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SECTION: 4.10.265

ZM3212

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New

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6922 GUIDE SPECIFICATION

E7020-7021 W/ Z-Rail® Disconnect System

SIMPLEX BASIN PACKAGE

1.01 GENERAL

Contractor shall furnish and install a packaged simplex pump station utilizing a submersible progressing cavity grinder as manufactured by Zoeller Engineered Products Co. (800-928-7867). The station shall include a pump, packaged 30" diameter polypropylene basin assembly, control panel and three float switches. The basin assembly is prepackaged with a Z-Rail® disconnect system using SS rail pipes, 1.25" PVC discharge piping and SS check & shut-off valves. The control panel and basin inlet fitting will be field installed. After the basin has been installed, the pump will be lowered down the rail pipes with a red polypropylene lifting rope. The basin's inlet and discharge piping, electrical disconnect, and back-fill materials will be supplied by the installer.

2.01 OPERATING CONDITIONS

Each pump shall be able to deliver ____ GPM against a total dynamic head of ____ feet. The pump will handle materials found in domestic sewage that are deemed acceptable by the local municipal authority. The electrical power source is 230 Volts single Phase.

3.01 BASIN ASSEMBLY

The rotomolded polyethylene basin shall be 30" diameter by 72" deep, have an anti-floatation collar, lifting lugs and a blank fiberglass cover. The wet-well material shall be constructed to withstand or exceed two times the assumed loading on any depth of the basin's side wall. The package shall be manufactured by a firm who has a minimum of 15 years' experience in producing prepackaged basin assemblies for submersible pumps.

Equipped with a rail system, 1.25" schedule 80 PVC discharge piping with SS check and Shut-off valves, float tree and pipe connections. A SS anti-siphon device shall be installed in the package, protecting the system from pressure fluctuations. The basin sidewall will have a 1.25" NPT bulkhead style discharge fitting. Each rail system shall have a guide rail assembly with two 3/4" stainless steel rail pipes for ease of installation and removal of pump. A ductile iron disconnect, fitted to the pump, shall engage and seal to the base coupling and discharge piping inside the basin from ground elevation while being guided by the two rail pipes. Packages utilizing a single guide rail are unacceptable as the guiding capability of these type systems is limited.

Three float switches will be positioned onto the PVC float tree at optimum elevations for the pump duty cycle and high water alarm. The float tree shall be easily accessed and removable for servicing from ground level outside the basin. The package shall allow for the unobstructed viewing of the basin contents, ease of service and identifying any foreign matter.

The basin will be installed by the contractor, using fill material covering the anti-floatation collar to prevent floatation during a high groundwater condition. Additionally, 12 inches of backfill material, pea-gravel or crushed stone, shall be provided to support the sides and bottom surfaces of the basin. The bottom of the excavation will be prepared with a compacted fill, preventing the movement or settlement of the basin.

4.01 PUMP

The pump shall be equal to the Zoeller Engineered Products model ____ 7020 (1 HP) / ____ 7021 (2 HP) progressing cavity grinder pump. The pump shall be listed as meeting UL 778, CSA C22.2 108 and NSF/ANSI 46 pump standards. The castings shall be protected with a powder coated epoxy coating. The motor housing shall be designed with cooling fins and be oil filled for superior heat dissipation and continuous lubrication of the seals and bearings. The machined surfaces between castings shall be sealed with Viton square rings. The PSC Class B motor with a 416 SS motor shaft is equipped with overload protections, upper & lower ball bearings and have a 1.2 service factor. The silicon carbide/carbon mechanical seal, seated into the SS deflection shield, shall protect the motor. The SOOW power cable shall be 35' long, sufficient to reach the panel without the need for field splices or a junction box. Air-filled motors will be unacceptable since they fail to meet the heat dissipation and lubricating properties of an oil-filled motor.

The pump housing will have a 1.25" NPT discharge. A pressure relief valve inserted into the pump housing shall protect the pump and system from excessive pressure. The hardened 440 C Rockwell C 55-60 Tri-Slice cutter, located at the suction of the pump, will grind up all solids to a 1/4" or smaller particle size. The surface of the stationary cutter plate is being continually cleared by the action and design of the two rotating blades. The SS helix hydraulic rotor, incorporating an upper deflection shield, rotates inside a Buna-N stator, pressurizes the liquid and forces it out into the sewer system. No liner is required to stabilize the hydrostatic stator's wall to withstand the pressure requirements of the system. The deflection shield, housing the mechanical shaft seal, protects the motor by preventing debris from getting entangled within the mechanism and maintaining its watertight integrity.

5.01 CONTROL PANEL

The control panel shall be housed in a non-metallic NEMA 4X enclosure with lockable hasp. The panel shall have an IEC rated motor contactor, pump circuit breaker, run light and HOA selector switch and high water alarm. The audible and visible high water alarm with test & silence switch will interface with a dry contact used for remote monitoring.

The panel's operating levels are configured for a three-float system; Pump Off, Pump On and High Water Alarm. The polypropylene floats will have 18-2 SJOW cordage, 35' in length.

Contractor shall be responsible for installing the panel per NEC code and in a manner that maintains the NEMA 4X rating. All conduit, cord connections, and enclosure openings are to be properly sealed in a manner that prevents any liquid or vapors from entering the enclosure.

All electric cables for pump and level controls will be pulled through a sealed conduit sized and buried per NEC code.

The contractor shall furnish and install a properly sized main disconnect switch, separate from the panel, installed on the service side of the panel, within eyesight of the panel and pump station per NEC code.

6.01 TESTING

The pump shall be tested under submerged conditions at the factory during the production process.

Once the assembly is installed and operational, the contractor is responsible for conducting a system start up using reporting form ZM1074, provided by Zoeller Company. A copy of this report shall be kept with the owner's records and another shall be sent to the manufacturer.

7.01 WARRANTY

Standard warranty shall be 24 months from date of purchase (proof of purchase required) or date of start up as listed on the start up report on file at Zoeller Company.

All equipment listed above shall be provided by pump manufacturer.



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