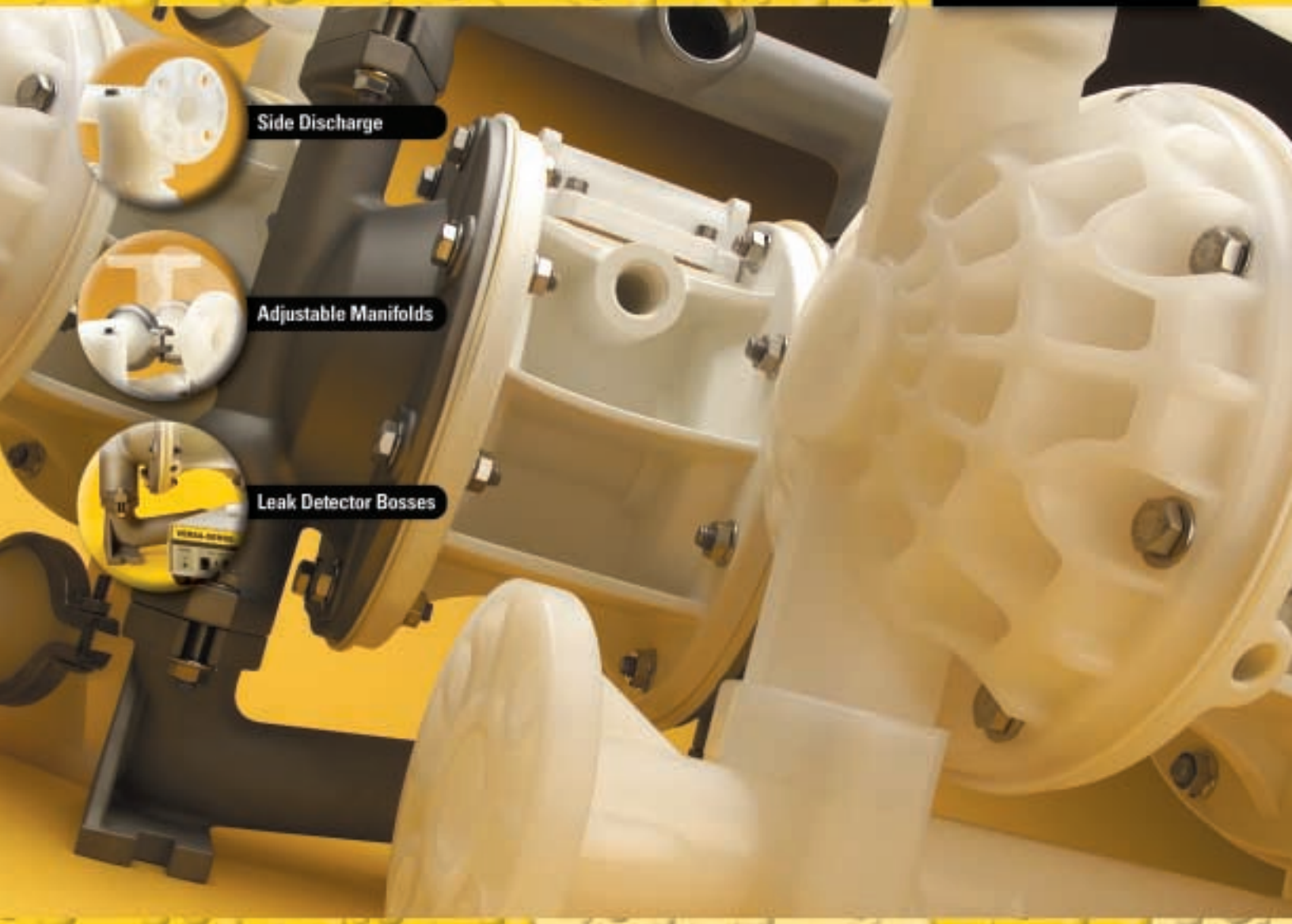
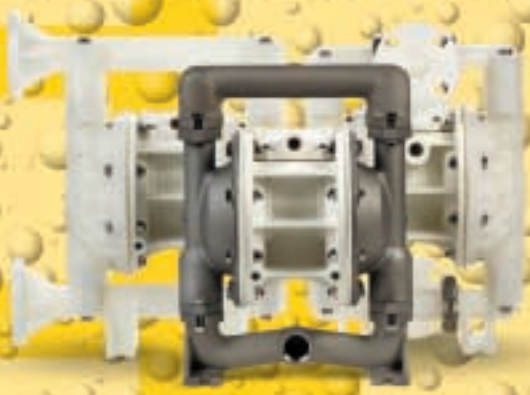
1" Bolted Pumps with Plastic Center Sections

JH PROCESS EQUIPMENT INC.

VERSA-MATIC PUMP



Ink Transfer
Chemical Feed
Small Tank Recirculation
Filling Operations
Spray Gun Transfer Applications
Truck and System Lubrication Dispensing



JH Process Equipment Inc. | 617 Jeffers Circle, Exton, PA 19341 | 610-903-0900 | www.jhprocess.com

IDEX CORPORATION

E1 1" Bolted Pumps
Now with a Plastic Center Section

Versa-Matic® Elima-Matic® E1 1" pumps take versatility and reliability to a new level with a redesigned center section and the next generation air valve system. Constructed of plastic, the center section **resists corrosion** from even the most aggressive chemicals, while providing **improved operation** and **ease of maintenance**.

The E1 features the Elima-Matic Air Valve System — now with the new **Shoe-Valve technology**. That means in addition to non-stalling, non-icing, lube-free operation, the E1 virtually **eliminates blow-by** when the pump is on line but not in use.

To find out more about Versa-Matic E1 pumps and accessories, contact your local distributor or visit us at **www.versamatic.com**.

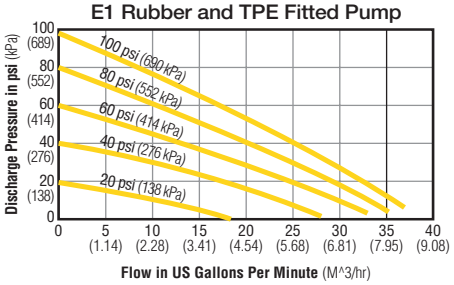
SPECIFICATIONS E1

	English	Metric
Flow rate		
adjustable to	0-37 gpm	0-142 lpm
Port size	1" 150# ANSI	
Inlet and Outlet	DIN #25 Flange	
Air inlet	0.375" NPTF	
Air exhaust	0.5" NPTF	
Suction lift*		
Dry (Teflon®)	15' (10')	4.57 m (3.05 m)
Wet (Teflon®)	25' (20')	7.62 m (6.09 m)
Max. particle size		
(Dia.)	0.125"	3.17 mm
Shipping weight		
Polypropylene	20.5 lbs	9.30 kg
Kynar®	21.5 lbs	9.75 kg
Aluminum	27.5 lbs	12.5 kg
Stainless Steel	38.5 lbs	17.5 kg
Hastelloy C	38.5 lbs	17.5 kg

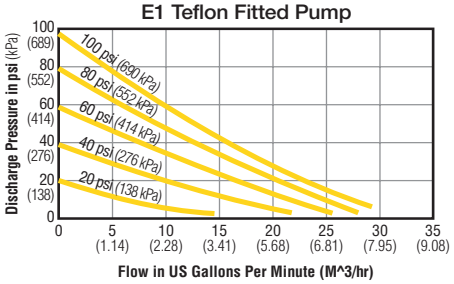
Teflon® is a registered trademark of DuPont.
Kynar® is a registered trademark of Penwalt Corp.

PERFORMANCE E1

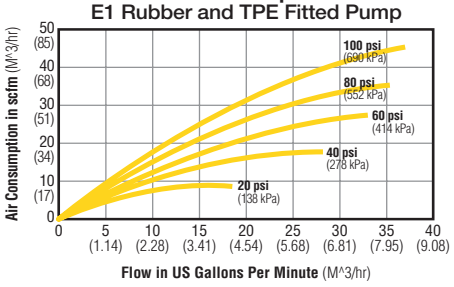
Flow Rate
E1 Rubber and TPE Fitted Pump



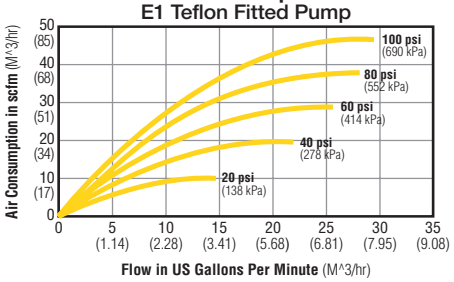
Flow Rate
E1 Teflon Fitted Pump



Air Consumption
E1 Rubber and TPE Fitted Pump

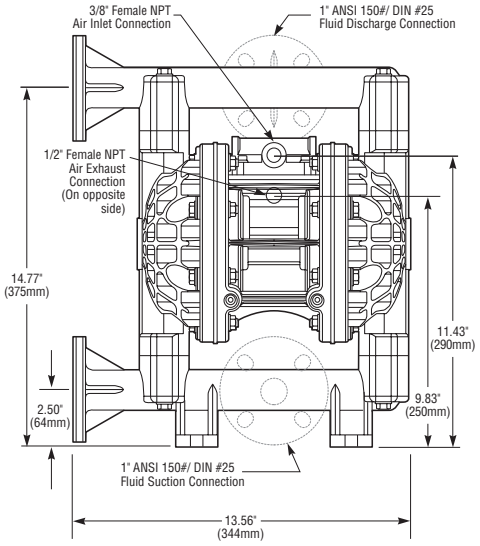


Air Consumption
E1 Teflon Fitted Pump

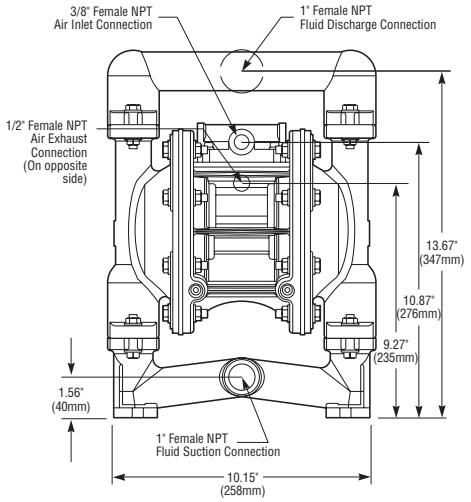


DIMENSIONS E1

E1 Plastic Pumps
Consult factory for certified drawings



E1 Metallic Pumps
Consult factory for certified drawings



** For E1 pumps fitted with Teflon® diaphragms, reduce water discharge figures by 20%. Suction lift is reduced to 10' (3.05m) dry and 20' (6.10m) wet.*

PROCESS EQUIPMENT INC.

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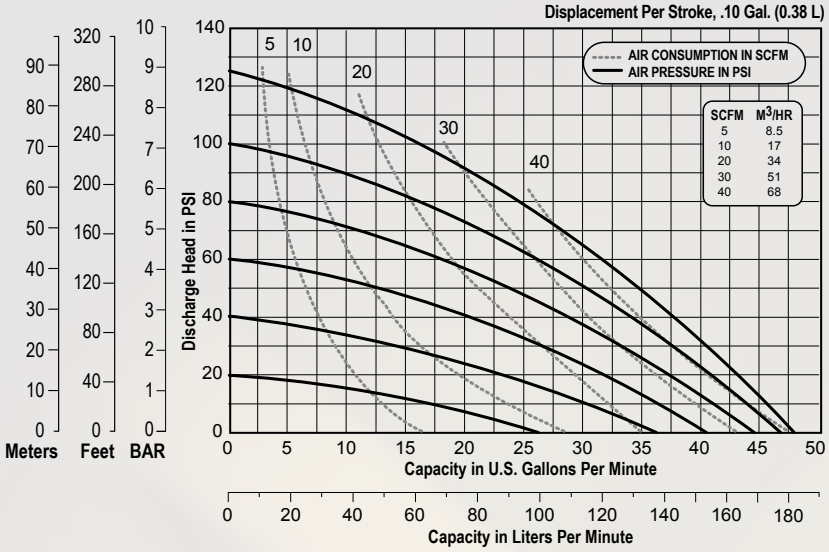
1” Elima-Matic Bolted Metal – ATEX
with Metallic Center Sections

JH PROCESS EQUIPMENT INC.

E1

Performance

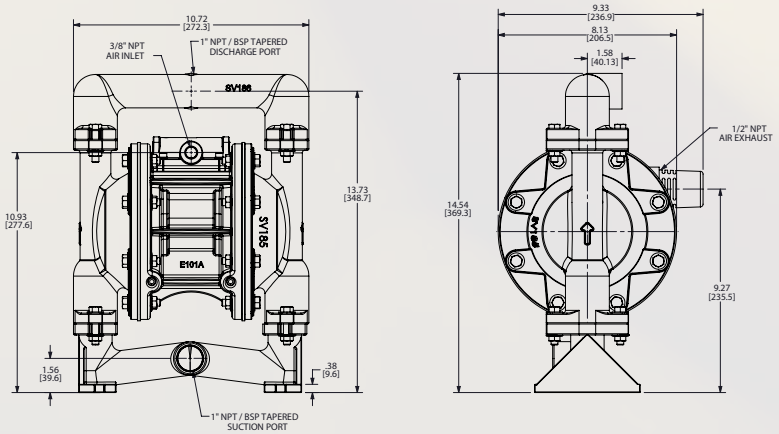


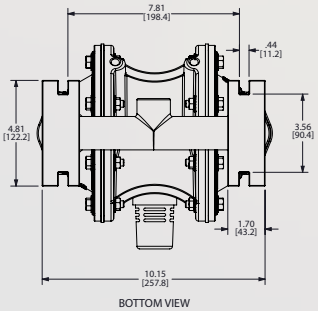
NOTE: *Performance based on the following: elastomeric fitted pump, flooded suction, water at ambient conditions. The use of other materials and varying hydraulic conditions may result in deviations in excess of 5%.*

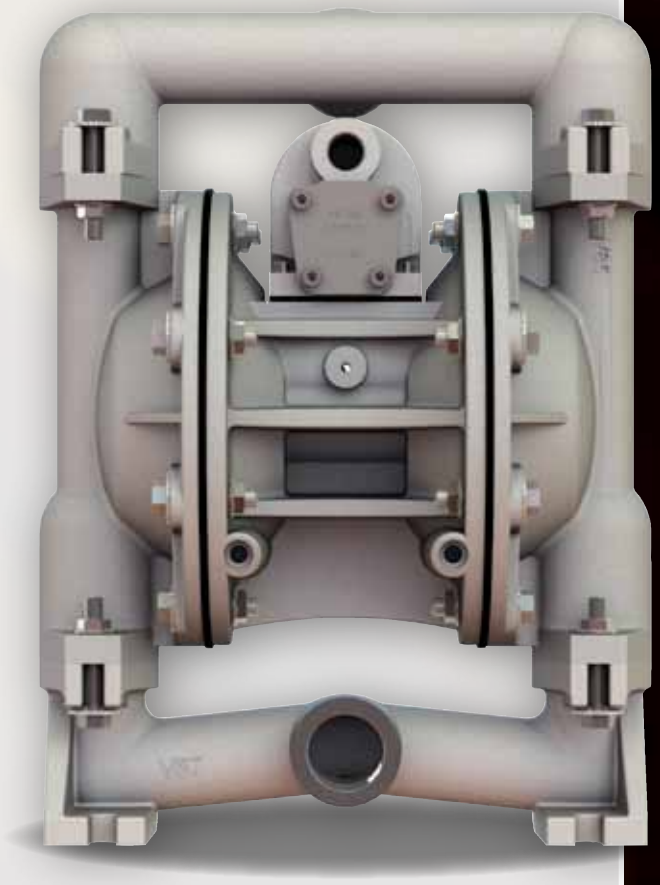
Specifications

Flow Rate
Adjustable to . . . . . 0-49 gpm (181.7 lpm)
Port Size
Suction . . . . . 1" NPT
Discharge . . . . . 1" NPT
Air Inlet . . . . . 3/8" NPT
Air Exhaust . . . . . 1/2" NPT
Suction Lift
Dry . . . . . .15' (4.6 m)
Wet . . . . . .31' (9.4 m)
Max Solid Size (Diameter)
. . . . . 1/8" (3.2 mm)
Max Noise Level . . . . . 91 dB(A)
Shipping Weights
Aluminum . . . . . 27 lbs (5 kg)
Stainless Steel . . . . . .40 lbs (7.7 kg)
Alloy-C . . . . . .40 lbs (7.7 kg)

Dimensions







Versa-Matic

Service & Operating Manual

Original Instructions

1" Elima-Matic Bolted Metal – ATEX

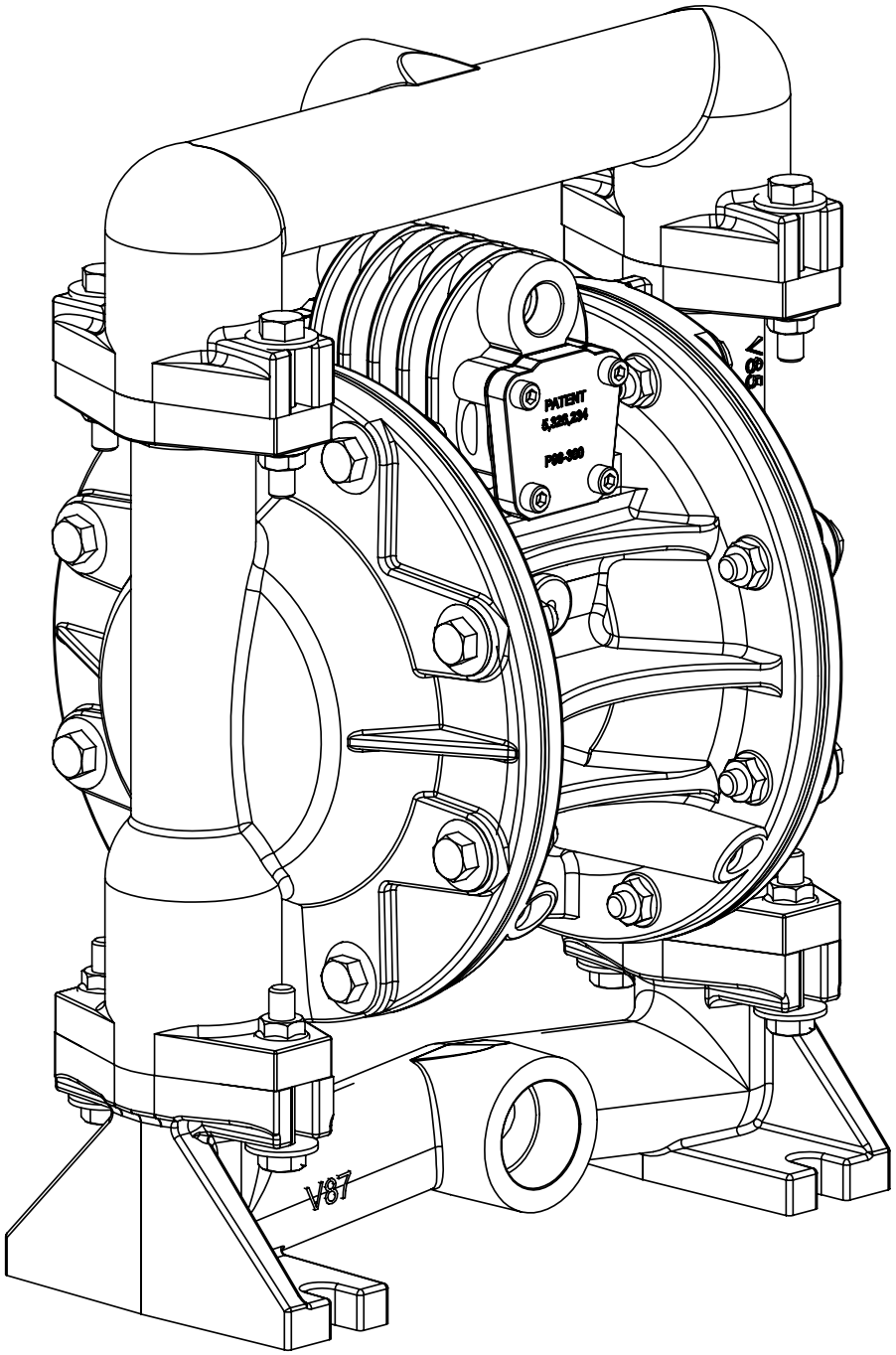
with Metallic Center Sections

E1

E1 Metallic Pumps

- Aluminum
- Stainless Steel
- Alloy-C

JH PROCESS EQUIPMENT INC.



VERSA-MATIC®

1: PUMP SPECS

2: INSTAL & OP

3: EXP VIEW

4: WARRANTY

Safety Information

⚠ 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.

⚠ 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
Pump not designed, tested or certified to be powered by compressed natural gas. Powering the pump with natural gas will void the warranty.

⚠ 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.

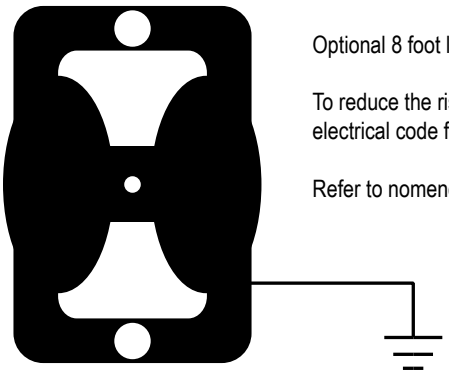
Take action to prevent static sparking. Fire or explosion can result, especially when handling flammable liquids. The pump, piping, valves, containers and other miscellaneous equipment must be properly grounded.

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.

Use safe practices when lifting

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.

VERSA-MATIC®

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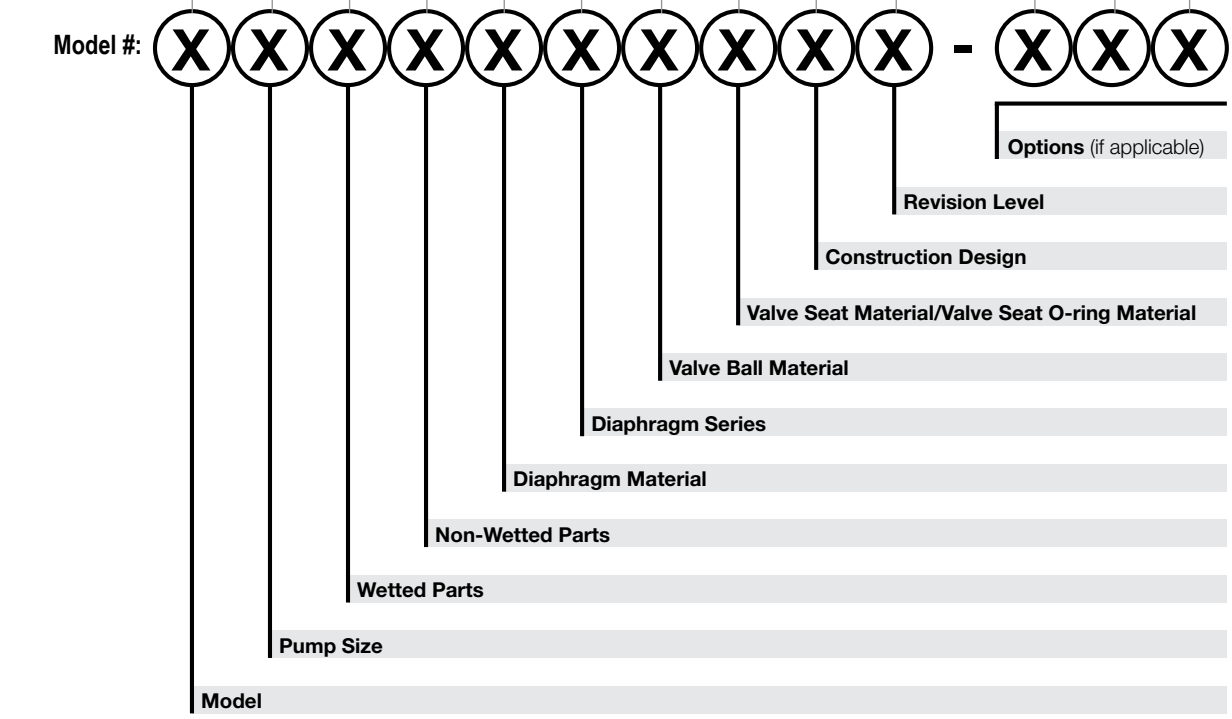
- EC Declaration of Conformity - ATEX

Explanation of Pump Nomenclature

Your Serial #: *(fill in from pump nameplate)* _____

Your Model #:
(fill in from pump nameplate)

Model #: X X X X X X X X X X - X X X



Model
E Elima-Matic
U Ultra-Matic
V V-Series
RE AirVantage

Pump Size
6 1/4"
8 3/8"
5 1/2"
7 3/4"
1 1"
4 1-1/4" or 1-1/2"
2 2"
3 3"

Wetted Parts
A Aluminum
C Cast Iron
S Stainless Steel
H Alloy C
P Polypropylene
K Kynar
G Groundable Acetal
B Aluminum (screen mount)

Non-Wetted Parts
A Aluminum
S Stainless Steel
P Polypropylene
G Groundable Acetal
Z PTFE-coated Aluminum
J Nickel-plated Aluminum
C Cast Iron
Q Epoxy-Coated Aluminum

Diaphragm Material
1 Neoprene
2 Nitrile (Nitrile)
3 FKM (Fluorocarbon)
4 EPDM
5 PTFE
6 Santoprene XL
7 Hytrel
9 Geolast

Diaphragm Series
R Rugged
D Dome
X Thermo-Matic
T Tef-Matic (2-piece)
B Versa-Tuff (1-piece)
F FUSION (one-piece integrated plate)

Valve Ball Material Valve
1 Neoprene
2 Nitrile
3 (FKM) Fluorocarbon
4 EPDM
5 PTFE
6 Santoprene XL
7 Hytrel
8 Polyurethane
9 Geolast
A Acetal
S Stainless Steel

Seat/Valve Seat O-Ring Material
1 Neoprene
2 Nitrile
3 (FKM) Fluorocarbon
4 EPDM
5 PTFE
6 Santoprene XL
7 Hytrel
8 Polyurethane
9 Geolast
A Aluminum w/ PTFE O-Rings
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

Construction Design
9 Bolted
0 Clamped

VERSA-MATIC®

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.	190°F 88°C	-20°F -29°C
EPDM: 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
FKM: (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.	200°F 93°C	-10°F -23°C
Nitrile: 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
Nylon: 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
Polypropylene: 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.	250°F 121°C	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.	180°F 82°C	-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.	220°F 104°C	-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.

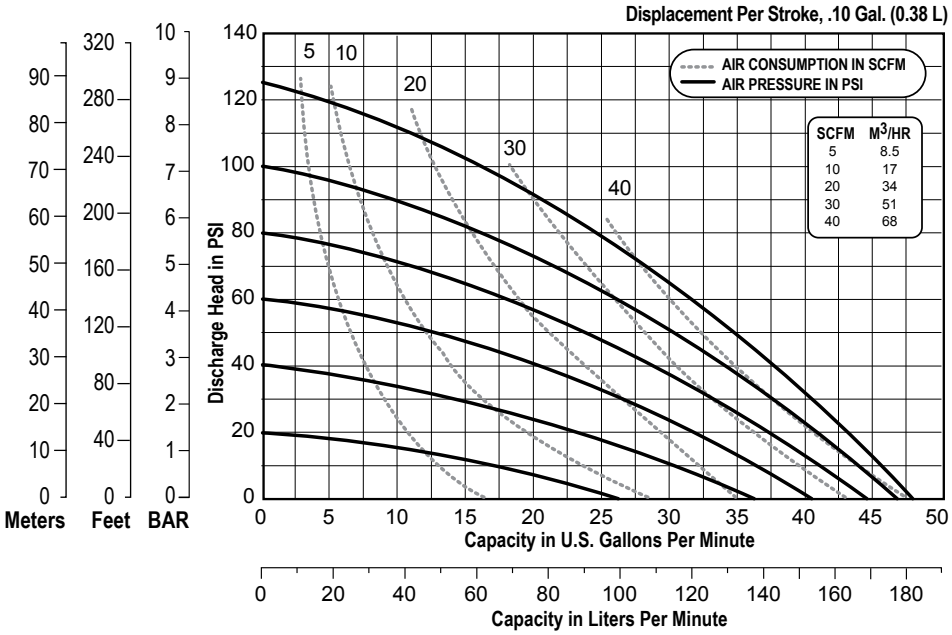
Stainless Steel: Equal to or exceeding ASTM specification A743 CF-8M for corrosion resistant iron chromium, iron chromium nickel and nickel based alloy castings for general applicaitons. Commonly referred to as 316 Stainless Steel in the pump industry.

For specific applications, always consult the Chemical Resistance Chart.

Performance

E1 1" Bolted Metal
Rubber and TPE Fitted

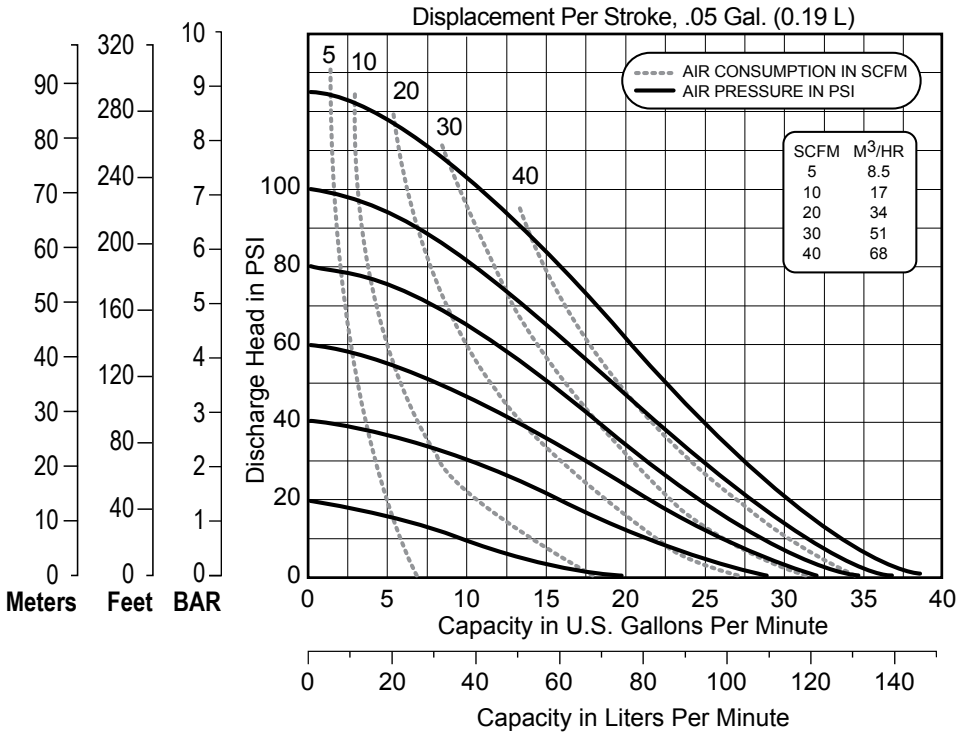
Flow Rate
Adjustable to . . . . . 0-49 gpm (181.7 lpm)
Port Size
Suction . . . . . 1" NPT
Discharge . . . . . 1" NPT
Air Inlet . . . . . 3/8" NPT
Air Exhaust . . . . . 1/2" NPT
Suction Lift
Dry . . . . . .15' (4.6 m)
Wet . . . . . .31' (9.4 m)
Max Solid Size (Diameter)
. . . . . 1/8" (3.2 mm)
Max Noise Level . . . . . 91 dB(A)
Shipping Weights
Aluminum . . . . . 27 lbs (5 kg)
Stainless Steel . . . . . .40 lbs (7.7 kg)
Alloy-C . . . . . .40 lbs (7.7 kg)



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
Suction . . . . . 1" NPT
Discharge . . . . . 1" NPT
Air Inlet . . . . . 3/8" NPT
Air Exhaust . . . . . 1/2" NPT
Suction Lift
Dry . . . . . .8' (2.4 m)
Wet . . . . . .31' (9.4 m)
Max Solid Size (Diameter)
. . . . . 1/8" (3.2 mm)
Max Noise Level . . . . . 95 dB(A)
Shipping Weights
Aluminum . . . . . 27 lbs (5 kg)
Stainless Steel . . . . . .40 lbs (7.7 kg)
Alloy-C . . . . . .40 lbs (7.7 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%.

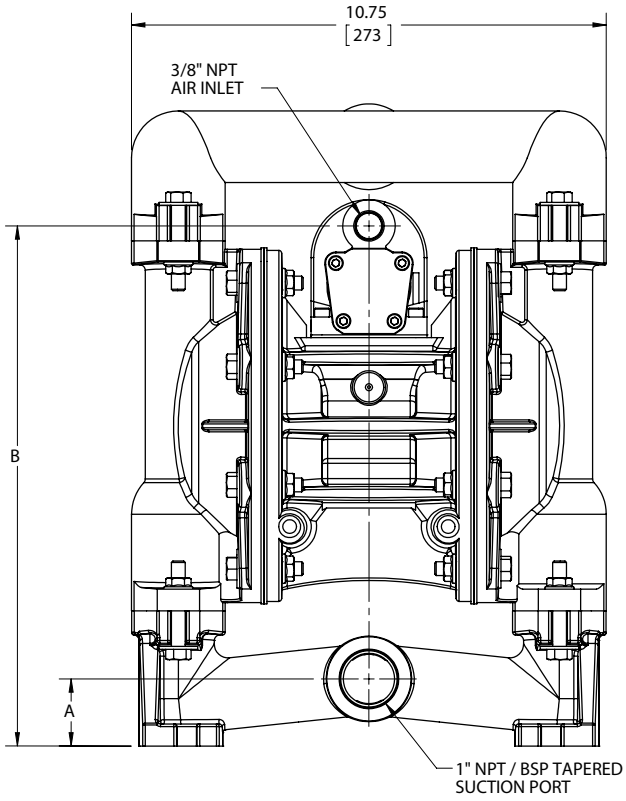
VERSA-MATIC®

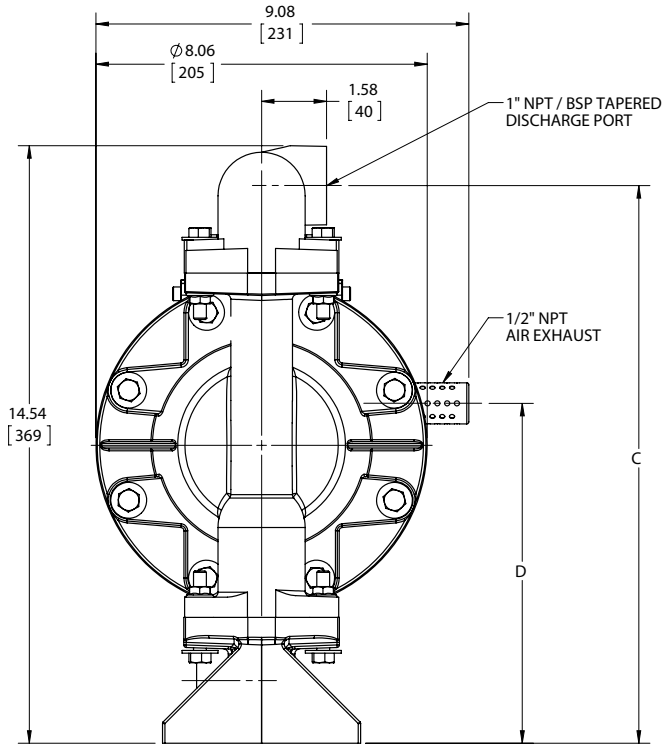
Dimensional Drawings

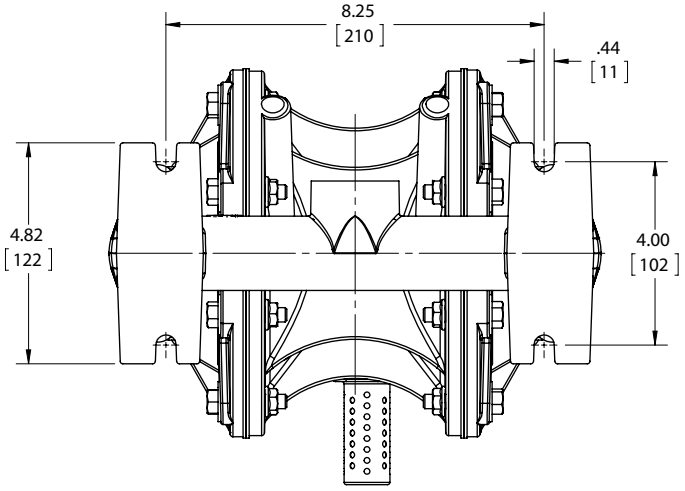
E1 Metallic Bolted

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.

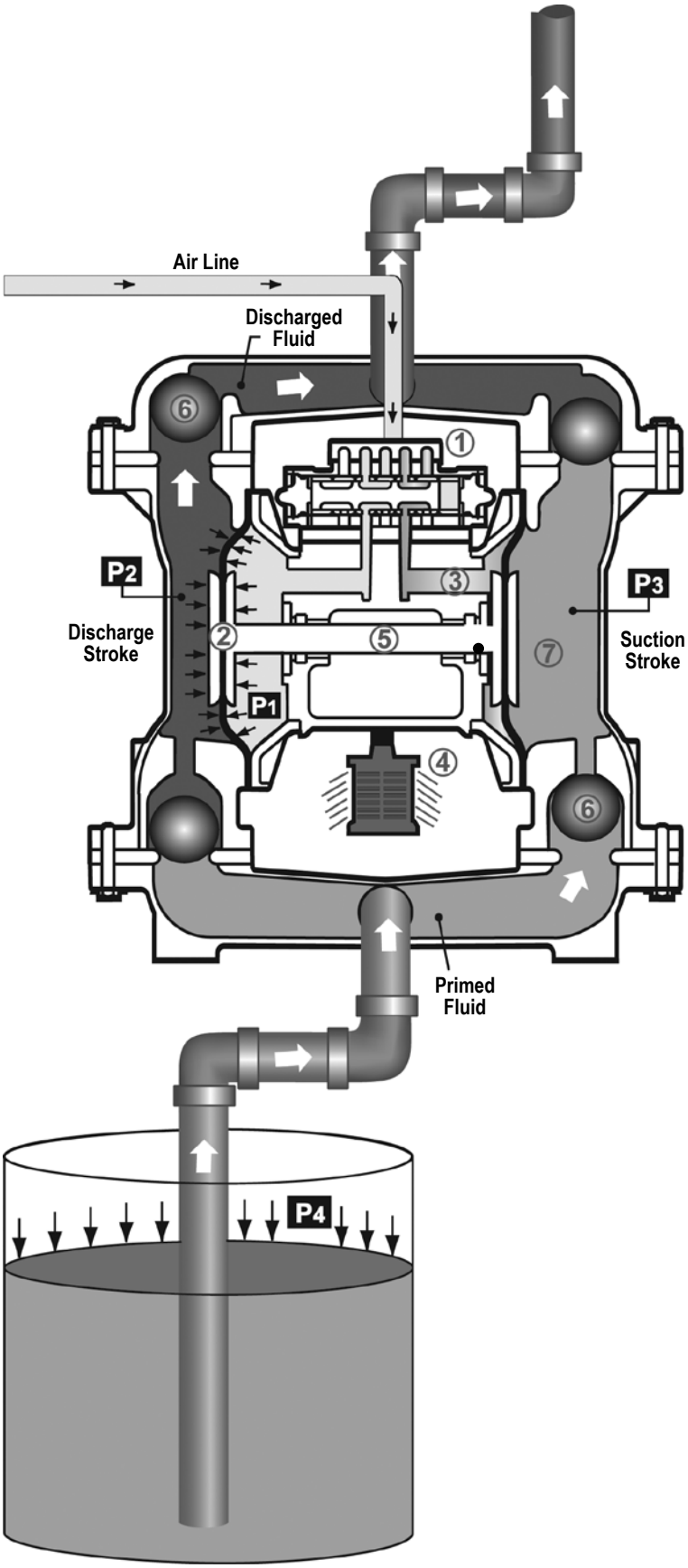






	ALUMINUM	STAINLESS STEEL ALLOY "C"
A	1.52 [39]	1.65 [42]
B	11.78 [299]	11.90 [302]
C	13.57 [345]	13.73 [349]
D	8.27 [218]	8.35 [212]

Principle of Pump Operation



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

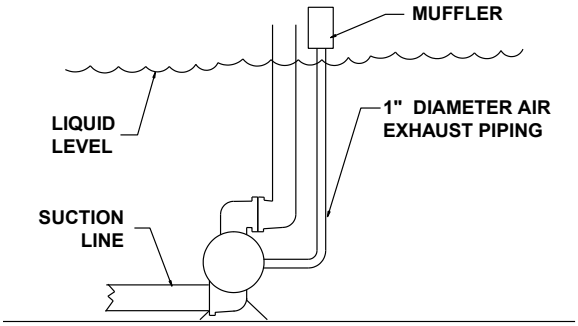
The main directional (air) control valve ① distributes compressed air to an air chamber, exerting uniform pressure over the inner surface of the diaphragm ②. At the same time, the exhausting air ③ from behind the opposite diaphragm is directed through the air valve assembly(s) to an exhaust port ④.

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 ⑦.

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

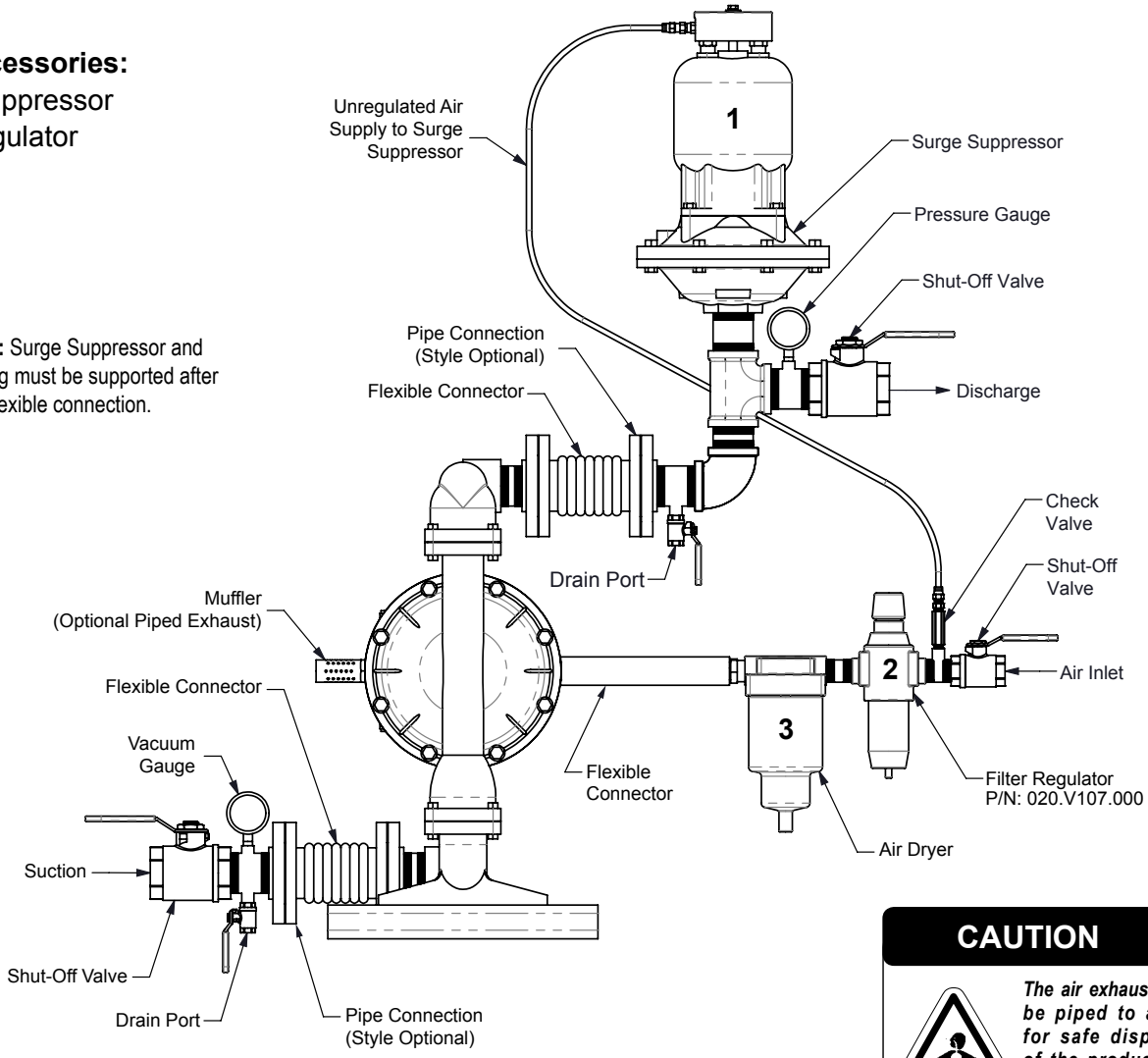


Pump can be submerged if the pump materials of construction are compatible with the liquid being pumped. The air exhaust must be piped above the liquid level. When the pumped product source is at a higher level than the pump (flooded suction condition), pipe the exhaust higher than the product source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

Recommended Installation Guide

Available Accessories:

1. Surge Suppressor
2. Filter/Regulator
3. Air Dryer



Note: Surge Suppressor and Piping must be supported after the flexible connection.

CAUTION

The air exhaust should be piped to an area for safe disposition of the product being pumped, in the event of a diaphragm failure.

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.

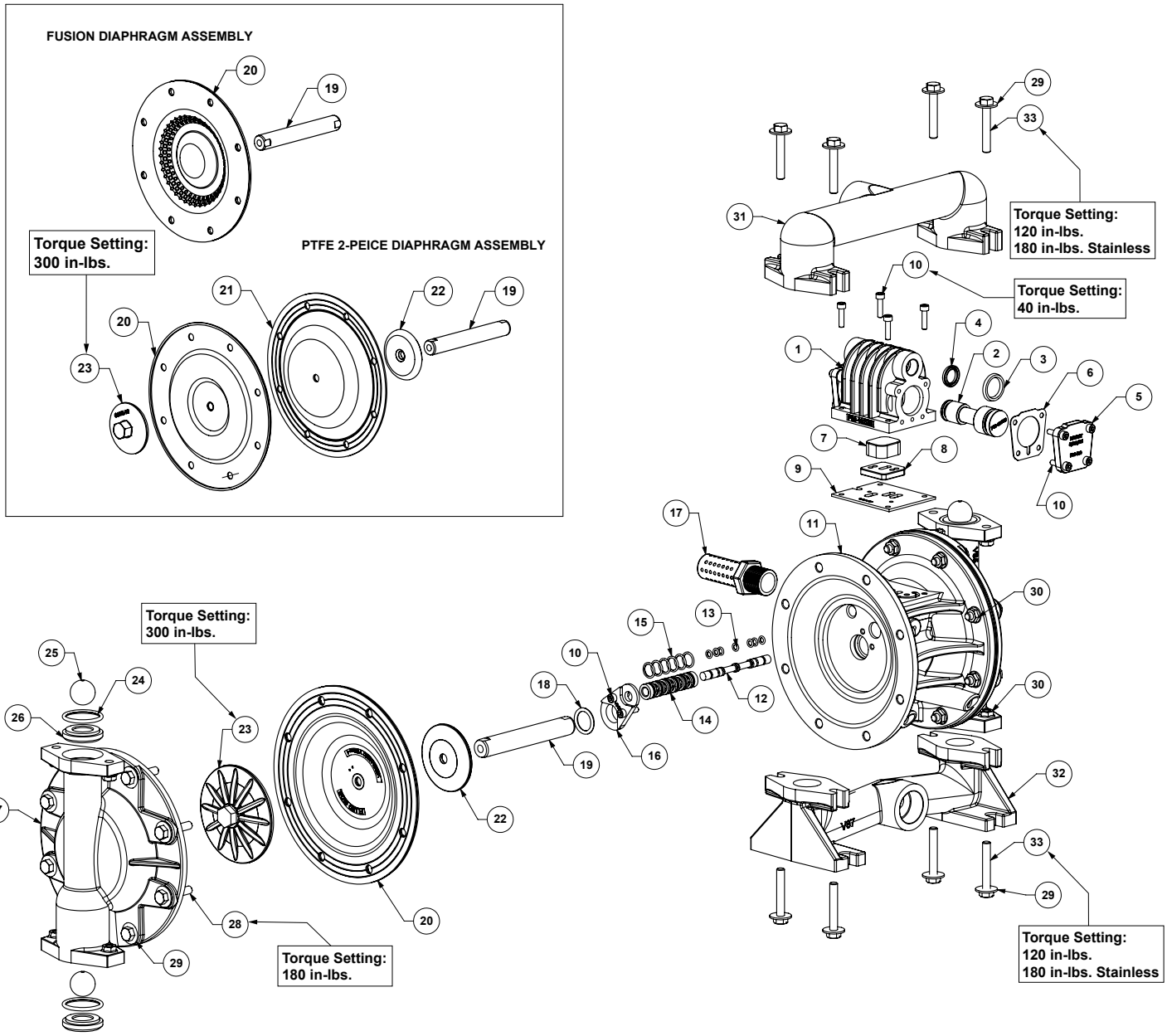
Air Inlet And Priming
To start the pump, slightly open the air shut-off valve. After the pump primes, the air valve can be opened to increase air flow as desired. If opening the valve increases cycling rate, but does not increase the rate of flow, cavitation has occurred. The valve should be closed slightly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

Troubleshooting Guide

Symptom:	Potential Cause(s):	Recommendation(s):
Pump Cycles Once	Deadhead (system pressure meets or exceeds air supply pressure).	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).
	Air valve or intermediate gaskets installed incorrectly.	Install gaskets with holes properly aligned.
	Bent or missing actuator plunger.	Remove pilot valve and inspect actuator plungers.
Pump Will Not Operate / Cycle	Pump is over lubricated.	Set lubricator on lowest possible setting or remove. Units are designed for lube free operation.
	Lack of air (line size, PSI, CFM).	Check the air line size and length, compressor capacity (HP vs. cfm required).
	Check air distribution system.	Disassemble and inspect main air distribution valve, pilot valve and pilot valve actuators.
	Discharge line is blocked or clogged manifolds.	Check for inadvertently closed discharge line valves. Clean discharge manifolds/piping.
	Deadhead (system pressure meets or exceeds air supply pressure).	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).
	Blocked air exhaust muffler.	Remove muffler screen, clean or de-ice, and re-install.
	Pumped fluid in air exhaust muffler.	Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly.
	Pump chamber is blocked.	Disassemble and inspect wetted chambers. Remove or flush any obstructions.
Pump Cycles and Will Not Prime or No Flow	Cavitation on suction side.	Check suction condition (move pump closer to product).
	Check valve obstructed. Valve ball(s) not seating properly or sticking.	Disassemble the wet end of the pump and manually dislodge obstruction in the check valve pocket. Clean out around valve ball cage and valve seat area. Replace valve ball or valve seat if damaged. Use heavier valve ball material.
	Valve ball(s) missing (pushed into chamber or manifold).	Worn valve ball or valve seat. Worn fingers in valve ball cage (replace part). Check Chemical Resistance Guide for compatibility.
	Valve ball(s)/seat(s) damaged or attacked by product.	Check Chemical Resistance Guide for compatibility.
	Check valve and/or seat is worn or needs adjusting.	Inspect check valves and seats for wear and proper setting. Replace if necessary.
	Suction line is blocked.	Remove or flush obstruction. Check and clear all suction screens or strainers.
	Excessive suction lift.	For lifts exceeding 20' of liquid, filling the chambers with liquid will prime the pump in most cases.
	Suction side air leakage or air in product.	Visually inspect all suction-side gaskets and pipe connections.
	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	Over lubrication.	Set lubricator on lowest possible setting or remove. Units are designed for lube free operation.
	Icing.	Remove muffler screen, de-ice, and re-install. Install a point of use air drier.
	Clogged manifolds.	Clean manifolds to allow proper air flow
	Deadhead (system pressure meets or exceeds air supply pressure).	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).
	Cavitation on suction side.	Check suction (move pump closer to product).
	Lack of air (line size, PSI, CFM).	Check the air line size, length, compressor capacity.
	Excessive suction lift.	For lifts exceeding 20' of liquid, filling the chambers with liquid will prime the pump in most cases.
	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.
	Undersized suction line.	Meet or exceed pump connections.
	Restrictive or undersized air line.	Install a larger air line and connection.
	Suction side 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 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.
	Diaphragm stretched around center hole or bolt holes.	Check for excessive inlet pressure or air pressure. Consult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication.
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.
	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.	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.	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 connections.
	Pumped fluid in air exhaust muffler.	Disassemble pump chambers. Inspect 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 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.

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

Composite Repair Parts Drawing



Composite Repair Parts List

Air Valve Assembly			
Item #	Qty.	Description	Part Number
-	1	Air Valve Assembly (includes items 1-10)	031.V006.156
1	1	Valve Body	P98-102UB
2	1	Valve Spool Assembly (Includes items 3&4)	P98-105UB ASY
3	1	Large Valve Spool U-Cup	P98-105B
4	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	CT Air Diverter	P98-105CT
8	1	Air Diverter Plate	P98-106
9	1	Air Valve Gasket	P98-111UB
10	12	Mounting Screws (8 included on Air Valve Assembly)	S1001

Center Section Assembly					
Item #	Qty.	Description	Part Number		
			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	560.023.358		
14	1	Pilot Valve Sleeve ASY (includes item 15)	755.V004.000		
15	6	Pilot Valve Sleeve O-Rings	560.101.358		
16	2	Shaft/Pilot Retainer	670.V002.554		
10	4	Retainer Screw	S1001		
17	1	Muffler	VTM-4A		

Diaphragm Assembly / Elastomers					
Item #	Qty.	Description	Part Number		
			TPE/RUBBER	PTFE 2-Piece	PTFE Fusion
18	2	Main Shaft O-Ring	P50-403		
19	1	Main Shaft	685.V001.120	P50-108	
20	2	Diaphragm	"V183xx-1 (See Below Material Chart)"	V183TF-1	V183F
21	2	Back-Up Diaphragm	N/A	V183TB	N/A
22	2	Inner Diaphragm Plate	V181C	V181C	N/A
23	2	Outer Diaphragm Plate (See Note 1 Below)	V81B, SV181B ASY, HV181TO	SV181TO, HV181TO	N/A
24	4	Valve Seat O-Ring	"V90xx (See Below Material Chart)"	SV190TF	
25	4	Valve Ball	"V191xx (See Below Material Chart)"	V191TF	

Wet End Assembly					
Item #	Qty.	Description	Part Number		
			Aluminum	Stainless Steel	Hastelloy
26	4	Valve Seat	V90A	SV190	HV190
27	2	Water Chamber	V85	SV185	HV185
28	16	Water Chamber Bolt	V189A	SV189D	
29	16	Water Chamber Washer	V189C	SV189C	
30	16	Water Chamber Nut	V185B	SV185B	
31	1	Discharge Manifold	V86	SV186	HV186
		Discharge Manifold (BSP Option)	V86BSP	SV186BSP	HV186BSP
32	1	Suction Manifold	V87	SV187	HV187
		Suction Manifold (BSP Option)	V87BSP	SV187BSP	HV187BSP
33	8	Manifold Bolt	V187A	SV189D	
29	8	Manifold Washer	V189C	SV189C	
30	8	Manifold Nut	V185B	SV185B	

Elastomer Material Specifications			
Material	Diaphragm P/N	Valve Ball P/N	O-Ring P/N
Neoprene	V183N-1	V191N	N/A
Buna Nitrile	V183BN-1	V191BN	V90BN
Viton	V183VT-1	V191VT	V90VT
Nordel	V183ND-1	V191ND	V90ND
Santoprene	V183TPEXL-1	V191TPEXL	V190XL
Hytrel	V183TPEFG	V191TPEFG	N/A
Geolast	V183G	V191G	N/A
Acetal	N/A	V191A	N/A
Stainless Steel	N/A	V191SS	N/A

Note: The outer diaphragm plate material is to match the water chamber material

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:

2006/42/EC
on Machinery, according to Annex VIII

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:

EN809:1998+ A1:2009

AUTHORIZED / APPROVED BY:
Approuve par:
Aprobado por:
Genehmigt von:
approvato da:
Goedgekeurd door:
Underskrift:
Valtuutettuna:
Bemyndiget av:
Autorizado Por:

David Roseberry
Dave Roseberry
Engineering Manager

DATE: August 10, 2011
FECHA:
DATUM:
DATA:
DATO:
PÄIVÄYS:

CE

04/19/2012 REV 07

VMQR 044FM

EC DECLARATION OF CONFORMITY

in accordance with ANNEX VIII of Directive 94/9/EC - Equipment for use in Potentially Explosive Atmospheres

Date of Issue:	10 May 2014
Technical File No.:	203104000-1410/MER
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 * When pumping non-conductive fluids the internal surfaces that contact the fluid are restricted to Ex II 3GD c T5. The external surfaces of the pump are still Ex II 2GD c T5. 2. I M2 c fluids up to 95° C Pumps marked with equipment Category II 3/2 G (internal 3 G / external 2 G), 2D, when used with non-conductive fluids. The pumps are Category II 2 G when used for conductive fluids.
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:	DEKRA Certification B.V. (0344) Meander 1051 6825 MJ Arnhem The Netherlands
Harmonized Standards Applied:	EN 13463-1:2009 Non-Electrical Equipment Potentially Explosive Atmospheres-Part 1 Basic Methods and Requirements EN 13463-5:2011 Non-Electrical Equipment for Potentially Explosive Atmospheres-Part 5 Protection by Constructional Safety
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

We hereby certify that the equipment 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

David Roseberry

DATE/OF REVISION/TITLE:
29 May 2014

Dave Roseberry
Engineering Manager

VERSA-MATIC®

IDEX FLUID & METERING