XYOM Type Differential Pressure Flowmeter

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

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: 20mm ≤ DN ≤ 2400mm
2. Nominal pressure: PN ≤ 10MPa
3. Working temperature: -50 ℃ ≤ t ≤ 550 ℃
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:

$$Q_v = AC/\sqrt{(1-\beta^4)}\varepsilon d^2\sqrt{(\Delta P/\rho)}$$
$$= k*(\Delta P)^{1/2}$$

A - constant;

C - outflow coefficient;

β - diameter ratio (=d/D);

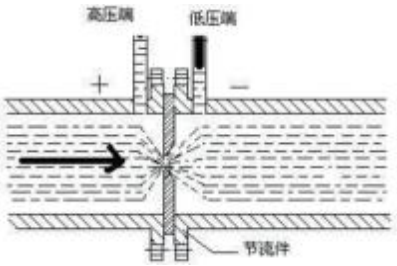
D - aperture of throttle element (mm);

ε - coefficient of expandability;

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

P - fluid density under working conditions (kg/m3);

K - coefficient.



Measurement principle diagram of throttling device

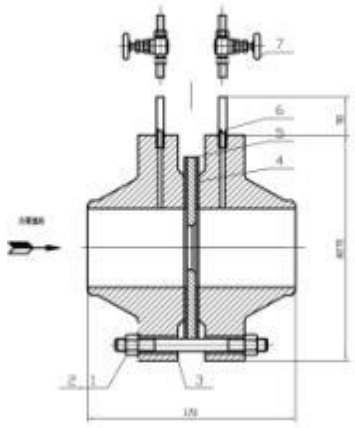
Outline Structure

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

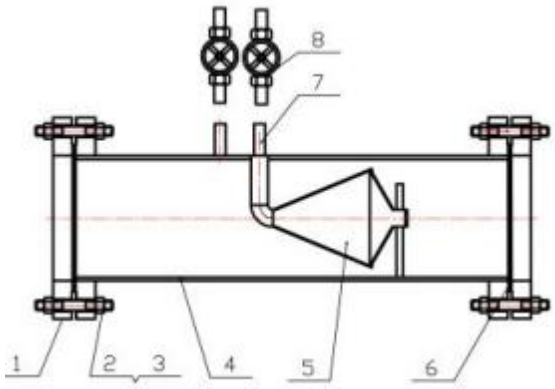
Pressure collection device: ring chamber, press ure collection flange, clamping ring, etc;

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

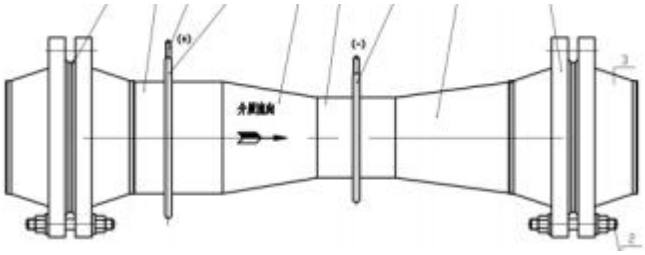
Fasteners, valves, and other accessories.



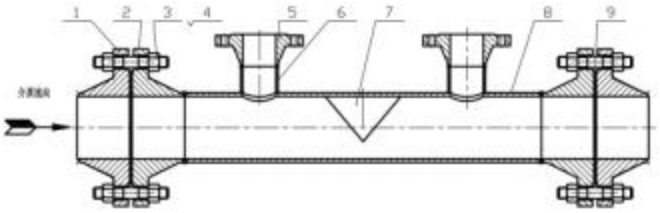
Schematic diagram of orifice plate throttling component



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 (℃)
(X ~ Y)	X、Y Maximum and minimum temperature (℃)

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) ℃ - 10 - ER8 - V2

Selection Tips

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