Bab 8. Flow & Pressure Transmitter

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Flow Measurement Types

- Differential pressure
  - Includes orifices, venturi, flow nozzles, pitot tubes
- Mechanical (positive) displacement
  - Includes turbine, nutating-disk, and rotating vane
- Velocity
  - Includes vortex shedding, electromagnetic, and ultrasonic
- Mass meters
  - Coriolis and thermal

Differential Pressure Meters

- The use of differential pressure as an inferred measurement of a liquid's rate of flow

$$\Delta P \propto F^2 \rightarrow F \propto \sqrt{\Delta P}$$

- Have a primary and secondary element
  - The primary element creates the differential pressure in the pipe
  - The secondary element measures the differential pressure and provides the signal or read-out that is converted to the actual flow value
- Over 50 percent of all liquid flow measurement applications use this type of unit

Differential Pressure Primary Elements

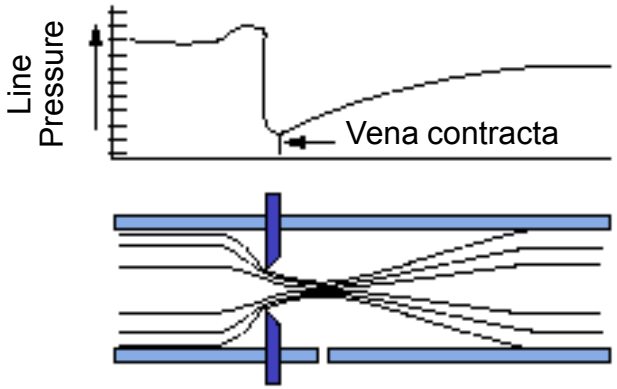


Fig. Orifice

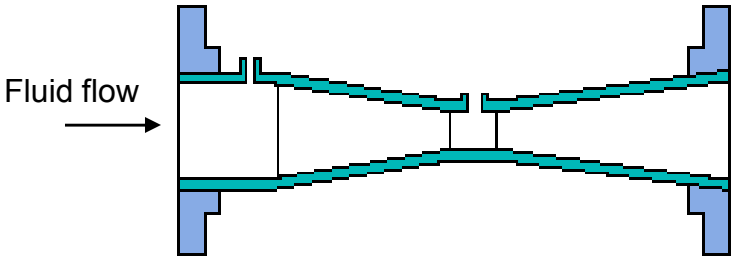


Fig. Venturi

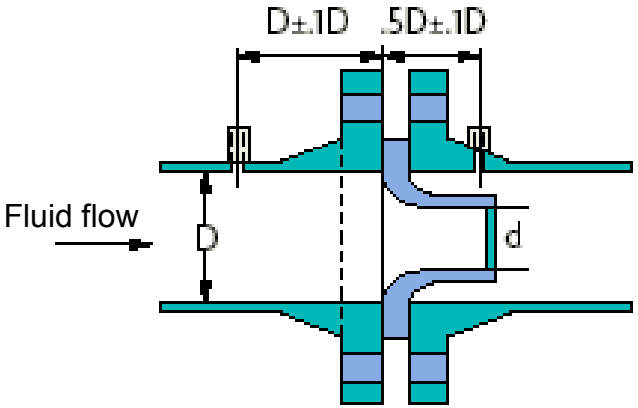


Fig. Flow nozzle

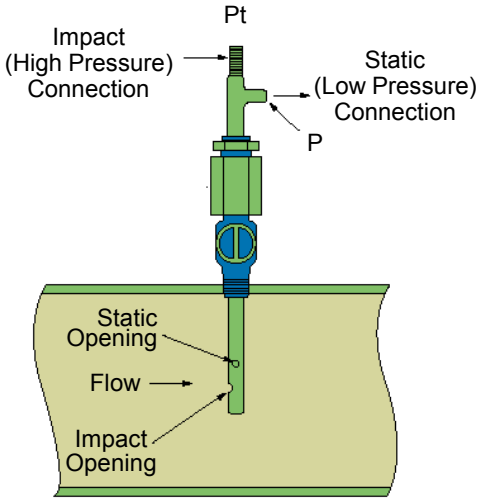


Fig. Pitot tube