Technical Specification

GRP 59-79-118 Series Grinder Pump
Standard Construction

- SCOPE

  These specifications cover the design, performance and installation of submersible Grinder pumps intended for wetwell applications. The pump assembly, including the liquid end and motor shall be of the design and production of only one manufacturer, and shall be in full compliance with these specifications.

- GENERAL CONDITIONS

  Furnish and install Qty ___ HOMA Model GRP ____ Electric Submersible Grinder Pump(s), each consisting of a single-stage, non-clog centrifugal pump, with a cutter attachment, close coupled by a common shaft to a squirrel cage, induction type electric motor, assembled in a single body, watertight aggregate, suitable for wet well.

- PERFORMANCE GUARANTEE

  The pump shall be capable of delivering raw, unscreened sewage at: _____ GPM at ____ FT TDH.

- PUMP DESIGN

  The liquid end shall be a centrifugal pump with a rotating cutter mounted on the shaft immediately adjacent to the impeller. The stationary cutter disk shall be mounted in an axially adjustable bottom plate. A short overhang shaft, shared by the rotating cutter, impeller and motor, will have generous shoulder fillet radii to minimize stress concentration and fatigue. The shaft shall be supported by anti-friction bearings. The lower bearing shall be a double-row, deep groove ball bearing, axially retained to sustain both axial and radial loads. The upper bearing shall be a single-row, deep groove ball bearing, axially floating to sustain radial loads only. The impeller shall be cast in one piece and of the multi-vane, centrifugal (radial) design. Watertight integrity shall be maintained by a Cable Entry Assembly, an isolated Junction Box, Mechanical Shaft Seal and, between major castings, by O-Rings, confined within closely fitted, high surface quality rabbet joints, compressed to the prescribed dimension only by metal-to-metal contact.

- MATERIALS OF CONSTRUCTION

  Major castings: ASTM A48 Class 40B Cast Iron,- The cutter parts shall be made of Stainless Steel similar to AISI 440C, alloyed with cobalt, vanadium and molybdenum for a hardness of 55 Rockwell C minimum, to provide lasting abrasion resistance.- Shaft: AISI 430F Stainless Steel. - Fasteners: AISI 304 Stainless Steel. - All O-Rings: Nitrile Rubber. - Shaft Seals: Impeller and Motor side; Silicon Carbide/Silicon Carbide. Cable Jacket: Neoprene. Protective Coating : High Build Epoxy.

- ELECTRIC MOTOR

  Each pump shall be driven by a Submersible Squirrel Cage Induction Motor in accordance with NEMA MG I Section IV Part 30, rated at _____ HP 3450 RPM _____ Volts ___ Phase. Motor shall be NEMA Design B for continuous duty, capable of sustaining 15 starts per hour. The pump and motor shall be produced by one manufacturer and shall be of submersible design.

  All stator windings and leads shall be insulated with moisture resistant Class H insulation. Upon assembly, the stator shall be heat-shrink fitted into the stator housing; the use of bolts, pins or other fastening devices which would require penetration of the stator housing, shall not be acceptable.

  In each phase winding there shall be embedded a temperature sensor, wired in series. Any of these thermal sensors shall cut out electric power if the temperature in its winding exceeds 140^{O}C, but shall automatically reset when the winding temperature returns to normal. The motor shall have a SF (Service Factor) of 1.15 and shall be non-overloading for the selected performance curve. Full load current shall not exceed ___ FLA at ____ Volts.

Technical Specification

- SEAL PROBE

  A conductive seal probe shall be provided with pump. Probe shall be mounted into mechanical seal chamber and when interlocked with control panel, probe shall indicate the presence of contaminants within mechanical seal chamber. Option for external seal probe devices shall be readily available and field retrofittable for all pumps.

- WETWELL AUTOCOUPLING APPLICATION

  An Autocoupling assembly shall be employed to eliminates the need for entering the wet well to service pumps. The system shall allow the lowering of the pump unit(s) into the well along 2 rigid guide pipes, resulting in a self-engaging, firm, leakproof coupling of the volute outlet to a receiving Base anchored to the floor which forms the discharge pipe connection. To assure a leakproof junction between movable and stationary components, a retained resilient seal ring shall be employed which is easily replaceable as part of the pump assembly, is axially and evenly compressed upon contact. O Ring Design Seals or Metal-to-metal contact faces shall not be allowed. Once seated, the pump shall be entirely supported by the Autocoupling Base, without any reliance on additional supports. Autocoupling discharge connection shall be flanged for all Grinder pumps above 5 HP to assure positive, permanant sealing.

- WETWELL PORTABLE APPLICATION

  The pump unit, without modification to the basic, watertight pump-motor aggregate, shall be suitable for portable use when combined with a ring stand.