AGS Series

Axial grinder pumps

General

Furnish and install Goulds Water Technology, models: 1) AGS0511 (.5 hp, 115V, single-phase);
2) AGS0512 (.5 hp, 230V, single-phase); 3) AGS1011 (1 hp, 115V, single-phase), 4) AGS1012 (1 hp, 230V, single-phase) or,
5) AGS2012 (2HP, 208-230V, single-phase) submersible axial grinder pump(s), 60 Hz, rated for
46 gpm (.5 hp) / 53 gpm (1 hp) / 52 gpm (2 hp), total dynamic head (42 ft., .5 hp / 66 ft., 1 hp / 120 ft., 2 hp). Pump(s) shall be Goulds Water Technology, Inc. Order no: _____ .

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

The AGS 2 hp has a 1¼" NPT vertical discharge. The AGS .5 hp and 1 hp have 2 inch NPT vertical discharge. The pumps shall be capable of grinding domestic and raw sewage containing small quanitities of plastic, rubber, cloth, paper and other non-abrasive solids.

Pump grinder assembly

The grinder assembly shall consist of two hardened components mounted directly below the impeller. The two components shall be the axial cutter and 8-hole cutter plate both of which shall be constructed of type 440C stainless steel hardened to 55-60 Rockwell "C" scale value.

Pump mechanical shaft seals

The motor shall be protected by a mechanical shaft seal mounted on the pump shaft. The mechanical seal faces shall be constructed of silicon carbide contacting silicon carbide. The spring system shall be constructed of series 300 stainless steel metal components and Buna-N elastomers. Seal face materials other than silicon carbide shall not be allowed.

Pump impeller

The impeller shall be semi-open, non-clog, with ejector (pump out) vanes on the top of the impeller shroud for protection of the mechanical seal and to improve hydraulic balance. Only single plane dynamic balancing shall be required for smooth operation. The impeller shall be threaded to the shaft and not key driven. The impeller shall be designed such that the rotating cutter vanes can be accurately aligned to the impeller vanes for proper solids passage through the pump.

Pump 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 2 inch NPT suitable for direct connection to the station piping, without the use of any external fittings or adapters for vertical orientation of the discharge direction.

Major pump casting materials

The casing, bearing housing semi-open impeller and motor cover shall be of ASTM A48 class 30 high-quality cast iron for strength and long life.

Pump corrosion protection

The pump/motor shaft wetted-end shall be series 300 stainless steel. Both inner and outer surfaces of cast iron shall be electrocoat-painted with thermo-painted with thermo-setting Acrylic Enamel baked at 400º F., after castings are completely machined.

Pump 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 115/230V, single-phase. The 2HP AGS is 208-230V. The single-phase, .5 hp / 1 hp motor shall be capacitor start design. Motors shall be equipped with on winding thermostats connected in line to provide automatic reset operation.

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.

Pump 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 barrier 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 “SJTOW”. Models shall have a NEMA three-prong grounding plug. They shall have 14/3 SJTOW power cords.

Pump approvals

The pump(s) shall be UL or CSA approved. The pump nameplate shall have the approved markings and labels according to these approval agencies.



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