

SECTION 22 13 33
PACKAGED, SUBMERSIBLE SEWERAGE PUMP UNITS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Packaged submersible centrifugal sewerage pump units. See schedule on Drawings for pumps and capacity and heads.

1.2 RELATED WORK

- A. Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
 - 1. Pump:
 - a. Manufacturer and model.
 - b. Operating speed.
 - c. Capacity.
 - d. Characteristic performance curves.
 - 2. Motor:
 - a. Manufacturer.
 - b. Speed.
 - c. Current Characteristics and W (HP).
 - d. Efficiency.
- C. Certified copies of all the factory and construction site test data sheets and reports.
- D. Complete operating and maintenance manuals including wiring diagrams, technical data sheets and information for ordering replaceable parts:
 - 1. Include complete list indicating all components of the system.
 - 2. Include complete diagrams of the internal wiring for each item of equipment.
 - 3. Diagrams shall have their terminals identified to facilitate installation, operation and maintenance.

1.4 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. National Electrical Manufacturers Association (NEMA):
 - ICS6-93 (R2006).....Industrial Control and Systems Enclosures
 - 250-2008.....Enclosures for Electrical Equipment (1000 Volts Maximum)

C. Underwriters' Laboratories, Inc. (UL):

508-99 (R2008).....Standards For Safety Industrial Control
Equipment

PART 2 - PRODUCTS

2.1 SUBMERSIBLE SEWERAGE PUMP UNITS

- A. Simplex Centrifugal Type, submersible pumps, designed for 60 degrees C (140 degrees F) maximum water service. Driver shall be electric motor with rigid type support. Where hazardous environment condition exists, explosion proof pumps shall be installed.
 - 1. Pump housings may be cast iron, bronze, or stainless steel. Cast iron housings for submersible pumps shall be epoxy coated.
- B. Impeller: Cast iron, non-clog, to accommodate 50 mm (2") solids.
- C. Shaft: Bronze, stainless steel or other approved corrosion-resisting metal.
- D. Bearings: As required to hold alignment, anti-friction type for thrust, permanently lubricated.
- E. Motor: Maximum 40 degrees C (104 degrees F) ambient temperature rise, completely enclosed, voltage and phase as shown in schedule.
- F. Automatic Control and Level Alarm: The level control system will include sensors in the sump that detect the level of the liquid. The sensors may be float type switches, ultrasonic level sensors, transducers, or other appropriate equipment. The high water alarm shall have a buzzer, horn, or bell. The alarm shall have a silencing switch. Provide auxiliary contacts for remote alarming to the Energy Control Center and BAC net compatible open-protocol type interface to DDC Controls System.
- G. Sensors that detect the level of water in the sump shall be so arranged as to allow the accumulation of enough volume of liquid below the normal on level that the pump will run for a minimum cycle of one minute. Sensors shall be located to activate the alarm adequately before the water level rises to the inlet pipe.
- H. Sump: Provide polyethylene basin with gas tight covers. Covers shall have a manhole with a bolted cover of minimum size to inspect and service the pumps, vent connection, and openings for pumps and controls.
- I. Provide a union, check and ball valve in the discharge from each pump.

PART 3 - EXECUTION

3.1 STARTUP AND TESTING

- A. Make tests as recommended by product manufacturer and listed standards and under actual or simulated operating conditions and prove full compliance with design and specified requirements. Tests of the various

items of equipment shall be performed simultaneously with the system of which each item is an integral part.

B. The tests shall include system capacity, and all control and alarm functions.

C. When any defects are detected, correct defects and repeat test.

3.2 DEMONSTRATION AND TRAINING

A. Provide services of manufacturer's technical representative for four hours to instruct VA Personnel in operation and maintenance of units.

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