Mody Submersible Sewage Pump Specification

Submersible Sewage Pump Design:

Pumps shall be of the heavy duty, vertical, direct-drive, non-clog centrifugal, submersible type suitable for use in service with ambient temperatures at 104F. The pumps shall be designed and constructed to pump sewage, storm water, heavy sludge and fibrous materials without injurious damage during operation.

Materials of Construction:

AISI, ASTM etc. numbers, types and grades specified are typical of material composition and quality. Equivalent materials will be considered.

Shaft:	431 SS, rotor to be die-cast aluminum statically and dynamically balanced.
Volute:	Cast Iron ASTM A48. Volutes should have smooth contours with no acute angles minimizing pumped fluid velocity losses. The interfaces between the major castings shall be machined and fitted with Nitrile O-rings.
Impeller:	Cast Iron ASTM A48. Single Channel Impellers hydrodynamically balanced. Smooth contours ensuring 3” minimum spherical solids handling capability on pumps running at 1750 RPM or lower.
Wear Ring:	Nitrile Rubber lined or Bronze - bolted on to the volute for ease in maintenance.
Seals:	Two Independent Tandem TC/TC and TC/TC Mechanical Seals enclosed in an Oil Chamber. Each seal will have it’s own rotating and stationary seats with individual springs. Double Mechanical Seals/Cartridge seals with common springs/hardware unacceptable. Seal springs driven by impeller hubs unacceptable.
Bearings:	The rotor shall rotate on two permanently greased Ball/Angular Contact Bearings containing special anti-corrosion additive and have a minimum B10 life.
Hardware:	All exposed nuts, bolts and washers shall be AISI 304 SS or better.

Motor:

- Continuous Duty Rated Squirrel Cage Induction Motor conforming to IP 68 - completely submersible with a minimum F Class Insulation (155C) triple dipped and epoxied end windings rated Class H.

- Maximum 15 start/stops per hour. Pump and motor are one integral unit. No couplings allowed. Motors must be Air-filled NEMA Design B. 9 or 12 lead stators for dual 230v or 460v operation with a +/- 10% allowable fluctuation.

- Motor windings shall be protected with Normally Closed Thermisters with automatic reset embedded in each phase.

- An optional moisture detector shall be installed in the motor housing if seal probe sensor is not available.

- The stator will be shrink fitted in the stator casing. External drilled/tapped bolts, keys etc. that compromise the structural integrity of the casing are deemed unacceptable.

Oil: The Oil Chamber shall be filled with an FDA approved white/paraffin oil. A seal probe sensor will be installed as an option to detect progressive seal wear.

Cable: Submersible Type SOOW Cable shall be used.

Cable Entry: The Cable entry seal design shall preclude any specific torque requirements to insure a watertight and submersible seal. A Water Dam type Sealing system shall be employed where the cable OD will be sealed using one rubber grommet and each individual core of the cable will be sealed using a secondary grommet. This ensures no water ingress even in the event of the cable outer sheath being cut. Epoxies, Silicones or other sealing systems shall not be considered acceptable.

Cable Grip: A one Meter Long SS Cable sheath terminated at the cable gland shall be provided for strain relief.

Lifting Bails: A Stainless Steel handle shall be provided for ease of raising and lowering the pump.