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CAUTIONS — READ FIRST!

READ THESE WARNINGS AND SAFETY PRECAU-TIONS PRIOR TO INSTALLATION OR OPERATION. FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND OR PROPERTY DAMAGE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.

WARNING Pump, valves and all containers must be properly grounded prior to handling flammable fluids and/or whenever static electricity is a hazard.

WARNING Prior to servicing the pump, ensure that the air and fluid lines are closed and disconnected. While wearing personal protective equipment, flush, drain and process liquid from the pump in a safe manner.

CAUTION Do not connect a compressed air source to the exhaust port of the pump.

CAUTION Ensure that the muffler is properly installed prior to pump operation.

CAUTION Do not lubricate air supply.

CAUTION When selecting pump materials, be aware of the following temperature limitations:

| Buna-N (Nitrile): | 10°F to 180°F (-12C to 82C) |
|-------------------|-------------------------------|
| Geolast®: | 10°F to 180°F (-12C to 82C) |
| EPDM: | -40°F to 280°F (-40C to 138C) |
| Santoprene®: | -40°F to 225°F (-40C to 107C) |
| Viton® (FKM): | -40°F to 350°F (-40C to 177C) |
| PTFE: | 40°F to 220°F (4C to 104C) |
| Polyethylene: | 32°F to 158°F (0C to 70C) |
| Polypropylene: | 32°F to 180°F (0C to 82C) |
| PVDF: | 0°F to 250°F (-18C to 181C) |
| Nylon: | 0°F to 200°F (-18C to 93C) |

Temperature limits are solely based upon mechanical stress and certain chemicals will reduce the maximum operating temperature. Consult a chemical resistance guide for chemical compatibility and a more precise safe temperature limit.



WARNING = Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage

= Hazards or unsafe practices A CAUTION which could result in minor personal injury, product or property damage.

CAUTION Do not exceed 120 psig (8.3 bar) air-inlet pressure.

CAUTION Ensure all wetted components are chemically compatible with the process fluid and the cleaning fluid.

CAUTION Ensure pump is thoroughly cleaned and flushed prior to installation into a process line.

CAUTION Always wear Personal Protective Equipment (PPE) when operating pump.

CAUTION Close and disconnect all compressed air and bleed all air from the pump prior to service. Remove all process fluid in a safe manner prior to service.

CAUTION Blow out all compressed air lines in order to remove any debris, prior to pump installation.

CAUTION Ensure air exhaust is piped to atmosphere prior to a submerged installation.

CAUTION Ensure all hardware is set to correct torque values prior to operation.

Model Designation Matrix



Pump Dimensions



| | Α | В | С | D | F | Н | 1 | J | Κ | L |
|------|----------|----------|----------|----------|----------|----------|---------|---------|----------|----------|
| P300 | 18.90" | 22.83" | 31.50" | 3.94" | 15.28" | 27.17" | 1.57" | 2.95" | 15.55" | 19.49" |
| | (480 mm) | (580 mm) | (800 mm) | (100 mm) | (388 mm) | (690 mm) | (40 mm) | (75 mm) | (395 mm) | (495 mm) |

Pump Integrated with Pulsation Dampener Dimensions







| | P300 | | |
|----|----------------|--|--|
| Α | 18.90"(480 mm) | | |
| В | 22.83"(580 mm) | | |
| С | 31.50"(800 mm) | | |
| D | 3.94"(100 mm) | | |
| 3 | 15.28"(388 mm) | | |
| F | 3″ | | |
| G | 27.17"(690 mm) | | |
| н | 3/4" | | |
| I | 1.57"(40 mm) | | |
| Ø٦ | 2.95"(75 mm) | | |
| К | 15.55"(395 mm) | | |
| L | 19.49"(495 mm) | | |
| Μ | 6.30"(160 mm) | | |
| Ν | 5/8" | | |
| 0 | 10.28"(261 mm) | | |
| Р | 1/2" | | |
| Q | 14.17"(360 mm) | | |

Pump Specifications

| | P300 | |
|--------------------|--------------------------------------|--|
| Dimension | | |
| Air Inlet | 3/4" | |
| Liquid Inlet | 3" | |
| Liquid Outlet | 3" | |
| Woight | 375 lbs | |
| weight | (170 kg) | |
| Performance | | |
| Max appaoity | 211 gpm | |
| | (800 lpm) | |
| Max pressure | 120 PSI (8.2 bar) | |
| Max Salida | 9/16" | |
| IVIAX SUIIUS | (12 mm) | |
| Suction lift drv | 16.4 ft-H ₂ O | |
| | (5 m-H ₂ O) | |
| Suction lift wet | 29.5 ft-H ₂ O (9.0 m-H2O) | |
| Temperature limits | 158 °F (70° C) | |

Performance Curves



| P300 Performance Specifications | | | | |
|---------------------------------|-----------------------|--|--|--|
| Max. Flow: | 211 gpm (800 lpm) | | | |
| Max. Air Pressure: | 120 PSI (8.2 bar) | | | |
| Max. Solids: | 9/16" (15 mm) | | | |
| Max. Suction Lift Dry: | 16.4 ft-H20 (5 m-H2O) | | | |
| Max. Suction Lift Wet: | 29.5 ft-H20 (9 m-H20) | | | |
| Weight: | 375 lbs (170 kg) | | | |
| Air Inlet: | 3/4" | | | |
| Liquid Inlet: | 3" | | | |
| Liquid Outlet: | 3" | | | |
| Height | 33.07" (840 mm) | | | |
| Width: | 22.83" (580 mm) | | | |
| Depth: | 18.90" (450 mm) | | | |

Installation, Troubleshooting and Maintenance

Installation

Piping

Whenever possible ensure the pump is installed using the shortest possible pipe lengths with the minimum amount of pipe fittings. Ensure all piping is supported independent of the pump.

Suction and discharge piping should not be smaller than the connection size of the pump. When pumping liquids of high viscosity, larger piping may be used, in order to reduce frictional pipe loss.

Employ flexible hoses in order to eliminate the vibration caused by the pump. Mounting feet can also be used to reduce vibration effects.

All hoses should be reinforced, non-collapsible and be capable of high vacuum service. Ensure that all piping and hoses are chemically compatible with the process and cleaning fluid.

For processes where pulsation effects should be reduced, employ a pulsation dampener on the discharge side of the pump.

For self-priming applications, ensure all connections are airtight and the application is within the pumps dry-lift capability. Refer to product specifications for further details.

For flooded suction applications, install a gate valve on the suction piping in order to facilitate service. For unattended flooded suction operation, it is recommended to pipe the exhaust air above the liquid source. In the event of a diaphragm failure this will reduce or eliminate the possibility of liquid discharging through the exhaust onto the ground.

Location

Ensure that the pump is installed in an accessible location, in order to facilitate future service and maintenance.

Air

Ensure that the air supply is sufficient for the volume of air required by the pump. Refer to product specifications for further details. For reliable operation, install a 5 micron air filter, air-valve and pressure regulator. Do not exceed the pumps maximum operating pressure of 120 psig.

Remote Operation

Utilize a three way solenoid valve for remote operation. This ensures that air between the solenoid and the pump is allowed to "bleed off," ensuring reliable operation. Liquid transfer volume is estimated by multiplying displacement per stroke times the number of strokes per minute

Noise

Correct installation of the muffler reduces sound levels. Refer to product specifications for further details.

Submerged Operation

For submersible operation, pipe the air exhaust to atmosphere

Suggested Installation and Connection



SELF PRIMING APPLICATION

Suction lift capability may vary depending on the construction materials and application parameters. The range is from 16.4 feet dry to 30 feet in a primed condition (values calculated for pumping water at 68 degrees Fahrenheit).



All pumps may operate in full submersion. Construction materials must be compatible with surrounding liquid and the air exhaust must be placed above the liquid level.

POSITIVE SUCTION HEAD

Common as a method of drawing off the bottoms of holding tanks and clarifiers. Optimum inlet pressure should be kept at 14.5 PSI.







Troubleshooting

PROBLEM

EFFECT/SOLUTION

| Pump Will Not Cycle | |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Discharge line closed or plugged Discharge filter blocked Check valve stuck Air filter blocked Air supply valve closed Air supply hooked up to muffler side of pump Compressor not producing air or turned off Muffler iced or blinded Diaphragm ruptured Plant air supply line ruptured Air valve wear/debris Pilot sleeve wear/debris Diaphragm rod broken Diaphragm plate loose |
| Pumped Fluid Coming Out of Muffler | |
| | Diaphragm ruptured Diaphragm plate loose Inlet liquid pressure excessive (above 10 psig) |
| Pump Cycles but no Flow | |
| | Inlet strainer clogged Suction valve closed Suction line plugged No liquid in the suction tank Suction lift excessive Debris stuck in valves Excessive wear of check valves Air leak on suction side with suction lift |
| Pump Cycles with Closed Discharge Valve | |
| | Debris stuck in check valve Excessive wear of check valves |
| Pump Running Slowly/Not Steady | |
| | Air compressor undersized Leak in air supply Air-line, filter regulator or needle valve undersized Muffler partially iced or blinded Air valve gasket leak or misalignment Air valve wear/debris Pilot sleeve wear/debris Liquid fluid filter blocked Pump may be cavitating, reduce speed of operation Suction strainer clogged |
| Pump Will Not Prime | |
| | Air leak in suction pipe Air leak in pump manifold connections Suction strainer and lines clogged Excessive lift conditions Check valve wear Debris in check valve |

If any of the above mentioned causes do not apply to your problem, contact your All-Flo authorized distributor.

Operation

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Before starting the pump, check that all piping is properly connected.

Before starting the pump, check that all the bolts are securely tightened.

Check that the regulator and the drain valve on the discharge side are closed and that the valve on the suction side is opened if applicable.

1) Start the air compressor.

- 2) Open the air valve. Using a regulator to adjust the supply air pressure within the permissible range.
- 3) Open the flow valve on the discharge side.
- 4) First, check that fluid is flowing inside the piping and is being pumped to the discharge side, and then fully open the air valve.

Flow Adjustment

Adjust the flow valve on the discharge side, or adjust the supply air pressure.

| ! | The supply air pressure may initially rise during closing the flow valve. Make sure that the pressure is kept within the normal operating range. |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ! | The permissible suction flow speed can vary depending upon the viscosity and specific gravity of the fluid, the suction stroke and other factors. However in case of a rapid growth of the pump speed (flow speed of fluid), cavitations will occur. This will reduce pump performance and may cause a malfunction. In order to prevent cavitations, adjust the supply air pressure and the flow. |
| ! | If fluid is not discharged after you start the pump, or if you hear an abnormal noise or notice any irregularity, shut down the pump immediately. |

Maintenance

Cleaning the Pump

Make sure that compressed air is not supplied to the pump BEFORE you start cleaning the pump.

Make sure that the pump is not pressurized BEFORE you start cleaning the pump.

- 1) Remove the hose from the suction side of the pump.
- 2) Close the flow valve on the discharge side and open the drain valve. Then start air pressure for a while to discharge possibly much fluid remaining inside the pump.
- 3) Remove the hose from the discharge side, and attach different hoses to the suction side and the discharge side for cleaning.
- 4) Be ready with a vessel with cleaning solution, the kind appropriate for the type of fluid pumped. Next connect the suction-side and the discharge-side hoses of the pump.
- 5) Start the pump air pressure slowly, and let the cleaning solution circulate for sufficient cleaning.
- 6) Flush with clean water.
- 7) Remove the hose from the suction side of the pump, run the pump for a while to purge the pump of remaining fluid as much as possible.



- Be extremely careful when removing piping the fluid will run/flow out.
- After cleaning with clean water, turn the pump upside-down to let the water flow out.

Shutdown

Close the air valve of the pump and shut off the supply air.



- Keep a vessel below the relief valve for any drain off.
- Be careful! Fluid under pressure will gush out the moment you open the valve.
- If the pump is unused for a prolonged period, purge and clean it.

Daily check

Before starting pump operation, conduct the following check procedures every day. In case there appears any irregularity, do NOT start running the pump until the cause of the irregularity has been determined and corrective measures have been taken.

a) Make sure that there is no leakage of fluid from any connection part or the pump.

b) Make sure that there are no cracks in the pump casing or piping.

c) Check the tightness of every bolt of the pump.

d) Make sure that the connection parts of the piping and peripheral equipment are not loose.

e) Make sure that any parts of the pump that are to be replaced at regular intervals have been changed.

Maximum Torque Specifications

Torque Values for Housing Bolts

| Pump Size | |
|-----------|---------------------|
| P300 | 212in-lbs. (24 N-m) |

Exploded View & Parts List

P300



| | | | | P300 |
|----|----|------------------------|------------------|----------------|
| 4 | 0 | Pump housing | PE | HP-2 80 01 20 |
| 1 | 2 | | PE conductive | HP-2 80 01 21 |
| 0 | 4 | Center housing | PE | HP-1 80 10 20 |
| 2 | 1 | | PE conductive | HP-1 80 10 21 |
| | | Suction port | PE | HP-2 80 25 20 |
| 0 | 1 | | PE conductive | HP-2 80 25 21 |
| 3 | | Discharge port | PE | HP-2 80 025 20 |
| | 1 | | PE conductive | HP-2 80 025 21 |
| | | Diaphragm | TFM/PTFE | HP-1 80 50 05 |
| 4 | 2 | | EPDM | HP-1 80 50 08 |
| | | | NBR | HP-1 80 50 10 |
| | | Valve balls | PTFE | HP-1 80 60 23 |
| 5 | 4 | | EPDM | HP-1 80 60 08 |
| | | | NBR | HP-1 80 60 10 |
| | | Sealing inlet/outlet - | EPDM/EPDM | HP-2 80 70 08 |
| | | SET | PTFE/FPM | HP-2 80 73 14 |
| 7 | 4 | | PTFE/EPDM | HP-2 80 73 15 |
| | | | PTFE-c./FPM | HP-2 80 73 16 |
| | | | PTFE- c./EPDM | HP-2 80 73 17 |
| 9 | 8 | Housing bolt | AISI 304 | HP-2 80 042 50 |
| 11 | 4 | Shock absorber | NR/St37 | HP-1 80 69 06 |
| 12 | 16 | Nut with washer, cpl. | AISI 304 | HP-2 80 045 50 |
| 10 | 4 | Air valve | PET/NBR | HP-1 80 020 31 |
| 13 | I | | PET/FPM | HP-1 80 020 32 |
| 14 | 1 | Shaft | AISI 304 | HP-1 80 40 50 |
| 45 | 0 | O-ring | NBR | HP-1 40 87 10 |
| 15 | ю | | FPM | HP-1 40 87 09 |
| 16 | 2 | Center housing seal | PE | HP-1 80 85 22 |
| 17 | 1 | Muffler | Diverse | HP-1 80 99 00 |
| 18 | 1 | Air adapter | PP | HP-1 80 46 28 |
| 00 | 4 | Valve seat | PE | HP-2 80 54 20 |
| 22 | 4 | | PE-conductive | HP-2 80 54 21 |
| 04 | 0 | Plug lower | PE | HP-2 80 59 20 |
| 24 | 2 | | PE-conductive | HP-2 80 59 21 |
| 05 | 0 | Plug upper | PE | HP-2 80 55 20 |
| 25 | 2 | | PE conductive | HP-2 80 55 21 |
| | 0 | Valve stopper | PE | HP-2 80 39 20 |
| 20 | 2 | | PE conductive | HP-2 80 39 21 |
| | 4 | Bolt | PE | HP-2 80 38 20 |
| 21 | 4 | | PE conductive | HP-2 80 38 21 |
| | 0 | Plug upper sealing | FEP/FPM | HP-2 80 78 04 |
| 28 | 2 | | EPDM | HP-2 80 78 08 |

| | | | NBR | HP-2 80 78 10 |
|----|----|-----------------------------------|---------------|----------------|
| 30 | 2 | O-ring for center housing seal | NBR | HP-1 80 85 10 |
| 25 | 1 | Center housing | PE | HP-1 80 11 20 |
| 30 | I | complete | PE conductive | HP-1 80 11 21 |
| 70 | 16 | Pump housing plug | PE | HP-2 80 058 20 |
| 82 | 2 | Shaft allen pin screw | AISI 304 | HP-1 80 540 50 |
| 83 | 1 | Muffler adapter | PE | HP-1 80 299 20 |
| 97 | 1 | Valve seat key | AISI 304 | HP-1 80 254 50 |
| 98 | 1 | Upper/lower plugs key (SK5) | diverse | HP-1 80 158 00 |
| 99 | 1 | Air valve (SK4) | diverse | HP-1 08 58 00 |

Warranty

WARRANTY. All All-Flo products shall be covered by the standard All-Flo Limited Warranty in effect at the time of shipment. This warranty (which may be modified by All-Flo at any time) provides:

MATERIALS SOLD ARE WARRANTED TO THE ORIGINAL USER AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE (RENTAL USE EXCLUDED) FOR FIVE YEARS AFTER PURCHASE DATE. ANY PUMP WHICH IS DETERMINED TO BE DEFECTIVE IN MATERIAL AND WORKMANSHIP AND RETURNED TO ALL-FLO, SHIPPING COSTS PREPAID, WILL BE REPAIRED OR REPLACED AT ALL-FLO'S OPTION. CUSTOMER SHALL NOTIFY ALL-FLO IN WRITING WITHIN 30 DAYS OF ANY CLAIMED DEFECTS. NO MATERIALS CAN BE RETURNED WITHOUT THE PRIOR CONSENT OF ALL-FLO, AND IF APPROVED SHALL BE RETURNED TO ALL-FLO FREIGHT PREPAID. ALL-FLO'S LIABILITY FOR ANY BREACH OF THIS WARRANTY SHALL BE LIMITED TO EITHER REPLACEMENT OF THE MATERIALS OR, AT ALL-FLO'S SOLE OPTION, THE REFUND OF THE PURCHASE PRICE. ALL-FLO SHALL NOT BE HELD LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY BREACH OF THIS WARRANTY. THIS EXCLUSION APPLIES WHETHER SUCH DAMAGES WERE SOUGHT BASED ON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT, OR ANY OTHER LEGAL THEORY. FURTHER, ALL-FLO SHALL NOT BE LIABLE FOR LOSSES, DELAYS, LABOR COSTS, OR ANY OTHER COST OR EXPENSE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF MATERIALS. ALL-FLO'S LIABILITY IS EXPRESSLY LIMITED TO THE REPLACEMENT OR REPAIR OF DEFECTIVE GOODS. OR THE TOTAL VALUE OF SUCH GOODS. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR ORAL INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM A COURSE OF DEALING OR TRADE. All-Flo will not, in ANY event, be liable for any loss of profit, interruption of business or any other special, consequential or incidental damages suffered or sustained by Customer. All-Flo's total maximum liability to the customer in respect of sale of materials or services rendered by All-Flo is limited to the total monies received by All-Flo from the customer for the particular. Materials described in Customer's order.

All-Flo does not warrant any part or component that it does not manufacture, but will assign to the original end-user purchaser of any warranty received by it from the manufacturer, to extent such pass through is permitted by the manufacturer.

| REGISTRATION FORM | |
|------------------------------------------------------------------------------------|-----------------------------------------------|
| Pump Model | Pump Serial Number |
| Company Name | |
| Name | Email |
| Phone # City | State Zip |
| Qty of Pumps | Fluid Pumping |
| How did you hear about us? Existing All-Flo user, Web, Distributor, Magazine | Scan QR code and |
| MAIL TO: All-Flo Pump Co. Attn: Product Regist PO BOX 1870 Mentor, OH 44061 | ration www.all-flo.com/registration-form.html |

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