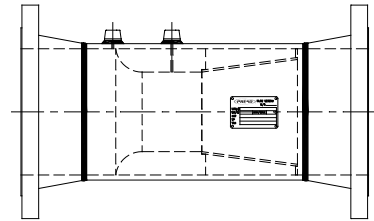


INDUSTRIAL PRODUCTS

VENTURI Model: SSM (Nozzle Venturi Design)**Flow Measurement Instrumentation (Differential Pressure)****General:**

Furnish and install as shown on the drawings a flow element of the Venturi Nozzle design differential pressure type as manufactured by Preso.

**Configuration:**

The Venturi inlet section shall be cylindrical with a pressure sensing tap and of the same diameter as the incoming pipe section and followed by a precise radial section causing a uniform change in fluid velocity. The cylindrical throat section with pressure sensing tap shall have a straight section of a minimum $0.5d$ and the exit cone shall have a precise angle in order to prevent a permanent pressure loss that will not exceed 10% of the generated differential pressure. The beta ratio shall be determined by the manufacturer and the discharge coefficient (C_d) shall be linear and stable in the operating flow range and shall have a value above 0.90. This shall be achieved by adhering to the ASME and/or ISO 5167 standards. Venturi Nozzle design criteria for inlet, throat and outlet sections. Proprietary designs with self-substantiated formulas will not be accepted. Uniform C_d values inflated by self substantiated formulas will not be accepted.

Materials:

The construction material, instrument connections, instrument valves and end connections shall be selected to meet the intended service conditions. Identification tag shall be provided as required.

Body - cast iron, carbon steel, stainless steel, or others.

The Venturi shall have one set of precision machined pressure taps and be furnished with $\frac{1}{2}$ " stainless steel or carbon steel needle valves. The Venturi shall be flanged at both ends (150#, 300#, or other).

Accuracy & Repeatability:

The accuracy of the flow element shall be within $\pm 1.0\%$ uncalibrated ($\pm 0.5\%$ calibrated) with a repeatability of $\pm 0.1\%$ and turndown of 10:1 in the corresponding and appropriate range of Reynolds' Numbers. For custody transfer applications the Venturi shall be wet flow tested by an independent NIST certified laboratory under the design operating conditions and piping configurations.

Quality:

All Venturi meters shall be manufactured under an ISO 9001:2008 certified quality program. Certification documentation shall be available for inspection. The manufacturer shall provide a Flow Calculation Data Sheet with standard data and formulas for approval by the design engineer.

Applicable Fluids:

Liquids, gases and steam

Sensor Type:

The Venturi shall be as follows: **Model: SSM** (Nozzle Venturi Design)

