

SONIC NOZZLE FOR CALIBRATION APPLICATIONS

Used to measure the reference flow in calibration applications

GENERAL DATA

- Standards: ISO 9300, ASME PTC 19.5
- Flange mounting⁽¹⁾
- Material:
 - o Standard: stainless steel 304L / 316L
 - o Others⁽¹⁾: according to your application
- Fluid: gas
- Value of $\beta < 0.25$ ($\beta = d/D$)
- Accuracy: 0.3 % of max flow rate
- Repeatability of measurement: 0.1 %



Sonic condition through the nozzle means that the flow reaches the velocity of sound when passing through the throat. Under these conditions, the flow rate depends mainly on the upstream pressure and the fluid temperature. This allows to deliver a steady and perfectly known flow rate, independent of the downstream pressure conditions from the nozzle.

VENTURI TUBE AND ORIFICE PLATE FOR WET GAS APPLICATIONS

Suitable for measuring a multiphase flow with 95% gas minimum

GENERAL DATA

- Standard: ISO/TR 11583
- Horizontal mounting
- Material:
 - o Standard: stainless steel 304L / 316L
 - o Others⁽¹⁾: upon request
- Venturi tube accuracy: 2.5 to 6 % of max flow rate
- Orifice plate accuracy: 2 to 7 % of max flow rate
- Repeatability of measurement: 0.1 %
- Other information: see technical datasheets, venturi tube on page 16 to 18 and orifice plates on pages 10 to 15



In addition to the pressure taps of the ISO 5167 standard, a 3rd pressure tap is required for wet gas applications.

It is located 6D downstream:

- o of the orifice plate (with drain),
- o or from the end of the divergent for the venturi tube.

Reduced straight lengths according to ISO 5167 are not recommended. It is required to comply with standard straight lengths summarized in «Technical information» section on pages 72 to 76. Similarly, using flow conditioners is not recommended.

⁽¹⁾ For more details, see «Technical information» section on page 54.