SpenoMatic
energy solutions

VORTEX FLOW METER

Designed and made as per German **DIN** Standard

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VORTEX FLOW METER

Vortex Flowmeter works on the Karman vortex street principle that swirls generated by a bluff body in the pipe. The number of swirls are proportional to the volumetric flow in the pipe. Vortex flowmeter widely used for gases, steam and liquid applications. It is ideal for measuring saturated and superheated steam in large facilities to improve steam production efficiency.

Working Principle

When the fluid in the pipeline passes the bluff body (triangular prism), vortices will be generated due to the acceleration of partial flow rate. The vortices will arise alternatively in two lines, which is called Karman vortex. The releasing frequency of Karman vortex depends on the size of triangle prim and flow rate of fluid, while independent of the medium feature parameter, such as the temperature, pressure, it can be indicated by the following formulas:

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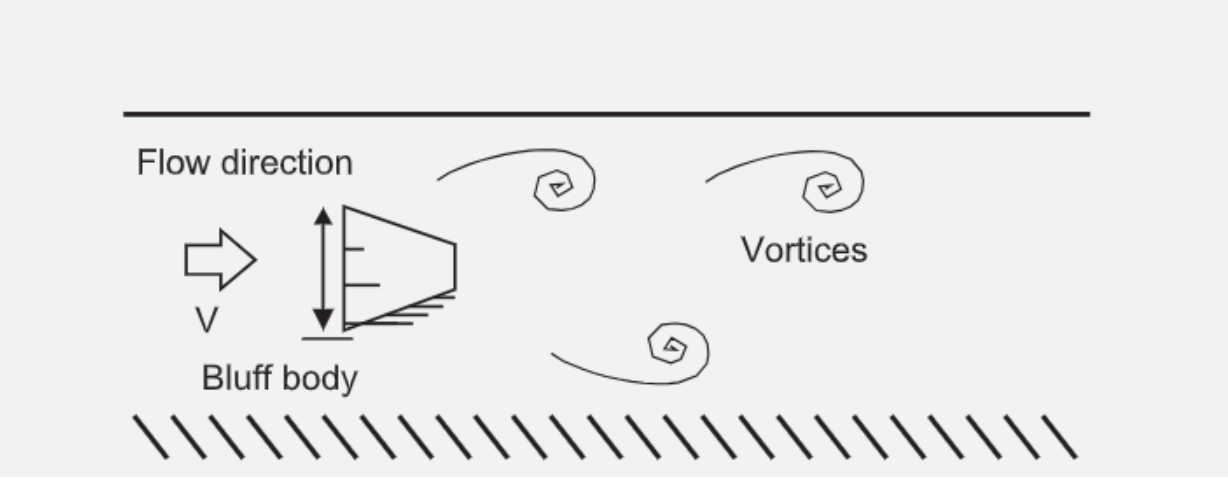
F=sR*v (1-1.27*d/D)	Q=3600*F/K	M=Q*P
F	The releasing frequency of Karman vortex (Hz)	
Sr	Strouhal number (unit: dimensionless)	
V	Medium flow rate (m/s)	
d	The width of triangle prim	
D	Vortex meter inner diameter (m)	
Q	Instantaneous volume flow rate (mJh)	
K	Vortex meter coefficient (unit pulse number/mg)	
M	Instantaneous quality flow rate (kg/h)	
P	Fluid density (kg/ma)	



Application

Applications in the chemicals and petrochemicals industries, for example, in power generation and heat-supply systems involve widely differing fluids: saturated steam, superheated steam, compressed air, nitrogen, liquefied gases, flue gases, carbon dioxide, fully demineralized water, solvents, heat-transfer oils, boiler feedwater, condensate, etc.

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Features

- Integrated pressure and temperature compensation
- 4-20mA, pulse with HART or pulse with RS485 are selectable
- Wide temperature range up to highest temperature 350℃
- Embedded sensor, 4 piezo-electric crystal encapsulated inside the sensor.
- No moving parts, no abrasion, non-wearing parts inside, fully welded SS304 body (SS316 selectable)

Connection Type

Flanged Connection	Wafer Connection	Tri-clamp Connection	Thread Connection	Insertion type

Campact Vs remote Type

Compact Type

Remote type: Remote converter type (standard cable 10m, max cable 20m)

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Flow Range

Liquid and Air Flow Range Table (m3/h)

Absolute Pressure(MPa)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
Temperature (°C)	120.2	133.6	143.6	151.8	158.9	164.9	170.4
Density (kg/m³)	1.129	1.161	1.191	1.219	1.246	1.272	1.297
DN15 Qmin	5.645	8.255	10.815	13.345	15.855	18.335	20.81
DN15 Qmax	56.45	82.55	108.15	133.45	158.55	183.35	208.1
DN20 Qmin	6.774	9.96	12.978	16.014	19.02	22.002	24.972
DN20 Qmax	67.74	99.60	129.78	160.14	190.2	220.02	249.72
DN25 Qmin	9.032	13.208	17.306	21.352	25.386	29.336	33.296
DN25 Qmax	90.32	132.08	173.04	213.52	253.86	293.36	332.96
DN32 Qmin	13.549	19.12	25.596	32.028	38.494	44.004	49.944
DN32 Qmax	135.49	191.2	255.96	320.28	384.94	440.04	499.44
DN40 Qmin	20.322	29.718	38.394	48.042	57.06	66.006	74.916
DN40 Qmax	203.22	297.18	383.94	480.42	570.6	660.06	749.16
DN50 Qmin	22.58	33.03	44.06	55.02	66.725	77.95	88.25
DN50 Qmax	225.8	330.3	440.6	550.2	667.25	779.5	882.5
DN65 Qmin	28.225	41.475	55.64	69.75	83.675	97.675	111.7
DN65 Qmax	282.25	414.75	556.4	697.5	836.75	976.75	1117
DN80 Qmin	33.87	50.01	66.74	83.24	99.6	116.4	132.0
DN80 Qmax	338.7	500.1	667.4	832.4	996.0	1164	1320
DN100 Qmin	45.16	66.05	89.4	112.9	135.8	158.9	181.8
DN100 Qmax	451.6	660.5	894.0	1129	1358	1589	1818
DN150 Qmin	112.9	166.1	216.3	268.3	317.7	366.7	416.2
DN150 Qmax	1129	1661	2163	2683	3177	3667	4162
DN200 Qmin	225.8	330.3	432.6	533.3	634	733.4	832.4
DN200 Qmax	2258	3303	4326	5333	6340	7334	8324
DN300 Qmin	395.5	577.85	757.05	937.8	1109.5	1283.45	1456.7
DN300 Qmax	3955	5778.5	7570.5	9378	11095	12834.5	14567

Absolute Pressure(MPa)	0.9	1.0	1.2	1.4	1.6	1.8	2.0
Temperature (°C)	175.36	179.68	187.96	195.04	201.37	207.11	212.37
Density (kg/m³)	1.665	1.617	1.547	1.485	1.425	1.367	1.312
DN15 Qmin	23.325	25.735	30.635	36.762	43.51	49.54	54.39
DN15 Qmax	233.25	257.35	306.35	367.62	435.1	495.4	543.9
DN20 Qmin	27.99	30.882	36.762	42.638	49.516	55.439	60.3
DN20 Qmax	279.9	308.82	367.62	426.36	495.16	543.9	603
DN25 Qmin	37.92	41.176	49.016	57.006	64.68	73.824	82.
DN25 Qmax	559.8	617.64	738.24	852.72	970.2	1087.8	1206
DN32 Qmin	83.97	92.646	110.286	127.908	145.53	163.17	180.9
DN32 Qmax	830.7	926.46	1102.86	1279.08	1455.3	1691.7	1809
DN40 Qmin	93.3	102.94	122.54	141.2	161.7	181.3	201.5
DN40 Qmax	933	1029.4	1225.4	1412	1617	1813	2015
DN50 Qmin	116.625	128.675	153.175	177.62	202.125	226.625	251.25
DN50 Qmax	1166.25	1286.75	1531.75	1776.2	2021.25	2266.25	2512.5
DN65 Qmin	186.6	206.88	248.08	284.24	323.4	362.6	402
DN65 Qmax	1866	2068.8	2480.8	2842.4	3234	3626	4020
DN80 Qmin	279.9	308.82	367.62	426.36	485.1	543.9	603
DN80 Qmax	2799	3088.2	3676.2	4263.6	4851	5439	6030
DN100 Qmin	466.5	514.7	612.7	720.4	812.7	906.5	1001
DN100 Qmax	4665	5147	6127	7204	8127	9065	10010
DN125 Qmin	699.75	772.05	919.05	1065.9	1212.75	1359.75	1507.5
DN125 Qmax	6997.5	7720.5	9190.5	10659	12127.5	13597.5	15075
DN150 Qmin	933	1029.4	1225.4	1421	1617	1813	2015
DN150 Qmax	9330	10294	12254	14120	16170	18130	20150
DN200 Qmin	1632.75	1801.45	2144.45	2487.1	2829.75	3172.75	3515.5
DN200 Qmax	16327.5	18014.5	21444.5	24871	28297.5	31727.5	35155
DN250 Qmin	2332.5	2573.5	3063.5	3553	4042.5	4532.5	5022.5
DN250 Qmax	23325	25735	30635	35530	40425	45325	50225
DN300 Qmin	2799	3088.2	3676.2	4263.6	4851	5439	6030
DN300 Qmax	27990	30882	36762	42636	48510	54390	60300

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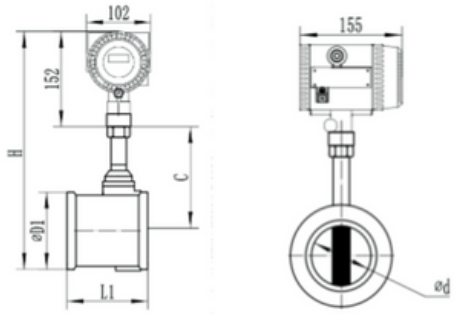
Dimensions

Wafer Connection



Size	L1	D1	d	C
DN15	65	65	15	240.5
DN20	65	65	20	240.5
DN25	65	65	26	240.5
DN32	65	65	32	240.5
DN40	80	76	38	237
DN50	80	88	48	237
DN65	92	101	62	242.5
DN80	100	112	73	247
DN100	124	134	95	271
DN125	145	158	118	284
DN150	165	180	140	313
DN200	195	247	200	319.5
DN250	115	300	250	348
DN300	130	347	300	369.5

Please provide the following information when ordering:

1. Operating pressure, back pressure
2. Operating temperature
3. Type of connection
4. Flow
5. Size

• Please ask us for special sizes and customizations.

Contact Us

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