

## LGXS WEDGE FLOW METER

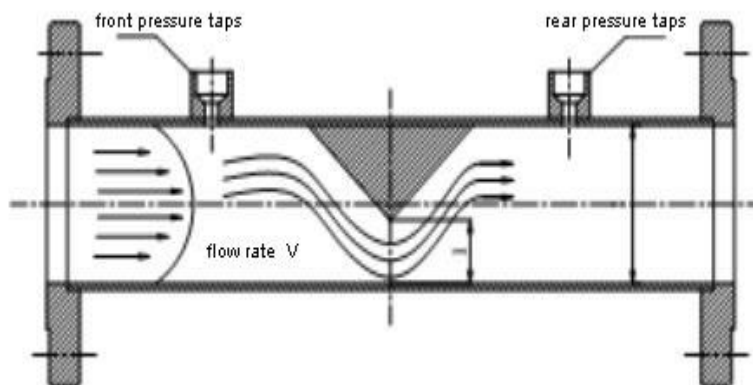
### Summary

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 ratio

D— pipe inner diameter  
Kg/m<sup>3</sup>

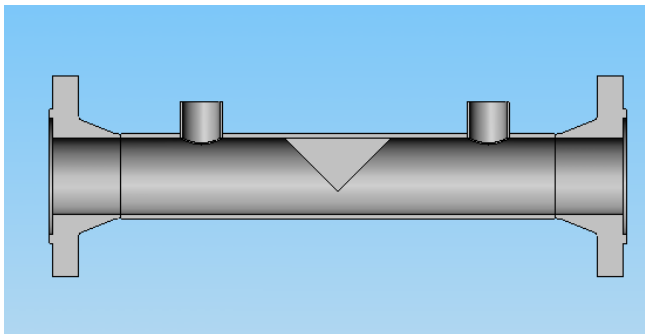
ε— Expandable coefficient

ΔP— Pa differential pressure Pa

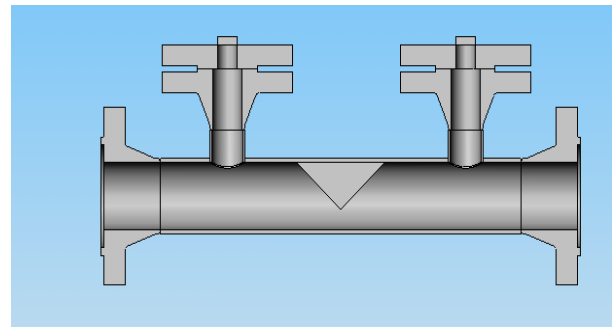
m— The throttling area

ρ— tested medium density

## Product basic structure



Pipe nozzle tapping structure photo



Flange tapping structure photo

## Product Performance Features

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

diameters upstream and 2 times pipe diameter downstream.

9. Repeatability:  $\pm 0.2\%$ 。

### Technical Parameters

Nominal diameter: DN25~DN600

Wedge ratio: 0.2, 0.3, 0.4, and 0.5

Nominal pressure: 0~26.0MPa

Medium temperature:  $-196^{\circ}\text{C} \leq T \leq 500^{\circ}\text{C}$

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

1. Suitable for the low Reynolds number flow measurement.
2. 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.
3. Suitable for nominal diameter DN25~DN600 pipe.

### Model Selection Table

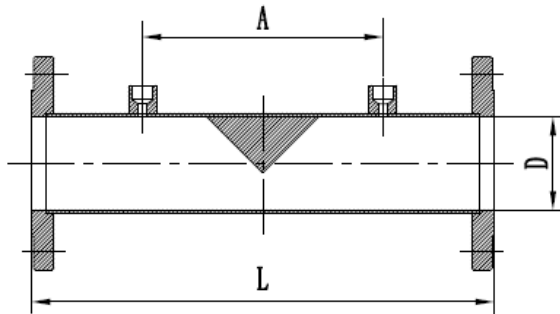
Series No.	Specification code			Content	
LGXS				Wedge flow meter	
	A			Pipe nozzle tapping	
	B			Flange tapping	
	C			Others	
	—				
		4	13	DN25	1"
		5	14	DN32	1-1/4"
		6	15	DN40	1-1/2"
		7	16	DN50	2"
		8	17	DN65	2-1/2"
		9	18	DN80	3"
		10	19	DN100	4"
		20	51	DN125	5"
		21	52	DN150	6"

22	53		DN200	8"
23	54		DN250	10"
24	55		DN300	12"
25	56		DN350	14"
26	57		DN400	16"
27	58		DN450	18"
28	59		DN500	20"
		—		
		3		PN16
		4		Class150
		5		PN25
		6		PN40
		7		Class300
		8		PN63
		9		PN100
		10		Class600
		11		Class900
		12		PN160
		13		PN250
		14		Class1500
		15		PN420
		16		Class2500
		A		No transmitter
		B		With transmitter, separated installation
		C		With transmitter, integrated installation

### Example

LGXSB-1005HA, LGXS wedge flow meter, tapping on a flange, nominal diameter DN100, nominal pressure Class 300, the material is 304 stainless steel, differential pressure transmitter is not included.

## Outline Drawing and Installation Size



**LGXS wedge flow meter outline drawing size table**

Nominal diameter D	L (mm)	A (mm)
DN25	600	280
DN40	600	280
DN50	600	280
DN80	600	310
DN100	800	370
DN150	800	450
DN200	900	520
DN250	960	600
DN300	1100	670
DN350	1150	710
DN400	1200	770
DN450	1300	850
DN500	1400	940
DN600	1500	1050

### 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