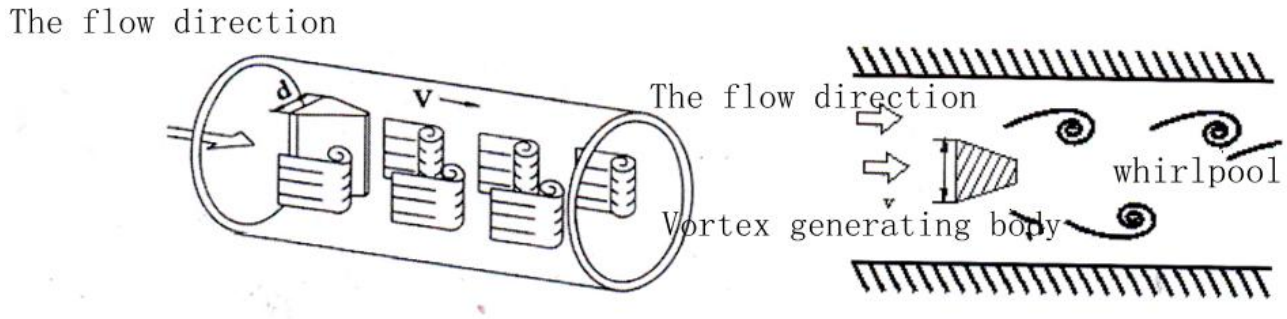
FEDREL METER

VORTEX FLOWMETER FM-14 USER MANUAL

First.summarize

“FEDREL”Vortex flow meter is based on Carmen (Karman) vortex principle，it can measure the gas, steam or volume flow rate of the liquid, volume flow of standard conditions or mass flow .Also it can be applied as a flow transmitter for automation and control systems.

Karman principle :f =St*V/d



Scope:

Gas**:** air, compressed air, oxygen, carbon dioxide, nitrogen gas, natural gas, methane gas, ammonia gas etc.
Steam: superheated steam, saturated steam.
Liquid: water, oil

Application:

Vortex flow meters are widely used in large, medium and small variety of pipes ,for drainage, industrial recycling, sewage treatment, oil and chemical reagents .As well as measuring compressed air, saturated and superheated steam metering,natural gas.

Second.Features

- With moving parts, simple structure, easy for installation maintenance
- The frequency and the actual measured fluid flow is linear, zero drift, the performance is very stable.

- High accuracy, ± 1.0%, ± 1.5%
- Wide measurement range , in the range of Reynolds number of 2 × 104 ~ 7 × 106, up to 1:20, plug-turndown ratio of up to 1:25
- Low pressure loss (approximately orifice flow meter 1/4 to 1/2), it belong to the energy-saving flow meter.
- High temperature, medium temperature can be measured up to + 350 ℃

Technical Parameters

executive standard	Vortex flow sensor			
vertification regulation	Vortex flow meter			
Medium	Steam, compressed air, coal gas, liquid and other high-velocity medium			
Meter diameter and connections	DN15-DN300 flange connection or flange clamp			
	DN200-DN1500 is insertion type			
Flange Standard	Standard ANSI, standard JIS can be customized			
Accuracy Grade	Liquid	±1.0%R (Pipeline) ±2% (Plug-in)		
	Gas or steam	±1.5%R (Pipeline) ±2.5% (Plug-in)		
Repeatability	Lliquid	≤0.2%		
	Gas or steam	≤0.5%		
Range ratio	1:10-1:20			
Using condition	Medium temperature	T2 (medium temperature type)	-40℃~+280℃	
		T3 (High temperature type)	-40℃~+350℃	
	Ambient temperature	-20℃~+60℃	Relative humidity	5%~90%
	Atmospheric pressure	86KPa~106KPa		

Third. Classification

According to the structure , vortex flow meter is divided into integrated type and split type;by functional characteristics, can be divided into the vortex sensor, smart display , temperature and pressure compensation type.

1 FM 14 Vortex sensor ：

FEDREL Vortex sensor without display, output pulse signal or 4~20mA,Standard for the Not-proof products.This type is cheap , with high integration and compact size. Especially using with the secondary display device, PLC, DCS and other computer control system .

Technical Parameters

Power supply	24VDC±15%，12VDC±15%,Power Consumption ＜.5W
Frequency range	0~3000Hz
4-20mA Current Output	load capacity≤600Ω
Pulse output	load capacity ＞ 1100Ω ， High level amplitude ＞ 22VLow level amplitude ＜ 0.8V ,pulse width 1/2fin×1000（ms）
Connection	flange connection or flange clamp

Note：The output is only selectable current output or pulse output

2.FM 14 smart display vortex flow meter

FEDREL smart display vortex flow meter shows flow rate,total flow,Lithium batteries ,output pulse signal.Or 24V power supply with 4~20mA out.Optional multiple display units.Particularly suitable for use quantitative control.Can be added MODBUS protocol communication .

Technical Parameters :

Power supply	24VDC or 3.6V Lithium batteries,Power Consumption ＜.5W
	battery life more than 3 years
Frequency range	0~3000Hz
Pulse output	load capacity ＞ 1100Ω，High level amplitude ＞ 22V Low level amplitude ＜ 0.8V,pulse width 1/2fin×1000（ms）
4-20mA Current Output	load capacity≤900Ω， two-wire system: 20mA
communication interface	RS485communication，or MODBUS-RTUcommunication。

Connection	flange connection or flange clamp

3.FM-14 Temperature and pressure compensation vortex flow meter

FEDREL Temperature and pressure compensation vortex flow meter with LCD display ,it shows the cumulative flow and instantaneous flow,pressure,temperature frequency, 4-20mA output ,with Hart comunication.Power supply :24VDC or Lithium batteries.

Power supply	24VDC±15%,or 3.6V Lithium batteries，Power Consumption ＜.5W
	battery life more than 3 years
Frequency range	0~3000Hz
Pulse output	Conditions / standard condition can be and alarm pulse output，load capacity>1100Ω，High level amplitude>22V,Low level amplitude<0.8V
	pulse width 1/2fin x 1000（ms）
IC Card output （Customized）	Pulse load capacity>1100Ω，High level amplitude>2.8V, Low level amplitude<0.2V
connection	flange connection

4.FM-14 integrated type vortex flow meter

FEDREL integrated type vortex flow meter can be widely applied to various industries play-diameter gas, liquid and steam flow measurement. Also can measure contains small particles, impurities, turbid liquid.And serving as flow transmitters for automatic control systems.

Power supply	24VDC±15%，
	Power Consumption ＜.5W
Frequency range	0~3000Hz

Pulse output	Conditions / standard condition can be and alarm pulse output,load capacity>1100Ω，High level amplitude>22V,Low level amplitude<0.8V
	pulse width 1/2fin x 1000（ms）
IC Card output （Customized）	Pulse load capacity>1100Ω，High level amplitude>2.8V, Low level amplitude<0.2V
connection	Plug-in

Fouth． Liquid, gas flow rate range

Meter diameter （mm）	Pipeline		Plug-in	
	Liquid measuring range（m^3/h）	Gas Measurement Range（m^3/h）	Liquid measuring range（m^3/h）	Gas Measurement Range（m^3/h）
DN20	1.2-12	6-50		
DN25	1.6-16	8-60		
DN32	2-20	12-120		
DN40	2-30	20-200		
DN50	3-50	30-300		
DN65	18-180	50-500		
DN80	15-150	70-700		
DN100	20-200	100-1000		
DN125	36-360	150-1500		
DN150	50-500	200-2000		
DN200	100-1000	400-4000	70-700	600-6000
DN250	150-1500	600-6000	110-1100	1060-10600
DN300	200-2000	1000-10000	180-1800	1500-15000
DN350	300-3000	1500-15000	210-2100	2000-20000
DN400	350-3500	1800-18000	180-2700	2700-27000
DN450			230-2300	3300-33000
DN500			280-4200	4240-42400
DN600			410-6100	6100-61000
DN700			580-7300	7800-78000
DN800			720-10800	10850-108500
DN900			970-12000	13000-130000
DN1000			1130-16900	17000-170000
DN1100			1450-18000	19000-190000
DN1200			1630-24400	24400-244000
DN1300			2020-25300	27000-270000
DN1400			2350-29500	31000-310000
DN1500			2550-38000	38200-382000

Saturated steam mass flow measurement range (for reference)

P (MPa) T (℃) ρ (kg/h)		0.2 120.23 1.129	0.3 133.54 1.651	0.4 143.62 2.163	0.5 151.84 2.669	0.6 158.84 3.17	0.7 164.96 3.667	0.8 170.41 4.162	0.9 175.36 4.655	1.0 179.88 5.147	1.2 187.96 6.127	1.4 195.04 7.106	1.6 201.37 8.085	1.8 207.11 9.065	2.0 212.37 10.05
DN20 Qmax Qmin	kg	7 10	10 100	12 120	14 140	18 180	20 200	24 240	28 280	30 300	36 360	42 420	48 480	54 540	60 600
DN25 Qmax Qmin	kg	9 90	13 130	16 160	20 200	25 250	30 300	32 320	37 370	40 400	48 480	56 560	64 640	72 720	80 800
DN32 Qmax Qmin	kg	13 130	20 200	25 250	32 320	36 360	44 440	48 480	56 560	60 600	73 730	84 840	96 960	110 1100	120 1200
DN40 Qmax Qmin	kg	22 220	33 330	40 400	50 500	60 600	75 750	80 800	94 940	100 1000	120 1200	140 1400	160 1600	18 1800	200 2000
DN50 Qmax Qmin	kg	30 300	50 500	60 600	80 800	90 900	110 1100	120 1200	140 1400	150 1500	180 1800	210 2100	240 2400	270 2700	300 3000
DN65 Qmax Qmin	kg	50 500	80 800	100 1000	130 1300	150 1500	180 1800	200 2000	240 2400	250 2500	300 3000	350 3500	400 4000	450 4500	500 5000
DN80 Qmax Qmin	kg	80 800	120 1200	140 1400	180 1800	210 2100	250 2500	300 3000	320 3200	360 3600	420 4200	500 5000	560 5600	630 6300	700 7000
DN100 Qmax Qmin	kg	110 1100	170 1700	210 2100	270 2700	320 3200	370 3700	420 4200	470 4700	510 5100	610 6100	700 7000	800 8000	900 9000	1000 10000
DN125 Qmax Qmin	t	0.17 1.7	0.24 2.4	0.33 3.3	0.40 4.0	0.48 4.8	0.56 5.6	0.64 6.4	0.7 7.0	0.78 7.8	0.9 9.0	1.0 10	1.2 12	1.4 14	1.5 15
DN150 Qmax Qmin	t	0.24 2.4	0.31 3.1	0.44 4.4	0.55 5.5	0.65 6.5	0.75 7.5	0.84 8.4	0.95 9.5	1.10 11.0	1.4 14	1.6 16	1.8 18	2.0 20	2.4 24
DN200 Qmax Qmin	t	0.5 50	0.7 70	0.85 85	1.05 10.5	1.3 13	1.5 15	1.6 16	1.9 19	2.1 21	2.5 25	2.9 29	3.2 32	3.6 36	4.0 40

DN250 Qmax Qmin	t	0.7 7.0	1.0 10	1.3 13	1.5 15	1.9 19	2.1 21	2.5 25	2.8 28	3.1 31	3.7 37	4.5 45	5.0 50	5.5 55	6.1 61
DN300 Qmax Qmin	t	1.10 11	1.7 17	2.2 22	2.7 27	3.2 32	3.7 37	4.2 42	4.7 47	5.2 52	6.2 62	7.2 72	8.1 81	9.1 91	10.0 100
DN350 Qmax Qmin	t	1.7 17	2.4 24	3.3 33	4.0 40	4.8 48	5.6 56	6.4 64	7.0 70	7.8 78	9.0 90	10 100	12 120	14 140	15 150
DN400 Qmax Qmin	t	2.0 20	3.0 30	3.7 37	4.9 49	5.5 55	6.7 67	7.3 73	8.5 85	9.2 92	11.0 110	14 140	15.6 156	17.2 172	18.5 185
DN500 Qmax Qmin	t	2.4 24	3.1 31	4.4 44	5.5 55	6.5 65	7.5 75	8.4 84	9.5 95	11 110	14 140	16 160	18 180	20 200	24 240
DN600 Qmax Qmin	t	3.5 35	5.1 51	6.7 67	8.4 84	9.8 98	11.5 115	12.9 129	15.0 150	16.2 162	19.3 193	22.4 224	25.6 256	28.8 288	32.1 321

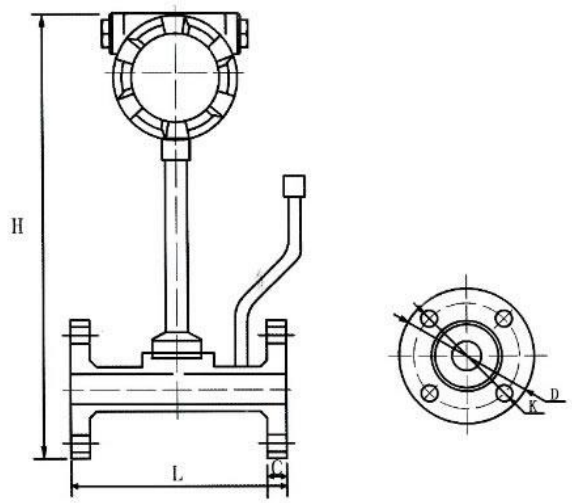
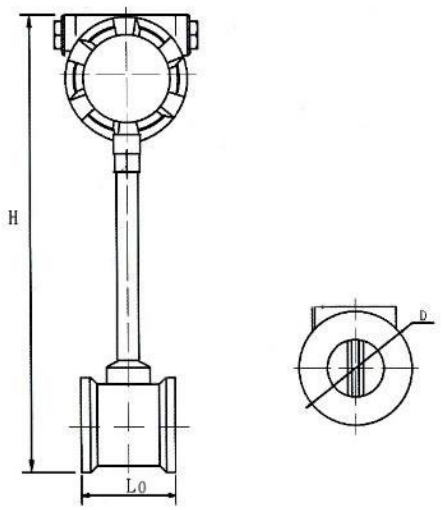
FM - 14	-□	-□	-□	-□	-□	-□	-□	-□	-□	-□	-□	Explanation
Nominal diameter (In mm)	diameter											DN15-300(Pipeline)
												DN200-1500(Plug-in)
Connection	Pipeline	FL										Flange connection
		JZ										Flange clamp
		Z										Special rules
	Insert	J										Simple Formula
		Q										Ball type
Accuracy			Pipeline	10								1.0%R
				15								1.5%R
			Insert	20								2.0%R
				25								2.5%R
				Z								Special accuracy standards
Temperature and pressure					S							T(S)P(S)At normal temperature and pressure
					Z							T(Z)P(Z)Twin extreme pressure
Communication protocol						N						No communication interface
						H						HART protocol
						M						MODBUS protocol
Output							1					No output
							2					Two-wire 4-20mA output
							3					Pulse output
Power supply								D				DC12V
								DB				Dual 12V power supply and battery
								DD				DC24V
								B				Battery 3.6V power supply, no signal output uses only
Sensor Material									S			304Stainless steel
									L			316Stainless steel
Core Component Materials										S		304Stainless steel Probes
										L		316Stainless steel Probes
Measuring medium											1	Gas
											2	Liquid
											3	Saturated steam
											4	Superheated steam

Fifth.Installation

5.1 Installation method

♦ 5.1.1 pipeline type vortex flow meter installation dimension

Remark：①above technical parameter is available for flange connection type vortex

transducer diagram	
	
DN15~DN300 flange connection type Vortex flow meter sensor dimensional drawing	DN15~DN300 flange clamping type Vortex flow meter sensor dimensional drawing

Nominal diameter (mm)	Flange connection type								
	L(mm)	H (mm)	D (mm)	Thicknesc (mm)	Bolt hole spacing K (mm)	Bolt hole diameter (mm)	Bolt hole number	Bolt standard	Tubing standard
15	268	415	115	14	65	14	4	M12x60	Φ18x1.5
20	268	420	115	16	75	14	4	M12x60	Φ25x2.5
25	268	425	120	16	85	14	4	M12x60	Φ32x3.5
32	268	435	135	18	100	18	4	M16x70	Φ39x3.5

40	275	435	150	18	110	18	4	M16x70	Φ48x4
50	275	440	165	20	125	18	4	M16x70	Φ59x4.5
65	275	460	185	20	145	18	4	M16x70	Φ74x4.5
80	280	490	200	20	160	18	8	M16x70	Φ89x4.5
100	280	510	220	20	180	18	8	M16x70	Φ109x4.5
125	280	535	250	20	210	18	8	M16x70	Φ134x4.5
150	284	570	285	24	240	22	8	M20x90	Φ159x4.5
200	284	625	340	24	295	22	12	M20x90	Φ219x9

②pipeline connection flange and bolt is not included for flange connection type vortex flow meter,need to buy seperately,connection flange To panel flat welding steel pipe flanges.

Nominal diameter (mm)	Flange clamping type				
	Meter Length L (mm)	Installation length L0 (mm)	Meter height H (mm)	Diameter D (mm)	Tubing standard
15	53	80	400	46	Φ18×1.5
20	53	80	400	46	Φ25×2.5
25	53	80	400	46	Φ32×3.5
32	53	80	400	53	Φ39×3.5
40	66	100	404	88	Φ49×4.5
50	74	110	412	98	Φ59×4.5
65	74	110	428	115	Φ74×4.5
80	70	106	446	128	Φ89×4.5
100	80	116	472	148	Φ109×4.5
125	78	114	492	165	Φ134×4.5
150	81	120	515	166	Φ159×4.5
200	98	140	570	240	Φ219×9
250	114	162	620	297	Φ273×11
300	130	180	670	350	Φ325×12

Remark：

①above technical parameter is available for flange clamping type vortex flow meter under pressure 1.6MPa。

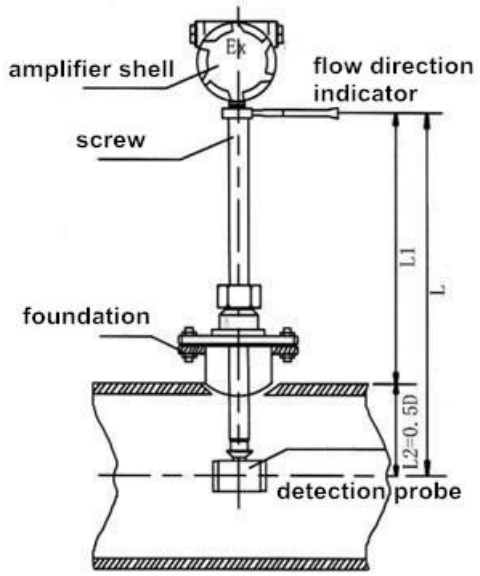
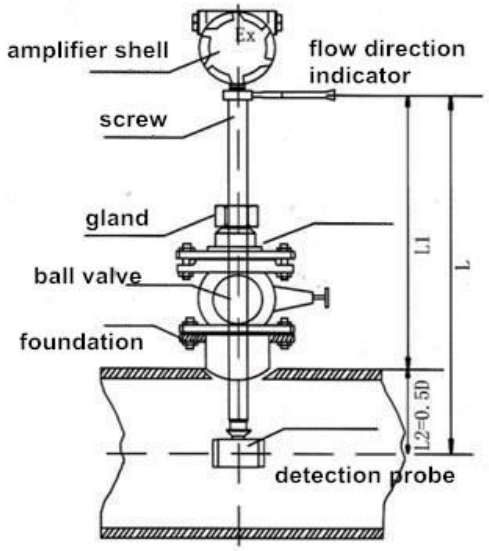
②nstallation lengthL0 should add pipeline connection flange length.Installation flange is dedicated flange,prepared by manufacturer,flange standard is made by manufacturer,recommend to use.

③above dimension is only available for mould design,actual dimension subject to actual production or order confirmation.

④pipeline butt weld type、screw connection type、clamp connection type、fixed plug-in type、ball valve insertion type structure external size，and high temperature、ultralow temperature type structure external size subject to actual production or order confirmation.

⑤flow meter installation flange is made by manufacturer standard,avaible to change into another standard via other country or industry according to customer request,special request need to be mentioned when place order.

♦ 5.1.2Plug-in type flow meter installation method

<table>
<tr><th colspan="2">Plug-meter structure form</th></tr>
<tr><td>Simple plug-in</td><td>Ball Plug-in</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><th colspan="2">Simple plug-in</th></tr>
<tr><td>Simple plug-in</td><td>Ball valve plug-in</td></tr>
<tr><td>■ make a circular holeΦ100 at the place per flow meter straight pipeline request。
■ weldΦ109x4.5mm foundation downstream pipeline with the circular hole，via visual inspection</td><td>■ make a circular holeΦ100 at the place per flow meter straight pipeline request。
■ weldΦ109x4.5mm foundation downstream pipeline with the circular hole,via visual Inspection no obvious skew after foundation</td></tr>
</table>

no obvious skew after foundation welding。 ■ make side probe insert pipeline,adjust insertion height (L2=0.5D) make detection probe center line is consistent with pipeline central axis,the angle between detection probe center line and pipeline central axis should be not more than 5°then adjust flow direction indicator,make the direction same with fluid. ■ Make flange and welding foundation butt joint,well fiexed with bolt.	welding。 ■ Make ball valve and welding foundation butt joint,well fixed with bolt. ■ Open ball valve , make detection probe with screw insert into pipeline,adjust insertion height (L2=0.5D) make detection probe center line is consistent with pipeline central axis,the angle between detection probe center line and pipeline central axis should be not more than 5°then Adjust flow direction indicator,make the direction same with fluid. ■ Make screw and ball valve butt joint,well fixed with bolt.。

Remark：straight pipeline request：upstream pipeline length should be more than 20D，downstream pipeline length should be more than 7D.If straight pipeline length is not able to match requirements,available to adopt field proving instrument coefficient K after field proving.

Installation steps
When first installating, if north pipeline allows cutting off, making first hole on the position where it can meet the requirement of straight pipeline length on measured pipeline according to mounting diagram, then completing the connection of pipeline and mounting base. Second, according to installation diagram to finish all the assembly. You may turn off ball valve after installated, so as not to affect the pipeline inputting the fluid, and install sensor later. When first installation, if measured pipeline was not allowed to cut off, in the condition that the pipeline was not being made hole, first to complete the fixing and sealing of mounting base on the pipeline, then install ball valve, after that using water drilling machine to drill. After drilling, remove the water drilling machine and install sensor, or remover the water drilling machine and turn off the ball valve temporarily, install sensor later. The installation and removing of water drilling machine on ball valve are the same as the sensor.

Attention①: before installation, check the ball valve if it can open and close fully. The ball valve must be turned fully from on to off, then from off to on. When the limit piece of ball valve turns from fully closed position to fully open position, the valve core must be on the state of fully open, or the limit piece should be adjusted.
Attention②: When installing ball valve, the longer side should be connected with mounting base.

5.2 Installation notes

♦ 5.2.1 Installation position

Vortex Flow meter typical installation piping form

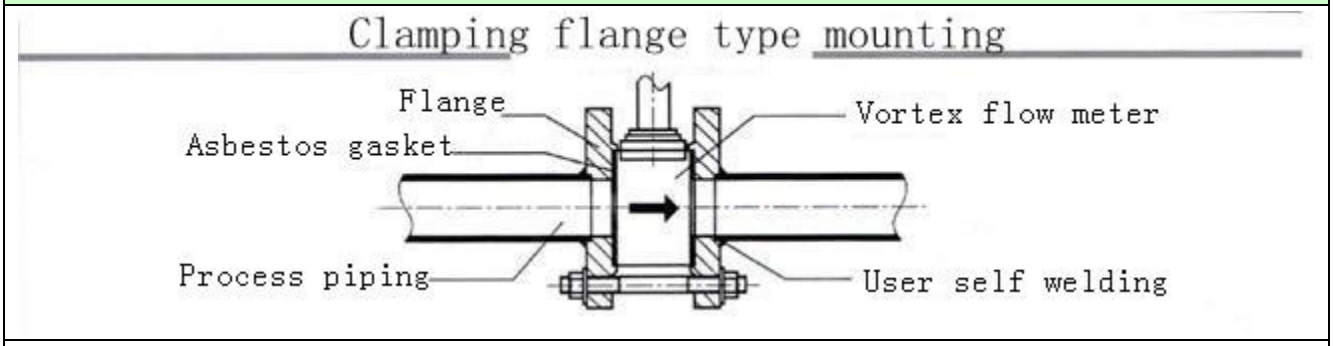


Figure 2 T type measuring tube installation

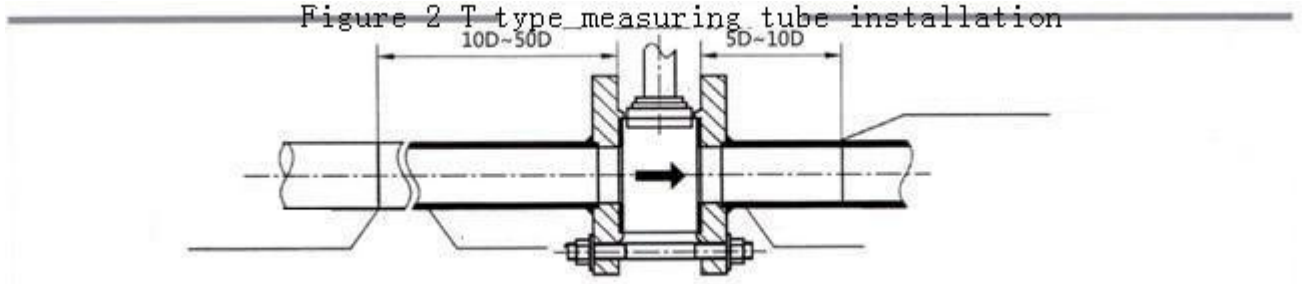


Figure 3 I type measuring tube installation

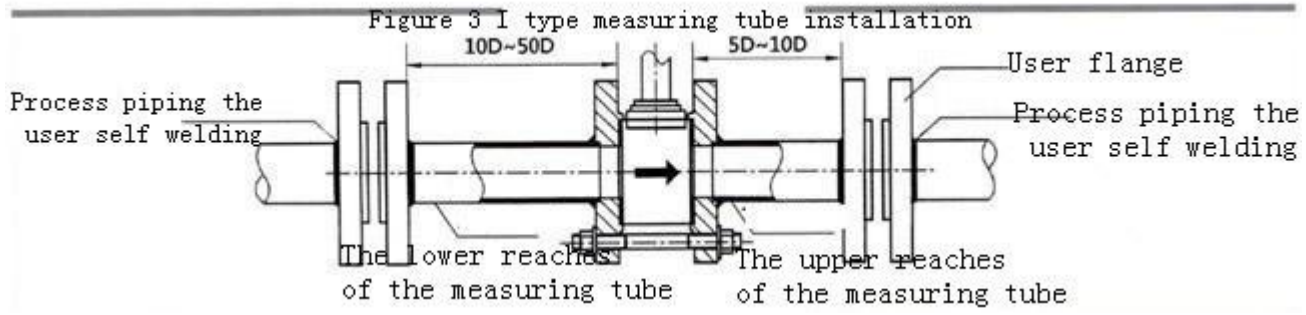


Figure 4 the diameter shrinking pipe installation

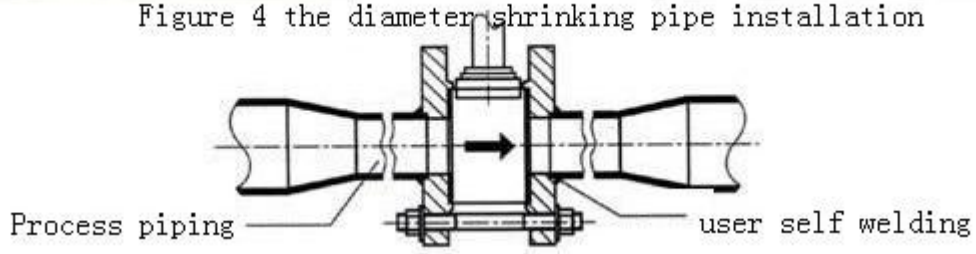
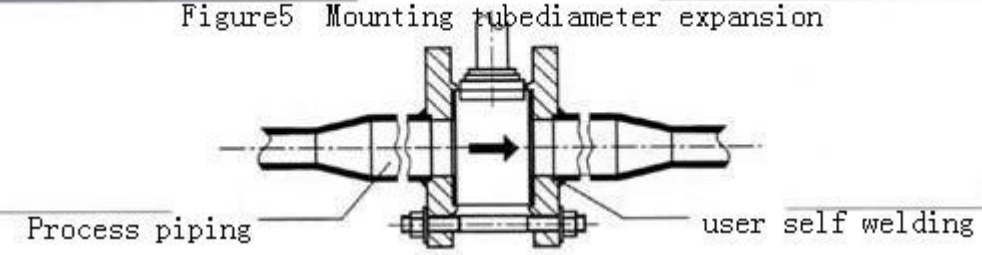
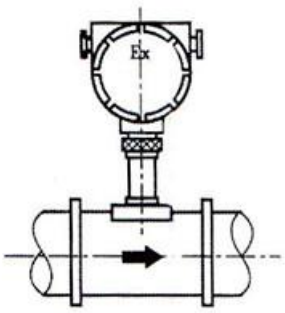
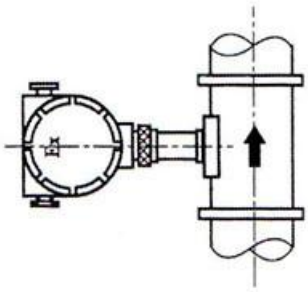
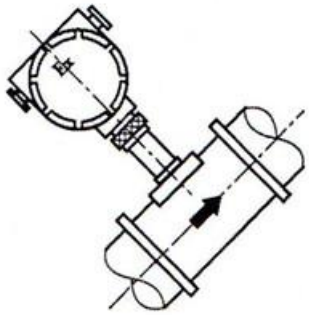


Figure5 Mounting tubediameter expansion

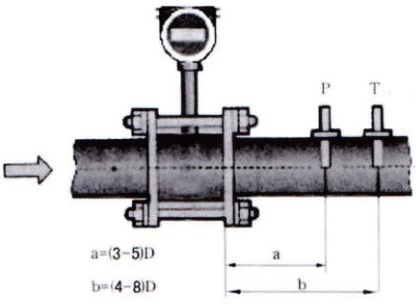


Flow meter installation form
 Horizontal installation,  vertical installation  inclined installation
Installation of flow meter
■ Making hole on pipes according to hole dimensions, and the hole position should meet the requirement of strait pipeline. ■ Input the whole set of flow meter which connecting the top flange to the pipeline hole. ■ Weld and fix the position on flange and pipeline. ■ Remove the flow meter, welding the flange according to requirement, and clean the protruding part inside of pipeline. ■ Install the sealing gasket which has the same size of pipe on inner flange, input the flow meter to flange, the flow direction of flow meter should be the same as fluid, then fasten the bolts.
Installation of platinum resistance and pressure transmitter

■ If the medium needs split temperature and pressure compensation(like steam, compressed air), then it should install temperature sensor and press transmitter.

■ The temperature should be installed below the flow meter 4-8D, making a 25mm hole on fixed position,welding the platinum resistance base vertically or inclined on the hole, mount the platinum resistance to the base, and make sure no leakage.

■ Pressure transmitter should be installed below flow meter 3-5D, the hole position should at the position where the end of elbow welding vertically on the hole, mount the valve on the other end of the elbow, install pressure transmitter on the top of valve, the both sides of valve should make sure no leakage. If measuring high temperature medium, the elbow should be filled with water in advance, in order not to damage the pressure transmitter because of high temperature.



Temperature and pressure point of installation diagram

Pipe Installation Considerations

■ Flow meter is best installed in the room, if required to be installed outdoors, avoid direct sunlight and rain should be measures to prevent.

■ Flow meter should be avoided in magnetic interference, small space and maintenance inconvenient occasions.

■ Flow meter should be avoided at higher temperatures by thermal radiation or equipment containing corrosive gas applications, if required to install, there must be insulated ventilation.

■ Flow meter should be avoided in the mechanical vibration of the pipe , If to be installed, damping measures must be taken , Hose can be installed transition, , or on the 2D of flow meter upstream or downstream Installation of pipes fixed anchor and add shock pad.

■ After positioning spot welding flange and pipe , Can not be welded with flow meter.

■ Vortex flow meter can measure liquid, gas and steam , But it is not universal among different media ;

The same kind of media is divided into low, high and special high temperature in three sizes, it is not universal among different temperatures

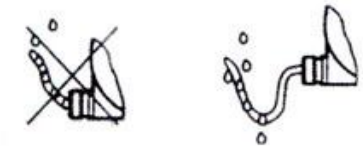
.■ When measuring liquids must ensure that the pipe is filled with liquid , So the medium should be a bottom-up flow。

■ Flow meter can be installed on any 360-degree vertical direction of the pipe axis。Best Installation : Low

temperature medium gauge rod vertical ground installation；High temperature dielectric sheet bar parallel to the ground installation。

■ Flow meter should avoid longer installed on overhead pipes ,Due to sagging pipeline .Easy to cause the seal leakage between the flow meter and the flange。If the required installation，on the 2D of flow meter upstream or downstream.Pipe support points were set。

■ Measuring steam pipe，To prevent overheating converter，Do at least half meter connecting rod insulation。



■ In order to facilitate the observation and wiring，Flow meter meter can be rotated 360 degrees in the original position，After adjusting the position，Tighten the lock nut。In order to prevent moisture from the lock nut entering shell，Need to use waterproof tape to seal the wound lock nut if necessary。

■ Shielded cable that connect flow meter direction ，Keep away from strong electromagnetic interference occasions，And definitely not with the high voltage cable laying。Shielding line should be as short as possible，And not coil，In order to reduce the inductance，The maximum length is not more than 500 meters。

■ First unscrew the case back cover when wiring，The signal lines from waterproof connector access。Correct wiring in accordance with wiring diagram。The waterproof joints tightening ,And to ensure that the cable must bend down before entering the waterproof connector，To ensure that water does not enter the housing along the cable。

Sixth.1.FM-14 Site display panel Operating Instructions

- 1.1connected to power
- 1.2Press the "+" key, the interface appears "Enter Password：XXX”，Then press the "E" key, "Enter Password：0XX”，Press the "+" key, "0" instead "4"，Press "▲" shift key，The second "0" instead "8"，Then press the same operation third "0" instead "5"。Password is“485”。

1.3Press the "E" key to enter the parameter setting state。First, a "flow unit to select" appeared ,Press the "E" key once, then press "+" key，Select the flow unit that you need 。After select，Press the "E" key to confirm。Then press the "+" key，Enter "algorithm to select"，Press the "E" key once, then press "+" key，If the measurement of the mass flow，Select the "General mass flow"，If the volume flow measurement，Select the "General volume flow”，After the selection is complete，“E "key to confirm。By the same method, respectively, input flow coefficient、Full-scale output flow、density setting, the lower cut traffic, the cumulative amount cleared.

note：In the process parameter settings, after go to the settings of each item，Must press the "E" key，Then press the "+" key to modify ,After editing ,press the "E" key to confirm。After confirming the completion of.Go to the next one。

1.4After completion of the above steps，Press the "S" key, "Enter password: XXX" interface，Press "+" key to completely exit the parameter setting state，Back to the instrument work interface。

1.5The emergence of the decimal point：Such as setting the meter factor212.6，"flow coefficient" screen is displayed，Press the "E" key once，"0" appears, then press the "+" key，The "0" to "2"，Press "▲" shift key ,The second "0" instead "1" ,By the same method will be the third "0" instead "2" ,Then press the "▲"

shift key，Repeatedly pressing the "+" key until the decimal point。

1.6"Full-scale output flow" setting，Numerical aperture determines the size and density of the "full-scale output flow" of。As DN100 flow meter，if the density is 3，according to gas measurement range condition，DN100 standard measurement range of 100-1000m3 / h，Full-scale output flow" set 3t / h on the line。

1.7The lower limit resection Flow setting 。First the lower limit resection flow is the percentage of "full-scale output flow" .Such as: "full scale output flow" set 3t / h，"The lower limit resection flow" if set to 5%，That is excised 0.15 t / h.

2.Current output Vortex flow meter Operating Instructions

1.1 connected to power

- 1.2 Press the "+" key, the interface appears "Enter the password : XXXX, then press the "E" key, appears”Enter the password:0000”, Press the "+" key, the first ”0” change to “2”,then press the shift key "▲" , the third ”0” change to “1”. The password is “2010”.

1.3 Press the "E" key, enter the parameter setting mode.The first appearance of flow unit selection, Press the "E" key once, then press the "+" key, select flow units that you need. After the selection is completed, press the "E" key to confirm. And then, press the "+" key, enter the “Algorithm Selection”, press the "E" key once, then press the "+" key, If the measurement of mass flow, Select” conventional mass flow”, If the measurement of volume flow , Select “conventional volume flow”. After the selection is completed, press the "E" key to confirm. In the same way, the input flow coefficient, full-scale output flow, density setting, the resection of flow lower limit , the cumulative amount cleared.

NOTE:In the process of setting the parameters, After entering each setting, first press the "E" key, then press "+" key to modify, after modify, press the "E" key to confirm .After the confirmation, proceed to the next item.

1.4 After completion of the above steps.First press the ”S” key , the interface appears "Enter the password：XXXX”, then press the "+" key.You can completely withdraw from the parameter setup state, back to the normal work of the instrument.

1.5 The emergence of the decimal point: for example, set the meter factor 212.6, on the "flow coefficient" interface , press the "E" key once, appear "0", then press the "+" key, "0" change to "2", press the shift key "▲" , the second "0" change to "1", according to the same method to the third "0"change to "2", then press the shift key "▲" , repeatedly pressing the "+" key until the decimal point appears.

1.6"Full-scale output flow" setting, The diameter and density determines the size of the "numerical full scale output flow" . DN100 as tables, if the density is 3, depending on the gas measurement range conditions, DN100 standard measuring range:. 100-1000m³ / h then the "full-scale output flow" set 3t / h on it. "Full Scale Output Flow" represents the maximum flow at 20mA current output,Therefore, "numerical full scale output flow" is bigger than the maximum value of standard measuring range, in order to prevent the actual flow exceeds the standard medium flow.

If the full-scale output value flow factory setting is inappropriate, you can adjust on the site. Does not affect the measurement accuracy.

1.7 The lower limit resection Flow setting 。First the lower limit resection flow is the percentage of "full-scale output flow" .Such as: "full scale output flow" set 3t / h，"The lower limit resection flow" if set to 5%，That is excised 0.15 t / h.