



ALL PRIME PUMPS

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Specifications XS-Series Self Priming Pump STD - construction

- A. Pumps are self priming solids handling centrifugal type for mounting above ground; designed for raw waste water.
- B. The manufacturer of the pumps has an ISO 9001 quality management system certificate.
- C. The pumps carry a one-year manufacturer's materials and workmanship warranty.
- D. The pumps have the necessary characteristics and are properly selected to perform under the operating conditions and efficiency as shown.
- E. Materials and Construction Features
 - 1. Pump casing is made from class 30 cast-iron with integral volute and incorporate the listed features:
 - a. Broad based feet to prevent tipping even when disassembled.
 - b. Casing will have a large diameter drain plug at the lowest level for complete draining.
 - c. Casings have a recirculation port sized to accommodate a spherical solid the size of the solids passing capacity of the pump.
 - d. A 3½" diameter fill port covered by a Teflon gasketed plate with restrained clamp bar is used for initial liquid filling.
 - e. The casing is coated on the inside with one 3-5 mil coating to deter initial inside corrosion.
 - 2. Cleanout cover is made from class 30 cast-iron with features as shown:
 - a. Cleanout cover is retained by hand nuts which completely cover the attachment studs when tightened to prevent stud corrosion
 - b. A pressure relief valve which operates at 75 to 200 PSI is permanently attached to assure safety.
 - c. A hardened steel alloy wear plate is attached to the cover plate with studs and nuts.
 - d. Removal of the cover plate allows access to the impeller, wear plate, mechanical seal, and internal check valve without disturbing suction or discharge piping.
 - e. Cleanout cover is sealed with a large diameter Buna-N o-ring.
 - f. A heavy duty handle is attached to the cover plate to facilitate removal and installation.
 - g. The cover plate has threaded pusher bolt holes to ease removal using hex head machine bolts from the rotating assembly.

3. The rotating assembly has an integral bearing housing with seal plate, shaft, bearings, impeller, mechanical seal, oil seals, and oil chambers which are removable as a unit without disturbing suction or discharge piping and have the following features:
- a. The seal plate and bearing housing are class 30 cast-iron and contain separate oil chambers for mechanical seal and bearing oil.
 - b. The impeller is ductile-iron open-type two-vane non-clog design with back side pump out vanes and will be threaded on the shaft and further retained by locking impeller bolt and protective washer.
 - c. The shaft is constructed of 4140 alloy steel featuring hardened alloy sleeve in mechanical seal area with no more than 82% of the centerline bearing to centerline bearing distance protruding beyond the impeller end bearing.
 - d. Bearings are anti-friction ball type of sufficient size and design to withstand all radial and thrust loads incurred during normal operations.
 - e. The rotating assembly is sealed with one large diameter Buna-N o-ring.
 - f. The mechanical seal is oil lubricated from a dedicated chamber with faces of tungsten titanium carbide alloy each lapped to within three light bands using an optical flat and monochromatic light. The stationary face shall be mounted in its holder using an o-ring design to better secure alignment during times of extreme stress. All metallic parts of the seal are 316 stainless-steel. The mechanical seal is warranted on a prorated basis for four years, as follows:

Failure Within:	Percent New Price:
2 years	25%
3 years	50%
4 years	75%

g. The rotating assembly impeller end clearance can be adjustable over its full range of adjustability externally without removal of the rotating assembly or its fasteners and without the use of special tools by utilizing socket head cap screws set into the pump casing to move the rotating assembly away from the wear plate and the hex head machine bolts to move the rotating assembly toward the wear plate and secure it in the proper place against the socket head cap screws. The socket head cap screws shall also act as jacking bolts when removing the rotating assembly.

h. Lubrication: Separate oil filled chambers, vented to atmosphere, and are provided for mechanical seal and bearings. Three oil lips seals prevent leakage of oil. Each chamber has a vented plug to prevent the entry of excess moisture. Both chambers shall have a clear oil level sight gauge.

- Mechanical seal chamber and Bearing chamber are isolated from each other to atmosphere (air gap) providing protection of the bearings in the event of a seal leak. This air gap 'port' provides an external monitoring of the seal integrity.

4. The pump contains a suction check valve in order to save energy by preventing re-priming at each start up. The valve is floating type to help prevent clogging and is made from nylon and steel reinforced neoprene. The valve shall not be required for re-priming and pumps requiring such a valve to re-prime shall not be acceptable.

5. The pumps have as standard parts removable flanged suction and discharge cast iron spool pieces with two plugged tapped holes suitable for the attachment of gauges or other devices such as air release valves.

F. Pump performance characteristics:

1. The pump can pass a spherical solid as shown on the applicable pump curve through all impeller vanes, internal passages, and recirculation ports.

2. The pump will re-prime at a depth shown on the applicable pump curve while using an air release line without the aid of a suction check valve. Re-prime performance shall be confirmed using the following test.

a. A check valve equal to or larger than the pump discharge shall be installed in the pump discharge line. A suction line equal to the pump suction opening shall be used.

b. An air release pipe open to atmosphere and similar in capacity to a 1" air release valve shall be installed between the discharge and the check valve.

c. The pump suction check valve shall be removed and the pump suction shall be at the specified job re-prime lift above the test tank water level.

d. Prior to each re-prime test the suction pipe must be cleared of water to sump level.

e. The pump must re-prime to full flow within 5 minutes of energizing on each of 5 tests to be acceptable.

f. After 5 consecutive tests the pump must be at a temperature within the operating range as indicated on the applicable technical data sheets.