

SECTION 223400

PLUMBING EQUIPMENT

PART 1 GENERAL

1.1 STIPULATIONS

- A. The General Conditions, drawings and all other attached documents form a part of this Section and all other Sections by reference thereto and have the same force and effect as if printed herewith in full. The Contractor shall be strictly accountable for the cognizance of carrying out the provisions thereof.

1.2 SECTION INCLUDES

- A. Work in this Section includes the following:

1. Water Heaters

PART 2 PRODUCTS

2.1 WATER HEATERS

1. GAS-FIRED, TANKLESS, DOMESTIC-WATER HEATERS

- a. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
- (1). Rinnai
  - (2). Or approved equal
- b. Standard: ANSI Z21.10.3/CSA 4.3 for gas-fired, instantaneous, domestic-water heaters for indoor application.
- c. Construction: Copper piping or tubing complying with NSF 61 barrier materials for potable water, without storage capacity.
- (1). Tappings: ASME B1.20.1 pipe thread.
  - (2). Pressure Rating: 150 psig.
  - (3). Heat Exchanger: Copper tubing.
  - (4). Insulation: Comply with ASHRAE/IESNA 90.1.
  - (5). Jacket: Metal, with enameled finish.
  - (6). Burner: For use with tankless, domestic-water heaters and natural-gas fuel.
  - (7). Automatic Ignition: Manufacturer's proprietary system for automatic, gas ignition.
  - (8). Temperature Control: Adjustable thermostat.
- d. Support: Bracket for wall mounting.
- e. Capacity and Characteristics:
- (1). Flow Rate: 3.25 gpm at 100 deg F temperature rise.
  - (2). Temperature Setting: 120 deg F.

- (3). Maximum Fuel Gas Input: 199,900 Btu/h.
- (4). Electrical Characteristics:
  - (a). Volts: 120.
  - (b). Phase: Single.
  - (c). Hertz: 60.
  - (d). Full-Load Amperes: 2.
  - (e). Maximum Overcurrent Protection: 15.
- (5). Vent Diameter: 3 inches.
- (6). Combustion Air Diameter: 3 inches.

## 2.2 EXPANSION TANK

- A. Pre-pressurized diaphragm type steel expansion tank. Tank shall conform to ASME Section VIII construction for 125 psig, (200 psig WOG), tank shall have rigid polypropylene lining for corrosion control, butyl rubber diaphragm. Provide pressure gage on system connection piping. (When system water pressure exceeds 80 psig provide a pressure regulating valve on the cold-water supply to the water heater.)
- B. Thermal expansion tank shall be installed to absorb expansion from hot water generator and storage tanks under no-flow or low-flow conditions. System connection shall be not located upstream of check valves or regulating valves or downstream of mixing valves or in a manner that shall negate this purpose.
- C. Thermal expansion tank pressurization shall be field charged to match the domestic water system pressure when pumps are energized but when water temperature in storage tank is at 40 to 80°F temperature. Acceptance volume shall be based upon the difference between system pressure and temperature relief valve pressure).

- 1. Amtrol, Inc.

EXPANSION TANK MODEL  
ST-12

- 2. Bell & Gossett
- 3. Thrush
- 4. Wessels Company

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. All equipment, piping and accessories shall be installed in strict accordance with manufacturer's requirements.
- B. Piping shall be all of the same material, mixed copper, steel installations are prohibited.
- C. Provide isolation valves for all equipment, and accessories.

- D. Unions shall be provided adjacent to all equipment or wherever necessary to facilitate the removal of equipment for repair or replacement. Unions for copper tubing up to and including 2" diameter shall be brass ground joint with socket ends for solder. Unions for copper tubing 2-1/2" in diameter and over shall be standard brass flanges with socket ends for solder. Flanges to be drilled for ASA Standard 125 lbs. flanges and so stamped. No lip type unions or long screws will be permitted. The Contractor shall furnish and install all structural steel angles, channels, etc. necessary to properly support all fixtures and equipment to the satisfaction of the Professional.
- E. Furnish and install isolation valves at the cold water and hot water supply tapings and an AGA/ASME pressure and temperature relief valve for each water heater.

END OF SECTION