

# CLASSICAL VENTURI TUBES



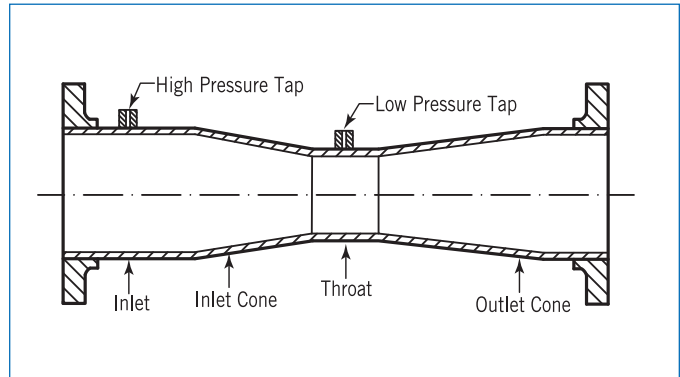
The classical venturi tube consists of a straight inlet section of the same diameter as the pipe and in which the high pressure tap is located a converging conical inlet section in which the cross section of the stream decreases and the velocity increases with a consequent increase of velocity head and decrease of pressure head.

The pressure taps are located one-quarter to one-half pipe diameter upstream of the inlet cone and at the middle of the throat section.

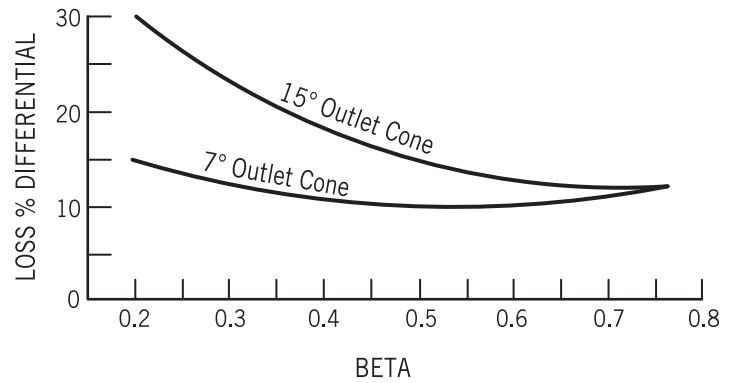
## Technical Data

- ISO-5167-4 standard
- Beta ratio  $\beta$ : 0.3~0.75
- Minimum recommended reynold number: 75,000
- Minimum recommended pipe I.D: 3" (75mm)
- Size: 3"~72" available; bigger than 72" on request
- Material: A105, steel, stainless steel, available.  
Special material on request.

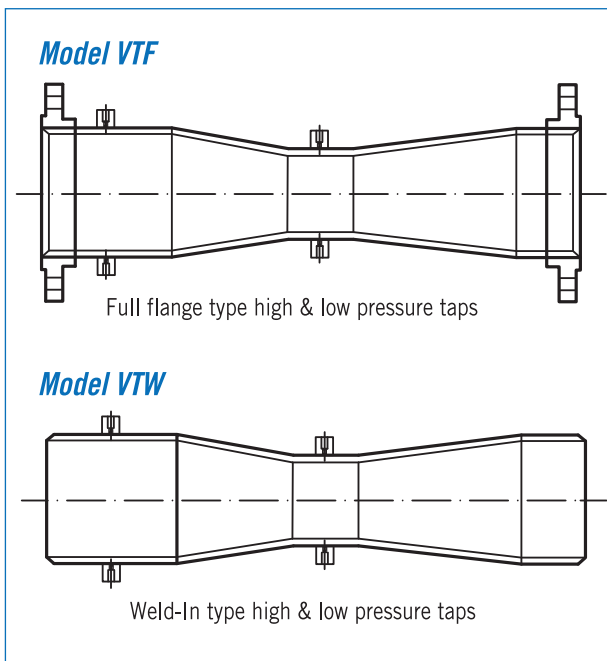
## Classic Venturi Tube



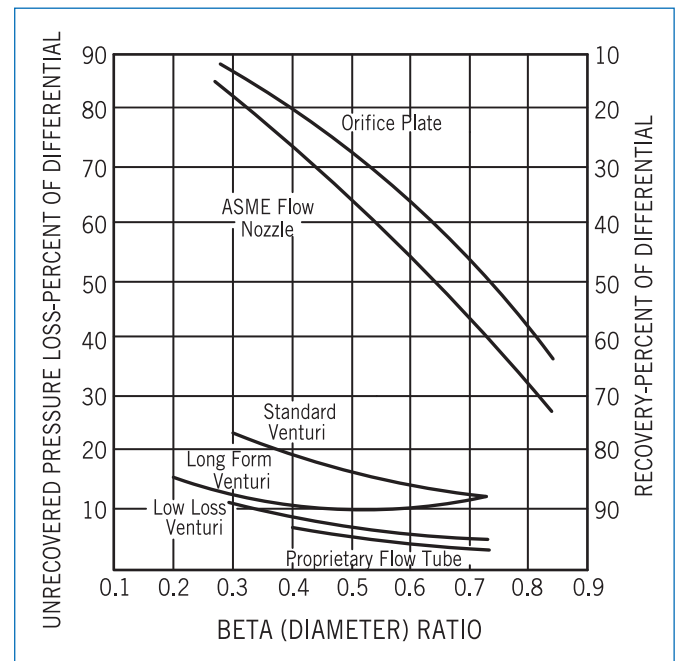
## Venturi Pressure Loss



## Representative Schematic

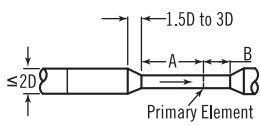
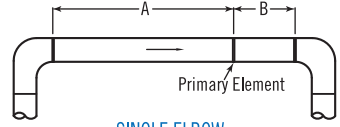
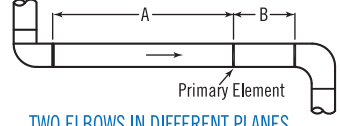
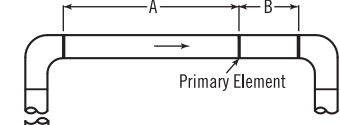
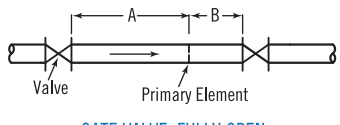
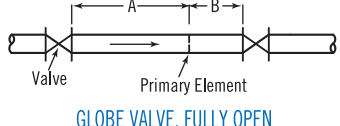
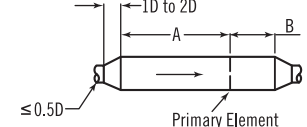


## Pressure Loss Curves



## ISO Standard 5167 Required

### Straight Lengths for Orifice Nozzle ISA Venturi Nozzle and Venturi in Multiples of Pipe Diameter D

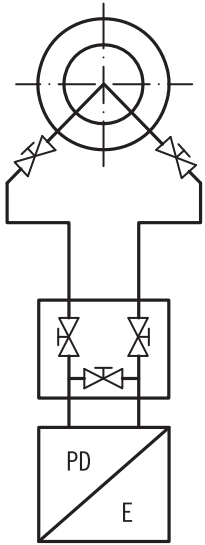
Upstream disturbance	Dimension	Device	$\beta$						
			0.2	0.3	0.4	0.5	0.6	0.7	0.75
 <p>REDUCER</p>	A	Orifices Nozzles	5	5	5	6	9	14	22
		Venturis		0.5	2.5	5.5	8.5	10.5	11.5
 <p>SINGLE ELBOW</p>	A	Orifices Nozzles	14	16	18	20	26	28	36
		Venturis		0.5	0.5	1.5	3	4	4.5
 <p>TWO ELBOWS IN DIFFERENT PLANES</p>	A	Orifices Nozzles	34	34	36	40	48	62	70
		Venturis		0.5	0.5	8.5	17.5	27.5	29.5
 <p>TWO ELBOWS IN SAME PLANE</p>	A	Orifices Nozzles	14	16	18	20	26	36	42
		Venturis		1.5	1.5	2.5	3.5	4.5	4.5
 <p>GATE VALVE, FULLY OPEN</p>	A	Orifices Nozzles	12	12	12	12	14	20	24
		Venturis		1.5	2.5	3.5	4.5	5.5	5.5
 <p>GLOBE VALVE, FULLY OPEN</p>	A	Orifices Nozzles	18	18	20	22	26	32	36
		Venturis							
 <p>EXPANDER</p>	A	Orifices Nozzles	16	16	16	18	22	30	38
		Venturis		1.5	1.5	2.5	3.5	5.5	6.5
Downstream length for all Pictured disturbances	B	Orifices Nozzles	4	5	6	6	7	7	8
		Venturis		4d	4d	4d	4d	4d	4d

## Orifice / Nozzle / Venturi Tube Installed Guide

### Liquid

#### DP-Flow Element

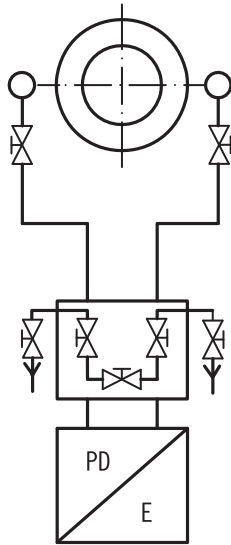
With 3-way manifold.



### Steam

#### DP-Flow Element

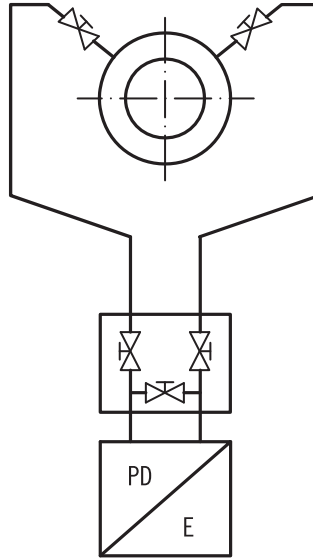
With 5-way manifold and  
condense pots



### Dry Gas

#### DP-Flow Element

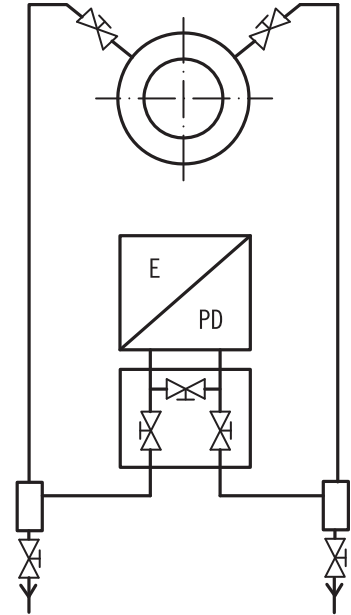
With 3-way manifold



### Humid Gas

#### DP-Flow Element

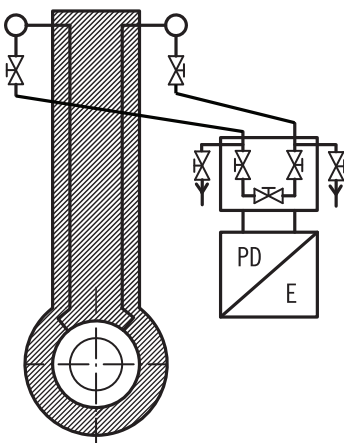
With 3-way manifold and  
drain pot



### Steam

#### DP-Flow Element on top mounting

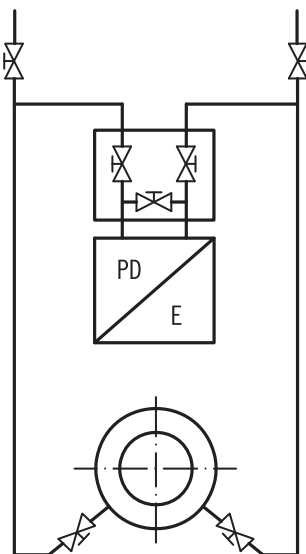
With condense pots



### Liquid

#### DP-Flow Element on top mounting

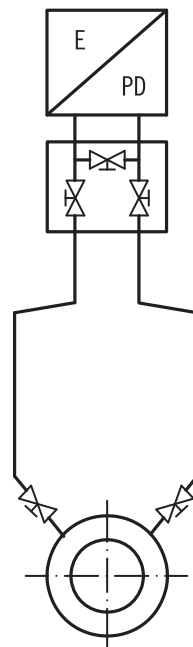
With 3-way manifold and  
vent valves



### Gas, dry and humid

#### DP-Flow Element on top mounting

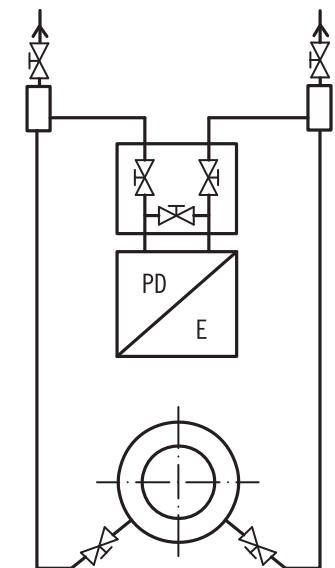
With 3-way manifold



### Gaseous Fluid

#### DP-Flow Element on top mounting

With 3-way manifold and  
vent pots



## Ordering Information

Individual Specification				Requirement		Requirement	
1	Model No.						
2	P&ID No.						
3	Line No.						
4	Service						
<b>Meter</b>							
5	Type of Element						
6	Size & Process Connection						
7	Pressure Taps						
8	Taps Connection						
9	Wetted Parts Material						
10	Condensate or Sealing Chamber						
11	Diff. Pressure (mmH <sub>2</sub> O)	Design	Calculated				
12	Beta Ratio	Design	Calculated				
13	Calculation STD	Design	Calculated				
14	Painting						
15	Fluid	Phase					
16	Flow Range	Flow unit					
17	Flow Rate	Max.	Nor.				
18	Temp. (°C)	Max.	Nor.				
19	Press. (kg/cm <sup>2</sup> G)	Max.	Nor.				
20	Viscosity @Cp	Cp/Cv					
21	SpGr @Cp./@Base	Mol. Wt.					
22	Pipe Size (mm)	I.D	O.D				
23	Pipe Material	Pipe Schedule No.					
24	Max. Permissible Pressure Loss (mmH <sub>2</sub> O)						
25	Tag No.						

\* Please fill in above block on request.