

Specifications - PFG- High Head (HHS) & High Volume (HVS)

General:

Furnish and install a quantity of _____ Power-Flo® Pumps & Systems submersible grinder pump(s) Model PFG _____, 2 HP, 3450 RPM, _____ phase, 60 Hz, _____ volts. 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.

Pump Design:

The centrifugal submersible grinder pump shall be capable of reducing all material found in normal residential and light industrial sewage containing small quantities of plastic, disposable diapers, sanitary napkins, rubber, food particals and other non-abrasive solids into a finely ground slurry. The temperature limitation of the liquid being pumped is 160°F intermittent and shall be capable of running dry for extended periods. Each pump(s) shall have 1.25" NPT vertical discharge connection. The grinder pumps shall be CSA listed.

Pump construction:

Castings: Shall be class 30 cast iron for the volute, seal plate and motor housing.

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

Impeller: The pump impeller shall be of the recessed vortex design with bronze construction and machined for threading to the motor shaft. The impeller shall be capable of being trimmed to meet specific performance characteristics.

Support legs: Shall be utilized, enabling the pump to be a free standing unit. The legs shall of sufficient high to allow solids and stringy debris to enter the cutter/suction area. The legs shall be adjustable and removeable when used with a slide coupling.

Grinder mechanism: Shall consist of a radial cutter threaded on the motor shaft and locked in place with a washer in conjunction with a flat head capscrew, and a shredding ring containing a minimum of fifteen flow passages for PFG-HVS series and seven flow passages for PFG-HHS series, with cutting edges. The shredding ring's cutting edge life shall be doubled with a reversible design. The shredding ring and radial cutter shall be constructed of 440C stainless steel hardened to a minimum Rockwell C55 and shall be finish for a fine cutting edge.

Mechanical shaft seal: A tandem double seal arrangement shall be utilize and shall operate in an oil atmosphere. Each shaft seal shall prevent leakage between the pump and motor. The materials of construction shall be carbon rotating face and ceramic stationary face, 300 series stainless steel hardware, and all elastomer parts to be Buna-N. The seal shall be commercially available and not a proprietary design of the manufacturer.

Motor: Design shall be of the capacitor start and capacitor run for single phase units and capacitors shall be located in an external control box. The three phase units shall be dual-voltage 230/460 design. 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 motor shaft shall be of stainless steel.

Single phase models shall provide protection against excessive temperature through the use of an in-line heat/current sensor. The sensor shall be connected in series with, and attached to the motor windings.

Bearings: Pump shall utilize a three bearing design operating in an oil bath atmosphere, consisting of an upper single row, ball bearing for radial load, a intermediate single row, ball bearing for radial and thrust loads and a lower bronze sleeve bearing for radial loads to prevent shaft deflection.

Power cord: Shall be _____ ft. of type SOW and connected to the motor via Fast-Disconnect plug. Pin receptacles shall be crimped and molded to the power cord in a PVC plug. The plug shall be secured with a stainless steel compression plate to prevent water from entering the housing and to provide strain relief at the point of cord entry. A clamp shall compress the PVC molding against the cord jacket to prevent water from entering the jacket. A terminal block with brass pin inserts shall connect the power cord leads with the motor leads. The ground pin shall be longer than the other pins such that the ground connection is the first connection made and the last connection broken when the plug is inserted and removed, respectively. A Buna-N o-ring shall provide isolation sealing between the terminal block and the motor housing when the cord plug is removed.

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.