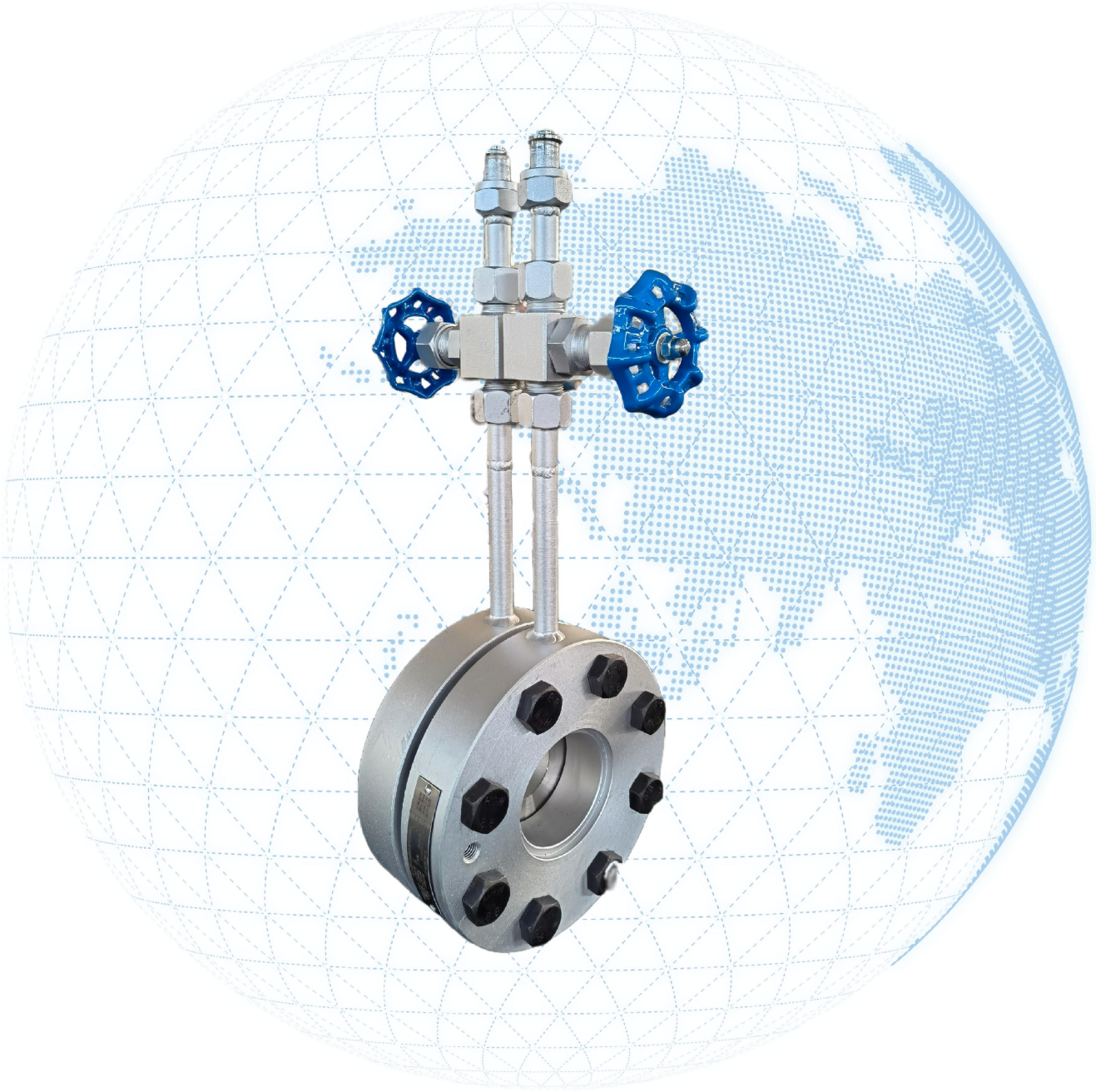
Product Manual | Orifice Plate Flowmeter



Working Principle

LG throttling device is a primary device in a differential pressure flow measurement system, which consists of a throttle, a pressure-receiving device and a straight pipe section. Throttling device is divided into standard throttling device and non-standard throttling device, the one is coincident with IS05167 and GB/T2624 standard is the standard throttling device, the others are non-standard throttling device.

When the pipe filled fluid flows through the throttling device in the pipe, according to the law of conservation of energy and the equation of flow continuity, the stream will form a local contraction at the throttle, thereby increasing the flow rate, static pressure reduction, static pressure difference ΔP(or named differential pressure) before and after the throttle. The greater the flow rate of the fluid, the greater the differential pressure generated before and after the throttle, and the amount of fluid flow is measured by measuring the differential pressure before and after the throttle.

Standard throttling devices should normally be used whenever possible, and non-standard throttling devices can be used only when the fluid Reynolds number is small or contains impurities.

Flow calculation formula:

$$Qm=\frac{C}{\sqrt{1-\beta^4}}\varepsilon\frac{\pi}{4}d^2\sqrt{2\Delta P\times\rho}$$

In formula:Qm--Mass flow of fluid　D--Pipe inner diameter

C--Outflow coefficient　∈--Swellability coefficient

β--Diameter ratio（β=d/D） ΔP--Static pressure difference generated before and after the throttle

D--Throttle diameter　p--Fluid density

Technical Parameters

Nominal diameter:	DN15~1200(More than 1200 negotiated orders)
Nominal pressure:	≤42MPa
Inaccuracy:	±0.5%~±1.5%
Installation method:	Flange connection, Welded connection(or customized)
Pressure method:	Corner connection pressure (ring chamber/ separate drilling), Flange/ radial pressure or else
Straight pipe:	Upstream5~10D,downstream2~5D

Throttling device classification

Type	Pressure method	Reference model	Nominal diameter (mm)	Nominal pressure(MPa)	Diameter ratio
Standard Orifice Plate	Corner pressure	LGBH-1.0~10	50-400	1.0~10	0.23~0.80 0.23~0.45 0.45~0.77 0.77~0.80
		LGBH-20	50-250	20	
		LGBH-32	15-150	32	
		LGBZ-0.25	450-1600	0.25	
		LGBZ-0.6	450-1000	0.6	
		LGBZ-1.0~1.6	450-600	1.0~1.6	
		LGBZ-2.5	450-500	2.5	
	Flange pressure	LGBF-1.0~2.5	50-750	1.0~2.5	0.25~0.75
		LGBZ-1.0~10	50-400	1.0~10	
	Radial pressure	LGBJ-1.0~6.4	50-400	1.0~6.4	

Length of the straight pipe for reference

Nominal diameter(mm)	L_1(mm)	L_2(mm)
50	10*50=500	5*50=250
80	10*80=800	5*80=400
100	10*100=1000	5*100=500
125	1000	260
150	1000	310
200	1200	410
300	1700	710
400	2000	810

Structure for standard orifice plate

a Standard orifice plate,pressure taps is carrier ring, see figure a

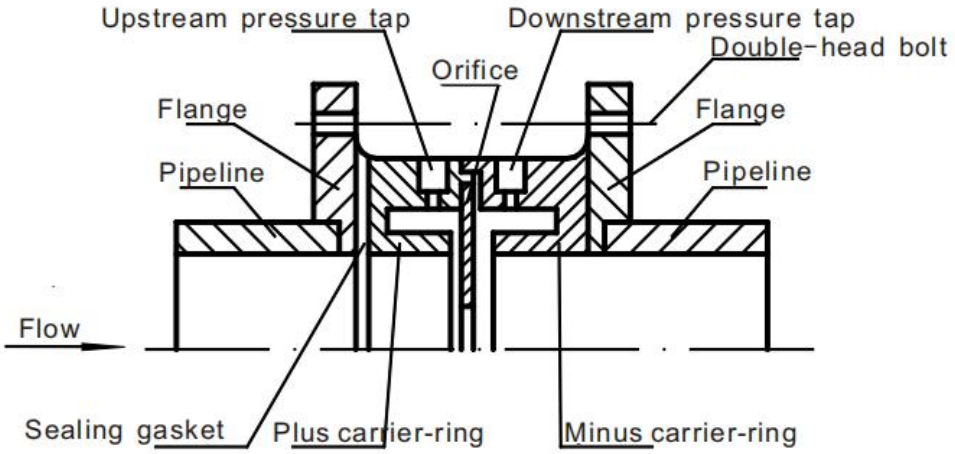


Figure a: Structure of standard orifice plate with carrier ring

b. Standard orifice plate,pressure taps is flange taps, see figure b

Tapping position should be at the flange of the cylindrical surface (straight hole) or the side of the face (slant hole), The centerline of pressure taps distance to downstream side or upstream is all 25.4mm,It has convenient installation, not easy jam, Sewage to facilitate,

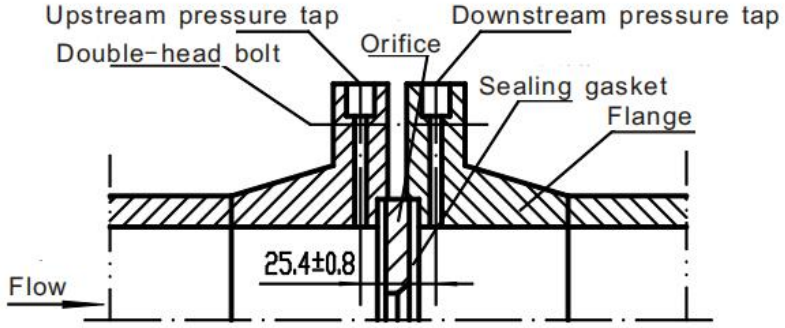


Figure b: Structure of standard orifice plate with flange taps

Selection guide

1. Type					
X-small orifice plate	B-standard orifice plate	T- Lens plate	V- Conical inlet	S- Double orifice	H-1/4 round orifice plate
Q- Round hole plate	M-small nozzle	P-standard nozzle	C-long neck nozzle	L- Venturi nozzle	W- Standard venturi

2. Flange material					
C- Carbon steel	P1-SS 304	P2-SS 316L	P3-SS 321	F-PTFE	X-Customization

3. Throttle material					
C- Carbon steel	P1-SS 304	P2-SS 316L	P3-SS 321	F-PTFE	X-Customization

4. Pressure type		
H-Corner ring chamber pressure	Z-Corner drilling	F-Flange pressure
J-Span pressure	T-Special pressure	Fc-Built-in flange pressure

5. Nominal pressure
Write pressure value directly. E.g 2.5MPa, write as “25”, 32MPa, write as “320”

6. Operating pressure					
B—-195℃	C—-150℃	D—-70℃	E—-40℃	H—80℃	I—150℃
J—250℃	K—350℃	T—450℃	V—500℃	W—600℃	X-Customization

7. Differential pressure transmitter (Options)		
N-Without	Y-With	X-Customization

LG- 1 2 3 4 5 6 7

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