

SECTION 23 57 00 - HEAT EXCHANGERS FOR HVAC

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes shell-and-tube and plate heat exchangers.

1.2 SUBMITTALS

- A. Product Data: Include rated capacities, operating characteristics, furnished specialties, and accessories.
- B. Coordination Drawings: Equipment room, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Tube-removal space.
 - 2. Structural members to which heat exchangers will be attached.

1.3 QUALITY ASSURANCE

- A. ASME Compliance: Fabricate and label heat exchangers to comply with ASME Boiler and Pressure Vessel Code: Section VIII, "Pressure Vessels," Division 1.

PART 2 - PRODUCTS

2.1 SHELL-AND-TUBE HEAT EXCHANGERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
 - 1. API Heat Transfer Inc.
 - 2. Armstrong Pumps, Inc.
 - 3. ITT Industries; Bell & Gossett.
 - 4. Taco, Inc.
 - 5. Thrush Company, Inc.
- B. Configuration: U-tube with removable bundle.
- C. Shell Materials: Steel.

D. Head:

1. Materials: Cast iron.
2. Flanged and bolted to shell.

E. Tube:

1. Seamless copper tubes.
2. Tube diameter is determined by manufacturer based on service.

F. Tubesheet Material: Steel.

G. Baffles: Steel.

H. Piping Connections:

1. Inlet and outlet fluid connections, threaded drain, and vent connections.

I. Support Saddles:

1. Fabricated of material similar to shell.
2. Foot mount with provision for anchoring to support.
3. Fabricate attachment of saddle supports to pressure vessel with reinforcement strong enough to resist heat exchanger movement during a seismic event when heat exchanger saddles are anchored to building structure.

2.2 GASKETED PLATE HEAT EXCHANGERS

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

1. Alfa Laval Thermal, Inc.
2. API Heat Transfer Inc.
3. Armstrong Pumps, Inc.
4. Invensys APV, Inc.
5. ITT Industries; Bell & Gossett.
6. Mueller, Paul Company.
7. Tranter PHE, Inc.

B. Configuration: Freestanding assembly consisting of frame support, top and bottom carrying and guide bars, fixed and movable end plates, tie rods, individually removable plates, and one-piece gaskets.

C. Frame:

1. Capacity to accommodate 20 percent additional plates.
2. Painted carbon steel with provisions for anchoring to support.

- D. Top and Bottom Carrying and Guide Bars: Painted carbon steel, aluminum, or stainless steel.
 - 1. Fabricate attachment of heat-exchanger carrying and guide bars with reinforcement strong enough to resist heat-exchanger movement during a seismic event when heat-exchanger carrying and guide bars are anchored to building structure.
- E. End-Plate Material: Painted carbon steel.
- F. Tie Rods and Nuts: Steel or stainless steel.
- G. Plate Material: 0.024 inch thick before stamping; Type 304 stainless steel.
- H. Gasket Material: **[Nitrile rubber] [EPDM]**.
- I. Piping Connections:
 - 1. Threaded port for NPS 2 and smaller. For larger sizes, furnish end-plate port with threaded studs suitable for flanged connection.
- J. Enclose plates in a solid aluminum removable shroud.

2.3 BRAZED PLATE HEAT EXCHANGERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
 - 1. Alfa Laval Thermal, Inc.
 - 2. API Heat Transfer Inc.
 - 3. Armstrong Pumps, Inc.
 - 4. FlatPlate, Inc.
 - 5. Invensys APV, Inc.
 - 6. ITT Industries; Bell & Gossett.
 - 7. Mueller, Paul Company.
 - 8. Tranter PHE, Inc.
- B. Configuration: Brazed assembly consisting of two end plates, one with threaded nozzles and pattern-embossed plates.
- C. End-Plate Material: Type 316 stainless steel.
- D. Threaded Nozzles: Type 316 stainless steel.
- E. Plate Material: Type 316 stainless steel.
- F. Brazing Material: Copper or nickel.

PART 3 - EXECUTION

3.1 HEAT-EXCHANGER INSTALLATION

- A. Install shell-and-tube heat exchangers on saddle supports.
- B. Install shell-and-tube heat exchangers on, and anchor to, concrete base.

3.2 CONNECTIONS

- A. Install shutoff valves at heat exchanger inlet and outlet connections.
- B. Install relief valves on heat exchanger heated-fluid connection and install pipe relief valves, full size of valve connection, to floor drain.
- C. Install vacuum breaker at heat exchanger steam inlet connection.
- D. Install hose end valve to drain shell.

END OF SECTION 23 57 00