

SECTION 230522 - FLOW STATIONS, VENTURI TYPE

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 venturi type flow stations, where specified and where indicated on piping plans and schematics, to enable the proper flow balancing of systems.

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. HVAC piping systems.
 - 2. Performance verification.
 - 3. Insulation.

1.4 PRESSURE RATING

- A. Be recommended and rated for the pressure conditions occurring at each individual venturi installation location for the particular fluid flow system in which the venturi is installed.

1.5 SHOP DRAWINGS

- A. Refer to Section entitled "General Mechanical Provisions". Include complete data on: dimensions; working pressure; body pattern; installation instructions including upstream and downstream clearances; indicating and permanent pressure losses; tagging; accessories; and materials and finish.

1.6 MANUFACTURERS

- A. Products listed in this Section or on the plans are based on a specific manufacturer to establish the desired style, quality and type. Equivalent products, complying with the requirements of this Section and the installation requirements of the plans, by the following manufacturers are acceptable:
 - 1. Gerand
 - 2. Barco
 - 3. Flowset

4. Olympic
5. Preso

PART 2 - PRODUCTS

2.1 FLOW STATIONS

- A. Venturi type, selected to provide an indicating differential pressure, at the design flow rate, between ten (10) and forty (40) inches of water. Permanent pressure loss shall not exceed twenty-five (25) percent of indicated flow rate differential pressure. Stations up to and through two inch (2") in size shall be brass with screw end connections. Stations two and one-half inch (2-1/2") and above shall be steel with butt weld ends.

2.2 FLOW STATION ACCESSORIES

- A. Each flow station shall be provided with the following accessories:
 1. Quick Disconnect Valves: Provide quick disconnect valves, compatible with the master meter, for each meter tap of each flow station.
 2. Safety Shut-Off Valves: Provide a safety shut-off valve between each quick disconnect valve and its respective meter tap. Shut-off valves shall be mounted on the flow station with brass pipe nipples of sufficient length to bring the valve clear of specified insulation and finish.
- B. Tag: Provide a metal (or paper bonded between two (2) sheets of plastic) identification tag attached to each flow station with a brass chain of sufficient length to allow tag to clear the specified insulation and finish. Tag shall clearly show: Venturi series and size, station identification, and meter reading at flow required by approved piece of equipment.
- C. Master Meter: Six inch (6") round dial, dry type meter supplied with white on black scale reading from zero (0) to fifty (50) inches of water differential pressure. Meter shall be mounted in a portable fiberglass (rot proof) carrying case complete with two (2) ten foot (10') lengths of one-quarter inch (1/4") high pressure high temperature connecting hose with quick disconnect socket valves, vent valves, vent hoses, operating instructions, and flow station capacity curves.

PART 3 - EXECUTION

3.1 LOCATION

- A. Provide venturi type flow stations where shown on drawings. The flow station locations shown on drawings or otherwise indicated are diagrammatic in nature and are intended basically to show the requirement for flow measurement relative to a specific piece of equipment or portion of the system and not the exact physical location of the device. The exact physical location shall be determined using field measurements relating to the specific piping arrangement and the manufacturer's requirements relating to upstream and downstream clearances.

3.2 PIPING

- A. The actual installation or incorporation of flow stations into the piping system shall be done as work of the Section covering the piping system involved.
- B. Install flow stations in accord with manufacturer's recommendations including increases or decreases in pipe size at point of installation together with minimum recommended lengths of straight run pipe before and after points of installation.

3.3 BALANCING

- A. Shall be done, using the master meter specified hereinbefore, as work of the section describing test and balance. At the conclusion of the test and balance work the meter shall be turned over to, and shall become the property of, the Owner. Include a receipt for delivery of the meter, complete as specified herein, in good condition as a part of the Operating and Instruction manuals.

END OF SECTION 230522