

**SECTION 22 05 19
METERS AND GAUGES FOR PLUMBING PIPING**

PART 1 - GENERAL

1. DESCRIPTION

This section describes the requirements for thermometers and pressure gages.

2. SUBMITTALS

A. Submit in accordance with GENERAL CONDITIONS and SUPPLEMENTARY GENERAL CONDITIONS.

B. Manufacturer's Literature and Data:

2. Pressure Gages.
3. Product certificates for each type of meter and gauge.

C. Operations and Maintenance manual shall include:

1. System Description
2. Major assembly block diagrams
3. Troubleshooting and preventive maintenance guidelines
4. Spare parts information.

3. SHIPPING, STORAGE AND HANDLING

A. Protect products from damage, weather and contamination. Clean or replace as required prior to installation. Protect all openings with caps and plugs.

4. AS-BUILT DOCUMENTATION

A. Four sets of manufacturer's literature and data updated to include submittal review comments, operations and maintenance procedures and any equipment substitutions. A List of recommended spare parts (manufacturer, model number, and quantity) shall be furnished. Information explaining any special knowledge or tools the owner will be required to employ shall be inserted into the As-Built documentation.

PART 2 – PRODUCTS

1. PRESSURE GAGES

- A. ANSI B40.1 all metal case 4-1/2 inches diameter, bottom connected throughout, graduated as required for service, and identity labeled. Range shall be 0 to 200 psi gauge.
- B. The pressure element assembly shall be bourdon tube. The mechanical movement shall be lined to pressure element and connected to pointer.

- C. The dial shall be non-reflective aluminum with permanently etched scale markings graduated in psi.
 - D. The pointer shall be dark colored metal.
 - E. The window shall be glass.
 - F. The ring shall be brass or stainless steel.
 - G. The accuracy shall be grade A, plus or minus 1 percent of middle half of scale range
2. LEAD-FREE, LIQUID-FILL, GLASS THERMOMETERS
- a. Case: Valox
 - b. Lens: Glass
 - c. Thermowell: Lead Free Brass (wetted surface contacted by consumable water contains less than 0.25% of lead by weight)
 - d. Sensing Material: Organic fill, non-Mercury
 - e. ASME B40.100
 - f. Temperature Range: -40 degrees F to 300 degrees F
 - g. Accuracy: Plus or minus 1 percent of scale range or one scale division, to a maximum of 1.5 percent of scale range.

PART 3 - EXECUTION

1. INSTALLATION

- A. Direct mounted pressure gages shall be installed in piping tees with pressure gage located on pipe at the most readable position.
- B. Valves and snubbers shall be installed in piping for each pressure gage.
- C. Test plugs shall be installed on the inlet and outlet pipes all heat exchangers or water heaters serving more than one plumbing fixture.
- D. Pressure gages shall be installed where indicated on the drawings and at the following locations:
 - 1. Building water service entrance into building
 - 2. Inlet and outlet of each pressure reducing valve
 - 3. Suction and discharge of each domestic water pump or re-circulating hot water return pump of ¾ hp and larger.

2. FIELD QUALITY CONTROL

- A. TAB or the plumbing contractor shall spot-check at least 10% of installed gages and thermometers with a calibrated measuring device to confirm installed accuracy.

- END OF SECTION -