# 1" Elima-Matic Bolted Metal – ATEX

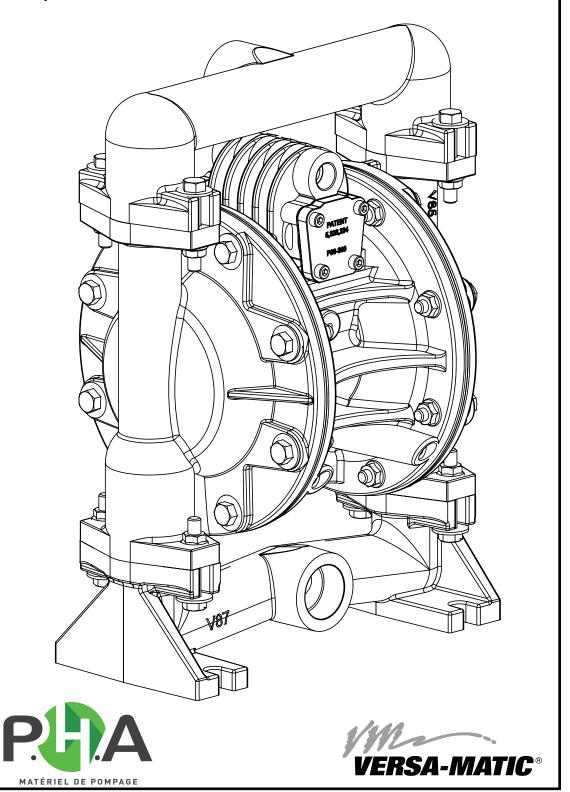
with Metallic Center Sections

**E1** 

#### **E1 Metallic Pumps**

- Aluminum
- Stainless Steel
- Alloy-C





### **Safety Information**

#### **A** IMPORTANT



Read the safety warnings and instructions in this manual before pump installation and start-up. Failure to comply with the recommendations stated in this manual could damage the pump and void factory warranty.



When the pump is used for materials that tend to settle out or solidify, the pump should be flushed after each use to prevent damage. In freezing temperatures the pump should be completely drained between uses.

#### **A** CAUTION



Before pump operation, inspect all fasteners for loosening caused by gasket creep. Retighten loose fasteners to prevent leakage. Follow recommended torques stated in this manual.



Nonmetallic pumps and plastic components are not UV stabilized. Ultraviolet radiation can damage these parts and negatively affect material properties. Do not expose to UV light for extended periods of time.

#### WARNING



When used for toxic or aggressive fluids, the pump should always be flushed clean prior to disassembly.



Before maintenance or repair, shut off the compressed air line, bleed the pressure, and disconnect the air line from the pump. Be certain that approved eye protection and protective clothing are worn at all times. Failure to follow these recommendations may result in serious injury or death.



Airborne particles and loud noise hazards. Wear eye and ear protection.



In the event of diaphragm rupture, pumped material may enter the air end of the pump, and be discharged into the atmosphere. If pumping a product that is hazardous or toxic, the air exhaust must be piped to an appropriate area for safe containment.



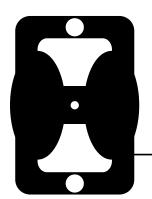
Take action to prevent static sparking. Fire or explosion can result, especially when handling flammable liquids. The pump, piping, valves, containers and other miscellaneous equipment must be properly grounded.



This pump is pressurized internally with air pressure during operation. Make certain that all fasteners are in good condition and are reinstalled properly during reassembly.

### **Grounding the Pump**

To be fully groundable, the pumps must be ATEX Compliant. Refer to the nomenclature page for ordering information.



Optional 8 foot long (244 centimeters) Ground Strap is available for easy ground connection.

To reduce the risk of static electrical sparking, this pump must be grounded. Check the local electrical code for detailed grounding instruction and the type of equipment required.

Refer to nomenclature page for ordering information.

#### WARNING



Take action to prevent static sparking. Fire or explosion can result, especially when handling flammable liquids. The pump, piping, valves, containers or other miscellaneous equipment must be grounded.



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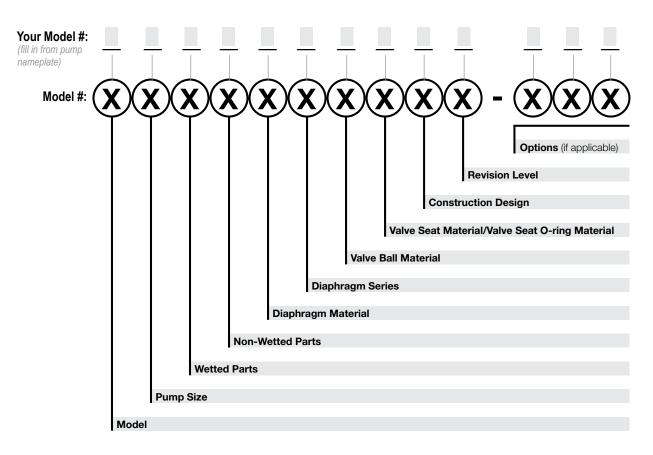
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## **Explanation of Pump Nomenclature**

Your Serial #: (fill in from pump nameplate)



Model	Pump Size	Wetted Parts	Non-Wetted Parts	Diaphragm Material
E Elima-Matic	<b>6</b> 1/4"	<b>A</b> Aluminum	<b>A</b> Aluminum	1 Neoprene
<b>U</b> Ultra-Matic	<b>8</b> 3/8"	C Cast Iron	S Stainless Steel	2 Nitrile (Nitrile)
<b>V</b> V-Series	<b>5</b> 1/2"	S Stainless Steel	P Polypropylene	3 FKM (Fluorocarbon)
RE AirVantage	<b>7</b> 3/4"	H Alloy C	<b>G</b> Groundable Acetal	4 EPDM
	<b>1</b> 1"	P Polypropylene	Z PTFE-coated Aluminum	<b>5</b> PTFE
	<b>4</b> 1-1/4" or 1-1/2"	<b>K</b> Kynar	J Nickel-plated Aluminum	6 Santoprene XL
	<b>2</b> 2"	<b>G</b> Groundable Acetal	C Cast Iron	7 Hytrel
	<b>3</b> 3"	B Aluminum (screen mount)	<b>Q</b> Epoxy-Coated Aluminum	9 Geolast

Diaphragm Series R Rugged D Dome X Thermo-Matic	Valve Ball Material Valve 1 Neoprene 2 Nitrile 3 (FKM) Fluorocarbon	Seat/Valve Seat O-Ring Material 1 Neoprene 2 Nitrile 3 (FKM) Fluorocarbon	Construction Design 9 Bolted 0 Clamped
T Tef-Matic (2-piece)	4 EPDM	4 EPDM	
<b>B</b> Versa-Tuff (1-piece)	5 PTFE	5 PTFE	
F FUSION (one-piece	6 Santoprene XL	6 Santoprene XL	
integrated plate)	7 Hytrel	7 Hytrel	
. ,	8 Polyurethane	8 Polyurethane	
	9 Geolast	9 Geolast	
	<b>∆</b> Acetal	▲ Aluminum w/ PTFF O-Rings	

A Aluminum w/ PTFE O-Rings S Stainless Steel S Stainless Steel w/ PTFE O-Rings C Carbon Steel w/ PTFE O-Rings

H Alloy C w/ PTFE O-Rings

T PTFE Encapsulated Silicone O-Rings



#### Materials

Material Profile:	Operating Temperatures:	
CAUTION! Operating temperature limitations are as follows:	Max.	Min.
Conductive Acetal: Tough, impact resistant, ductile. Good abrasion resistance and low friction surface. Generally inert, with good chemical resistance except for strong acids and oxidizing agents.		-20°F -29°C
<b>EPDM:</b> Shows very good water and chemical resistance. Has poor resistance to oils and solvents, but is fair in ketones and alcohols.	280°F 138°C	-40°F -40°C
<b>FKM:</b> (Fluorocarbon) Shows good resistance to a wide range of oils and sovents; especially all aliphatic, aromatic and halogenated hydrocarbons, acids, animal and vegetable oils. Hot water or hot aqueous solutions (over 70°F) will attack FKM.	350°F 177°C	-40°F -40°C
Hytrel®: Good on acids, bases, amines and glycols at room temperatures only.	220°F 104°C	-20°F -29°C
Neoprene: All purpose. Resistance to vegetable oils. Generally not affected by moderate chemicals, fats, greases and many oils and solvents. Generally attacked by strong oxidizing acids, ketones, esters and nitro hydrocarbons and chlorinated aromatic hydrocarbons.		-10°F -23°C
<b>Nitrile:</b> General purpose, oil-resistant. Shows good solvent, oil, water and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons.	190°F 88°C	-10°F -23°C
<b>Nylon:</b> 6/6 High strength and toughness over a wide temperature range. Moderate to good resistance to fuels, oils and chemicals.	180°F 82°C	32°F 0°C

<b>Polypropylene:</b> A thermoplastic polymer. Moderate tensile and flex strength. Resists stong acids and alkali. Attacked by chlorine, fuming nitric acid and other strong oxidizing agents.	180°F 82°C	32°F 0°C
PVDF: (Polyvinylidene Fluoride) A durable fluoroplastic with excellent chemical resistance. Excellent for UV applications. High tensile strength and impact resistance.		0°F -18°C
Santoprene®: Injection molded thermoplastic elastomer with no fabric layer. Long mechanical flex life. Excellent abrasion resistance.	275°F 135°C	-40°F -40°C
UHMW PE: A thermoplastic that is highly resistant to a broad range of chemicals. Exhibits outstanding abrasion and impact resistance, along with environmental stress-cracking resistance.		-35°F -37°C
Urethane: Shows good resistance to abrasives. Has poor resistance to most solvents and oils.	150°F 66°C	32°F 0°C
Virgin PTFE: (PFA/TFE) Chemically inert, virtually impervious. Very few chemicals are known to chemically react with PTFE; molten alkali metals, turbulent liquid or gaseous fluorine and a few fluoro-chemicals such as chlorine trifluoride or oxygen difluoride which readily liberate free fluorine at elevated temperatures.		-35°F -37°C

Maximum and Minimum Temperatures are the limits for which these materials can be operated. Temperatures coupled with pressure affect the longevity of diaphragm pump components. Maximum life should not be expected at the extreme limits of the temperature ranges.

#### Metals:

Alloy C: Equal to ASTM494 CW-12M-1 specification for nickel and nickel alloy.

Stainless Steel: Equal to or exceeding ASTM specification A743 CF-8M for corrosion resistant iron chromium, iron chromium nickel and nickel based alloy castings for general applicaitons. Commonly referred to as 316 Stainless Steel in the pump industry.

For specific applications, always consult the Chemical Resistance Chart.

# **AFTERMARKET PARTS**

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Pumper Parts is your single source for parts that fit Air-Operated Double Diaphragm (AODD) pumps

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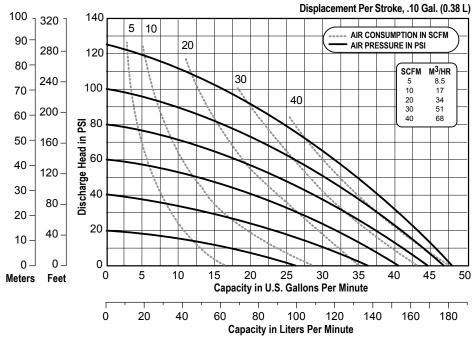


Model E1 Metallic Bolted • 2

#### **Performance**

#### E1 1" Bolted Metal Rubber and TPE Fitted

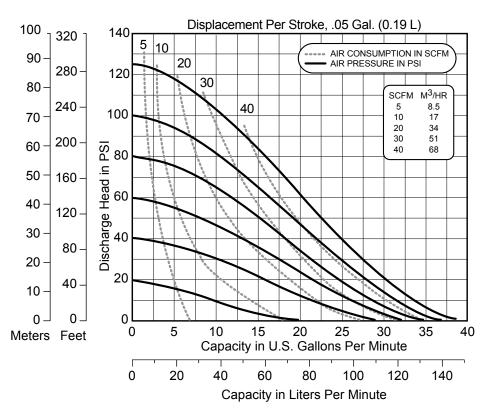
Flow Rate
Adjustable to0-49 gpm (181.7 lpm)
Port Size
Suction 1" NPT
Discharge 1" NPT
<b>Air Inlet</b>
Air Exhaust
Suction Lift
Dry
Wet31' (9.4 m)
Max Solid Size (Diameter)
1/8" (3.2 mm)
Max Noise Level
Shipping Weights
Aluminum 27 lbs (5 kg)
Stainless Steel
Alloy-C



NOTE: Performance based on the following: elastomeric fitted pump, flooded suction, water at ambient conditions. The use of other materials and varying hydraulic conditions may result in deviations in excess of 5%.

# E1 1" Bolted Metal PTFE Fitted

#### Flow Rate Adjustable to .....0-38 gpm (143.8 lpm) **Port Size** Discharge......1" NPT Air Exhaust . . . . . . . . . . . . . . . . . . 1/2" NPT **Suction Lift** Max Solid Size (Diameter) Max Noise Level . . . . . . . . . . . 95 dB(A) **Shipping Weights** Aluminum . . . . . . . . . . . . . . . . 27 lbs (5 kg)



NOTE: Performance based on the following: PTFE fitted pump, flooded suction, water at ambient conditions. The use of other materials and varying hydraulic conditions may result in deviations in excess of 5%.

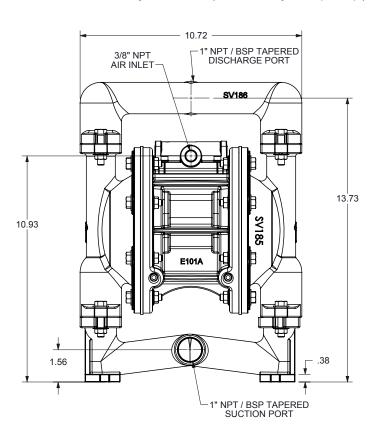


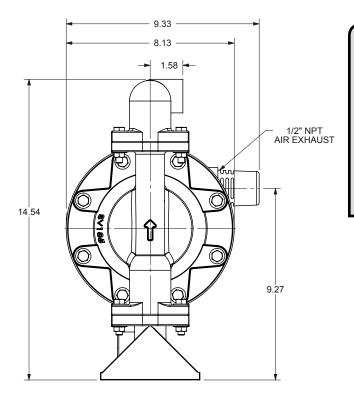
# **Dimensional Drawings**

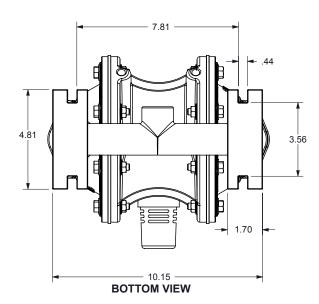
#### **E1 Metallic Bolted**

Dimensions in inches (mm dimensions in brackets)

The dimensions on this drawing are for reference only. A certified drawing can be requested if physical dimensions are needed.

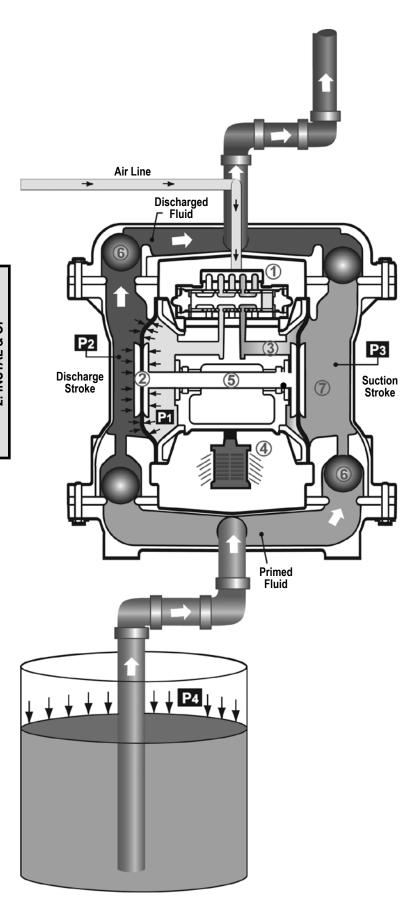








### **Principle of Pump Operation**



Air-Operated Double Diaphragm (AODD) pumps are powered by compressed air, nitrogen or natural gas.

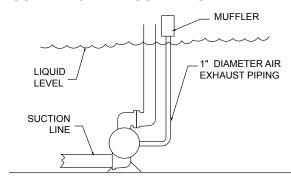
The main directional (air) control valve ① distributes compressed air to an air chamber, exerting uniform pressure over the inner surface of the diaphragm ②. At the same time, the exhausting air ③ from behind the opposite diaphragm is directed through the air valve assembly(s) to an exhaust port ④.

As inner chamber pressure **(P1)** exceeds liquid chamber pressure **(P2)**, the rod ⑤ connected diaphragms shift together creating discharge on one side and suction on the opposite side. The discharged and primed liquid's directions are controlled by the check valves (ball or flap)⑥ orientation.

The pump primes as a result of the suction stroke. The suction stroke lowers the chamber pressure **(P3)** increasing the chamber volume. This results in a pressure differential necessary for atmospheric pressure **(P4)** to push the fluid through the suction piping and across the suction side check valve and into the outer fluid chamber  $\mathfrak{T}$ .

Suction (side) stroking also initiates the reciprocating (shifting, stroking or cycling) action of the pump. The suction diaphragm's movement is mechanically pulled through its stroke. The diaphragm's inner plate makes contact with an actuator plunger aligned to shift the pilot signaling valve. Once actuated, the pilot valve sends a pressure signal to the opposite end of the main directional air valve, redirecting the compressed air to the opposite inner chamber.

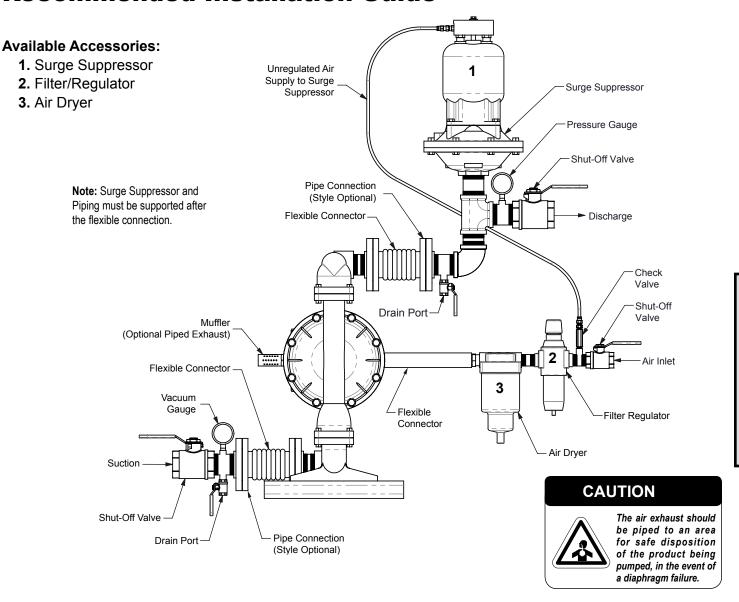
#### SUBMERGED ILLUSTRATION



Pump can be submerged if the pump materials of construction are compatible with the liquid being pumped. The air exhaust must be piped above the liquid level. When the pumped product source is at a higher level than the pump (flooded suction condition), pipe the exhaust higher than the product source to prevent siphoning spills.



#### **Recommended Installation Guide**



#### Installation And Start-Up

Locate the pump as close to the product being pumped as possible. Keep the suction line length and number of fittings to a minimum. Do not reduce the suction line diameter.

#### Air Supply

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

#### Air Valve Lubrication

The air distribution system is designed to operate WITHOUT lubrication. This is the standard mode of operation. If lubrication is desired, install an air line lubricator set to deliver one drop of SAE 10 non-detergent oil for every 20 SCFM (9.4 liters/sec.) of air the pump consumes. Consult the Performance Curve to determine air consumption.

#### Air Line Moisture

Water in the compressed air supply may cause icing or freezing of the exhaust air, causing the pump to cycle erratically or stop operating. Water in the air supply can be reduced by using a point-of-use air dryer.

#### **Air Inlet And Priming**

To start the pump, slightly open the air shut-off valve. After the pump primes, the air valve can be opened to increase air flow as desired. If opening the valve increases cycling rate, but does not increase the rate of flow, cavitation has occurred. The valve should be closed slightly to obtain the most efficient air flow to pump flow ratio.



# **Troubleshooting Guide**

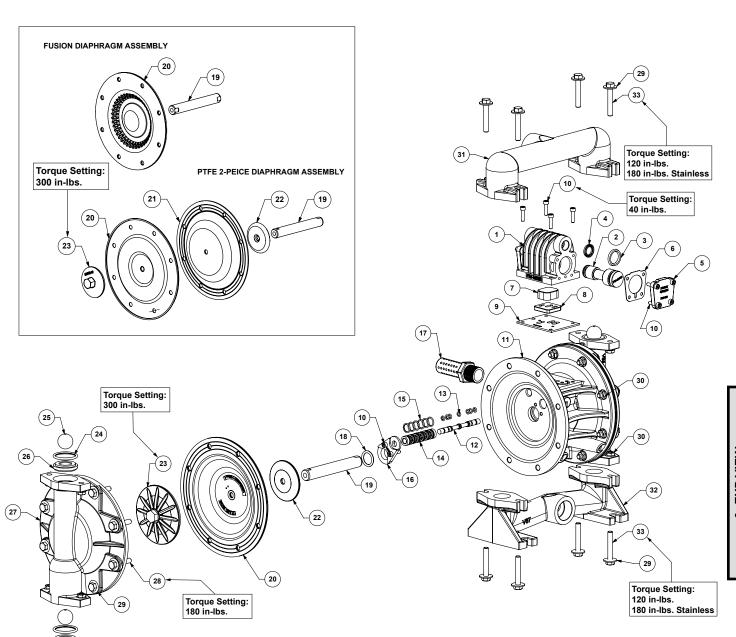
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Pump Will Not Operate ICycle  Remains over facing to the content of the company of the content o			
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Bioted air exhaust muffler.   Remove nuffler secree, claim or 6 ice, and re install.		Discharge line is blocked or clogged manifolds.	Check for inadvertently closed discharge line valves. Clean discharge manifolds/piping.
Pump Cycles and Will Not Prime or No Flow Check valves on controlled the in air exhaust muffler.  Disassemble pump chambers. Inspect for disphragm rupture or loose disphragm plate assembly. Phum Cycles and Will Not Prime or No Flow Check valves controlled (new pump of some typ product).  Valve ball(s) insisting (pushed into chamber or will be ball(s) not seetling product or solicing.  Valve ball(s) insisting (pushed into chamber or will be ball(s) indispected into chamber or will be ball(s) indispected with ball to a will be ball solicing in sisting (pushed into chamber or will be ball(s) indispected with ball capture or solicing.  Valve ball(s) isseat(s) damaged or attacked by product.  Check valve and valve seat it wom or needs adjusting.  Suction line is blocked.  Excessive suction lift.  Suction as air relaxage or air in product.  Pumped fluid in air enhance or air in product.  Valves ball(s) isseat(s) damaged or air in product.  Pumped fluid in air enhance or air in product.  Valves ball(s) isseat(s) damaged or air in product.  Pumped fluid in air enhance or air in product.  Valves ball(s) isseat(s) damaged or air in product.  Pumped fluid in air enhance or air in product.  Valves ball(s) isseat(s) damaged or air in product.  Pumped fluid in air enhance murfler.  Disassemble pump chambers. Inspect for disphragm rupture or loose disphragm plate assembly.  Pumped fluid in air enhance murfler.  Disassemble pump chambers. Inspect for disphragm rupture or loose disphragm plate assembly.  Pumped fluid in air enhance murfler.  Disassemble pump chambers. Inspect for disphragm rupture or loose disphragm plate assembly.  Check was an air in product.  Valves ball supply pressure or volunce exceeds air supply pressure.  Interest be the later a pressure to the pump. Pump is designed for 1:1 pressure ratio at zon flow. (Dees air disphragm plate seembly.)  Cover identicated air line.  Section solicin in six blocked.  Disassemble pump chambers. Inspect for disphragm rupture or loose disphragm plate seembly.  Valves ball s			
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Check valve obstructed Valve ball(s) not seating prophy or stoking.		Pump chamber is blocked.	Disassemble and inspect wetted chambers. Remove or flush any obstructions.
Check valve obstructed Valve ball(s) not seating prophy or stoking.	Pump Cycles and Will	Cavitation on suction side.	Check suction condition (move pump closer to product).
Mark belig/(seafg) damaged or attacked by product  Check valve and/or seat is worn or needs adjusting.  Check valve and/or seat is worn or needs adjusting.  Suction line is blocked.  Remove or flush obstruction. Check and clear all suction screens or strainers.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers, inspect for disphragm rupture or loces disphragm pilate assembly.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers inspect for disphragm rupture or loces disphragm pilate assembly.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers, inspect for disphragm rupture or loces disphragm pilate assembly.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers, inspect for disphragm rupture or loces disphragm pilate assembly.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers, inspect for disphragm rupture or loces disphragm pilate assembly.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers inspect for disphragm rupture or loces disphragm pilate assembly.  Down lock of air (line size, PSI CFM).  Constition on suction side.  Clear manifolds to allow sproper air flow  Increase the inited air pressure to the parme, Pump is designed for f.t. pressure ratio at zero flow.  (Does not apply to high pressure ? 1 Limits).  Air supply pressure or volume exceeds system hd.  Disconsideration in succion side.  Restrictive or undersized air line.  Restrictive or undersized air line.  Need or exceed pump connections.  Suction side air leakage or air in product.  Visually inspect all suction-side gastets and pipe connections.  Suction line is blocked.  Remove of sluth obstruction, Check and clear all suction sedes gastes and pipe connections.  Pumped fluid in air exhaust muffler.  Disassemble the vet end of the pump aim amanually disloge destruction in the check valve pocket.  Increase which are defined around center hole or both holes.  Product Leaking  Through Exhaust  Premature Diaphragm  Failure  Primature Diaphragm  Failure  Excessive endodes	Not Prime or No Flow		Clean out around valve ball cage and valve seat area. Replace valve ball or valve seat if damaged.
Check valve and/or seat is worn or needs adjusting.  Suction line is blocked.  Excessive suction lift.  For lifts exceeding 20 of liquid, lifting the chambers with liquid will prime the pump in most cases.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for disphragm rupture or loose disphragm pitet assembly.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for disphragm rupture or loose disphragm pitet assembly.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for disphragm rupture or loose disphragm pitet assembly.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for disphragm rupture or loose disphragm pitet assembly.  Deer fluirication.  Set tubricator on lowest possible setting or remove. Units are designed for fluids free operation.  Iding.  Remove muffler screen, de-loe, and re-install. Install a point of use air drier.  Clogged manifolds.  Deardmad (system pressure meats or exceeds air (lopes an analysts) to proper air flow.  Increase the intel air pressure to the pump. Pump is designed for 1:1 pressure ratio at zero flow.  (lopes not apply to high pressure.)  Cavitation on suction side.  Lack of air (line size, PSI, CFM).  Check whe air life size, PSI, CFM).  Check whe air life size, PSI, CFM).  Air supply pressure or volume exceeds system hd.  Undersized suction line.  Restrictive or undersized air line.  Install a larger air line and connections.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Suction line is blocked.  Remove or fluids betterinon. Check and dearl all suctions screens or strainers.  Product Leaking  Through Exhaust  Premature Diaphragm  Failure  Excessive Block of a mine and product.  Diaphragm stetched around center hole or blot holes.  Check valve and/or seat is worn or needs adjusting.  Enternal air or vapor lock in chamber(s).  Diaphragm stetched around center hole or blot holes.  Nove pump closer to product. Resistance			
Suction line is blocked.  Excessive suction lift.  For lifts exceeding 20 of liquid, lifting the chambers with liquid will prime the pump in most cases.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for disphragm rupture or loose diaphragm plate assembly.  Disassemble pump chambers lines pect for diaphragm rupture or loose diaphragm plate assembly.  Der lubrication.  Set tubrication on lowest possible setting or remove. Units are designed for lube free operation.  Eing.  Remove muffler screen, de-loe, and rein-install. Install a point of use air drier.  Clogade manifolds.  Excessive suction lift.  Excessive suction lift.  Excessive suction lift.  Air supply pressure.  Cardation on suction side.  Cardation on suction side.  Check suction (move pump obser to product).  Excessive suction lift.  Air supply pressure or volume exceeds system hd.  Undersized suction life.  Excessive suction lift.  Air supply pressure or volume exceeds system hd.  Undersized suction life.  Suction side air literation and lift.  Suction side air life size or air lift.  Suction side air life size or air lift.  Excessive suction lift.  Excessive suction lift.  Excessive suction lift.  Suction in air schaust muffler.  Check valve obstructed.  Check valve obstructed.  Check valve obstructed.  Check valve and/or seal is worn or needs adjusting.  Entrained air or vapor lock in chamber(s).  Excessive lift in air schaust muffler.  Disassemble two ver and or lift pump and manifer lift pump definition in the check valve pocket.  Check valve and/or seal is worn or needs adjusting.  Entrained air or vapor lock in chamber(s).  Disphragm stretched around center hole or both holes.  Pumped fluid in air air schaust muffler.  Disphragm stretched around center hole or both holes.  Disphragm stretched around center hole or both holes.  Disphragm stretched around center hole or both tholes.  Through Excess		Valve ball(s)/seat(s) damaged or attacked by product.	Check Chemical Resistance Guide for compatibility.
Excessive suction lift.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Pump Cycles Running Sluggish/Stalling, Flow Unsatisfactory  Over lubrication.  Set lubricator on lowest possible setting or remove. Units are designed for lubs free operation.  Licing.  Remove multiler screen, de-lice, and re-install. Install a point of use air drier.  Clogged manifolds.  Deachead (system pressure meets or exceeds air supply pressure).  Clogged manifolds.  Deachead (system pressure meets or exceeds air supply pressure).  Cloed of air (line size, PS), CPM).  Excessive suction lift.  Air supply pressure or volume exceeds system hd.  Undersized suction line.  Restrictive or undersized air line.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Restrictive or undersized air line.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Restrictive or undersized air line.  Late air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Suction line is blocked.  Remove or flush obstruction. Check and clear all suctions orseens or strainers.  Diaphragm stetched around center hole or both holes.  Product Leaking Through Exhaust  Diaphragm stetched around center hole or both holes.  Premature Diaphragm Failure  Diaphragm stetched around center hole or both holes.  Meet or exceed pump pump place pump on top of lank to reduce air line.  Install all algarer air line and connection.  Visually inspect all suction-side gaskets and pipe connections.  Remove or flush obstruction. Check and clear all suctions orseens or strainers.  Diaphragm failure, or diaphragm plates loss.  Remove or flush obstruction. Check and clear all suctions orseens or strainers.  Diaphragm stetched around center hole or both holes.  Check valve and/or seat is worn or needs adjusting.  Inspect check valves and seats for wear and proper sust. Chemical Res		Check valve and/or seat is worn or needs adjusting.	Inspect check valves and seats for wear and proper setting. Replace if necessary.
Suction side air leakage or air in product. Pumped fluid in air exhaust muffler. Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly. Pump Cycles Running Sluggish/Stalling, Flow Unsatisfactory  Cover lubrication.  Set Lubricator on loosed possible setting or remove. Units are designed for lube free operation.  Icing. Clogged manifolds. Clean manifolds to allow proper air flow Increase the inter in pressure to the pump. Pump is designed for 1:1 pressure ratio at zero flow. (Does not apply to high pressure 2:1 units). Cavitation on suction side. Lack of air (line size, PSI, CFM). Cavitation on suction side. Lack of air (line size, PSI, CFM). Creck water or undersized suction line.  Air supply pressure or volume exceeds system hd. Undersized suction line. Restrictive or undersized air line. Suction side air leakage or air in product.  Check valve obstructed.  Check valve constructed.  Check valve constructed.  Check valve constructed.  Check valve constructed.  Check valve and/or seat is wom or needs adjusting. Entrained air or vapor lock in chamber(s).  Product Leaking Through Exhaust  Premature Diaphragm Failure  Cavitation.  Excessive suction life.  Excessive suction life in either such parts of the pump pump connections.  Consult Chemical Psips, Pump in the pump pump late assembly.  Check valve and/or seat is wom or needs adjusting.  Entrained air or vapor lock in chamber(s).  Product Leaking Through Exhaust  Premature Diaphragm Failure  Cavitation.  Enlarge pipe diameter on suction side of pump.  Excessive suction life.  Excessive suction life.		Suction line is blocked.	Remove or flush obstruction. Check and clear all suction screens or strainers.
Pumpe Cycles Running Sluggish/Stalling, Flow Unsatisfactory  Set lubricator on lowest possible setting or remove. Units are designed for lube free operation.  Set lubricator on lowest possible setting or remove. Units are designed for lube free operation.  Setting in Remove muffler screen, de-lice, an affailable libration is an individual point of use air drier.  Clogged manifolds.  Daachead (system pressure meets or exceeds air supply pressure).  Cavitation on suction side.  Cloes not apply to high pressure 2-1 units).  Cavitation on suction side.  Check suction (move pump closer to product).  Excessive suction lift.  Air supply pressure or volume exceeds system hd.  Undersized suction line.  Restrictive or undersized air line.  Restrictive or undersized air line.  Suction line is blocked.  Permyed fluid in air exhaust muffler.  Disassemble the wet end of the pump and manually dislodge obstruction in the check valve and/or seat is wom or needs adjusting.  Product Leaking  Through Exhaust  Disphragm failure or disphragm plates loose.  Disphragm failure, or disphragm plates soes.  Disphragm settled around center hole or both holes  Cevek valve and/or seat is wom or needs adjusting.  Product Leaking  Through Exhaust  Creek valve and/or seat is wom or needs adjusting.  Product Leaking  Through Exhaust  Disphragm failure, or disphragm plates loose.  Disphragm settled around center hole or both holes  Creek for excessive intel pressure or air pressure or air pressure. Creek to result in the check valve pocket.  For life secretary.  Pumped chamber vent plugs. Pumping the chambers of air can be dangerous.  Replace disphragms, check for damage and ensure diaphragm plates are light.  Creek for excessive intel pressure or air pressure or air pressure. Crossit Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.  Incorrect disphragm plates or plates on backwards, check of poerating Manual to check for correct part and installation. Ensure outer plates have not been		Excessive suction lift.	For lifts exceeding 20' of liquid, filling the chambers with liquid will prime the pump in most cases.
Pump Cycles Running Sluggish/Stalling, Flow Unsatisfactory  Over lubrication.  Set lubricator on lowest possible setting or remove. Units are designed for lube free operation.  Icing.  Caydaton on suction side.  Cavdation on suction side.  Lack of air (line size, PSI, CFM).  Excessive suction lift.  Air supply pressure or volume exceeds siys and the six supply pressure or volume exceeds system hd.  Undersized suction line.  Restrictive or undersized air line.  Suction side is alreadage or air in product.  Visually inspect all suctions. Inspect for diaphragm pathers socse.  Pumped fluid in air exhaust murfler.  Diaphragm failure  Over lubrication.  Set lubricator on lowest possible setting or remove. Units are designed for lube free operation.  Settion, and re-install. Install a point of use air drier.  Clean manifolds to allow proper air oble, one, and re-install. Install a point of use air drier.  Check was suction lift.  Air supply pressure may be suction lift.  Air supply pressure or volume exceeds system hd.  Undersized suction line.  Meet or exceed pump connections.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Suction line is blocked.  Pumped fluid in air exhaust murfler.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Check valve obstructed.  Check valve obstructed.  Check valve obstructed.  Diaphragm failure, or diaphragm plates loose.  Diaphragm failure, or diaphragm plates ose.  Cavdation.  Excessive flooded suction pressure.  Misapplication (chemical/physical incompatibility).  Incorrect diaphragm plates or plates on backwards, installed incorrectly or wom.  Excessive flooded suction pressure.  Mose pump closer to product. Rai		Suction side air leakage or air in product.	Visually inspect all suction-side gaskets and pipe connections.
Icing.   Remove muffler screen, de-ice, and re-install. Install a point of use air drier.		Pumped fluid in air exhaust muffler.	Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.
Icing.   Remove muffler screen, de-ice, and re-install. Install a point of use air drier.	Pump Cycles Running	Over lubrication.	Set lubricator on lowest possible setting or remove. Units are designed for lube free operation.
Clogaed manifolds.   Clean manifolds to allow proper air flow		Icing.	Remove muffler screen, de-ice, and re-install. Install a point of use air drier.
Deachead (system pressure nets or exceeds air supply pressure).  Cavitation on suction side.  Lack of air (line size, PSI, CFM).  Excessive suction lift.  Air supply pressure or volume exceeds system hd.  Undersized suction life.  Restrictive or undersized air line.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Suction side air leakage or air in product.  Visually inspect all suctions or flush parts and season or readed signifier.  Profit sexeeding 20° of liquid, filling the chambers with liquid will prime the pump in most cases.  Meet or exceed pump connections.  Restrictive or undersized air line.  Restrictive or undersized air line.  Suction line is blocked.  Remove or flush obstruction. Check and clear all suction screens or strainers.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Check valve and/or seat is worn or needs adjusting.  Inspect check valves and seats or war and proper setting. Replace in ecessary.  Product Leaking  Through Exhaust  Premature Diaphragm Failure  Diaphragm failure, or diaphragm plates loose.  Diaphragm stetched around center hole or boil holes.  Cavitation.  Excessive suction if the pump and an ensure diaphragm plates are light.  Premature Diaphragm Failure  Undersized suction pressure.  Misapplication (chemical/physical incompatibility).  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Weet or exceed pump connections.  Check Operating Manual to check for correct part and installation. Ensure outer plates have not been wind to after the pump in most cases.  Undersized suction life.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Suction side air leakage		Clogged manifolds.	Clean manifolds to allow proper air flow
Lack of air (line size, PSI, CFM).  Excessive suction lift.  Air supply pressure or volume exceeds system hd.  Undersized suction line.  Restrictive or undersized air line.  Suction side air leakage or air in product.  Suction line is blocked.  Pumped fluid in air exhaust muffler.  Check valve obstructed.  Check valve and/or seat is worn or needs adjusting.  Product Leaking Through Exhaust  Diaphragm stretched around center hole or bolt holes.  Premature Diaphragm Failure  Lack of air (line size, PSI, CFM).  Excessive suction line.  Check corect diaphragm plates or plates on backwards, install all corect diaphragm plates or plates on backwards, install all corect diaphragm unplure or loose diaphragm plates assembly.  Check or exceed pump connections.  Remove or flush obstruction. Check and clear all suction screens or strainers.  Pumped fluid in air exhaust muffler.  Disassemble the wet end of the pump and manually dislodge obstruction in the check valve pocket.  Inspect check valves and seats for wear and proper setting. Replace if necessary.  Product Leaking Through Exhaust  Premature Diaphragm Failure  Acvitation.  Excessive flooded suction pressure.  Cavitation.  Excessive flooded suction pressure.  Misapplication (chemical/physical incompatibility).  Consult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Misapplication (chemical/physical incompatibility).  Check Coperating Manual to check for correct part and installation. Ensure outer plates have not been worn to a sharp adge.  Check Operating Manual to check for correct part and installation. Ensure outer plates have not been worn to a sharp adge.  Excessive suction line.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Visually inspect all suction-side gaskets and pipe connections.  Check valve obstructed.  Check valve obstruct	Tion offsatisfactory		Increase the inlet air pressure to the pump. Pump is designed for 1:1 pressure ratio at zero flow. (Does not apply to high pressure 2:1 units).
Excessive suction lift.  Air supply pressure or volume exceeds system hd.  Undersized suction line.  Restrictive or undersized air line.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Suction line is blocked.  Pumped fluid in air exhaust muffler.  Check valve and/or seat is worn or needs adjusting.  Entrained air or vapor look in chamber(s).  Premature Diaphragm Failure  Excessive flooded suction pressure.  Misapplication (chemical/physical incompatibility).  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Excessive suction lift.  For lifts exceeding 20' of liquid, filling the chambers with liquid will prime the pump in most cases.  Decrease inlet air (press. and vol.) to the pump. Pump is cavitating the fluid by fast cycling.  Meet or exceed pump connections.  Meet or exceed pump connections.  Neet or exceed pump connections.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Permoduct Leaking Check valve battuction.  Disassemble pump chambers inspect for diaphragm rupture or loose diaphragm plate assembly.  Preparature Diaphragm  Excessive flooded suction pressure.  Install alore in line and connections.  Replace diaphragms, check for damage and ensure diaphragm plates are tight.  Cavitation.  Enlarge pipe diameter on suction side of pump.  Excessive flooded suction pressure.  Install Back pressure device (Tech bulletin 41r). Add accumulation tank or pulsation dampener.  Consult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.  Incorrect diaphragm plates or plates on backwards, installed incorrectily or worn.  Excessive suction lift.  For lifts exceeding 20 of liquid, filling the chambers with liquid will prime the pump in most cases.  Undersized suction line.  Meet or exceed pump conn		Cavitation on suction side.	Check suction (move pump closer to product).
Air supply pressure or volume exceeds system hd. Undersized suction line.  Restrictive or undersized air line.  Restrictive or undersized air line.  Restrictive or undersized air line.  Suction side air leakage or air in product.  Suction line is blocked.  Remove or flush obstruction. Check and clear all suction screens or strainers.  Pumped fluid in air exhaust muffler.  Check valve and/or seat is worn or needs adjusting.  Entrained air or vapor lock in chamber(s).  Premature Diaphragm Failure  Air supply pressure or volume exceeds system hd.  Meet or exceed pump connections.  Install a larger air line and connection.  Remove or flush obstruction. Check and clear all suction screens or strainers.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Check valve and/or seat is worn or needs adjusting.  Entrained air or vapor lock in chamber(s).  Purge chambers through tapped chamber vent plugs. Purging the chambers of air can be dangerous.  Product Leaking Through Exhaust  Diaphragm failure, or diaphragm plates loose.  Perplace diaphragms, check for damage and ensure diaphragm plates are light.  Check for excessive inlet pressure or air pressure. Consult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.  Enlarge pipe diameter on suction side of pump.  Excessive flooded suction pressure.  Misapplication (chemical/physical incompatibility).  Consult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.  Check Operating Manual to check for correct part and installation. Ensure outer plates have not been worn to a sharp edge.  Unbalanced Cycling  Excessive suction life.  For lifts exceeding 20' of liquid, filling the chambers with liquid will prime the pump in most cases.  Oheck Operating Manual to check for correct part and installation. Ensure outer plates have not been worn to a sharp edge.  Undersized suction line.  Meet		Lack of air (line size, PSI, CFM).	Check the air line size, length, compressor capacity.
Undersized suction line.  Restrictive or undersized air line.  Restrictive or undersized air line.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Suction line is blocked.  Pumped fluid in air exhaust muffler.  Check valve obstructed.  Check valve obstructed.  Check valve and/or seat is worn or needs adjusting.  Entrained air or vapor lock in chamber(s).  Product Leaking Through Exhaust  Diaphragm failure, or diaphragm plates loose.  Diaphragm failure, or diaphragm plates loose.  Diaphragm failure, or diaphragm plates loose.  Cavitation.  Enalage pipe diameter on suction side of pump.  Enclarge pipe diameter on suction side of pump.  Enclarge pipe diameter on suction side of pump.  Enclarge pipe diameter on suction side of pump.  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Lincorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Excessive suction lift.  Undersized suction life.  Excessive suction lift.  For lifts exceeding 20' of liquid, filling the chambers with liquid will prime the pump in most cases.  Unbalanced Cycling  Excessive suction life.  Excessive suction life.  Diaphragm plates or plates on backwards, installed incorrectly or worn.  Very or worn.  Check Operating Manual to check for correct part and installation. Ensure outer plates have not been worn to a sharp edge.  Unbalanced Cycling  Excessive suction life.  Diaphragm plates or plates on plates on backwards, installed incorrectly or worn.  Visually inspect all suction-side gaskets and pipe connections.  Check valve obstructed.  Disassemble pump chambers lnspect for diaphragm rupture or loose diaphragm plate assembly.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Check valve and/or seat is worn or needs adjusting.  Inspect check valves and seats for wear and proper setting		Excessive suction lift.	For lifts exceeding 20' of liquid, filling the chambers with liquid will prime the pump in most cases.
Restrictive or undersized air line.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Suction line is blocked.  Pumped fluid in air exhaust muffler.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Check valve obstructed.  Check valve and/or seat is worn or needs adjusting.  Entrained air or vapor lock in chamber(s).  Product Leaking Through Exhaust  Diaphragm failure, or diaphragm plates loose.  Diaphragm stretched around center hole or bolt holes.  Excessive flooded suction pressure.  Inspect check valve and seats for wear and proper setting. Replace if necessary.  Replace diaphragms, check for damage and ensure diaphragm plates are tight.  Diaphragm stretched around center hole or bolt holes.  Cavitation.  Excessive flooded suction pressure.  Inspect check valves and seats for wear and proper setting. Replace if necessary.  Premature Diaphragm Failure  Cavitation.  Excessive flooded suction pressure.  Inspect check valves and seats for wear and proper setting. Replace diaphragm plates are tight.  Diaphragm stretched around center hole or bolt holes.  Check valve and or seat is worn or needs adjusting.  Enlarge pipe diameter on suction side of pump.  Excessive flooded suction pressure.  Install Back pressure or air pressure. Consult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Unbalanced Cycling  Excessive suction lift.  Undersized suction life.  Pumped fluid in air exhaust muffler.  Suction side air leakage or air in product.  Visually inspect all suction-side gaskets and pipe connections.  Check valve obstructed.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Visually inspect all suction-side gaskets and pipe connections.  Check valve and/or seat is worn or needs adjusting.		Air supply pressure or volume exceeds system hd.	Decrease inlet air (press. and vol.) to the pump. Pump is cavitating the fluid by fast cycling.
Suction side air leakage or air in product.  Suction line is blocked.  Pumped fluid in air exhaust muffler.  Check valve obstructed.  Check valve obstructed.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Check valve obstructed.  Check valve and/or seat is worn or needs adjusting.  Entrained air or vapor lock in chamber(s).  Product Leaking Through Exhaust  Diaphragm failure, or diaphragm plates loose.  Diaphragm stretched around center hole or bolt holes.  Cavitation.  Excessive flooded suction pressure.  Misapplication (chemical/physical incompatibility).  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Excessive suction lift.  Check Operating Manual to check for correct part and installation. Ensure outer plates have not been worn to a sharp edge.  Unbalanced Cycling  Excessive suction lift.  Diaphragm plates or plates on backwards, installed incorrectly or worn.  Excessive suction lift.  Diaphragm plates or plates on backwards, installed incorrectly or worn.  Excessive suction lift.  Diaphragm plates or plates on backwards, installed incorrectly or worn.  Excessive suction lift.  Diaphragm plates or plates on backwards, installed incorrectly or worn.  Excessive suction lift.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Visually inspect all suction-side gaskets and pipe connections.  Check valve and/or seat is worn or needs adjusting.  Inspect check valves and seats for wear and proper setting. Replace if necessary.		Undersized suction line.	Meet or exceed pump connections.
Suction line is blocked. Remove or flush obstruction. Check and clear all suction screens or strainers.  Pumped fluid in air exhaust muffler. Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Check valve obstructed. Disassemble the wet end of the pump and manually dislodge obstruction in the check valve pocket.  Check valve and/or seat is worn or needs adjusting. Inspect check valves and seats for wear and proper setting. Replace if necessary.  Entrained air or vapor lock in chamber(s). Purge chambers through tapped chamber vent plugs. Purging the chambers of air can be dangerous.  Product Leaking Through Exhaust  Diaphragm failure, or diaphragm plates loose. Replace diaphragms, check for damage and ensure diaphragm plates are tight.  Check for excessive inlet pressure or air pressure. Consult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.  Enlarge pipe diameter on suction side of pump.  Excessive flooded suction pressure. Move pump closer to product. Raise pump/place pump on top of tank to reduce inlet pressure. Install Back pressure device (Tech bulletin 41r). Add accumulation tank or pulsation dampener.  Onsult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Check Operating Manual to check for correct part and installation. Ensure outer plates have not been worn to a sharp edge.  Unbalanced Cycling  Excessive suction life. Por lifts exceeding 20 of liquid, filling the chambers with liquid will prime the pump in most cases.  Undersized suction line. Meet or exceed pump connections.  Check valve obstructed. Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Visually inspect all suction-side gaskets and pipe connections.  Check valve obstructed.  Check valve and/or seat is worn or needs adjusting.  Inspect check valves and		Restrictive or undersized air line.	Install a larger air line and connection.
Pumped fluid in air exhaust muffler.  Check valve obstructed.  Check valve and/or seat is worn or needs adjusting. Entrained air or vapor lock in chamber(s).  Product Leaking Through Exhaust  Diaphragm failure, or diaphragm plates loose.  Diaphragm stretched around center hole or bolt holes.  Check or valve and vapor lock in chamber (s).  Premature Diaphragm Failure  Cavitation.  Enlarge pipe diameter on suction side of pump.  Excessive flooded suction pressure.  Misapplication (chemical/physical incompatibility).  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Unbalanced Cycling  Excessive suction lift.  Undersized suction lift.  Undersized suction life.  Pumped fluid in air exhaust muffler.  Diapsasemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Diapsasemble the wet end of the pump and manually dislodge obstruction in the check valve pocket.  Inspect check valves and seats for wear and proper setting. Replace if necessary.  Premature Diaphragm Failure  Cavitation.  Enlarge pipe diameter on suction side of pump.  Excessive flooded suction pressure.  Move pump closer to product. Raise pump/place pump on top of tank to reduce inlet pressure.  Install Back pressure device (Tech bulletin 41r), Add accumulation tank or pulsation dampener.  Consult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.  Incorrect diaphragm plates or plates on backwards, installed incorrectly or worn.  Check Operating Manual to check for correct part and installation. Ensure outer plates have not been worn to a sharp edge.  Excessive suction lift.  Undersized suction line.  Pumped fluid in air exhaust muffler.  Diasassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.  Visually inspect all suction-side gaskets and pipe connections.  Check valve obstructed.  Check valve and/or seat is worn or needs adjusting.  Inspect check valves and seats for wear and proper setting. Rep		Suction side air leakage or air in product.	Visually inspect all suction-side gaskets and pipe connections.
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		Entrained air or vapor lock in chamber(s).	Purge chambers through tapped chamber vent plugs.

For additional troubleshooting tips contact After Sales Support at service.warrenrupp@idexcorp.com or 419-524-8388



# 3: EXP VIEV

# **Composite Repair Parts Drawing**





# **Composite Repair Parts List**

Item #	Qty.	Air Valve Description	e Assembly	Part Number		
nem#	1 Qty.	Air Valve Assembly (includes items 1-10)		Part Number 031.V006.156		
1	1	Valve Body		P98-102UB		
2	1	Valve Spool Assembly (Includes items 3&4)	+	P98-105UB ASY		
3	1 1	Large Valve Spool U-Cup	P98-105B			
4	1 1	Small Valve Spool U-Cup	P98-105A			
5	2	Metal End Cap	P98-300			
6	2	End Cap Gasket (for metal)	P98-110			
7	1 1	CT Air Diverter	1	P98-105CT		
8	1	Air Diverter Plate	1	P98-106		
9	1	Air Valve Gasket		P98-111UB		
10	12	Mounting Screws		S1001		
		Center Sec	tion Assembly			
Item #	Qty.	Description		Part Number		
	Qty.	•	Aluminum	PTFE Coated	Nickel Plated	
11	1	Center Section	114.V001.157	114.V001.309	114.V001.332	
12	1	Pilot Spool ASY (includes item 13)		775.V005.000		
13	7	Pilot Spool O-Rings		560.023.360		
14	1 1	Pilot Valve Sleeve ASY (includes item 15)		755.V004.000		
15	6	Pilot Valve Sleeve O-Rings		560.101.360		
16	2	Shaft/Pilot Retainer	1	670.V002.554		
10	4	Retainer Screw	+	S1001		
17	1	Muffler		VTM-4A		
		Diaphragm Ass	embly / Elastomers	Don't November		
Item #	Qty.	Description	TDE/DUDDED	Part Number	DTEE Eurien	
10	2	Main Shaft O-Ring	TPE/RUBBER	PTFE 2-Piece	PTFE Fusion	
18 19	1 1	Main Shaft  Main Shaft	685.V001.120	P50-403	-108	
19	<u> </u>	I Walli Shall	"V183xx-1	F30	-106	
20	2	Diaphragm	1	V183TF-1	V183F	
01			(See Below Material Chart)"	V/402TD	NI/A	
21 22	2 2	Back-Up Diaphragm	N/A	V183TB	N/A N/A	
		Inner Diaphragm Plate	V181C V81B, SV181B ASY,	V181C	IN/A	
23	2	Outer Diaphragm Plate (See Note 1 Below)		SV181TO, HV181TO	N/A	
	-	<u> </u>	HV181TO "V90xx			
24	4	Valve Seat O-Ring	1	SV190TF		
		<u> </u>	(See Below Material Chart)"			
25	4	Valve Ball	"V191xx	V19	1TF	
_			(See Below Material Chart)"			
			Assembly	Part Number		
Item #	Qty.	Description	Aluminum	Stainless Steel	Hastelloy	
26	4	Valve Seat	V90A	SV190	HV190	
27	2	Water Chamber	V85	SV185	HV185	
28	16	Water Chamber Bolt	V189A		11V 103	
29	16	Water Chamber Washer	V189C	SV189C		
30	16	Water Chamber Nut	V185B SV185B			
		Discharge Manifold	V166B	SV186	HV186	
31	1	Discharge Manifold (BSP Option)	V86BSP	SV186BSP	HV186BSP	
20	4	Suction Manifold	V87	SV187	HV187	
32	1	Suction Manifold (BSP Option)	V87BSP	SV187BSP	HV187BSP	
33	8	Manifold Bolt	V187A	SV1	189D	
29	8	Manifold Washer	V189C		189C	
30	8	Manifold Nut	V185B		185B	
		Elastomer Mate	erial Specifications			
	terial	Diaphragm P/N	Valve Ball P/N		ng P/N	
	prene	V183N-1	V191N		I/A	
	Nitrile	V183BN-1	V191BN		OBN	
	iton	V183VT-1	V191VT		OVT	
	ordel	V183ND-1	V191ND	V90	OND	
	oprene	V183TPEXL-1	V191TPEXL		90XL	
	ytrel olast	V183TPEFG	V191TPEFG		//A	
Geolast V183G Acetal N/A		N/A	V191G V191A	N/A N/A		
	ess Steel	N/A N/A	V191A V191SS		//A //A	
. Glaiille	700 OIGGI	IN/A	V 13 100	<u></u>	1// 1	

 $\textbf{Note:} \ \ \text{The outer diaphragm plate material is to match the water chamber material}$ 

VERSA-MATIC®
e1mdlCsmATEX-rev0612

### **Written Warranty**

# 5 - YEAR Limited Product Warranty

#### Quality System ISO9001 Certified • Environmental Management Systems ISO14001 Certified

Versa-Matic warrants to the original end-use purchaser that no product sold by Versa-Matic that bears a Versa-Matic brand shall fail under normal use and service due to a defect in material or workmanship within five years from the date of shipment from Versa-Matic's factory.

~ See complete warranty at http://www.versamatic.com/pdfs/VM%20Product%20Warranty.pdf ~

DECLARATION DE CONFORMITE • DECLARACION DE CONFORMIDAD • ERKLÄRUNG BEZÜGLICH EINHALTUNG DER VORSCHRIFTEN DICHIARAZIONE DI CONFORMITÀ • CONFORMITEITSVERKLARING • DEKLARATION OM ÖVERENSSTÄMMELSE EF-OVERENSSTEMMELSESERKLÆRING • VAATIMUSTENMUKAISUUSVAKUUTUS • SAMSVARSERKLÄRING DECLARAÇAO DE CONFORMIDADE

#### **MANUFACTURED BY:**

FABRIQUE PAR:
FABRICADA POR:
HERGESTELLT VON:
FABBRICATO DA:
VERVAARDIGD DOOR:
TILLVERKAD AV:
FABRIKANT:
VALMISTAJA:

PRODUSENT: FABRICANTE:

VERSA-MATIC®
Warren Rupp, Inc.
A Unit of IDEX Corporation
800 North Main Street
P.O. Box 1568
Mansfield, OH 44901-1568 USA

Tel: 419-526-7296 Fax: 419-526-7289



# PUMP MODEL SERIES: E SERIES, V SERIES, VT SERIES, VSMA3, SPA15, RE SERIES AND U2 SERIES

#### This product complies with the following European Community Directives:

Ce produit est conforme aux directives de la Communauté européenne suivantes: Este producto cumple con las siguientes Directrices de la Comunidad Europea: Dieses produkt erfüllt die folgenden Vorschriften der Europäischen Gemeinschaft:

Questo prodotto è conforme alle seguenti direttive CEE: Dir produkt voldoet aan de volgende EG-richtlijnen:

Denna produkt överensstämmer med följande EU direktiv:

Versa-Matic, Inc., erklærer herved som fabrikant, at ovennævnte produkt er i overensstemmelse med bestemmelserne i Direkktive:

Tämä tuote täyttää seuraavien EC Direktiivien vaatimukstet:

Dette produkt oppfyller kravene til følgende EC Direktiver:

Este produto está de acordo com as seguintes Directivas comunitárias:

#### This product has used the following harmonized standards to verify conformance:

Ce materiel est fabriqué selon les normes harmonisées suivantes, afin d' en garantir la conformité:

Este producto cumple con las siquientes directrices de la comunidad europa:

Dieses produkt ist nach folgenden harmonisierten standards gefertigtworden, die übereinstimmung wird bestätigt:

Questo prodotto ha utilizzato i seguenti standards per verificare la conformita':

De volgende geharmoniseerde normen werden gehanteerd om de conformiteit van dit produkt te garanderen:

För denna produkt har följande harmoniserande standarder använts för att bekräfta överensstämmelse:

Harmoniserede standarder, der er benyttet:

Tässä tuotteessa on sovellettu seuraavia yhdenmukaistettuja standardeja:

Dette produkt er produsert i overenstemmelse med fløgende harmoniserte standarder:

Este produto utilizou os seguintes padrões harmonizados para varificar conformidade:

**AUTHORIZED/APPROVED BY:** 

Approuve par: Aprobado por: Genehmigt von: approvato da: Goedgekeurd door: Underskrift: Valtuutettuna: Bemyndiget av:

Dave Roseberry Engineering Manager **DATE: August 10, 2011** 

FECHA: DATUM: DATA: DATO: PÄIVÄYS:

CE

2006/42/EC

EN809:1998+

A1:2009

on Machinery, according

VMQR 044FM

04/19/2012 REV 07

Autorizado Por:

# DECLARATION OF CONFORMITY WITH ATEX 95 DIRECTIVE

Date of Issue: 22 April, 2008

Reference No: SH071304-ATEX-01P and

HS032204-ATEX-01P

Quality System Registration No: ISO 9001-2000

Directive: 94/9/EC 23 March 1994 Annex VIII

Conforming Apparatus: Air-Operated Metal

Double Diaphragm Pumps for Use In Potentially

**Explosive Atmospheres** 

Hazardous Location Applied: 1. II 3/2GD c T5

T5 fluids up to 95° C

2. I M2 c

fluids up to 95° C

Manufacture: Warren Rupp, Inc., A Unit of IDEX Corporation

800 North Main Street, P.O. Box 1568

Mansfield, OH 44901-1568

USA.

On File With: LCIE

33, avenue du Général Leclerc F 92260 Fontenay-aux-Roses

**FRANCE** 

Harmonized Standards Applied: BS EN 13463-1:2001 Non-Electrical Equipment

Potentially Explosive Atmospheres-Part 1 Basic

Methods and Requirements

prEN 13463-5 Non-Electrical Equipment for Potentially Explosive Atmospheres-Part 5 Protection by Constructional Safety

We hereby certify that the above apparatuses described above conforms with the protection requirements of Council Directive 94/9/EC of 23 March 1994 Annex VIII on the approximation of the laws of the Member States Concerning Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres

DATE/OF REVISION/TITLE:

27 May 2010

David Reseberry

Dave Roseberry

Engineering Manager





# DECLARATION OF CONFORMITY WITH ATEX 95 DIRECTIVE

22 April, 2008

Date of Issue:

Reference No: SH071304-ATEX-01P and HS032204-ATEX-01P Page 2 of 2

Quality System Registration No: ISO 9001-2000

Equipments:

1. Elima-Matic Series metal pumps for II 3/2GD c T5

2. Elima-Matic Series Cast Iron or Stainless Steel pumps with Stainless Steel air center sections for I M2 c



#### MATÉRIEL DE POMPAGE

14 Z.A. Les Piboules - 84300 LES TAILLADES - France Tél **04 90 78 19 99** - Fax 04 90 78 09 00 - contact@pha.fr

www.pha.fr





# Genuine Parts, Real Value





**Partial Repair** 

**Repair Kit** 

# Ordering Parts Kits Over Individual Components:

- Reduces frequency of repairs
- Reduces downtime
- Reduces cost
- Increase your uptime
- Improve parts availability
- Extended service life

		• •
COST OF WET END REPAIR	Partial Repair (1 Diaphragm)	Complete Repair Kit
Parts	\$56	\$148
Labor	\$125	\$125
Lost Product	\$200	\$200
Down-Time	\$1,000	\$1,000
Annual Frequency of Repair	2	1
Estimated Cost Per Repair:	\$1,381	\$1,473
Estimated Annual Cost:	\$2,772	\$1,473
Estimated Annual Savings:*	\$0	\$1,299

#### Example Data:

Repair = 1 hour • Pump model #: E2AA2D220-OE • Buna wet-end repair Labor rate fully burdened at \$125/hour • Lost product assumes paint

