

SECTION 232223 - STEAM CONDENSATE PUMPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes steam condensate pumps.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 SINGLE-STAGE, CENTRIFUGAL PUMPS WITH FLOOR-MOUNTED RECEIVER

- A. Description: Factory-fabricated, packaged, electric-driven pumps; with receiver, pumps, controls, and accessories suitable for operation with steam condensate.
 - 1. 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. Configuration: Simplex or Duplex floor-mounted pump with receiver and float switches; rated to pump 200 deg F (93 deg C) steam condensate.
- C. Receiver:
 - 1. Floor mounted.
 - 2. Close-grained cast iron or Welded steel.
 - 3. Externally adjustable float switches.
 - 4. Flanges for pump mounting.
 - 5. Water-level gage and dial thermometer.
 - 6. Pressure gage at pump discharge.
 - 7. Bronze fitting isolation valve between pump and receiver.
 - 8. Lifting eyebolts.
 - 9. Inlet vent and an overflow.
 - 10. Cast-iron inlet strainer with vertical self-cleaning bronze screen and large dirt pocket.
- D. Pumps:

1. Centrifugal, close coupled, vertical design.
2. Permanently aligned.
3. Bronze fitted.
4. Replaceable bronze case ring.
5. Mechanical seals rated at 250 deg F (120 deg C).
6. Mounted on receiver flange.

E. Motor:

1. Comply with NEMA designation, temperature rating, service factor, and efficiency requirements.
2. Enclosure Materials: Rolled steel.
3. Motor Bearings: Permanently lubricated ball bearings.
4. Efficiency: Premium efficient.

F. Control Panel:

1. Factory wired between pumps and float switches, for single external electrical connection.
2. Provide fused, control-power transformer if voltage exceeds 230 V ac.
3. NEMA 250, Type 1 enclosure with hinged door and grounding lug, mounted on pump.
4. Motor controller for each pump.
5. Electrical pump alternator to operate pumps in lead-lag sequence and allow both pumps to operate on receiver high level.
6. Manual lead-lag control to override electrical pump alternator and manually select the lead pump.
7. Momentary-contact "TEST" push button on cover for each pump.
8. Numbered terminal strip.
9. Disconnect switch.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install pumps to provide access for periodic maintenance including removing motors, impellers, couplings, and accessories.
- B. Support pumps and piping separately so piping is not supported by pumps.
- C. Install thermometers and pressure gages.
- D. Equipment Mounting: Install pumps on cast-in-place concrete equipment bases.
 1. Coordinate sizes and locations of concrete bases with actual equipment provided.
 2. Construct bases to withstand, without damage to equipment, seismic force required by code.
 3. Construct concrete bases 4 inches (100 mm) high and extend base not less than 6 inches (150 mm) in all directions beyond the maximum dimensions of pumps unless otherwise indicated or unless required for seismic-anchor support.

4. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.

3.2 CONNECTIONS

- A. Comply with requirements for piping specified in Section 232213 "Steam and Condensate Heating Piping." Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Where installing piping adjacent to machine, allow space for service and maintenance.
- C. Install a globe and check valve and pressure gage before inlet of each pump and a gate and check valve at pump outlet.
- D. Pipe drain to nearest sump pump pit for overflow and drain piping connections.
- E. Install full-size vent piping to outdoors, terminating in 180-degree elbow at point above highest steam system connection or as indicated.

END OF SECTION 232223