

Vortex Flow Meter



Vortex Flow Meter bases on **Karman vortex street** Principal for detection and metering the Liquid, Gas and Steam. It is widely used in Petroleum, chemical, metallurgy, heat supply industry, etc.

Vortex Theory:

One triangular prism vortex generator in the flow meter, regular vortex will be generated at both the sides of triangular prism, which is called Karman swirl.

Suppose the vortex generation frequency is f , the average flow velocity of medium is V , d is the width of the surface of triangular prism incident flow, Then we get the computation formula:

$$f = StV/d$$

St: Strouhal number (Constant)



Application:

- *Pure liquids and hydrocarbon with low viscosity (< 10 cP)
- *Water
- *Chemicals that suitable with S.S. 316 Material
- *Saturated steam
- *Superheated steam
- *Industrial gases
- *Compressor air measurement

Gas: air, oxygen, nitrogen, coal gas, natural gas, chemical gas ,

Liquid: water, high temperature water, oil, food liquid, chemical liquid, steam: saturated steam, overheated steam,

Features:

No moving parts, wear resistance, structure is simple and fastness The allowed working temperature is wide from -40 to +350 Wide range, High accuracy

Meter body adopts stainless steel material, corrosion-proof
Pulse signal output, two-wire system 4-20mA current output, RS-485 output

Technical Data Sheet :

Process Media:

Gas, Air, Vapor and Steam - Vortex meter with pressure and temp. Compensations
Liquid - Volume no compensation, mass available with Compensations

Material of construction:

Enclosure : S.S.-

316/S.S-304/1Cr18Ni9Ti / customer

require Sensor : stainless

steel 316 / Tantalum

Repeatability : 0.02%

Accuracy : +/- 0.5 for liquid

: +/- 1% for gas/steam/air/vapor

Flow range

: Liquid:0.4-7.0m/s;

: Gas:4.0-60.0m/s;

: Steam:5.0-70.0m/s

Maximum working pressure: 60 bar, Temperature 40to 350
Dec.

Connection:

Thread (M)/ Flange



Power voltage: 24 V DC

Output signal: 4 TO 20 mA

Measuring ranges for Liquid: Water Flow rate: m³/hour

Line size	Minimum flow rate	Maximum flow rate	O/P HZ range	Temp.
15	1	6	90-900	25°C
20	1.2	8	40-600	
25	2	16	35-400	25°C
32	2.2	20	20-250	
40	2.5	25	10-240	25°C
50	3.5	35	8-190	25°C
65	6	60	7-150	
80	13	130	6-110	25°C
100	20	200	5-90	25°C
125	30	300	4.5-76	
150	50	500	3.58-60	25°C
200	100	1000	3.2-48	25°C
250	150	1500	2.5-37.5	25°C
300	200	2000	2.2-30.6	25°C

Measuring ranges for gas: density : 1.12, and pressure 1 bar Flow rate: m³/hour

Line size	Minimum flow rate	Maximum flow rate	O/P HZ range	Temp.
15	5	30	460-3700	25°C
20	6	50	220-3400	25°C
25	8	60	180-2700	25°C
32	14	100	130-1400	25°C
40	18	180	90-1550	25°C
50	30	300	80-1280	25°C
65	50	500	60-900	25°C
80	70	700	40-700	25°C
100	100	1000	30-570	25°C
125	150	1500	23-490	25°C
150	200	2000	18-360	25°C
200	400	4000	13-325	25°C
250	600	6000	11-220	25°C
300	1000	10000	9-210	25°C

Measuring ranges for Saturated Steam: above 10 bar pressure please contact company Flow rate: kg/hour

Pressure	1	3	5	7	10
Line Size					
15	5 ~ 30	6.5~70	8~110	10~150	12~198
25	10~120	15~250	20~400	20~500	25~700
40	25~350	40~700	45~1100	50~1400	64~1928
50	48~600	65~1200	80~2000	95~2500	111~3340
80	100~1200	150~2500	180~4200	205~5400	250~7232
100	180~2300	250~4800	290~7200	360~8900	425~12400
150	400~4800	550~10000	700~16000	820~21000	980~28500
200	800~9800	1100~20000	1200~32000	1500~38500	1750~53800
250	1200~14000	1800~32000	21000~50000	2400~61500	27500~85000
300	1800~22000	2500~48000	30000~70000	3500~89000	41000~123500

