

TECHNOLOGY

HOLYKELL®

FLOWMETER

• DATASHEET •

1. Pressure Measurement 2. Level Measurement 3. Temperature Measurement
4. **Flow Measurement** 5. Display & Control Instruments

HVPF Swirl Flow Meter

Product Introduction



The intelligent swirl flow meter is a new type of gas flow meter. The flow meter integrates flow, temperature, and pressure detection functions, and can automatically compensate for temperature, pressure, and compression factor. It is an ideal instrument for gas measurement in petroleum, chemical, electric, metallurgical and other industries.

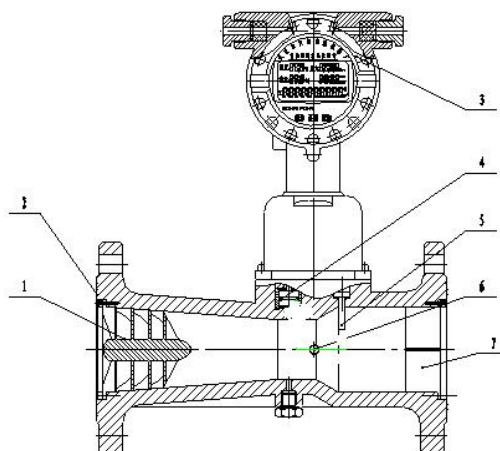
Product Features

- No mechanical moving parts, not easy to corrode, stable and reliable, long life, long running without special maintenance;
- Use 16-bit single chip, high integration, small size, good performance, the whole machine function is strong;
- Set intelligent flow sensor, microprocessor, pressure and temperature sensor, adopt built-in combination, make the structure more compact, directly measure the fluid flow, pressure and temperature, and automatic tracking compensation and real-time compression factor correction;
- The double detection technology can effectively improve the detection signal strength, and restrain the disturbance caused by pipeline vibration;
- Adopt domestic leading intelligent seismic technology, effectively suppress the vibration and pressure fluctuation caused by the interference signal;
- Use Chinese characters dot matrix display screen, display digits, more intuitive reading convenient, can be directly display the working status of traffic volume, the standard conditions, the total volume flow, parameters such as pressure, temperature and medium;
- Use EEPROM technology, convenient parameter setting, which can be permanent, historical data saved for up to one year;

- 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;
- Multi-physical parameter alarm output, users can choose one of them;
- Flow meter header can rotate 360 degrees, easy to install and use;
- With our data collector, remotely transmit data through the Internet or telephone network;
- The pressure and temperature signals are sensor input methods, which are highly interchangeable;
- Low power consumption, internal battery or external power supply available;
- Maintenance-free, cleaning-free.

Structure

The flow meter consists of the following seven basic components (figure 1) :



1. Swirl generator

Made of aluminum alloy, with a certain Angle of the spiral blade, it is fixed in front of the shell contraction section, forcing the fluid to produce a strong swirl flow.

2. The shell

With flanges and a certain shape of fluid passage, the shell material can be cast aluminum alloy or stainless steel according to different working pressure.

3. Intelligent flowmeter integrator

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

4. Temperature sensor

Pt100 platinum resistance is taken as temperature sensitive element, and its resistance value corresponds to the temperature within a certain temperature range.

5. Pressure transducer

With piezoresistive diffused silicon bridge as the sensitive element, the resistance of the bridge arm will change as expected under the action of external pressure. Therefore, under the action of certain excitation current, the potential difference between the two output terminals is proportional to the external pressure.

6. Piezoelectric crystal sensor

The frequency signal of swirl precession can be detected by installing it near the throat of the shell expansion section.

7. Disappear is investigated

Fixed in the outlet section of the shell, its function is to eliminate swirl flow, so as to reduce the impact on downstream instrument performance.

Working Principle

The flow profile of the flow sensor is similar to the profile of the Venturi tube (Figure 2). A set of spiral guide vanes are placed on the inlet side. When the fluid enters the flow sensor, the guide vanes force the fluid to produce a violent swirl. When the fluid enters the diffusion section, the swirl flow is affected by the backflow and begins to rotate twice, forming a gyroscopic swirl precession phenomenon. The precession frequency is proportional to the flow rate, and is not affected by the physical properties and density of the fluid. The second rotation precession frequency of the fluid measured by the detection element can obtain good linearity in a wide flow range. The signal is amplified, filtered and shaped by the preamplifier and converted into a pulse signal proportional to the flow rate, and then sent to the microprocessor together with the temperature, pressure and other detection signals for integration processing, and finally the measurement is displayed on the LCD screen Results (instantaneous flow rate, cumulative flow rate and temperature and pressure data).

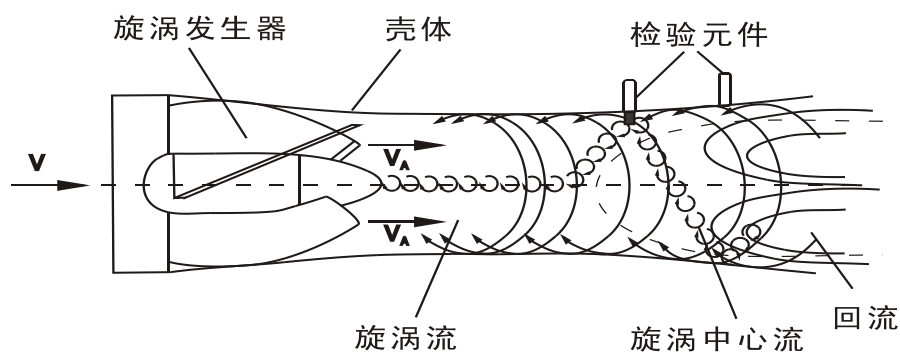


Figure 2

Performance Specification

DN (mm)	Type	Flow range(m ³ /h)	Working Pressure (MPa)	Accuracy	Repeatability
15		1.0-10	1.6 2.5 4.0 6.3 10 16	1.0 1.5	Less than 1/3 of the absolute value of the basic error limit
20		1.5-15			
25		3.0-30			
32		6.0~60			
40		7.0~70			
50	A	12~150			
	B	2.5~75			
80	A	40~400			
	B	10~200			
100	A	80~900			
	B	30~600			
150	A	150~1500			
	B	40~900			
200		240~3600			

Note:

1. Accuracy: refers to the system accuracy after temperature and pressure correction;
2. A and B are used to distinguish different flow ranges with the same diameter.

Overall Dimensions

