

SECTION 230519 - GAUGES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-01 Specification sections, apply to work of this section.

1.2 SCOPE

- A. Provide pressure gauges, gauge valves, test plugs, snubbers and similar devices for indication of operating conditions of such points as are indicated on drawings and as specified herein.

1.3 RELATION TO OTHER WORK

- A. Refer to the section, "General Mechanical Provisions", for related requirements. Refer to other sections of Division-23 and to all other applicable portions of the drawings and specifications.
- B. This section directly relates in particular to sections (which may or may not be included in this division) which describe the following:
 - 1. Thermometers.
 - 2. HVAC piping systems.
 - 3. All HVAC equipment through which fluid flows and at which fluid pressures may need to be determined.

1.4 SHOP DRAWINGS

- A. Refer to Section entitled "General Mechanical Provisions". Provide schedule of ranges and proposed locations.

PART 2 - PRODUCTS

2.1 GAUGES

- A. Four and one-half inch (4-1/2") diameter with cast aluminum black finish flangeless case and chrome ring. Bourdon tube: phosphor bronze, silver soldered to socket and tip. Socket: forged brass bottom outlet type. Movement: stainless steel rotary type with delrin sector and bushings and micrometer type pointer. Acceptable: H.O. Terrice Co. 500X or an equivalent.
- B. Where Permanent Gauge is Installed: Brass, needle valve, round knurled handle, 1/4" male x 1/4" female NPT. Acceptable: H. O. Terrice Co. 735 Type FFG, or equivalent.
- C. Where Permanent Gauge is Not Installed: Brass gate valve 1/4" female NPT. Acceptable: Crane No. 438 or NIBCO No. T-113, or equivalent.

2.2 PRESSURE SNUBBER

- A. Brass, 1/4" male x 1/4" female NPT. Acceptable: H. O. Trerice Co. 872-2, or equivalent.

2.3 COILED SYPHON PIGTAILS

- A. Single turn 360 degree coil, arranged with plane of coil parallel to its flow, constructed of 1/4" tubing with male NPT threads on both end extensions. Acceptable: H. O. Trerice Co. 885-series.

2.4 TEMPERATURE/PRESSURE TEST PLUGS

- A. Use at Contractor's option as specified in Part 3 of this section. Body of brass or 316 stainless steel. Valve core of neoprene for applications to 200°F and of Nordel for applications to 275°F. Rated for pressure to 1000 psig. Screwed hexagonal cap and gasket. Size 1/4" NPT or 1/2" NPT as applicable. Length 1-1/2" or 3" as applicable to penetrate and allow for insulation. Designed for taking temperature and pressure readings when used with recommended probes. Acceptable: Pete's Plug, Standard or XL Size as manufactured by Peterson Equipment Company, Inc., Richardson TX 75081; Sisco P/T Plugs; or equivalent.
 - 1. Test Kit: Provide Owner with one companion test kit suitable for taking temperature and pressure readings with test plugs. Provide to Architect/Engineer written certification of delivery of test kit to Owner; certification shall be signed by Owner's authorized representative.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install pressure gauges, gauge valves, test plugs and snubbers in accordance with manufacturer's instructions and locate in such a manner as to permit easy reading of all gauges associated with a single piece of equipment from a single point on the floor (or working platform).

3.2 PRESSURE GAUGES

- A. Install in such a manner as to give an accurate reading of the actual conditions and to permit easy access to gauge and gauge valve. Where mounting location does not permit rotation of the gauge for removal, install using the union type (880) gauge valve. Range shall be selected to read near center at normal operating conditions.

3.3 GAUGE VALVE

- A. Install using brass nipples of sufficient length to raise gauge valve clear of insulation and finish.

3.4 SNUBBER

- A. Provide on all gauges at suction and discharge of all pumps and elsewhere as required to prevent pulsation.

3.5 COILED SYPHON PIGTAIL

- A. Provide on pressure gauges used to steam service. Install pigtails and gauges vertically.

3.6 LOCATIONS NOT SHOWN ON DRAWINGS

- A. Provide as described in this section unless individual locations are otherwise shown on drawings.

3.7 PERMANENT PRESSURE GAUGE LOCATIONS

- A. Provide permanent gauges, with gauge valves, at the following locations:
 - 1. Fluid inlet and outlet of:
 - a. Each water coil in each air handling unit.
 - b. Hydronic system strainers in main piping system (not required at strainers which may be located at individual air handling units or similar equipment unless otherwise indicated).
 - c. Each air separator.
 - d. Each water inlet and outlet at each chiller.
 - 2. Suction and discharge of each pump.
 - 3. Where otherwise indicated.

3.8 GAUGE VALVE ONLY LOCATIONS

- A. Provide gauge valves to permit temporary or permanent installation of gauges for pressure indication at the following locations:
 - 1. Inlets and outlets of water coils at:
 - a. Each fan coil unit.
 - b. Each terminal unit hot water coil.
 - c. Where otherwise indicated.

3.9 TEMPERATURE/PRESSURE TEST PLUGS

- A. Where a gauge valve and a thermometer well is indicated as a pair (i.e., side by side), Contractor may at his option, provide only a single test plug. Provide only at the following location (at Contractor's option in lieu of the gauge valves specified above and in lieu of thermometer wells specified in "Thermometers" section):
 - 1. Inlets and outlets of each coil at each terminal unit.
 - 2. Inlet and outlet of each coil in each fan coil unit.

3.10 PROTECTION OF EQUIPMENT

- A. Protect equipment from damage from time of its receipt until final acceptance and shall thoroughly clean the pressure gauges, gauge valves and like items of all dirt and construction debris prior to requesting final inspection. Gauges which become damaged during the course of construction shall be repaired to "as new" condition or shall be replaced with new equipment.

END OF SECTION 230519