

VORTEX FLOWMETER

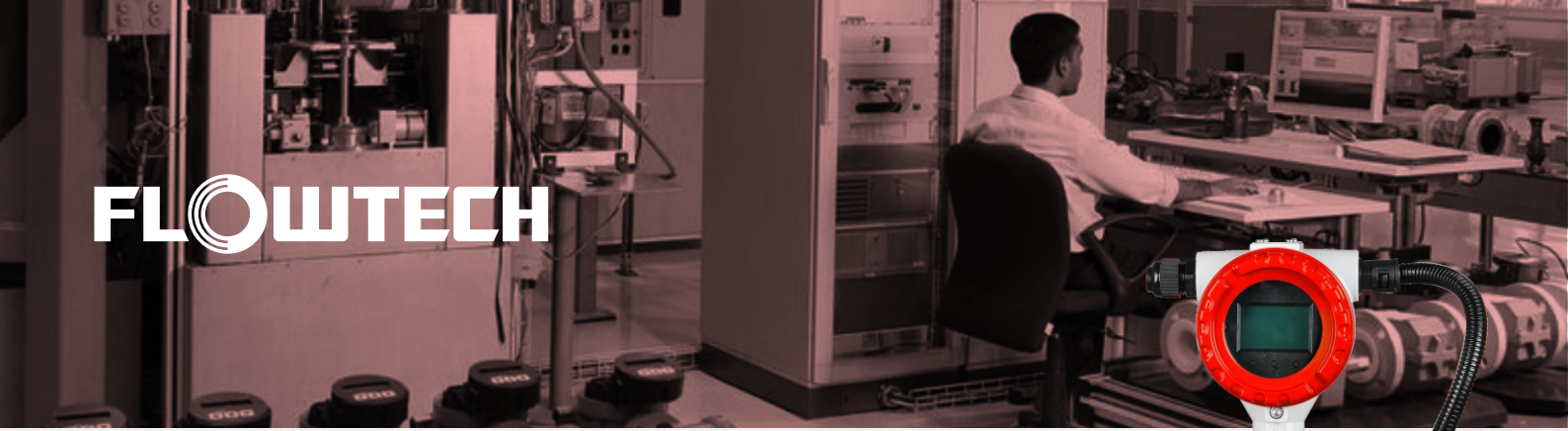
VFM Series



FLOWTECH

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Product Description :

Flowtech Vortex Flow Meter is based 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.

When a triangular column type vortex generator is provided in the fluid, two rows of regular vortices are alternately generated from both sides of the vortex generator, and this vortex is called a Karman vortex street, as shown in Fig. 1 . vortex generator, and this vortex is called a Karman vortex street.

The vortex rows are arranged asymmetrically downstream of the vortex generator. Let the frequency of occurrence of the vortex be f , the average velocity of the flow of the measured medium is V , the width of the vortex generating body is d , and the diameter of the body is D . Let the frequency of occurrence of the vortex be f , the average velocity of the flow of the measured medium is V , the width of the vortex generating body is d , and the diameter of the body is D . According to the principle of Karman According to the principle of Karman vortex, the following relationship is obtained.

$$f = St \cdot V [1 - 1.25d/D]d$$

F - the karman vortex frequency generated on the side of generator

St - Strohar number

V - Average flow rate of V-fluid

D - column flow width

D - pipe inner diameter (up & down alignment)

A capacitance detecting type vortex flow/sensor or a piezoelectirc detecting type vortex flow



Vortex Flowmeter with Temperature & Pressure Compensation



Vortex Flowmeter without Temperature & Pressure Compensation

Applications :

1. Pure Liquids And Hydrocarbon With Low Viscosity (< 10 Cp)
2. Water Industry
3. Chemicals That Suitable With SS . 316 Material
4. Saturated Steam
5. Superheated Steam
6. Industrial Gases
7. Compressor Air Measurement

Features :

1. Integrated Pressure and Temperature Compensation
2. 4-20 mA, pulse with HART; Optional Pulse with RS 485
3. Wide temperature range upto 350°C
4. Embedded Sensor, 4 piezo-electric crystal encapsulated inside the sensor
5. No moving parts, no abrasion, non-wearing parts inside, fully welded SS 304 Body / SS316 / Hastalloy - C

Technical Data Sheet :

Nominal Diameter (mm)	15,20,25,40,50,65,80,100,125,150,200,250,300,(300 to 1000 insertion type)
Nominal Pressure (MPa)	DN15-DN200 4.0 (>4.0 agreement to supply), DN250-DN300 1.6(>1.6 agreement to supply)
Medium Temperature (°C)	Piezoelectric : -40 to 100,-40 to 250,-40 to 330;Capacitive:-40 to 400,-40 to 500 (order agreement)
Body Material	SS 304 / SS 316 / Cust
Allowable Vibration Acceleration	Piezoelectrical : 0.2 g Capacitive : 1.0~2.0 g
Precision	± 1%R, ± 1.5%R; Insertion : ± 2.5 percent R.
Certification	IP Type Test Report, EMI/EMC Certification, IBR Approved.
Range	1:6 to 1:25
Supply Voltage	Sensor: DC 24V/230 VAC/Cust, Battery Powered Type : 3.6 V Battery
Output Signal	Square wave pulse(excluding battery-powered type): high level ≥ supply voltage minus 1V, low level ≤ 1V ; current : 4~20mA.
Pressure Loss Coefficient	Conform to JB/T9249 standard Cd ≤ 2.4
Explosion-proof symbol	EXiaIICT4 Ga
Intrinsically safe parameters	Ui=28VDC, Li=100mA, Pi=0.657W,Ci=0. μ F, Li=0mH
Environmental conditions	Temperature -20°C~55°C, relative humidity 5%~90%, Atmospheric pressure 86~106kPa
Applicable Medium	Gases, Liquid, Vapors
Transmission	Three-wire pulse output type : ≤ 300m, two-wire standard current output type

Technical Drawings :

Instrument Calibre (mm)	Fluids		Gas (i.e. gaseous substance)	
	Measurement Range (m ³ /h)	Output Frequency Range (Hz)	Measurement Range (m ³ /h)	Output Frequency Range (Hz)
15	0.3 to 5	24 to 400	4 to 20	352-1761
20	0.6 to 10	23 to 382	6 to 30	254 to 1273
25	1.2 to 16	21 to 320	8 to 55	161 to 1112
32	1.8 to 20	18 to 200	10 to 120	97 to 1172
40	2 to 40	10 to 190	27 to 205	134 to 1018
50	3 to 60	8 to 150	3 to 380	87 to 952
65	4 to 85	6 to 120	60 to 640	71 to 764
80	6.5 to 130	4.1 to 82	86 to 1100	54 to 696
100	15 to 220	4.7 to 69	133 to 1700	42 to 548
125	20 to 350	3.2 to 57	150 to 2000	26 to 346
150	30 to 450	2.8 to 43	347 to 4000	34 to 392
200	64 to 800	2 to 31	560 to 8000	23 to 326
250	65 to 1250	1.5 to 25	890 to 11000	18.5 to 229
300	95 to 2000	1.2 to 24	1360 to 18000	16 to 216



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Product Ordering Information

Order Code for Vortex Flowmeter Decodification

Type	Description	Code
	with T&P Compensation	T 1
	without T&P Compensation	T 2

Communication Output	Description	Code
	RS 485	C 1
	Customised	OTH

MOC Type	Description	Code
	SS 304	M 1
	SS 316	M 2
	SS 316L	M 3
	Customised	OTH

Power Supply	Description	Code
	24 VDC	S 1
	230 VAC	S 2
	Customised	OTH-power supply

Process Connection Type	Description	Code
	Flange - End	P 1
	Wafer Type	P 2
	Customised	OTH

Protection Category	Description	Code
	Weatherproof	WP
	Flameproof-IIA, IIB & IIC	FLP
	PESO Certified	PFP
	ATEX Approved	ATX

Output	Description	Code
	4-20 mA	O 1
	4 - 20 mA + HART	O 2

Accessories	Description	Code
	Display Controller	A 1
	Mating Flanges	A 2
	Any Other	OTH

Probe Size	Description	Code
	Small (15 - 32 NB)	PS 1
	Middle (40 - 125 NB)	PS 2
	Large (150 - 300 NB)	PS 3

Sensor Temperature Type	Description	Code
	Upto 250° C	ST 1
	Upto 350° C	ST 2

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