

SECTION 15570

CONDENSATE PUMP AND RECEIVER SETS

PART 1 – DESIGN DIRECTIVES

1.1 QUALITY ASSURANCE

- A. Firms regularly engaged in manufacture of condensate pump and receiver sets with characteristics, sizes and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.

1.2 DESIGN CRITERIA

- A. The designer shall investigate where condensate is being pumped from the building and determine the appropriate receiver size & pump characteristics.
- B. Where condensate pumps are located in pits, the designer shall provide sufficient area to perform maintenance on the pump set and shall have a floor drain (sanitary) in the pit.
- C. Each pump set shall have an isolation valve before the inlet of the receiver with a plugged drain valve (3/4" steel) on the system side of the isolation valve.
- D. *Designer shall indicate on the drawings the size of the receiver vent pipe and the routing of the pipe. The designer is responsible for coordination with the architect and FOM as to the appropriate location of the vent terminal. All receivers shall be vented to the exterior of the building.*

1.3 SUBMITTALS

- A. Submit manufacturer's technical product data, including current accurate pump characteristic performance curves with selection points clearly indicated, weights, furnished specialties and accessories; and installation and start up instructions.
- B. Submit manufacturer's assembly-type shop drawings indicating dimensions, weight loadings, required clearances, and methods of assembly of components.
- C. Submit manufacturer's electrical requirements for power supply wiring to condensate pump and receiver sets. Submit manufacturer's ladder-type wiring diagrams for interlock and control wiring. Clearly differentiate between portions of wiring that are factory-installed and portions to be field-installed.
- D. Submit maintenance data and parts list for each type of condensate pump and receiver set, motor, control, and accessory; including "trouble-shooting" maintenance guide. Include this data, product data, shop drawings, and wiring diagrams in maintenance manual; in accordance with requirements of Division 1.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Handle condensate pump and receiver sets carefully to prevent damage, breaking, denting and scoring. Do not install damaged sets or components; replace with new.
- B. Store condensate pump and receiver sets in clean dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage.

- C. Comply with Manufacturer's rigging and installation instructions for unloading condensate pump and receiver sets, and moving them to final location.

**PART 2 - PRODUCTS**

**2.1 DUPLEX CONDENSATE PUMP AND RECEIVER SETS**

- A. Provide condensate pump and receiver sets, of capacity as scheduled, consisting of cast-iron receiver, inlet strainer, two water pumps, two float switches, electrical controls, and accessories.
- B. Construct receiver of close-grained cast iron. Equip with two externally adjustable 2-pole float switches, water level gage, condensate thermometer, two pump discharge pressure gages, bronze isolation valve between receiver and each pump, and 2 lifting eye bolts.
- C. Equip receiver inlet with cast-iron inlet basket strainer with self-cleaning bronze screen, dirt pocket, and clean out ball valve.
- D. Flange mount centrifugal water pump on receiver. Provide close-coupled pump, vertical design, permanently aligned, bronze fitted, equipped with stainless steel shaft, enclosed bronze impeller, renewable bronze case ring, mechanical shaft seal, and suction butterfly valve. Seals must be rated for 250°F. Provide open drip proof motor close coupled to pump. Pump shall be rated for maximum 2' NPSH @ 210°F (sea level).
- E. Provide NEMA II control cabinet mounted on pump unit, factory-wired for external electrical connection only, with hinged door and grounding lug. Each pump shall be electrically independent allowing removal of one pump while the second pump is fully operational. Provide the following within cabinet:
  - 1. Combination magnetic starter for each pump.
  - 2. Mechanical alternator.
  - 3. Momentary contact "Test" push buttons for each pump.
  - 4. Numbered terminal strip.
  - 5. Fusible control circuit transformer for each circuit.
  - 6. Disconnect switches for each pump.
  - 7. Auto-off-hand selectors switch for each pump.
  - 8. High water alarm contact.
- F. Provide completely independent pump control circuit for each pump. Provide electrical alternator to:
  - 1. Change operating sequence automatically after each cycle.
  - 2. Provide simultaneous operation under peak load conditions.
  - 3. Operate idle pump automatically, should active pump or its control fail.
- G. Manufacturers: Subject to compliance with requirements, provide condensate pump and receiver sets of one of the following:
  - 1. Skidmore – VCS series
  - 2. Spirax/Sarco V series

**PART 3 - EXECUTION**

**3.1 INSTALLATION OF CONDENSATE PUMP AND RECEIVER SETS**

- A. Install condensate pump and receiver sets in accordance with manufacturer's published installation instructions. Comply with recognized industry practices to ensure that condensate pump and receiver sets perform with the requirements and serve the intended purposes.
- B. Provide a minimum 2' access space around unit for service, but in no case less than that recommended by manufacturer.
- C. Install condensate pump and receiver sets on 4" thick reinforced concrete pad, 4" larger on each side than unit base (including the pumps). Anchor units to pad using inserts or anchor bolts.
- D. Install electrical devices furnished by the manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to Electrical Installer.
- E. Vent condensate receiver to the exterior of the building in an obvious location as directed by FO&M. Vent pipe shall continuously pitch back to the receiver. Size condensate vent pipe per the manufacturer's recommendations.

**3.2 ADJUSTING AND CLEANING**

- A. After installation is complete, start up condensate pump and receiver sets in accordance with manufacturer's start-up instructions.
- B. Set float switches to operate at proper levels. Check for proper rotation of 3-phase motors. Test controls and demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.
- C. Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

END OF SECTION 15570