

**CHECKBALL PISTON PUMPS
PF1300 SERIES, 11 DESIGN**

START UP / PRIMING INSTRUCTIONS

Air Bleed Procedure

HORIZONTAL MOUNTING - INLET UP

1. Crack the inlet fitting in the pump housing to bleed all air from the pump case. Replace the plug prior to start-up.

HORIZONTAL MOUNTING - INLET DOWN / SIDE

1. Remove the plug from the uppermost bleed port in housing to bleed all air from the pump case. Replace the plug prior to start-up.

VERTICAL MOUNTING - SHAFT UP (PUMP EXTERNAL TO RESERVOIR)

1. Remove the plug from the vertical bleed port and bleed all air from the pump case. Replace the plug prior to start-up.

VERTICAL MOUNTING - SHAFT UP (PUMP IMMERSSED IN RESERVOIR/FLUID)

1. Refer to Figure A.
2. During installation, remove the plug from the vertical bleed port and connect a line to the top of the reservoir.
3. Fill reservoir and allow all air to bleed from pump case.
4. Replace plug prior to start-up.

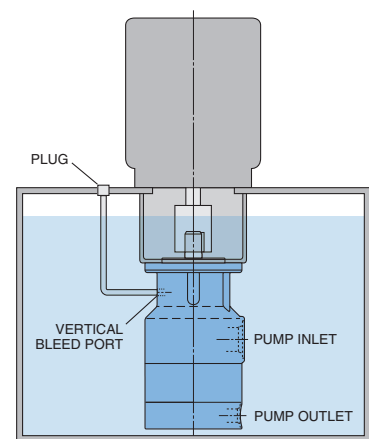


FIGURE A: Bleeding the air on a typical vertical pump installation inside the reservoir requires connecting a pipe to the top of the tank. Do not allow the fluid level in the reservoir to drop below the inlet port during all machine cycles.

IMPORTANT: *In all cases, bleed air from the inlet hose prior to start-up. This air bleed procedure should be followed each time the reservoir has been drained and the pump emptied.*

Initial Start-Up

1. Assure that the pump case is void of air, as described previously.
2. Ensure all pipes and hoses are secure and that the pump is in a hydraulically unloaded condition.
3. First jog the electric motor, by quickly turning it on and off several times, to check that the pump runs smoothly. Also, check for the correct circuit connection and leaks.
4. Then, run the pump at no-load pressure (all valves in an open, neutral position) for several minutes. Check to be sure the pump does not leak or develop excessive heat or noise.
5. If operation is normal, then the pressure can be increased to the normal operating settings.

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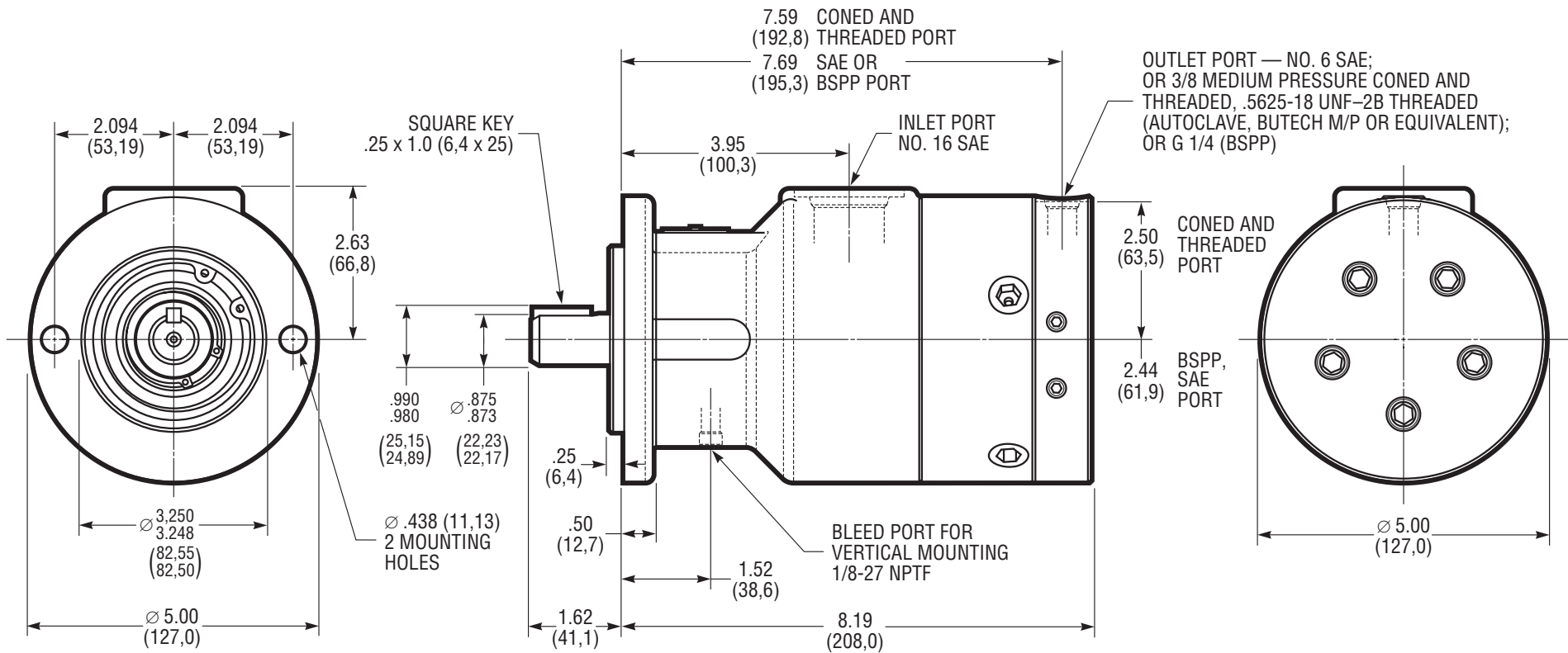
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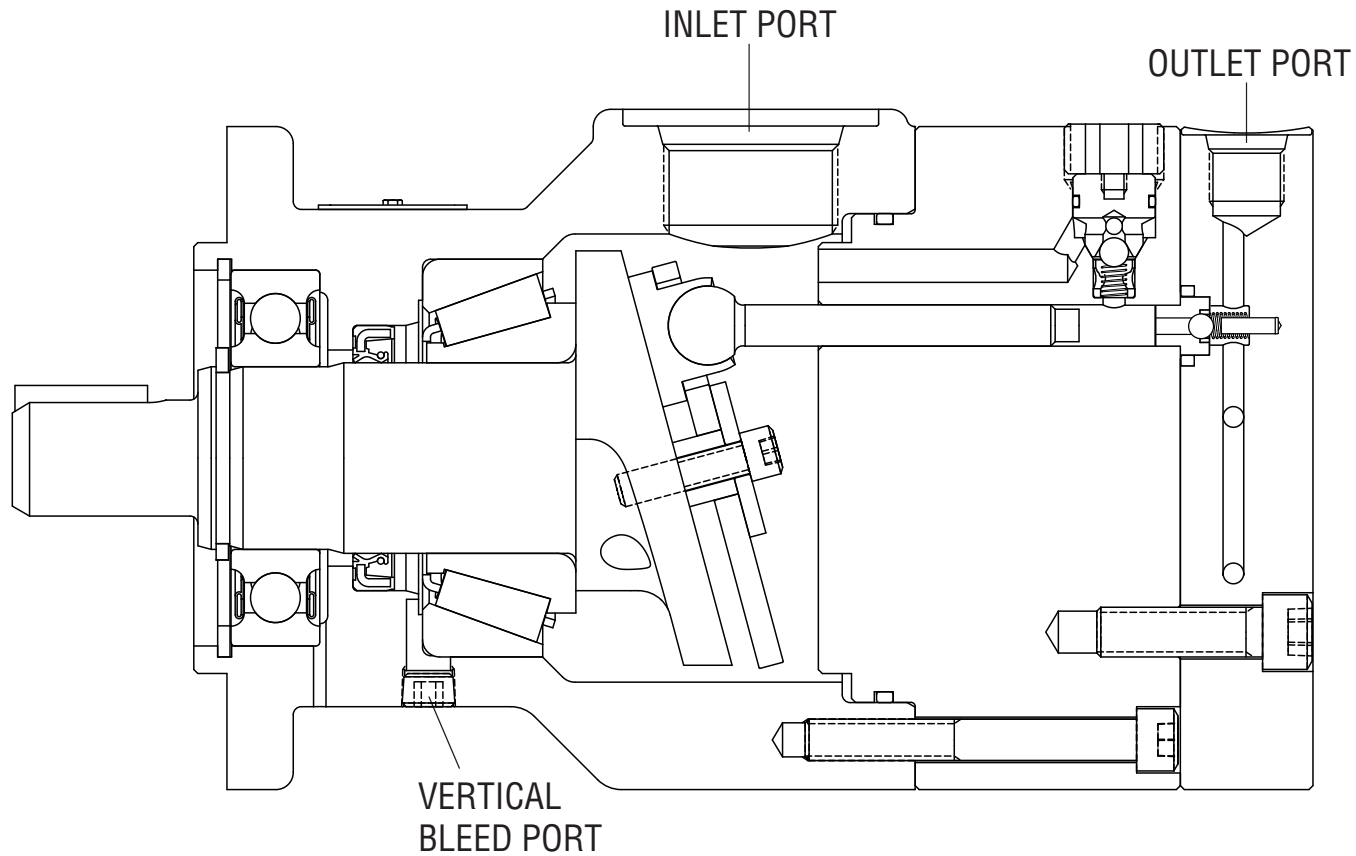
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PREVENTIVE MAINTENANCE

A systematic maintenance program can help achieve maximum life for the pump and other system components. Standard recommended procedures include:

1. Regularly inspect system for leakage, worn or damaged piping or connections, wear of any moving parts and secure mounting of all components.
2. Regularly check the system for smooth operation, unusual noise or vibration, excessive temperatures, proper operating pressures and actuator speeds.
3. Check for proper fluid level in reservoir.
4. Check the condition of the fluid and change the fluid if it is dirty or contaminated with any foreign matter or water. Change the fluid regularly as recommended using only approved fluid.
5. Change filter elements and clean any reservoir filter screen at recommended intervals.

NOTE:

Checkball pumps are Single-Fluid design and therefore, do not require the routine maintenance associated with a separate lubrication circuit.

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STORAGE AND CORROSION PREVENTION

General Guidelines (All Pumps)

1. Lightly coat the drive shaft with grease prior to long term storage.
2. Always keep the shipping plugs installed in the ports during storage and installation, until the unit is ready for connection to the circuit. This will prevent ingress of dirt and moisture.

Water Glycol Pumps

1. All external surfaces should be protected prior to exposure to sea atmosphere (does not apply to stainless steel models).
2. All water glycol pumps are filled with an equipment preservative fluid prior to shipment from factory.
3. When storing for extended periods, keep the pump case filled with a preservative fluid that has a vapor phase corrosion inhibitor ("Canning EPF", or equivalent). Fill the case at least three-quarters full to cover the pump wobble plate.
4. After filling the case, rotate the drive shaft several revolutions to distribute the fluid throughout the pump.
5. Install shipping plugs in ports, to prevent contamination.

Pumps operating in Phosphate Esther fluids ("Skydrol", "Hyjet IV", etc.)

1. Pumps that are setup to operate with these type of fluids are not painted at the factory. For prolonged storage periods, a protective coating should be applied to the external surface(s).
2. Fill the case with a fluid compatible with EPR seal material. Fill the case at least three-quarters full to cover the pump wobble plate.
3. After filling the case, rotate the drive shaft several revolutions to distribute fluid throughout the pump.
4. Install shipping plugs in ports, to prevent contamination.

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