Vortex Flowmeter GT400S

Flange type

Wafer type-Remote

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1. Product Description

GT400_Vortex flowmeter are widely used in the measurement and control of superheated steam, saturated steam, compressed air and general gases (oxygen, nitrogen, hydrogen, natural gas, gas, etc.), water and liquids (such as water, gasoline, alcohol, benzene, etc.) in petroleum, chemical, metallurgy, heat, textile, paper and other industries.

2. Technical Parameters

- Simple structure and no moving wear parts.
- High measuring precision and high reliable, no need on-site commissioning.
- It can transport flow signal from long-distance, networking with computers and realize centralized management.
- The amplification board use unique design and this flow meter can used to measure gas and liquid.
- It is suitable for measuring superheated steam, saturated steam, compressed air and general gas, water and liquid.

3. Technical Specification Table

<table>
<tr><td>Photo</td><td>  </td><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Type</td><td>Sealing Wafer</td><td>General Wafer</td><td>Flange type</td><td>Insertion type</td></tr>
<tr><td>Material</td><td colspan="4">Cast steel or stainless steel</td></tr>
<tr><td rowspan="2">Accuracy</td><td>Flange type</td><td>4.5~55 m/s: 1.0%</td><td>2.0~4.5 m/s: 2.0%</td><td>55~70 m/s: 2.0%</td></tr>
<tr><td>Insertion type:</td><td colspan="3">2.0~2.5%</td></tr>
<tr><td rowspan="13">Measuring range</td><td>Medium</td><td colspan="2">Min. Limit</td><td>Max. Limit</td></tr>
<tr><td rowspan="5">Gas</td><td colspan="2">8 m/s, DN15</td><td rowspan="5">60 m/s</td></tr>
<tr><td colspan="2">6 m/s, DN20</td></tr>
<tr><td colspan="2">5 m/s, DN25</td></tr>
<tr><td colspan="2">4 m/s, DN32</td></tr>
<tr><td colspan="2">2 m/s, DN40~300</td></tr>
<tr><td rowspan="5">Steam</td><td colspan="2">8 m/s, DN15</td><td rowspan="5">70 m/s</td></tr>
<tr><td colspan="2">6 m/s, DN20</td></tr>
<tr><td colspan="2">5 m/s, DN25</td></tr>
<tr><td colspan="2">4 m/s, DN32</td></tr>
<tr><td colspan="2">2 m/s, DN40~300</td></tr>
<tr><td>Liquid</td><td colspan="2">0.5 m/s</td><td>7 m/s</td></tr>
<tr><td>Diameter (mm)</td><td colspan="4">DN15~DN300 (Full tube type), DN150~DN2000 (Insertion type)</td></tr>
<tr><td>Output</td><td colspan="4">Standard: 4-20mA/ Pulse. Option: RS485</td></tr>
<tr><td>Max. Press.</td><td colspan="4">Flange: 1.6 2.5 4.0 MPa
Wafer, Insertion type: 1.6MPa</td></tr>
<tr><td>Power</td><td colspan="4">DC24V (Max. 100mA, 2W) and 3.6V Lithium battery</td></tr>
<tr><td>Protection level</td><td colspan="4">IP65</td></tr>
<tr><td>Temperature</td><td colspan="4">Standard: -20….350°C, -20….250°C</td></tr>
<tr><td>Compensation</td><td colspan="4">High temp. and pres. sensor, so it can temp. and pres. compensation automatically.</td></tr>
</table>

4. Technology Parameter

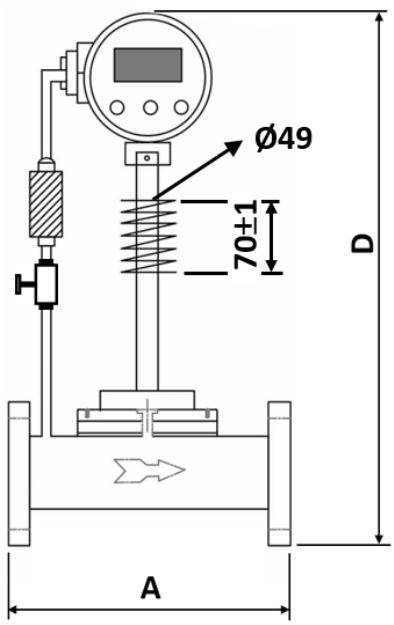
Measuring range				
Diameter	Liquid	Gas	Steam	
		● Without pres. and temp. compensation	● Without pres. and temp. compensation ● Density: 5kg/m³ ● Pres.: 1.6MPa ● Temp.: 250°C	
	m³/h	m³/h	Nm³/h	t/h
DN15 (0.5")	0.4~4.0	5.0~15	5.0~15	0.025~0.075
DN20 (0.75")	0.8~8.0	6.0~30	6.0~30	0.03~0.15
DN25 (1")	1.2~12	9.0~55	9.0~55	0.045~0.25
DN32 (1.25")	2.0~20	12~120	12~120	0.06~0.6
DN40 (1.5")	3.0~30	20~200	20~200	0.1~1.0
DN50 (2")	5.0~50	30~300	30~300	0.15~1.5
DN65 (2.5")	8.0~80	50~500	50~500	0.25-2.5
DN80 (3")	12~120	80~800	80~800	0.4~4.0
DN100 (4")	20~200	120~1200	120~1200	0.6~6.0
DN125 (5")	30~300	200~2000	200~2000	1.0~10
DN150 (6")	40~400	300~3000	300~3000	1.5~15
DN200 (8")	75~750	500~5000	500~5000	2.5~25
DN250 (10")	110~1100	800~8000	800~8000	4.0~40
DN300 (12")	160~1600	1100~11000	1100~11000	5.5~55

Steam pressure calculation with kg/h

Size		Operating flow rate			Steam in 300°C 10bar, density 3.8kg/m³		
	Calibration range	2~4.5m/s	4.5~55m/s	55~70m/s	2~4.5m/s	4.5~55m/s	55~70m/s
	Accuracy	2%	1.0%	2%	2%	1.0%	2%
	Unit	m³/h			kg/h		
DN50 (2")		14~32	32~385	385~490	53~120	120~1463	1463~1862
DN65 (2.5")		24~53	53~651	651~828	90~202	202~2472	2472~3147
DN80 (3")		36~81	81~986	986~1254	136~306	306~3745	3745~4767
DN100 (4")		56~126	126~1540	1540~1960	213~479	479~5852	5852~7448
DN125 (5")		88~197	197~2406	2406~3063	333~748	748~9144	9144~11638
DN150 (6")		126~284	284~3465	3465~4410	479~1077	1077~13167	13167~16758
DN200 (8")		224~504	504~6160	6160~7840	851~1915	1915~23408	23408~29792

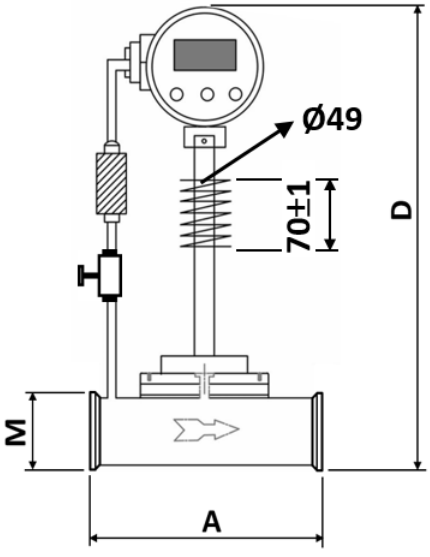
5. Dimension

● Flange type: Meter for steam 350°C



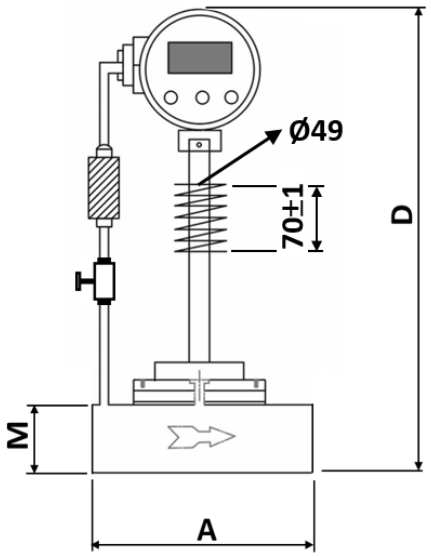
Size Unit: mm (Inch)	Flange type	
	A	D
DN15 (0.5")	180	423
DN20 (0.75")	180	423
DN25 (1")	180	480
DN32 (1.25")	180	495
DN40 (1.5")	180	500
DN50 (2")	200	510
DN65 (2.5")	200	525
DN80 (3")	250	540
DN100 (4")	250	560
DN125 (5")	250	585
DN150 (6")	250	620
DN200 (8")	300	690
DN250 (10")	300	730
DN300 (12")	300	780

● Sealing Wafer type: Meter for steam 350°C



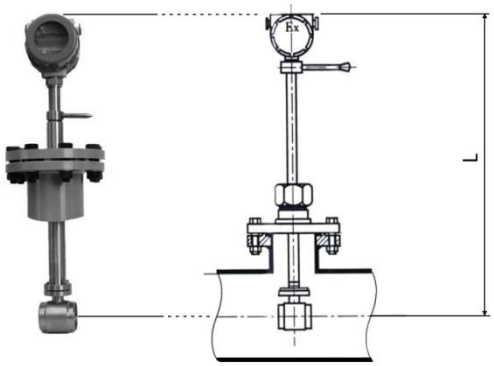
Size Unit: mm (Inch)	Sealing Wafer type		
	A	M	D
DN15 (0.5")	83	50	450
DN20 (0.75")	83	50	450
DN25 (1")	83	50	450
DN32 (1.25")	83	50	450
DN40 (1.5")	85	86	450
DN50 (2")	85	90	450
DN65 (2.5")	85	105	465
DN80 (3")	85	120	480
DN100 (4")	90	140	500
DN125 (5")	90	168	525
DN150 (6")	95	192	552
DN200 (8")	135	248	634
DN250 (10")	150	300	665
DN300 (12")	165	350	734

● General Wafer type: Meter for steam 350°C



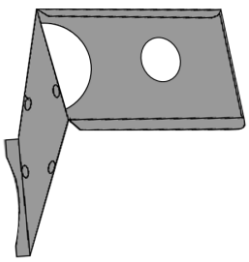
Size Unit: mm (Inch)	Wafer type		
	A	M	D
DN15 (0.5")	85	52	448
DN20 (0.75")	85	52	448
DN25 (1")	85	52	448
DN32 (1.25")	85	52	448
DN40 (1.5")	85	89	485
DN50 (2")	95	93	489
DN65 (2.5")	95	107	503
DN80 (3")	95	118	514
DN100 (4")	100	138	534
DN125 (5")	100	164	560
DN150 (6")	115	188	584
DN200 (8")	135	238	634
DN250 (10")	150	288	684
DN300 (12")	165	338	734

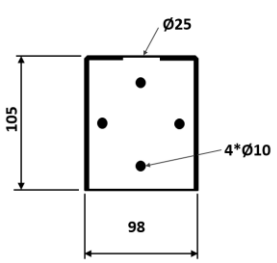
● Insertion type



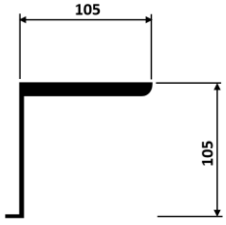
Size Unit: mm (Inch)	L
DN150 (6")	850
DN200 (8")	850
DN250 (10")	900
DN300 (12")	925
DN400 (16")	975
DN500 (20")	1075
DN600 (24")	1125
DN800 (30")~DN2000 (80")	1175~1775

● Remote converter 2” pipe mounting



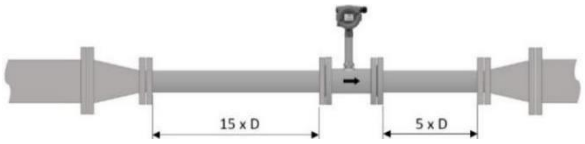
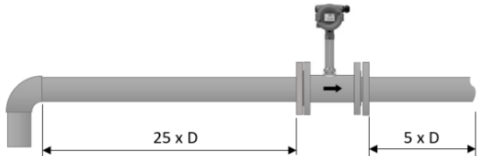
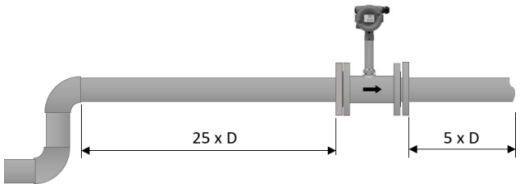
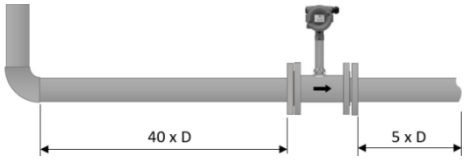
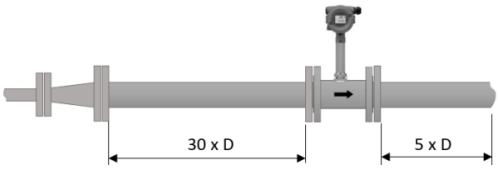
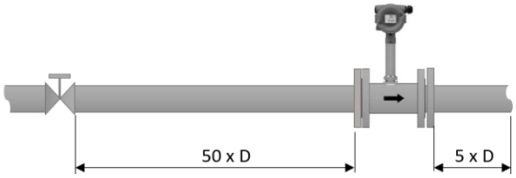


Font view



Side view

6. Installation

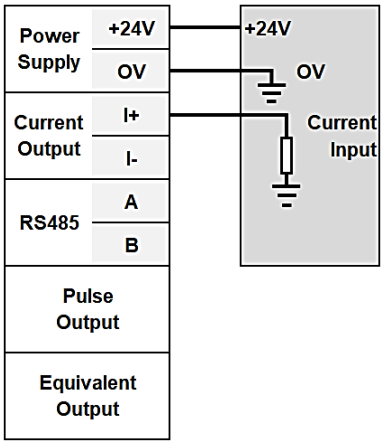
Pipeline type upstream of sensor	Length of front and rear straight pipe sections
Concentric contraction full open valve	
A 90 degree bend	
Two 90° bends on the same plane	
Two 90° bends in different planes	
Concentric expanding pipe	
Regulating valve half open Valves (not recommended)	

Installation Steps of Insertion type flowmeter:

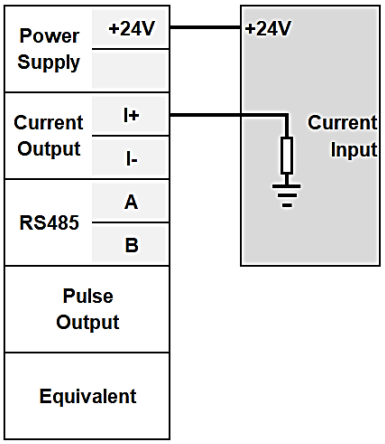
- Use gas welding to open a circular hole slightly smaller than Φ100mm on the pipeline, and remove burrs around the circular hole to ensure smooth rotation of the probe.
- Weld the flange provided by the manufacturer on the circular hole of the pipeline, and require the flange axis to be perpendicular to the pipeline axis.
- Install ball valve and sensor on welded flange.
- Adjust the lead screw so that the insertion depth meets the requirements (ensure that the central axis of the probe coincides with the central axis of the pipeline), and the fluid flow direction must be consistent with the indicating arrow on the direction mark.
- Tighten the screws on the gland evenly. (Note: The tightness of the gland determines the sealing degree of the instrument and whether the screw can rotate)
- Check whether all links are completed well, slowly open the valve to observe whether there is leakage (special attention should be paid to personal safety). If there is leakage, please repeat steps 5 and 6.

7. Output Connection

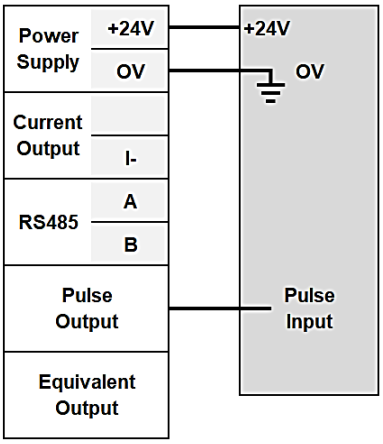
1. Three-Wire Current Output Wiring



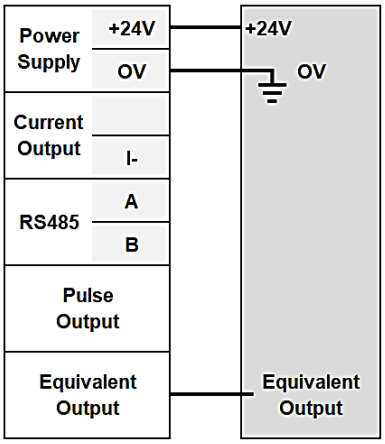
2. Two-Wire Current Output Wiring



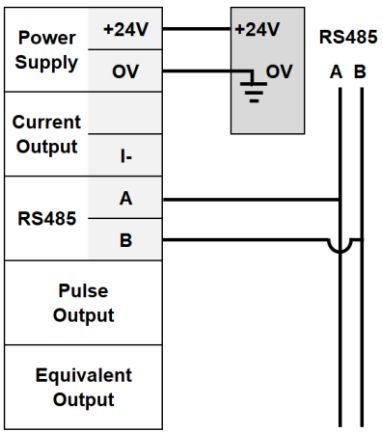
3. Three-Wire Pulse Output Wiring (Flow rate)



4. Three-Wire Equivalent Output Wiring (Total flow)



5. The wirings of RS485 output



8. Ordering model selection

Code		Description
Model: GT400S		**Vortex Flow Meter**
Meter Style	**A**	General Wafer (DN ≤ 300mm)
	S	Sealed Wafer (DN ≤ 300mm)
	B	Flanged (DN ≤ 300mm)
	C	Insertion (DN150~2000mm)
Meter diameter	**XX**	DN15. 20. 25. 32. 40. 50. 65. 80. 100. 125. 150. 200. 250. 300
Material	**CS**	Cast steel
	SS( )	Stainless steel (**04**): SUS304, (**16**): SUS316
	T	Stainless steel + PTFE lining.
Mounting Construction	**-I**	Integral direct mounting
	-R( )	Remote mounting with mounting bracket for surface and 2 “pipe Signal cable (**05**): 5m. (**10**): 10m. (**15**): 15m.
Single output	**S**	4-20mA 2wire / Pulse /RS485
Temperature and pressure sensor	**Y**	With temperature and pressure compensation
	N	Without temperature and pressure compensation
Flange rating and style	**D ( )**	DIN: PN16, PN25, PN40
	A ( )	ANSI:150LB, 300LB
	J ( )	JIS:10K, 20K, 30K
	W	Wafer type
Medium Temperature	**S**	-20…. 350°C
	N	-20…. 250°C
Needle valve: SUS304	**Y**	Yes
	N	No.