

**SCOPE**

Furnish (QTY____) Stancor SC-100 non-clog electric submersible cutter pump(s) capable of delivering a maximum capacity of ____ GPM at ____ feet of TDH when operated by 1 HP, 3450 RPM ____ volt, ____ phase, 60Hz motor, 2" discharge. Each pump unit shall have ____50____ feet of power cable. The pump assembly shall have CSA U.S. 214705 approval.

PUMP DESIGN

The pump(s) shall be designed to handle, without clogging, clean water, contaminated water, wastewater effluent, storm water, and other similar corrosive liquids which may contain small solids. The pump shall have a flat bottom stand allowing it to stand on a hard bottom wet well. The pump shall also be capable of mounting on a Guide Rail System allowing the pump to be removed from the wet well without disturbing the discharge piping or requiring personnel to enter the wet well.

PUMP CONSTRUCTION

Major pump components shall be of AISI type 304 stainless steel, Nylon 66, Cast Iron (FC 20) with smooth surfaces devoid of porosity or other irregularities. All exposed fasteners shall be AISI type 316 stainless steel. Critical mating surfaces where a watertight seal is required shall be machined and fitted with NBR o-rings. Sealing will be the result of controlled compression of rubber o-rings without requiring a specific torque on fasteners to accomplish sealing. Rectangular cross sectioned gaskets requiring specific fastener torque to achieve compression shall not be considered adequate or equal. No secondary sealing compounds shall be used or required.

Impeller: The impeller shall be a non-clogging, dynamically balanced, cutter design with tungsten edge, capable of passing a 19mm diameter spherical solid. The impeller shall be threaded to motor shaft and shall be secured to the shaft by a stainless steel impeller nut. The use of adjustable bottom plates to maintain efficiency shall not be considered equal.

Pump Volute: The pump volute shall be a single piece design with vertical discharge. Passages shall be smooth and large enough to pass any solids which may enter the impeller. Flanged Discharge design shall permit attachment to standard 2" NPT pipe fittings, or optional guide rail system

Shaft & Rotating Assembly: The common motor/pump shaft shall be of Stainless Steel (SUS 410) material that is in contact with pump's mechanical seals and shall have a polished finish and accurately machined shoulders to accommodate bearings, seals and impeller. Carbon steel shafts shall not be considered adequate or equal. The rotating assembly (impeller, shaft and rotor) shall be dynamically balanced such that undue vibration or other unsatisfactory characteristics will not result when the pump is in operation.

Triple Seal System: Each pump shall be equipped with a tandem mechanical shaft seal system consisting of two independent seal assemblies with a common spring between them and a radial lip seal; providing three complete levels of sealing between the pump wet end and the motor. The mechanical seals shall operate in an oil filled chamber which is completely separate from the motor chamber. The seal faces shall be SiC/SiC for the lower seal and Carbon/Ceramic for the upper seal. Metallic components of the mechanical seal shall be constructed of 300 series stainless steel. The seal system shall not rely upon the pumped media for lubrication and shall not be damaged when the pump is run dry. A readily accessible inspection screw shall be provided for inspecting the condition of the seal chamber oil during routine maintenance.

Bearings: The pump shaft shall rotate on permanently lubricated, greased bearings. The upper bearing shall be a single row deep grooved ball bearing. The lower bearing shall be a heavy duty single row, deep grooved ball bearing. Upper and lower bearings shall be of sufficient size and properly spaced to transfer all radial and axial loads to the pump housing and minimize shaft deflection. B-10 bearing life shall be a minimum of 30k hr at BEP. Pump designs utilizing other than ball bearings, or those requiring supplemental guide bushings for the shaft or impeller shall not be considered acceptable.

Motor: The motor housing shall be AISI type 304 stainless steel and the top cover of Cast Iron (FC 20). The motor shall be of the squirrel-cage induction design with copper windings, housed in an air filled, water tight chamber. The motor shall be capable of continuous submerged operation under water to a depth of 33 feet. The stator windings and stator leads shall be insulated with moisture resistant Class E insulation rated for $120^{\circ} \text{C} \pm 5^{\circ} \text{C}$ ($248^{\circ} \pm 41$). The motor shall be capable of operating continuously, submerged in liquid of 40°C (104°F) without overheating. The motor shall be capable of handling up to 10 evenly spaced starts per hour. All motors shall have a voltage tolerance of +/- 10% from nominal name plate rating.

Power Cable: The power cable shall be sized according to NEC and CSA standards and shall be of sufficient length to reach the junction box without requiring splices. The outer jacket of the cable shall be oil and water resistant thermoplastic elastomer. The power cable shall be fitted to the motor using an epoxy potted water tight cable entry system with a rubber grommet as the secondary seal and strain relief.