

SECTION 22 14 29 - SUMP PUMPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Packaged drainage-pump units - submersible.

1.2 ACTION SUBMITTALS

- A. Product Data:
 - 1. Packaged drainage-pump units - submersible.
- B. Product Data Submittals: For each product.
 - 1. Construction details, material descriptions, dimensions of individual components and profiles.
 - 2. Rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- C. Shop Drawings:
 - 1. Include plans, elevations, sections, and mounting attachment details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include diagrams for power, signal, and control wiring.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For pumps and controls.
 - 1. Indicate actual installed items by marking submittals with an arrow or box.

1.4 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 manufacturer's written instructions for handling.

1.5 WARRANTY

- A. Manufacturer Warranty: Manufacturer and Installer agree to repair or replace sump pumps that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Faulty operation of on-off sensing mechanism
 - b. Deterioration of metals, metal finishes, and other materials beyond normal use.
 - c. Oil separator not removing hydrocarbons from the waste stream
 - 2. Warranty Period: 1 year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain each type of sump pump from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

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

2.3 PACKAGED DRAINAGE-PUMP UNITS - SUBMERSIBLE

- A. Packaged Drainage-Pump Units - Submersible:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. A.Y. McDonald Mfg. Co.
 - b. Liberty Pumps.
 - c. Little Giant; a brand of Franklin Electric Co., Inc.
 - d. Park USA, a Northwest Pipe Company
 - e. Pentair Aurora; Pentair Pump Group.
 - f. Zoeller Company.
 - 2. Description: Factory-assembled and -tested, automatic-operation, sump-mounted, sump-pump unit.
 - 3. Pump Type: Submersible, end-suction, single-stage, close-coupled, overhung-impeller centrifugal pump as defined in HI 14.1-14.2 and HI 14.3.
 - 4. Casing: Metal
 - 5. Impeller: Brass.
 - 6. Pump Seal: Mechanical.
 - 7. Motor: Hermetically sealed, capacitor-start type, with built-in overload protection.
 - 8. Power Cord: Three-conductor waterproof cable of length required, but not less than 72 inches, with grounding plug and cable-sealing assembly for connection at pump.
 - 9. Pump Discharge Piping: Field-fabricated, Type L Copper.
 - 10. Control Panel: Located in Janitors Closet with oil-separator.
 - 11. 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.
 - 12. Basin: Concrete, formed in place in the elevator pit
 - 13. Capacities and Characteristics: See "PUMP SCHEDULE" on drawing "P-001-LEGENDS, NOTES & SCHEDULES - PLUMBING"
 - 14. Oil-water separator:
 - a. Free standing
 - b. Minimum 50 GPM flow through capacity.
 - c. Oil storage capacity of 100 gallons

- d. NPS 2 vent connection to atmosphere
- e. Oil separator discharges indirectly to the sanitary or storm system.

2.4 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 that driven load will not require motor to operate in service factor range above 1.0.
- B. Motors for submersible pumps are to be hermetically sealed.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for plumbing piping to verify actual locations of storm drainage piping connections before sump-pump installation.
- B. Coordinate sump location with structural foundation and elevator manufacturer.

3.2 INSTALLATION

- A. Pump Installation Standards: Comply with HI 14.4 for installation of sump pumps.
- B. Wiring Method: Comply with requirements in "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 PIPING CONNECTIONS

- A. Comply with requirements for piping specified in Section 221414 "Storm Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Where installing piping adjacent to equipment, allow space for service and maintenance.
- C. Sump pump discharge piping shall have a full-open valve and check valve. The valves shall be located as close as possible to the sump and shall be accessible.

3.4 STARTUP SERVICE

- A. Perform startup service.
 - 1. Complete installation and startup checks in accordance with manufacturer's written instructions.

3.5 ADJUSTING

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

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test, inspect, and adjust components, assemblies, and equipment installations, including connections.
- 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.
5. Pumps and controls will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

3.7 DEMONSTRATION

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

END OF SECTION