

**SECTION 213413 PRESSURE-MAINTENANCE PUMPS**

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Regenerative-turbine, pressure-maintenance pumps.
2. Vertical-turbine, pressure-maintenance pumps.

B. Related Requirements:

1. Section 262933 "Controllers for Fire-Pump Drivers" for pressure-maintenance-pump controllers.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For pumps, accessories, and specialties.

1. Include plans, elevations, sections, and 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 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 VERTICAL-TURBINE, PRESSURE-MAINTENANCE PUMPS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. A-C Fire Pump; a Xylem brand.

2. Aurora Pump; Pentair Ltd.
  3. Peerless Pump Company.
  4. Ruhrpumpen, Inc.
  5. Or approved equal
- B. Description: Factory-assembled and -tested, vertical, multistage, open-line-shaft turbine pump as defined in HI 2.1-2.2 and HI 2.3; with pump motor mounted above pump head.
- C. Pump Construction:
1. Pump Head: Cast iron, for surface discharge, with flange except connections may be threaded in sizes in which flanges are not available.
  2. Pump Head Seal: Stuffing box and stuffing.
  3. Line Shaft: Stainless steel or steel, with corrosion-resistant shaft sleeves.
  4. Line Shaft Bearings: Rubber sleeve, water lubricated.
  5. Line Shaft: Steel.
  6. Line Shaft Bearings: Corrosion resistant, oil lubricated.
  7. Impeller Shaft: Monel metal or stainless steel.
  8. Bowl Section: Multiple cast-iron bowls with closed-type bronze or stainless-steel impellers.
  9. Column Pipe: ASTM A53/A53M, Schedule 40, galvanized-steel pipe with threaded ends and cast-iron or steel fittings, in sections 10 feet or less, with strainer of cast or fabricated bronze or stainless steel at bottom.
- D. 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.
- E. Motor: Single speed with permanently lubricated ball bearings. Comply with requirements in Section 210513 "Common Motor Requirements for Fire Suppression Equipment."
1. Power Cord: Factory-connected to motor for field connection to controller and at least 10 feet long.
- F. Base: Cast iron or steel with hole for electrical cable.
- G. Nameplate: Permanently attached to pump and indicating capacity and characteristics.

## 2.2 MOTORS

- A. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 210513 "Common Motor Requirements for Fire Suppression 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.

### PART 3 - EXECUTION

#### 3.1 EQUIPMENT INSTALLATION

- A. NFPA Standard: Comply with NFPA 20 for installation of pressure-maintenance pumps.
- B. Equipment Mounting:
  - 1. Install regenerative-turbine, pressure-maintenance pumps according to HI 1.4.
  - 2. Install vertical-turbine, pressure-maintenance pumps according to HI 2.4.
  - 3. Install base-mounted pumps on cast-in-place concrete equipment base(s). Comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."
    - a. Comply with requirements for vibration isolation and seismic control devices specified in Section 210548 "Vibration and Seismic Controls for Fire-Suppression Piping and Equipment."
    - b. Comply with requirements for vibration isolation devices specified in Section 210548 "Vibration Controls for Fire-Suppression Piping and Equipment."
    - c. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
    - d. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
    - e. Install anchor bolts to elevations required for proper attachment to supported equipment.
    - f. Attach pumps to equipment base using anchor bolts.
    - g. Shim pumps as needed to make them level.
  - 4. Install isolation valves in both inlet and outlet pipes near the pump. Comply with requirements for valves specified in Section 211313 "Wet-Pipe Sprinkler Systems."

#### 3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
  - 1. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
  - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
  - 3. Pressure-maintenance pumps will be considered defective if they do not pass tests and inspections.
- B. Prepare test and inspection reports.

#### 3.3 ADJUSTING

- A. Lubricate pumps as recommended by manufacturer.

- B. Set field-adjustable pressure-switch ranges as indicated.

END OF SECTION 213413