

## LGXS WEDGE FLOW METER

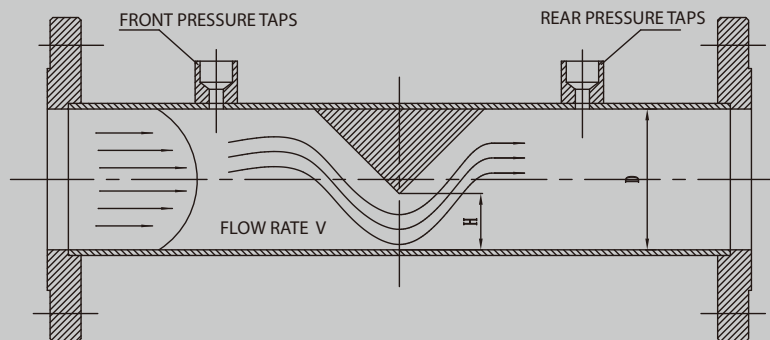
### Summary

LGXS Wedge Flow meter has been widely used in recent years. It has been widely used in foreign petroleum, chemical and other industries. The flow rate and differential pressure remain root relationship at a very wide Reynolds number range. Wedge Flow meter is very suitable for low Reynolds number fluid flow measurement, especially in the measurement of high viscosity fluid, containing solid particles, slurry fluid, has more advantages than other throttling devices.



### Operating Principle

Basic principle of LGXS wedge flow meter also comes from conservation of energy and continuous equation, putting the wedge whose longitudinal section is triangle into process pipe, when the fluid flows through the wedge flow meter, due to the throttling effect of the wedge, a differential pressure is generated on the upper and lower sides of the wedge, which is squared with the volume flow rate, the differential pressure transmitter can output the standard signal which is square relation with the measured fluid flow value, and then the flow value can be obtained.



Wedge flow meter working principle

Basic calculation formula:

#### Volume flow

$$Q = \frac{C\varepsilon}{\sqrt{1-m^2}} m \frac{\pi D^2}{4} \sqrt{\frac{2\Delta P}{\rho}}$$

#### Quality flow

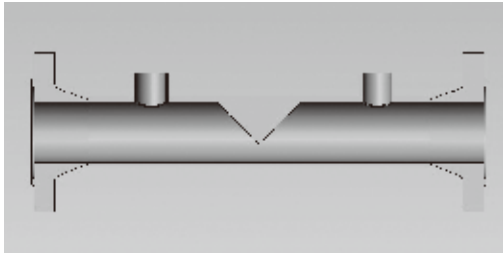
$$M = \frac{C\varepsilon}{\sqrt{1-m^2}} m \frac{\pi D^2}{4} \sqrt{2\Delta P \rho}$$

- C— Flow coefficient
- $\varepsilon$ — Expandable coefficient
- m— The throttling area ratio
- D— pipe inner diameter
- $\Delta P$ — Pa differential pressure Pa
- $\rho$ — tested medium density Kg/m<sup>3</sup>

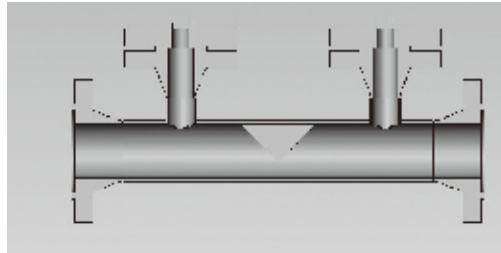
### **Product basic structure**

Regular type / digital intelligent vortex flow meter

#### 1. Flange connection type size



Pipe nozzle tapping structure photo



Flange tapping structure photo

### **Product Performance Features**

- Wide measurement scope, for Reynolds number from 500 to millions scope, the flow and different pressure (always keep) kept root relationship.
- High precision, the basic error of the flow coefficient of calibration Wedge Flow meter is less than 0.5%.
- With self-clean function, no stagnant area.
- Good abrasion resistance.
- Permanent pressure drop is less than the orifice.
- Good repetitive, high reliability
- Long lifetime, low cost and convenient on installation.
- Two-way flow measurement. With the minimum requirement on a straight pipe, 5 times pipe
- Repeatability:  $\pm 0.2\%$ .

### **Technical Parameters**

- Nominal diameter: DN25~DN600
- Wedge ratio: 0.2,0.3,0.4,0.5
- Nominal pressure: 0~26.0MPa
- Medium temperature:  $-196\text{ }^{\circ}\text{C} \leq T \leq 500\text{ }^{\circ}\text{C}$
- Range ratio: 10:1
- Accuracy:  $\pm 1\%$   $\pm 0.5\%$  (actual flow calibration)
- Reynolds number scope:  $300 \sim 1 \times 10^7$
- Medium viscosity: 500mPa.s

### **Application Scope**

- Suitable for the low Reynolds number flow measurement.
- Suitable for high viscosity flow, containing solid particles and liquid and slurry flow, such as fuel oil, residual oil, the flow measurement of slurry oil, waste water etc.
- Suitable for nominal diameter DN25~DN600 pipe.

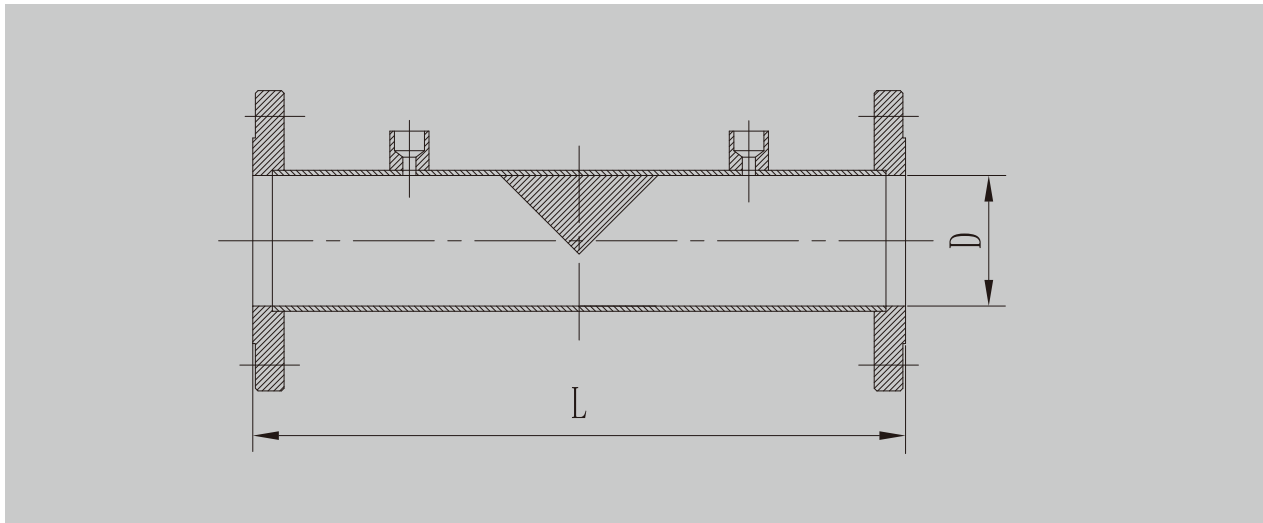
### Model Selection Table

Series No	Specification code		Contents	
LGXS			Wedge flow meter	
	A		Pipe nozzle tapping	
	B		Flange tapping	
	C		Others	
	-			
		026		DN25
		04		DN40
		05		DN50
		08		DN80
		10		DN100
		...		...
		60		DN600
			01	PN16
			02	PN20(Class150)
			03	PN25
			04	PN40
			05	PN50(Class300)
			06	PN63
			10	PN100
			11	PN110(Class600)
			15	PN150(Class900)
		16	PN160	
		26	PN260(Class1500)	
		42	PN420(Class2500)	
		A	With transmitter	
		B	Without transmitter	

### Example:

LGXSB-1005A, LGXS wedge flow meter, with transmitter tapping on a flange, nominal diameter DN100, nominal pressure Class 300.

### Outline Drawing and Installation Size



### The installation of the wedge flow meter

1. No need to consider the flow direction for the installation of the LGXS wedge flow meter.
2. When LGXS wedge flow meter is installed in horizontal pipe, pressure taking port should be in the horizontal pipe center line within a range of 45°, installed in a vertical pipe, pressure in different elevation will produce additional pressure head, and it should be resolved by the transmitter after installation, reset to zero.
3. When pipe nozzle tapping wedge flow meter is measuring the flow of high viscosity, easy crystallization, coking or solid particles, and the outlet pressure should be self-heated or externally heated, and the isolation vessel should be set up.
4. LGXS wedge flow meter's upstream and downstream must have a straight pipe with a certain length and no resistance.
5. The requirement for front-back straight pipe

Block flow device	Upstream	Downstream
One curved head	5D	4D
Two curved heads	7D	4D
Three section heads	6D	4D
Full open gate valve	6D	4D
Full open ball valve	8D	4D
Continuous shrink tube	9D	4D
Continuous enlarge tube	9D	4D

### Ordering Information

Please see LG model flow measurement throttle device