

SECTION 22 13 29 - GREASE WASTE AND SANITARY SEWAGE PUMPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Division 31 for "EARTHWORK".

1.2 SUMMARY

- A. Section Includes:
 - 1. Submersible sewage pumps.
 - 2. Sewage-pump basins and basin covers.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- B. Wiring Diagrams: For power, signal, and control wiring.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For pumps and controls, to include in operation and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. UL Compliance: Comply with UL 778 for motor-operated water pumps.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Retain shipping flange protective covers and protective coatings during storage.
- B. Protect bearings and couplings against damage.
- C. Comply with pump manufacturer's written rigging instructions for handling.

1.7 COORDINATION

- A. Coordinate sizes and locations of steel bases with actual equipment provided.

1.8 WARRANTY

- A. Repair all defective workmanship or replace all defective materials for a period of one year from the date of acceptance by the Owner. Workmanship or equipment found to be defective during that period shall be replaced without cost to the Owner.

PART 2 - PRODUCTS

2.1 SUBMERSIBLE SEWAGE PUMPS

- B. Submersible, Grinder/Slicer Sewage Pumps:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work are limited to, the following:
 - a. FLYGT Products
 - b. Weil Pump Company, Inc.
 - c. Zoeller Company
 - d. Weinman Pumps
 - e. Little Giant
 - f. BJM
 - g. Paco
 - h. Myers
 - i. Goulds
 - j. Crane
 - k. Swaby
 2. Description: Factory-assembled and -tested, grinder/slicer sewage-pump unit with guide-rail supports. Temperature rating 120 degrees F minimum.
 3. Pump Type: Submersible, end-suction, single-stage, close-coupled, overhung-impeller, centrifugal sewage pump as defined in HI 1.1-1.2 and HI 1.3.
 4. Pump Casing: Cast iron, with open inlet, and discharge fittings for connection to guide-rail supports.
 5. Impeller: Stainless steel; statically and dynamically balanced, with stainless-steel cutter, grinder, or slicer assembly; capable of handling solids; and keyed and secured to shaft.
 6. Pump and Motor Shaft: Stainless steel with factory-sealed, grease-lubricated ball bearings.
 7. Seal: Mechanical.
 8. Motor: Hermetically sealed, capacitor-start type; with built-in overload protection; lifting eye or lug; and three-conductor, waterproof power cable of length required and with grounding plug and cable-sealing assembly for connection at pump.
 - a. Motor Housing Fluid: Oil.
 9. Controls:

- a. Enclosure: NEMA 250, Type 4X; wall-mounted.
 - b. Switch Type: Mercury-float type, in NEMA 250, Type 6 enclosures with mounting rod and electric cables. Temperature rating 120 degrees F minimum.
 - c. Automatic Alternator: Start pumps on successive cycles and start multiple pumps if one cannot handle load.
 - d. High-Water Alarm: Rod-mounted, NEMA 250, Type 6 enclosure with mechanical-float, mercury-float, or pressure switch matching control and electric bell; 120-V ac, with transformer and contacts for remote alarm bell.
10. Control-Interface Features:
- a. Remote Alarm Contacts: For remote alarm interface.
 - b. Building Automation System Interface: Auxiliary contacts in pump controls for interface to building automation system and capable of providing the following:
 - 1) On-off status of pump.
 - 2) Alarm status.
11. Guide-Rail Supports:
- a. Standard: SWPA's "Submersible Sewage Pumping Systems (SWPA) Handbook."
 - b. Guide Rails: Vertical pipes or structural members, made of galvanized steel or other corrosion-resistant metal, attached to baseplate and basin sidewall or cover.
 - c. Baseplate: Corrosion-resistant metal plate, attached to basin floor, supporting guide rails and stationary elbow.
 - d. Pump Yoke: Motor-mounted or casing-mounted yokes or other attachments for aligning pump during connection of flanges.
 - e. Movable Elbow: Pump discharge-elbow fitting with flange, seal, and positioning device.
 - f. Stationary Elbow: Fixed discharge-elbow fitting with flange that mates to movable-elbow flange and support attached to baseplate.
 - g. Lifting Cable: Stainless steel; attached to pump and cover at manhole.

2.2 SEWAGE-PUMP BASINS AND BASIN COVERS

- A. Basins: Factory-fabricated, watertight, cylindrical, basin sump with top flange, manway and sidewall openings for pipe connections.
 - 1. Material: High density polyethylene (HDPE).
 - 2. Reinforcement: Mounting plates for pumps, fittings, guide-rail supports and accessories.
 - 3. Anchor Flange: Same material as or compatible with basin sump, attached to sump, in location and of size required to anchor basin to concrete slab.

- B. Basin Covers: Fabricate HDPE cover with openings having gaskets, seals, and bushings; for access to pumps, pump shafts, control rods, discharge piping, vent connections, and power cables.

2.3 MOTORS

- A. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 220513 "Common Motor Requirements for Plumbing Equipment."
 - 1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
- B. Motors for submersible pumps shall be hermetically sealed.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for plumbing piping to verify actual locations of grease waste, sanitary drainage and vent piping connections before sewage pump installation.

3.2 INSTALLATION

- A. Pump Installation Standards:
 - 1. Comply with HI 1.4 for installation of centrifugal pumps.
 - 2. Comply with HI 3.1-3.5 for installation of progressing-cavity sewage pumps.
- B. Wiring Method: Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
- C. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

3.3 CONNECTIONS

- A. Comply with requirements for piping specified in Section 221316 "Sanitary Waste and Vent Piping." Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to equipment to allow service and maintenance.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- C. Tests and Inspections:
1. Perform each visual and mechanical inspection.
 2. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Pumps and controls will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.

3.5 STARTUP SERVICE

- A. Perform startup service.
1. Complete installation and startup checks according to manufacturer's written instructions.

3.6 ADJUSTING

- A. Adjust pumps to function smoothly, and lubricate as recommended by manufacturer.
- B. Adjust control set points.

3.7 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain controls and pumps.

END OF SECTION

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