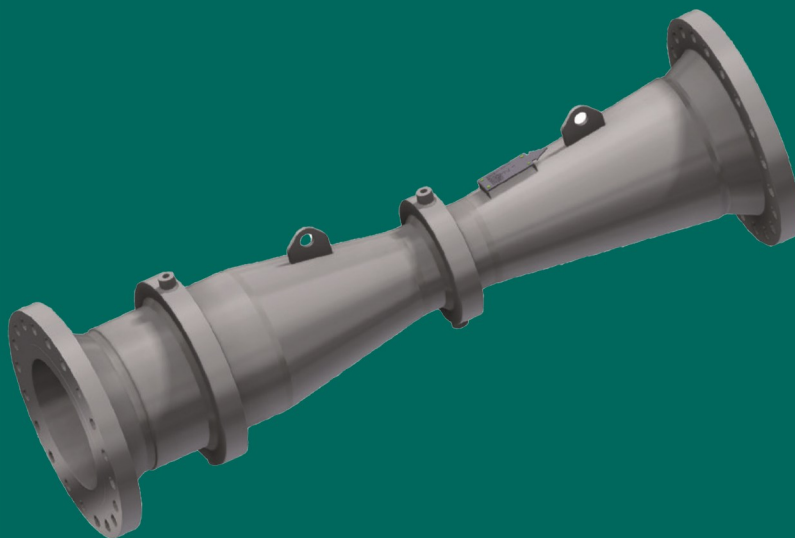




FLOW MEASURING WITH VENTURI



www.aramakco.com



Introduction

The Venturi tube flowmeter is based on a classical Venturi tube, an engineered primary flow element for a most efficient and accurate differential pressure (DP) flow measurement. Thanks to its design, it has an excellent resistance to wear and doesn't require any maintenance. The service life of the Venturi tube is usually equal to that of the entire plant. It is therefore often the ideal choice in live steam applications of power plants, wet gas flow measurement in natural gas production or CO₂ injection, flow measurement of hydrocarbons and LNG as well as in gas-to-liquid processes and refineries.

Applications

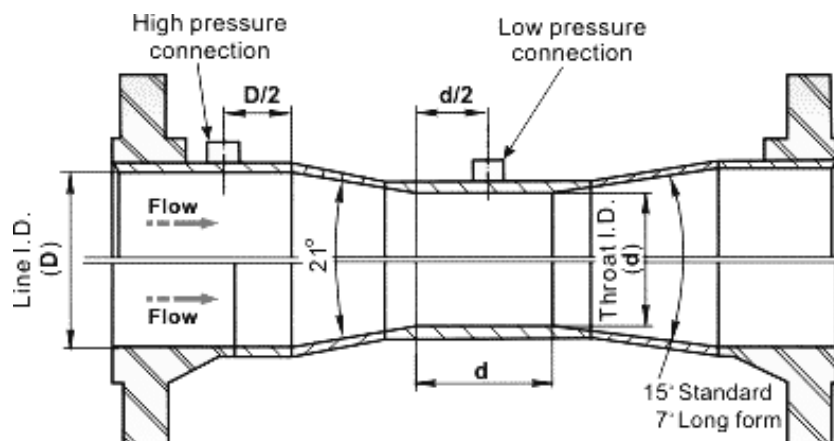
Comparing with orifices and flow nozzles, the Venturi tube generally is of a little more complicated structure, requires more material and costs and tends to be larger in size. However, Venturi tubes offer advantages including an extremely low pressure loss, a higher durability and a lower chance of catching a sludge media and sediment than other throttle elements. The Venturi tube is mostly used for measurements of flow wherever a minimal loss of pressure is important.

ARAMAK venturi tubes are manufactured from bar stock or welded plate for big sizes and very high wall thicknesses.

Venturi Meter can also be manufactured by Conical divergent angle of $7^\circ \pm 1$ for low loss Venturi and Conical divergent angle of $15^\circ \pm 1$ for Classical Venturi

All types can be supplied Truncated or not Truncated

The ARAMAK Venturi flowmeter covers big diameters, round and rectangular pipes and ducts.





Specification

Fluids :

Liquids, gases and saturated steam

Line sizes :

3" to 80" (DN 50 to DN 2000)

Tube Type

Machined (2" to 6")

Welded (8" to 80")

Instrument tapping adaptor

- Threaded G or NPT
- Flanged DN25 (1 in.) to DN 80 (3 in.) to ANSI 150# RF, 300# RF or NP10/16, NP25/40

Tapping Nos.

1 or 2

Ring type with 1 tapping

Construction materials

316 stainless steel

304 Stainless Steel

Carbon Steel

End Connection

- Butt-weld
- Flanged connection is available on request as welding-neck or slip-on type according to ASME or PN

Output signal

- Two-wire, 4 to 20 mA, selected for square-root output
- Low flow cut-off facility
- Optional Profibus PA, Foundation Fieldbus or Modbus communications

Accuracy Uncalibrated

±1% of actual flow

Flow range

10:1

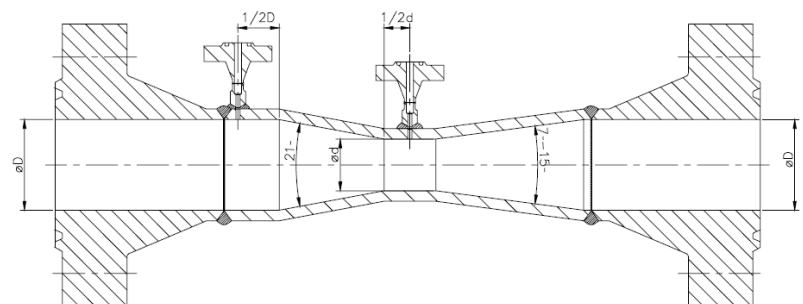
Maximum pressure

100 Barg @ 45 °C

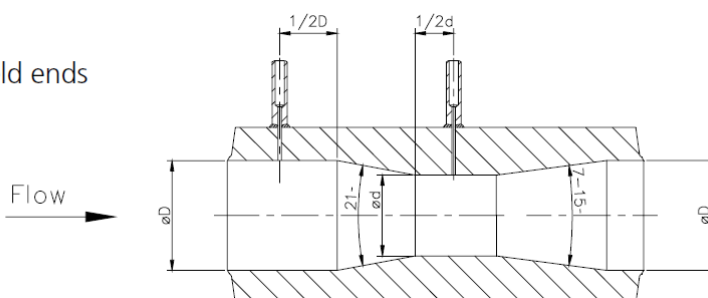
Humidity

Relative humidity: up to 100 %

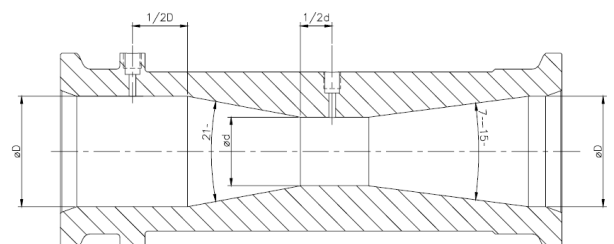
Flanged



Weld ends



Clamp connection





Compensation

Alongside differential pressure Δp , pressure p and temperature T are test variables of flow q . If there are no strong fluctuations in pressure and temperature, then the accuracy of the differential pressure signal is fully sufficient for the majority of measuring points. There is then no need for any Compensation.

With some applications, particularly in the gas and steam sectors, a special compensation is required. A change in pressure and/or temperature leads to a change in density. If this is not taken into account, total accuracy may be reduced.

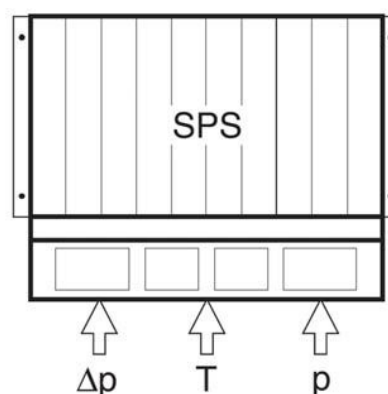
The following parameters are required for compensation:

- Gases: compensation of P and T
- Saturated steam: either P or T are compensated
- Superheated steam: compensation of P and T
- Liquids: compensation of T (very rare)

Both on the process side and on the system side, there are two possibilities for implementing compensation (large differences

in price and effort).

The process variables are fed into the (available) PLC or Flow Computer. The flow equations are programmed there. With this solution the investment costs are low, but the commissioning costs are increased.





Ordering Code Information

[Please check the order code in our website. \(Click here\)](#)



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