

HANCOCK COUNTY WATER & SEWER DISTRICT WOULD LIKE TO REQUEST SEALED BIDS FOR THE PURCHASE OF 100 RESIDENTIAL GRINDER PUMPS AS PER these specifications:

GRINDER PUMP SYSTEMS

1. SYSTEMS PRODUCTS – GRINDER PUMP

Pump Model / General Construction

Pump shall be a centrifugal sealed grinder type. Progressive Cavity or Positive Displacement (PD) pumps shall not be considered equal or allowed. The pump castings shall be high quality cast iron, ASTM A-48, Class 30. The impeller shall be multiple vane, centrifugal type, constructed of Class 30 cast iron, designed for maximum allowable flow. All external mating parts shall be machined and Buna-N Rubber O-ring seals. Fiber or paper gaskets shall not be acceptable. All fasteners exposed to the pumped liquid shall be 316 series stainless steel. The grinder unit shall be integrally built with a submersible type motor. The grinder pump shall be capable of macerating all material in normal domestic and commercial sewage including reasonable amounts of foreign objects such as small wood, sticks, plastic, thin rubber, sanitary napkins, disposable diapers and the like to a fine slurry that will pass freely through the pump and 1-1/4" discharge pipe. Pump weight shall not exceed 85 lbs.

1.1.1. Electrical Power/Control Cord

- 1.1.1.1. The motor power cord shall be 12 GA., SOOW water resistant CSA/U.L. approved.
- 1.1.1.2. The pump shall be protected with, and epoxy filled sealing gland. Stator lead connection to the power cord shall be accomplished outside the motor compartment and free from any oil.
- 1.1.1.3. The cord cap assembly shall be sealed with a sealing gland and filled with epoxy resin to prevent water from entering the pump if the cord is cut.

1.1.2. Motor

- 1.1.2.1. **Pump Motor shall be of the air filled type to promote superior cooling and longevity. Motor shall be at a minimum three horsepower (3HP), operating at maximum FLA amperage of 14.4 and shall rotate at a minimum of 3600 RPM**
- 1.1.2.2. The stator, rotor and bearings shall be mounted in a sealed submersible frame. The stator winding shall be of the open type with Class F insulation, (155[°] C or 311[°] F) and NEMA B design (3 phase), NEMA L design (single phase). Single phase motors shall be capacitor start, capacitor run type for high start torque. Capacitors must be changeable in field.
- 1.1.2.3. Pump shall be equipped with Overloads. The overloads shall be current sensitive, being current sensitive, as the current increases the heat increase until therefore opening the temperature sensitive device. It (they) shall be mounted directly in the stator and sized to open between 100±5°C and automatically reset at 87±9°C.
- 1.1.2.4. The stator shall be securely held in place by a press fit for maximum heat dissipation. Drop in or bolt down stators shall not be considered equal or allowed. The stator must be capable of being repaired or rewound by a local motor service center.
- 1.1.2.5. The motor frame shall be air filled for maximum heat dissipation by transferring heat from windings and rotor to outer shell. The pump and motor shall be specifically designed so that they may be operated two thirds or completely submerged in the liquid being pumped without compromise. The pump shall not require cooling water jackets. Dependence upon, or use of water jackets for supplemental cooling shall not be acceptable.

1.1.3. Bearings and Shaft

- 1.1.3.1. Motor shall have an upper single row ball radial bearing and two (2) lower double row ball thrust bearing. Ball bearings shall be designed for 65,000 hours B-10 life. Bearings are to be permanently lubricated by grease. Oil lubricated

bearings shall not be accepted.

- 1.1.3.2. The common motor pump and grinder shaft shall be machined from solid #400 series stainless steel and be designed for minimum shaft overhang to reduce shaft deflection and prolong bearing life.

1.1.4.Mechanical Seals

- 1.1.4.1. Motor shall be protected by a triple seal system. Two mechanical seals mounted in tandem with a lip seal between the pumped media and the mechanical seal. This will prevent stringy material from hampering the springs effectiveness. Seal chamber shall be oil filled to lubricate seal face and to transmit heat from shaft to outer shell. The rotor and stator in the motor housing shall be separated and protected from the pumped liquid by an oil filled seal housing incorporating One (1) Silicon Carbide vs Silicon Carbide and One (1) Carbon Ceramic vs Carbon Ceramic mechanical seals mounted in tandem. Single seal protection will not be considered equal. All hardware is to 300 series stainless steel and sealing elastomers are to Buna-N Rubber.

1.1.5.Pump Impeller

- 1.1.5.1. The impeller shall be designed for rough duty service and shall be of a ten vane, vortex design with hydrodynamic pump out vanes on the rear shroud. The impeller shall be constructed of cast iron. The impeller shall be of a non-overloading design. Impeller is to be keyed onto the pump/motor shaft.

1.1.6.Grinder Construction

- 1.1.6.1. Grinder assembly shall consist of grinder impeller and shredding ring and shall be mounted directly below the volute passage. Grinder impeller shall be threaded onto stainless shaft and shall be locked with nut and washer. The shredding ring shall be pressed into iron holding flange for easy removal. Flange shall be provided with tapped back-off holes so that screws can be used to push the shredding ring from housing. All grinding of solids shall be from action of the 16 rotating cutter impeller against the 27 stationary shredding ring cutters, producing 24,840 cuts per seconds to none. All grinder cutters and shredding ring shall be of 440 C stainless steel hardened to 58-60 Rockwell C.

The Hancock County Water & Sewer District will receive the sealed bids for the grinder pumps at their office located at 7040 Stennis Airport Road, Kiln, MS 39556 until 1:00 P.M. CST, September 22, 2022, and then at said office will be publicly opened and read aloud at the board meeting at 2:00 PM. The District reserves the right to accept or reject any or all bids received that do not meet the specifications of the advertisement. Ordered by a motion of the Board of Commissioners at their board meeting dated August 11, 2022. Hancock County Water and Sewer District is an equal opportunity Service Provider and Employer.