SERVICE&OPERATINGMANUAL

ORIGINAL INSTRUCTIONS

VTA

Surge Suppressor- Models

VTA1 & VTA25
VTA1½ & VTA40
VTA2 & VTA50
VTA3 & VTA80

Metallic Construction



VERSAMATIC® ACCESSORIES

VERSAMATIC®
Warren Rupp, Inc. • A Unit of IDEX Corporation

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Safety Information

⚠ IMPORTANT



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



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



Nonmetallic surge suppressors 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
Surge suppressor not designed, tested or certified to be powered by compressed natural gas. Powering the surge suppressor with natural gas will void the warranty.



WARNING
The use of non-OEM replacement parts will void (or negate) agency certifications, including CE, ATEX, CSA, 3A and EC1935 compliance (Food Contact Materials). Warren Rupp, Inc. cannot ensure nor warrant non-OEM parts to meet the stringent requirements of the certifying agencies.

⚠ WARNING



When used for toxic or aggressive fluids, the surge suppressor 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 surge suppressor. 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 surge suppressor, 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 surge suppressor, piping, valves, containers and other miscellaneous equipment must be properly grounded.

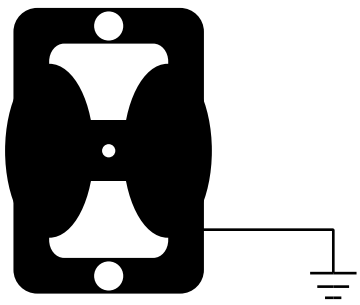


This surge suppressor is pressurized internally with air pressure during operation. Make certain that all fasteners are in good condition and are reinstalled properly during reassembly.



Use safe practices when lifting

Grounding ATEX Surge Suppressor



ATEX compliant surge suppressors are suitable for use in explosive atmospheres when the equipment is properly grounded in accordance with local electrical codes. Surge suppressors equipped with electrically conductive diaphragms are suitable for the transfer of conductive or non-conductive fluids of any explosion group. When operating surge suppressors equipped with non-conductive diaphragms that exceed the maximum permissible projected area, as defined in EN 80079-36-1 : 2016 section 6.7.5 table 8, the following protection methods must be applied:

- Equipment is always used to transfer electrically conductive fluids or
- Explosive environment is prevented from entering the internal portions of the surge suppressor, i.e. dry running

For further guidance on ATEX applications, please consult the factory.

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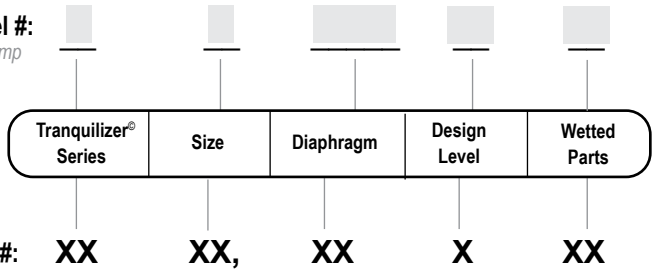
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Explanation of Nomenclature

Your Model #:
(fill in from pump nameplate)



Tranquilizer Series
VTATranquilizer

Size
1 1" NPT
25 1" BSP Tapered
1½ 1½" NPT
40 1½" BSP Tapered
2 2" NPT
50 2" BSP Tapered
3 3" NPT
80 3" BSP Tapered

Diaphragm Materials
B Nitrile
F FDA Accepted White Nitrile
NG Neoprene Backup with PTFE Overlay
H Hytrel
I EPDM
N Neoprene
S Santoprene
V FKM

Design Level
1 Models: VTA1, VTA25, VTA1½, VTA40
2 Models: VTA2, VTA50, VTA3, VTA80

Wetted Parts
A Aluminum
CI Cast Iron
SS Stainless Steel
HC Alloy-C Wetted

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

ATEX Detail

II 2 G Ex h IIC T5...225°C (T2) Gb
II 2 D Ex h IIIC T100°C...T200°C Db

Models equipped with stainless steel wetted parts (option **SS**) and PTFE diaphragms (option **NG**) are compliant with (EC) No 1935/2004 Food Contact Materials

Table 1. Category 1 & Category 2 ATEX Rated Pumps

Ambient Temperature Range [°C]	Process Temperature Range [°C][1]	Temperature Class	Maximum Surface Temperature [°C]
-20°C to +60°C	-20°C to +80°C	T5	T100°C
	-20°C to +108°C	T4	T135°C
	-20°C to + 160°C	T3	T200°C
	-20°C to +177°C	(225°C) T2	

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Materials

Material Profile: *CAUTION! Operating temperature limitations are as follows:*	Operating Temperatures: 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.

Note: This document is a high level guide. Please be aware that not all model and or material combinations are possible for all sizes. Please consult factory or your distributor for specific details.

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Material Codes - The Last 3 Digits of Part Number

000.....Assembly, sub-assembly;
and some purchased items
010.....Cast Iron
015.....Ductile Iron
020.....Ferritic Malleable Iron
080.....Carbon Steel, AISI B-1112
110.....Alloy Type 316 Stainless Steel
111.....Alloy Type 316 Stainless Steel
(Electro Polished)
112.....Alloy C
113.....Alloy Type 316 Stainless Steel
(Hand Polished)
114.....303 Stainless Steel
115.....302/304 Stainless Steel
117.....440-C Stainless Steel (Martensitic)
120.....416 Stainless Steel
(Wrought Martensitic)
148.....Hardcoat Anodized Aluminum
150.....6061-T6 Aluminum
152.....2024-T4 Aluminum (2023-T351)
155.....356-T6 Aluminum
156.....356-T6 Aluminum
157.....Die Cast Aluminum Alloy #380
158.....Aluminum Alloy SR-319
162.....Brass, Yellow, Screw Machine Stock
165.....Cast Bronze, 85-5-5-5
166.....Bronze, SAE 660
170.....Bronze, Bearing Type,
Oil Impregnated
180.....Copper Alloy
305.....Carbon Steel, Black Epoxy Coated
306.....Carbon Steel, Black PTFE Coated
307.....Aluminum, Black Epoxy Coated
308.....Stainless Steel, Black PTFE Coated
309.....Aluminum, Black PTFE Coated
313.....Aluminum, White Epoxy Coated
330.....Zinc Plated Steel
332.....Aluminum, Electroless Nickel Plated
333.....Carbon Steel, Electroless
Nickel Plated
335.....Galvanized Steel
337.....Silver Plated Steel
351.....Food Grade Santoprene®
353.....Geolast; Color: Black
354.....Injection Molded #203-40
Santoprene® Duro 40D +/-5;
Color: RED
356.....Hytrel®
357.....Injection Molded Polyurethane
358.....Urethane Rubber
(Some Applications)
(Compression Mold)
359.....Urethane Rubber
360.....Nitrile Rubber Color coded: RED
363.....FKM (Fluorocarbon)
Color coded: YELLOW
364.....EPDM Rubber
Color coded: BLUE
365.....Neoprene Rubber
Color coded: GREEN
366.....Food Grade Nitrile
368.....Food Grade EPDM
371.....Philthane (Tuftane)
374.....Carboxylated Nitrile
375.....Fluorinated Nitrile
378.....High Density Polypropylene
379.....Conductive Nitrile
408.....Cork and Neoprene
425.....Compressed Fibre
426.....Blue Gard
440.....Vegetable Fibre
500.....Delrin® 500
502.....Conductive Acetal, ESD-800
503.....Conductive Acetal, Glass-Filled
506.....Delrin® 150
520.....Injection Molded PVDF
Natural color
540.....Nylon
542.....Nylon
544.....Nylon Injection Molded
550.....Polyethylene
551.....Glass Filled Polypropylene
552.....Unfilled Polypropylene
555.....Polyvinyl Chloride
556.....Black Vinyl
558.....Conductive HDPE
570.....Rulon II®
580.....Ryton®
600.....PTFE (virgin material)
Tetrafluorocarbon (TFE)
603.....Blue Gylon®
604.....PTFE
606.....PTFE
607.....Envelon
608.....Conductive PTFE
610.....PTFE Encapsulated Silicon
611.....PTFE Encapsulated FKM
632.....Neoprene/Hytrel®
633.....FKM/PTFE
634.....EPDM/PTFE
635.....Neoprene/PTFE
637.....PTFE, FKM/PTFE
638.....PTFE, Hytrel®/PTFE
639.....Nitrile/TFE
643.....Santoprene®/EPDM
644.....Santoprene®/PTFE
656.....Santoprene® Diaphragm and
Check Balls/EPDM Seats
661.....EPDM/Santoprene®
666.....FDA Nitrile Diaphragm,
PTFE Overlay, Balls, and Seals
668.....PTFE, FDA Santoprene®/PTFE

- Delrin and Hytrel are registered tradenames of E.I. DuPont.
- Nylatron is a registered tradename of Polymer Corp.
- Gylon is a registered tradename of Garlock, Inc.
- Santoprene is a registered tradename of Exxon Mobil Corp.
- Rulon II is a registered tradename of Dixion Industries Corp.
- Ryton is a registered tradename of Phillips Chemical Co.
- Valox is a registered tradename of General Electric Co.

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SERVICE AND OPERATING INSTRUCTIONS

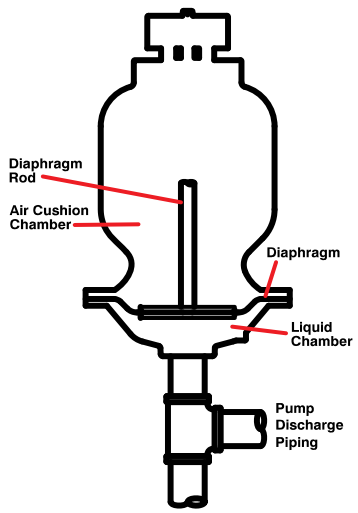
This Versamatic Surge Suppressor is a completely automatic diaphragm fitted surge suppressor to reduce the flow and pressure pulsations in a pumping system characteristic of reciprocating type pumps.

Principle of Operation: The Surge Suppressor uses a flexible diaphragm to separate a liquid chamber from compressed air chambers. A rod connected to the center of one diaphragm activates the air inlet and exhaust valves, which automatically admit or exhaust air in the air chambers. This maintains the diaphragms in mid-range of stroke for maximum surge suppression.

Installation: Locate the Surge Suppressor in discharge piping as close as possible to the pump. The unit will operate in any position. Connect air inlet connection to full plant air supply line before the air regulator to pump. Not to exceed 125PSI.

Service Instructions: When service is required, it is important to MAKE CERTAIN THAT INLET AIR PRESSURE IS DISCONNECTED. The diaphragms are serviced by simply removing the hex nuts or v-band, and removing the center spool casting. When Virgin PTFE diaphragms are used in conjunction with the elastomeric diaphragms they are placed over the "wetted" sides of each elastomeric diaphragm. Inlet and exhaust air valves are located externally for easy access and service.

Warranty: This unit is guaranteed for a period of five years against defective material and workmanship.





⚠ IMPORTANT

Read these safety warnings and instructions in this manual completely, before installation and start-up of the pulsation dampener. It is the responsibility of the purchaser to retain this manual for reference. Failure to comply with the recommendations stated in this manual will damage the pulsation dampener, and void factory warranty.



⚠ CAUTION

Before surge suppressor operation, inspect all gasketed fasteners for looseness caused by gasket creep. Re-torque loose fasteners to prevent leakage. Follow recommended torques stated in this manual.



⚠ WARNING

Before doing any maintenance on the pulsation dampener, be certain all pressure is completely vented from the pump, suction, discharge, piping, and all other openings and connections. Be certain the air supply is locked out or made non-operational, so that it cannot be started while work is being done on the pump. Be certain that approved eye protection and protective clothing are worn all times in the vicinity of the pump. Failure to follow these recommendations may result in serious injury or death.



⚠ 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. See page 8.

⚠ HAZARD WARNING ⚠

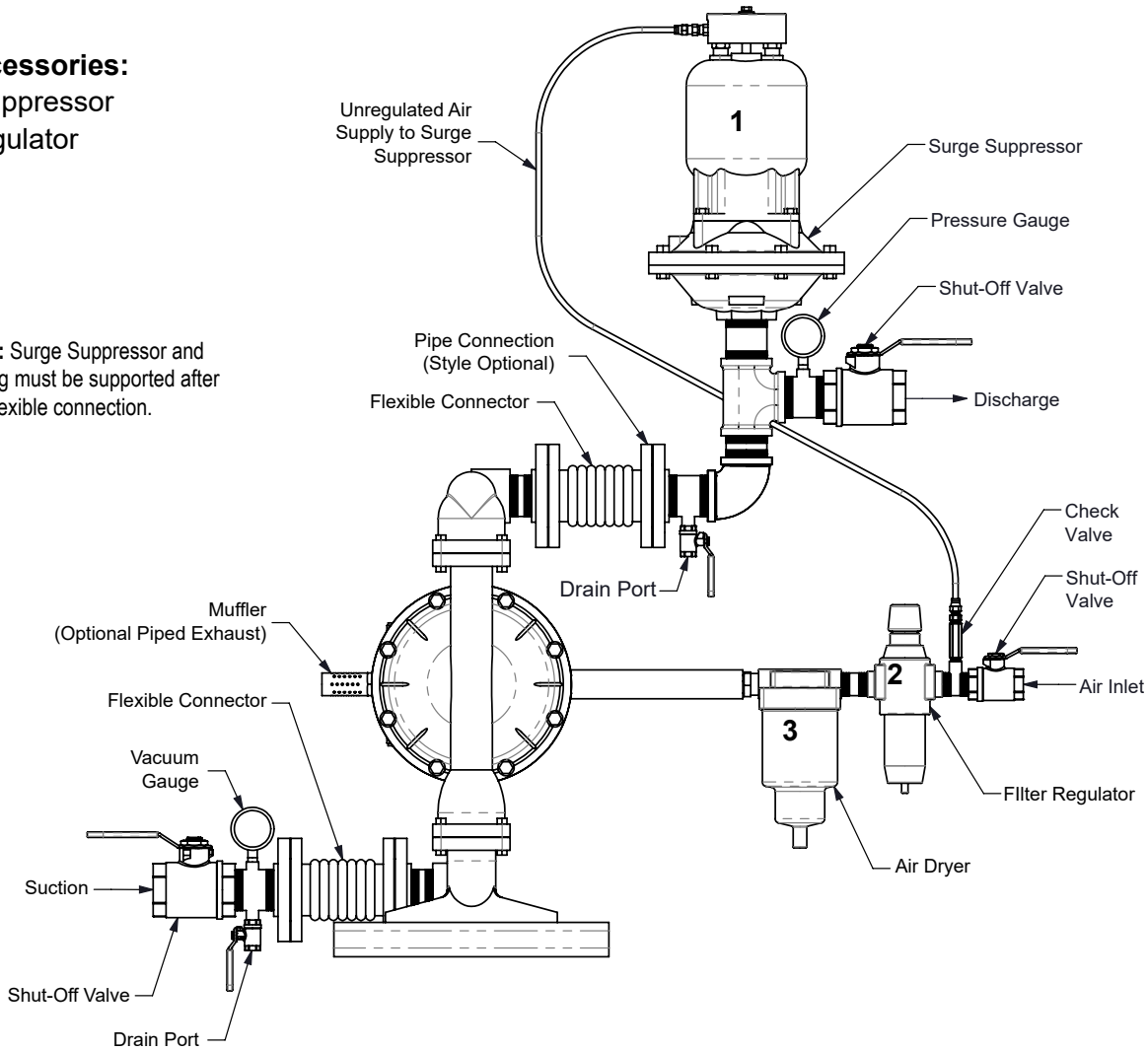
POSSIBLE EXPLOSION HAZARD can result if 1, 1, 1, -Trichloroethane, Methylene Chloride or other Halogenated Hydrocarbon solvents are used in pressurized fluid systems having Aluminum or Galvanized wetted parts. Death, serious bodily injury and/or property damage could result. Consult with the factory if you have questions concerning Halogenated Hydrocarbon solvents.

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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.

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.

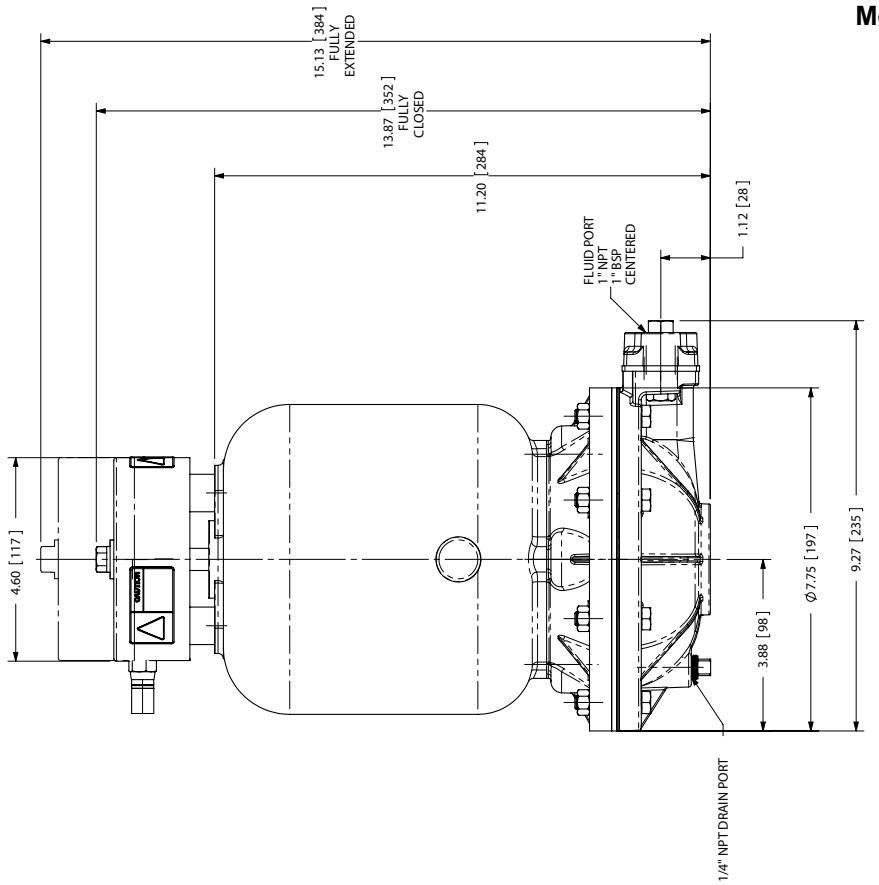
Air Inlet And Priming
To start the pump, slightly open the air shut-off valve. After the pump primes, the air valve can be opened to increase air flow as desired. If opening the valve increases cycling rate, but does not increase the rate of flow, cavitation has occurred. The valve should be closed slightly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

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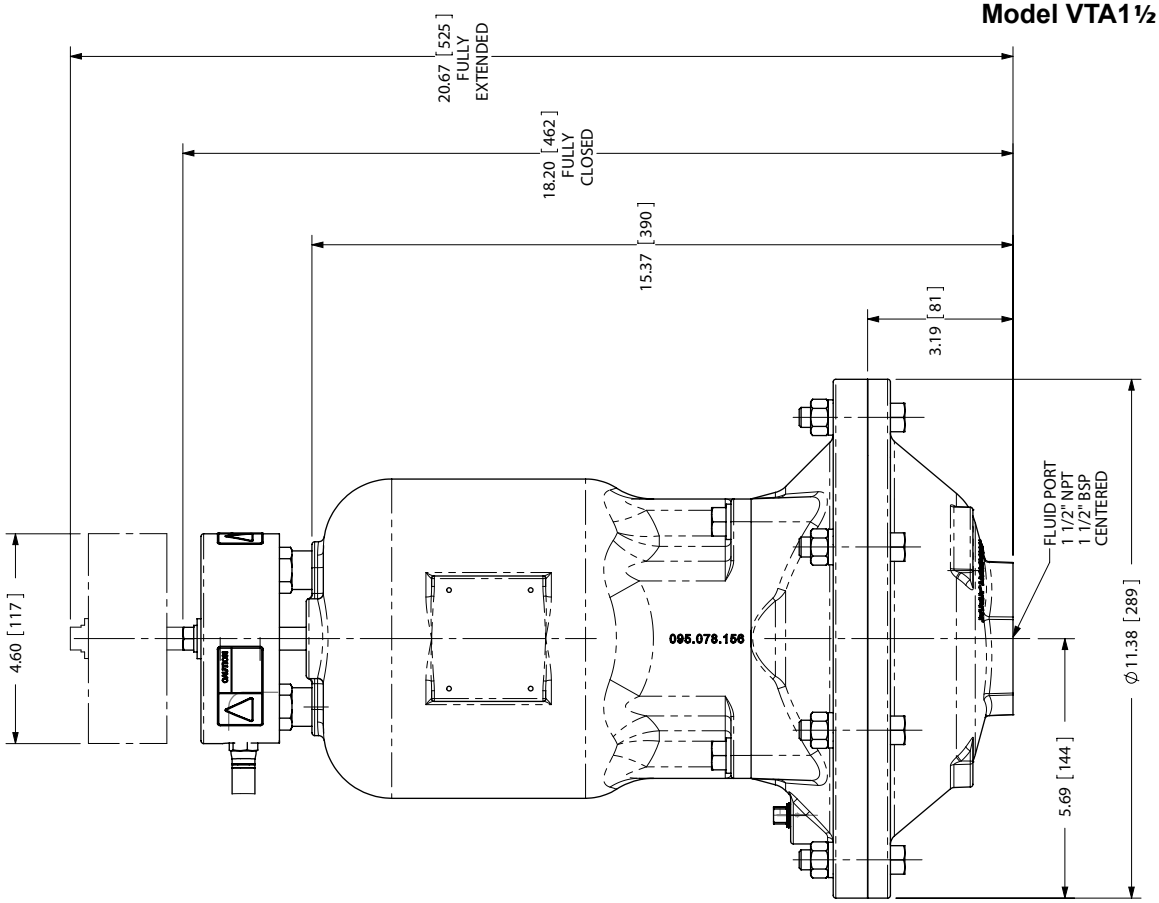
Dimensional Drawings

Dimensions are ± 1/8" (± 3mm). Figures in parenthesis = millimeters

Model VTA1 & VTA25



Model VTA1½ & VTA40

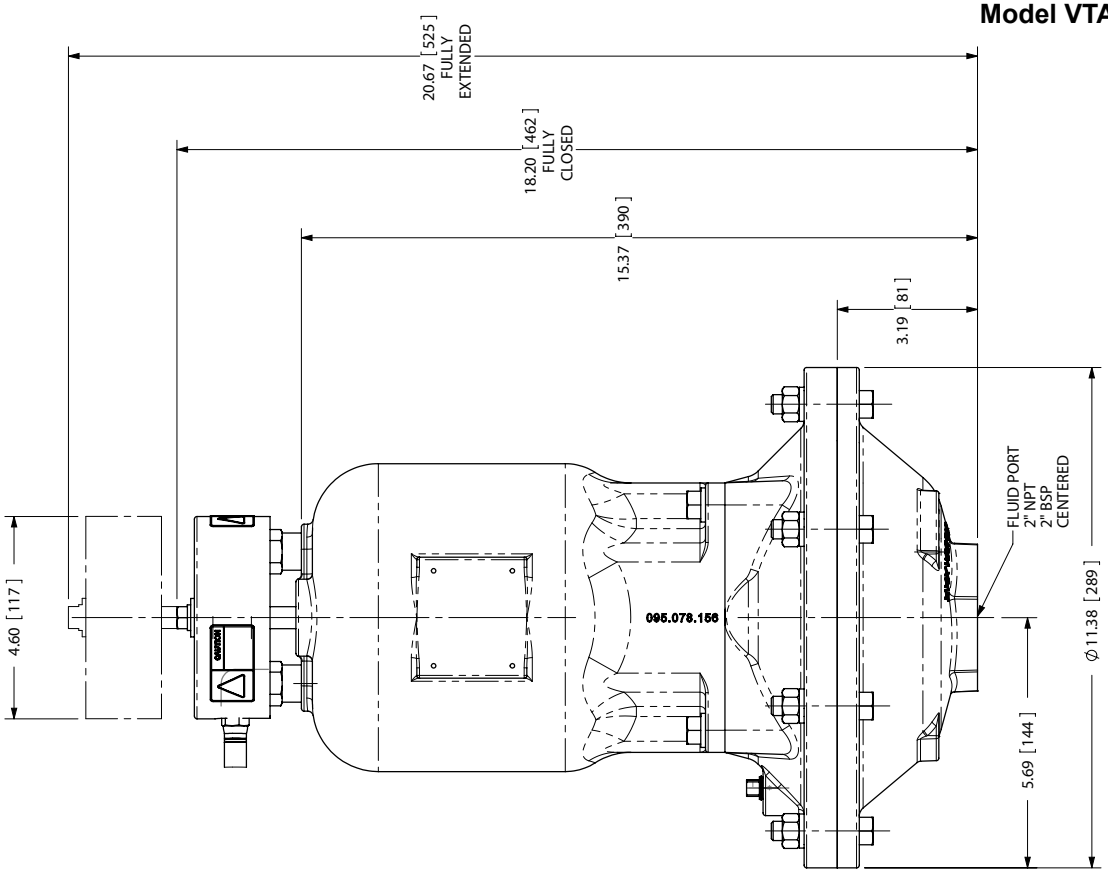


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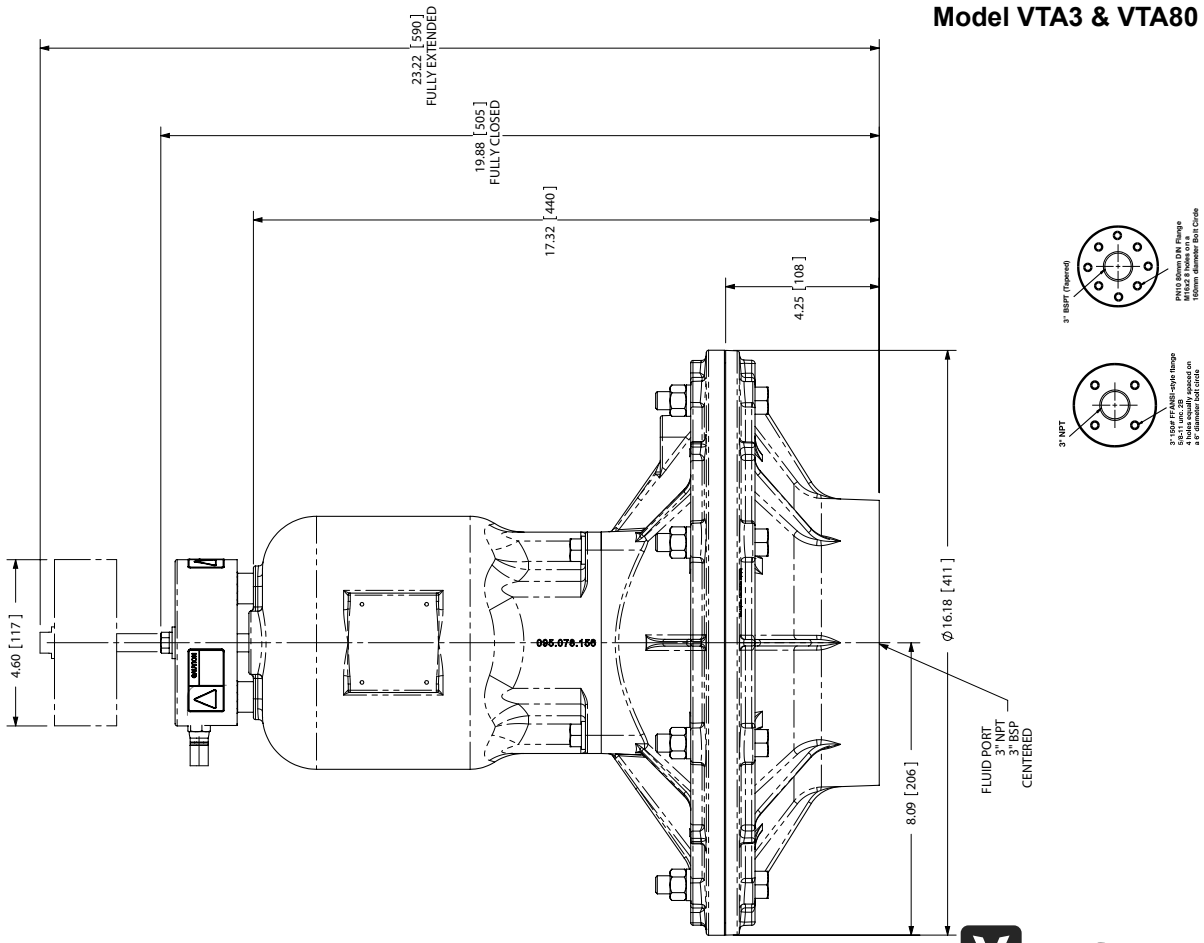
Dimensional Drawings

Dimensions are ± 1/8" (± 3mm). Figures in parenthesis = millimeters

Model VTA2 & VTA50

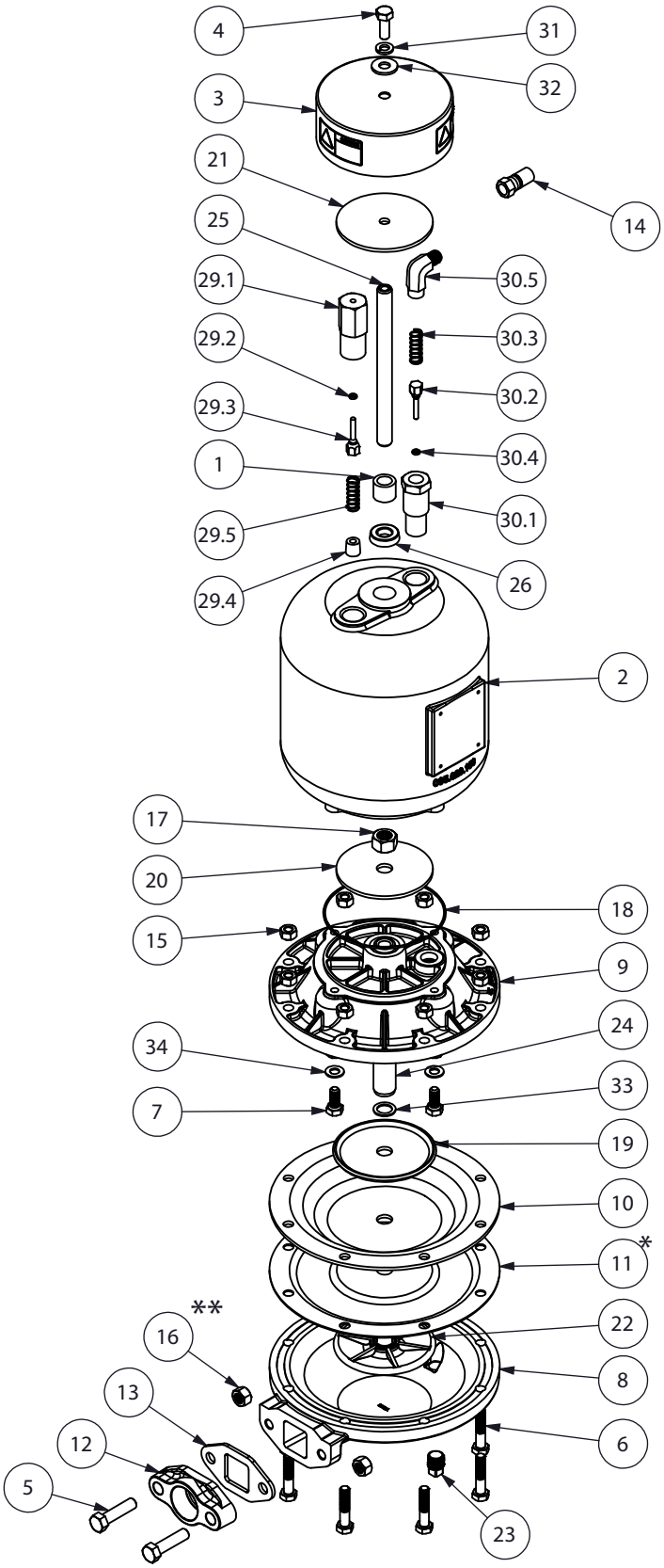


Model VTA3 & VTA80



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VTA1 & VTA25 - Composite Repair Parts Drawing



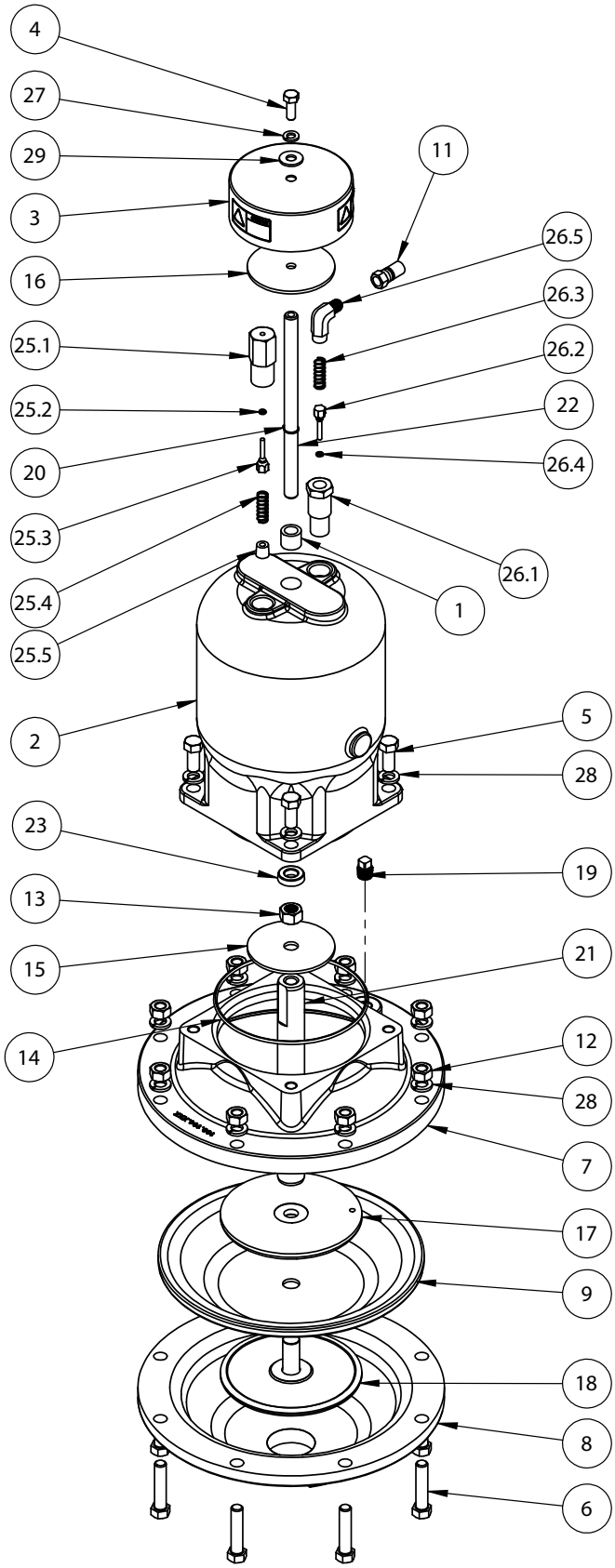
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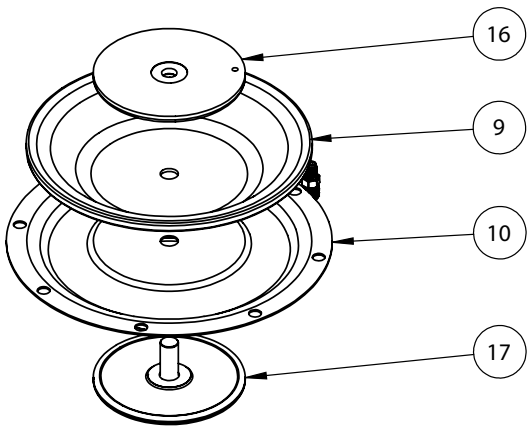
VTA1 & VTA25 - Composite Repair Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	070.014.170	Bearing, Sleeve	1
2	095.029.156	Body	1
3	165.023.000	Cap	1
4	170.005.330	Capscrew, Hex Hd 5/16-18 X 7/8	1
5	170.009.330	Capscrew, Hex Hd 3/8-16 x 1 1/2	2
6	170.029.330	Capscrew, Hex Hd 5/16-18 x 1 1/2	8
7	170.057.330	Capscrew, Hx Hd 5/16-18 x 3/4	4
8	196.012.110	Outer Chamber (Stainless Units)	1
	196.012.157	Outer Chamber	1
9	196.018.157	Chamber	1
10	**286.008.354**	**Diaphragm**	**1**
	286.008.356	**Diaphragm**	**1**
	286.008.360	**Diaphragm**	**1**
	286.008.363	**Diaphragm**	**1**
	286.008.364	**Diaphragm**	**1**
	286.008.365	**Diaphragm**	**1**
	286.008.366	**Diaphragm**	**1**
11	**286.015.604**	**Diaphragm, Overlay**	**1**
12	334.018.110	Flange, Threaded (Stainless and PTFE Units)	1
	334.018.156	Flange, Threaded	1
	334.018.110E	Flange, Threaded (1" BSP Tapered)	1
	334.018.156E	Flange, Threaded (1" BSP Tapered)	1
13	**360.030.425**	**Gasket, Flange**	**1**
	360.030.600	**Gasket, Flange (PTFE and FKM Units)**	**1**
14	866.078.330	Tube Fitting	1
15	545.004.330	Nut, Hex 5/16-18	8
16	545.005.330	Nut, Hex 3/8-16 (Stainless Units)	2
17	545.008.330	Nut, Hex 1/2-13	1
18	**560.040.360**	**O-Ring**	**1**
19	612.022.330	Plate, Inner Diaphragm	1
20	612.043.330	Plate, Activator	1
21	612.044.330	Plate, Activator	1
22	612.101.110	Plate, Outer Diaphragm	1
	612.108.157	Plate, Outer Diaphragm	1
23	618.003.110	Plug, 1/4 Pipe (Stainless Units)	1
	618.003.330	Plug, 1/4 Pipe	1
24	685.027.120	Rod, Diaphragm	1
25	685.028.120	Rod, Activator	1
26	**720.012.360**	**Seal, Shaft**	**1**
29	893.021.000	Valve Assembly	1
29.1	095.020.162	Body, Valve	1
29.2	**560.001.360**	**O-Ring**	**1**
29.3	622.002.162	Poppet	1
29.4	670.007.162	Spring, Retainer	1
29.5	780.013.115	Spring, Compression	1
30	893.023.000	Valve Assembly	1
30.1	095.019.162	Body, Valve	1
30.2	622.002.162	Poppet	1
30.3	780.013.115	Spring, Compression	1
30.4	**560.001.360**	**O-Ring**	**1**
30.5	866.010.162	Elbow, Male	1
31	900.004.330	Washer, Lock 5/16	1
32	901.009.115	Washer, Flat 5/16	1
33	901.012.180	Washer, Sealing	1
34	901.014.180	Washer, Sealing	4

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VTA1 ½ & VTA40 - Composite Repair Parts Drawing





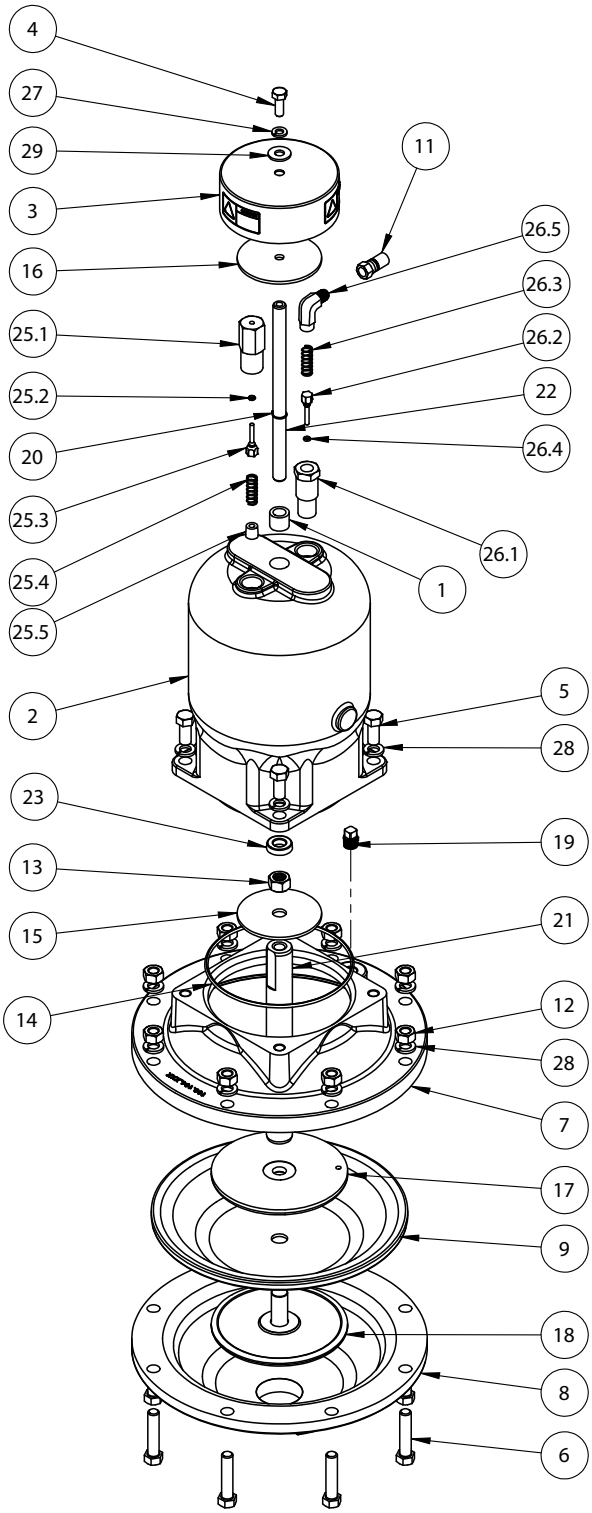
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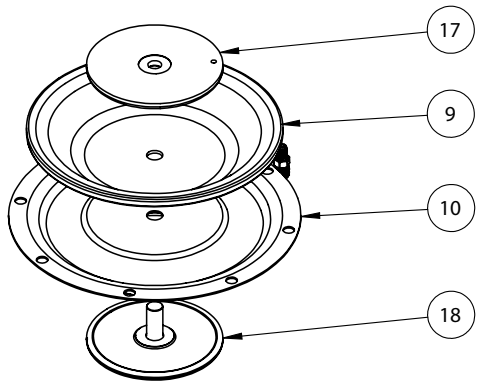
VTA1 ½ & VTA40 - Composite Repair Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	070.014.170	Bearing, Sleeve	1
2	095.078.156	Body	1
3	165.023.000	Cap	1
4	170.005.330	Capscrew, Hex Hd - 5/16-18 X 7/8	1
5	170.024.330	Capscrew, Hex Hd - 7/16-14 X 1	4
6	170.060.330	Capscrew, Hex Hd - 7/16-14 X 2	8
7	196.194.156	Chamber, Inner	1
8	196.196.156	Chamber, Outer - NPT	1
	196.196.010	Chamber, Outer - NPT	1
	196.196.110	Chamber, Outer - NPT	1
	196.196.112	Chamber, Outer - NPT	1
	196.196.156E	Chamber, Outer - 1½" BSP Tapered	1
	196.196.010E	Chamber, Outer - 1½" BSP Tapered	1
	196.196.110E	Chamber, Outer - 1½" BSP Tapered	1
	196.196.112E	Chamber, Outer - 1½" BSP Tapered	1
9	**286.005.360**	**Diaphragm**	**1**
	286.005.363	**Diaphragm**	**1**
	286.005.364	**Diaphragm**	**1**
	286.005.365	**Diaphragm**	**1**
	286.005.351	**Diaphragm**	**1**
	286.005.354	**Diaphragm**	**1**
10	**286.020.604**	**Diaphragm, Overlay PTFE**	**1**
11	866.078.330	Tube Fitting	1
12	545.007.330	Nut, Hex - 7/16-14	8
13	545.008.330	Nut, Hex - 1/2-13	1
14	560.022.360	O-Ring	1
15	612.043.330	Plate, Activator	1
16	612.044.330	Plate, Activator	1
17	612.047.330	Plate, Diaphragm Inner	1
18	612.039.157	Plate, Diaphragm Outer - Alum Units Only	1
	612.039.010	Plate, Diaphragm Outer - Cast Iron Units Only	1
	612.097.110	Plate, Diaphragm Outer - Stainless Units Only	1
	612.097.112	Plate, Diaphragm Outer - Hastalloy Units Only	1
19	618.003.330	Plug, 1/4 Pipe	1
20	675.054.080	Ring, Retainer	1
21	685.066.120	Rod, Diaphragm	1
22	685.067.120	Rod, Activator	1
23	**720.012.360**	**U-Cup, Shaft Seal**	**1**
25	893.021.000	Valve Assembly	1
25.1	095.020.162	Body, Valve	1
25.2	560.001.360	O-Ring	1
25.3	622.002.162	Poppet	1
25.4	670.007.162	Spring, Retainer	1
25.5	780.013.115	Spring, Compression	1
26	893.023.000	Valve Assembly	1
26.1	095.019.162	Body, Valve	1
26.2	622.002.162	Poppet	1
26.3	780.013.115	Spring, Compression	1
26.4	560.001.360	O-Ring	1
26.5	866.010.162	Elbow, Male	1
27	900.004.330	Washer, Lock - 5/16	1
28	900.006.330	Washer, Lock - 7/16	12
29	901.009.330	Washer, Flat - 5/16	1

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VTA2 & VTA50 - Composite Repair Parts Drawing





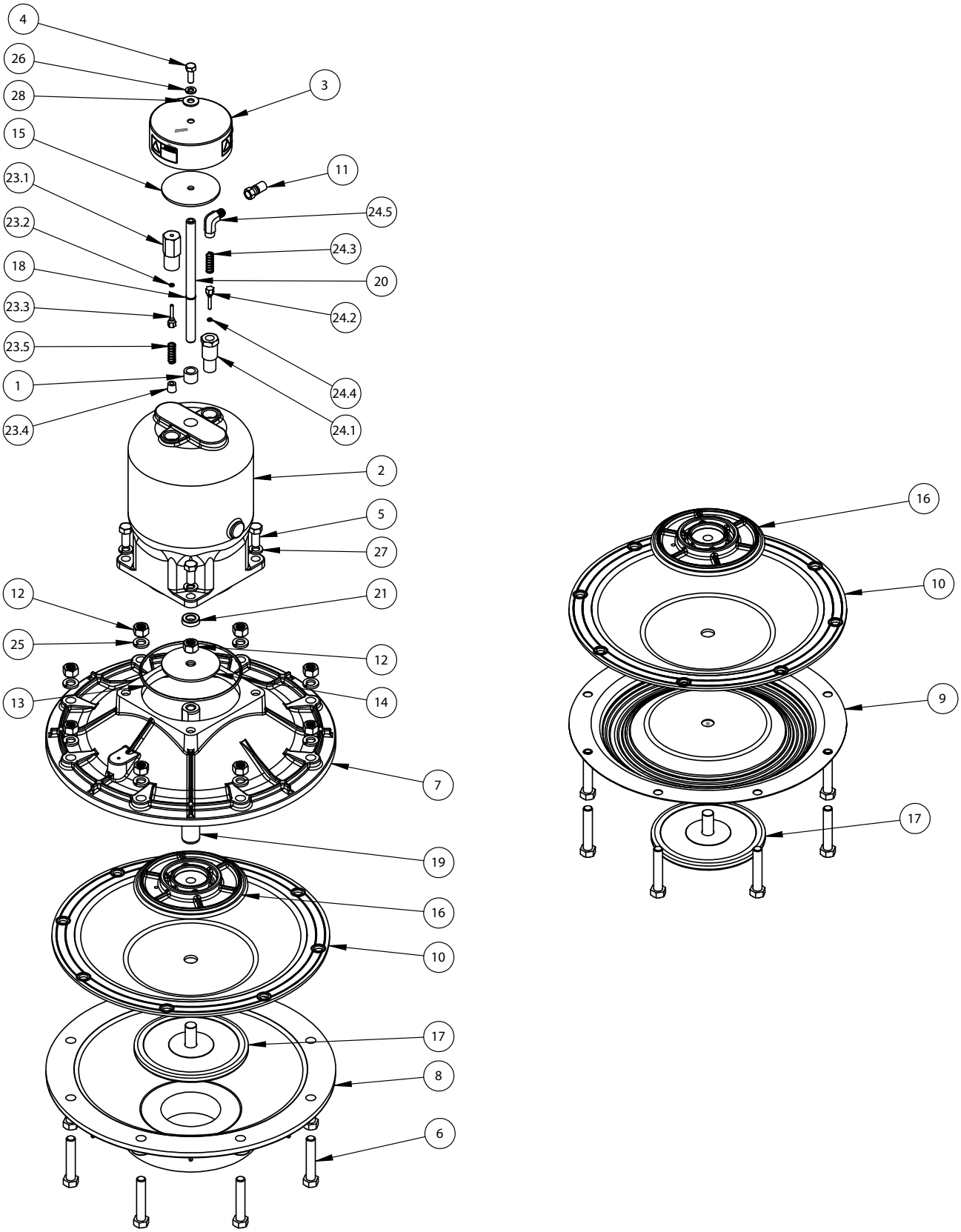
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VTA2 & VTA50 - Composite Repair Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	070.014.170	Bearing, Sleeve	1
2	095.078.156	Body	1
3	165.023.000	Cap	1
4	170.005.330	Capscrew, Hex Hd - 5/16-18 X 7/8	1
5	170.024.330	Capscrew, Hex Hd - 7/16-14 X 1	4
6	170.060.330	Capscrew, Hex Hd - 7/16-14 X 2	8
7	196.194.156	Chamber, Inner	1
8	196.195.156	Chamber, Outer - NPT	1
	196.195.010	Chamber, Outer - NPT	1
	196.195.110	Chamber, Outer - NPT	1
	196.195.112	Chamber, Outer - NPT	1
	196.195.156E	Chamber, Outer - 2" BSP Tapered	1
	196.195.010E	Chamber, Outer - 2" BSP Tapered	1
	196.195.110E	Chamber, Outer - 2" BSP Tapered	1
	196.195.112E	Chamber, Outer - 2" BSP Tapered	1
9	**286.005.360**	**Diaphragm**	**1**
	286.005.363	**Diaphragm**	**1**
	286.005.364	**Diaphragm**	**1**
	286.005.365	**Diaphragm**	**1**
	286.005.351	**Diaphragm**	**1**
	286.005.354	**Diaphragm**	**1**
10	**286.020.604**	**Diaphragm, Overlay PTFE**	**1**
11	866.078.330	Tube Fitting	1
12	545.007.330	Nut, Hex - 7/16-14	8
13	545.008.330	Nut, Hex - 1/2-13	1
14	560.022.360	O-Ring	1
15	612.043.330	Plate, Activator	1
16	612.044.330	Plate, Activator	1
17	612.047.330	Plate, Diaphragm Inner	1
18	612.039.157	Plate, Diaphragm Outer - Alum Units Only	1
	612.039.010	Plate, Diaphragm Outer - Cast Iron Units Only	1
	612.097.110	Plate, Diaphragm Outer - Stainless Units Only	1
	612.097.112	Plate, Diaphragm Outer - Hastalloy Units Only	1
19	618.003.330	Plug, 1/4 Pipe	1
20	675.054.080	Ring, Retainer	1
21	685.066.120	Rod, Diaphragm	1
22	685.067.120	Rod, Activator	1
23	**720.012.360**	**U-Cup, Shaft Seal**	**1**
25	893.021.000	Valve Assembly	1
25.1	095.020.162	Body, Valve	1
25.2	**560.001.360**	**O-Ring**	**1**
25.3	622.002.162	Poppet	1
25.4	670.007.162	Spring, Retainer	1
25.5	780.013.115	Spring, Compression	1
26	893.023.000	Valve Assembly	1
26.1	095.019.162	Body, Valve	1
26.2	622.002.162	Poppet	1
26.3	780.013.115	Spring, Compression	1
26.4	**560.001.360**	**O-Ring**	**1**
26.5	866.010.162	Elbow, Male	1
27	900.004.330	Washer, Lock - 5/16	1
28	900.006.330	Washer, Lock - 7/16	12
29	901.009.330	Washer, Flat - 5/16	1

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VTA3 & VTA80 - Composite Repair Parts Drawing



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VTA3 & VTA80 - Composite Repair Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	070.014.170	Bearing, Sleeve	1
2	095.078.156	Body	1
3	165.023.000	Cap	1
4	170.005.330	Capscrew, Hex Hd - 5/16-18 X 7/8	1
5	170.024.330	Capscrew, Hex Hd - 7/16-14 X 1	4
6	170.082.330	Capscrew, Hex Hd, 1/2-13UNC X 2.75	8
7	196.100.015	Chamber, Inner	1
8	196.146.156	Chamber, Outer	1
	196.146.010	Chamber, Outer	1
	196.146.110	Chamber, Outer	1
	196.146.156E	Chamber, Outer (3" BSP Tapered/PN10 80mm DIN)	1
	196.146.010E	Chamber, Outer (3" BSP Tapered/PN10 80mm DIN)	1
	196.146.110E	Chamber, Outer	
9	**286.098.604**	**Diaphragm, Overlay**	**1**
10	**286.098.360**	**Diaphragm**	**1**
	286.098.363	**Diaphragm**	**1**
	286.098.364	**Diaphragm**	**1**
	286.098.365	**Diaphragm**	**1**
	286.098.354	**Diaphragm**	**1**
	286.098.351	**Diaphragm**	**1**
11	866.078.330	Tube Fitting	1
12	545.008.330	Nut, Hex - 1/2-13	9
13	560.022.360	O-Ring	1
14	612.043.330	Plate, Activator	1
15	612.044.330	Plate, Activator	1
16	612.192.157	Plate, Inner Diaphragm	1
17	612.194.157	Plate, Outer Diaphragm Assy. (Alum Units Only)	1
	612.194.010	Plate, Outer Diaphragm Assy. (Cast Iron Units Only)	1
	612.194.110	Plate, Outer Diaphragm Assy. (Stainless Units Only)	1
18	675.054.080	Ring, Retainer	1
19	685.066.120	Rod, Diaphragm	1
20	685.048.120	Rod, Activator	1
21	**720.012.360**	**U-cup, Shaft Seal**	**1**
23	893.021.000	Valve Assembly	1
23.1	095.020.162	Body, Valve	1
23.2	560.001.360	O-Ring	1
23.3	622.002.162	Poppet	1
23.4	670.007.162	Spring Retainer	1
23.5	780.013.115	Spring, Compression	1
24	893.023.000	Valve Assembly	1
24.1	095.019.162	Body, Valve	1
24.2	622.002.162	Poppet	1
24.3	780.013.115	Spring, Compression	1
24.4	560.001.360	O-Ring	1
24.5	866.010.162	Elbow, Male	1
25	900.003.330	Washer, Lock - 1/2	8
26	900.004.330	Washer, Lock - 5/16	1
27	900.006.330	Washer, Lock - 7/16	4
28	901.009.115	Washer, Flat - 5/16	1

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5 - YEAR Limited Product Warranty

Quality System ISO9001 Certified • Environmental Management Systems ISO14001 Certified

Versamatic warrants to the original end-use purchaser that no product sold by Versamatic that bears a Versamatic 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 Versamatic's factory.

The use of non-OEM replacement parts will void (or negate) agency certifications, including CE, ATEX, CSA, 3A and EC1935 compliance (Food Contact Materials). Warren Rupp, Inc. cannot ensure nor warrant non-OEM parts to meet the stringent requirements of the certifying agencies.

~ See complete warranty at http://vm.salesmrc.com/pdfs/VM_Product_Warranty.pdf

VERSAMATIC®

EC Declaration of Conformity

Manufacturer:
Warren Rupp, Inc.
800 N. Main Street
Mansfield, Ohio, 44902 USA

Certifies that Air-Operated Double Diaphragm Pump Models: E Series, VL Series, VM Series, U2 Series; Submersible Pump Models: VSMA3 Series, SPA15 Series and Surge Dampener/Suppressor Models: VDA Series, VTA Series comply with the European Community Directive 2006/42/EC on Machinery, according to Annex VIII. This product has used Harmonized Standard EN809:2012, Pumps and Pump Units for Liquids - Common Safety Requirements, to verify conformance.

October 3, 2022
DATE/APPROVAL/TITLE:

Technical File on record with:
DEKRA Certification B.V.
Meander 1051
6825 MJ Arnhem
The Netherlands

Signature of authorized person

Dennis Hall
Printed name of authorized person

Engineering Manager
Title

IDEX

CE

VERSAMATIC®

EC Declaration of Conformity

Manufacturer:
Warren Rupp, Inc.
800 N. Main Street
Mansfield, Ohio, 44902 USA

Certifies that Air-Operated Double Diaphragm Pump Models: E Series, VL Series, VM Series, U2 Series; Submersible Pump Models: VSMA3 Series, SPA15 Series and Surge Dampener/Suppressor Models: VDA Series, VTA Series comply with the United Kingdom Statutory Instruments 2008 No. 1597, The Supply of Machinery (Safety) Regulations 2008, according to Annex VIII. This product has used Designated Standard EN809:2012, Pumps and Pump Units for Liquids - Common Safety Requirements, to verify conformance.

October 17, 2022
DATE/APPROVAL/TITLE:

Technical File on record with:
DEKRA Certification UK Limited
Stokenchurch House
Oxford Road
Stokenchurch
HP14 3SX


Signature of authorized person

Dennis Hall
Printed name of authorized person

Engineering Manager
Title

IDEX

UK CA

VERSAMATIC®

ATEX

IDEX

EU Declaration of Conformity

Manufacturer:
Warren Rupp, Inc.
A Unit of IDEX Corporation
800 North Main Street
Mansfield, OH 44902 USA

This declaration of conformity is issued under the sole responsibility of the manufacturer. Warren Rupp, Inc. declares that Air Operated Double Diaphragm Pumps (AODD) and Surge Suppressors listed below comply with the requirements of Directive **2014/34/EU** and applicable harmonized standards.

Harmonized Standards:
- EN ISO 80079-36: 2016
- EN ISO 80079-37: 2016

1. AODD Pumps and Surge Suppressors - Technical File on record with: DEKRA Certification B.V.
Meander 1051
6825 MJ Arnhem
The Netherlands

Hazardous Location Applied:



II 2 G Ex h IIC T5...225°C (T2) Gb
II 2 D Ex h IIIC T100°C...T200°C Db
- Metal pump models with external aluminum components (E-series, VL Series, VMD Series)
- Versa-Surge® surge suppressors (VTA-Series)



I M2 Ex h Mb
II 2 G Ex h IIC T5...225°C (T2) Gb
II 2 D Ex h IIIC T100°C...T200°C Db
- Metal pump models with no external aluminum (E-Series)
- Conductive plastic pumps (E-Series, VMV Series Plastic)



II 2 G Ex h IIB T5...225°C (T2) Gb
II 2 D Ex h IIIB T100°C...T200°C Db
- E1 HP & E2 HP Series due to the projected area of non-conductive external air hoses

2. AODD Pumps - EU Type Examination Certificate No.: DEKRA 18ATEX0094X - DEKRA Certification B.V. (0344)
Meander 1051
6825 MJ Arnhem
The Netherlands

Hazardous Location Applied:



I M1 Ex h I Ma
II 1 G Ex h IIC T5...225°C (T2) Ga
II 1 D Ex h IIIC T100°C...T200°C Da
- Conductive plastic pumps equipped with conductive muffler (VMV Series)

➢ See “Safety Information” page for conditions of safe use

DATE/APPROVAL/TITLE:
9 NOV 2023

Dennis Hall
Engineering Manager

VM_DofC_ATEX_MetallicAndNon-Metallic_V_Rev1123

VERSAMATIC®

UKEx

EU Declaration of Conformity

Manufacturer:
Warren Rupp, Inc.
A Unit of IDEX Corporation
800 North Main Street
Mansfield, OH 44902 USA

This declaration of conformity is issued under the sole responsibility of the manufacturer.
Warren Rupp, Inc declares that Air Operated Double Diaphragm Pumps (AODD) and Surge Suppressors listed below comply with the requirements of United Kingdom Statutory Instruments **2016 No. 1107** and all the applicable standards.

Designated Standards:
- EN ISO 80079-36: 2016
- EN ISO 80079-37: 2016

1. AODD Pumps and Surge Suppressors - Technical File on record with: DEKRA Certification UK Limited
Stokenchurch House
Oxford Road
Stokenchurch
HP14 3SX

Hazardous Location Applied:

II 2 G Ex h IIC T5...225°C (T2) Gb
II 2 D Ex h IIIC T100°C...T200°C Db
- Metal pump models with external aluminum components (E-series, VL Series, VMD Series)
- Versa-Surge® surge suppressors (VTA-Series)

I M2 Ex h Mb
II 2 G Ex h IIC T5...225°C (T2) Gb
II 2 D Ex h IIIC T100°C...T200°C Db
- Metal pump models with no external aluminum (E-Series)
- Conductive plastic pumps (E-Series, VMV Series Plastic)

II 2 G Ex h IIB T5...225°C (T2) Gb
II 2 D Ex h IIIB T100°C...T200°C Db
- E1 HP & E2 HP Series due to the projected area of non-conductive external air hoses

➢ See “Safety Information” page for conditions of safe use

DATE/APPROVAL/TITLE:
9 NOV 2023

Dennis Hall
Engineering Manager

VM_DofC_UKEx_MetallicAndNon-Metallic_V_Rev1123

Declaration of Compliance

Manufacturer: Warren Rupp, Inc., 800 N. Main Street, Mansfield, Ohio, 44902 USA
certifies that the below Air-Operated Double Diaphragm Food Processing Pump Models and Tranquilizer® Surge Suppressor Models comply with the European Community Regulations:

(EC) No 1935/2004 for Food Contact Materials
(EC) No 2023/2006 Good Manufacturing Practice
(EU) No 10/2011 on plastic materials and articles intended to come in contact with food

Sanitary Pump Models:

E#S#5#54##-SP	E#S#7#54##-SP	E#S#Y#54##-SP
E#S#5#55##-SP	E#S#7#55##-SP	E#S#Y#55##-SP
E#S#5#57##-SP	E#S#7#57##-SP	E#S#Y#57##-SP
E#S#5#5S##-SP	E#S#7#5S##-SP	E#S#Y#5S##-SP
E#S#5#5Y##-SP	E#S#7#5Y##-SP	E#S#Y#5Y##-SP
E#S#5#74##-SP	E#S#7#74##-SP	E#S#Y#74##-SP
E#S#5#75##-SP	E#S#7#75##-SP	E#S#Y#75##-SP
E#S#5#77##-SP	E#S#7#77##-SP	E#S#Y#77##-SP
E#S#5#7S##-SP	E#S#7#7S##-SP	E#S#Y#7S##-SP
E#S#5#7Y##-SP	E#S#7#7Y##-SP	E#S#Y#7Y##-SP
E#S#5#S4##-SP	E#S#7#S4##-SP	E#S#Y#S4##-SP
E#S#5#S5##-SP	E#S#7#S5##-SP	E#S#Y#S5##-SP
E#S#5#S7##-SP	E#S#7#S7##-SP	E#S#Y#S7##-SP
E#S#5#SY##-SP	E#S#7#SY##-SP	E#S#Y#SY##-SP
E#S#5#Y4##-SP	E#S#7#Y4##-SP	E#S#Y#Y4##-SP
E#S#5#Y5##-SP	E#S#7#Y5##-SP	E#S#Y#Y5##-SP
E#S#5#Y7##-SP	E#S#7#Y7##-SP	E#S#Y#Y7##-SP
E#S#5#YS##-SP	E#S#7#YS##-SP	E#S#Y#YS##-SP

Food Processing Pump Models:

E#S#5#55##-FP	E#S#7#55##-FP	E#S#Y#55##-FP
E#S#5#57##-FP	E#S#7#57##-FP	E#S#Y#57##-FP
E#S#5#5S##-FP	E#S#7#5S##-FP	E#S#Y#5S##-FP
E#S#5#5Y##-FP	E#S#7#5Y##-FP	E#S#Y#5Y##-FP
E#S#5#75##-FP	E#S#7#75##-FP	E#S#Y#75##-FP
E#S#5#77##-FP	E#S#7#77##-FP	E#S#Y#77##-FP
E#S#5#7S##-FP	E#S#7#7S##-FP	E#S#Y#7S##-FP
E#S#5#7Y##-FP	E#S#7#7Y##-FP	E#S#Y#7Y##-FP
E#S#5#S5##-FP	E#S#7#S5##-FP	E#S#Y#S5##-FP
E#S#5#S7##-FP	E#S#7#S7##-FP	E#S#Y#S7##-FP
E#S#5#SY##-FP	E#S#7#SY##-FP	E#S#Y#SY##-FP
E#S#5#Y5##-FP	E#S#7#Y5##-FP	E#S#Y#Y5##-FP
E#S#5#Y7##-FP	E#S#7#Y7##-FP	E#S#Y#Y7##-FP
E#S#5#YS##-FP	E#S#7#YS##-FP	E#S#Y#YS##-FP

Surge Suppressor Models:

VDA051SPTNS00	VTA2,NG2SS.	VTA40,NG1SS.
VTA1 1/2,NG1SS.	VTA25,NG1SS	VTA50,NG2SS.
VTA1,NG1SS.	VTA3,NG2SS.	VTA80,NG2SS.

- Materials used in equipment intended for food contact (Annex I (EC) No 1935/2004) :
  - Rubber • Metals & Alloys • Plastics

Plastic Materials: PTFE and FKM/ PTFE coated
The plastic components are suitable to come in contact with multiple food types, provided that storage contact time does not exceed 1/2 hour, contact temperature does not exceed 40°C and maximum operating temperatures within the instructions manual are not exceeded. Diaphragm failure may allow process fluids to come in contact with nonconforming materials. Regular inspections are recommended.

- This Declaration is based on :
  - Declaration of Conformities from raw material suppliers
  - Total Migration Analysis per (EU) No 10/2011

- Supporting document will be made available to competent authorities to demonstrate compliance

Signature of authorized person

February 8, 2013
Date of issue

Dennis Hall
Printed name of authorized person

Engineering Manager
Title

October 3, 2022
Date of revison

VM_DofC_CE-Regulation1935-2004_rev1022

VIPTech

Your partner for Versamatic AODD pumps

VM E1 Bolted-Metal Allgemein Service Manual

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72663 Großbettlingen
Germany

Phone: +49 7022 948735
E-mail: info@viptech.net
Web: www.viptech.net
Online shop: aodd-pumpen.de

Sales, technical advice, spare parts and repair kits for Versamatic air-operated double diaphragm pumps - Germany and Austria.

aodd-pumpen.de

viptech.net

This document is the original manufacturer documentation (Warren Rupp, Inc. / Versamatic), supplemented with VIPTech contact details. Technical content unchanged.