Vortex Flowmeters

VA series Vortex flowmeter

The Vortex meter series VTX is equipped with a trapezoidal bluff body which induces a precise detachment of vortices with high repeatability. Liquids, gases and steam can be measured equally well.

Due to the special design of the bluff body the frequency of the vortices is proportional to the flow velocity and independent from pressure, temperature, density and viscosity. The vortices, detaching reciprocally from the bluff body, engender local changes in velocity and pressure, which are detected by a sensor and converted to a sgnal (4-20mA or NAMUR pulses) by a transmitter, equipped with an auto-adaptive and microprocessor-driven signal processing.

- Flange and wafer mount versions
- High temperature option to 450°C
- Suitable for liquids, steam and gas
- ATEX EEx design

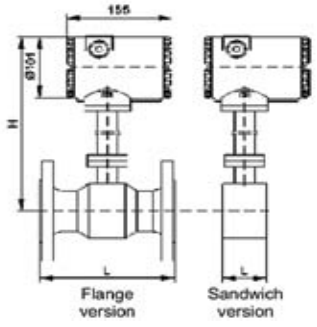
Technical data

Accuracy	Gas / steam : ± 0,9 % of measured value *) Liquids : ± 0,6 % of measured value *)
Repeatability	± 0,15 % of measured value
Operating temperature	-40°C to +270 °C standard -200 °C to +450 °C special design
Ambient temp	-40°C to +70 °C
Process connection	Wafer: DN 15 to 300; PN 10 to 40; Class 150 and 300. Flange: DN 15 to 300; PN 40; Class 150 and 300. Models up to PN 100 on request
Electrical connection	Power supply 14 - 30 VDC. 2 -wire - technology, 4-20 mA, HART or pulses (without HART) and pulse output acc. NAMUR (scalable) cable fitting M20x1,5
Materials	Bluff body: 1.4404 Housing: 1.4404 Gaskets: Viton, Graphite Electronic housing: casted aluminium
Safety class	EEx ia IIC T6 acc. ATEX 100a (EEx d in preparation)
EG-declaration of conformity	acc. EMV-guideline 89/336/EWG DIN EN 61000-6-2 / DIN EN 61000-6-3 and NAMUR NE 21

DN mm	Gas / Steam (m³/h)		Liquids (m³/h)	
	Lower value	Upper value	Lower value	Upper value
15	2	25	0,4	8
25	5	130	1,0	20
40	10	330	2,5	50
50	15	560	4	80
80	40	1600	6	180
100	60	2300	10	300
150	130	5300	20	600
200	250	9400	40	1200
250	400	16000	80	1800
300	500	20000	120	2500

Nominal size > DN 300 available on request

Dimensional Information



Flanged version

DN	L	H
15	200	335
25	200	330
40	200	340
50	200	340
80	200	355
100	250	370
150	300	395
200	300	425
250	380	440
300	450	465

Sandwich version

DN	L	H
15	65	335
25	65	330
40	65	340
50	65	340
80	65	355
100	65	370
150	90	395
200	120	425
250	140	440
300	160	465

Dimensions in mm

Ordering Information

Part Number:	Contact Flowtechnik

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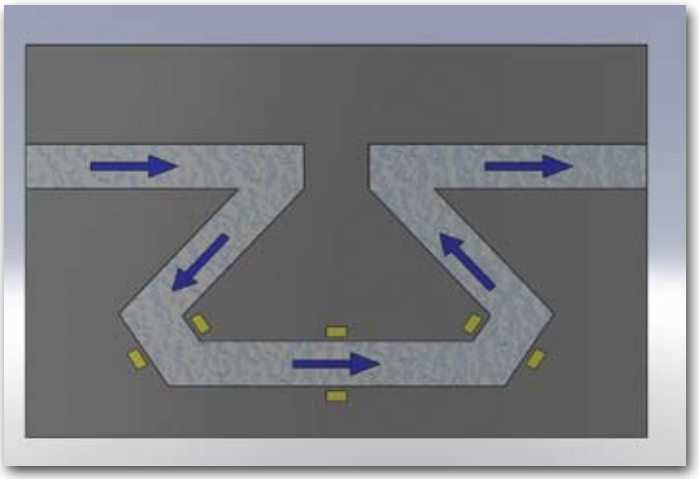
Coriolis flowmeters - principle of operation

Principle of operation

Coriolis flowmeters use the principles first described by Gaspard-Gustave Coriolis in 1835 to infer the mass flow rate and density of a fluid passing through them.

Coriolis meters generally come in two versions, either with straight pipes or 'U' or 'Omega' shaped tubes. Both types have a system of excitation and for sensing the vibration of these tubes, the Coriolis force of a mass flowing through the flowmeter will distort the tube(s) causing a phase change in the measured vibration. This, when compensated for temperature and integrated over time gives Mass Flow Rate.

A component of this signal can also be used to calculate the Density of the fluid as it passes through the flowmeter. Coriolis flowmeters offer some of the best accuracies of any type of flowmeter on the market, however they are complex devices with precision fabricated bodies and electronics. Complex algorithms for signal conditioning and calculation leads to a relatively high cost measuring solution. Coriolis flowmeters can be used on liquid or gas, however they can be problematic when used on multiphase fluids, these applications are generally avoided. Corrosion or abrasion can also affect the flowmeters performance so Coriolis flowmeter tend to be used with clean, single-phase fluids that are not abrasive and if corrosive, special materials have to be used.



Media application guide