

XYOM Type Differential Pressure Flowmeter

Overview

The XYOM differential pressure flowmeter is a high range ratio differential pressure flow device composed of a standard throttling element and a differential pressure transmitter. It is widely used in process control and measurement in fields such as petroleum, chemical, metallurgy, power, heating, and water supply. Differential pressure flowmeter is widely used for flow measurement of gases, vapors, and liquids.

Application

1. Nominal diameter: $20\text{mm} \leq \text{DN} \leq 2400\text{mm}$
2. Nominal pressure: $\text{PN} \leq 10\text{MPa}$
3. Working temperature: $-50^\circ\text{C} \leq t \leq 550^\circ\text{C}$
4. Range ratio: 1:3
5. Accuracy: Level 1.5

Working principle

As shown in the figure, is to place a throttling element in the pipeline. When fluid flows through the throttling element, a pressure difference (differential pressure P) will be generated on both sides of the throttling element. The flow rate is proportional to the square root of the differential pressure, that is:

$$Q_v = AC / \sqrt{1 - \beta^4} \cdot \sqrt{\Delta P / \rho} \\ = K \cdot (\Delta P)^{1/2}$$

A - constant;

C - outflow coefficient;

β - diameter ratio ($=d/D$);

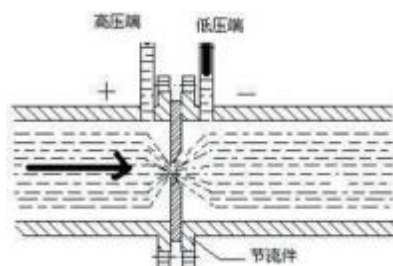
D - aperture of throttle element (mm);

ε - coefficient of expandability;

ΔP - Differential pressure before and after the throttle element (Pa);

P - fluid density under working conditions (kg/m^3);

K - coefficient.



Measurement principle diagram of throttling device



Product Features

- The throttling device is simple, sturdy, and has stable performance.
- Adopting international standards and processing.
- Wide range of applications.
- No need for real flow calibration, it can be put into use.
- The integrated installation is easy.
- Adopting imported monocrystalline silicon intelligent differential pressure sensors.
- Comprehensive self diagnostic function.
- The range of the intelligent differential pressure flowmeter can be self programmed and adjusted.
- The flow integrator can simultaneously display cumulative flow, instantaneous flow, pressure, and temperature.
- In addition to online and dynamic full compensation functions, it also has self diagnosis and self setting range.
- Equipped with multiple communication

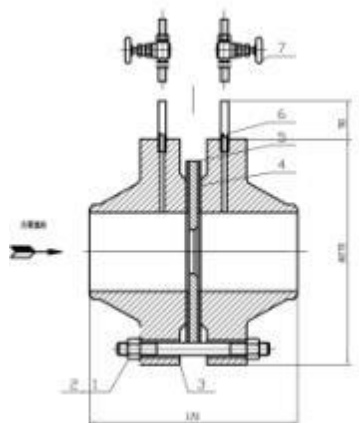
Outline Structure

Throttling components: standard orifice plate, standard nozzle, long diameter nozzle, 1/4 circular orifice plate, etc;

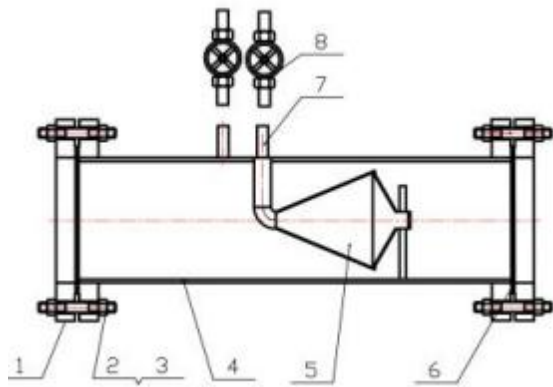
Pressure collection device: ring chamber, pressure collection flange, clamping ring, etc;

Connecting flanges: flanges according to national standards, various standards, and other design departments;

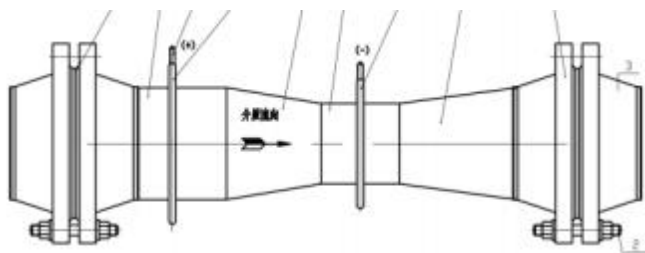
Fasteners, valves, and other accessories.



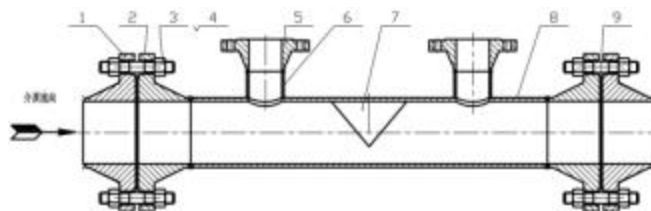
Schematic diagram of orifice plate throttling component



Schematic diagram of V-cone throttling component



Schematic diagram of Venturi throttling component



Schematic Diagram of Wedge-Shaped Throttling Component

Required Parameters for Selection:

1. The diameter of the pipeline (diameter x wall thickness);
2. The medium measured by differential pressure flowmeter includes medium related parameters such as density, viscosity, etc;
3. The working temperature of the tested medium;
4. The working pressure of the tested medium (maximum pressure, minimum pressure, working pressure);
5. The working flow rate of the tested medium (maximum flow rate, minimum flow rate, common flow rate).

Selection Guide

XYOM		Differential Pressure Flowmeter										
	Code	Classify by structural features			Code		Classify by structural features					
	O	Standard orifice plate			VC		V-cone					
	V	Venturi			N		Spray nozzle					
	W	Wedge			T		Other					
	Code		Caliber (mm)									
	XXXX		20 ~ 2400									
	Code		Nominal pressure (MPa)			Code		Nominal pressure (MPa)				
	1.0		1.0 MPa			2.5		2.5 MPa				
	1.6		1.6 MPa			4.0		4.0 MPa				
	T (X)		Other X MPa									
	Code		Medium		Code		Medium		Code		Medium	
	O		Liquid		G		Gas		S		Steam	
	Code			Temperature (°C)								
	(X ~ Y)			X、Y Maximum and minimum temperature (°C)								
	Code			Compensation method								
	N			No compensation								
	Ctp			Temperature and pressure compensation								
	Code				Material of throttling element							
	0				Carbon steel							
	1				Stainless steel (note 316, etc.)							
	Code				Flange material							
	0				Carbon steel							
	1				Stainless steel (note 316, etc.)							
	Code					Output						
	E					4-20mA output						
	R8					RS485 output						
	Code						power supply					
	V1						24V DC power supply					
	V2						220VAC power supply					
XYOM - O - 100 - 2.5 - S - Ctp (0 ~ 165) °C - 10 - ER8 - V2												

Selection Tips

1. Measure the density of the medium in kg/m³, working pressure in MPa, and temperature in °C.
2. Flow range: minimum flow, commonly used flow, maximum flow, nominal diameter (mm).
3. Usage environment: ambient temperature °C, explosion-proof requirements Power supply: V.