

SECTION 23 13 00 - GAUGES AND THERMOMETERS**PART 1 - GENERAL****1.1 WORK INCLUDED**

- A. Provide labor, materials, equipment and services to perform operations required for the complete installation and related Work as required in Contract Documents.

1.2 SUBMITTALS

- A. Gauges and thermometers.

PART 2 - PRODUCTS**2.1 WATER PRESSURE GAUGES**

- A. Construction to be Bourdon tube type; 4-1/2 in. diameter, minimum dial face, in cast aluminum case, with snap-on rings. Phosphor bronze tube, bronze bushed rotary movement, silver brazed or soldered to brass socket and brass tip, 1/4 in. bottom connection. Accuracy, one (1.0) percent of included scale range. White dial face with black numerals, graduated in pounds; equipped with bronze pulsation dampener and needle valve.
- B. Design: Winters Q300 Series
- C. Make: American, Ashcroft, Crosby, Duro, Marsh, Moeller, Terice, Weiss, Weksler, Winters

2.2 PIPING SYSTEM THERMOMETERS

- A. Digital Type: (Solar Powered)
 - 1. Display: switchable dual range scale (F/C) with +/-1% full range accuracy
 - 2. Housing: high impact ABS plastic housing with aluminum angle
 - 3. Stem: 3 1/2" or 6" length with a 3/4" NPT brass thermowell standard
 - 4. NEMA Rating: NEMA 4 (Indoor/Outdoor)
 - 5. LUX Rating: 16 LUX

2.3 STEAM PRESSURE GAUGES

- A. Bourdon tube type, 4-1/2 in. diameter face, range of double normal operating steam pressure. Phosphor-bronze tube, bronze bushed rotary movement, suitable for pressure and temperature involved. Supply with iron steam syphon.
- B. Make: American, Duro, Marsh, Terice, Weiss, Winters

2.4 PRESSURE/TEMPERATURE TEST PLUGS

- A. 1/4 in. NPT plug shall be capable of receiving either a pressure or temperature 1/8 in. o.d. Dual seal core of Nordel 275°F with zero leakage from vacuum to 500 psig.
- B. Test kit consisting of: one 2-1/2 in. test gauge 0-100 psi, one gauge adapter 1/8 in. probe, and two 5 in. stem pocket testing thermometers - one 0° to 220°F and one 25° to 125°F.
- C. Makes: Peterson Equipment Company, Sisco P/T plugs, Flow Design

PART 3 - EXECUTION

3.1 WATER PRESSURE GAUGES

- A. Provide In Piping Systems Where Called For And Scheduled Below:
 - 1. Provide ball valve in each pump inlet and outlet tapping, or in piping adjacent to same. Range: 30 in. vacuum to 100 psi.
 - 2. Compression tanks: 0 to 100 psi range.
 - 3. Each water make-up valve assembly: 0 to 60 psi range.

3.2 STEAM PRESSURE GAUGES

- A. Provide Where Called For With Ball Valve And Siphon Tailpiece:
 - 1. High and low sides of each pressure reducing station.
 - 2. Downstream side of modulating control valves.
 - 3. Main steam building entrance

3.3 THERMOMETERS

- A. Provide where called for and mounted in oversize tee or elbow if necessary to provide as little restriction as possible to fluid flow with stems of proper length to allow accurate reading. Locate adjacent to control sensing equipment. Arrange so as to be easily read from floor.
- B. Cooling coil: Inlet and outlet; range 20° to 120°F.
- C. Heat Pump Water: Supply and return; range 20° to 120°F.
- D. Boiler Heat exchanger: Inlet and outlet; range 30° to 300°F.
- E. Hot water zone: Supply and return pipe; range 30° to 300°F.
- F. Radiant heat: Supply and return; range 0° to 160°F.
- G. Heating coil: Inlet and outlet; range 0° to 220°F.

3.4 TEST PLUGS

- A. Provide test plugs at gauge and thermometer locations as called for. Deliver test kit to Owner and obtain receipt.

END OF SECTION