



VN2000 Flow Meters

Flanged Inline Meter

DESCRIPTION

The VN2000 Inline Vortex Flow Meter measures the volumetric or mass flow rate or BTU/energy of steam, gas or liquids over a large flow range. The meter is available as flanged meter with optional reducers to simplify installation in oversized piping.

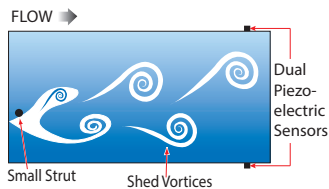
The vortex meter is CNC machined out of one piece of solid stainless steel and engineered to stand up to abusive environments inside and outside the pipe. The dual sensors are bonded inside the vortex element to better detect and eliminate process fluid noise or vibration from affecting the reading.

BENEFITS

- Measure volumetric, mass flow rate or BTU/energy of steam, gas or liquids
- Inline meters for pipes 3/4...8 inch
- Reduced noise interference with dual piezoelectric sensors and filtering
- Standard model handles process temperatures up to 400° F (204° C)
- Reduced maintenance due to:
 - ◊ Heavy duty welded stainless steel construction
 - ◊ O-ring-free element
 - ◊ No moving parts
 - ◊ Piezoelectric and temperature sensors never touch process fluid

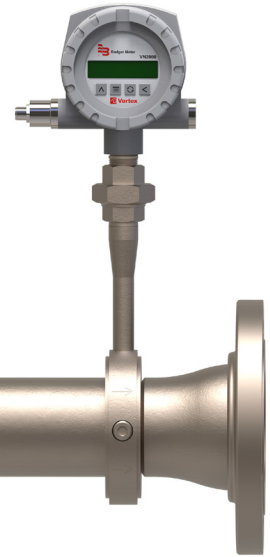
OPERATION

An everyday example of a vortex shedding phenomenon is a flag waving in the breeze: the flag waves due to the vortices shed by air moving across the flagpole. Within the flow meter, as flowing fluid moves across the tiny strut or “shedder bar”, vortices are shed on a smaller scale. The frequency of the vortices shedding is proportional to the fluid velocity.



Through the use of an internal RTD, the flow meter software compensates for changes in temperature to achieve an accurate mass flow measurement.

With the addition of a second external RTD, the meter can measure the energy transfer across a heat exchanger.



APPLICATIONS

The unique design of the VN2000 meter can be used in steam, gas or liquid lines. The narrow wafer design allows the meter to be installed tight fitting locations.

- Saturated steam for heating
- Deionized water
- Compressed air
- Wet or dirty gas

SIZING SOFTWARE

The Vortex VN2000 Meter Sizing Utility software determines the best meter for your application based on:

- Fluid type
- Min. and max. operating flow rate
- Operating temperature
- Operating pressure



SPECIFICATIONS

	Uncertainty	
	Volumetric Flow	Repeatability
Liquids	±0.7% of reading	±0.25% of reading
Steam	±0.7% of reading	±0.25% of reading
Gas	±0.7% of reading	±0.25% of reading
	Mass or Heat Flow	Repeatability
Liquids	±0.7% of reading	±0.25% of reading
Steam	±0.7% of reading	±0.25% of reading
Gas	±0.7% of reading	±0.25% of reading
Velocity – Liquid	32 ft/s (9.75 m/s) maximum	
Velocity – Gas	300 ft/sec (91.44 m/sec) maximum	
Reynolds Range	10,000...7,000,000 depending on fluid density	
Straight Run Pipe	Upstream 10 diameters; downstream 5 diameters with one 90° elbow before the meter	
Pipe sizes	3/4...8 in. (19.05...203.20 mm)	
Fluid temperature	-250...400° F (-120...204°C)	
Wetted Materials	Stainless steel 303	
Connections	ANSI Class 150 and 300, DN flanges PN40	

Measurement Options	Sensors			
Volumetric flow rate	Dual piezo vortex sensors			
Mass flow rate based on velocity and temperature	Dual piezo vortex sensors RTD embedded in sensor: 100 Ohm, 3 wire (± 0.3 + 0.005t)°C			
BTU/Energy	Dual piezo vortex sensors RTD embedded in sensor: 100 Ohm, 3 wire External 100 Ohm RTD input, (± 0.3 + 0.005t)°C			
Units of measure	Units Base	Steam	Liquids	Gases
	English	Pounds (LB) Tons (TON) Cubic Feet (CFT) Gallons (GAL)	Pounds (LB) Tons (TON) Cubic Feet (CFT) Gallons (GAL)	Pounds (LB) Tons (TON) Cubic Feet (CFT) U.S. Gallons (GAL)
	Metric	Kilograms (KG) Tonns (TNN) Cubic Meters (CUM) Liters (LTR)	Kilograms (KG) Tonns (TNN) Cubic Meters (CUM) Liters (LTR)	Kilograms (KG) Metric Tons (TNN) Natural Cubic Meters (Nm3) Natural Liters (Nlt)
	Actual English	—	—	Pounds (LB) Tons (TON) Actual Cubic Feet (Acf) U.S. Gallons (GAL)
	Natural Metric	—	—	Kilograms (KG) Metric Tons (TNN) Actual Cubic Meters (Am3) Actual Liters (Alt)
Measurement interval	Second, minute, hour, day			

Transmitter

Display	2×16 characters reflective display Rotatable display Flow rate: 6 digits with decimal Totalizer
Keypad	4 membrane buttons
Power	14...36 V DC
Operating Temperature	32...140° F (0... 60° C) 5...95% relative humidity non-condensing
Output	One 4...20 mA, 10...36V max load, 24-bit resolution Adjust the 4 mA and 20 mA signal from the keypad and zero out any anomalies found between the meter and the monitoring device
Digital Output	One min. input resistance 1000 Ohm Max output frequency = 12.5 Hz Opto isolator 5...24V DC
Communication	EIA-485 with Modbus RTU (9600, 14400, 19200 baud) or BACnet MS/TP (9600, 19200, 38400, 76800 baud)
Enclosure	General purpose
Mounting	Integral meter or remote mount; Up to 30 ft (10 m) from pipe
Cable	Cable jacket material: polyurethane (gray) Operating temperature -13...185° F (-25...85° C)

FLOW RATE TABLES

Saturated Steam Minimum...Maximum Flow Rates in lb/hr

Pipe Line Size in.	Bore Size in.	Pressure (psig); Density (lb/ft ³)						
		5 psig 0.0486 lb/ft ³	50 psig 0.1503 lb/ft ³	100 psig 0.2577 lb/ft ³	150 psig 0.3614 lb/ft ³	200 psig 0.4688 lb/ft ³	300 psig 0.6481 lb/ft ³	400 psig 0.8613 lb/ft ³
3/4	3/4	7.52...131.3	15.98...406.2	22.90...696.4	28.69...976.7	34.13...1267	42.36...1752	51.21...2328
1	1	12.51...218.4	26.58...975.7	38.09...1158	47.73...1625	56.77...2108	70.46...2914	85.18...3872
1	3/4	7.52...131.3	15.98...406.2	22.9...696.4	28.69...976.7	34.13...1267	42.36...1752	51.21...2328
1-1/2	1-1/2	30.75...536.5	65.31...1660	93.57...2846	117.3...3992	139.5...5178	173.1...7158	209.3...9513
1-1/2	1	12.51...218.4	26.58...675.7	38.09...1158	47.73...1625	56.77...2108	70.46...2914	85.18...3872
1-1/2	3/4	7.52...131.3	15.98...406.2	22.9...696.4	28.69...976.7	34.13...1267	42.36...1752	51.21...2328
2	2	51.38...896.5	109.1...2774	156.3...4755	195.9...6670	231.1...9652	289.3...11961	349.7...15896
2	1-1/2	30.75...536.5	65.31...1660	93.57...2846	117.3...3992	139.5...5178	173.1...7158	209.3...9513
2	1	12.51...218.4	26.58...675.7	38.09...1158	47.73...1625	56.77...2108	70.46...2914	85.18...3872
3	3	114.9...2005	244.1...6205	349.7...10637	438.3...14920	521.3...19354	647...26755	782.2...35558
3	2	51.38...896.5	109.1...2774	156.3...4755	195.9...6670	233.1...8652	289.3...11961	349.7...15896
3	1-1/2	30.75...536.5	65.31...1660	93.57...2846	117.3...3992	139.5...5178	173.1...7158	209.3...9513
4	4	200...3490	424.9...10800	608.7...18515	762.8...25969	907.4...33688	1126...46569	1361...61891
4	3	114.9...2005	244.1...6205	349.7...10637	438.3...14920	521.3...19354	647...26755	782.2...35558
4	2	51.38...896.5	109.1...2774	156.3...4855	195.9...6670	233.1...8652	289.3...11961	349.7...15896
6	6	453.5...7914	963.4...24488	1380...41978	1730...58878	2057...76379	2553...105584	3087...140324
6	4	200...3490	963.4...24488	608.7...18515	762.8...25969	907.4...33688	1126...46569	1361...61891
8	6	453.5...7914	424.9...10800	1380...41978	1730...48878	2057...76379	2553...105584	3087...140324
8	4	200...3490	424.9...10800	608.7...18515	762.8...25969	907.4...33688	1126...46569	1361...61891

Saturated Steam Minimum...Maximum Flow Rates in kg/hr

Pipe Line Size mm	Bore Size mm	Pressure (bar); Density (kg/m ³)						
		0.4 bar 0.7779 kg/m ³	3.4 bar 2.372 kg/m ³	6.9 bar 4.127 kg/m ³	11 bar 6.125 kg/m ³	13.8 bar 7.508 kg/m ³	20.7 bar 10.38 kg/m ³	27 bar 13.79 kg/m ³
18.75	18.75	3.412...59.54	7.178...181.6	10.38...315.8	13.51...468.7	15.48...574.6	19.21...794.3	23.22...1056
25	25	12.97...341.8	11.94...302	17.27...525.3	22.48...779.7	25.75...955.9	31.96...1321	39.63...1756
25	18.75	7.795...205.5	7.178...181.6	10.38...315.8	13.51...468.7	15.48...574.6	19.21...794.3	23.22...1056
40	40	31.86...839.7	29.33...742	42.43...1291	55.22...1915	63.26...2348	78.51...3246	94.91...4314
40	25	12.97...341.8	11.94...302	17.27...525.3	22.48...779.7	25.75...955.9	31.96...1321	39.63...1756
40	18.75	7.795...205.5	7.178...181.6	10.38...315.8	13.51...468.7	15.48...574.6	19.21...794.3	23.22...1056
50	50	53.23...1403	49.01...1240	70.91...2157	92.27...3201	105.7...3924	131.2...5424	158.6...7209
50	40	31.86...839.7	29.33...742	42.43...1291	55.22...1915	63.26...2348	78.51...3246	94.91...4314
50	25	12.97...341.8	11.94...302	17.27...525.3	22.48...779.7	25.75...955.9	31.96...1321	38.63...1756
75	75	119.1...3139	109.6...2773	158.6...4824	206.4...7160	236.4...8777	293.4...12134	354.7...16126
75	50	53.23...1403	49.01...1240	70.91...2157	92.27...3201	105.7...3924	131.2...5424	158.6...7209
75	40	31.86...839.7	29.33...742	42.43...1291	55.22...1915	63.26...2348	78.51...3246	94.91...431
100	100	207.3...5463	190.8...4827	276.1...8397	359.2...12462	411.5...15278	510.7...21120	617.5...28068
100	75	119.1...3139	109.6...2773	158.6...4824	206.4...7160	236.4...8777	293.4...12134	354.7...16126
100	50	53.23...1403	49.01...1240	70.91...2157	92.27...3201	105.7...3924	131.2...5424	158.6...7209
150	150	469.9...12386	432.7...10944	625.9...19038	814.5...28254	933.1...34639	1158...47884	1400...6363.9
150	100	207.3...5463	190.8...4827	276.1...8397	359.2...12462	411.5...15278	510.7...21120	617.5...28068
200	150	469.9...12386	432.7...10944	625.9...19038	814.5...28254	933.1...34639	1158...47884	1400...63639
200	100	207.3...5463	190.8...4827	276.1...8397	359.2...12462	411.5...15278	510.7...21120	617.5...28068

Air Minimum...Maximum Flow Rates in ft³/min (SCFM ¹)

Pipe Line Size in.	Bore Size in.	Pressure (psig); Density (lb/ft ³)								
		0 psig 0.0752 lb/ft ³	50 psig 0.3312 lb/ft ³	100 psig 0.5871 lb/ft ³	150 psig 0.8430 lb/ft ³	200 psig 1.0998 lb/ft ³	300 psig 1.611 lb/ft ³	400 psig 2.123 lb/ft ³	500 psig 2.635 lb/ft ³	1000 psig 5.194 lb/ft ³
3/4	3/4	2.197...44.36	5.905...195.2	8.651...346.1	11.01...497	13.14...647.9	16.96...949.7	20.39...1251	23.55...1553	37.03...3062
1	1	3.655...73.79	9.822...324.8	14.39...575.8	18.32...826.8	21.86...1078	28.21...1580	33.91...2082	39.17...2584	61.60...5094
1	3/4	2.097...44.36	5.905...195.2	8.651...346.1	11.01...497	13.14...647.9	16.96...949.7	20.39...1251	23.55...1553	37.03...3062
1-1/2	1-1/2	8.981...181.3	24.13...797.9	35.35...1415	45.0...2031	53.71...2648	69.31...3881	83.32...5114	96.23...6348	151.3...12514
1-1/2	1	3.655...73.79	9.822...324.8	14.39...575.8	18.32...826.8	21.86...1078	28.21...1580	33.91...2082	39.17...2584	61.60...5094
1-1/2	3/4	2.197...44.36	5.905...195.2	8.651...346.1	11.01...497	13.14...647.9	16.96...949.7	20.39...1251	23.55...1553	37.03...3062
2	2	15.01...302.9	40.32...1333	59.08...2364	75.20...3394	89.74...4424	115.8...6485	139.2...8546	160.8...10607	252.9...20910
2	1-1/2	8.981...181.3	24.13...797.9	35.35...1415	45.0...2031	53.71...2648	69.31...3881	83.32...5114	96.23...6348	151.3...12514
2	1	3.655...73.79	9.822...324.8	14.39...575.8	18.32...826.8	21.86...1078	28.21...1580	33.91...2082	39.17...2584	61.60...5094
3	3	33.57...677.6	90.20...2982	132.1...5287	168.2...7592	200.7...9897	259.1...14507	311.4...19116	359.7...23726	565.6...46774
3	2	15.01...302.9	40.32...1333	59.08...2364	75.20...3394	89.74...4424	115.8...6485	139.2...8546	160.8...10607	252.9...20910
3	1-1/2	8.981...181.3	24.13...797.9	35.35...1415	45.0...2031	53.71...2648	69.31...3881	83.32...5114	96.23...6348	151.3...12514
4	4	58.43...1179	157.0...5191	230.0...9203	292.8...13215	349.4...17226	450.9...25250	542.0...33273	626.1...41297	984.5...81414
4	3	33.57...677.6	90.20...2982	132.1...5287	168.2...7592	200.7...9897	259.1...14507	311.4...19116	359.7...23726	565.6...46774
4	2	15.01...302.9	40.32...1333	59.08...2364	75.20...3394	89.74...4424	115.8...6485	139.2...8546	160.8...10607	252.9...20910
6	6	132.5...2674	355.9...11770	521.5...20866	663.8...29961	792.2...39057	1022...57248	1229...75440	1419...93631	2232...184588
6	4	58.43...1179	157.0...5191	230.0...9203	292.8...13215	349.4...17226	450.9...25250	542.0...33273	626.1...41297	984.5...81414
8	6	132.5...2674	355.9...11770	521.5...20866	663.8...29961	792.2...39057	1022...57248	1229...75440	1419...93631	2232...184588
8	4	58.43...1179	157.0...5191	230.0...9203	292.8...13215	349.4...17226	450.9...25250	542.0...33273	626.1...41297	984.5...81414

¹ Standard conditions of 68° F (20° C) in schedule 40 pipe

Air Minimum...Maximum Flow Rates in m³/min (SCMM ²)

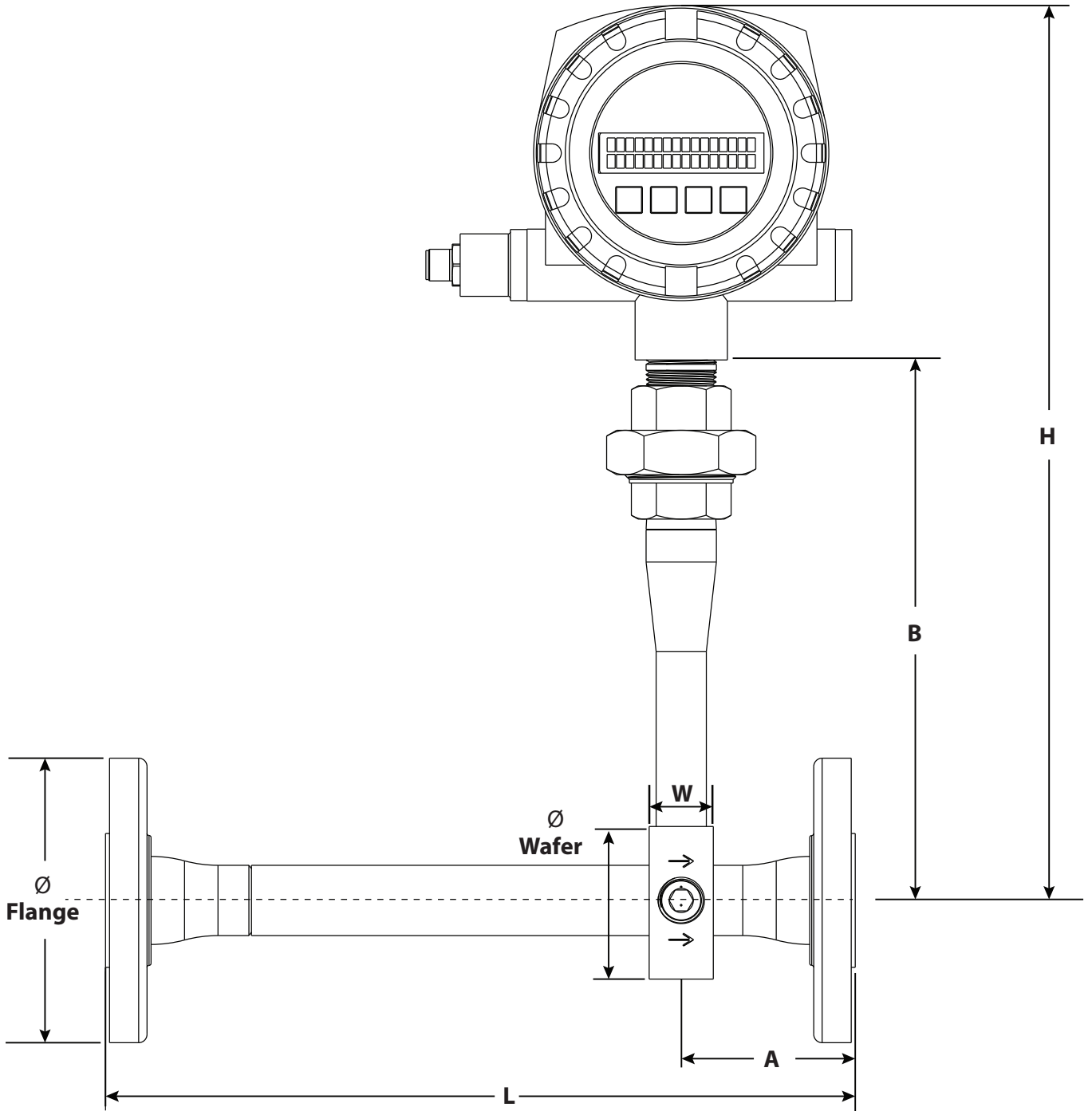
Pipe Line Size mm	Bore Size mm	Pressure (bar); Density (kg/hr)								
		0 bar 1.205 kg/hr	3.4 bar 5.248 kg/hr	6.9 bar 9.409 kg/hr	11 bar 14.28 kg/hr	13.8 bar 17.61 kg/hr	20.7 bar 25.82 kg/hr	27.6 bar 3402 kg/hr	34.5 bar 42.22 kg/hr	69 bar 83.24 kg/hr
18.75	18.75	0.0622...1.256	0.1660...5.470	0.2451...9.808	0.3238...14.89	0.3723...18.36	0.4805...26.91	0.5776...35.46	0.6671...44.01	1.049...86.77
25	25	0.1035...2.090	0.2762...9.099	0.4077...16.32	0.5386...24.77	0.6193...30.54	0.7993...44.77	0.9608...58.99	1.110...73.22	1.745...144.3
25	18.75	0.0622...1.256	0.1660...5.470	0.2451...9.808	0.3238...14.89	0.3723...18.36	0.3717...18.32	0.5767...35.38	0.6660...43.91	1.047...86.57
40	40	0.2543...5.134	0.6785...22.35	1.002...40.08	1.323...60.85	1.522...75.03	1.964...110.0	2.360...144.9	2.726...179.9	4.287...354.6
40	25	0.1035...2.090	0.2762...9.099	0.4077...16.32	0.5386...24.77	0.6193...30.54	0.7993...44.77	0.9608...58.99	1.110...73.22	1.745...144.3
40	18.75	0.0622...1.256	0.1660...5.470	0.2451...9.808	0.3238...14.89	0.3823...18.36	0.4805...26.91	0.5776...35.46	0.6671...44.01	1.049...86.77
50	50	0.4249...8.578	1.134...37.35	1.674...66.98	2.211...101.7	2.542...125.4	3.281...183.8	3.944...242.2	4.556...300.6	7.164...592.6
50	40	0.2543...5.134	0.6785...22.35	1.002...40.08	1.323...60.85	1.522...75.03	1.964...110.0	2.360...144.9	2.726...179.9	4.287...354.6
50	25	0.1035...2.090	0.2762...9.099	0.4077...16.32	0.5386...24.77	0.6193...30.54	0.7993...44.77	0.9608...58.99	1.110...73.22	1.745...144.3
75	75	0.9505...19.19	2.536...83.56	3.744...149.8	4.945...227.4	5.687...280.4	7.340...411.1	8.823...541.7	10.19...672.3	16.03...1325
75	50	0.4249...8.578	1.134...37.35	1.674...66.98	2.211...101.7	2.542...125.4	3.281...183.8	3.944...242.2	4.556...300.6	7.164...592.6
75	40	0.2543...5.134	0.6785...22.35	1.002...40.08	1.323...60.85	1.522...75.03	1.964...110.0	2.360...144.9	2.726...179.9	4.287...354.6
100	100	1.654...33.40	4.414...145.4	6.516...260.8	8.608...395.9	9.899...488.1	12.78...715.5	15.36...942.9	17.74...1170	27.89...2307
100	75	0.9505...19.19	2.536...93.56	3.744...149.8	4.945...227.4	5.687...280.4	7.340...411.1	8.823...541.7	10.19...672.3	16.03...1325
100	50	0.4249...8.578	1.134...37.35	1.674...66.98	2.211...101.7	2.542...125.4	3.281...183.8	3.944...242.2	4.556...300.6	7.164...592.6
150	150	3.751...75.72	10.01...329.7	14.77...591.2	19.52...897.6	22.44...1107	28.96...1622	34.82...2138	40.21...2653	63.24...5231
150	100	1.654...33.40	4.414...145.4	6.516...260.8	8.608...395.9	9.899...488.1	12.78...715.5	15.36...942.9	17.74...1170	27.89...2307
200	150	3.751...75.72	10.01...329.7	14.77...591.2	19.52...897.6	22.44...1107	28.96...1622	34.82...2138	40.21...2653	63.24...5231
200	100	1.654...33.40	4.414...145.4	6.516...260.8	8.608...395.9	9.899...488.1	12.78...715.5	15.36...942.9	17.74...1170	27.89...2307

² Standard conditions of 68° F (20° C) in schedule 40 pipe

Water

Water at 62.43 lb/ft ³ Minimum and Maximum Flow Rates (gal/min)							
Bore Size	3/4 in.	1 in.	1.5 in.	2 in.	3 in.	4 in.	6 in.
	1.78	2.96	7.27	12.2	27.2	47.3	107
	40.4	67.3	165	276	618	1075	2440

DIMENSIONS



Inline Flange, Class 150 Dimensions

Model	Connection Size	H		L		A		B		Ø	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
A07N	3/4 in.	13.369	339.5726	4.958	125.9332	2.479	62.9666	6.747	171.3738	3.88	98.552
A10N	1 in.	13.566	344.5764	5.198	132.0292	2.599	66.0146	6.944	176.3776	4.25	107.95
A10R		13.369	339.5726	11.318	287.4772	2.659	67.5386	6.747	171.3738	4.25	107.95
A15N	1-1/2 in.	14.002	355.6508	6.01	152.654	3.005	76.327	7.38	187.452	5	127
A15R		13.566	344.5764	12.458	316.4332	3.229	82.0166	6.944	176.3776	5	127
A15T		13.369	339.5726	12.458	316.4332	3.229	82.0166	6.747	171.3738	5	127
A20N	2 in.	14.374	365.0996	6.13	155.702	3.065	77.851	7.752	196.9008	6	152.4
A20R		14.002	355.6508	13.87	352.298	3.935	99.949	7.38	187.452	6	152.4
A20T		13.566	344.5764	13.578	344.8812	3.789	96.2406	6.944	176.3776	6	152.4
A30N	3 in.	14.999	380.9746	6.75	171.45	3.375	85.725	8.377	212.7758	7.5	190.5
A30R		14.374	365.0996	20.99	533.146	4.495	114.173	7.752	196.9008	7.5	190.5
A30T		14.002	355.6508	14.99	380.746	4.495	114.173	7.38	187.452	7.5	190.5
A40N	4 in.	15.749	400.0246	7.5	190.5	3.75	95.25	9.127	231.8258	9	228.6
A40R		14.999	380.9746	22.09	561.086	5.045	128.143	8.377	212.7758	9	228.6
A40T		14.374	365.0996	21.97	558.038	4.985	126.619	7.752	196.9008	9	228.6
A60N	6 in.	16.687	423.8498	9.25	234.95	4.625	117.475	10.065	255.651	11	279.4
A60R		14.999	380.9746	25.72	653.288	6.86	174.244	8.377	212.7758	11	279.4
A60T		14.374	365.0996	25.47	646.938	6.735	171.069	7.752	196.9008	11	279.4
A80R	8 in.	16.687	423.8498	39.35	999.49	7.675	194.945	10.065	255.651	13.5	342.9
A80T		15.749	400.0246	38.6	980.44	7.3	185.42	9.127	231.8258	13.5	342.9

Inline Flange, Class 300 Dimensions

Model	Connection Size	H		L		A		B		Ø	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
B07N	3/4 in.	13.369	339.5726	5.338	135.5852	2.669	67.7926	6.747	171.3738	4.62	117.348
B10N	1 in.	13.566	344.5764	5.718	145.2372	2.859	72.6186	6.944	176.3776	4.88	123.952
B10R		13.369	339.5726	12.078	306.7812	3.039	77.1906	6.747	171.3738	4.88	123.952
B15N	1-1/2 in.	14.002	355.6508	6.51	165.354	3.255	82.677	7.38	187.452	6.12	155.448
B15R		13.566	344.5764	13.098	332.6892	3.549	90.1446	6.944	176.3776	6.12	155.448
B15T		13.369	339.5726	13.098	332.6892	3.549	90.1446	6.747	171.3738	6.12	155.448
B20N	2 in.	14.374	365.0996	6.63	168.402	3.315	84.201	7.752	196.9008	6.5	165.1
B20R		14.002	355.6508	14.49	368.046	4.295	109.093	7.38	187.452	6.5	165.1
B20T		13.566	344.5764	14.198	360.6292	4.099	104.1146	6.944	176.3776	6.5	165.1
B30N	3 in.	14.999	380.9746	7.49	190.246	3.745	95.123	8.377	212.7758	8.25	209.55
B30R		14.374	365.0996	22.13	562.102	5.065	128.651	7.752	196.9008	8.25	209.55
B30T		14.002	355.6508	16.13	409.702	5.065	128.651	7.38	187.452	8.25	209.55
B40N	4 in.	15.749	400.0246	8.26	209.804	4.13	104.902	9.127	231.8258	10	254
B40R		14.999	380.9746	23.22	589.788	5.61	142.494	8.377	212.7758	10	254
B40T		14.374	365.0996	23.1	586.74	5.55	140.97	7.752	196.9008	10	254
B60N	6 in.	16.687	423.8498	10.01	254.254	5.005	127.127	10.065	255.651	12.5	317.5
B60R		14.999	380.9746	26.72	678.688	7.36	186.944	8.377	212.7758	12.5	317.5
B60T		14.374	365.0996	26.47	672.338	7.235	183.769	7.752	196.9008	12.5	317.5
B80R	8 in.	16.687	423.8498	39.35	999.49	7.675	194.945	10.065	255.651	13.5	342.9
B80T		15.749	400.0246	38.6	980.44	7.3	185.42	9.127	231.8258	13.5	342.9

Power Plug

The multi-pole connector virtually eliminates wiring errors in the field. Simply plug the connector into the top of the enclosure and screw it down. This design saves time and money because the electronics package never comes out of the enclosure. No internal wiring is required and no connecting of hard-to-reach terminal blocks. This design also allows for a conduit connection to be attached over the power plug.

Simply plug and play.

**Optional External RTD for BTU/Energy Measurement**

An insertion RTD is used in conjunction with an RTD internal to the probe to measure the temperature difference across a heat exchanger. The energy transfer can be calculated by multiplying the temperature difference with the mass flow rate.

PART NUMBER CONFIGURATION

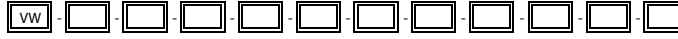
VN2000 Inline Flange Vortex Meter
(3/4 in. to 3 in. pipe size)



Model	VN2000 Inline	VW														
Pipe Size, Connection Size ¹	3/4 in. ANSI 150# Flange	A07N														
	3/4 in. ANSI 300# Flange	B07N														
	1 in. ANSI 150# Flange	A10N														
	1 in. ANSI 300# Flange	B10N														
	1 in. ANSI 150# Flange, 3/4 in. bore	A10R														
	1 in. ANSI 300# Flange, 3/4 in. bore	B10R														
	1 1/2 in. ANSI 150# Flange	A15N														
	1 1/2 in. ANSI 300# Flange	B15N														
	1 1/2 in. ANSI 150# Flange, 1 in. bore	A15R														
	1 1/2 in. ANSI 300# Flange, 1 in. bore	B15R														
	1 1/2 in. ANSI 150# Flange, 3/4 in. bore	A15T														
	1 1/2 in. ANSI 300# Flange, 3/4 in. bore	B15T														
	2 in. ANSI 150# Flange	A20N														
	2 in. ANSI 300# Flange	B20N														
	2 in. ANSI 150# Flange, 1 1/2 in. bore	A20R														
	2 in. ANSI 300# Flange, 1 1/2 in. bore	B20R														
	2 in. ANSI 150# Flange, 1 in. bore	A20T														
	2 in. ANSI 300# Flange, 1 in. bore	B20T														
	3 in. ANSI 150# Flange	A30N														
	3 in. ANSI 300# Flange	B30N														
	3 in. ANSI 150# Flange, 2 in. bore	A30R														
	3 in. ANSI 300# Flange, 2 in. bore	B30R														
	3 in. ANSI 150# Flange, 1 1/2 in. bore	A30T														
	3 in. ANSI 300# Flange, 1 1/2 in. bore	B30T														
Material	Stainless Steel, Commercial		C													
Process Temperature & Pressure	Standard			S												
Certification	None				W											
Measurement	Volumetric flow rate					V										
	Mass flow, temperature					T										
	Heat energy/BTU (not available for sensor replacement) ²					E										
Transmitter Type	Integral, 24VDC						E									
	Remote, 24VDC						F									
	Integral, Sensor Only						Y									
	Remote, Sensor Only						Z									
Cable Length	None (integral/meter mount or replacement sensor)							WW								
	10 feet/3 m (remote transmitter) ³								AB							
	30 feet/15 m (remote transmitter) ³									AF						
Fluid and Pipe Type	Liquid-Chilled (not available with Measurement option V)										C					
	Liquid-Heating (not available with Measurement option V)										H					
	Liquid (available with Measurement option V only)										L					
	Steam										S					
	Gas										G					
	None (replacement sensor only)										X					
Display	Standard											S				
	None (replacement sensor only)												X			
Communication/Output	4-20 mA and Pulse Output													S		
	Modbus RTU														M	
	BACnet MS/TP														B	
	None (replacement sensor only)														X	
Testing & Tagging	Standard Testing															G

1.) DN flanges available. Contact factory for pricing.
 2.) One internal temperature sensor and one external temperature sensor
 3.) Specify cable length from sensor to transmitter. Transmitter power 10 foot cable included.

VN2000 Inline Flange Vortex Meter
(4 in. to 8 in. size)



Model	VN2000 Inline	VW
Pipe Size, Connection Size¹		
4 in. ANSI 150# Flange	A40N	
4 in. ANSI 300# Flange	B40N	
4 in. ANSI 150# Flange, 3 in. bore	A40R	
4 in. ANSI 300# Flange, 3 in. bore	B40R	
4 in. ANSI 150# Flange, 2 in. bore	A40T	
4 in. ANSI 300# Flange, 2 in. bore	B40T	
6 in. ANSI 150# Flange	A60N	
6 in. ANSI 300# Flange	B60N	
6 in. ANSI 150# Flange, 4 in. bore	A60R	
6 in. ANSI 300# Flange, 4 in. bore	B60R	
6 in. ANSI 150# Flange, 3 in. bore	A60T	
6 in. ANSI 300# Flange, 3 in. bore	B60T	
8 in. ANSI 150# Flange, 6 in. bore	A80R	
8 in. ANSI 300# Flange, 6 in. bore	B80R	
8 in. ANSI 150# Flange, 4 in. bore	A80T	
8 in. ANSI 300# Flange, 4 in. bore	B80T	
Material	Stainless Steel, Commercial	C
Process Temperature & Pressure	Standard	S
Certification	None	W
Measurement		
Volumetric flow rate	V	
Mass flow, temperature	T	
Heat energy/BTU (not available for sensor replacement) ²	E	
Transmitter Type		
Integral, 24VDC	E	
Remote, 24VDC	F	
Integral, Sensor Only	Y	
Remote, Sensor Only	Z	
Cable Length		
None (integral/meter mount or replacement sensor)	WW	
10 feet/3 m (remote transmitter) ³	AB	
30 feet/15 m (remote transmitter) ³	AF	
Fluid and Pipe Type		
Liquid-Chilled (not available with Measurement option V)	C	
Liquid-Heating (not available with Measurement option V)	H	
Liquid (available with Measurement option V only)	L	
Steam	S	
Gas	G	
None (replacement sensor only)	X	
Display		
Standard	S	
None (replacement sensor only)	X	
Communication/Output		
4-20 mA and Pulse Output	S	
Modbus RTU	M	
BACnet MS/TP	B	
None (replacement sensor only)	X	
Testing & Tagging		
Standard Testing	G	

1.) DN flanges available. Contact factory for pricing.
 2.) One internal temperature sensor and one external temperature sensor
 3.) Specify cable length from sensor to transmitter. Transmitter power 10 foot cable included.

Control. Manage. Optimize.

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