

PART 1 - GENERAL REQUIREMENTS

1.01 SUMMARY

- A. This Section includes the following types of meters and gauges:
1. Temperature gauges and fittings.
 2. Pressure gauges and fittings.

1.02 SUBMITTALS

- A. General: Submit the following in accordance with conditions of Contract and Division 1 Specification Sections.
1. Product data for each type of meter and gauge. Include scale range, ratings, and calibrated performance curves, certified where indicated. Submit meter and gauge schedule showing manufacturer's figure number, scale range, location, and accessories for each meter and gauge.
 2. Product certificates signed by manufacturers of meters and gauges certifying accuracy under specified operating conditions and products' compliance with specified requirements.
 3. Maintenance data for each type of meter and gauge for inclusion in Operating and Maintenance Manuals specified in Division 1 and Division 22 Section "General Plumbing Requirements."

PART 2 - PRODUCTS AND MATERIALS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Glass Tube Industrial Thermometers:
 - a) H. O. Trerice Co.
 - b) Marshalltown Instruments, Inc.
 - c) Miljoco Corporation
 - d) Weiss Instruments, Inc.
 - e) Weksler Instruments Corp.
 - f) Winters Instruments
 2. Thermometer Wells: Same as for thermometers.
 3. Pressure Gauges:
 - a) Ametek, U.S. Gauge Div.
 - b) Ashcroft Dresser Industries Instrument Div.
 - c) Ernst Gage Co.
 - d) H. O. Trerice Co.
 - e) Marsh Instrument Co., Unit of General Signal.

- f) Marshalltown Instruments, Inc.
- g) Miljoco Corporation
- h) Weiss Instruments, Inc.
- i) Weksler Instruments Corp.
- j) WIKA Instruments Corp.
- k) Winters Instruments

4. Pressure Gauge Accessories: Same manufacturers as for pressure gauges.

2.02 THERMOMETERS, GENERAL

- A. Accuracy: Plus or minus 1 percent of range span or plus or minus one scale division to maximum of 1.5 percent of range span.
- B. Scale range: Temperature ranges for services listed as follows:
 - 1. Domestic Hot Water: 30 to 240 deg with 2-degree scale divisions (0 to 115 deg C with 1-degree scale divisions).
 - 2. Domestic Cold Water: 0 to 100 deg F with 2-degree scale divisions (minus 18 to 38 deg C with 1-degree scale divisions).

2.03 GLASS TUBE INDUSTRIAL THERMOMETERS

- A. Case: Die cast, aluminum finished, in baked epoxy enamel, glass front, spring secured, 9 inches long.
- B. Adjustable Joint: Finished to match case, 180-degree adjustment in vertical plane, 360-degree adjustment in horizontal plane, with locking device.
- C. Tube: Non-red color reading, non-toxic organic spirit-filled glass tube, magnifying lens.
- D. Scale: Satin-faced, nonreflective aluminum, with permanently etched markings.
- E. Stem: Copper-plated steel, aluminum or brass, for separable socket, length to suit installation.

2.04 THERMOMETER WELLS

- A. Thermometer Wells: Brass or stainless steel, pressure rated to match piping system design pressure; with 2-inch extension for insulated piping and threaded cap nut with chain permanently fastened to well and cap.

2.05 PRESSURE GAUGES

- A. Type: General use, ASME B40.1, Grade A, phosphor bronze bourdon-tube type, bottom connection.
- B. Case: Cast aluminum or stainless steel case, glass lens, 4-1/2-inches diameter.

- C. Connector: Brass, 1/4-inch NPS.
- D. Scale: White coated aluminum, with permanently etched markings.
- E. Accuracy: Plus or minus 1 percent of range span.
- F. Range: Conform to the following:
 - 1. Vacuum: 30 inches Hg to 15 psi.
 - 2. All fluids: 2 times operating pressure.
- G. Liquid-Filled: Provide liquid filled gauges where specified in Part 3 of this section.

2.06 PRESSURE GAUGE ACCESSORIES

- A. Snubber: 1/4-inch NPS brass bushing with corrosion-resistant porous metal disc. Disc material shall be suitable for fluid served and rated pressure.

PART 3 - EXECUTION

3.01 THERMOMETERS INSTALLATION

- A. Install in the following locations and elsewhere as indicated:
 - 1. At outlet of each domestic water heater.
- B. Remote-Reading Dial Thermometers: Install in control panels, with tubing connecting panel and thermometer bulb supported to prevent kinks. Use minimum tubing length.
- C. Thermometer Wells: Install in piping tee where thermometers are indicated, in vertical position. Fill well with oil or graphite and secure cap.

3.02 INSTALLATION OF PRESSURE GAUGES

- A. Install in the following locations, and elsewhere as indicated:
 - 1. Provide liquid-filled gauge at suction and discharge of each pump.
 - 2. At discharge of each pressure-reducing valve.
 - 3. At building water service entrance.
- B. Pressure Gauge Needle Valves: Install in piping tee with snubber.

END OF SECTION

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