



OVERVIEW

Description

FBVP Vortex Flow Meter measuring the flow rate various fluids such as gas, steam, liquids. The unique dual-sensor design and special signal processing method has also ensured a better anti-vibration by eliminating the vibration signals to provide more reliable performance and lower measurement limit.

Application

- Pharmaceutical industry
- Chemical Processes
- Heat treatment
- Energy distribution in auxiliary and supply circuits
- Measurement of consumption of industrial gases (natural gas, nitrogen etc.)
- Measurement of consumption in compressed air systems

Features

- Volumetric or mass flow monitoring of most liquids, gases and steam
- Installation cost and cost-of ownership over the lifetime of the instrument
- Mass flow equations real gas, ideal gas, AGA 8, API 2540
- Compensated mass flow reading of liquids, gases and steam
- Energy monitoring ability to compute and output energy use
- Easy to install and commission
- Reliable no moving parts no fluid to sensor contact
- High accuracy
- Field configurable ranges, outputs and displays
- 4-20mA loop-powered mass meter design saves on energy costs
- HART/MODBUS communications are available



OPERATING DATA

Operating Pressure

100 bar max.

Temperature Limit

-40°C... +400°C

Environmental Conditions

Ambient Temp. -40 to 60°C
Humidity %0 to %90

Accuracy

Liquid $\pm 0,5\%$ flow rate
Gas $\pm 0,1\%$ of flow rate (Volumetric)
 $\pm 1,5\%$ of flow rate (VTP)
Steam $\pm 1,0\%$ of flow rate (Volumetric)
 $\pm 1,5\%$ of flow rate (VTP)

Analog Output

Calibrated to $\pm 0,001\text{mA}$ of reading

Repeatability

0,3% RD

Hazardous Area

Ex d II B T1...T6 optional

Protection

IP65
IP67&IP68

Display

LCD rate and total indicator

MEASURING RANGES

Min. Velocity Ranges

Liquids 0,3 m/sec
Gas and Steam 4m/sec for DN25 and DN32
2m/sec for DN40 and DN300

Max. Velocity Ranges

Liquids 7 m/sec
Gas 60 m/sec
Steam 80 m/sec

MATERIALS

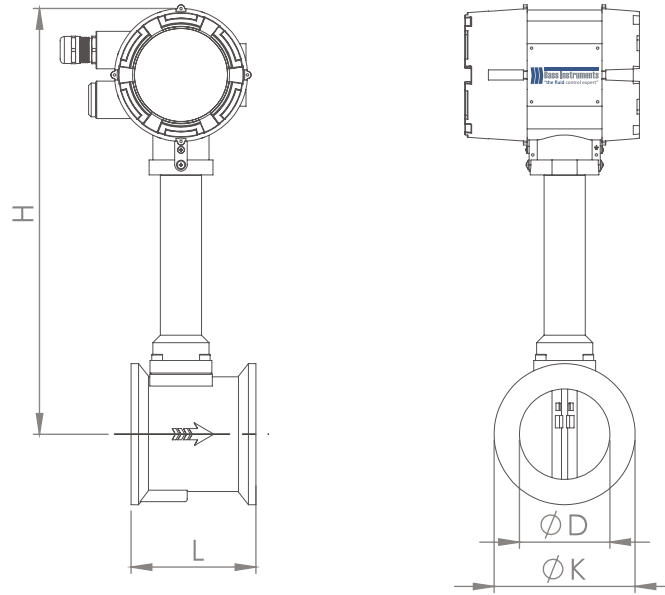
Wetted Parts Material

AISI304
AISI316&AISI316L on request

PRODUCT CLASSIFICATION



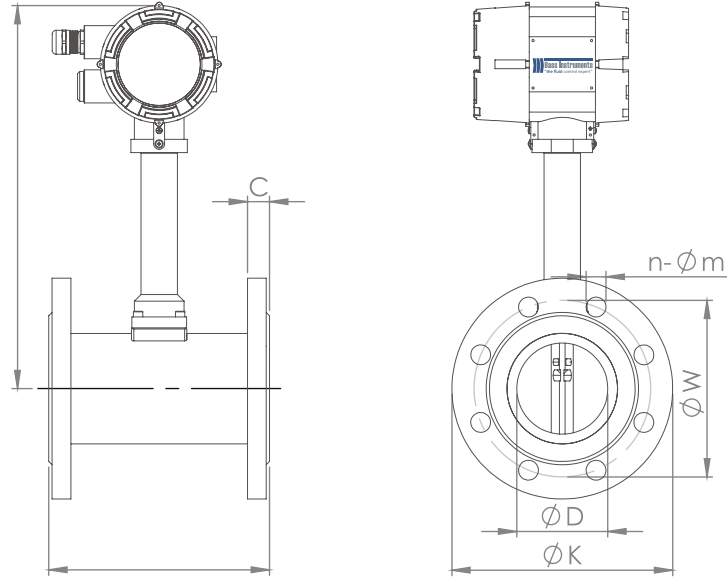
TECHNICAL DRAWING AND DIMENSIONS



Dimension for Wafer type

Size	K	L	M
15	65	65	358
20	65	65	358
25	65	65	358
32	65	65	358
40	76	79	363
50	87	80	369
65	101	92	375
80	102	100	376
100	134	124	395
125	158	145	405
150	180	165	415
200	247	195	450
250	297	113	475
300	346	127	500





Dimension ion for DIN PN16 Flanged

Size	K	L	W	C	M	N	H
15	95	170	65	14	14	4	358
20	105	170	75	16	14	4	358
25	115	170	85	16	14	4	358
32	140	170	100	18	18	4	358
40	150	190	110	18	18	4	363
50	165	190	125	19	18	4	369
65	185	220	145	20	18	8	375
80	200	220	160	20	18	8	376
100	220	240	180	22	18	8	395
125	250	260	210	22	18	8	405
150	285	280	240	24	22	8	415
200	340	300	295	26	22	12	450
250	405	360	355	29	26	12	475
300	460	400	410	32	26	12	500

*The dimensions should be used just for mechanical installation.

*The manufacturer may rake changes to the dimensions.

*Dimensions unit is mm.



MEASURING RANGES

Gas/Liquid Measuring Range

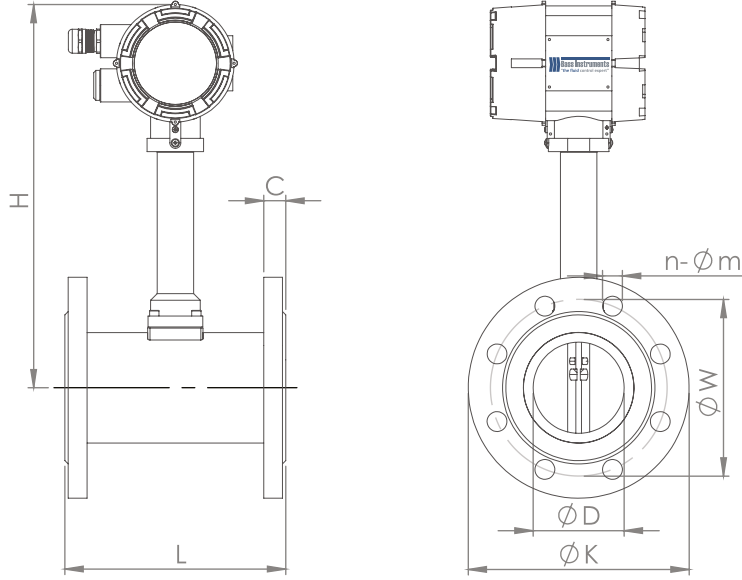
		Gas Actual Flow				Liquid Actual Flow			
		Min Flow m³/h	Max Flow m³/h	Min Flow cu.ft/min	Max Flow cu.ft/min	Min Flow m³/h	Max Flow m³/h	Min Flow GPM	Max Flow GPM
25mm	1 inch	7.1	123.6	4.2	72.7	0.5	12.4	2.3	54.4
32mm	1.25 inch	11.6	202.5	6.8	119.2	0.9	20.2	3.8	89.2
40mm	1.5 inch	9	316.4	5.3	186.2	1.4	31.6	6	139.3
50mm	2 inch	14.1	494.4	8.3	291	2.1	49.4	9.3	217.7
65mm	2.5 inch	23.9	835.5	14	491.7	3.6	83.5	15.8	367.8
80mm	3 inch	36.2	1265.5	21.3	744.9	5.4	126.6	23.9	557.2
100mm	4 inch	56.5	1977.4	33.3	1163.9	8.5	197.7	37.3	870.6
125mm	5 inch	88.3	3089.7	52	1818.5	13.2	309	58.3	1360.4
150mm	6 inch	127.1	4449.2	74.8	2618.7	19.1	444.9	84	1958.9
200mm	8 inch	226	7909.6	133	4655.4	33.9	791	149.3	3482.5
250mm	10 inch	353.1	12358.8	207.8	7274.1	53	1235.9	233.2	5441.4
300mm	12 inch	508.5	17796.6	299.3	10474.7	76.3	1779.7	335.8	7835.6

Saturated Steam Measuring Range

Pipe Size		T= 112°C		T= 121°C		T= 134°C		T= 144°C		T= 159°C	
		P= 0.5 barG		P= 1 barG		P= 2 barG		P= 3 barG		P= 5 barG	
		D= 0.8798 kg/m³		D= 1.155 kg/m³		D= 1.672 kg/m³		D= 2.185 kg/m³		D= 3.182 kg/m³	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
25mm	1 inch	6.2	108.7	8.2	142.7	11.8	206.6	15.4	270	22.5	393.3
32mm	1.25 inch	10.2	178.1	13.4	233.9	19.3	338.6	25.3	442.4	36.8	644.3
40mm	1.5 inch	8	278.4	10.4	365.4	15.1	529	19.8	691.3	28.8	1006.7
50mm	2 inch	12.4	434.9	16.3	571	23.6	826.6	30.9	1080.2	44.9	1573
65mm	2.5 inch	21	735	27.6	964.9	39.9	1396.9	52.2	1825.5	76	2658.4
80mm	3 inch	31.8	1113.4	41.8	1461.7	60.5	2116	79	2765.2	115.1	4026.9
100mm	4 inch	49.7	1739.7	65.3	2283.9	94.5	3306.2	123.4	4320.6	179.8	6292.1
125mm	5 inch	77.7	2718.3	102	3568.6	147.5	5166	192.9	6751	280.9	9831.4
150mm	6 inch	111.8	3914.4	146.8	5138.8	212.5	7439	277.8	9721.4	404.5	14157.2
200mm	8 inch	198.8	6958.9	261	9135.6	377.9	13224.9	493.8	17282.5	719.1	25168.4
250mm	10 inch	310.7	10873.2	407.8	14274.4	590.4	20663.8	771.5	27003.9	1123.6	39325.6
300mm	12 inch	447.4	15657.5	587.3	20551.1	850.2	29755.9	1111	38885.6	1618	56628.8

*Metric unit, flow rate in kg/hr





Dimension ion for DIN PN40 Flanged

Size	K	L	W	C	M	N	H
15	95	170	65	14	14	4	358
20	105	170	75	16	14	4	358
25	115	170	85	16	14	4	358
32	140	170	100	18	18	4	358
40	150	190	110	18	18	4	363
50	165	190	125	19	18	4	369
65	185	220	145	20	18	8	375
80	200	220	160	20	18	8	376
100	235	240	190	22	22	8	395
125	270	260	220	22	26	8	405
150	300	280	250	24	26	8	415
200	375	300	320	2	30	12	450
250	450	360	385	29	33	12	475
300	515	400	450	32	33	16	500

*The dimensions should be used just for mechanical installation.

*The manufacturer may rake changes to the dimensions.

*Dimensions unit is mm.



Pipe Size		T= 165°C		T= 171°C		T= 176°C		T= 185°C	
		P= 6 barG		P= 7barG		P= 8 barG		P= 10 barG	
		D= 3.671 kg/m³		D= 4.218 kg/m³		D= 4.723 kg/m³		D= 5.752 kg/m³	
		Min	Max	Min	Max	Min	Max	Min	Max
25mm	1 inch	25.9	453.7	29.8	521.3	33.4	583.7	40.6	710.9
32mm	1.25 inch	42.9	743.3	48.8	854.1	54.6	956.3	66.6	1164.7
40mm	1.5 inch	33.2	1161.4	38.1	1334.5	42.7	1494.3	52	1819.8
50mm	2 inch	51.9	1814.8	59.6	2085.2	66.7	2334.8	81.2	2843.5
65mm	2.5 inch	87.6	3066.9	100.7	3523.9	112.7	3945.8	137.3	4805.5
80mm	3 inch	132.7	4645.8	152.5	5338	170.8	5977.1	208	7279.4
100mm	4 inch	207.4	7259	238.3	8340.7	266.8	9339.3	325	11374
125mm	5 inch	324.1	11342.2	372.4	13032.3	416.9	14592.6	507.8	17771.9
150mm	6 inch	466.7	16332.8	536.2	18766.5	600.4	21013.3	731.2	25591.5
200mm	8 inch	829.6	29036.2	953.2	33362.7	1067.3	37357.1	1299.9	45496
250mm	10 inch	1296.3	45369	1489.4	52129.2	1667.7	58370.4	2031.1	71087.6
300mm	12 inch	1866.6	65331.4	2144.7	75066.1	2401.5	84053.4	2924.7	102366.1

Pipe Size		T= 192°C		T= 199°C		T= 210°C		T= 215°C	
		P= 12 barG		P= 14 barG		P= 18 barG		P= 20 barG	
		D= 6.671 kg/m³		D= 7.706 kg/m³		D= 9.593 kg/m³		D= 10.57 kg/m³	
		Min	Max	Min	Max	Min	Max	Min	Max
25mm	1 inch	47.1	824.5	54.4	952.4	67.7	1185.6	74.6	1306.3
32mm	1.25 inch	77.2	1350.8	89.2	1560.4	111	1942.4	122.3	2140.3
40mm	1.5 inch	60.3	2110.6	69.7	2438.1	86.7	3035.1	95.5	3344.2
50mm	2 inch	94.2	3297.8	108.8	3809.5	135.5	4742.3	149.3	5225.3
65mm	2.5 inch	159.2	5573.3	183.9	6438	229	8014.5	252.3	8830.7
80mm	3 inch	241.2	8442.4	278.6	9752.2	346.9	12140.3	382.2	13376.7
100mm	4 inch	376.9	13192.2	435.4	15237.9	542	18969.2	597.2	20901.1
125mm	5 inch	588.9	20611.3	680.3	23809.1	846.8	29639.4	933.1	32658
150mm	6 inch	848	29680.3	979.6	34285.2	1219.4	42680.7	1343.6	47027.5
200mm	8 inch	1507.6	52765	1741.5	60951.4	2167.9	75876.8	2388.7	83604.5
250mm	10 inch	2355.6	82445.3	2721	95236.6	3387.4	118557.6	3732.3	130632.1
300mm	12 inch	3392	118721.2	3918.3	137140.7	4877.8	170722.9	5374.6	188110.2

*Metric unit, flow rate in kg/hr



CONNECTION

Standart

PN16

On Request

PN40 and others

ELECTRICAL DATA

Output

4...20mA and pulse

Power Supply

24V DC, $\pm 10\%$

Transmission Distance

100 m>

Converter

Compact

Remote, please specify cable lenght directly

Electrical Connection

1/2 NPT, M20 X 1.5

COMMUNICATION

Protocol

Modbus-RTU

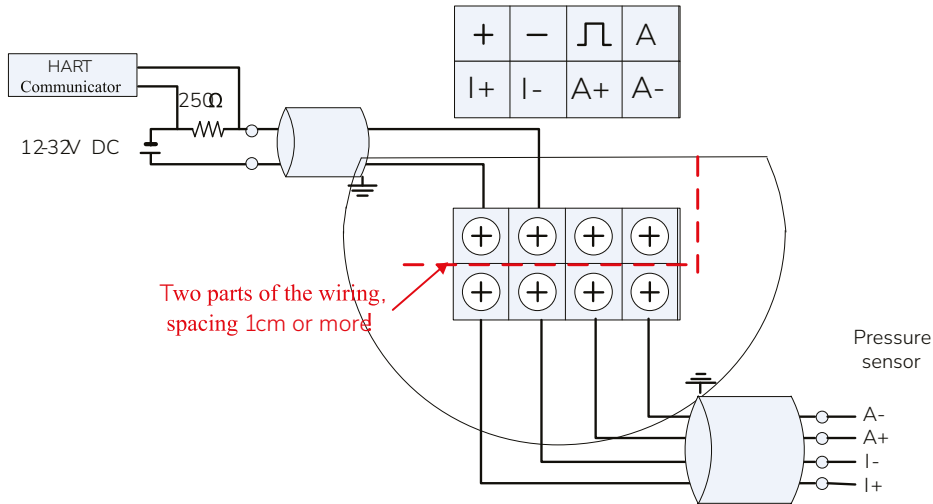
HART



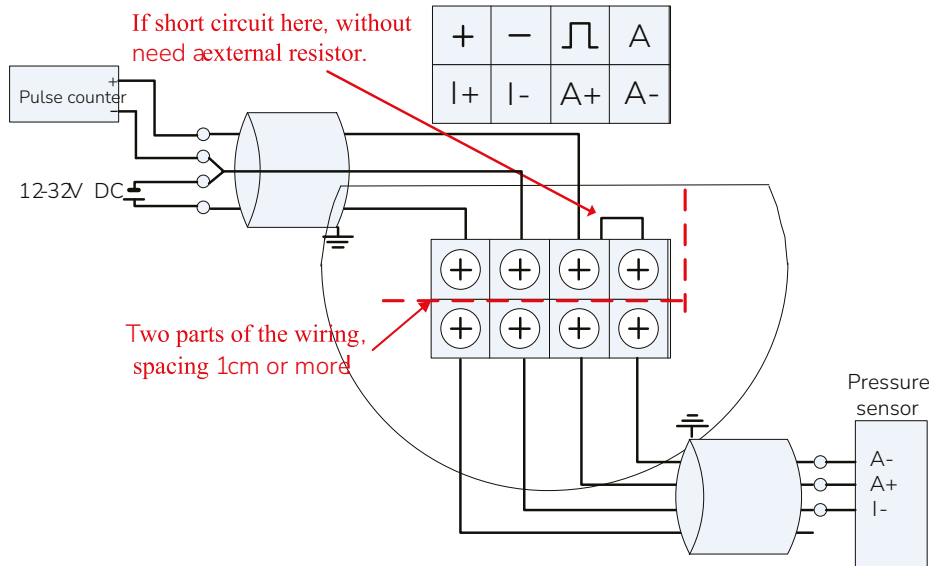
WIRING

The terminal board used for connects the external power supply, output pulse, the external pressure

4 ~20mA output+ HART+ External Pressure



Pulse output+external pressure and temperature sensors



OPTIONS ELECTRONIC

BAB 216

Analog transmitter with display and counter

Flow computer versions

BAB216.DB

Selectable Inputs

4-20 mA

Selectable Inputs 2

4-20 mA or PT-100

Operating Media

Saturated Steam

BAB216.GH

Selectable Inputs

2x 4-20 mA

Selectable Inputs 2

4-20 mA or PT-100

Operating Media

Superheated Steam

BAB216

Selectable Inputs

2x 4-20 mA

Selectable Inputs 2

4-20 mA or PT-100

Operating Media

Gases

Selectable Outputs

4-20 mA , 0-10VDC and Pulse

Analog Input Resolution

10 bit

Digital Input Speed

10 KHz, max

Digital Output Speed

50 Hz, max

Display

TFT, 4.3"480x272 pixel resistive touchscreen

Humidity

%10...85 non-condensate

Power Supply

24 VDC, $\pm 10\%$

Power Consumption

3W

Dimensions

144x144 mm(front), 134x134 mm (rear), depth 100 mm

Enclosure

IP65 (front), IP66, IP67 on request



OPTIONS ELECTRONIC

BAB 212

Parameter	Specification
Selectable Inputs	4-20 mA, 0-10VDC, 0-5VDC, Pulse (PNP, NPN)
Operating Media	Liquids
Selectable Outputs	4-20 mA, 0-10VDC and Pulse
Communication	RS485-MODBUS (HART on request)
Analog Input Resolution	10 bit
Digital Input Speed	10 KHz, max
Digital Output Speed	50 Hz max
Display TFT,	4.3" 480x272 pixel resistive touchscreen
Humidity	%10...85 non-condensate
Power Supply	24 VDC, $\pm\%10$
Power Consumption	3 W
Dimensions	144 x 144 mm (front), 134 x 134 mm (rear), depth 100 mm
Enclosure	IP65 (front), IP66, IP67 on request



ORDERING

Model	
FBVP	Flanged Vortex Flowmeter

Process Connection	
W	Wafer
F	Flanged
I	Insertion
R	Reduction

Media	
V	Volumetric Calculation
VT	Temperature Compensation
VTP	Temperature and Pressure Compensation

Size	
25	DN25
40	DN40
50	DN50
65	DN65
80	DN80
100	DN100
125	DN125
150	DN150
200	DN200
250	DN250
300	DN300
XXX	DN300-DN700 for insertion type(specify in order)

Connection Rating	
P6	PN16
P4	PN40
XX	Others

Converter	
C	Compact
R	Remote please specify cable length directly

Temperature Range	
L	Tmax : 150°C
M	Tmax : 250°C
H	Tmax : 400°C

Pressure Range	
P1	0-1 bar
P2	0-10 bar
P3	0-40 bar
N	None

Communication	
R	RS485, MODBUS RTU
H	HART

Hazardous Area	
N	None
Xd	II 2G Ex db IIC T1...T6 Gb

