

# Specifications - PFS411 - Single Seal, 2" Discharge

## General:

Furnish and install a quantity of \_\_\_\_\_ Power-Flo® Pumps & Systems submersible sewage pump(s), Model PF\_\_\_\_\_, 4/10 HP, 1750 RPM, single phase, 60 Hz, \_\_\_\_\_ volts, with a 2 inch NPT vertical discharge connection. Each pump shall be capable of delivering the following performance, \_\_\_\_\_ U.S. GPM at \_\_\_\_\_ Ft. Total Dynamic Head, with a shut off head of \_\_\_\_\_ Ft. TDH minimum.

## Pump Design:

The centrifugal sewage pump(s) shall be capable of handling 2 inch diameter spherical solids, of raw, unscreened domestic sewage consisting of water, fibrous materials. The 115 volt pump(s) shall be capable of handling liquids with temperatures to 77 degrees F continuous, and the 230 volt 104 degrees F, and shall be capable of running dry for extended periods.

## Pump Construction:

**Castings:** The volute, seal plates, impeller and motor housing shall be constructed of ASTM A-48 class 30 cast iron.

**Strainer:** Shall be steel construction with an industrial grade powder coating.

**Coating/Hardware:** Exterior surfaces shall have an industrial grade powder coating. All exposed hardware shall be 300 series stainless steel.

**Gaskets:** All gaskets shall be of the compression square ring type eliminating critical slip fits and the possibility of damage during service associated with sliding o-ring sealing arrangements.

**Impeller:** The impeller shall be of 2 vane, open type, non-clog design with pump out vanes on the back side. The impeller shall be dynamically balanced to ISO G6.3 specifications.

**Mechanical seal:** A dual seal arrangement shall consist of a Buna-N exclusion seal and a single mechanical design operating in an oil-filled seal cavity. The seal construction shall be carbon for the rotating face and ceramic for the stationary face, 300 series stainless steel hardware, and all elastomer parts to be of Buna-N. The seal shall be commercially available and not a manufacturers proprietary design.

**Motor:** Design shall be of the split capacitor design for single phase units. The pump shall be designed to be non-overloading throughout the entire pump curve. The rotor and stator assembly shall be of the standard frame design and secured to the pump seal plate by four threaded fasteners allowing for easy serviceability.

The motor windings shall be of Class B insulation and operate in a sealed environment containing clean dielectric oil, making it capable of operating in a totally, partially or non-submerged condition for extended periods of time without damage due to the heat being generated. The used dielectric oil must be disposed of as non-hazardous waste. The motor shall meet the standard NEMA design L for single phase.

**Thermal Protection:** All single phase motors shall have thermal protection with automatic reset.

**Shaft:** The pump shaft shall be of a one-piece design and shall be of 416 stainless steel.

**Bearings:** The lower bearing shall be of the single row ball type to accept radial and thrust loads, and the upper bearing of the single ball type for radial loads. Bearings shall operate in an oil bath atmosphere for superior life.

**Power Cord:** Shall be 20 ft. of type SJTW and connected to the motor via quick disconnect spade terminals. Crimp connected cords are not acceptable. Heat shrink tubes shall be used to connect power cord leads with motor leads. A master heat shrink tube shall be provided and filled with epoxy to seal the outer cable jacket and the individual strands to prevent water from entering the motor housing. Additional sealing and strain relief shall utilize a secondary pressure grommet at point of cable entry. A three prong, grounded, 115 volt plug shall be molded to power cord for automatic operation.

**Level Controls:** An automatic on-off float switch shall be mounted to the pump for pump down operation. An "A" series shall be a wide angle, normally open, mechanical tilt or a "VF" for vertical float switch with adjustable off point. The switch shall be equipped with 20 ft. of type SJOW cord with molded on piggy-back style plug that allows the pump to be operated manually without the removal of the pump in the event that the switch becomes inoperable.

**Tests and inspections:** Shall be performed by the pump manufacture.

1. A ground continuity check and motor chamber shall be Hi-potted to test for electrical integrity.
2. Check that motor voltage and frequency matches name plate.
3. The pump shall be pressurized and a air leak test is performed to ensure the integrity of the motor housing.
4. The pump is submerged and operated to determine the unit meets hydraulic performance requirements.