



Regd. Office :  
603, Krishna Kunj No. 3,  
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# Nishka INSTRUMENTS

Manufacturer Of : Pressure Gauge, Temperature Gauge,  
Level Instruments & Its Parts

Email : nishkainstruments@gmail.com / sales@nishkainstruments.com  
Web.: www.nishkainstruments.com

**BT-VTM- S.S.S - size**

CE Certified

## Industrial Vortex Flow Meter (Steam/Gas/Liquid Flow Meter)



**BROILTECH** 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.

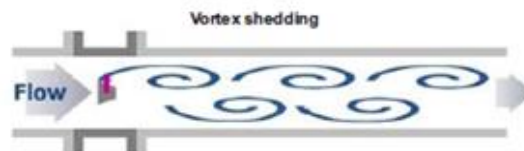
### Vortex Theory:

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°C to +350°C
- 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





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## Industrial Vortex Flow Meter (Steam/Gas/Liquid Flow Meter)

### 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

Fluid & Ambient temperature: -40 to 350 Deg. C

Connection: Thread (M) / Flange

#### 1) Battery operated meter :

Power voltage: 3.3 V10AH lithium batteries can be used more than 5 years in a row.

display mode:

Double row Liquid Crystal Display (LCD), as follows:

L XXX. X four instantaneous flow (m<sup>3</sup> / h) or L/h

XX. XXXXXX eight cumulative flow (m<sup>3</sup>) or L

Pressure, temperature reading

Cumulative flow: automatically expand the display precision, the cumulative flow values can be reset.

Power-fail protection: instrument coefficient, the Total flow values ten years is not lost when power supply drop.

Function : Auto test meter for find problem,

#### 2) Display with 4 to 20 mA Output

Power voltage: 24 VDC

Output signal: 4 TO 20 mA

Optional output on demand : HART protocol / RS-485/ ALARM/3 wire pulse output/  
Data recording hourly, daily and monthly

#### 3) Panel mount flow rate totalizer

Display flow rate and total, many optional output and 24vdc/230vAC power supply





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## Industrial Vortex Flow Meter (Steam/Gas/Liquid Flow Meter)

Measuring ranges for liquid : water

Flow rate: m<sup>3</sup>/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: m<sup>3</sup>/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



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## Industrial Vortex Flow Meter (Steam/Gas/Liquid Flow Meter)

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	2100~50000	2400~61500	2750~85000
300	1800~22000	2500~48000	3000~70000	3500~89000	4100~123500

