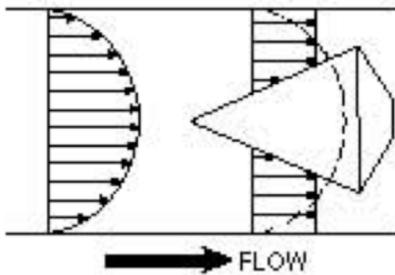


The VShape Meter Cone is a technology that accurately measures flow over a wide range of Reynolds numbers, under all kinds of conditions and for a variety of fluids. It operates on the same physical principle as other differential pressure-type flowmeters, using the theorem of conservation of energy in fluid flow through a pipe. It features a centrally-located cone inside the tube. The cone interacts with the fluid flow, reshaping the fluid's velocity profile and creating a region of lower pressure immediately downstream of itself. The pressure difference, exhibited between the static line pressure and the low pressure created downstream of the cone, can be measured via two pressure sensing taps. One tap is placed slightly upstream of the cone, the other is located in the downstream face of the cone itself. The pressure difference can then be incorporated into a derivation of the Bernoulli equation to determine the fluid flow rate. The cone's central position in the line optimizes the velocity profile of the flow at the point of measurement, assuring highly accurate, reliable flow measurement regardless of the condition of the flow upstream of the meter.



3.2 Performance and Specifications

Accuracy	$\pm(0.5-1)\%$ of rate(with sperimental calibration)
Turndown	10:1
Repeatability	$\pm 0.1\%$
Installation Requirements	0 - 3 pipe diameters upstream / 0 - 2 pipe diameters downstream
Differential Pressure Recommended	50 -200 WC (consult factory for higher DPs)
Beta Ratio Range	0.45 - 0.85
Reynolds number (Re)	>8000 Re
Fluids	gases, vapors, or liquids
Meter Orientation	horizontal or vertical
Tap Location	1 couple of pressure taps(see arrangement drawing in the below picture)
Coefficient of discharge (Cd)	Cd is unique to each meter and must be determined by calibration
Calibration curve	Cd versus Reynolds number shall be provided for each Venturi cone meter

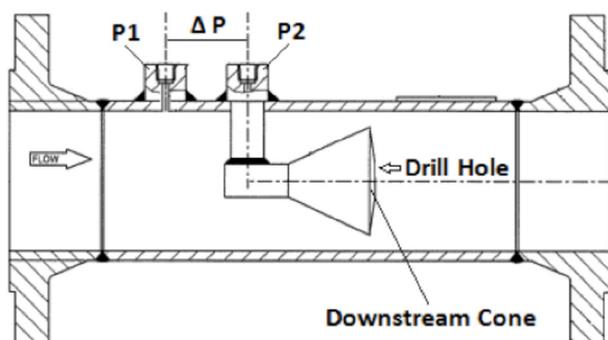
VSHAPE METER CONE

3.3 VShape Meter Cone is made from:

- a meter body with process connection as:
 - BW (as per ASME B16.25)
 - flanged (ASME B16.5 or ASME B16.47 A or B)
 - hub connection
- a cone assembly, that can be made from solid bar or calandered shhets, positioned in the center of the meter tube

- 1 pair of pressure taps can be
 - as per DIN 19213 for the direct mounting of DP transmitter
 - flanged
 - screwed

a wall tap upstream and an integral sensing tap downstream—for reading the differential pressure in the center of the meter tube.



The material of the VShape Meter Cone is made exactly as per piping material (Stainless Steel material, Carbon Steel material, Exotic material,...)

The VShape Meter Cone is virtually maintenance-free.

The VShape Meter Cone can be installed in a horizontal or vertical position. Horizontal is the standard orientation, however where space is very limited, a vertical position may prove to be the best option.

In TECSAS has been realized a prototype and it has been tested in the "FLOW CALIBRATION LABORATORY".

Please refer to the attached files

