



Introduction

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.

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.

Application

Application 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.

Features

Measured Medium	Liquid, Gas, Steam
Medium Temperature	-40- +250°C (Optional 40- +350°C)
Nominal Pressure	1.6MPa, (Optional : 2.5MPa, 4.0MPa)
Accuracy	± 1.5%
Flow Range	Liquid : 0.4-7.0m/s; Gas : 4.0-60.0m/s; Steam : 5.0-70.0m/s
Specifications	DN15-DN300 (flange type) DN 80-DN 2000 (Optional : insertion type)
Material	SS 304 (standard) SS 316 (optional)
Power Supply	24 VDC
Signal Output	4-20mA, Pulse
Communication	RS 485 Modbus or Hart (optional)
Protection Grade	IP 65
Pressure & Temperature compensation	Yes

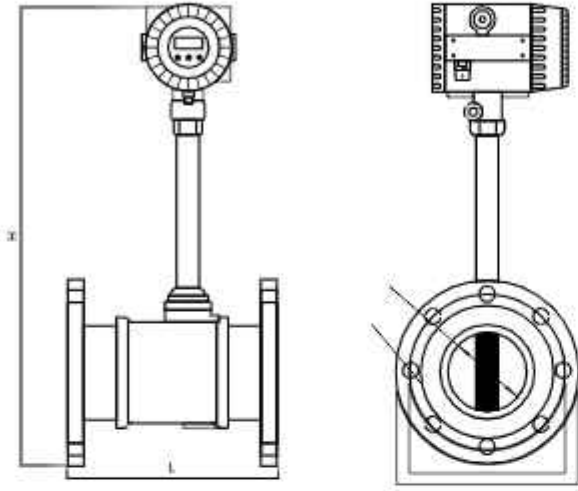
Table 1 Liquid And Air Flow Range Table (m³/h)

Nominal DN (mm)	Liquid (m ³ /h)		Air (m ³ /h)	
	Standard Range	Extended Range	Standard Range	Extended Range
15	0.8-6	0.5-8	6-40	5-50
20	1-8	0.5-12	8-50	6-60
25	1.5-12	0.8-16	10-80	8-120
32	2-20	1.5-25	15-150	10-200
40	2.5-30	2-40	25-200	20-300
50	3-50	2.5-60	30-300	25-500
65	5-80	4-100	50-500	40-800
80	8-120	6-160	80-800	60-1200
100	12-200	8-250	120-1200	100-2000
125	20-300	12-400	160-1600	150-3000
150	30-400	18-600	250-2500	200-4000
200	50-800	30-1200	400-4000	350-8000
250	80-1200	40-1600	600-6000	500-12000
300	100-1600	60-2500	100-10000	600-16000
400	200-3000	120-5000	1600-16000	1000-25000
500	300-5000	200-8000	2500-25000	1600-40000
600	500-8000	300-10000	4000-40000	2500-60000

Table 2 Saturated Stream Mass Flow Range Table (kg/h)

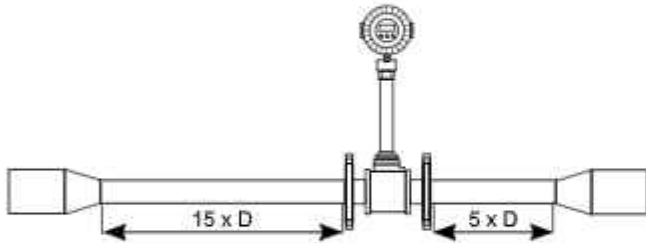
Absolute Pressure (Mpa)	Temperature (°C)													
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.6	1.8	2
Density (kg/m ³)	1.129	1.651	2.163	2.669	3.17	3.667	4.162	4.665	5.147	6.127	7.106	8.085	9.065	10.05
Temperature (°C)	120.2	133.5	143.62	151.84	158.94	164.96	170.41	175.36	179.68	187.96	195.04	201.37	207.11	212.37
DN 15	Q Min 5.645	8.255	10.815	13.345	15.85	18.335	20.81	23.325	25.735	30.635	35.53	440.425	45.325	50.25
	Q Max 56.45	82.55	108.15	133.45	158.5	183.35	208.1	233.25	257.35	306.35	355.3	404.25	453.25	502.5
DN 20	Q Min 6.774	9.906	12.978	16.014	19.02	22.002	24.972	27.99	30.882	36.762	42.636	48.51	54.39	60.3
	Q Max 67.74	99.06	129.78	160.14	190.2	220.02	249.72	279.9	308.82	367.62	426.36	485.1	543.9	603
DN 25	Q Min 9.032	13.208	17.304	21.452	25.36	29.336	33.296	37.32	41.176	49.016	56.848	64.68	72.52	80.4
	Q Max 90.32	132.08	173.04	214.52	253.6	293.36	332.96	373.2	411.76	490.16	568.48	646.8	725.2	804
DN 32	Q Min 135.48	198.12	259.56	320.28	380.4	440.04	499.44	559.8	617.64	735.24	852.72	970.2	1087.8	1206
	Q Max 1354.8	1981.2	2595.6	3202.8	3804	4400.4	4994.4	5598	6176.4	7352.4	8527.2	9702	10878	12060
DN 40	Q Min 203.22	297.18	389.34	480.42	570.6	660.06	749.16	839.7	926.46	1102.86	1279.08	1455.3	1631.7	1809
	Q Max 2032.2	2971.8	3893.4	4804.2	5706	6600.6	7491.6	8397	9264.6	11028.6	12790.8	14553	16317	18090
DN 50	Q Min 22.58	33.02	43.26	53.38	63.4	73.34	83.24	93.1	102.94	122.54	142.12	161.7	181.3	201
	Q Max 225.8	330.2	432.6	533.8	634	733.4	832.4	931	1029.4	1225.4	1421.2	1617	1813	2010
DN 65	Q Min 28.225	41.275	54.075	66.725	79.25	91.675	104.05	116.625	128.675	153.175	177.65	202.125	226.625	251.25
	Q Max 282.25	412.75	540.75	667.25	792.5	916.75	1040.5	1166.25	1286.75	1531.75	1776.5	2021.25	2266.25	2512.5
DN 80	Q Min 338.7	495.3	648.9	800.7	951	1100.1	1248.6	1399.5	1544.1	1848.1	2131.8	2425.5	2719.5	3015
	Q Max 3387	4953	6489	8007	9510	11001	12486	13995	15441	18481	21318	24255	27195	30150
DN 100	Q Min 564.5	825.5	1081.5	1334.5	1585	1833.5	2081	2332.5	2573.5	3063.5	3553	4042.5	4532.5	5025
	Q Max 5645	8255	10815	13345	15850	18335	20810	23325	25735	30635	35530	40425	45325	50250
DN 125	Q Min 67.74	99.06	129.78	160.14	190.2	220.02	249.72	279.9	308.82	367.62	426.36	485.1	543.9	603
	Q Max 677.4	990.6	1297.8	1601.4	1902	2200.2	2497.2	2799	3088.2	3676.2	4263.6	4851	5439	6030
DN 150	Q Min 112.9	165.1	216.3	266.9	317	366.7	416.2	466.5	514.7	612.7	710.6	808.5	906.5	1005
	Q Max 1129	1651	2163	2669	3170	3667	4162	4665	5147	6127	7106	8085	9065	10050
DN 200	Q Min 169.35	247.65	324.45	400.35	475.5	550.05	624.3	698.75	772.05	918.05	1065.9	1212.75	1359.75	1507.5
	Q Max 1693.5	2476.5	3244.5	4003.5	4755	5500.5	6243	6987.5	7720.5	9180.5	10659	12127.5	13597.5	15075
DN 250	Q Min 225.8	330.2	432.6	533.8	634	733.4	832.4	931	1029.4	1225.4	1421.2	1617	1813	2010
	Q Max 2258	3302	4326	5338	6340	7334	8324	9310	10294	12254	14212	16170	18130	20100
DN 300	Q Min 225.8	330.2	432.6	533.8	634	733.4	832.4	931	1029.4	1225.4	1421.2	1617	1813	2010
	Q Max 2258	3302	4326	5338	6340	7334	8324	9310	10294	12254	14212	16170	18130	20100
DN 400	Q Min 395.15	577.85	757.05	934.15	1109.5	1283.45	1456.7	1632.75	1801.45	2144.45	2487.1	2829.75	3172.75	3517.5
	Q Max 3951.5	5778.5	7570.5	9341.5	11095	12834.5	14567	16327.5	18014.5	21444.5	24871	28297.5	31727.5	35175
DN 500	Q Min 564.5	825.5	1081.5	1334.5	1585	1833.5	2081	2332.5	2573.5	3063.5	3553	4042.5	4532.5	5025
	Q Max 5645	8255	10815	13345	15850	18335	20810	23325	25735	30635	35530	40425	45325	50250
DN 600	Q Min 1354.8	1981.2	2595.6	3202.8	3804	4400.4	4994.4	5598	6176.4	7352.4	8527.2	9702	10878	12060
	Q Max 13548	19812	25956	32028	38040	44004	49944	55980	61764	73524	85272	97020	108780	120600
DN 800	Q Min 677.4	990.6	1297.8	1601.4	1902	2200.2	2497.2	2799	3088.2	3676.2	4263.6	4851	5439	6030
	Q Max 6774	9906	12978	16014	19020	22002	24972	27990	30882	36762	42636	48510	54390	60300
DN 1000	Q Min 18064	26416	34608	42704	50720	58672	66592	74640	82352	98032	113696	129360	145040	160800
	Q Max 180640	264160	346080	427040	507200	586720	665920	746400	823520	980320	1136960	1293600	1450400	1608000

Dimension

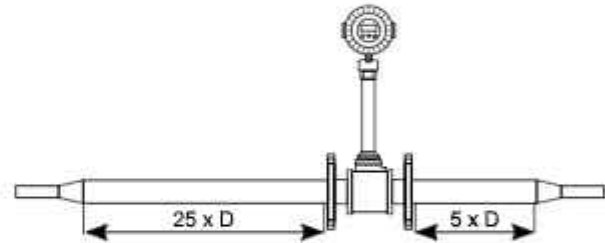


Size	H (mm)	H (mm)	Connecting Bolt
DN 15	170	440	4 x M 14
DN 20	170	445	4 x M 14
DN 25	170	450	4 x M 14
DN 32	170	462	4 x M 18
DN 40	170	465	4 x M 18
DN 50	200	480	4 x M 18
DN 65	220	500	4 x M 18
DN 80	250	520	8 x M 18
DN 100	250	520	8 x M 18
DN 125	260	560	8 x M 18
DN 150	280	608	8 x M 22
DN 200	300	640	12 x M 22
DN 250	360	705	12 x M 26
DN 300	400	752	12 x M26

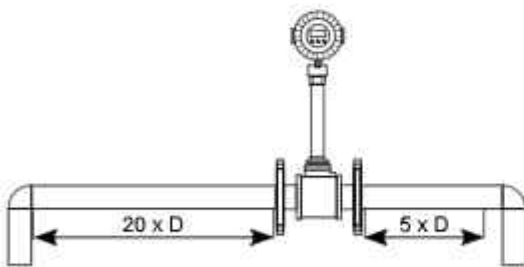
Vortex Meter Instalation



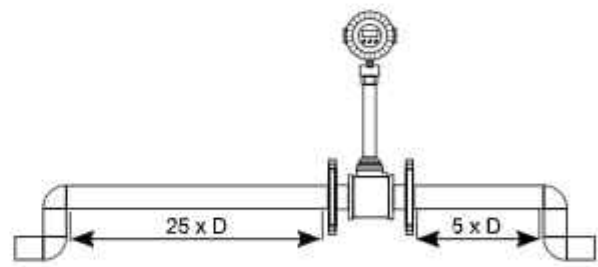
Concentric Reducers Pipeline



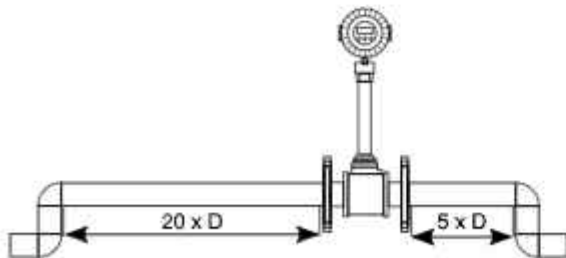
Concentric Reducers Pipeline



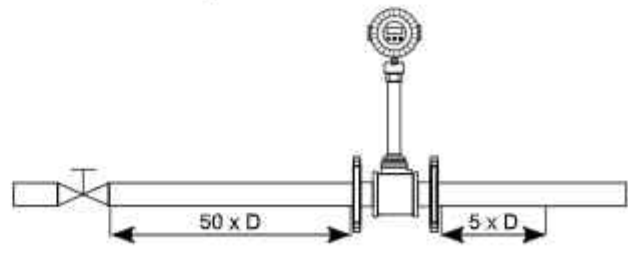
Single Squate Bend



Two Squate Bends At Same Plane



Two Squate Bends At Different Plane



Regulating Valve, Half-open Gate Valve