

Vortex Flow Meter

Datasheet



Description

Vortex flow meter is one kind of velocity type flow meter, it's based on Karman vortex theory and adopts piezoelectric crystal to detect the burble frequency of the fluid caused by flowing through the triangular prism in the pipeline and then measure the flow of fluid. It is widely used in petrol, chemical industry, light industry and power heat supply and so on.

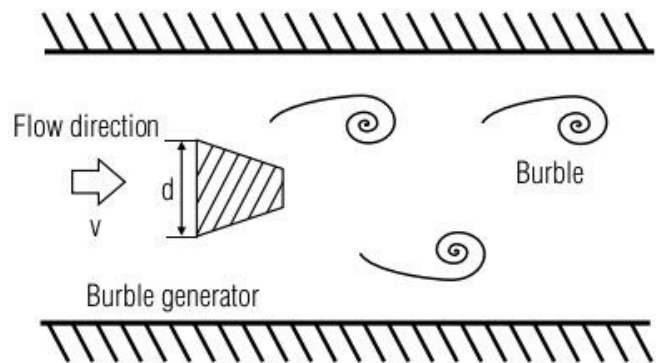
Working Principle

When the fluid in the pipeline passes the burble generator(triangular prism),burble will generate due to the acceleration of partial flow rate. The burble will arise alternatively in two burble 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:

$$F = sR \cdot v(1 - 1.27 \cdot d/D) \quad Q = 3600 \cdot F/K \quad M = Q \cdot P$$

- F.....ThereleasingfrequencyofKarmanvortex(Hz)
- Sr.....Strouhalnumber(unit:dimensionless)
- V.....Mediumflowrate(m/s)
- d.....Thewidthoftriangleprim
- D.....Vortexmeterinnerdiameter(m)
- Q.....Instantaneousvolumeflowrate(m³/h)
- K.....Vortexmetercoefficient(unitpulsenumber/m³)
- M.....Instantaneousqualityflowrate(kg/h)
- P.....Fluiddensity(kg/m³)



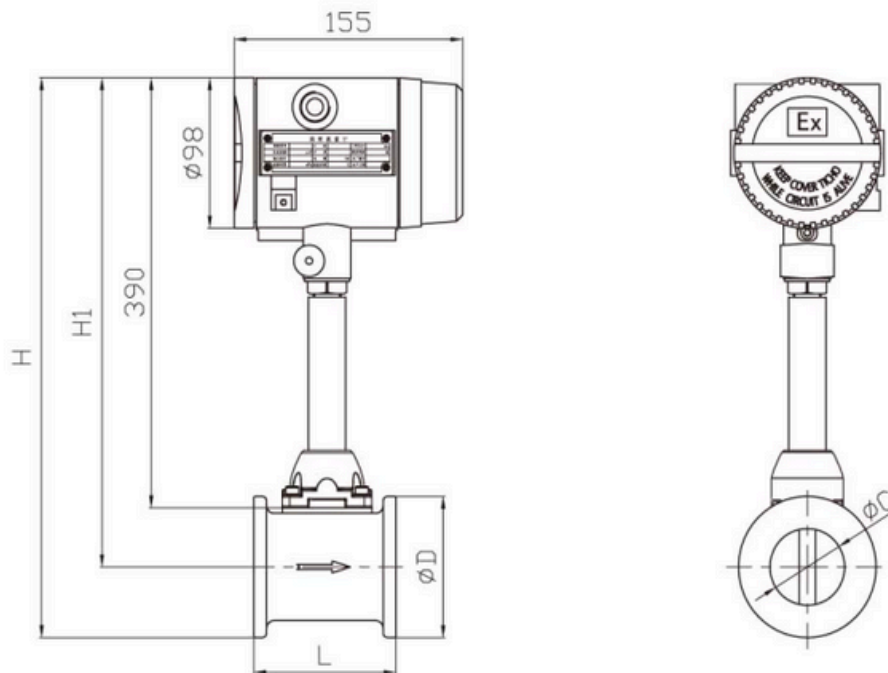
Benefit

- ◆ Integrated pressure and temperature compensation. 4-20mA, pulse with HART; Optional pulse with RS485
- ◆ Wide temperature range up to highest temperature 350°C Adopt Japan OVAL technology and design
- ◆ Embedded sensor, 4 piezo-electric crystal encapsulated inside the sensor.
- ◆ No moving parts, no abrasion, non-wearing parts inside, fully welded SS304 body (Optional SS316)
- ◆

Standard Specification

● Size	: DN15-DN300mm	●RelativeHumidity	: ≤85%
● Accuracy	: ±1.5%(standard), ±1.0%(optional)	●Explosion-proof	: ExiaIICT6Gb
● Power Supply	: 24VDC	● Ambient Temperature	: -40°C~55°C (Non Ex-proof Place) -20°C~55°C (Non Ex-proof Place)
● Communication	: RS485/Modbus, Hart	●Nominal Pressure	: 1.6 MPa, 2.5 MPa, 4.0 MPa
● Flange Standard	: EN1092-1	●ProtectionGrade	: IP65
	PN10,PN16,PN25,PN40	●Velocity	: 0.4~7.0m/sliquid 4.0~60 m/s gas 5.0~70 m/s steam
	ANSIBS16.5 Class150,300,600	●BodyMaterial	: SS304(Standard),SS316(Optional)
	JIS2220 10K,20K,40	●Resistance Coefficient	: Cd ≤2.6
	AS2129 TableD,TableE	●Oscillatory Acceleration	: ≤0.2g
	AS4087 PN16,PN21,PN35	●ReynoldsNumber	: 2x10 ⁴ ~7x10 ⁶
● Straight Pipe	: Inlet Path ≥ 12D,Outlet Path ≥ 5D		
● Signal Output	: 4~20 mA,pulse		
● Frequency Output	: 2~3000 Hz		

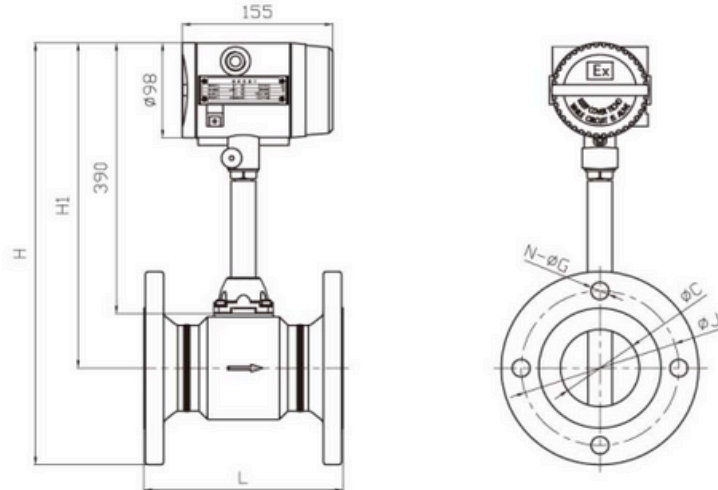
■ DIMENSIONS



Wafer Type

Size	H1	H	L	D	C
15	431	448	70	35.1	15
20	431	452	70	43	20
25	431	456	70	50.8	25
32	431	463	70	64	32
40	428	464	70	73	40
50	431	477	75	92	50
65	440	492	75	105	65
80	448	511	100	127	80
100	459	537	120	157.2	100
125	471	564	103	186	125
150	484	592	120	216	150
200	504	624	98	240	200
250	535	684	114	298	250
300	560	734	130	348	300

DIMENSIONS



Pressure and Temperature Compensation Type

SIZE	L	H1	DIN 1.6Mpa			DIN 2.5Mpa			DIN 4.0Mpa			ANSI 150RF			ANSI 300RF			C
			H	J	N-ØG	H	J	N-ØG	H	J	N-ØG	H	J	N-ØG	H	J	N-ØG	
15	220	431	478	65	4-Ø14	478	65	4-Ø14	478	65	4-Ø14	/			/			15
20	220	431	483	75	4-Ø14	483	75	4-Ø14	483	75	4-Ø14	480	70	4-Ø15	489	82.5	4-Ø19	20
25	220	431	488	85	4-Ø14	488	85	4-Ø14	488	85	4-Ø14	485	79.5	4-Ø15	493	89	4-Ø19	25
32	220	431	501	100	4-Ø18	501	100	4-Ø18	501	100	4-Ø18	490	89	4-Ø15	497	98.4	4-Ø19	32
40	170	428	503	110	4-Ø18	503	110	4-Ø18	503	110	4-Ø18	491	98.5	4-Ø15	506	114.5	4-Ø23	40
50	170	431	513	125	4-Ø18	513	125	4-Ø18	513	125	4-Ø18	507	120.5	4-Ø19	513	127	8-Ø19	50
65	170	440	532	145	4-Ø18	532	145	8-Ø18	532	145	8-Ø18	529	139.5	4-Ø19	535	149	8-Ø23	65
80	200	448	548	160	8-Ø18	548	160	8-Ø18	548	160	8-Ø18	543	152.5	4-Ø19	553	168	8-Ø23	80
100	220	459	569	180	8-Ø18	574	190	8-Ø22	574	190	8-Ø22	573	190.5	8-Ø19	586	200	8-Ø23	100
125	220	471	596	210	8-Ø18	606	220	8-Ø26	H	220	8-Ø26	598	216	8-Ø23	610	235	8-Ø23	125
150	270	484	626	240	8-Ø22	634	250	8-Ø26	478	250	8-Ø26	623	241.5	8-Ø23	643	270	12-Ø23	150
200	310	504	674	295	12-Ø22	684	310	12-Ø26	483	320	12-Ø30	675	298.5	8-Ø23	694	330	12-Ø25	200
250	370	535	737	355	12-Ø26	747	370	12-Ø30	488	385	12-Ø33	738	362	12-Ø25	757	387.5	16-Ø30	250
300	400	560	790	410	12-Ø26	802	430	16-Ø30	501	450	16-Ø33	801	432	12-Ø25	820	451	16-Ø33	300

Flange Type

SIZE	L	H1	DIN 1.6MPa			DIN 2.5MPa			DIN 4.0MPa			ANSI 150RF			ANSI 300RF			C
			H	J	N-ØG	H	J	N-ØG	H	J	N-ØG	H	J	N-ØG	H	J	N-ØG	
15	170	431	478	65	4-Ø14	478	65	4-Ø14	478	65	4-Ø14	/			/			15
20	170	431	483	75	4-Ø14	483	75	4-Ø14	483	75	4-Ø14	480	70	4-Ø15	489	82.5	4-Ø19	20
25	170	431	488	85	4-Ø14	488	85	4-Ø14	488	85	4-Ø14	485	79.5	4-Ø15	493	89	4-Ø19	25
32	170	431	501	100	4-Ø18	501	100	4-Ø18	501	100	4-Ø18	490	89	4-Ø15	497	98.4	4-Ø19	32
40	170	428	503	110	4-Ø18	503	110	4-Ø18	503	110	4-Ø18	491	98.5	4-Ø15	506	114.5	4-Ø23	40
50	170	431	513	125	4-Ø18	513	125	4-Ø18	513	125	4-Ø18	507	120.5	4-Ø19	513	127	8-Ø19	50
65	170	440	532	145	4-Ø18	532	145	8-Ø18	532	145	8-Ø18	529	139.5	4-Ø19	535	149	8-Ø23	65
80	200	448	548	160	8-Ø18	548	160	8-Ø18	548	160	8-Ø18	543	152.5	4-Ø19	553	168	8-Ø23	80
100	220	459	569	180	8-Ø18	574	190	8-Ø22	574	190	8-Ø22	573	190.5	8-Ø19	586	200	8-Ø23	100
125	220	471	596	210	8-Ø18	606	220	8-Ø26	H	220	8-Ø26	598	216	8-Ø23	610	235	8-Ø23	125
150	270	484	626	240	8-Ø22	634	250	8-Ø26	478	250	8-Ø26	623	241.5	8-Ø23	643	270	12-Ø23	150
200	310	504	674	295	12-Ø22	684	310	12-Ø26	483	320	12-Ø30	675	298.5	8-Ø23	694	330	12-Ø25	200
250	370	535	737	355	12-Ø26	747	370	12-Ø30	488	385	12-Ø33	738	362	12-Ø25	757	387.5	16-Ø30	250
300	400	560	790	410	12-Ø26	802	430	16-Ø30	501	450	16-Ø33	801	432	12-Ø25	820	451	16-Ø33	300

■ FLOW RATE

Diameter		Gas	Liquid
(mm)	(inch)	Flow(m ³ /h)	Flow(m ³ /h)
15	1/2"	2-20	0.2-2
20	3/4"	6-50	1.2-12
25	1"	8-60	1.6-16
32	1-1/4"	12-120	2-20
40	1-1/2"	20-200	2-30
50	2"	30-300	3-50
65	2-1/2"	50-500	18-180
80	3"	70-700	15-150
100	4"	100-1000	20-200
125	5"	150-1500	36-360
150	6"	200-2000	50-500
200	8"	400-4000	100-1000
250	10"	600-6000	150-1500
300	12"	1000-10000	200-2000

Model		Code							Specification
LUGB								Vortex Flow Meter	
Diameter								DN15-DN300	
Connection	Pipeline	FL						Flange Connection	
		JZ						Wafer Clamp	
		Z						Customized	
Accuracy		Pipeline	10					1.0%R	
			15					1.5%R	
Temperature and Pressure Compensation				S				With	
				Z				Without	
Communication Protocol				N				No Communication Interface	
				H				HART Protocol	
				M				MODBUS Protocol	
Output				1				No Output	
				2				Two-wire 4-20mA Output	
				3				Pulse Output	
Power Supply					DD			24VDC	
					B			Battery 3.6V	
Body Material						S		Stainless Steel	
Measuring Medium							1	Gas	
							2	Liquid	
							3	Saturated Steam	
							4	Superheated Steam	