GOULDS WATER TECHNOLOGY
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Specifications
GWT-3888V4-SP-100071 R1

WS_V4 Series
Model 3888V4 Submersible vortex sewage pumps

General
• Furnish and install _____ Goulds Water Technology, Model 3888V4, dual seal submersible sewage pump(s), _____ HP, _____ phase, _____ volts, _____ Hz, pump(s) rated for _____ GPM, at _____ feet. Total Dynamic Head.

• Pump(s) shall be Goulds Water Technology, Order number: WS _____ V4 .

Qualifications
All pump manufacturers must be pre-qualified by the engineer in order to qualify as acceptable manufacturers. Pre-qualification shall be no later than two (2) weeks prior to published bid date for this project. Failure to pre-qualify will be grounds for disqualification after the bid opening date. All decisions of qualification shall reside with the engineer of record at time of bidding.

Pump design
Pump(s) shall have four-inch (4”) ANSI discharge flange and shall be capable of handling sewage containing non-abrasive three-inch (3”) maximum solids.

Mechanical shaft seals
The motor shall be protected by two independent sets of mechanical shaft seals mounted in tandem on the pump shaft. Pump designs with one or two springs acting between rotating faces shall not be allowed as this design would allow effluent to force the seal faces apart during periods of upset or high discharge pressure. The outer mechanical seal shall be constructed of silicon carbide vs. silicon carbide (or lower seal optional silicon carbide vs. tungsten) sealing faces. The inner mechanical seal shall be constructed of carbon vs. ceramic sealing faces. Each set (upper and lower) shall be tensioned by an independent spring system constructed of 300 Series stainless steel metal components and BUNA-N elastomers. The mechanical seals shall be located in a completely isolated seal oil chamber which will provide lubrication for the seal faces while simultaneously acting as an isolation zone for the stator chamber.

Impeller
The impeller shall be multi-vane vortex style with pump out vanes for protection of the lower mechanical seal and hydraulic balance. Due to design, only single plane spin balancing shall be required for smooth operation. The impeller shall be slip fitted to the shaft and key-driven. The impeller shall be held in place with a bolt and washer system that shall secure the impeller against all axial loads imposed by the hydraulic conditions of operation.

Casing
The casing shall be cast from ASTM A48 Class 30 gray cast iron of sufficient thickness to withstand 1.5 times the shut off pressure generated by the largest impeller available for this model in accordance with current revision of the Hydraulic Institute Standards. The discharge connection shall be a standard 125# ANSI four-inch (4”) flange. The discharge flange shall be capable of bolting to either a 4x4 or 4x6 inch wet pit guide rail. The guide rail system shall support the full weight of the submersible pump without the need for any supports under the pump which would cause solids to build up and starve the pump.

Wet pit installation system

Pumps are designed for use on guide rail systems and base elbow disconnect systems fitted with vertical 125# ANSI flanges for horizontal discharge. See Guide and Disconnect Systems Less Rails Technical Brochure (BCPGDS) for available disconnect systems.

Major casting materials

The impeller, casing, bearing/seal housing and motor cover shall be of ASTM A48 Class 30 high quality cast iron for strength and long life.

Corrosion protection

The pump/motor shaft wetted-end shall be 300 Series stainless steel. Both inner and outer surfaces of cast iron shall be electrocoat-painted with thermo-setting acrylic baked at 400º F., after castings are completely machined. The gland nut/strain relief's shall be 300 Series stainless steel.

Motor

The integral motor shall be completely sealed from the environment by use of circular cross section o-rings accurately fitted into machined grooves which shall provide designed compression of metal to metal fits. Designs which require a specific torque on the casing bolts or which require rectangular gaskets or sealing rings shall not be allowed. The motor shall be rated for continuous duty under full nameplate load while at partial submergence in the station. The motor shall be provided at the specified site conditions of 208 or 230 volts, single-phase or 200, 230, 460 or 575 volts, three-phase as required, all shall be at 60 Hz.

Single-phase motors: 2 – 5 HP shall be permanent split capacitor type. All single-phase motors shall be provided with thermal protection with automatic reset. Three-phase motors require Class 10, quick trip, ambient compensated overload protection in the control panel. The stator winding shall be open type with Class F insulation suitable for operation in clean dielectric oil for efficient heat transfer and lubrication of the ball bearings. The stator shall be a register fit into the bearing housing to ensure positive alignment, and bolted for ease of serviceability. The motor shall be provided with ball type anti-friction bearings which shall support the heavy-duty rotor shaft and to handle all radial and axial loads imposed by the impeller while limiting shaft deflection at the mechanical seal faces. Sleeve type bearings shall not be considered equal and shall not be allowed. The ball bearings shall be designed for a B-10 life of 30,000 hours minimum. The motor shall be designed and tested to withstand an 18-day locked-rotor operation without damage.

Power cable

The power cable shall be sealed at the motor end as it enters the motor casing by a two part barrier to moisture intrusion. The first line of defense shall be the compression of the oil and chemical resistant grommet which shall seal the outer jacket of the power cord. In the event that the outer jacket of the power cord should become damaged, then the second line of defense shall be the epoxy poured isolated conductors within the jacketed cable itself. The insulation shall be removed from the individual conductors and the epoxy shall be allowed to form a leak-proof seal against wicking of the power cable between the outer jacket and the insulation of the individual conductors. The outer jacket of the power cord shall be oil resistant and water resistant. The power cable shall be rated for NEC severe service "S" Type "STOW".

Pump options

Silicon carbide/Tungsten carbide lower seal

Longer power cords

Learn more about 3888V4 pumps

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