



Certificates



XI'AN YUNYI INSTRUMENT COMPANY LIMITED



1. Pressure Transmitter
2. Pressure Gauge
3. Pressure Calibrator
4. Dead Weight Tester
5. Level Transmitter
6. Flow Transmitter
7. Temperature Transmitter
8. Density Meter

YFVW300D wireless vortex flow meter

YUNYI



GENERAL INFORMATION

This manual will assist you in installing, using and maintaining Vortex Flowmeter. It is our responsibility to make sure that all operators have access to adequate instructions about safe operating and maintenance procedure.



Warning

For your safety, review the major warnings and cautions below before operating your equipment.

1. Use only fluids that are compatible with the housing material and wetted components of your Vortex.
2. When handling hazardous liquids, always exercise appropriate safety precautions.
3. When measuring flammable liquids, observe precautions against fire or explosion.
4. When working in hazardous environments, always exercise appropriate safety precautions.
5. Handle the sensor carefully. Even small scratches or nicks can affect accuracy.
6. For best results, calibrate the meter at least 1 time per year.
7. Do not purge the flow meter with compressed air.
8. During Vortex removal, liquid may spill. Follow the manufacturer's safety precautions for clean up of minor spills.

Application

Vortex flow meter is a speed flow meter, widely used in petroleum, chemical, power, light industry, power, heating and other industries.

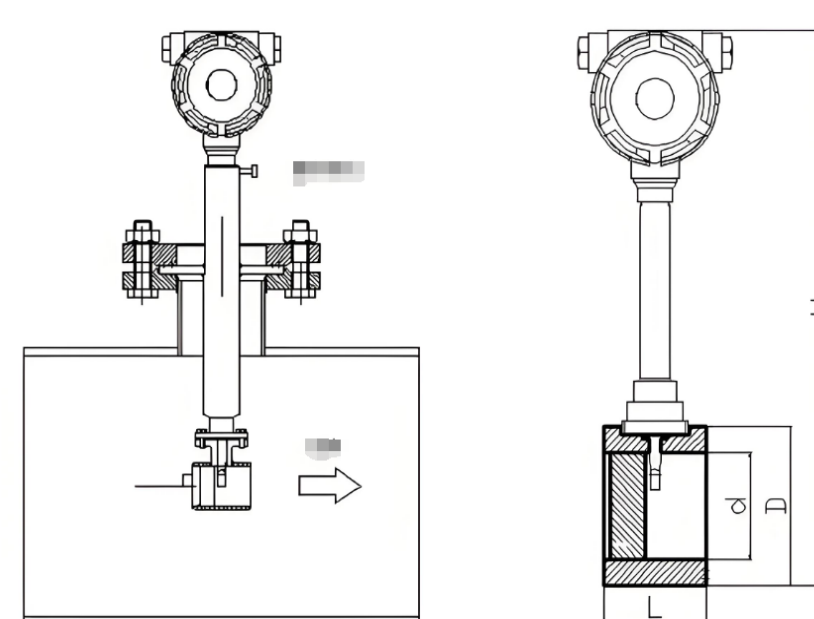
Operation Principle

YFVW300D Vortex flow meters are designed for measuring the volume/mass flow of liquids, gases and steam based on Karman vortex principle.

Adopting advanced differential algorithm along with measurement of isolation, shielding and wave filtering, YFV series vortex flow meters have the advantages of immunity on vibration and noise. Meanwhile, the liabilities of YFV series vortex flow meters are well guaranteed by unique sensor packaging technology.

Product Structure

The basic structure of the vortex flow meter is shown in Diagram 1. It is mainly composed of body, probe, vortex generator, meter rod, condenser pipe and converter.



TECHNICAL DATA

Measuring System

Application range	(1)Gas;(2) Liquid;(3) Steama
Measured value	
Primary Measured Valuer	Flow Rate
Secondary Measured Valuep	Volume flow;(Pressure and Temperature is available for modelwith compensation)

Reference Condition	Flow conditions similar to EN 29104
	Medium: Water/ Gas / Steam
	Electrical conductivity:≥ 300 μS/cm
	Temperature:+10...+30°C/+50...+86°F
	Inlet section:≥10 DN
	Operating pressure:1 bar / 14.5 psig
Accuracy	For Liquid: 1.0% of rate
	For gas and steam: 1.5% of rate

Design

Features	
Modular Construction	The measurement system consists of a flow sensor and a signalconverter, It is available as compact and as separate version.
Converter Function	4G, LORA
Connection	P:DN200-DN1500
Measurement Ratio	Standard - 10:1

Operating Condition

Temperature	
Process Temperature	T1 Level:-20...+70 °C
	T2 Level:-20...+250 °C
	T3 Level: -20...+350°C
Ambient Temperature (all versions)	Standard (with aluminum converter housing) -10...+55°C
Storage Temperature	-20...+70°C
Pressure	
EN 1092-1	DN200...DN600:PN16
	Max 4MPa
Measurement Ratio	1/2" ..8": 150 lb RF
	Other pressures on request
JIS	1/2" ..8": 10 K;20 K;etc
	Other pressures on request

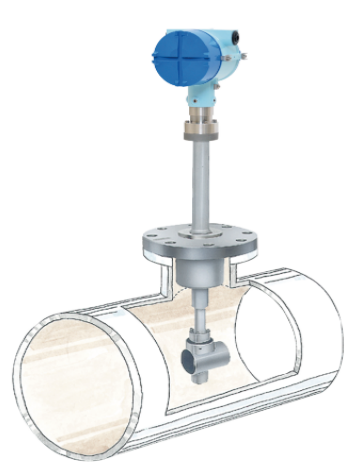
Installation Condition

Installation	Make sure that flow sensor is always fully filled
	For detailed information see chapter"Cautions 4for Installation"
Flow Direction	Forward
	Arrow on flow sensor indicates flow direction
Inlet Run	≥10DN
Outlet Run	≥5 DN

Materials

Sensor Housing	SS304
	Other materials on request
Converter Housing	Standard: polyurethane coated die-cast aluminum

Measurable Flow Range

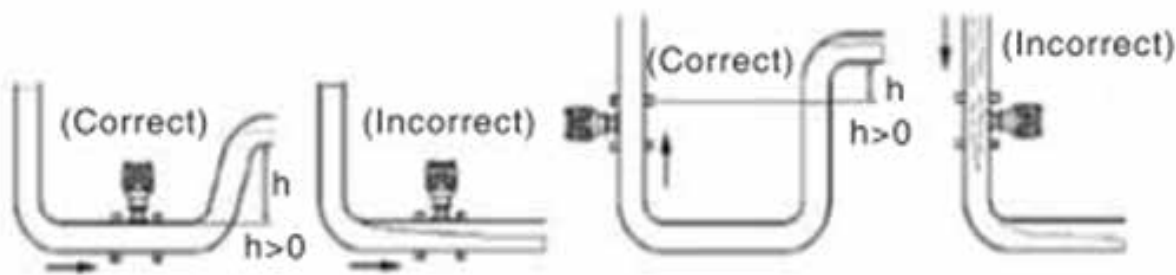


Pipe size		Flange size
200	8"	DN100
300	10"	DN100
400	16"	DN100
500	20"	DN100
600	25"	DN100
700	28"	DN100
800	32"	DN100
900	35.4"	DN100
1000	40"	DN100
1200	47"	DN100
1500	60"	DN100

Note: The flow range above is for reference only. Consult the factory if you have special requirement. Refer to the nameplate or certificate for actual flow range.

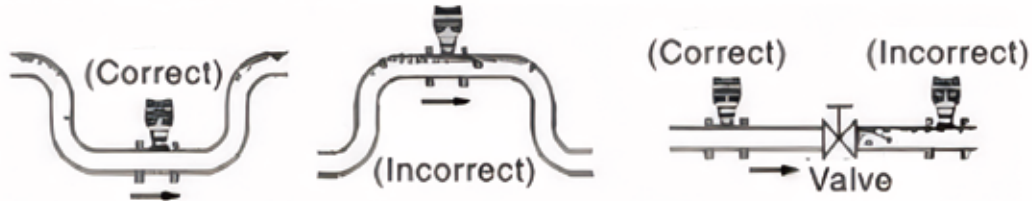
CAUTIONS FOR INSTALLATION

☆



Mounting Positions

★ Avoid Air Bubbles. If air bubbles enter a measurement pipe, flow rate indications may be affected and measurement errors may be caused.



Avoiding Air Bubbles

- ★ Avoid all pipe locations where the flow is pulsating, such as in the outlet side of piston or diaphragm pumps
- ★ Avoid locations near equipment producing electrical interference such as electric motors, transformers, variable frequency, etc.
- ★ Install the meter with enough room for future access for maintenance purposes

Warning: Precaution for direct sunshine and rain when the meter is installed outside.

Required Length of Straight Runs

Flow altering device such as elbows, valves and reducers can affect accuracy. check diagram 2 for typical flow meter system installation

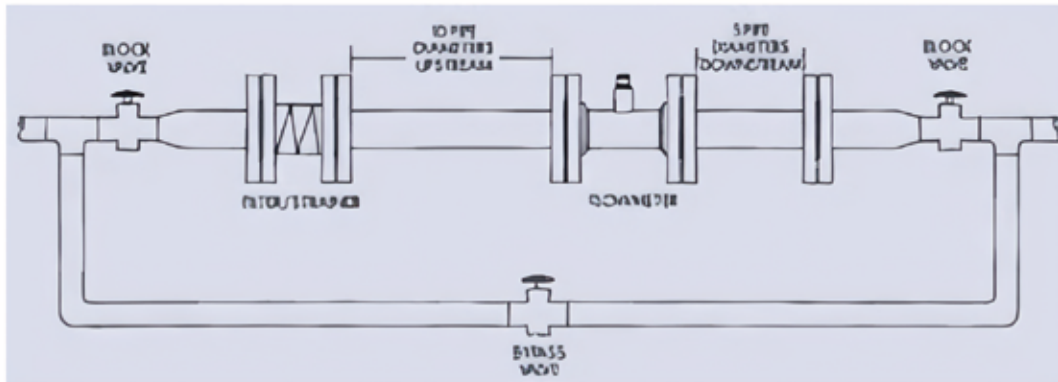
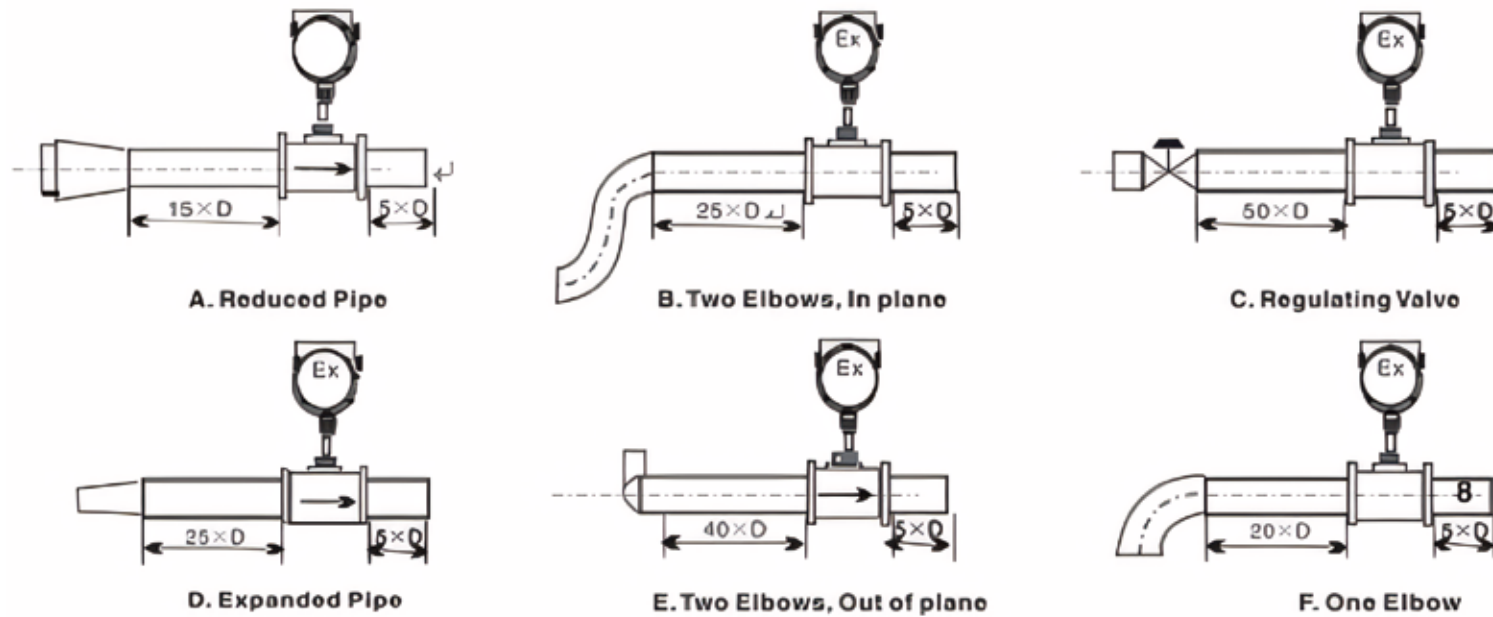


Diagram 2 General Flow Meter System Installation



The recommended guidelines are given to enhance accuracy and maximize performance.

Distance given here are minimum requirements; Double them for desired straight pipe lengths.

☆ Upstream: allow a minimum straight pipe length at least 10 D the internal diameter of the pipe. For example, with the 50mm pipe, there should be 500mm of straight pipe immediately upstream. Desired upstream straight pipe length is 1000mm.

☆ Downstream: allow a minimum straight pipe length at least 5 D the internal diameter of the pipe, For example, with the 50mm pipe, there should be 250mm of straight pipe immediately downstream. Desired downstream straight pipe length is 500mm.

Anti-Cavitation

Cavitation can be caused by entrained air, An amount higher than about 100 mg/l of entrained air or gas can produce error. In addition, cavitation can be caused by too little backpressure on the flow meter. For our Vortex flow meters, you should provide a backpressure (downstream pressure) of at least 1.25 times the vapor pressure, plus 2 times the pressure drop through the flow meter. See formula 14

$$\text{Formula 1: } P_b \geq 1.25 \times P_v + 2 \times (P_{in} - P_{out})$$

in formula 1: (P_b: Back pressure; P_v: Vapor Pressure; P_{in}: Inlet Pressure; P_{out}: Outlet Pressure) Create backpressure by installing a control valve on the downstream side of the meter at the proper distance detailed above.

Special Notice

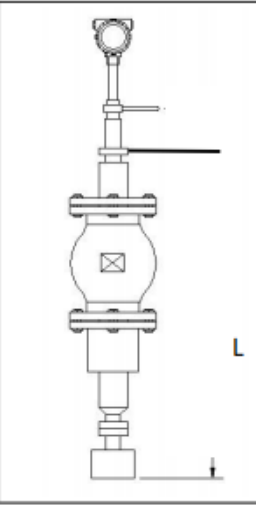
When the fluid is liquid, to ensure accurate measurement, drain all air from the system* before use. When the meter contains removable coverplates. Leave the coverplate installed unless accessory modules specify removal. Don't remove the coverplates when the meter is powered, or electrical shock and explosion hazard can be caused.

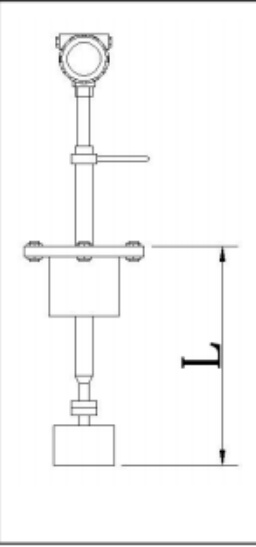
CONNECTIONS

Flange Connection

Installation	Make sure that flow sensor is always fully filled
	For detailed information see chapter "Cautions for Installation"
Flow direction	Forward
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Inlet run	≥10DN
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	口径 (mm)	DN250	DN300	DN400	DN500	DN600	DN800-2000
	L	680	705	755	805	855	905-1555
	Ball valve plug-in vortex						

	口径 (mm)	DN250	DN300	DN400	DN500	DN600	DN800-2000
	L	255	280	330	380	430	530-1130
	Simple plug-in vortex						