

Vortex Flowmeter

StaWirl WF100 Series

Introduction

When the medium flows through the bluff object of the flowmeter, a vortex belt is generated behind bluff object. Vortex flow meters operate under the vortex shedding principle, where vortices are shed alternately downstream of the object. The frequency of the vortex shedding is directly proportional to the velocity of the liquid flowing through the meter. Stein vortex flowmeter StaWirl WF100 is ideal for liquids, air and steam measurement. No moving parts; maintenance-free; Either flange or wafer version can be selected.



Characteristics

Steam / gas/ liquid measurement

High turndown ratio

Less pressure loss

No moving parts

Max. medium temperature 662°F / 350°C

Stable performance

Applications

Steam / gas/ liquid measurement

Saturated steam

Pressed air

Versions

Flange - Integrated transmitter

1/2" ... 12" / DN15...DN300
In-line vortex flowmeter with an integrated transmitter. Easy to install and operate.

Flange - Remote transmitter

1/2" ... 12" / DN15...DN300
In-line vortex flowmeter with a remote transmitter. Good for high temperature application, or need install the transmitter in the control room while sensor in field.

Wafer

1/2" ... 6" / DN15...DN150
Easy to install
Cost efficient

Specifications

Pipe size	1/2" ... 6" / DN15...DN150 (Wafer)
	1/2" ... 12" / DN15...DN300 (Flange)
Applicable medium	Liquid / Gas / Steam
Measuring range	See measuring range table below
Accuracy	0.75% of reading (Liquid)
	1.5% of reading (Gas)
Operating voltage	18...30VDC
Pressure rating	See process connection in order code for details
Output signal	Pulse
	4-20mA
	4-20mA with HART
	Modbus RS485
	See order code for details
Operating Temperature	Standard: -40...482°F / -40...250°C
	High temperature: -40...662°F / -40...350°C
	Ex-proof: -40...176°F / -40...80°C
Ambient Temperature	Sensor: -40...176°F / -40...80°C
	Transmitter: -13...140°F / -25...60°C
Ambient Humidity	5...95% of relative humidity
Protection class	Integrated type: IP65
	Remote type: IP68(sensor), IP65(transmitter)
Body/flange material	Stainless steel
Process connection	Wafer / Flange / Thread
Electrical connection	M20x1.5
Ex-proof	Exd II BT5 Gb

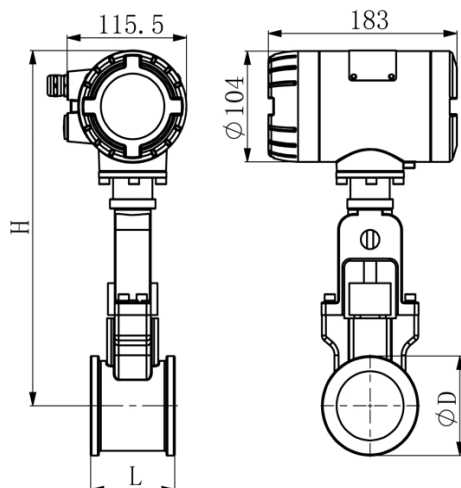
Reference conditions of mesurment accuracy

Flow range setting	1.5 x Max. reading value
Ambient Temperature	68°F / 20°C
Humidity	70% relative humidity
Atmospheric pressure	103 + 10kpa
Power	24VDC + 15%
Medium	Water: 68°F / 20°C, pressure 3 bar (43 psi)
	Air: 68°F / 20°C, standard atmospheric pressure
Stability time	25 mins
Upstream straight pipeline	10 x pipe diameter
Downstream straight pipeline	5 x pipe diameter

Flow range

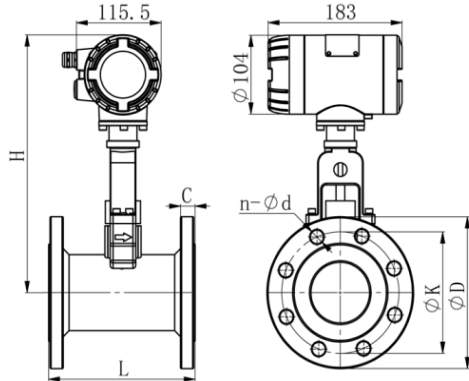
Size		Liquid		Gas		Stream	
Inch	DN	m ³ /h	gal/min	m ³ /h	CFM	m ³ /h	CFM
1/2"	15	0.3...6	1.3...26	3...30	1.8...17	2.5...40	1.5...23
3/4"	20	0.4...10	1.8...44	4...40	2.4...23	3...80	1.8...47
1"	25	0.5...14	2.2...61	5...60	3...35	4...120	2.4...70
1-1/4"	32	0.6...20	2.6...88	6...100	3.6...58	5...200	3...117
1-1/2"	40	0.8...30	3.5...132	8...200	4.7...117	10...300	6...176
2"	50	1...50	4.4...220	10...300	5.9...176	15...450	8.9...264
2-1/2"	65	3...90	13.2...396	30...600	17.7...353	30...800	17...470
3"	80	4...130	17.6...572	40...800	23...470	40...1300	23...765
4"	100	6...200	26.4...880	60...1200	35...706	60...2000	35...1177
5"	125	10...300	44...1320	100...2000	58...1177	100...3000	58...1765
6"	150	16...450	70...1981	160...3000	94...1765	160...4500	94...2648
8"	200	30...800	132...3522	300...5000	176...2942	300...9000	176...5297
10"	250	60...1200	264...5283	600...7000	353...4120	600...12000	353...7062
12"	300	80...2000	352...8806	800...10000	470...5885	800...16000	470...9417

Dimension in mm (Wafer)



Size		L	H	D	Pressure Rating
Inch	DN				
1/2"	15	70	315	49.5	PN16 / Class 150
3/4"	20	70	315	49.5	
1"	25	70	315	49.5	
1-1/4"	32	70	322	63	
1-1/2"	40	70	322	63	
2"	50	80	325	78	
2-1/2"	65	80	335	93.5	
3"	80	100	340	106.5	
4"	100	120	350	138	
5"	125	140	362	156	
6"	150	160	375	180	

Dimension in mm (Flange)



Flange ANSI Class 150 (ASME B16.5)

Inch	L	H	C	K	D	n-Ød	Pressure Rating
1/2"	145	315	11.5	60.5	90	4-Ø16	Class 150
3/4"	180	315	13	70	100	4-Ø16	
1"	200	315	14.5	79.5	110	4-Ø16	
1-1/4"	200	322	16	89	120	4-Ø16	
1-1/2"	200	322	17.5	98.5	130	4-Ø16	
2"	200	325	19.5	120.5	150	4-Ø18	
2-1/2"	200	335	22.5	139.5	180	4-Ø18	
3"	200	340	24	152.5	190	4-Ø18	
4"	250	350	24	190.5	230	8-Ø18	
5"	250	362	24	216	255	8-Ø22	
6"	300	375	25.5	241.5	280	8-Ø22	
8"	350	400	29	298.5	345	8-Ø22	
10"	400	425	30.5	362	405	12-Ø26	
12"	400	450	32	432	485	12-Ø26	

Flange ANSI Class 300 (ASME B16.5)

Inch	L	H	C	D	K	n-Ød	Pressure Rating
1/2"	145	315	14.5	95	66.5	4-Ø16	Class 300
3/4"	180	315	16	120	82.5	4-Ø18	
1"	200	315	17.5	125	89	4-Ø18	
1-1/4"	200	322	19.5	135	98.5	4-Ø18	
1-1/2"	200	322	21	155	114.5	4-Ø22	
2"	200	325	22.5	165	127	8-Ø18	
2-1/2"	200	335	25.5	190	149	8-Ø22	
3"	200	340	29	210	168.5	8-Ø22	
4"	250	350	32	255	200	8-Ø22	
5"	250	362	35	280	235	8-Ø22	
6"	300	375	37	320	270	12-Ø22	
8"	350	400	41.5	380	330	12-Ø26	
10"	400	425	48	445	387.5	16-Ø29.5	
12"	400	450	51	520	451	16-Ø32.5	

Flange EN 1092-1

DN	L	H	C	D	K	n-Ød	Pressure Rating
15	145	315	14	95	65	4-Ø14	PN40
20	180	315	16	105	75	4-Ø14	
25	200	315	16	115	85	4-Ø14	
32	200	322	18	140	100	4-Ø18	
40	200	322	18	150	110	4-Ø18	
50	200	325	20	165	125	4-Ø18	
65	200	335	20	185	145	4-Ø18	PN16
80	200	340	20	200	160	8-Ø18	
100	250	350	22	220	180	8-Ø18	
125	250	362	22	250	210	8-Ø18	
150	300	375	24	285	240	8-Ø22	
200	350	400	26	340	295	12-Ø22	
250	400	425	26	395	350	12-Ø22	PN10
300	400	450	26	445	400	12-Ø22	

Order Code

Example: WF100-FL25ALKNNP0FA150

1. WF100-

F	Integral transmitter
R	Remote transmitter

2. Medium

L	Liquid
G	Gas
S	Steam

3. Size

15	1/2" (DN15)
20	3/4" (DN20)
25	1" (DN25)
32	1-1/4" (DN32)
40	1-1/2" (DN40)
50	2" (DN50)
65	2-1/2" (DN65)
80	3" (DN80)
100	4" (DN100)
125	5" (DN125)
150	6" (DN150)
200	8" (DN200)
250	10" (DN250)
300	12" (DN300)

4. Output

A	Pulse 4-20mA
H	Pulse 4-20mA with HART
R	RS485

5. Sensor material

L	316L stainless steel
C	Hastelloy C

6. Body material

K	304 stainless steel
L	316L stainless steel

7. High temperature

N	Standard (/ -40...482°F / -40...250°C)
HT	High temperature (-40...662°F / -40...350°C)

8. Compensation

N	None
P	Pressure compensation
T	Temperature compensation
PT	Pressure + Temperature compensation

9. Ex-proof

P	Non-hazardous area
E	Hazardous area

10. Cable (remote type only: connect sensor to transmitter)

0	None
5	Cable length: 5m (16ft) Cable length options: 2-50m (6.5...164ft) Applicable to remote type only

11. Process connection

W	Wafer (up to 6" / DN150)
FA150	Flange: ANSI Class 150 (ASME B16.5)
FA300	Flange: ANSI Class 300 (ASME B16.5)
FU	Flange: EN 1092-1 see dimensions for pressure rating.
TN	NPT male thread (up to 2" / DN50)
TG	G male thread (up to 2" / DN50)
S	Other connection / pressure rating on request