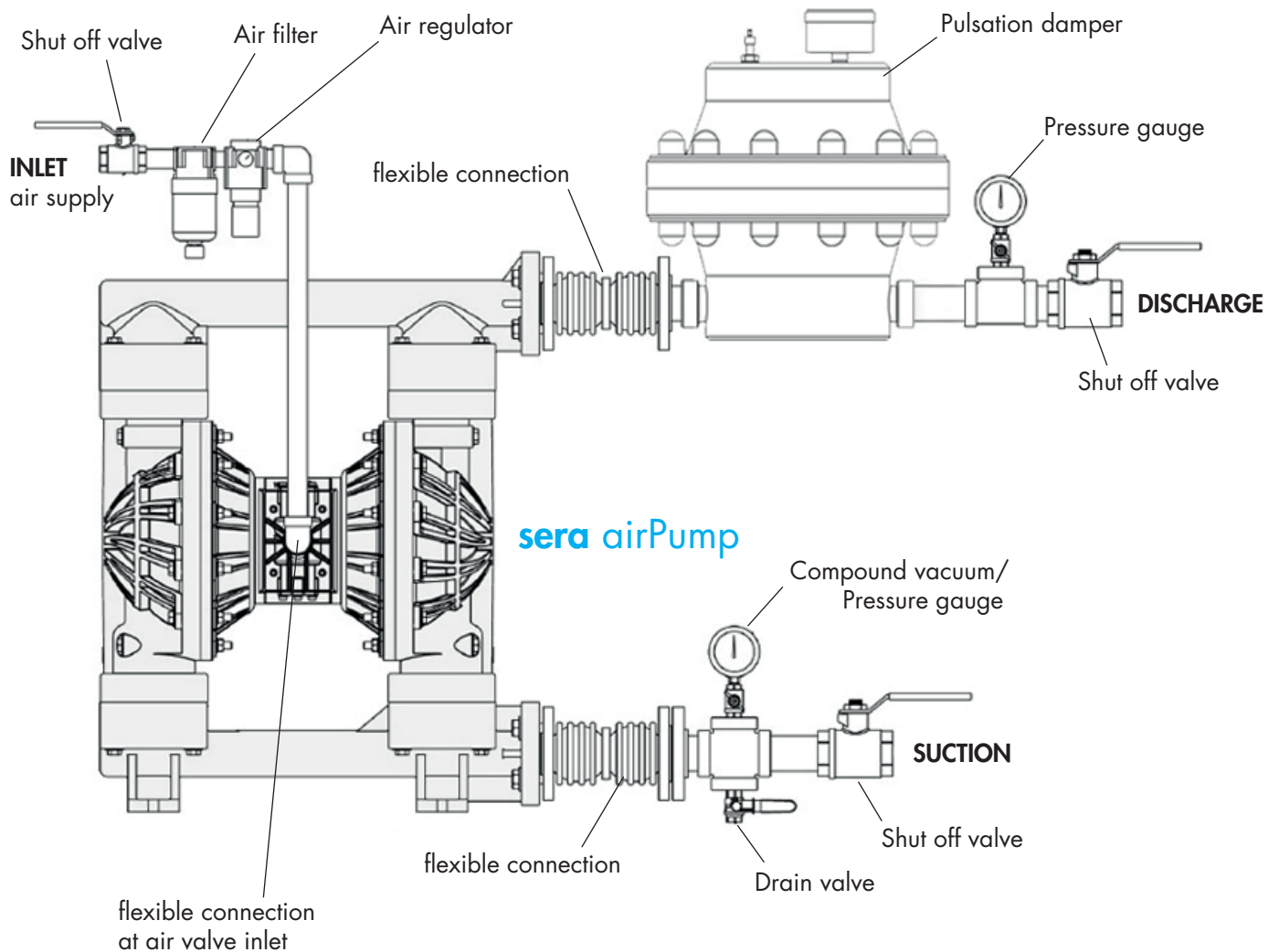
Max Material Inlet Pressure: 6,9 bar (100 psig)

Max Air Inlet Pressure: 77 dB(A)

Weight: PP: 18,6 kg (41 lbs)
PVDF: 27,2 kg (60 lbs)

INSTALLATION/OPERATION

INSTALLATION DRAWING



INSTALLATION / START UP

Installation and Start up

Install the pump in a vertical position or it may not prime properly. Pump should be located as close to the product being pumped as possible. Suction line length should be as short as possible and limit the number of fittings. Suction line diameter should not be reduced smaller than the suction diameter of the pump. When using rigid pipe run short sections of flexible hose or flexible connections between the pump & piping. Secure the pump to a suitable surface.

Air Supply

Connect the pump air inlet to an air supply with sufficient capacity to achieve desired performance. A pressure regulating valve should be installed to insure air supply pressure does not exceed recommended limits.

Air Valve Lubrication

No lubrication is required for the air distribution system.

Fasteners

Re-torque all fasteners before operation. Creep of housing and gasket materials may cause fasteners to loosen. Re-torque all fasteners to the torque specifications listed on the exploded view drawing in this manual.

Air Inlet & Priming

Pump will start to operate as soon as the shut-off valve is opened. It is recommended to open the shut-off valve slowly at first. Once the pump primes; the shut-off valve can be opened additionally to increase the pump's flow. If the pump is operating but not pumping any liquid see the troubleshooting section for tips & suggestions.

Accessories

Surge suppressors, spill stops & filter regulators are available and should be used with **sera airPUMP**.

TROUBLESHOOTING TIPS AND SUGGESTIONS

PUMP WILL NOT START OR CYCLE:

- Blocked liquid pipe or hose - Clean out or replace
- Clogged liquid chamber - Remove debris
- Diaphragm shaft bushing / o-ring leak - Replace o-rings
- Air valve carrier not shifting - Inspect, clean, re-oil with 10 wt. air tool oil. (aluminum air valve)
- Air valve carrier not shifting - Inspect, replace seals (polypropylene air valve)

ERRATIC CYCLING:

- Diaphragm failure - Replace diaphragm
- Valve ball not seating properly, worn or damaged – Inspect, remove debris or replace
- Leak in suction line - Inspect, repair or replace
- Diaphragm shaft bushing / o-ring leak - Replace o-rings
- Air valve carrier not shifting - Inspect, clean, re-oil with 10 wt. air tool oil. (aluminum air valve)
- Air valve carrier not shifting - Inspect, replace seals (polypropylene air valve)
- Over lubrication in air valve - Inspect, degrease, reuse. Adjust lubrication
- Excess moisture in air valve – Inspect, dry, reuse. Consider installing an air dryer
- For aluminum air valves, worn carrier or valve bore – measure carrier and valve bore, diametrical clearance should be between 0,05 - 0,088mm. Replace worn components as needed
- For plastic air valves, worn carrier seals – replace carrier seals if there is no longer interference between seals and valve bore

PUMP CYCLES BUT WILL NOT PUMP:

- Too much suction lift - Reduce suction lift or fill liquid chambers with liquid
- Leak in suction line - Inspect, repair or replace
- Valve ball not seating properly, worn or damaged - Inspect, remove debris or replace
- Clogged suction pipe or hose - Inspect & clear
- Clogged strainer if used - Inspect & clear
- Diaphragm failure - Replace diaphragm

PUMPED LIQUID RELEASED FROM AIR EXHAUST:

- Diaphragm failure - Replace diaphragm
- Outer plate unthreading - Tighten & re-torque

MAINTENANCE

Recommended tools for servicing pump

- Box wrenches (13mm, 15mm and 17mm)
- Socket wrenches (30mm (2x))
- Snap ring pliers
- Hex wrenches (4mm, 6mm and 8mm)
- O-Ring pick
- Torque wrench

Wet End Servicing (Installing Wet End Kit)

- Relieve airline pressure and fluid line pressures before conducting maintenance.
- The pump can be drained by turning it upside down and allowing fluid to drain into an appropriate container. Use proper safety equipment when conducting maintenance as internal components may still contain the pumped media.
- Lubricate all stainless steel to stainless steel fasteners to prevent galling. Torque values listed in the back of this manual are for lubricated fasteners.

DISASSEMBLY

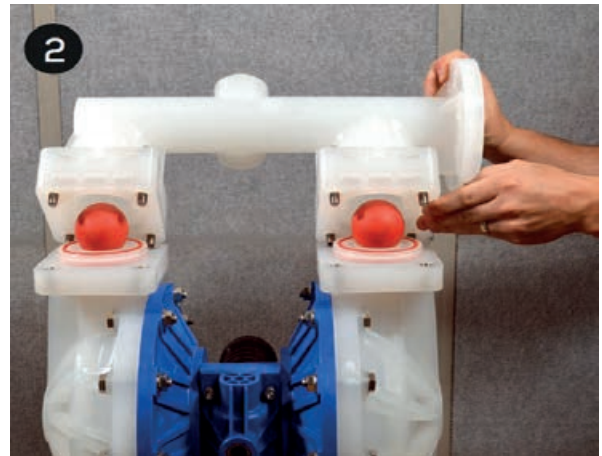
1)

Remove the eight discharge manifold bolts & washers (items 12 & 13) from the discharge manifold (item 37) using a 17 mm wrench.



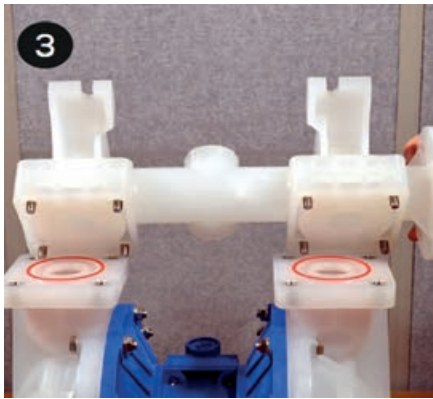
2)

The discharge seat o-rings, valve seats, and valve balls (items 15, 16, & 17) can now be accessed and replaced if needed.



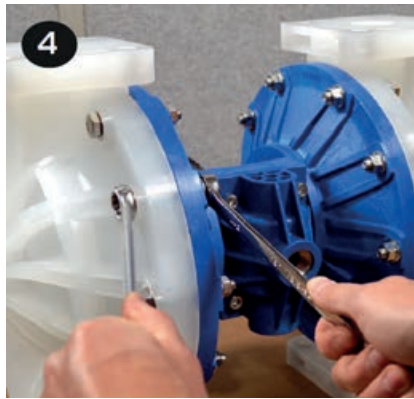
3)

Repeat the above steps for the suction manifold (item 14). The seat o-rings, valve seats and valve balls (items 15, 16, & 17) are located in the liquid chambers (item 20).



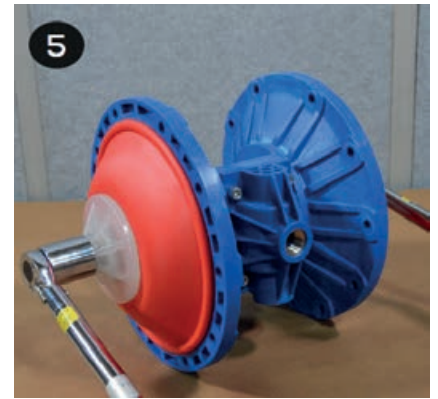
4)

Remove both liquid chambers by removing the ten bolts, washers & nuts (items 18, 19 & 28) on each liquid chamber using a 17mm wrench and nuts can be removed using a 15mm wrench. Inspect and replace diaphragms if needed.



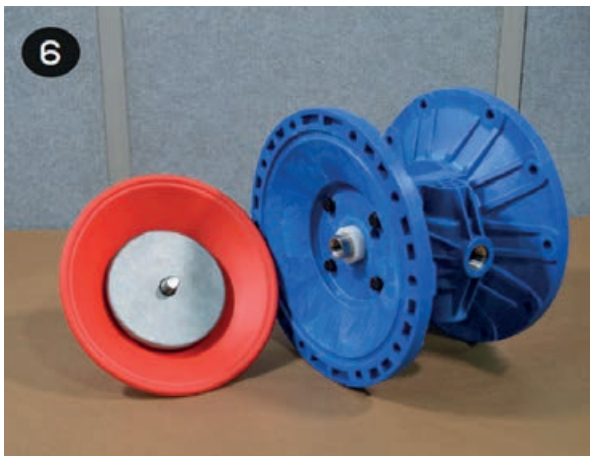
5)

To remove the diaphragms (items 22/23), begin by loosening the two outer plates (item 21) using two 30mm wrenches. Use 6-sided sockets or wrenches to prevent damage to the hex portion of the outer plate.



6)

Remove the outer plate, diaphragm(s), and inner plate (items 21, 22/23 & 24) from the side that is loosened. Pull or push the shaft (item 32) and remaining plates and diaphragms out of the center section. If pulling, it may be easier to grip the diaphragm if it is inverted.



7)

To remove the remaining diaphragm(s) (items 22/23) and plates (items 21 & 24) from the shaft (item 32), place the shaft in a vise fitted with soft jaws. Using a 6-sided 30mm wrench, remove the remaining diaphragm(s) and plates.

Soft jaws are required to prevent damaging the shaft. A damaged shaft will result in accelerated o-ring wear. Jaws can be fitted with wood, plastic, rubber, or other soft material to prevent shaft damage.



After performing required maintenance, the pump can be reassembled. The pump can also be reassembled using the disassembly instructions in the reverse order as listed above. For detailed assembly instructions, follow steps in Wet End Reassembly section (Mounting) on the next pages.

MOUNTING

1)

Slide the center hole of one diaphragm (item 23) over the molded-in bolt of an outer plate (item 21). The air side of the diaphragm is labeled and should face away from the plastic portion of the outer plate.

If the pump is fitted with PTFE diaphragms (item 22), first place a PTFE diaphragm over the molded in bolt of the outer plate (item 21). Then place the backup diaphragm (item 23) on the outer plate. The shape of the PTFE diaphragm and back up diaphragm should roughly conform to one another.

See the exploded view drawing for proper orientation.



2)

Place the inner plate (item 24) over the molded-in bolt. Ensure the round recess in the plate faces the diaphragm (item 23).



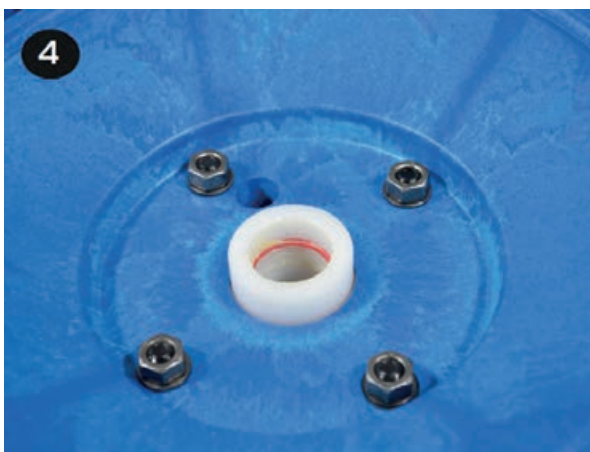
3)

Apply a couple drops of a medium strength thread locker, such as Loctite® 246, to the molded in outer plate bolt (item 21). Thread the shaft (item 32) onto the molded in bolt until it is snug to the flat back side of the inner plate (item 24).



4)

The shaft (item 32) and shaft o-rings (item 31) should retain the lubricant that was factory applied. If they appear dry, apply a light coat of lithium thickened grease. Avoid over lubrication as it can cause decreased performance of the air distribution system.



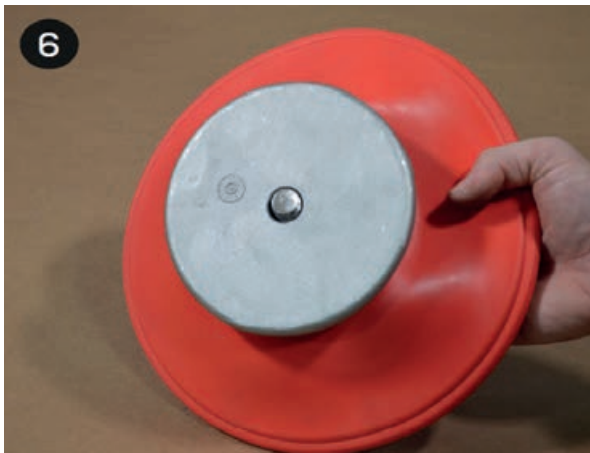
5)

Push the shaft (item 32) through the center of the shaft bushing (item 30). It is normal for this to be a tight fit, especially if the shaft and shaft o-rings (item 31) are in good condition.



6)

It may be easier to thread the molded in bolt into the shaft if the diaphragm(s) is inverted on one or both sides. This can be done by hand.



7)

The other diaphragm(s) (items 22/23) and inner/outer plates (items 21 & 24) can be installed onto the opposite end of the shaft (item 32).



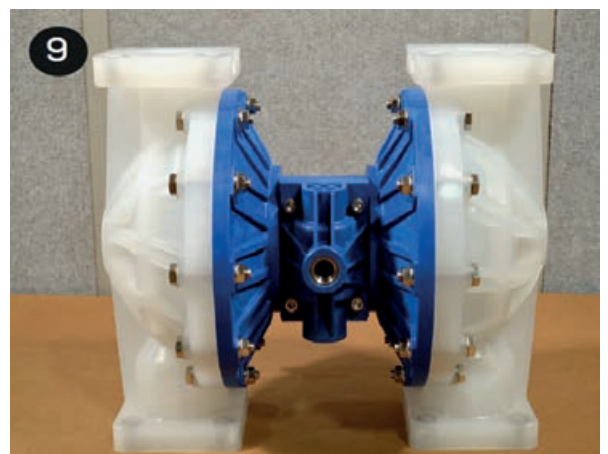
8)

Tighten and torque the outer plates (item 21).



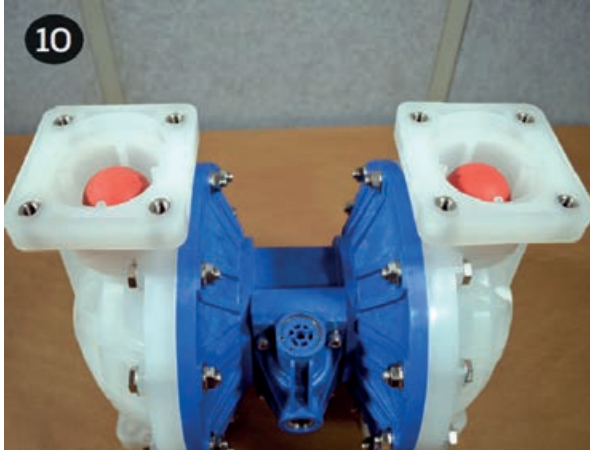
9)

Install the liquid chambers (item 20) by placing one side over the diaphragm. Start all bolts, washers & nuts (items 18, 19, & 28) before tightening and torquing. Torque all fasteners in a star pattern. Repeat to install the second liquid chamber. Ensure both chambers are orientated the same and that the inlet and outlet ports are vertical when facing the front of the pump as shown.



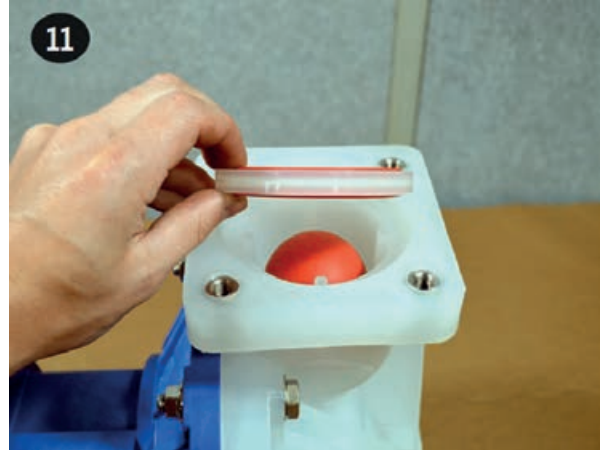
10)

Flip the pump upside down and drop the suction valve balls (item 17) into the liquid chamber (item 20) ball cages.



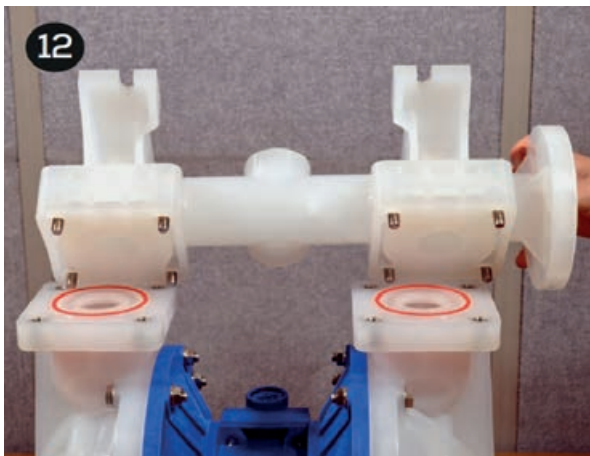
11)

Place the valve seat o-rings (item 15) into each side of the valve seats (item 16). Place the valve seats into the counterbores of the liquid chambers (item 20). Valve seats are symmetrical.



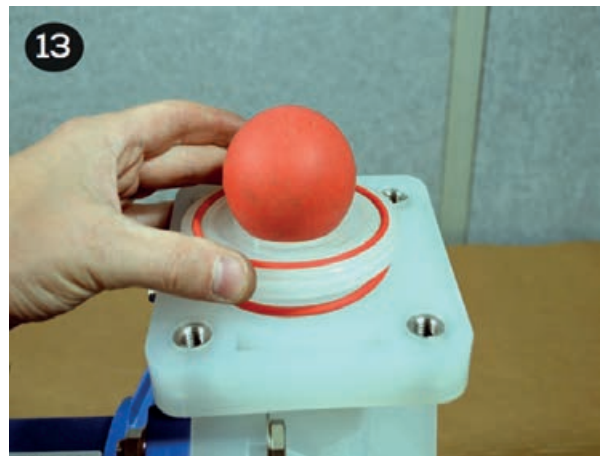
12)

Place the suction manifold atop the pump and install, tighten and torque the (8) manifold bolts & washers (items 12 & 13).



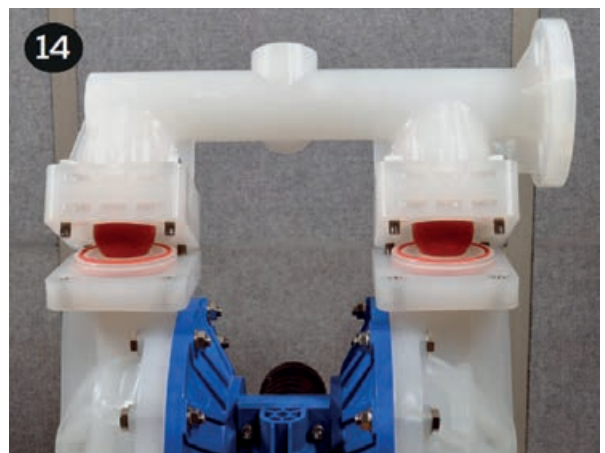
13)

Stand the pump upright onto the suction manifold feet (item 14). Place the valve seat o-rings (item 15) into each side of the valve seats (item 16). Place the valve seats on the liquid chambers (item 20).



14)

Place the valve balls (item 17) on the valve seats and discharge manifold (item 37) atop the components that are stacked on top of the liquid chambers. Install, tighten and torque the (8) manifold bolts & washers (items 12 & 13).



AIR END SERVICING (INSTALLING AIR END KIT)

SHAFT, BUSHING AND O-RING REPLACEMENT

Follow steps 1 – 7 in the Wet End Servicing disassembly section to access the shaft bushing (item 30) and o-rings (items 29 & 31).

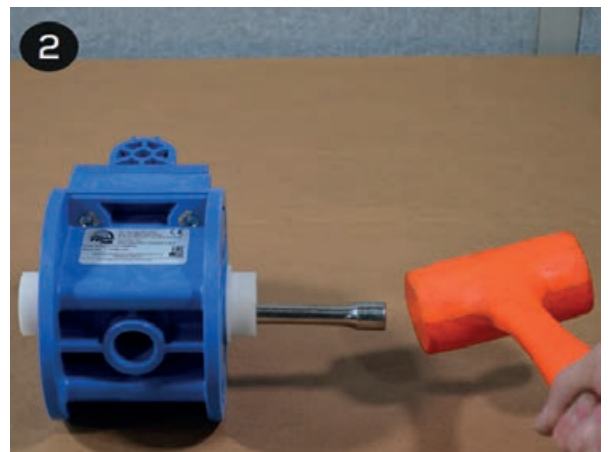
1)

Remove both air chambers by removing the four bolts and four nuts using a 13mm (or ½") wrench.



2)

Remove and set aside the air valve (item 3) using a 6 mm hex wrench (see "Valve Replacement" section for more details). The shaft bushings (item 30) can be removed by placing a large socket between the two bushings. Place an extension into the socket from one side of the center section. Tap with a rubber mallet to remove the bushing. Repeat for the remaining bushing.



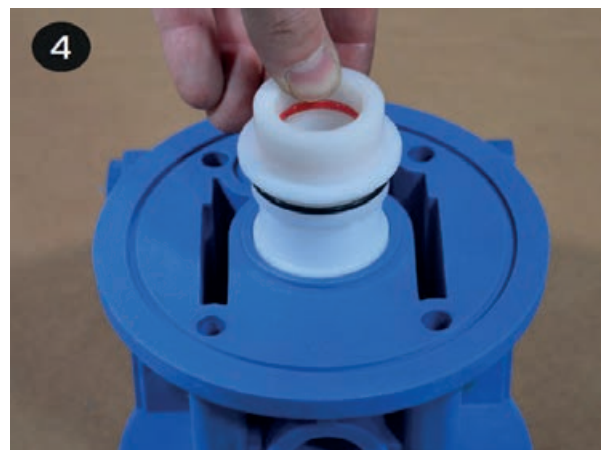
3)

Use the supplied grease packets to lightly grease the OD and ID o-rings (items 29 & 31) that come preinstalled in the new shaft bushings supplied in air end kits.



4)

Insert both bushings into the center section. Ensure the bushing is fully installed.



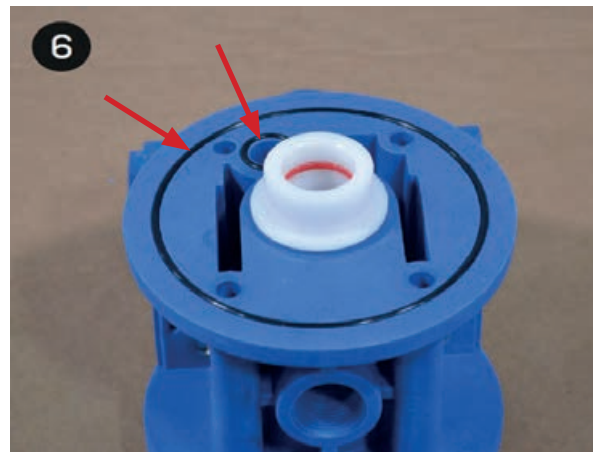
5)

Inspect the shaft (item 32) for damage. It is common for shafts to become grooved during service. Grooving is normally caused by carbonized oil and/or abrasive foreign material getting trapped between the seal and the shaft. Over time, deep grooves can form in the shaft. When that occurs, it is recommended that the shaft be replaced.



6)

After determining if the condition of the shaft is acceptable, ensure both center section o-rings (items 33 & 34) are in place on both sides of the center section.



7)

Install both air chambers (item 27) by placing one side on top of the center section (item 35). Ensure the air path hole of the center section lines up with the through hole in the air chamber. Insert the (4) bolts & washers (items 25 & 26) through the air chamber and center section.



8)

Flip the components over and place the remaining air chamber on the center section. Thread the nuts & washers onto the bolts (items 25, 26 & 38). Tighten and torque the fasteners.

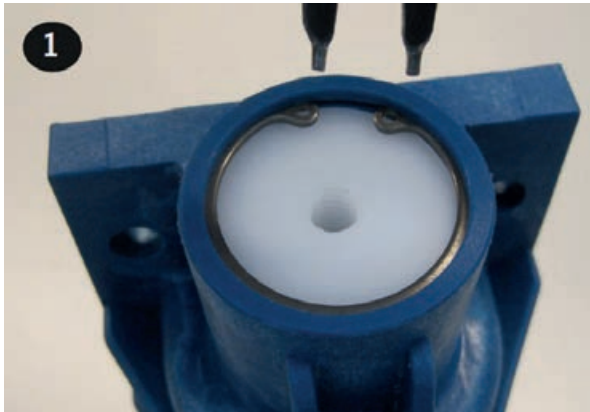


AIR VALVE O-RING REPLACEMENT

1)

Plastic Air Valve

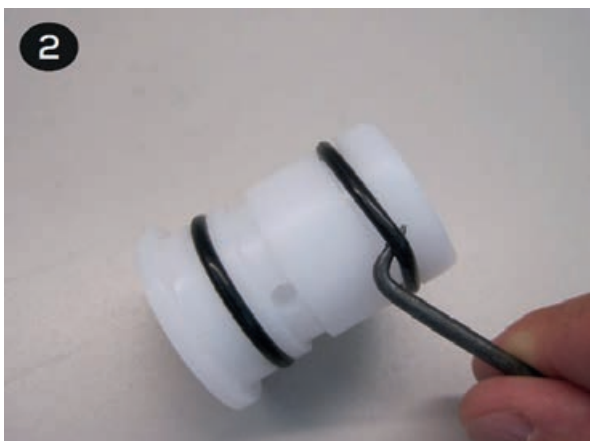
To replace the valve cap o-ring remove the retaining ring (item 10), then pull the valve cap (item 9) straight up. The use of an M8 bolt, vice grip, and pry bars may be necessary. See 1 and 1A pictures below.



2)

Plastic Air Valve

Remove and replace o-rings (item 8). Insert cap (item 9) and push down until groove for the retaining ring is visible. Install retaining ring (item 10). Make sure to lubricate the o-rings prior to inserting into the valve body with a compatible lubricant.



1)

Aluminium Air Valve

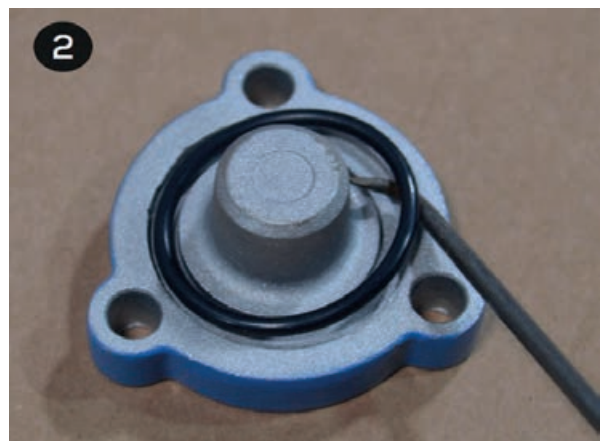
To replace the valve cap o-rings (item 8), remove the (3) button head cap screws (item 11) using a 4 mm hex wrench. Repeat for the remaining cap.



2)

Aluminium Air Valve

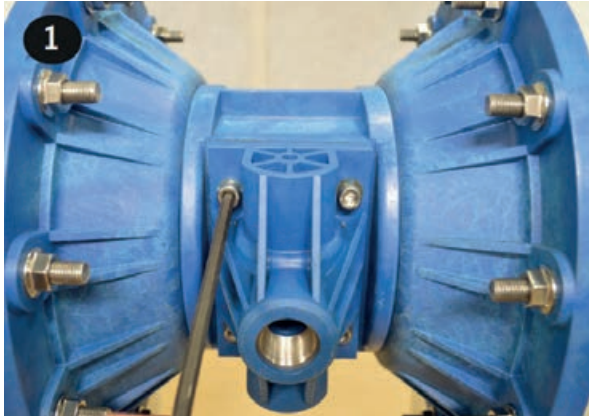
Remove and replace o-ring (item 8). Install cap (item 9), tighten, and torque the valve cap screws (item 11). Repeat for the remaining cap.



VALVE AND MUFFLER GASKET REPLACEMENT

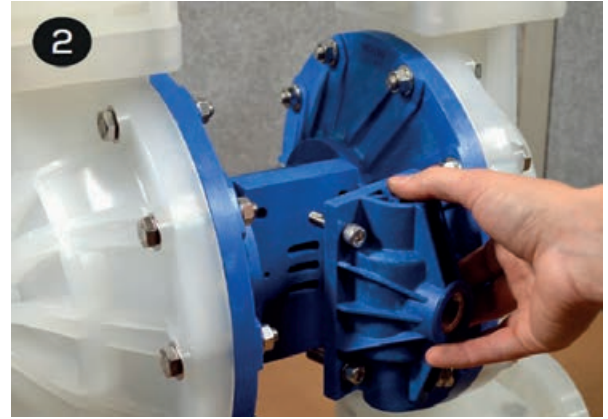
1)

Remove the valve body (item 3) by removing the four socket head cap screws & lock washers (items 1 & 2) that attach the valve body to the center section (item 35) with a 6 mm hex wrench.



2)

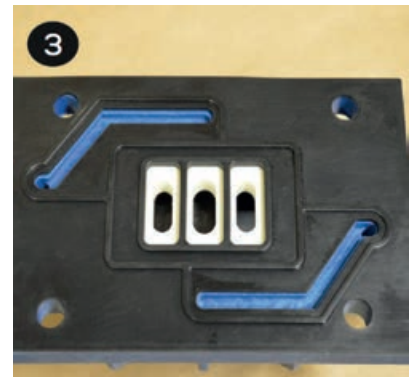
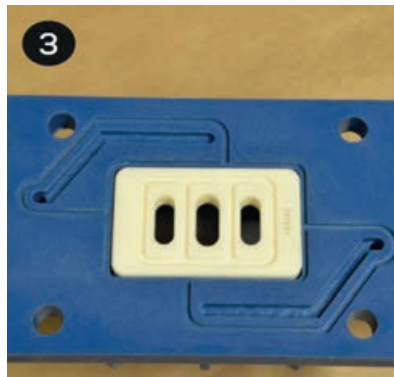
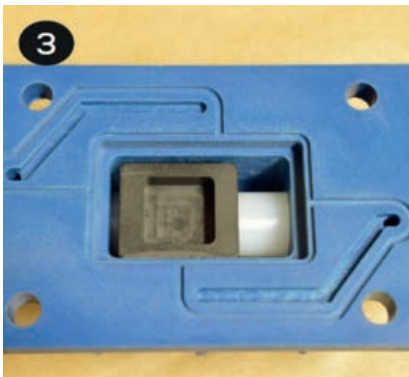
Pull the valve body and gasket (items 3 & 6) off the front of the center section (item 35).



3)

Place the new gasket (item 6) on the air valve (item 3) and ensure the slots in the gasket align with the slots in the air valve and valve plate (item 5).

Air Valve Slide, Plate & Gasket Orientation: If the valve plate (item 5) and slide valve (item 4) are removed, ensure they are installed in the proper orientation. The flat face of the slide valve sits in the pocket of the valve carrier (item 7) so that the square cut out on the slide valve faces the smooth polished side of the valve plate.



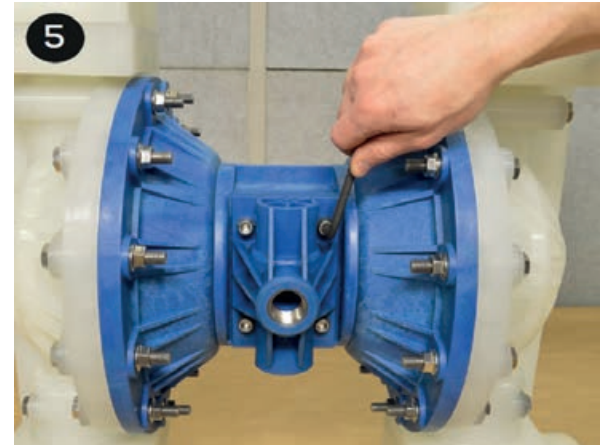
3)

Insert the four cap screws (item 1) through the valve body and gasket (items 3 & 6) and place onto the center section (item 35). Ensure the slide valve and valve plate (items 4 & 5) are in place and the valve sits flat on the center section.



5)

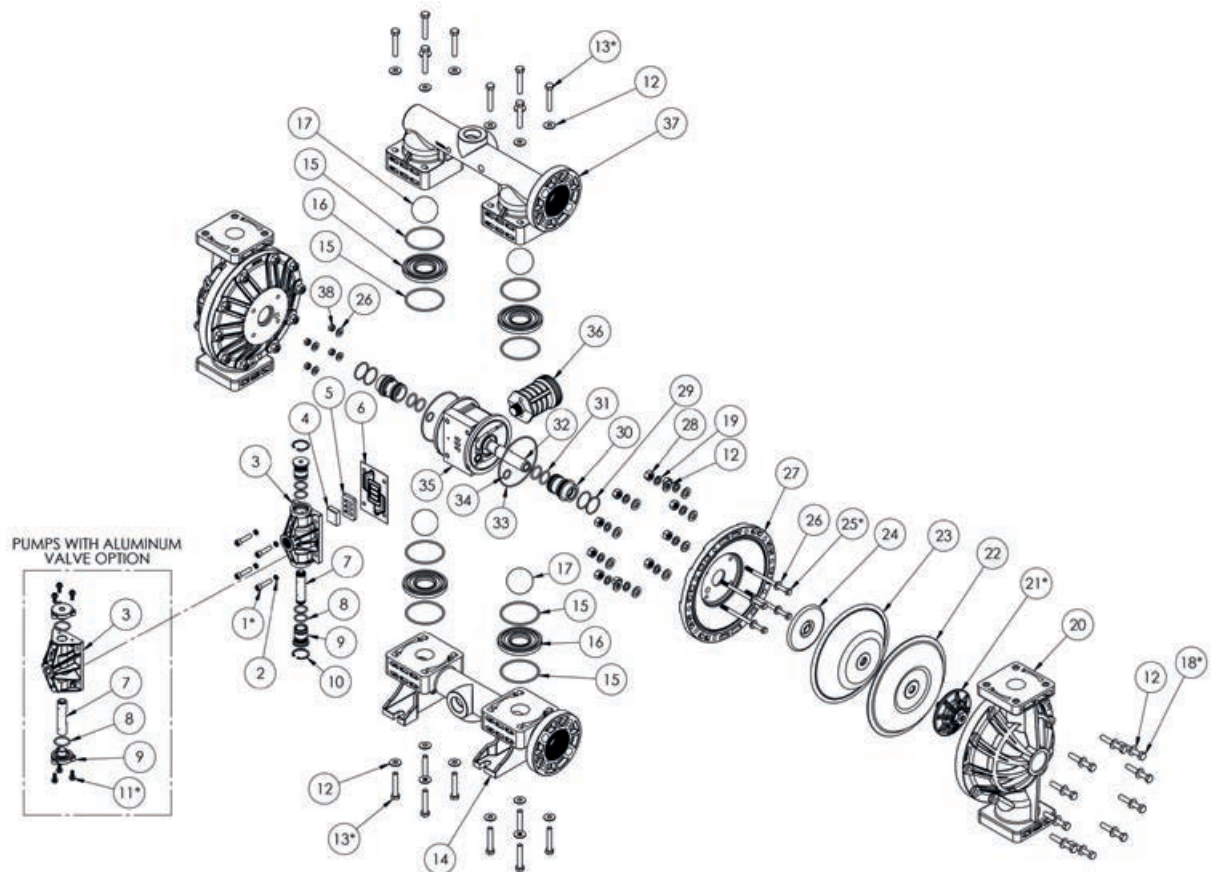
Tighten and torque the four cap screws into the center section.



REPLACEMENT AIR VALVE KIT INSTALLATION

- 1) Remove the valve that is to be replaced by removing the four socket head cap screws with a 6 mm hex wrench that attaches the valve body to the center section.
- 2) Save the four cap screws & four lock washers. All other valve components can be discarded.
- 3) Remove the packing tape that holds the air valve components in place during shipping.
- Follow steps 3 – 7 in the Valve Gasket Replacement section of Air End Servicing above.

EXPLODED VIEW AND SPARE PARTS LIST



Pos.	Description	Material	Part-No.	Qty.	Set
1	CAP SCREW, SOCKET HEAD, M8-1.25 X 35MM SSTL		105589	4	—
2	WASHER, LOCK HIGH COLLAR, M8 SSTL		109518	4	—
3	VALVE BODY		SEE AIR VALVE TABLES		
4	SLIDE VALVE		109843	1	V1/V2
5	VALVE PLATE		109845	1	V1/V2
6	GASKET, AIR VALVE		109266	1	A1/A2/V1/V2
7	VALVE CARRIER		SEE AIR VALVE TABLES		
8	O-RING, VALVE CAP		SEE AIR VALVE TABLES		
9	VALVE CAP		SEE AIR VALVE TABLES		
10	RETAINING RING, VALVE CAP		SEE AIR VALVE TABLES		
11	CAP SCREW, BUTTON HEAD, M6-1.0 X 16MM SSTL		SEE AIR VALVE TABLES		
12	WASHER, FLAT 3/8" ANSI B SSTL		111390	56	—
13	CAP SCREW, HEX HD, M10-1.5 X 60MM SSTL		209027	16	—

Pos.	Description	Material		Part-No.	Qty.	Set
14	MANIFOLD, SUCTION,	PP	NPT /Flange	109003-1	1	—
			BSPT / Flange	109003-2		
			NPT center, horizontal	109057		
			NPT center, vertical	109057-1		
			BSPT center, horizontal	109057-2		
			BSPT center, vertical	109057-3		
		PVDF	NPT / Flange	109003-3		
			BSPT / Flange	109003-4		
			NPT center, horizontal	109057-4		
			NPT center, vertical	109057-5		
			BSPT center, horizontal	109057-6		
			BSPT center, vertical	109057-7		
15	O-RING, VALVE SEAT,	Neoprene	109036	8	W	
		Buna	109308			
		EPDM	109037			
		PTFE	109038			
		FKM	109323			
		FEP-covered	109536			
		PU	109537			
		Santoprene	109538			
16	VALVE SEAT	PTFE	109018	4	W	
		Aluminium	109019			
		Stainless Steel	109020			
		Neoprene	109021-1			
		Buna	109021-2			
		EPDM	109021-3			
		FKM	109021-4			
		Santoprene	109022-1			
		Hytrel	109022-2			
		PU	109022-3			
		FDA Santoprene	109022-4			
		FDA Hytrel	109022-5			
		PP	109030			
		PVDF	109030-1			
17	VALVE BALL	Neoprene	109025-1	4	W	
		Buna	109025-2			
		EPDM	109025-3			
		FKM	109025-4			
		Santoprene	109026-1			
		FDA Santoprene	109026-4			
		PTFE	109027			
		PTFE (weighted)	109031			
		Stainless Steel	109032			
		18	CAP SCREW, HEX HD			Steel
19	WASHER, LOCK	Steel	M10	105757	20	—

Pos.	Description	Material	Part-No.	Qty.	Set
20	LIQUID CHAMBER	PP	109767-18	2	—
		PVDF	109767-19		
21	OUTER PLATE	PP	109011-1	2	—
		PVDF	109011-2		
22	DIAPHRAGM	PTFE	109017	2	W
23	DIAPHRAGM	Neoprene	109023-1	2	W
		Buna	109023-2		
		EPDM	109023-3		
		FKM	109023-4		
		Santoprene	109023-5		
		Hytrel	109023-6		
		PU	109023-7		
		FDA Santoprene	109023-8		
		FDA Hytrel	109023-9		
24	INNER PLATE	Aluminium	109169-1	2	—
		Stainless Steel	109716-1		
25	CAP SCREW, HEX HEAD	Steel, M8x1,25 L=130mm	209021	4	—
26	WASHER, FLAT	Steel, M8	109469	8	—
27	AIR CHAMBER	PP	109010	2	—
28	NUT, HEX	M10x1,5	107825	20	—
29	O-RING, SHAFT		109424	4	A1/A2
30	SHAFT BUSHINGS W/O-RINGS (ITEMS 29 & 31) INCLUDES BOTH BUSHINGS		109069	1	A1
31	O-RING, BUSHING OD		109420	4	A1/A2
32	SHAFT		109015	1	
33	O-RING, CENTER SECTION, LARGE		108588	2	A1
34	O-RING, CENTER SECTION, SMALL		109039	2	A1
35	CENTER SECTION	PP FRP	109009	1	—
36	MUFFLER	PP FRP	109562	1	—
		Steel	109700		
	MUFFLER, LARGE	Steel	109794		
37	MANIFOLD, DISCHARGE	PP NPT / Flange	109006-1	1	—
		PP BSPT / Flange	109006-2		
		PP NPT center, horizontal	109056		
		PP NPT center, vertical	109056-1		
		PP BSPT center, horizontal	109056-2		
		PP BSPT center, vertical	109056-3		
		PVDF NPT / Flange	109006-3		
		PVDF BSPT / Flange	109006-4		
		PVDF NPT center, horizontal	109056-4		
		PVDF NPT center, vertical	109056-5		
		PVDF BSPT center, horizontal	109056-6		
		PVDF BSPT center, vertical	109056-7		
38	NUT, HEX	M8x1,25	109474	4	—

KIT COLUMN KEY**A1** PARTS SUPPLIED IN PLASTIC VALVE AIR END KIT 109907**V1** PARTS SUPPLIED IN PLASTIC REPLACEMENT VALVE KIT 109051-1**W** ARTS SUPPLIED IN A WET SIDE KITS**A2** PARTS SUPPLIED IN ALUMINUM VALVE AIR END KIT 109055-2**V2** PARTS SUPPLIED IN ALUMINUM REPLACEMENT VALVE KIT 109050

AP15 with air valve PP-FRP				
Pos.	Description	Part-No.	Qty.	Set
3	VALVE BODY	109903	1	V1
7	VALVE CARRIER WITH SEALS	111365	1	V1
8	O-RING, VALVE CAP	109891	4	A1/V1
9	VALVE CAP - DELRIN	109889	2	V1
10	RETAINING RING, HO-137SSTL	109647	2	V1

AP15 with air valve Aluminium				
Pos.	Description	Part-No.	Qty.	Set
3	VALVE BODY, ALUMINUM	s. Pos. 40	1	—
7	VALVE CARRIER, ALUMINUM	109844	1	—
8	O-RING, VALVE CAP	109415	2	A2
9	VALVE CAP, ALUMINUM	s.Pos. 40	2	—
11	CAP SCREW, M6-1.0 X 16MM	109513	6	—
40	CONTAINS Pos. 3, 7, 8, 9, 11	109049	1	V2

Maximum Torque Settings (Plastic designs)

Asterisk (*) from the exploded view diagram indicates fasteners to be torqued. Stainless steel to stainless steel fasteners should be lubricated to prevent galling. A Plus sign (+) on the above torque values indicates a lubricated fastener.

Design: PP or PVDF	
Pos.	Torque
1	8,5 Nm (75 in-lbs) +
11	8 Nm (72 in-lbs)
13	38 Nm (336 in-lbs) +
18	38 Nm (336 in-lbs) +
21	95 Nm (840 in-lbs) +
25	20 Nm (180 in-lbs)

CLEARANCE CERTIFICATE

i NOTE

Inspection / repair of machines and machine parts is only carried out after the clearance certificate was filled in correctly and completely by authorized and qualified personnel.

i NOTE

Acceptance will be refused if parts are returned to the manufacturer without a proper clearance certificate.

All industrial companies are obligated by the legal provisions for occupational health, e.g. the workplaces ordinances, the Ordinance on Hazardous Substances, the regulations for prevention of accidents and the environmental protection regulations such as the Waste Management Act and the German Household Water Act to protect their employees or man and the environment from detrimental effects when handling hazardous substances.

Should special safety precautions be necessary despite careful draining and cleaning of the product the necessary information are to be provided.

Machines which are operated with radioactive media shall only be inspected and/or repaired in the safety area of the owner by a **sera** specialized fitter.

The clearance certificate is part of the inspection-/repair order.
sera reserves the right to refuse acceptance of the order for other reasons.

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Company:		Phone:	
Contact partner:		Fax:	
Street address:		E-Mail:	
Postcode, City:		Your order number:	

We confirm that we have entered the information in this clearance certificate (decontamination certificate) correctly and completely and that the returned parts have been carefully cleaned.

The parts sent in are therefore free of residues in dangerous quantities.

Place, Date	Department	Signature (and company stamp)

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Original

Business name and full address of the manufacturer:

sera GmbH, sera-Straße 1, D - 34376 Immenhausen

Name and address of the person authorised to compile the technical file:

Sabine Morell, sera-Straße 1, D – 34376 Immenhausen

Description and identification of the machinery:

Air-operated diaphragm pump for dosing fluids for industrial applications.

airPUMP ½" AP05 PP Santo
airPUMP ½" AP05 PVDF Santo

airPUMP ½" AP05 PP PTFE
airPUMP ½" AP05 PVDF PTFE

airPUMP 1" AP10 PP Santo
airPUMP 1" AP10 PVDF Santo

airPUMP 1" AP10 PP PTFE
airPUMP 1" AP10 PVDF PTFE

airPUMP 1½" AP15 PP Santo
airPUMP 1½" AP15 PVDF Santo

airPUMP 1½" AP15 PP PTFE
airPUMP 1½" AP15 PVDF PTFE

airPUMP 2" AP20 PP Santo
airPUMP 2" AP20 PVDF Santo

airPUMP 2" AP20 PP PTFE
airPUMP 2" AP20 PVDF PTFE

The machinery fulfils all the relevant provisions of this Directive:

2006/42/EC Machinery

Where appropriate, harmonised standards used:

EN ISO 12100:2010

Place and date of the declaration: Immenhausen, 23.06.2021

Identity and signature of the person empowered to draw up the declaration on behalf of the manufacturer or his authorised representative:

The block contains the sera GmbH logo (34376 Immenhausen) and a handwritten signature in blue ink. Below the signature, the text "S. Morell" and "Quality Management" is printed.
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34376 Immenhausen
S. Morell
Quality Management

NOTES

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