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Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



50Hz

ZM2416_Eb
0120
Supersedes
0614

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ZOELLER ENGINEERED PRODUCTS GUIDE SPECIFICATION 7021 Progressing Cavity Grinder Pump



1.01

GENERAL: Contractor shall furnish all labor, material, equipment and incidentals required to provide _____ (QTY) Model _____ progressing cavity grinder pump(s) certified to NSF 46 as specified herein.

2.01

OPERATING CONDITIONS: Each submersible pump shall be rated at 2 K.W., 230 volts, single phase, 50 Hz, 1400 R.P.M. The unit shall produce _____ L.P.M. (G.P.M.) at _____ meters (feet) of T.D.H.

The submersible pump shall be capable of handling sewage and grinding it into fine slurry, enabling it to be pumped over long distances in pipelines as small as 1.25" in diameter.

The pump shall be controlled with:

- _____ a piggyback float switch with Qwik-Box and remote high water alarm panel.
- _____ an integral float in the pump with a LPS panel with high water alarm.
- _____ a NEMA 4X simplex control panel with 3 float switches and high water alarm.

3.01

CONSTRUCTION: Each progressing cavity grinder pump shall be equal to the model or 7021 (2 KW) submersible progressing cavity type grinder pump as manufactured by Zoeller Engineered Products of Louisville, KY, USA. The castings shall be constructed of class 30 cast iron. The motor housing shall be finned and oil-filled to dissipate heat. All external-mating parts shall be machined and sealed with a viton square ring. All fasteners exposed to the liquid shall be 300 series stainless steel. The motor shall be protected in the event of cord damage with a sealed junction chamber which will prevent moisture wicking into the motor housing. The motor shall be protected on the lower side with a single mechanical seal. The upper and lower ball bearings shall be capable of handling all thrust and radial thrust loads. The pump housing shall be of the concentric design thereby equalizing the pressure forces inside the housing, which will extend the service life of the seals and bearings. The pump housing shall incorporate a pressure relief valve to protect the motor from overheating. The pump shall have a stainless steel lifting bracket.

4.01

ELECTRICAL POWER CORD: The submersible pump shall be supplied with _____ 6 m (20') for non-CE units, _____ 10 m (33') for CE units, _____ 11 m (35'), or _____ 15 m (50') of multiconductor power cord. It shall be H07RN for CE units; SOOW for standard unit type cord capable of continued exposure to the pumped liquid. Power cord shall be sized for the rated full load amp loading of the pump in accordance with all local and governing electrical codes or ordinances. Power cable shall enter into the junction chamber through a compression type-sealing gland. Water sealing and strain relief are separated. The entire junction chamber shall be sealed off from the motor housing by through wall terminals to protect the motor from moisture.

_____ Provide prewired conduit and junction box for connecting the pump and float switch cords in a flexible and water tight assembly supplying power to the system. Conduit length shall be _____ 11 m (35') or _____ 15 m (50').

5.01

MOTOR: The oil-filled motor shall be a Class B insulated NEMA B design rated for continuous duty. At maximum load, the winding temperature will not exceed 104°C (220°F) un-submerged. Since air-filled motors are not capable of dissipating heat, they shall not be considered equal. The pump motor shall have an integral thermal overload switch in the windings for protecting the motor. Bimetallic thermal sensors are not acceptable. The capacitor circuit shall be mounted internally in the pump's integral junction chamber.

6.01

BEARINGS AND SHAFT: Upper and lower ball bearings made of high carbon chromium steel shall be provided to prevent shaft deflection by withstanding all thrust and radial loads. The bearing system shall be designed to enable proper cutter alignments from shut off head to maximum load at 1.5 m (5') of TDH. The motor shaft shall be made of 416 stainless steel and have a minimum diameter of 1.905 cm (0.750").

7.01

SHAFT SEAL: Pump shall have a mechanical seal protecting the motor from the pumped liquid, seal assembly having carbon stationary and silicon carbide rotary faces with Buna-N elastomer and 316 stainless steel spring. It shall be equal to a Crane Type 6a configuration.

8.01

HYDRAULIC ROTOR AND STATOR: The hydraulic rotor shall be a precision machined, highly polished, helix design made of 304 stainless steel. The hydraulic stator shall be a helix design made from an injection molded, abrasion resistant Buna-N elastomer. The geometry of these two interacting parts will result in a double string of sealing cavities - formed when the rotor turns inside the stator. The cavities progress axially from the inlet to the outlet conveying the fluid.

8.02

CUTTER MECHANISM: The cutter and plate shall be constructed of 440C stainless steel with a Rockwell C hardness of 55 - 60. The stationary cutter plate shall have specially designed orifices machined through it which enable the slurry to flow through the pump housing at an equalized pressure and velocity. The double-bladed angled cutter, rotating against the plate in a scissor-like operation, will shred solids to less than 1/8".

9.01

PAINTING: The exterior castings of the pump shall be protected with green powder coated epoxy finish.

10.01

SERVICEABILITY: Components required for the repair of the pump shall be readily available. Components such as mechanical seals and bearings shall not be of a proprietary design and be readily available. Special tools shall not be required to service the pump.

11.01

SUPPORT: The pump shall have stainless steel support legs enabling it to be a free-standing unit. The legs will be high enough to allow solids and long stringy debris to enter the cutter assembly.

For "Outdoor" installations requiring a factory assembled basin package:

___ Simplex system with a ___ diameter by ___ depth basin used with the Z-Rail® disconnect rail system.

___ Simplex system with a ___ diameter by ___ depth basin used with the flex-hose disconnect system.

For "Indoor" installations requiring a factory assembled basin package:

___ Simplex system with a ___ diameter by ___ depth basin.

For installations requiring a field assembled system:

___ The pump shall be installed with a Z-Rail® system, in a ___ deep basin.

___ The pump shall be installed with a flex-hose disconnect system.

12.01

TESTING: Each pump shall be operated and tested in liquid during its production process. It shall be checked at its maximum running point for performance, amps, grounding, winding insulation, and water tightness.

___ An optional certified test based on the Hydraulic Institute or SWPA (Submersible Wastewater Pump Association) Test Standard for submersible pumps.

___ Start up services at the job site by an authorized representative of Zoeller Engineered Products shall be required. Start-up report form ZM1074_Eb should be completed in the presence of the installers and returned to the Project Engineer or Zoeller Engineered Products.

13.01

WARRANTY: Standard warranty shall be 12 months from date of installation or 18 months from date of manufacture. Warranty repairs shall be provided by an authorized service station.



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