



Parto Sahand Ara

FVT VENTURI TUBE

Flow Venturi tube





Flow Venturi Tube

Applications

- Power generation
- Oil production and refining
- Water treatment and distribution
- Chemical and Petrochemical Industries
- Gas processing and transmission



Description

High pressure recovery and low upstream and downstream requirements:

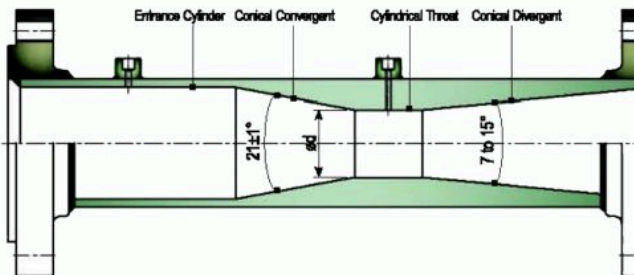
Venturi tubes are reliable, easy to use and low-maintenance

Venturi tubes are particularly suitable for the measurement of clean liquids and gases.

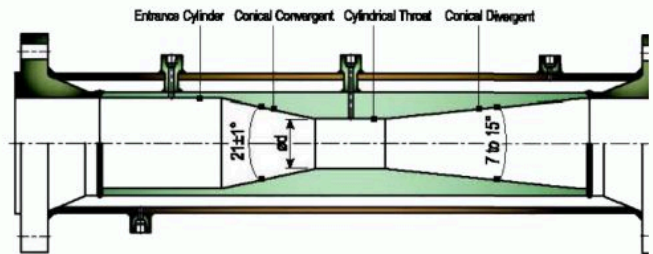
- The main advantages of a Venturi tube over other differential pressure flow meters are the higher pressure recovery and the lower upstream and downstream pipe requirements.
- Flow measurement with low differential pressures Due to the fact that a major part of the output pressure is regained, the Venturi tube is particularly suited for measurement in systems with a low pressure differential.
- Thanks to the low pressure loss the cost of pumping the medium can be reduced to a minimum.
- All nominal sizes are available in accordance with relevant standards. The pipe schedule must be specified by the customer. Standards cover diameters from 2 ... 48" (50 ... 1,200 mm), larger diameters are available on request.



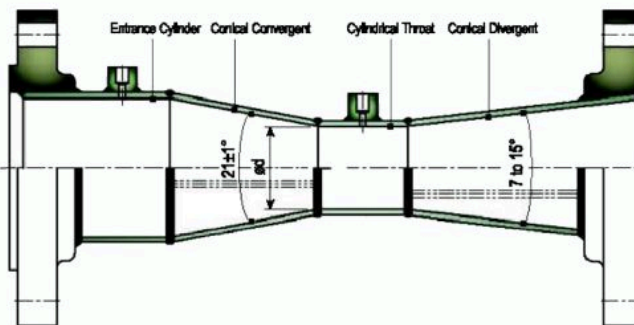
Venturi Tube model:FVT



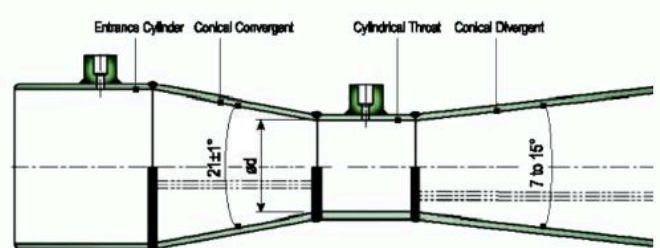
Machined Type: Flanged End



Construction with jacket



Welded Type: Flanged End



Welded Type: Butt Welds End

Description

Generally, Venturi tube with a machined convergent can be used in pipes of size between 2" and 10". However, in the case that the machined type is of large size (8" or 10"), they have disadvantages because of required higher costs due to huge material consume.

- Conical Convergent Angle : $21^{\circ} \pm 1^{\circ}$
- Conical Divergent Angle : $14^{\circ} \pm 1^{\circ}$
- End connection : butt-welds / flanged connection is available on request as welding-neck or slip-on-type
- Tapping adaptors : $\frac{1}{2}$ " NPT / Others are available on request (i.e. $\frac{1}{2}$ " SW, $\frac{3}{4}$ " NPT or SW, etc)
- Tapping Nos : 1 (one) upstream pressure tapping and 1(one) downstream pressure Tapping
There may be used with several sets of pressure tapings on request.



Venturi Tube model:FVT

Equations describing the Venturi-principle:

From the Bernoulli-Equation:

$$\frac{w_1^2 \rho}{2} + p_1 + \rho g z_1 = \frac{w_2^2 \rho}{2} + p_2 + \rho g z_2$$

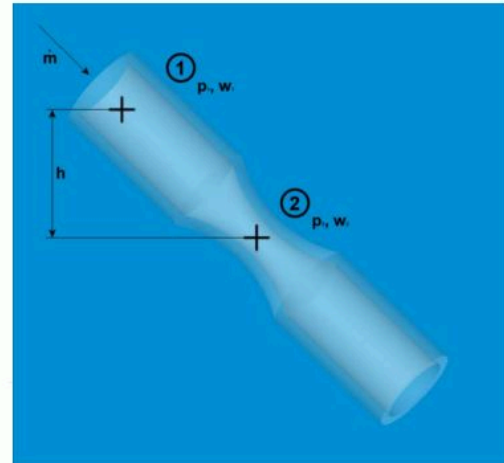
with

$$z_1 - z_2 = h$$

$$p_1 - p_2 = \Delta p$$

concludes into

$$\Delta p + \rho g h = \frac{1}{2} \rho (w_2^2 - w_1^2) = \frac{1}{2} \rho w_2^2 \left(1 - \frac{w_1^2}{w_2^2} \right)$$



based on mass conservation:

$$w_1 A_1 = w_2 A_2$$

$$w_1 = \frac{A_2}{A_1} w_2$$

the following is additionally valid:

$$\Delta p + \rho g h = \frac{1}{2} \rho w_2^2 \left(1 - \left[\frac{A_2}{A_1} \right]^2 \right) \quad w_2 = \frac{\sqrt{2(\Delta p + \rho g h)}}{\sqrt{\rho \left(1 - \left[\frac{A_2}{A_1} \right]^2 \right)}}$$

So the mass flow in a Venturi pipe is as follows:

$$m = \rho A_2 w_2 = \rho \frac{A_2}{\sqrt{1 - \left(\frac{A_2}{A_1} \right)^2}} \sqrt{\frac{2}{\rho} (\Delta p + \rho g h)}$$



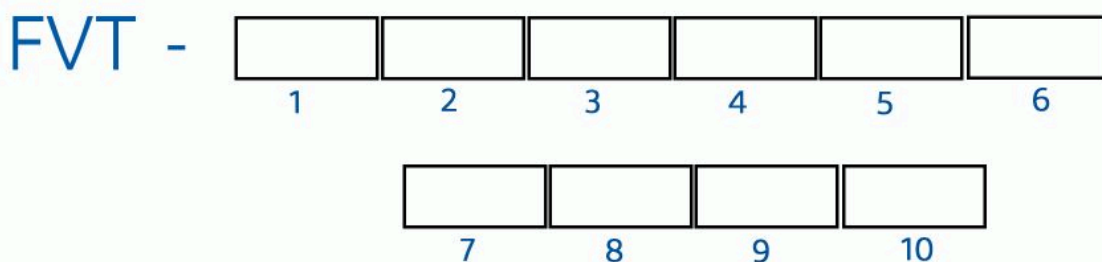
Venturi Tube model:FVT

Order Code

FVT Configuration		
1	Process connection Type	
	TC Threaded connection	
	WE Welding ends	
	DF DIN flanges	
	AF ANSI flanges	
*	Other - please specify	
2	Process connection1	
	050 2" DN50	
	100 4" DN100	
	150 6" DN150	
	250 10" DN250	
	400 16" DN400	
	600 24" DN600	
*	Other - please specify	
3	Nominal Pressure Rating DIN	
	C1 Class 150	
	C2 Class 300	
	C3 Class 600	
	C4 Class 900	
	C5 Class 2500	
	P1 PN 40	
	P2 PN 64	
	P3 PN 100	
	P4 PN 160	
	P5 PN 200	
	*	Other - please specify
	4	Sealing Face
RF RF		
RJ RTJ		
FF FF		
*		Other - please specify

5	Material
	S 316L SS (1.4435)
*	Other - please specify
6	Design
	R Round
	D Duct
*	Other - please specify
7	Dimensions in mm (L)
	1 Machined type (50...250 mm pipe ID)
	2 Machined type with Jacket
	3 Welded type, flanged ends
4 Welded type, welding ends	
8	Dimensions in mm (L)
	*** **?
9	Pipe Size (ID)
	*** **?
10	Pipe Size (WT)
	*** **?

Additional order details _____





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