

## LUXB precession vortex flow meter



# 1. Product introduction

Intelligent precession vortex flowmeter integrates the functions of flow, temperature and pressure detection, and can automatically compensate the temperature, pressure and compression factors. It is an ideal instrument for gas metering in petroleum, chemical industry, electric power, metallurgy and other industries.

## 2. Main features

- No mechanical moving parts, not easy corrosion, stable and reliable, long life, long running without special maintenance;
- Using 16-bit single chip, high integration, small size, good performance, the whole machine function is strong;
- Set intelligent flowmeter flow sensor, microprocessor, pressure and temperature sensor, adopt built-in combination, make the structure more compact, can directly measure the fluid flow, pressure and temperature, and automatic tracking compensation and real-time compression factor correction;
- Using characters dot matrix display screen, display digits, more intuitive reading convenient, can be directly display instantaneous flow instandard condition, the total volume flow, pressure, temperature.
- Using EEPROM technology, convenient parameter Settings, can be permanent, and can save up to a year of historical data;
- Converter can output pulse frequency, 4 ~ 20 ma analog signals, with RS485 interface, can be directly with the computer networking, transmission distance of 1.2 km;
- Physical parameter alarm output more, can choose any one of them by the user;
- The sensor input pressure and temperature signal, strong interchangeability.
- Machine low power consumption, can be used in batteries, also can be an external power supply.

## 3. Flowmeter Structure

The flowmeter consists of the following seven basic components (Figure 1):

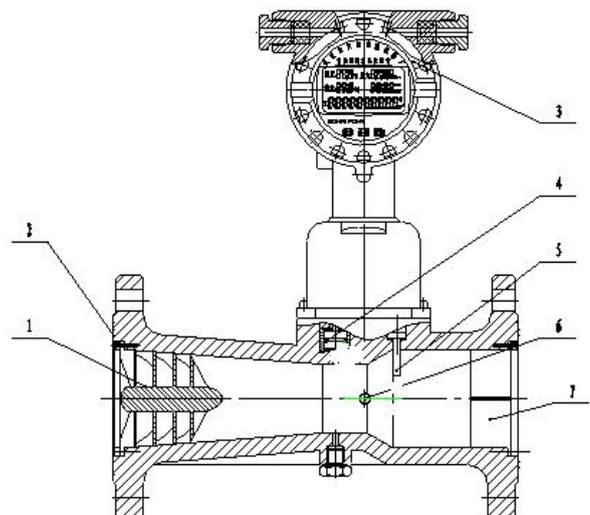
### 1. Vortex generator

Made of aluminum alloy, spiral blades with a certain angle are fixed at the front of the contraction section of the shell to force the fluid to generate strong vortex flow.

### 2. Shell

It is equipped with flange and fluid passage with certain shape. According to different working pressures, the shell material can be cast aluminum alloy or stainless steel.

### 3. Intelligent flowmeter totalizer



It consists of temperature and pressure detection analog channel, flow detection digital channel, micro-processing unit, liquid crystal drive circuit and other auxiliary circuits, and is equipped with an external signal interface.

4. Temperature sensor

The Pt100 platinum resistor is used as a temperature sensitive element. Within a certain temperature range, its resistance value corresponds to the temperature.

5. Pressure sensor

The piezoresistive diffusion silicon bridge circuit is taken as a sensitive element, and the bridge arm resistance of the piezoresistive diffusion silicon bridge circuit changes as expected under the action of external pressure, so the potential difference between the two output ends of the piezoresistive diffusion silicon bridge circuit is proportional to the external pressure under the action of a certain excitation current.

6. Piezoelectric crystal sensor

Installed near the throat of the shell expansion section, it can detect the frequency signal of vortex precession.

7. Racemization device

It is fixed at the outlet section of the shell and its function is to eliminate vortex flow so as to reduce the influence on the performance of downstream instruments.

## 4. Technical Specification Table

<p><b>LUXB precession vortex flow meter</b></p>	
<p><b>Material</b></p>	<p>Aluminum alloy or stainless steel</p>
<p><b>Accuracy</b></p>	<p>1.5%</p>
<p><b>Measuring range</b></p>	<p>1.0-3600 m3/h</p>
<p><b>Diameter (MM)</b></p>	<p>DN15-DN200</p>
<p><b>Output</b></p>	<p>Standard : 4-20mA / Pulse. Option: RS485</p>
<p><b>Press</b></p>	<p>1.6Mpa Option:2.5MPa</p>
<p><b>Power</b></p>	<p>24VDC</p>
<p><b>Connection</b></p>	<p>Thread or Flange</p>
<p><b>Protection level</b></p>	<p>IP65</p>
<p><b>Compensation</b></p>	<p>Has temp. and pressure sensor, so it can temp. and pressure</p>

compensation automatically.
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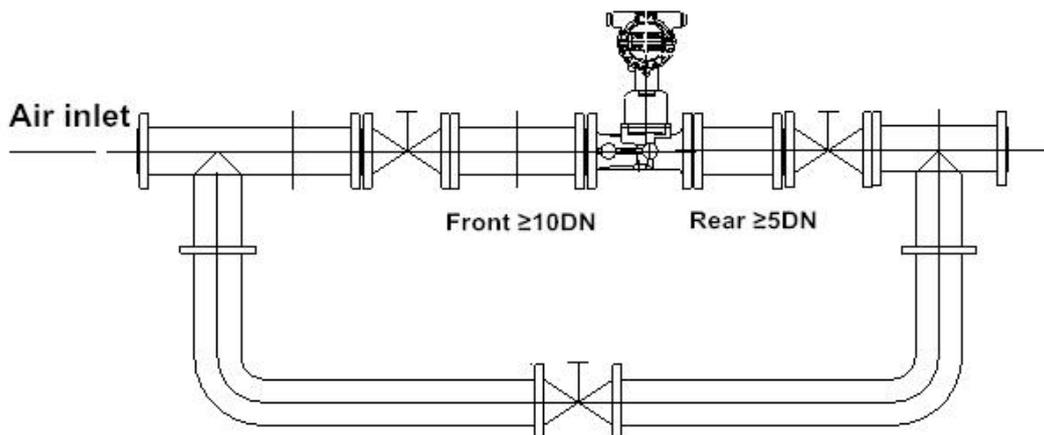
## 5. Technology Parameter

Inside nominal diameter (mm)	Flow range(m <sup>3</sup> / h)	Pressure of work (MPa)	Degree of accuracy	Repetitive
15	1.0-10	1.6 2.5 4.0	1.0 1.5	Less than 1/3 of the absolute value of the fundamental error limit
20	1.5-15			
25	3.0-30			
32	6.0~60			
40	7.0~70			
50	12~150			
80	40~400			
100	80~900			
150	120~1800	1.6;2.5;4.0		
200	240~3600			

## 6. Installation

- When installing the flowmeter, it is strictly prohibited to directly conduct electric welding at its inlet and outlet flanges to avoid burning out the internal parts of the flowmeter.
- The newly installed or overhauled pipeline must be cleaned, and the flowmeter can be installed only after sundries in the pipeline are removed.
- The flowmeter shall be installed in a place convenient for maintenance, free from strong electromagnetic field interference, strong mechanical vibration and thermal radiation.
- Flowmeter should not be used in occasions with frequent flow interruption and strong pulsating flow or pressure pulsation.
- When installing the flowmeter outdoors, the upper part should be covered to prevent rainwater immersion and sun exposure from affecting the service life of the flowmeter.
- The flowmeter can be installed at any angle, and the flow direction of the fluid should be consistent with the flow direction marked on the flowmeter.
- During the pipeline construction, consideration should be given to installing expansion pipes or bellows to avoid serious stretching or breaking of flowmeter.
- The flowmeter shall be installed coaxially with the pipeline and prevent sealing piece and butter from entering the inner cavity of the pipeline.

- When an external power supply is used, the flowmeter must have reliable grounding, and it is not allowed to share the ground wire with the high-voltage power system. During installation or maintenance of the pipeline, it is not allowed to overlap the ground wire of the electric welding system with the flowmeter.
- In order not to affect the normal transportation of fluid and facilitate maintenance, and to ensure the straight pipe section with the front  $\geq 10DN$  and the rear  $\geq 5DN$ , as below:



## 8. Selection codes of flow meter

Selection codes of Flow meter			
HBLUXB		Description	
Meter Style	A	24VDC power, Temp. And press compensation	
	B	Dual power (24VDC and 3.6V lithium battery) Temp. and press compensation	
Meter diameter	-XXX	DN15.20.25.32.40.50.65.80.100.125.150.200	
Material	AL	Aluminum alloy	
	SS	Stainless steel	
Single output	0	Pulse output	
	1	4-20mA	
	2	RS485	
Nominal Pressure	-016	1.6MPa	
	-025	2.5MPa	
	-040	40Mpa	