

## SECTION 213413 - PRESSURE-MAINTENANCE PUMPS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. 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. 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.
- B. 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: 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 (3 m) or less, with strainer of cast or fabricated bronze or stainless steel at bottom.
- C. 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.
- D. 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 (3 m) long.
- E. Base: Cast iron or steel with hole for electrical cable.
- F. Nameplate: Permanently attached to pump and indicating capacity and characteristics.
- G. Capacities and Characteristics: (Minimum Requirements)
1. Rated Capacity: 10 gpm
  2. Total Dynamic Head: varies (To be determined by the Register Design Professional)
  3. Working Pressure: 175 psig .
  4. Inlet and Outlet Size: 1-1/4 inch NPS
  5. Inlet and Outlet Flange: Class 300
  6. Motor Horsepower: 1
  7. Motor Speed: 3500 rpm
  8. Electrical Characteristics:
    - a. Volts: 240.
    - b. Phases: Three.
    - c. Hertz: 60.

## 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 vertical-turbine, pressure-maintenance pumps according to HI 2.4.
  - 2. 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 210548.13 "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.
  - 3. 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:
  - 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