

# Installation, Operation and Maintenance Instructions



## PORTABLE COALESCER JR

**ERIEZ MAGNETICS** HEADQUARTERS: 2200 ASBURY ROAD, ERIE, PA 16506-1402 U.S.A.  
*WORLD AUTHORITY IN SEPARATION TECHNOLOGIES*

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# Installation

## Choosing the Location

Locate the coalescer as near to the intended point of use as possible.

Avoid high traffic or forklift path areas to decrease possible bumping or damage to the coalescer.

For maximum performance, place the coalescer in a level location capable of supporting the flooded, operating weight of the unit, allowing access for maintenance and tramp oil container.

## Installing the Unit

Place the unit in the chosen location.

Provide an oil collection container and place near the tramp oil discharge of the coalescer.

## Initial Assembly

1. Remove top of coalescer to access those parts packed inside the unit.
2. Replace cover on top of coalescer.

## Assembly

1. Close drain valve on bottom of unit, open tramp oil discharge valve.
2. Connect 3/4" clean fluid discharge hose to clean fluid outlet using pipe dope or Teflon tape.
3. Place the discharge hose to the machine sump, adjust the height of the clean fluid discharge hose as necessary to ensure unimpeded gravity flow back to the coolant sump, use the supplied magnetic hose holder to keep the hose in place. Do not allow the end of the hose to be submerged in the fluid.
4. Connect the dirty fluid transfer hose from the skimmer to the inlet of the basket strainer using the supplied clamp.
5. Attach a shop compressed air line to the air pressure regulator/filter on unit.

# Start-Up & Operating Procedure

1. Check for proper utility connections and installation of all components. See assembly procedures and schematic.
2. Make sure the tank is level. Use the adjustable leveling legs or casters.
3. **Prime the coalescer by filling with fresh, clean fluid to a level just below the clean fluid outlet.** The Coalescer tank holds approximately 13 gallons.
4. Measure depth of sump.  
Before placing skimmer assembly into the sump, adjust the skimmer height so that the skimmer base is approximately 1-1/4" below the coolant level in the sump.

**Note 1:** If the sump depth is less than 5", modification will need to be made to the skimmer. The skimmer must be trimmed so that the base and the float are short enough to fit the sump. A band saw, cut off saw or hacksaw can be used for this purpose. The length to which to trim the parts is explained in Table 1.

**Note 2:** Once the skimmer height is set as described, the skimmer will maintain operation even with a sump level fluctuation of plus or minus 1-1/4".

Sump Level	Trim Amount	Skimmer Height After Trim	Sump Level Range of Trimmed Skimmer
5-1/4" or greater	None	4-5/8"	+2-1/4" from initial level
4"	1-1/4"	3-3/8"	+1 from initial level
3"	2-1/4"	2-3/8"	0" from initial level
2-3/4"	2-1/2"	1-7/8"	0" from initial level
Less than 2-3/4"	Cannot do	N/A	N/A

TABLE 1



5. Make sure filter screen is in skimmer base.
6. Set skimmer assembly into sump in an area where tramp oil tends to accumulate, or at an area of convenience. The base will sit on the sump bottom keeping the skimmer assembly upright. It is best to sit the skimmer as low as possible in the sump with the upper set screw installed so the upper portion of the float will still stay within the lower portion of the skimmer base. This allows the upper portion to “bob” up and down a small amount, which help keep the skimmer clean of solids.
7. Turn the unit on by turning on the air supply and adjusting the air pressure to 30-40 PSI. The pump will self-prime to 10'. Once the pump has been turned on, it will take a few moments for dirty coolant to start to enter the tank. The coolant will likely have air mixed with it, which will bubble in the coalescer tank. This is normal and helps push the tramp oils towards the tramp oil outlet.
8. Allow the unit to begin collecting tramp oil. Adjust the tramp oil removal pipe elbow so that the opening is 1/16"-1/8" above the fluid level in the tank. This will allow a layer of oil to build up on the fluid, which will dewater as it rises before flowing into the oil removal pipe and out of the unit. After the unit has run for a while, this oil removal pipe elbow can be adjusted again to provide wetter or drier oil as desired.

NOTE: IT IS NORMAL AND DESIRABLE FOR A LAYER OF OIL TO BE ON TOP OF THE COOLANT IN THE COALESCER TANK. The thicker the layer of oil, the less coolant will be in the oil when it finally is discharged from the coalescer.

9. If the unit will be portable and will be moved from machine to machine, it must be operated long enough to remove the accumulated free tramp oils. A good rule of thumb is to take the amount of coolant in the sump, divide that amount by the flow rate of the Coalescer (1 GPM), and multiply that figure by 4 to 6 passes, to come up with an operating time. For example, a 50-gallon sump would need to circulate through a 1 GPM Coalescer for 4-6 passes or 200 to 300 minutes. The more tramp oils present, the longer the unit may have to run to get the free tramp oils out of the coolant.

**NOTE: THIS UNIT WILL ONLY REMOVE FREE TRAMP OILS THAT WILL FLOAT, IT WILL NOT REMOVE CHEMICALLY EMULSIFIED TRAMP OILS THAT DO NOT FLOAT.**

**Operating Procedure Notes:**

After initial start up, periodically monitor the coalescer's operation. When not in use, close all valves.

The waste oil collection container should be routinely emptied to avoid overflow.

Periodically clean accumulated solids that have settled out during processing (see Cleaning Procedure).

Remove and **clean the basket strainer monthly** or as needed.

**If unit will be idle for more than a single day, drain the unit completely to avoid bacterial growth in the stored fluid.**



## Cleaning Procedure:

Initially, inspect unit weekly to determine how quickly solids accumulate in your application. The frequency of cleaning your COALESCER JR depends upon individual plant conditions. Re-examine the cleaning frequency of unit with any changes in the plant that could affect coolant condition or coalescer operation.

### 1. SHUT DOWN

- Shut off pump to stop feed to unit.
- Close all operating valves.
- Disconnect the utilities.

### 2. DRAIN FLUID

- Slowly open the drain valve
- Collect any sediment in a container for disposal.
- Position another container under the drain valve and empty the fluid from the unit
- Reuse the drained coolant only if it is not contaminated with bacteria or has not become rancid.

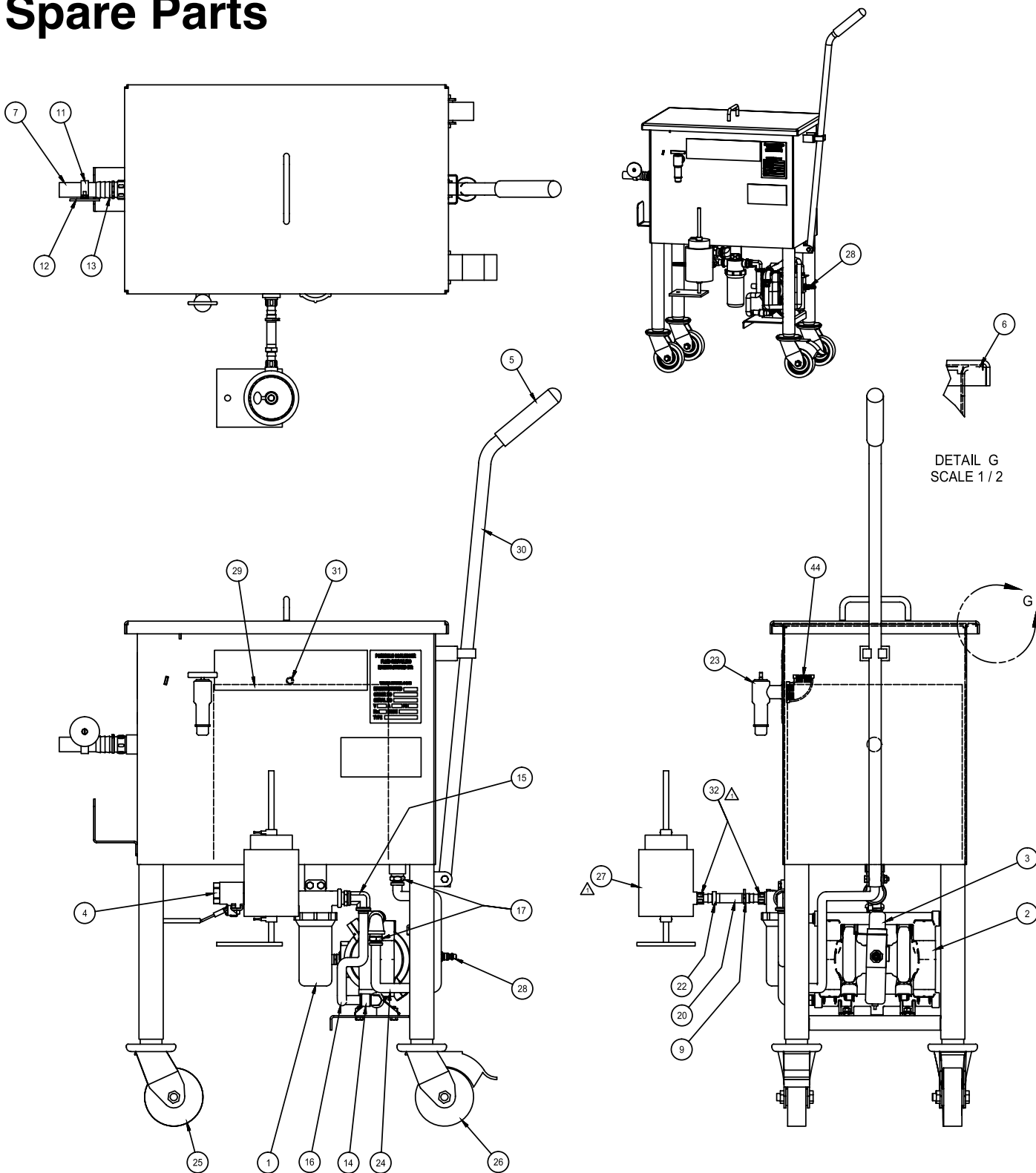
### 3. CLEAN TANK

- Remove the tramp oil discharge elbow and valve assembly. Remove the Media pack from the unit lifting it up by the wire tie end in the pack.
- Clean Media pack by washing with a pressure washer, or simply running through a parts washer.
- Thoroughly clean the tank removing any accumulated oil or solids from the tank walls and bottom.
- Check oil removal pipe for solids build up, flush if needed.
- Dispose of cleaning fluid properly.

### 4. REASSEMBLE

- Close the drain valve.
- Reinstall the Media pack, reinstall the tramp oil drain valve and elbow assembly, make sure there is a gasket on each side of the tank wall.
- Check all hose connections, fittings and valves for leaks.
- Tighten as required.
- Re-prime the coalescer with new fluid or with the old fluid if in good condition.
- Follow Start up and Operating Procedure; adjust unit for proper oil removal.

# Drawing Spare Parts



# Parts List

ITEM NUMBER	PART #	QUANTITY REQUIRED	DESCRIPTION
1	70-1640	1	Strainer (w/20 mesh)
2	56-1025	1	Air pump
3	28-1020	1	Regulator air
4	25-1250	1	Ball valve
5	18-1255	1	Handle grip
6	18-1250	1	Lid gasket
7	41-2400	1	Tubing coolant discharge
8	41-1040	1	Clamp
9	41-1060	1	Clamp
11	30-1400	1	Hanger
12	40-1125	1	Magnet cup
13	457915	1	Hose barb
14	22-1350	1	Pipe Ell PVC
15	22-1435	1	Pushlock fitting
16	41-2430	1	Tubing black
17	22-1430	2	Pushlock fitting
20	41-2190	1	Upper skimmer hose
22	41-1067	1	Clamp
23	42-0155	1	Drum valve
24	41-2430	1	Tubing
25	461309	3	Caster swivel
26	461307	1	Caster swivel w/brake
27	18-1025	1	Skimmer assy w/stand
28	459296	1	Quick disconnect coupling
29	18-1270	1	Filter cube
30	330031	1	Pull handle
31	22-1000	1	Pipe PVC
32	457916	2	Hose barb

TABLE 2

# Maintenance

Refer to the Owner's Manual for maintenance of the transfer pump. A periodic check of the units overall condition is recommended.

PROBLEM	PROBABLE CAUSE	SOLUTION
1. Tramp oil in clean Effluent	Sudden increase in amount of tramp oil in sump	Check for oil leaks into sump
	Oil has become chemically emulsified	Contact Coolant supplier for sample analysis and corrective actions
2. Coolant in tramp oil Effluent	Oil removal pipe elbow is set too close to the fluid level	Adjust pipe elbow so it is 1/16"-3/16" above liquid level
3. No oil being removed tramp	No tramp oil in system	Stop using unit until tramp oil is present
	Tramp oil is emulsified	Unit will only remove free floating tramp oils, not emulsified oils. Wrong application for this unit
4. Unit overflowing	Outlet flow restricted	Check hose, clean or repair as needed
5. No flow through unit	Basket strainer is plugged	Check basket strainer; clean screen
	Skimmer or feed hose is plugged	Check and clean as required
	Pump is not working	Pump may be dirty, flush with clean water or cleaner Pump diaphragms may be worn and need to be replaced. See pump manual for information

**TABLE 3**



# 38" Specialty Performance Maintenance Manual

## Before You Begin

Flush and neutralize the pump to be certain all corrosive or hazardous materials are removed prior to any maintenance. This procedure should always be followed when performing maintenance, transporting used pumps or returning pumps for factory service.

## Valve and O-Ring Maintenance

1. Remove the nuts (3) and washers (4) from the bolts (23) in manifolds. Remove the manifolds (20), (11). Two of the four max pass valves and back-ups (13, 14) are located inside of the bottom of the outer chambers (16). Gently remove and inspect for excessive wear, pitting or other signs of degradation. Inspect manifold o-ring (12) as well and replace if necessary.
2. The other two max-pass valves are located inside of the bottom of the discharge manifold (20). Repeat the procedure for inspection of discharge valves, back-ups and o-rings. (Some pumps such as those built with PTFE have ball valves in place of the max pass valves. Repeat the procedure – inspect valve seat (28), balls (29), ball cage (27) and o-ring (12)).
3. When re-assembling the max-pass pump, the sleeve (15) should be assembled into the valve cavity first, followed by the max-pass valve (13), the valve back-up (14) and finally the o-ring (12). For pumps with balls valves, the cage (27) should be assembled into the valve cavity first, followed by the ball (29), valve seat (28), and finally the o-ring (12). Lightly tighten all external fasteners when assembling, torquing them to their requirements after pump is completely assembled.

**NOTE: When using pumps built with PTFE o-rings, always replace with new PTFE o-rings, since the original o-rings may not reseal the pump.**

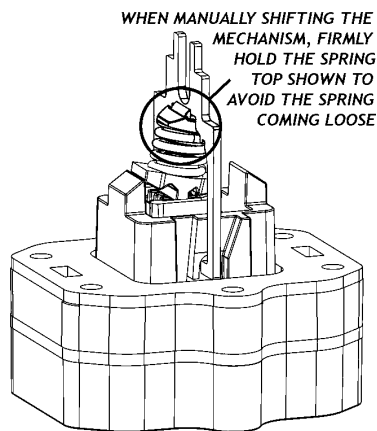
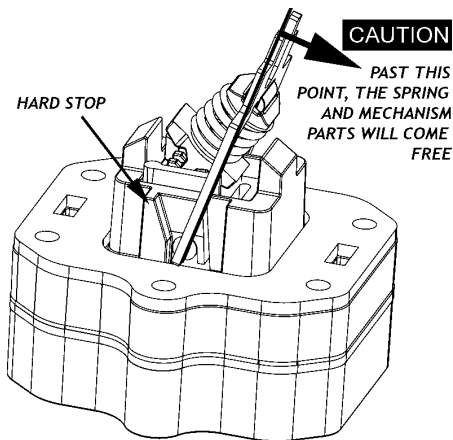
## Diaphragm Maintenance

4. To inspect diaphragms, remove the nuts (7) from the carriage bolts (8) on the band clamps (16) surrounding the outer pump chambers (16). If replacement is necessary due to abrasion or rupture, unscrew the outer diaphragm plates (17). Only models that have PTFE elastomers will have both a PTFE overlay (18) that faces the outer pump chamber and an o-ring (25) on the air side of pump. (NOTE: Pumps that do not contain PTFE will not have o-ring (25) – they are built with diaphragms (19) only.)
5. To inspect the diaphragm rod's lip seals, remove diaphragm rod and carefully pick out the lip seals from inside the intermediate (22). Replace if necessary. Be sure to reinsert the lip seals with open cup facing the inside of the pump. Make sure that the rod guide is facing the air valve assembly and slide the diaphragm rod back into intermediate.
6. Take one diaphragm and with the curved side of the inner diaphragm plate facing the diaphragm, assemble onto the outer diaphragm plate stud. Screw the assembly into the end of the diaphragm rod. Repeat for the other side. Torque the outer diaphragm plates to requirements.
7. Position outer diaphragm chambers onto the intermediate, making sure that the witness line of the intermediate matches with the parting line of the chamber.
8. When positioning band clamps, use soapy water or a compatible lubricating spray on the inside of the band clamps to aid assembly. Tap with a mallet on the outside of the clamp to help position it while tightening the fasteners. The band clamp fasteners are stainless steel. To prevent galling, apply an anti-seize compound to the thread. Tighten to final torque requirements.
9. Position the manifolds, making sure of their orientation in relation to the air valve for your application. Also, make sure that the manifold o-rings do not shift from their grooves during reassembly. Tighten all external fasteners to final torque requirements after the pump is completely assembled.

## Air Valve Assembly Inspection

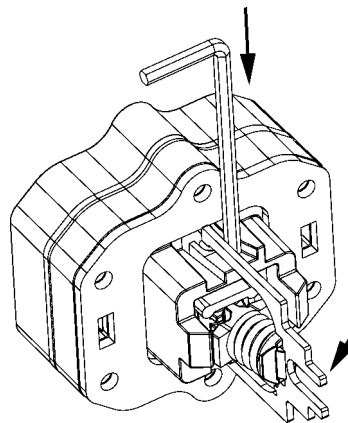
### **CAUTION**

Only one side of the mechanism has a hard-stop. Shifting the mechanism past its operating position can cause the spring to pop free and internal components to come loose. Use caution when shifting the mechanism manually.



10. If there has been a diaphragm rupture and fluid has entered the air side of the pump, the complete air system should be inspected. Remove the air valve assembly (2) by unscrewing the six long hex-head air valve assembly screws (9).
11. Clean or replace the air valve assembly if there is excessive wear, dirt build-up or chemical attack. Inspect for proper shifting of the spring mechanism by manually pushing the metal spring retainer from one side to the other.

12. To reinstall the air valve, first shift the spring mechanism to the side with the hard-stop. Next, prop the spring retainer into a more neutral position by inserting a 7/64" or 3 mm hex key as shown between the hard-stop and the spring retainer.
13. With the rod guide (1) positioned such that the opened end is facing the air valve assembly opening, slide the air valve assembly in place so that the forks slide into the rod guide. Once the fork of the spring retainer is in the rod guide, pull the hex key free and push the air valve assembly fully into place. Finally, reinsert and tighten the air valve assembly screws to the torque listed on the specs sheet.



### Fastener Torque Requirements

**NOTE: When reassembling, loosely tighten all external fasteners adjusting and aligning. Then gradually, in an alternating fashion, tighten to the torque requirements listed below.**

Air Valve Assembly Screws 12 In-Lbs (1,35 Nm)

Band Clamps 13.3 Ft-Lbs (18,8 Nm)

Manifold Bolts, 10 In-Lbs (1,13 Nm)

Outer Diaphragm Plates, 40 In-Lbs (4,5 Nm)

U.S. Patent Number 5232352



## Specifications

### Capacity:

Adjustable 0-9 gpm (34.0 Lpm)

### Maximum Temp:

Pvdf models – 200°F (93°C)

Other models – 150°F (66°C)

### Maximum Air Pressure:

120 psi (8,2 Bar)

### Minimum Air Pressure:

20 psi (1,3 Bar)

### Dry Lift:

Models with PTFE balls – 10 feet (3 meters)

Models with Max-Pass™ Valves – 17 feet (5.2 meters)

### Weight:

PVDF models – 5 pounds (2,3 kg)

Other models – 3.8 pounds (1,7 kg)

### Maximum Solids:

Models with Max-Pass™ valves – 1/4" (6.4 mm)

Other models – 1/16" (3.2 mm)

### Air Supply:

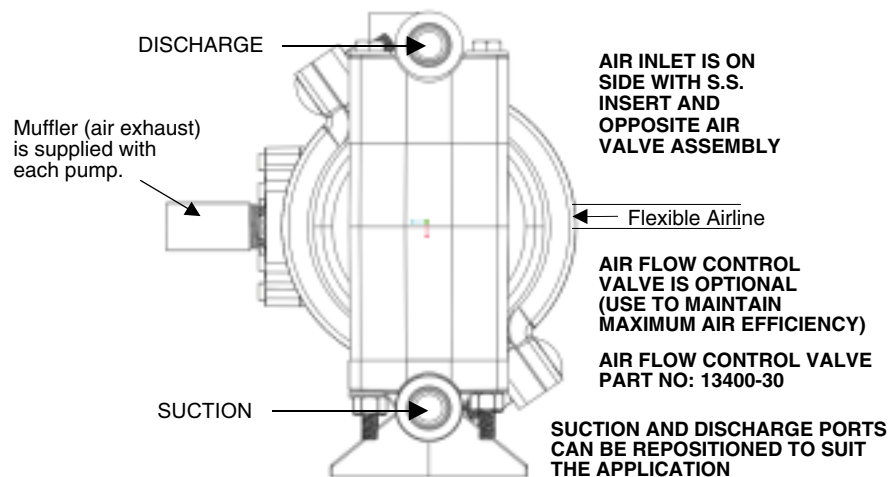
Inlet – 1/4" NPS Female (BSP or NPT compatible)

Outlet – 3/8" NPS Female (BSP or NPT compatible)

### Fluid Inlet/Discharge:

3/8" NPS Female (BSP or NPT compatible)

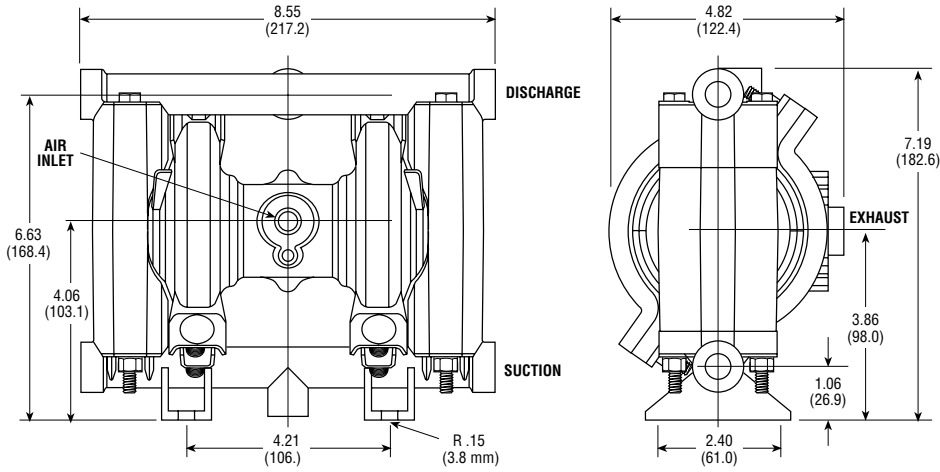
## Typical Installation



**DO NOT USE AIR LINE LUBRICATION**

# Dimensions

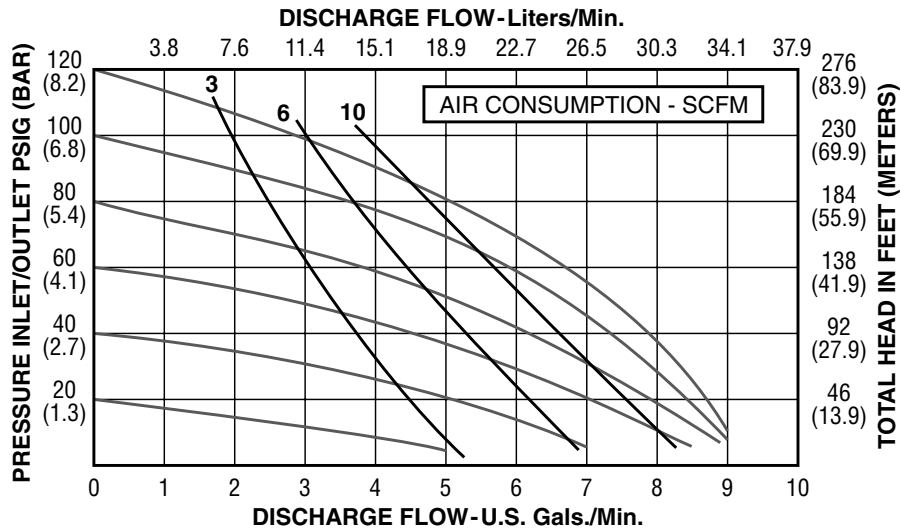
Dimensions in inches (mm)



**NOTE: Air inlet is on the side with stainless steel insert. The air valve assembly is on the opposite side of the pump.**

# Performance Curve

(Based on water-flooded suction)



# Drawing

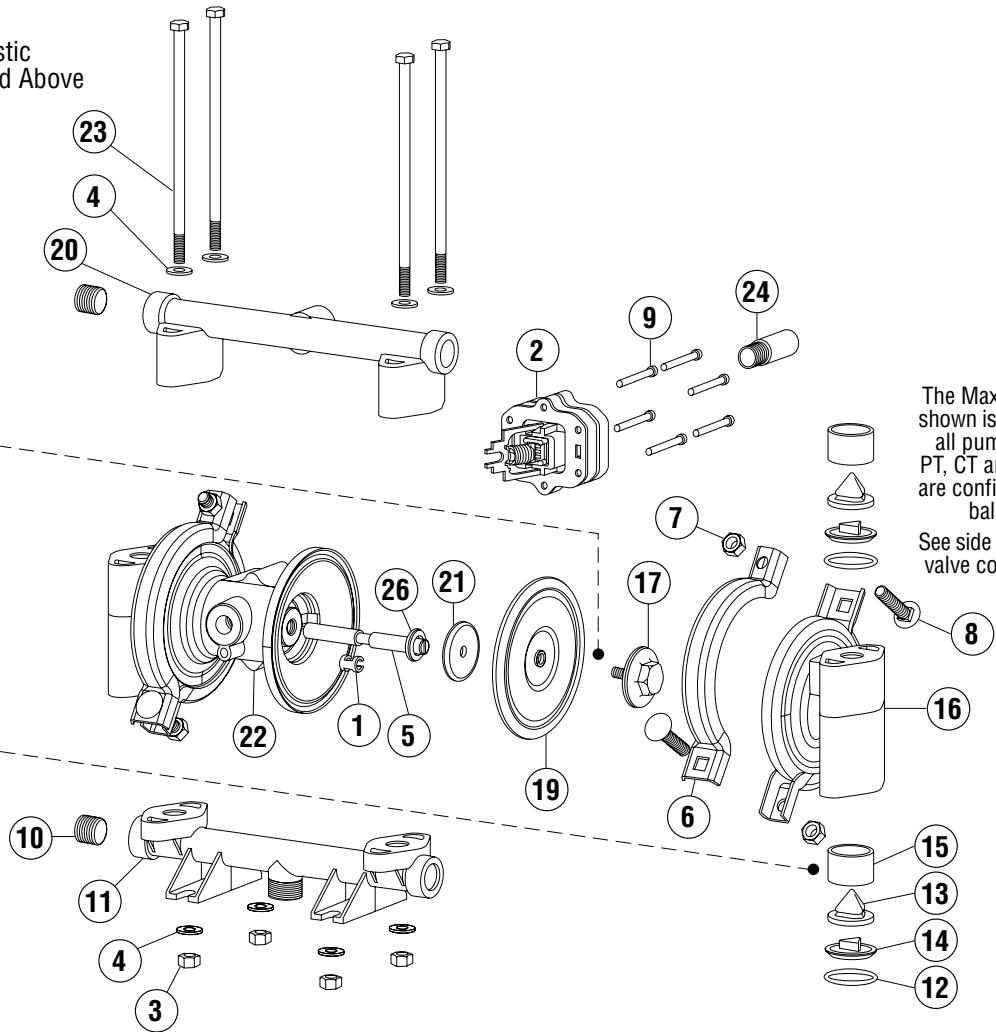
## 3/8" MODEL

Specialty Performance Plastic  
Serial Numbers 128600 and Above

Diaphragm configuration for PT, CT and KT pumps.

PTFE Diaphragm requires O-ring.

Ball valve configuration for PT, CT and KT pumps.



The Max-Pass Valve shown is standard for all pumps-except PT, CT and KT which are configured with a ball valve.  
See side panel for ball valve configuration.



**Table**

Item	Description	Quantity per Pump	Models	Part No.	Material
1	Rod Guide	1	All	12807-31	Acetal
2	Air Valve Assembly	1	All	40380-54	Various
3	Hex Nut (1/4" x 20)	4	All	12600-26	SS
4	Flat Washer	8	All	12300-26	SS
5	Diaphragm Rod	1	All	10316-26	SS
6	Clamp (Complete with Fastners)	2	All	12913-26	SS
7	Hex Nut (5/16" - 18)	4	All	12601-26	SS
8	Carriage Bolt (5/16" x 1-1/2")	4	All	12509-26	SS
9	#8 x 1-3/4 Phillips Pan	6	All	12548-26	SS
10	Pipe Plug, 3/8" NPT	2	PB, PT, PE, PV CB, CT, CV KT, KE, KV	12206-40 12206-42 12206-56	Polypro Nylon PVDF
11	Suction Manifold	1	PB, PT, PE, PV CB, CT, CV KT, KE, KV	10570-40 10570-46 10570-56	Polypro Cond. Nylon PVDF
12	O-ring, Check Valve	4	PB, CB PT, CT, KT PE, KE PV, CV, KV	11938-11 11938-17 11938-15 11938-82	Nitrile PTFE EPDM Viton
13	Max-Pass Valve	4	PB, CB PE, KE PV, CV, KV	10915-11 10915-15 10915-82	Geolast EPDM Viton
14	Max-Pass Valve Backup	4	PB, PE, PV CB, CV KE, KV	10916-40 10916-46 10916-56	Polypro Cond. Nylon PVDF
15	Max-Pass Sleeve	4	PB, PE, PV CB, CV KE, KV	10917-40 10917-42 10917-56	Polypro Nylon PVDF
16	Outer Chamber	2	PB, PT, PE, PV CB, CT, CV KT, KE, KV	10701-40 10701-46 10701-56	Polypro Cond. Nylon PVDF
17	Outer Diaphragm Plate	2	PB, PT, PE, PV CB, CT, CV KT, KE, KV	11201-40 11201-46 11201-56	Polypro Cond. Nylon PVDF
18	Diaphragm	2	PT, CT, KT PV, CV, KV	11401-59	PTFE
19	Diaphragm	2	PB, CB, KB PE, KE	10601-19 10601-23	Geolast Santoprene
20	Discharge Manifold	1	PB, PT, PE, PV CB, CT, CV KT, KE, KV	10571-40 10571-46 10571-56	Polypro Cond. Nylon PVDF
21	Inner Diaphragm Plate	2	All	11101-25	PS
22	Intermediate	1	All	11503-60	Polypro
23	Cap Screw	4	All	12515-26	SS
24	Muffler	1	All	13008-00	Special



**Table (Continued)**

Item	Description	Quantity per Pump	Models	Part No.	Material
25	O-ring, Diaphragm	2	PT, CT, KT PV, CV, KV	11942-11	Nitrile
26	Lip Seal	2	All	12005-76	Nitrile
27	Ball Cage Check balls are standard in PT, KT and CT Pumps optional for other pumps	4	PT CT KT	10914-40 10914-46 10914-56	Polypro Cond. Nylon PVDF
28	Valve Seat Check balls are standard in PT, KT and CT Pumps optional for other pumps	4	PT CT KT	10913-40 10913-26 10913-56	Polypro SS PVDF
29	Ball Check balls are standard in PT, KT and CT Pumps optional for other pumps	4	PT, CT, KT	11000-45	PTFE

**Repair Kits - Wet End**

Models CT, KT & PT include items 12, 18, 25, 28 & 29

Models PV, CV & KV include items 12, 13, 14, 19 & 25

Models PB, BC, PE & KE include items 12, 13, 14 & 19

To order a wet end repair kit, add "KIT to the pump model. e.g. PB-038 KIT

**NOTES:**

1. **SS = Stainless Steel, PS = Plated Steel**
2. **Stock models (except PT, KT and CT models) are built with Max-Pass Valves and use items 13, 14, and 15.**
3. **PT, KT and CT pumps are not built with Max-Pass valves. These pumps have a stock Check Ball configuration**



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