SERVICE & OPERATING MANUAL

Original Instructions

Certified Quality





ISO 9001 Certified ISO 14001 Certified









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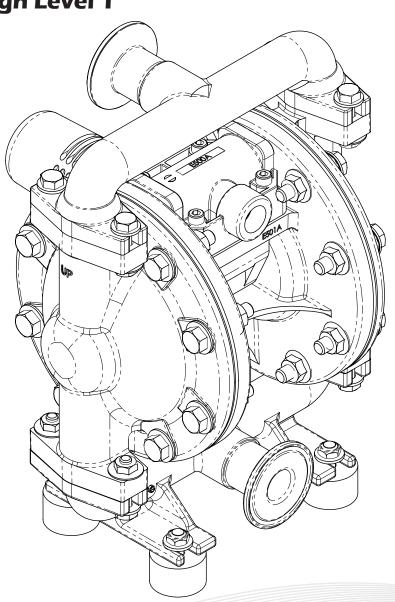
Warren Rupp, Inc. A Unit of IDEX Corporation 800 N. Main St., Mansfield, Ohio 44902 USA Telephone 419.524.8388 Fax 419.522.7867 SANDPIPERPUMP.COM



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Model F05

Metallic Food Processing Pump Constructed with FDA Compliant Materials Design Level 1





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

Pump not designed, tested or certified to be powered by compressed natural gas. Powering the pump 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 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.

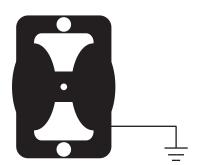


This pump is pressurized internally with air pressure during operation. Make certain that all fasteners and piping connections are in good condition and are reinstalled properly during reassembly.



Use safe practices when lifting

Grounding ATEX Pumps



ATEX compliant pumps are suitable for use in explosive atmospheres when the equipment is properly grounded in accordance with local electrical codes. Pumps equipped with electrically conductive diaphragms are suitable for the transfer of conductive or non-conductive fluids of any explosion group. When operating pumps equipped with non-conductive diaphragms that exceed the maximum permissible projected area, as defined in EN 13463-1: 2009 section 6.7.5 table 9, 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 pump, i.e. dry running

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



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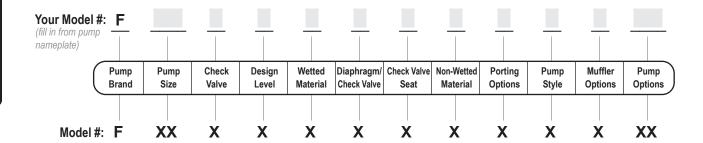
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Explanation of Pump Nomenclature



Pump Brand

F Food Processing

Pump Size

05 1/2"

Check Valve Type

B Ball

Design Level

1 Design Level

Wetted Material

S Stainless Steel

Diaphragm/Check Valve Materials

D FDA Santoprene / PTFE

FDA Hytrel / FDA Hytrel

G PTFE with Neoprene Backer / PTFE

Z PTFE One-Piece Bonded Fusion Diaphragm / PTFE

Check Valve Seat

S Stainless Steel

Non-Wetted Material Options

P Polypropylene

Porting Options

T 1 1/2" Sanitary Clamp

Pump Style

F Food

Muffler Options

Plastic Threaded Muffler

Pump Options

0 None

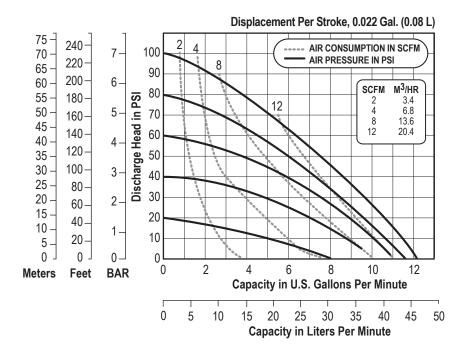
Your Serial #: (fill in from pump nameplate)

*Complies with Code of Federal Regulations (CFR) Title 21 Part 177



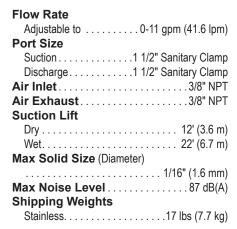
Performance

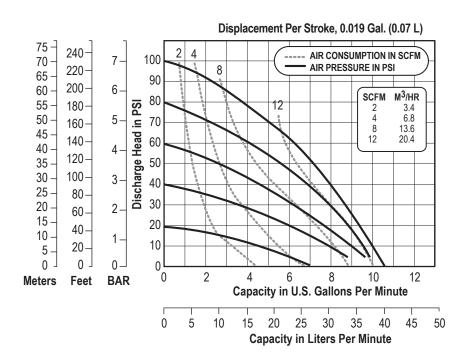
1/2" Bolted Metal TPE Fitted



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%.

1/2" Bolted Metal PTFE Fitted





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%.



Materials

Material Profile:	Operating Temperatures:	
	Max.	Min.
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
Hytrel®: Good on acids, bases, amines and glycols at room temperatures only.	220°F 104°C	-20°F -29°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
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.

Ambient temperature range

-20 C to +40 C

Process temperature range

-20 C to +80 C for models rated as category 1 equipment

-20 c to +100 C for model rated as category 2 equipment

In addition, the ambient temperature range and the process temperature range do not exceed the operating temperature range of the applied non-metallic parts as listed in the manuals of the pumps.

For specific applications, always consult the Chemical Resistance Chart.

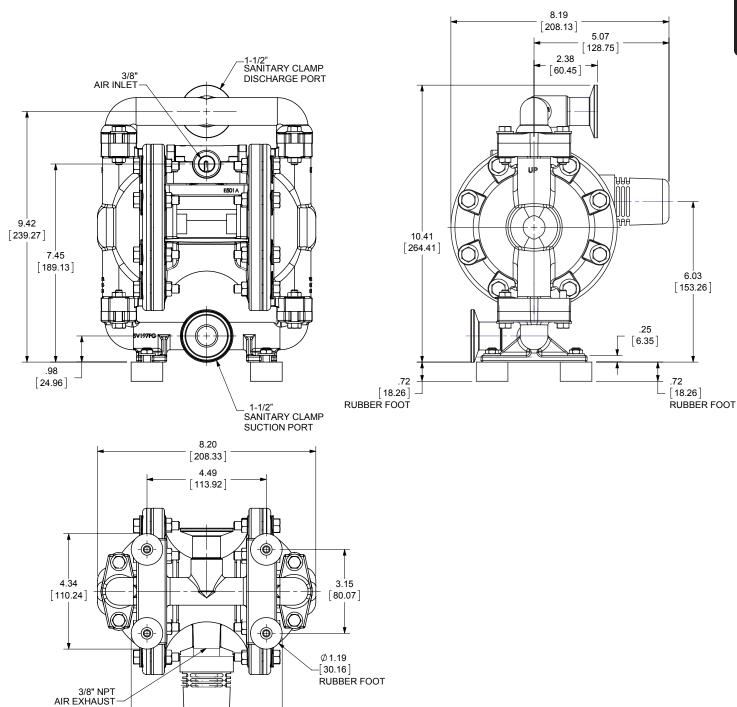
Note: This document is a high level guide. Please be aware that not all model and or material combinations are possible for all sizes. Please consult factory or your distributor for specific details.



Dimensional Drawings

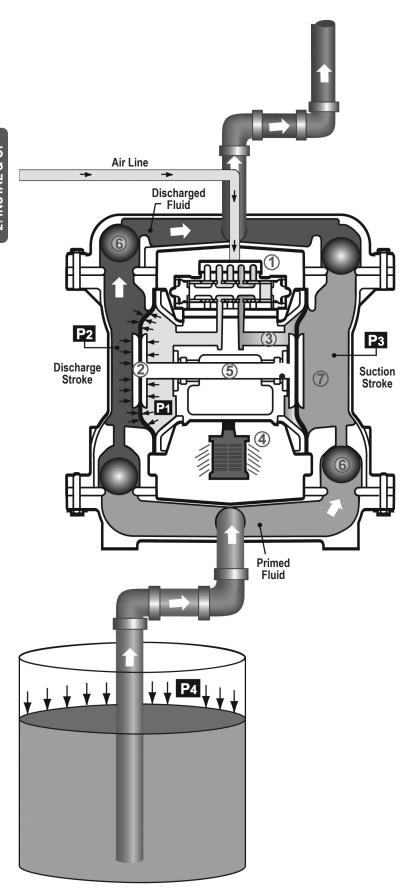
Food Processing Metallic Dimensions in inches (mm dimensions in brackets).

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



5.67 [144.08]

Principle of Pump Operation



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

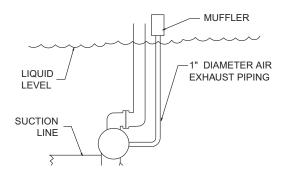
The main directional (air) control valve distributes compressed air to an air chamber, exerting uniform pressure over the inner surface of the diaphragm . At the same time, the exhausting air from behind the opposite diaphragm is directed through the air valve assembly(s) to an exhaust port .

As inner chamber pressure **(P1)** exceeds liquid chamber pressure **(P2)**, the rod 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) 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 .

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 Unregulated Air Supply to Surge 2. Filter/Regulator Suppressor (1) Surge Suppressor Pressure Gauge **Note**: Surge Suppressor and Piping, including air line, Shut-Off Valve must be supported after Pipe Connection (Style Optional) the flexible connections. Discharge Flexible Connector Check Valve Shut Off Drain Po Muffler Valve (Optional Piped Exhaust) Air Inlet Flexible Connector Compound (2) Filter Regulator Gauge Flexible Connection (3) Dryer Suction (4) Lubricator **CAUTION** Shut-Off Valve The air exhaust should Pipe Connection be piped to an area **Drain Port** (Style Optional) for safe disposition of the product being pumped, in the event of a diaphragm failure.

Installation And Start-Up

3. Air Dryer 4. Lubricator

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 designed, 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.



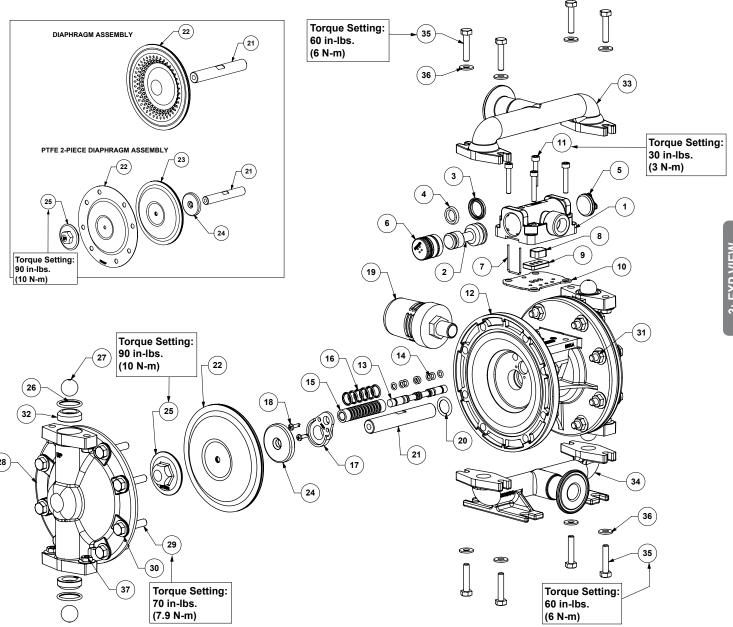
Troubleshooting Guide

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Check valve and/or seat is wom or needs adjusting. Inspect check valves and seats for wear and proper setting. Replace if necessary.		manifold).	Resistance Guide for compatibility.
Suction line is blocked. Excessive suction lift. Excessive suction li			
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 Flow Unsatisfactory Over lubrication. Set lubricator on lovest possible setting or remove. Units are designed for lube free operation. Set lubricator on lovest possible setting or remove. Units are designed for lube free operation. Set lubricator on lovest possible setting or remove. Units are designed for lube free operation. Iong. Remove mulfler screen, de-lice, and re-install. Install a point of use air drier. Cloged manifolds. Deachead (system pressure meets or exceeds air supply pressure). Clodes ind apply to high pressure 2-1 units). Lack of air (line size, PSI, CFM). 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. Visually inspect all suction-side gaskets and pipe connections. Remove or flush designed for lube free operation. Suction is blocked. Pumped fluid in air exhaust muffler. Disassemble pump ocurred pump charer to product). Lack valve obstructed. Check valve and/or seat is worn or needs adjusting. Inspect check valves and seats for wear and proper setting, Replace if neessary. Premature Diaphragm Failure Premature Diaphragm Failure Diaphragm pilates or plates on backwards, install depression of the pump and manually dislodge obstruction in the check valve pocket. Entained air or vapor lock in chamber(s). Premature Diaphragm Failure Diaphragm pilates or plates on backwards, install Back pressure or air pressure or air pressure. Consult Chemical Resistance Chart for competibility. Excessive suction line. Entained air or vaporation lock in chamber(s). Premature Diaphragm Failure Diaphragm pilates or plates on backwards, installed incorrectly or wom. Excessive incorded suction pressure. Diaphragm pilates or pla		Check valve and/or seat is worn or needs adjusting.	Inspect check valves and seats for wear and proper setting. Replace if necessary.
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Over lubrication. Set lubricator on lowest possible setting or remove. Units are designed for lube free operation.		Suction side air leakage or air in product.	Visually inspect all suction-side gaskets and pipe connections.
Licing. 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.
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Flow Unsatisfactory Clogad manifolds. Clean manifolds to allow proper air flow.	Sluggish / Stalling,	Icing.	Remove muffler screen, de-ice, and re-install. Install a point of use air drier.
Deachead (system pressure meets or exceeds air supply pressure). Cavitation on suction side. Lack of air (line size, PSI, CFM). Check the air line size, length, compressor capacity. Excessive suction lift. Air supply pressure or volume exceeds system hd. Undersized suction lime. 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 seas for wear and proper setting. Replace if necessary. Product Leaking Through Exhaust Premature Diaphragm Failure Diaphragm stetched around center hole or bolt holes. Cavitation. Line steed and the suction side air leakage or air in product. Check valve and center hole or bolt holes. Check valve contains a suction side air leakage or air in product. Check valve and/or seat is worm or needs adjusting. Entrained air or vapor look in chamber(s). Product Leaking Through Exhaust Diaphragm failure, or diaphragm plates loose. Diaphragm stretched around center hole or bolt holes. Check valve and center hole or bolt holes. Cavitation. Excessive slooded suction pressure. Misapplication (chemical/physical incompatibility). Incorrect diaphragm plates or plates on backwards, installed incorrectly or worm. Excessive suction lift. Visually inspect all suctions side air leakage or air in product. Check valve and proper setting repaired and incorrect part and installation. Ensure outer plates have not proper setting. Replace if necessary. Premature Diaphragm Failure Cavitation. Excessive flooded suction pressure. Move pump closer to product. Raise pump/place pump on pontain to reduce inlet pressure. Incorrect diaphragm plates or plates on backwards, industriation and lubrication. Incorrect diaphragm plates or plates on backwards, industriation and lubrication. Check Operating Manual to check for correct part and installation. Ensure outer plates have not been worm to a sharp edge. Check valve		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 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 Premature Diaphragm Failure Lavitation. Cavitation. Cavitation. Cavitation. Cavitation. Excessive flooded suction pressure. Misapplication (chemical/physical incompatibility). Check check plates or plates on backwards, install all achieves or air product. Check for exceed pump connections. 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 for wear and proper setting. Replace if necessary. Product Leaking Through Exhaust Premature Diaphragm Failure Cavitation. Cavitation. Cavitation. Excessive flooded suction pressure. Misapplication (chemical/physical incompatibility). Consult Chemical Resistance Chart for compatibility with products, cleaners, temperature limitations and lubrication. Enlarge pipe dimeter 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. Incorrect diaphragm plates or plates on backwards, install Back pressure device (Tech builletin 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			
Excessive suction lift.		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. 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. Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly. Check valve obstructed. Check valve obstructed. 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 Cavitation. Excessive flooded suction pressure. Misapplication (chemical/physical incompatibility). Incorrect diaphragm plates or plates on backwards, installed incorrectly or wom. Unbalanced Cycling Excessive suction life. Excessive suction life. Meet or exceed pump connections. Meet or exceed pump connections. Inspect all suctions. Check and clear all suction screens or strainers. Premature Diaphragm Failure Air supply pressure or single states and proper setting. Replace if necessary. Premature Diaphragm failure, or diaphragm plates loose. Product Leaking Through Exhaust Premature Diaphragm Failure Cavitation. Excessive flooded suction pressure. Misapplication (chemical/physical incompatibility). 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 wom. Check Operating Manual to check for correct part and installation. Ensure outer plates have not been worn to a sharp edge. Undersized suction life. For lifts exceeding 20' of liquid, filling the chambers with liquid will prime the pump in most cases. Check Valve obstructed. Disassemble the wet end of the pump and manually dislodge obstruct		Lack of air (line size, PSI, CFM).	Check the air line size, length, compressor capacity.
Undersized suction line. Meet or exceed pump connections.		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.		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.
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		Check valve obstructed.	Disassemble the wet end of the pump and manually dislodge obstruction in the check valve pocket.
I formation to the community of the company of the		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.		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



Service & Repair Kits

476.377.351 Wet End Kit

Santoprene Diaphragms, PTFE Check Balls,

PTFE Seat O-Rings

476.377.635 Wet End Kit

Neoprene Diaphragms, PTFE Diaphragms, PTFE Check Balls,

PTFE Seat O-Rings

476.377.350 Wet End Kit

FDA Hytrel Diaphragms, FDA Hytrel Check Balls,

PTFE Seat O-Rings

476.377.659 Wet End Kit

1-Piece PTFE Diaphragms, PTFE Check Balls,

PTFE Seat O-Rings

476.372.000 Air End Kit

Sleeve and Spool Set, Air Diverter, Buna Gaskets, Buna O-rings, Buna Shaft Seals, Pilot Retainer,

Ceramic Plate

Composite Repair Parts List

			Ain Value Assemble				
Item #	Qty.	Description	Air Valve Assembly	Part N	ımbor		
ILCIII #	Ųίy.	Air Side Repair Kit (Includes Items	Part Number				
		3,4,6, 8-10,13-17,20)	476.V007.000				
-	1	Valve Body (includes items 1-11)		031.V004.552			
1	1	Valve Body		PE5			
2	1	Valve Spool Assembly (Includes items 3&4)		E500BL			
3	1	Large Valve Spool U-Cup		P98-			
4	1	Small Valve Spool U-Cup		P98-10			
5	1	End Cap Assembly (Includes O-Ring)		E500E	ASY		
6	1	Reducing End Cap Assembly (Includes 560.0580.360 O-rings)	E500DUB ASY				
7	2	Staple		E50			
8	1	CT Air Diverter		10-0			
9	1	Air Diverter Plate		E50			
10	1	Air Valve Gasket		360.V0			
11	4	Valve Mounting Screws		S10	004		
			enter Section Assemb				
Item #	Qty.	Description		Part No			
12	1	Center Section		E50			
12	1	Pilot Repair Kit (Includes Items 13-17)		476.V0			
13 14	8	Pilot Spool ASY (Includes Item #14) Pilot Spool O-Rings		775.V0 560.02			
15	1	Pilot Valve Sleeve ASY (Includes Item #16)					
16	6	Pilot Valve Sleeve ASY (Includes Item #16)	755.V003.000				
17	2	Shaft/Pilot Retainer	560.033.358				
18	4	Retainer Screw	670.V001.554				
19	1			E501C			
15	'	19 1 Muffler VTM-3 Diaphragm Assembly / Elastomers					
		Diabni	Idulli Asselliulv / Eldsi	comers			
		ыарпі ————————————————————————————————————	agiii Asseilibiy / Elasi		umber		
Item #	Qty.	Description		Part No		DTEE Evetion	
	Qty.	Description		Part No PE FDA Santoprene	PTFE 2 Piece	PTFE Fustion	
20	2	Description Main Shaft O-Ring	T	Part No PE FDA Santoprene E50	PTFE 2 Piece	PTFE Fustion	
20	2	Description Main Shaft O-Ring Main Shaft	TI FDA Hytrel	Part No PE FDA Santoprene E50 E50	PTFE 2 Piece 2B 2A		
20 21 22	2 1 2	Description Main Shaft O-Ring Main Shaft Diaphragm	FDA Hytrel E505FG	Part No PE	PTFE 2 Piece 2B 2A E505TF	E505F	
20 21 22 23	2 1 2 2	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm	TI FDA Hytrel	Part No PE	PTFE 2 Piece 2B 2A	E505F N/A	
20 21 22 23 24	2 1 2 2 2	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate	FDA Hytrel E505FG	Part No PE	PTFE 2 Piece 2B 2A E505TF	E505F N/A N/A	
20 21 22 23 24 25	2 1 2 2 2 2	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate	FDA Hytrel E505FG	Part No PE	PTFE 2 Piece 2B 2A E505TF E505N	E505F N/A	
20 21 22 23 24 25 26	2 1 2 2 2 2 2 4	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring	FDA Hytrel E505FG N/A	Part No PE	PTFE 2 Piece 2B 2A E505TF E505N	E505F N/A N/A	
20 21 22 23 24 25	2 1 2 2 2 2	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate	E505FG N/A	Part No PE	PTFE 2 Piece 2B 2A E505TF E505N	E505F N/A N/A	
20 21 22 23 24 25 26 27	2 1 2 2 2 2 2 4 4	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball	FDA Hytrel E505FG N/A	Part No PE	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF	E505F N/A N/A	
20 21 22 23 24 25 26 27	2 1 2 2 2 2 2 4 4	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description	E505FG N/A	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF	E505F N/A N/A	
20 21 22 23 24 25 26 27 Item #	2 1 2 2 2 2 2 4 4	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber	E505FG N/A	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF umber SFG	E505F N/A N/A	
20 21 22 23 24 25 26 27	2 1 2 2 2 2 2 4 4	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description	E505FG N/A	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF umber SFG 89D	E505F N/A N/A	
20 21 22 23 24 25 26 27 !tem # 28	2 1 2 2 2 2 2 4 4 4	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Water Chamber Water Chamber	E505FG N/A	Part No PE	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF umber SFG 89D 89C	E505F N/A N/A	
20 21 22 23 24 25 26 27 Item # 28 29	2 1 2 2 2 2 2 4 4 4 Qty. 2	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Water Chamber	E505FG N/A	Part No PE	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B	E505F N/A N/A	
20 21 22 23 24 25 26 27 Item # 28 29 30 31 32 33	2 1 2 2 2 2 2 4 4 4 Qty. 2 16 16	Description Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold	E505FG N/A	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG	E505F N/A N/A	
20 21 22 23 24 25 26 27 Item # 28 29 30 31 32 33 34	2 1 2 2 2 2 4 4 4 Qty. 2 16 16 16 4	Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold Suction Manifold	E505FG N/A	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG 7FG	E505F N/A N/A	
20 21 22 23 24 25 26 27 Item # 28 29 30 31 32 33 34 35	2 1 2 2 2 2 4 4 4 Qty. 2 16 16 16 4 1	Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold Suction Manifold Manifold Bolts	E505FG N/A	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG 7FG 97D	E505F N/A N/A	
20 21 22 23 24 25 26 27 Item # 28 29 30 31 32 33 34 35 36	2 1 2 2 2 2 4 4 4 Qty. 2 16 16 16 4 1	Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold Suction Manifold Manifold Bolts Manifold Washer	E505FG N/A	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG 7FG 97D 96C	E505F N/A N/A	
20 21 22 23 24 25 26 27 Item # 28 29 30 31 32 33 34 35	2 1 2 2 2 2 4 4 4 Qty. 2 16 16 16 4 1	Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold Suction Manifold Manifold Bolts	E505FG N/A V111TPEFG Wet End Assembly	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG 7FG 97D 96C 97E	E505F N/A N/A	
20 21 22 23 24 25 26 27 Item # 28 29 30 31 32 33 34 35 36 37	2 1 2 2 2 2 4 4 4 Qty. 2 16 16 16 4 1 1	Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold Suction Manifold Manifold Bolts Manifold Washer Manifold Nut	E505FG N/A V111TPEFG Wet End Assembly	Part No	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG 7FG 97D 96C 97E Feet	E505F N/A N/A	
20 21 22 23 24 25 26 27 Item # 28 29 30 31 32 33 34 35 36 37	2 1 2 2 2 2 2 4 4 4 Qty. 2 16 16 16 4 1 1 8 8	Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold Suction Manifold Manifold Bolts Manifold Washer Manifold Nut Description	E505FG N/A V111TPEFG Wet End Assembly	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG 7FG 97D 96C 97E Feet umber	E505F N/A N/A	
20 21 22 23 24 25 26 27 tem # 28 29 30 31 32 33 34 35 36 37	2 1 2 2 2 2 4 4 4 Qty. 2 16 16 16 4 1 1 1 8 8	Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold Suction Manifold Manifold Bolts Manifold Washer Manifold Nut Description Root, Mounting	E505FG N/A V111TPEFG Wet End Assembly	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG 7FG 97D 96C 97E 1 Feet umber 2.360	E505F N/A N/A	
20 21 22 23 24 25 26 27 tem # 28 29 30 31 32 33 34 35 36 37	2 1 2 2 2 2 4 4 4 Qty. 2 16 16 16 4 1 1 1 8 8 8	Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold Suction Manifold Manifold Bolts Manifold Washer Manifold Washer Manifold Nut Description Foot, Mounting Nut, Hex	E505FG N/A V111TPEFG Wet End Assembly	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG 7FG 97D 96C 97E 1 Feet umber 2.360 2.115	E505F N/A N/A	
20 21 22 23 24 25 26 27 tem # 28 29 30 31 32 33 34 35 36 37	2 1 2 2 2 2 4 4 4 Qty. 2 16 16 16 4 1 1 1 8 8	Main Shaft O-Ring Main Shaft Diaphragm Back-Up Diaphragm Inner Diaphragm Plate Outer Diaphragm Plate Valve Seat O-Ring Valve Ball Description Water Chamber Water Chamber Bolt Water Chamber Washer Water Chamber Nut Valve Seat Discharge Manifold Suction Manifold Manifold Bolts Manifold Washer Manifold Nut Description Root, Mounting	E505FG N/A V111TPEFG Wet End Assembly	Part No PE FDA Santoprene	PTFE 2 Piece 2B 2A E505TF E505N DHT V111TF wmber SFG 89D 89C 85B 110 6FG 7FG 97D 96C 97E 1 Feet umber 2.360 2.115 4.115	E505F N/A N/A	



5 - YEAR Limited Product Warranty

Warren Rupp, Inc. ("Warren Rupp") warrants to the original end-use purchaser that no product sold by Warren Rupp that bears a Warren Rupp 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 Warren Rupp's factory. Warren Rupp brands include Warren Rupp®,SANDPIPER®, SANDPIPER Signature Series™, MARATHON®, Porta-Pump®, SludgeMaster™ and Tranquilizer®.

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 sandpiperpump.com/content/warranty-certifications for complete warranty, including terms and conditions, limitations and exclusions. ~

SANDPIPER® EC Declaration of Conformity

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

Certifies that Air-Operated Double Diaphragm Pump Models: DSB Series, DMF Series, G Series, HDB Series, HDF Series, HP Series, F Series, MS Series, S Series, SL Series, SP Series, SSB Series, T Series, U1F Series, WR Series; High Pressure Pump Models: EH Series, GH Series, SH Series; Submersible Pump Models: SMA3 Series, SPA Series; and Surge Dampener/Suppressor Models: DA Series, TA 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





SANDPIPER EC Declaration of Conformity

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

Certifies that Air-Operated Double Diaphragm Pump Models: DSB Series, DMF Series, G Series, HDB Series, HDF Series, HP Series, F Series, Series, Series, SP Series, SP Series, T Series, U1F Series, WR Series; High Pressure Pump Models: EH Series, GH Series, SH Series; Submersible Pump Models: SMA3 Series, SPA Series; and Surge Dampener/Suppressor Models: DA Series, TA 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







SANDPIPER 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

Food Processing Pump Models:

F##B1SDD#TF600	F##B1SHD#TF600	F##B1SKD#TF600	F##B1SZD#TF600
F##B1SDH#TF600	F##B1SHH#TF600	F##B1SKH#TF600	F##B1SZH#TF600
F##B1SDS#TF600	F##B1SHS#TF600	F##B1SKS#TF600	F##B1SZS#TF600
F15B1SDS#TC600	F15B1SHS#TC600	F15B1SKS#TC600	F15B1SZS#TC600
F20B1SDS#TC600 SSB2,TD3SS	F20B1SHS#TC600	F20B1SKS#TC600	F20B1SZS#TC600
T##B1S9S#TS600	T##B1SAS#TS600	T##B1SDS#TS600	T##B1SLS#TS600
T##B1S9T#TS600	T##B1SAT#TS600	T##B1SDT#TS600	T##B1SLT#TS600

Tranquilizer® Surge Suppressors:

TA1,NG1SS. TA2,NG2SS. TA25,NG1SS. TA50,NG2SS. TA1-1/2,NG1SS. TA3,NG2SS. TA40,NG1SS. TA80,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

Dennis Hall

Printed name of authorized person

February 8, 2013

Date of issue

Engineering Manager

Title

October 3, 2022

Date of revison





