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SECTION: Z4.10.210
ZM1772
0311
Supersedes
0102

Submersible Wastewater Pump Association SWPA MEMBER

CONTROL PANEL GUIDE SPECIFICATIONS

Grinder Pump - Automatic Reversing

FAMILY OWNED AMERICAN PROUD

1.01 GENERAL:

Contractor shall furnish all labor, materials, equipment and incidentals required to provide a UL listed control panel compatible with the reversible grinder pump(s) specified.

The control panel shall be assembled and tested by a supplier meeting UL Standard 508 for industrial controls. The panel shall be provided by the same manufacturer supplying the submersible pump so as to insure compatibility and assurance in matching the proper panel and features with the pump being supplied and to assure single source responsibility for the equipment supplied.

The panel shall be of a

_____ Simplex (1 pump) configuration.
_____ Duplex (2 pump) configuration.

2.01 CONSTRUCTION:

The control panel shall be housed in a NEMA 4X thermoplastic enclosure. Panel shall include a high water alarm light, motor contactor, pump disconnect switch, control power disconnect switch, seal leak light, selector switches and pilot lights. The panel shall incorporate the automatic reversing function, which enables the cutter blades and impeller to rotate in either the clockwise or counter clockwise direction. With each duty cycle, the cutters will rotate in the opposite direction from the previous operational cycle. The duplex panel configuration shall incorporate a pump alternator function, which enables each pump to operate as the "lead" pump during the alternation sequence. The panel circuitry is to be mounted on a plate, which is bolted to the enclosure with 300 series SS fasteners. The enclosure shall have a hinged front cover with lockable hasp. The control panel shall provide adjustable overload protection if the pump(s) being controlled does not have an integral thermal overload protection in its motor winding. Single phase controls shall have capacitors and relay mounted in the control panel. The control panel shall include an internal seal leak monitoring circuit with indicator. A three phase control panel shall include a thermal cutout circuit, interfaced with the motor contactor and pump's thermal sensor. Pump run pilot lights and selector switches shall be mounted in the enclosure. The visual high water alarm shall be a top mounted red beacon with 360-degree visual check. The 120-volt control voltage shall be an external dedicated source in single-phase panel. A three-phase panel shall get its 120-volt control power from an internal transformer. A wiring schematic shall be provided and stored in a plastic packet provided in the enclosure. The schematic is to be an exact representation of the panel circuitry identifying the terminal locations for the float switch, pump(s) and incoming power connections. All ground wires shall be terminated at the grounding lug furnished inside the enclosure. Contractor is responsible for installing the panel so as to maintain the NEMA 4X rating. All conduit, cord connections and enclosure openings are to be properly sealed in a manner, which prevents any liquids or vapors from entering the enclosure. A properly sized and rated main disconnect switch, separate from the panel, is to be installed by the contractor in front of the panel and pump(s), per NEC Code.

3.01 OPTIONS:

_____ Audible high water alarm with silence switch.
_____ Flashing high water alarm light.
_____ Dry contact for remote monitoring of high water alarm conditions.
_____ Alternator selector switch. Enables the operator to either select the lead pump or allows the control system to automatically alternate the pumps with each duty cycle.
_____ Elapsed time meter. Tracks the number of hours that each pump has operated.
_____ Cycle counter. Tracks the number of cycles that each pump has operated.
_____ Seal leak relay with external indication.
_____ Inner door with dead front enclosure. The inner door is the mounting location for the pilot lights, selector

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switches and other optional monitoring features. Outer door is blank.

_____ Intrinsically safe relays. Enable the voltage passing through the float switches to decrease to less than 12 volts, which will prevent any arcing in case of float damage. Feature is required when a "hazardous environment" designation is applied.

_____ Redundant off switch. Provides an additional off switch, which will shut down the pump(s) in case the primary "off" float switch malfunctions.

_____ Lightning arrestor. Protect the panel components and pump motor from lightning strikes.

_____ Condensation heater. A thermostat, which protects the internal, panel components from moisture by keeping the air temperature above dew point.

4.01 FLOAT SWITCHES AND MOUNTING ACCESSORIES:

Provide _____(QTY.) UL listed control switches with normally open contacts, which close as the float tips slightly above the horizontal plane. Rated at 5 amps, with 2 conductor 16-gauge cable. Float housing to consist of high impact corrosion resistant PVC. The switch shall be suitable for intrinsically safe control circuits.

_____ Mounting type shall be of an externally cable weight where the switches shall be suspended from above with a cable bracket (not included).

_____ Mounting type shall be of a pipe type clamp where the float switch is attached to the discharge pipe or similar pipe.

The float switch cable length shall be: _____ 20 feet _____ 25 feet _____ 35 feet _____ 50 feet.

A cable bracket for suspending the externally weighted float switch shall be:

_____ Type 304 SS bracket with six-(6) 3/16" diameter hooks.

_____ 304 SS construction with cord grips for four (4) floats.

_____ Provide a watertight junction box suitably sized and constructed to accept and seal all float switch and pump cords located in the basin.

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