

SECTION 22 0519 - METERS AND GAGES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Pressure gages and pressure gage taps.
- B. Thermometers and thermometer wells.

1.2 RELATED REQUIREMENTS

- A. Section 22 0100 - General Provisions

1.3 REFERENCE STANDARDS

- A. ASME B40.100 - Pressure Gauges and Gauge Attachments; The American Society of Mechanical Engineers; 2005.
- B. ASTM E 1 - Standard Specification for ASTM Liquid-in-Glass Thermometers; 2007.
- C. ASTM E 77 - Standard Test Method for Inspection and Verification of Thermometers; 2007.
- D. UL 393 - Indicating Pressure Gauges for Fire-Protection Service; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide list that indicates use, operating range, total range and location for manufactured components.
- C. Project Record Documents: Record actual locations of components and instrumentation.

1.5 FIELD CONDITIONS

- A. Do not install instrumentation when areas are under construction, except for required rough-in, taps, supports and test plugs.

1.6 EXTRA MATERIALS

- A. See Section 01 6000 - Product Requirements. for additional provisions.
- B. Supply two spare gauges of each type and pressure range installed.
- C. Supply two spare thermometers of each type and pressure range installed.

PART 2 - PRODUCTS

2.1 PRESSURE GAGES

- A. Manufacturers:
 - 1. Dwyer Instruments, Inc: www.dwyer-inst.com.
 - 2. Moeller Instrument Co., Inc: www.moellerinstrument.com.
 - 3. H.O. Trerice: www.trerice.com
 - 4. Omega Engineering, Inc: www.omega.com.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Pressure Gages: ASME B40.100, UL 393 drawn steel case, phosphor bronze bourdon tube, rotary brass movement, brass socket, with front recalibration adjustment, black scale on white background. Pressure gauges installed in domestic water piping shall conform with the Lead free requirements of the Safe Water Drinking Act and NSF-372.
 - 1. Case: Cast aluminum with phosphor bronze bourdon tube.
 - 2. Size: 4-1/2 inch diameter.
 - 3. Size: 2 inch diameter.
 - 4. Mid-Scale Accuracy: One percent.
 - 5. Scale: Psi.
 - 6. Basis of Design: H.O. Trerice Model 620B

2.2 PRESSURE GAGE TAPPINGS

- A. Isolation valve: provide gage tapping valve
 - 1. Gage Cock: Tee or lever handle, brass for maximum 150 psi.
- B. Pressure Snubber
 - 1. Lead Free Brass, NSF-61 compliant, connection size to match gauge connection

2.3 STEM TYPE THERMOMETERS

- A. Manufacturers:
 - 1. Dwyer Instruments, Inc: www.dwyer-inst.com.
 - 2. Omega Engineering, Inc: www.omega.com.
 - 3. H.O. Trerice: www.trerice.com

4. Weksler Glass Thermometer Corp: www.wekslerglass.com.
5. Substitutions: See Section 01 6000 - Product Requirements.

- B. Thermometers - Adjustable Angle: Red- or blue-appearing non-toxic liquid in glass; ASTM E 1; lens front tube, cast aluminum case with enamel finish, cast aluminum adjustable joint with positive locking device; adjustable 360 degrees in horizontal plane, 180 degrees in vertical plane. Thermometers installed in domestic water piping shall conform with the Lead free requirements of the Safe Water Drinking Act and NSF-372.
1. Size: 9 inch scale.
 2. Window: Clear Lexan.
 3. Stem: 3/4 inch NPT brass.
 4. Accuracy: 2 percent, per ASTM E 77.
 5. Calibration: Degrees F.
 6. Basis of Design: H.O. Trerice Model BX9-403

2.4 PORTABLE TEST KIT/PLUGS

- A. Test Plug: 1/4 inch or 1/2 inch brass fitting and cap for receiving 1/8 inch outside diameter pressure or temperature probe with neoprene core for temperatures up to 200 degrees F.
- B. Test Kit: Carrying case, internally padded and fitted containing one 2-1/2 inch diameter pressure gages, one gage adapters with 1/8 inch probes, two 1 inch dial thermometers.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide pressure gauges before strainers and on suction and discharge of each pump.
- C. Provide pressure gauge and thermometer on outlet of each water heater.
- D. Provide pressure gauge at each water service entrance riser.
- E. Provide pressure gauges and thermometer at all recirculation pump installations and as detailed on the plumbing drawings.
- F. Install thermometers in piping systems in sockets in short couplings. Enlarge pipes smaller than 2-1/2 inch for installation of thermometer sockets. Ensure sockets allow clearance from insulation.
- G. Provide instruments with scale ranges selected according to service with largest appropriate scale.

- H. Install gauges and thermometers in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical, and in accordance with manufacturers recommendations.
- I. Adjust gauges and thermometers to final angle, clean windows and lenses, and calibrate to zero.
- J. Locate test plugs adjacent thermometers and thermometer sockets.

3.2 SCHEDULES

- A. Pressure Gages, Location and Scale Range:
 - 1. Domestic Water Pumps, 0 to 100 psi.
 - 2. Sprinkler system, 0 to 250 psi.
 - 3. Backflow preventers, 0 to 100 psi.
- B. Stem Type Thermometers, Location and Scale Range:
 - 1. Domestic hot water supply and recirculation, 0 to 200 degrees F.

END OF SECTION