# KFKC INSTRUMENT CO.,LTD

# Company Profile

KFKC INSTRUMENT, located in the West Industrial Part of Kaifeng City, with the area of more than 2000 square meters. Now we have more than 20 years manufacturing experience and mainly specialized in 4 categories products for industrial measurement instruments.

We are one of the most advanced enterprises on the China Measurement Industry. Our main products include Electromagnetic flow meter, Vortex Flow meter, Turbine Flow meter and different kinds of Throttling Devices. Quality control is Fundamental to our success, with high quality products and services; we have won high reputation in this field.

Recently, with the advanced technology, our products have reached the international level. Our company is well-established and reliable, until now we have cooperated with the well-known international companies such as ABB, SIEMENS, EMG-DREHMO and THOMME etc…

# Meeting Room

# Certificates

# Distributor in Pakistan

# Project Case

化工厂应用现场

中海油平台

冶炼厂应用现场

啤酒厂应用现场

污水处理厂现场

热力交换站

化工厂应用现场

制药厂储罐液位

药厂储药罐

# MF-Electromagnetic Flow Meter

**MF**

| DN | PN (MPa) | Dimension | | | | | Weight (kg) |
|---|---|---|---|---|---|---|---|
| | | L | D | K | n | d | |
| 10 | 4.0 | 200 | 90 | 60 | 4 | 14 | 9.5 |
| 15 | | 200 | 95 | 65 | 4 | 14 | 15 |
| 20 | | 200 | 105 | 75 | 4 | 14 | 15 |
| 25 | | 200 | 115 | 85 | 4 | 14 | 15 |
| 32 | | 200 | 140 | 100 | 4 | 18 | 18 |
| 40 | | 200 | 150 | 110 | 4 | 18 | 20 |
| 50 | | 200 | 165 | 125 | 4 | 18 | 22 |
| 65 | | 200 | 185 | 145 | 8 | 18 | 26 |
| 80 | | 200 | 200 | 160 | 8 | 18 | 26 |
| 100 | 1.6 | 250 | 220 | 180 | 8 | 18 | 29 |
| 125 | | 250 | 250 | 210 | 8 | 18 | 31 |
| 150 | | 300 | 285 | 240 | 8 | 22 | 39 |
| 200 | 1.0 | 350 | 340 | 295 | 8 | 22 | 48 |
| 250 | | 450 | 395 | 350 | 12 | 22 | 65 |
| 300 | | 500 | 445 | 400 | 12 | 22 | 88 |
| 350 | | 550 | 505 | 460 | 16 | 22 | 110 |
| 400 | | 600 | 565 | 515 | 16 | 26 | 130 |
| 450 | | 600 | 615 | 565 | 20 | 26 | 140 |
| 500 | | 600 | 670 | 620 | 20 | 26 | 160 |
| 600 | | 600 | 780 | 725 | 20 | 30 | 270 |
| 700 | | 700 | 895 | 840 | 24 | 30 | 435 |
| 800 | | 800 | 1015 | 950 | 24 | 33 | 545 |
| 900 | | 900 | 1115 | 1050 | 28 | 33 | 655 |
| 1000 | | 1000 | 1230 | 1160 | 28 | 36 | 810 |
| 1200 | 0.6 | 1200 | 1405 | 1340 | 32 | 33 | 875 |
| 1400 | | 1400 | 1630 | 1560 | 36 | 36 | 1235 |
| 1600 | | 1600 | 1830 | 1760 | 40 | 36 | 1555 |
| 1800 | | 1800 | 2045 | 1970 | 44 | 39 | 2085 |
| 2000 | | 2000 | 2265 | 2180 | 48 | 42 | 2610 |

# MF-Model Selection

## MF

| MF | | | | | | | | | | xxx | xx | x | x | x | x | x | X | X | X | XX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | Caliber: thefirst two digits are the caliber's first and second digits. the third digit is the number of the zero | | | | | | | | | | | | | | | | | | | |
| | No. | Caliber | No. | Caliber | No. | Caliber | No. | Caliber | No. | Caliber | | | | | | | | | | |
| | 003 | 3 | 400 | 40 | 201 | 200 | 601 | 600 | 162 | 1600 | | | | | | | | | | |
| | 006 | 6 | 500 | 50 | 251 | 250 | 701 | 700 | 182 | 1800 | | | | | | | | | | |
| | 100 | 10 | 650 | 65 | 301 | 300 | 801 | 800 | 202 | 2000 | | | | | | | | | | |
| | 150 | 15 | 800 | 80 | 351 | 350 | 901 | 900 | 222 | 2200 | | | | | | | | | | |
| | 200 | 20 | 101 | 100 | 401 | 400 | 102 | 1000 | 242 | 2400 | | | | | | | | | | |
| | 250 | 25 | 125 | 125 | 451 | 450 | 122 | 1200 | 262 | 2600 | | | | | | | | | | |
| | 320 | 32 | 151 | 150 | 501 | 500 | 142 | 1400 | | | | | | | | | | | | |
| B | Nominal Pressure: | | | | | | | | | | | | | | | | | | | |
| | No. | Pressure Specification | | | | No. | Pressure Specification | | | | | | | | | | | | | |
| | 06 | 0.6MPa(DN10-20000) | | | | 10 | 1.0MPa(DN10-20000) | | | | | | | | | | | | | |
| | 16 | 1.6MPa(DN10-20000) | | | | 25 | 2.5MPa(DN10-20000) | | | | | | | | | | | | | |
| | 40 | 4.0MPa(DN10-20000) | | | | xx | sprecail pressure | | | | | | | | | | | | | |
| C | Liner material: | | | | | | | | | | | | | | | | | | | |
| | No. | Liner material | | | | No. | Liner material | | | | | | | | | | | | | |
| | 1 | PTEF | | | | 2 | Neoprene | | | | | | | | | | | | | |
| | 3 | Polyurethane | | | | 4 | F46 | | | | | | | | | | | | | |
| | 5 | PFA | | | | | | | | | | | | | | | | | | |
| D | Electrode Material | | | | | | | | | | | | | | | | | | | |
| | No. | Electrode Material | | No. | Electrode Material | | No. | Electrode Material | | | | | | | | | | | | |
| | 1 | Stainless steel316L | | 2 | Hastelloy HC | | 3 | Hastelloy HB | | | | | | | | | | | | |
| | 4 | T1 | | 5 | Ta | | 6 | Pt | | | | | | | | | | | | |
| | 7 | Coated tungsten carbide | | | | | | | | | | | | | | | | | | |
| E | Electrode Form | | | | | | | | | | | | | | | | | | | |
| | No. | Electrode Form | | No. | Electrode Form | | No. | Electrode Form | Scraper Electrode, detachable Electrode Just for DN(300-2000) | | | | | | | | | | | |
| | 1 | Standard | | 2 | Scraper Electrode | | 3 | Detachable Electrode | | | | | | | | | | | | |
| F | Accessory | | | | | | | | | | | | | | | | | | | |

# MF-Flow Velocity (m/s)

MF

| DN | Flow Velocity (m/s) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| (mm) | 0.01 | 1 | 2 | 3 | 4 | 5 | 10 | 15 |
| 10 | 0.0028 | 0.2827 | 0.5655 | 0.8482 | 1.1310 | 1.4137 | 2.8274 | 4.2412 |
| 15 | 0.0064 | 0.6362 | 1.2723 | 1.9085 | 2.5447 | 3.1809 | 6.3617 | 9.5426 |
| 20 | 0.0113 | 1.131 | 2.2619 | 3.3929 | 4.5524 | 5.6549 | 11.3097 | 16.9646 |
| 25 | 0.0177 | 1.7671 | 3.5343 | 5.3014 | 7.0686 | 8.8357 | 17.6715 | 26.5072 |
| 40 | 0.0452 | 4.5239 | 9.0478 | 13.5717 | 18.0956 | 22.6195 | 45.2389 | 67.8584 |
| 50 | 0.0707 | 7.0686 | 14.1372 | 21.2058 | 28.2743 | 35.3429 | 70.6858 | 106.0290 |
| 65 | 0.1195 | 11.946 | 23.8918 | 35.8377 | 47.7836 | 59.7295 | 119.4590 | 179.1890 |
| 80 | 0.181 | 18.0956 | 36.1911 | 54.2867 | 72.3823 | 90.4779 | 180.9560 | 271.434 |
| 100 | 0.2827 | 28.274 | 56.5487 | 84.8230 | 113.0973 | 141.3720 | 282.7430 | 424.115 |
| 150 | 0.6362 | 63.617 | 127.2350 | 190.8520 | 254.4690 | 318.0860 | 636.173 | 954.259 |
| 200 | 1.131 | 113.097 | 226.1950 | 339.2920 | 452.3893 | 565.4870 | 1130.973 | 1696.46 |
| 250 | 1.7671 | 176.715 | 353.4290 | 530.1440 | 706.8583 | 883.5730 | 1767.146 | 2650.719 |
| 300 | 2.5447 | 254.469 | 508.9380 | 763.4070 | 1017.876 | 1272.3450 | 2544.690 | 3817.035 |
| 350 | 3.4636 | 346.361 | 692.7210 | 1039.0820 | 1385.442 | 1731.8030 | 3463.606 | 5195.409 |
| 400 | 4.5239 | 452.389 | 904.7790 | 1357.1680 | 1809.557 | 2261.9470 | 4523.893 | 6785.84 |
| 450 | 5.7256 | 572.555 | 1145.1110 | 1717.6660 | 2290.221 | 2862.7760 | 5725.553 | 8588.329 |
| 500 | 7.0686 | 706.858 | 1413.7170 | 2120.575 | 2827.433 | 3543.292 | 7068.584 | 10602.88 |
| 600 | 10.079 | 1017.876 | 2035.7520 | 3053.628 | 4071.504 | 5089.38 | 10178.76 | 15268.14 |
| 700 | 13.854 | 1385.442 | 2035.752 | 4156.327 | 5541.769 | 6927.212 | 13854.42 | 20781.64 |
| 800 | 18.096 | 189.557 | 2770.885 | 5428.672 | 7238.23 | 9047.787 | 18095.57 | 27143.36 |
| 900 | 22.902 | 2290.221 | 3619.115 | 6870.663 | 9160.884 | 11451.11 | 22902.21 | 34353.32 |
| 1000 | 28.274 | 2827.433 | 4580.442 | 8482.30 | 11309.73 | 17137.17 | 28274.33 | 42411.5 |
| 1200 | 40.715 | 4071.504 | 5654.867 | 12214.51 | 16286.02 | 20357.52 | 40715.04 | 61072.56 |
| 1400 | 55.418 | 5541.769 | 8143.008 | 16625.30 | 22167.08 | 27708.85 | 55417.69 | 83126.54 |
| 1600 | 72.382 | 7238.23 | 11083.54 | 21714.69 | 28952.92 | 36191.15 | 72382.3 | 108573.4 |
| 1800 | 91.609 | 9160.884 | 14476.46 | 27482.65 | 36643.54 | 45804.42 | 91608.84 | 137413.3 |
| 2000 | 113.1 | 11309.73 | 18321.77 | 33929.20 | 45238.93 | 56548.67 | 113097.3 | 169646.0 |

# MF-Electrode Material Selection

**MF**

| Electrode Material | Corrosion Resisting Property |
|---|---|
| Stainless Steel | Used for measuring water, waste water, inorganic acid, organic acid or other corrosive medium. |
| Hastelloy B | Good corrosion resistance of different concentration of hydrochloric acid under boiling point, resist the corrosion of non-oxidizing acid, alkali, non-oxidizing salt solution, such as sulfuric acid, phosphoric acid, organic acid, etc.. |
| Hastelloy C | Resist the corrosion of oxidizing acid, such as nitric acid, mixed acid, the mixture of chromic acid and sulfuric acid, oxidizing salt like Fe+++, Cu++ or other oxidants such as hypochlorite solution above ordinary temperature and seawater. |
| Tungsten Carbide | Used for measuring non-corrosiveness or strong abrasive liquid. |
| Titanium | Used for measuring seawater, kinds of chloride, pypocholoride, oxidizing acid (including nitrosonitric acid) and organic acid-base.<br>Not suitable for measuring pure reducibility acid (e.g. vitriol, hydrochloric acid).<br>Note: if there is oxidizing agent in acid, corrosion resistance will be greatly decreased. |
| Tantalum | Have excellent corrosion resistance, as much as glass.<br>can be used for measuring every chemical medium including boiling hydrochloric acid and vitriol below 175 ℃ , but there is exception of hydrofluoric acid, fuming acid and alkali. |
| Platinum | For measuring kinds of acid, alkali and salt, except aqua regia. |
| Monel | A kind of Nickel-copper alloy, suitable for every alkaline liquid. |

# MF-Lining Material Selection

| Liner material | Main performances | Applicability |
|---|---|---|
| Polytetrafluoroethylene (PTFE) | 1.It is a plastic material with the stablest Chemical properties, resist the corrosion of Boiling Hydrochloric acid, sulfuric acid, nitric acid, aqua regia,Concentrated alkali and many kinds of organic solvent, unable to resist the corrosion of chlorine trifluoride, high Temperature vanadyltrifluoride, high flow-rate Liquid fluorine, liquid oxygen and ozon; 2.Poor abrasion resistance; 3.Poor ability of anti-negative pressure. | 1.100℃，150℃(special order required); 2.Strong corrosive medium like concentrated acid，alkali, etc.; 3.Sanitary medium. |
| polychloropree rubber (Neoprene) | 1.Excellent elasticity, high degree of tensile strength,good wear resistance; 2.Able to resist the corrosion of generally low concentration acid, alkali and salt, unable to resist that of the oxidative medium. | 1.80℃,120℃(special order required); 2.General water, polluted water, weak wear ability mud and ore pulp. |
| Polyurethane rubber (PU) | 1.Excellent wear resistance (ten times of the natural rubber's); 2.Poor abrasion resistance of acid and alkali; 3.Not able to work with water mixed with organic solvent. | 1.＜80℃; 2.Middle and strong wear ability ore pulp, coal pulp, mud, etc.. |
| PFA | Having the same abrasion resistance with PTFE.Having strong ability of load pressure resistance. | 1.Below 220 deg C 2.Applicable in state of load pressure. |
| F46 | 1.Have the same abrasion resistance with PTFE. 2.Resistable for low abrasion. 3.Having strong resistance to load pressure. | 1.Below 220 deg C 2.The same as PTFE. 3.Applicable in mediums of low abrasion. |

## MF

# LWGY-Turbine Flow Meter

LWGY

Material: Stainless Steel
DN range (mm): DN8-DN500
Output: pulse/current4-20Am/RS-485/Hart
Accuracy: 0.5%,1.0%
Medium: liquid
Flow range (mm): 0.25-4000
Power supply: 12+-10% VAC / 24+-10% VAC / 24VDC
Medium temperature (centigrade): -20-80
Environment temperature (centigrade): -20-50
Atmospheric pressure: 86-106KPa
Nominal Pressure: 1.6 – 42 MPa
Anti-Explosion Grade: IaIICT4, dIIBT4

# LWGY-Working Principle

LWGY

Sensor is based on the torque balance theory, when the liquid flows through the sensor, in the special structure of rectifiers (D1) to be rectified under the action and speed, due to turbine blades and fluid flow into a certain angle, in accelerating the fluid under the action of the impeller (D2) produce rotational torque to overcome friction torque and fluid resistance, the turbine begins to rotate, to a certain flow range, the turbine's rotational speed and flow rate is proportional to volume flow. Impeller rotating-cut magnetic lines, periodically changing the coil (D3) in the magnetic flux, so that both ends of the coil sensor and the volume of fluid flow is proportional to the pulse signal, the signal after amplification, filtering, reconstructive surgery into the Flow Totalizer (A) to computing processing, and display on the LCD on the spot.

## LWGY-turbine flowmeter

# LWGY-Fow Rate

| item / type | inside nominal diameter (mm) | Flow rate（$m^3/h$） 1.0 | Liquid temperature（℃） | Press (Mpa) |
|---|---|---|---|---|
| LWGY-10 | 10 | 0.2-1.2 | -20~+120 | 1.6 |
| LWGY-15 | 15 | 0.6-6 | | |
| LWGY-25 | 25 | 1-10 | | |
| LWGY-40 | 40 | 2-20 | | |
| LWGY-50 | 50 | 4-40 | | 6.3<br>2.5 |
| LWGY-80 | 80 | 10-100 | | |
| LWYG-100 | 100 | 20-200 | | |
| LWGY-150 | 150 | 30-300 | | |
| LWGY-200 | 200 | 80-800 | | |

## LWGY-Turbine Flowmeter

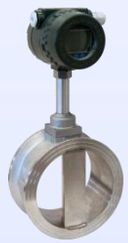
# LWGY-Installation Size

| diameter (mm) | 4 | 6 | 10 | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L (mm) | 50 | 50 | 50 | 75 | 85 | 100 | 120 | 140 | 150 | 175 | 200 | 220 | 250 | 300 | 360 |
| H (mm) | 145 | 145 | 165 | 170 | 175 | 180 | 220 | 178 | 252 | 270 | 287 | 322 | 340 | 367 | 415 |

# LUGB-Technical Indicators

| | | |
|---|---|---|
| medium | Liquid, gas, steam (single phase medium or medium that can be considered a single phase) | |
| | Saturated steam in the dry ≥ 85%, can be considered a single-phase medium | |
| Medium temperature(℃) | -40～+300； 350～450 | |
| Medium pressure | 1.6Mpa 2.5Mpa 4.0Mpa ≥4.0Mpa | |
| Allow vibration acceleration | Capacitive sensor:1.0～2.0g Piezoelectric sensor：≤0.2g | |
| uncertainty | 1.0 1.5 2.5 | |
| Range ratio | 8:1 10:1 15:1 | |
| Flow range | liquid：0.35~7.0m/s gas：5.0~60.0m/s steam：6.0~70.0m/s | |
| Specifications | Full tube type | Flange specifications DN15-DN300 |
| | Plug in | DN200-DN1500 |
| Material | 304ss | |
| Reynolds number | Normal:2×10³~7*10 Extended:1*10~7*10 | |
| Drag coefficient | Full tube type:Cd≤2.6 | |
| Level of protection | normal type：IP65 Diving type：IP68 | |
| Explosion-proof | Intrinsically safe：EX（ia）ⅡCT2-T5 Flameproof type：ExdⅡBT2-T5 | |
| Environmental conditions | Ambient temperature | -40℃~+55℃（Non-explosion place） -25℃~+55℃（Explosion-proof places） |
| | Relative humidity | ≤90% |
| | Atmospheric pressure | 86~106kPa |
| Power supply | Pulse type:12VDC～ +24VDC Current type: 12VDC～+24VDC 4-20mA Battery powered:3.6V | |
| output signal | Frequency pulse signal:2~3000Hz Low level≤1V High level≥5V | |
| | 2 wires :4-20mA Explosion-proof load≤300Ω Non-explosion -proof load≤500Ω | |

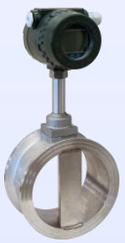
## Vortex Flowmeter



# LUGB/E-Selection Table

## Vortex Flowmeter

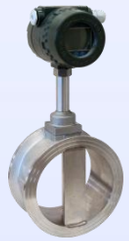
| Type spectrum | | | | | | | Description |
|---|---|---|---|---|---|---|---|
| LU | | | | | | | Vortex flow meter |
| G | | | | | | | sensor |
| Detection method | | B | | | | | Piezoelectric sensor |
| | | E | | | | | Capacitive sensor |
| Connection way | | | 1 | Only for full tube type | | | Flange connection type |
| | | | 2 | Only for full tube type | | | Flange clamp type |
| | | | 3 | Only for insert type | | | Simple insert type |
| | | | 4 | Only for insert type | | | Ball valve insert type |
| medium | | | | 2 | | | liquid |
| | | | | 3 | | | gas |
| | | | | 4 | | | steam |
| Nominal diameter | | | | | 02<br>…<br>30 | | DN25<br>…<br>DN300<br>unit: mm |
| Working environment | — | | | | | P | normal type |
| | | | | | | B | Explosion-proof |
| output signal | | | | | | 1 | Pulse output |
| | | | | | | 2 | 4～20mA Current output, LCD display |
| | | | | | | 3 | RS-485 |
| | | | | | | 4 | Battery powered , Without temperature、Pressure compensation |
| Selection instructions | E.g: LUGE2405-P2 Full tube type capacitive vortex flow meter, Flange card connection, The medium is steam<br>Diameter is DN50, ordinary, 4～20mA | | | | | | |



# LUGB/E-Diameter of the sensor

| diameter DN mm | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Tag number | 02 | 03 | 04 | 05 | 06 | 08 | 10 | 12 | 15 | 20 | 25 |
| diameter DN mm | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 | 1000 | 1200 | 1500 |
| Tag number | 30 | 35 | 40 | 45 | 50 | 60 | 70 | 80 | A0 | A2 | A5 |

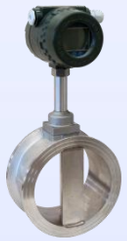
## Vortex Flowmeter



# LUGB/E-Selection of flow range

## Vortex Flowmeter

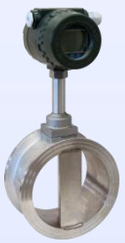
| Traffic calculation category | Calculation formula | Measuring range | Symbol Description |
|---|---|---|---|
| The lower limit flow rate determined by the working density:$Q_\rho$ | $Q_\rho = Q_{工} \cdot \sqrt{\rho_{。} / \rho_{工}}$ | Refer table below | $Q_{工}$: Volume flow at operating density ($m^3/h$)<br>$Q_\rho$: Volume flow at air reference density ($m^3/h$)<br>$\rho_{工}$: The density of the measured medium ($Kg/m^3$)<br>$\rho_{。}$: Air reference density, =1.205 $Kg/m^3$<br>$Q_\nu$: Flow volume of the kinematic viscosity ($m^3/h$)<br>$Q_0$: The flow rate at the reference medium viscosity ($m^3/h$)<br>$\nu$: Measured medium operating viscosity ($m^3/s$)<br>$\nu_0$: The kinematic viscosity of the reference medium ($1\times10^{-6} m^2/s$)<br>m : Dynamic viscosity (centipoise)<br>$P_{工}$: Working medium pressure = gauge pressure + atmospheric pressure (Mpa)<br>$T_{工}$: Condition of medium temperature 273.15+ $T_{工}$<br>$Q_N$: The volume flow under the standard condition (N $m^3/h$)<br>G : Mass Flow (Kg/ h)<br>D : Pipe diameter(m)<br>Re : Reynolds number<br>V : Fluid average speed(m/s) |
| The lower limit flow rate determined by the kinematic viscosity of the working condition:Qv | $Q_\nu = Q_0 \cdot \nu / \nu_0$<br>$\nu = m/\rho$ | Refer table below | |
| The gas volume is converted to the flow rate | $Q_{工} = \frac{0.101}{0.10132+P_{工}} \leftarrow \frac{273.15+T}{273.15} \cdot Q_N$ | Refer table below | |
| Calculation of Mass Flow Rate | $Q_N = \frac{G}{\rho_{工}}$ | Refer table below | |
| Meet the Reynolds number range requirements lower limit flow :Qre | $D = \frac{Re \cdot \nu}{V}$ | $2\times10^4 \leqslant Re \leqslant 7\times10^6$ | |
| Calculate the normal flow range by flow rate | V= | liquid : 0.37~7.0m/s<br>gas 、 steam : 4.0~60.0m/s | |



# LUGB/E-Flow Range

## Vortex Flowmeter

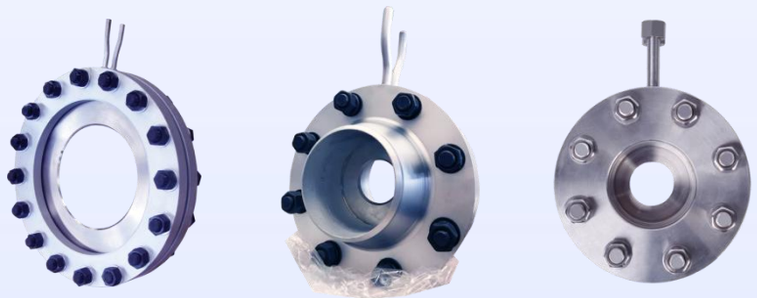
| Diameter (mm) | liquid | | gas | |
|---|---|---|---|---|
| | Flow range ($m^3/h$) | Output frequency range (Hz) | Flow range ($m^3/h$) | Output frequency range(Hz) |
| 15 | 1.2-6 | 118-590 | 4~28 | 400~2700 |
| 20 | 1.5-10 | 56-374 | 6~40 | 224~1500 |
| 25 | 2～16 | 41～330 | 8~50 | 170～1030 |
| 32 | 1.8~20 | 18～200 | 10~120 | 97～1172 |
| 50 | 3.5~40 | 9～105 | 35～300 | 92～735 |
| 65 | 7.5~70 | 9~83 | 50~500 | 59~588 |
| 80 | 12～130 | 7～80 | 80～800 | 50～493 |
| 100 | 18~160 | 6～49 | 120～1200 | 36～370 |
| 125 | 25~250 | 4～40 | 180~1800 | 30~300 |
| 150 | 50~400 | 4～38 | 320～2800 | 31～270 |
| 200 | 70~700 | 3～30 | 560～6000 | 22～240 |
| 250 | 120~1200 | 2.5～25 | 890～8000 | 18～170 |
| 300 | 200~2000 | 2.4～24 | 1360～12000 | 17～150 |
| (300) | 200~1800 | 11～98 | 1560～15000 | 83～830 |
| (400) | 350～3000 | 11～92 | 2750～27000 | 83～836 |
| (500) | 500～4000 | 10～79 | 4300～43000 | 84～834 |
| (600) | 700～5600 | 9.5～76 | 6200～61000 | 83～830 |
| (800) | 900～7200 | 7～55 | 11000～110000 | 83～829 |
| (1000) | 1300～12000 | 6.3～56 | 17000～170000 | 83～820 |
| >(1000) | 协议 | | 协议 | |



# Orifice Plate

The throttling device associated with the differential-pressure instrument is used to measure the single-phase fluid in the closed ring pipe, the principle of it is based on Bernoulli’ s equation and the fluid continuity equation

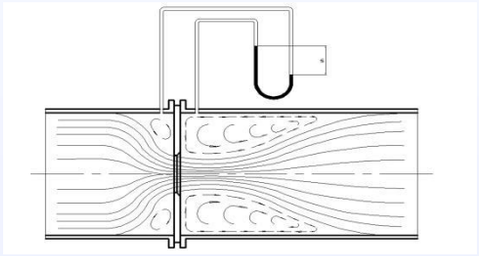
Orifice Plate



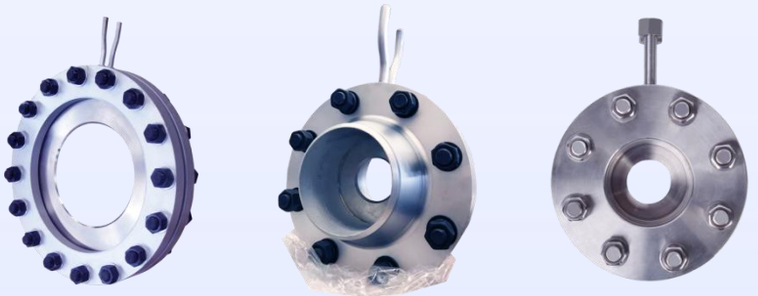
# Orifice Plate

**Principle:**

The throttling device shall be assembled into the ring pipe,when the fluid flows through the throttling element,the differential-pressure will appear between the upstream and downstream sides,See figure 1.



## Orifice Plate



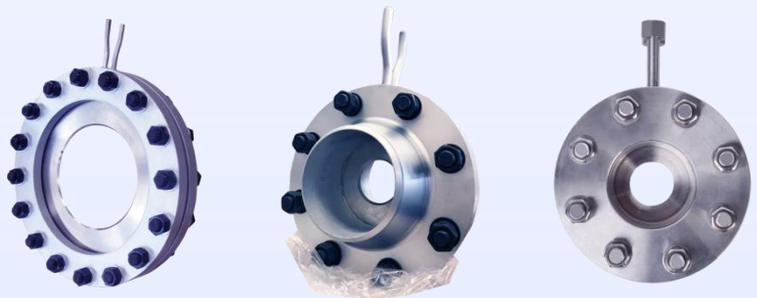
# Orifice Plate

**The requirements to the piping**

1.The throttling device should be assembled between the two sections of straight pipes with equivalent cross-section ,the deviation of the diameters of the nipples at upstream and downstream and the average inside diameter in the length range of 2 DN at least from the upstream end face of the orifice should be ≤0.3%.

2.The medium must be full of the pipe near the throttling device (including the front and rear nipples);If it is necessary to install an isolating valve, the gate valve should de selected and it must keep full open during the operation;If it is necessary to install a regulating valve,it should be installed after the nipple of 5DN at the downstream

Orifice Plate

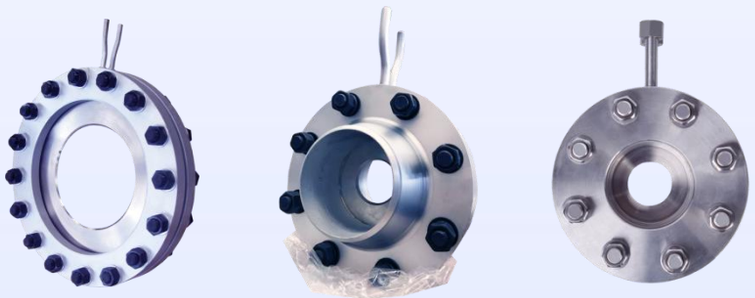


# Orifice Plate

3. In the range of the nipples of the restricting elements at up and down streams,there should be no prominent washer in the pipe;Any situation that interferes the flow should be prevented.(e.g.the input and output of the fluid)
4. At the upstream and downstream of the throttling device,it must be ensured that the minimum nipple and the mode of the resistant parts at the upstream is relevant to the diameter ratio of the restricting parts.

The length of the minimum nipple at upstream and downstream sides of the throttling device

Orifice Plate



# Metal Tube Rotameter

**AF/**

| product feature | |
|---|---|
| Measuring Medium | Liquid, gas, steam etc |
| Environment Temperature | -25℃~+100℃, High Temperature Type:300℃ |
| Accuracy | Normal type:±2.5%, high accuracy type:±1.5% |
| Medium Viscosity | DN15:≤5mPa.s ≤30mPa.s; |
| | DN25:≤250mPa.s; |
| | DN50-150:≤300mPa.s |
| Flow Range Ratio | 10:01 |
| Power Supply | 24VDC,3.6V lithium battery power |
| Power voltage influence | ≤±0.1%F.S |
| Load Influence | ≤±0.1% |
| Max Working Pressure | DN15~DN50:4.0MPa; DN80~DN150:1.6MPa |
| Pipe Connection | Flange,Thread,Quick coupling |
| Shell | Aluminum Alloy |
| Protection Class | IP65,IP67 |
| Explosion Proof | ExiaIICT1~T6 |

# Metal Tube Rotameter

**AF/**

| Flow Range | | | | | | | |
|---|---|---|---|---|---|---|---|
| Diameter (mm) | work number | flow range | | | Pressure loss kpa | | |
| | | Water L/h | | Air m3/h | Water Kpa | | Air |
| | | normal type | Anti-corrossion type | normal type Anti-corrossion type | normal type | Anti-corrossion type | |
| 15 | 1A | 2.5~25 | -- | 0.07~0.7 | 6.5 | - | 7.1 |
| | 1B | 4.0~40 | 2.5~25 | 0.11~1.1 | 6.5 | 5.5 | 7.2 |
| | 1C | 6.3~63 | 4.0~40 | 0.18~1.8 | 6.6 | 5.5 | 7.3 |
| | 1D | 10~100 | 6.3~63 | 0.28~2.8 | 6.6 | 5.6 | 7.5 |
| | 1E | 16~160 | 10~100 | 0.48~4.8 | 6.8 | 5.6 | 8 |
| | 1F | 25~250 | 16~160 | 0.7~7.0 | 7 | 5.8 | 10.8 |
| | 1G | 40~400 | 25~250 | 1.0~10 | 8.6 | 6.1 | 10 |
| | 1H | 63~630 | 40~400 | 1.6~16 | 11.1 | 7.3 | 14 |
| 25 | 2A | 100~1000 | 63~630 | 3~30 | 7 | 5.9 | 7.7 |
| | 2B | 160~1600 | 100~1000 | 4.5~45 | 8 | 6 | 8.8 |
| | 2C | 250~2500 | 160~1600 | 7~70 | 10.8 | 6.8 | 12 |
| | 2D | 400~4000 | 250~2500 | 11~110 | 15.8 | 9.2 | 19 |
| 40 | 4A | 500~5000 | 300~3000 | 12~120 | 10.8 | 8.6 | 9.8 |
| | 4B | 600~6000 | 350~3500 | 16~160 | 12.6 | 10.4 | 16.5 |
| 50 | 5A | 630~6300 | 400~4000 | 18~180 | 8.1 | 6.8 | 8.6 |
| | 5B | 1000~10000 | 630~6300 | 25~250 | 11 | 9.4 | 10.4 |
| | 5C | 1600~16000 | 1000~10000 | 40~400 | 17 | 14.5 | 15.5 |
| 80 | 8A | 2500~25000 | 1600~16000 | 60~600 | 8.1 | 6.9 | 12.9 |
| | 8B | 4000~40000 | 2500~25000 | 80~800 | 9.5 | 8 | 18.5 |
| 100 | 10A | 6300~63000 | 4000~40000 | 100~1000 | 15 | 8.5 | 19.2 |
| 150 | 15A | 20000~100000 | -- | 600~3000 | 19.2 | -- | 20.3 |

# Metal Tube Rotameter

**AF/**

**Model selection**

| PHLZ | X | X | X | X | X | X | X |
|---|---|---|---|---|---|---|---|
| Indicator | code | | | | | | |
| local indicator | Z | | | | | | |
| LCD indicator w ith ouput | D | | | | | | |
| norminal caliber | | code | | | | | |
| DN15 | | -15 | | | | | |
| DN25 | | -25 | | | | | |
| DN40 | | -40 | | | | | |
| DN50 | | -50 | | | | | |
| DN80 | | -80 | | | | | |
| DN100 | | -100 | | | | | |
| DN150 | | -150 | | | | | |
| structure | | | Code | | | | |
| bottom-top | | | / | | | | |
| Left-right (horizontal) | | | H1 | | | | |
| right-left (horizontal) | | | H2 | | | | |
| side-side | | | AA | | | | |
| bottom -side | | | LA | | | | |
| thread connection | | | S | | | | |
| quick coupling connection | | | M | | | | |
| body material | | | | Code | | | |
| 304SS | | | | R4 | | | |
| 316SS | | | | R6 | | | |
| 316LSS | | | | R6L | | | |
| hastelloy C | | | | Hc4 | | | |
| Titanium | | | | Ti | | | |
| liner F46(PTFE) | | | | F | | | |
| indicator type | | | | | Code | | |
| linear indicator | | | | | M7 | | |
| nonlinear indicator(local indicator display instataneous flow ) | | | | | M9 | | |
| combination function | | | | | | Code | |
| 24VDC;remote transfer 4~20mA standard current signal | | | | | | S | |
| 24VDC;remote transfer 4~20mA,local LCD display instantaneous & accumulative flow | | | | | | Z | |
| local lithium battery pow er ;local LCD display instantaneous & accumulative flow | | | | | | D | |
| added function | | | | | | | Code |
| measuring tube w ith thermal preservation / heat insulation jacket | | | | | | | T |
| measure medium temperature higher than 120.C | | | | | | | HT |

# Ultrasonic flow meter

Ultrasonic flow meter

HIGH LIGHTS

● Contact Doppler Ultrasonic Velocity and Flow

Measurement Technology

● Excellent measurement accuracy and data stability

● Wide flow rate range: 0.02m/s to 5m/s

●

for calibration for long-term use

Linearity measurement, factory calibrated, no need

●

rivers, and pipelines

Measures the flow of artificial or natural channels,

● RS485 (Modbus), 4-20mA output

# Ultrasonic flow meter

Ultrasonic flow meter

HIGH LIGHTS

● No mechanical rotating parts, there is no problem

such as mud plug or water grass, sundries, etc.

● Open channel and closed pipe special flow algorithm

● Velocity area method flow measurement, free to set cross-section water level relationship

● Industrial design of fluid mechanics has little effect on the water body shape and does not affect the measurement accuracy

● IP68 waterproof case, able to work long hours in harsh environments

# Ultrasonic flow meter

HIGH LIGHTS

- Provides computer configuration and data real-time observation software
- Easy docking of existing hydrological telemetry systems
- Easy to install without fixing section

# Ultrasonic flow meter

PRODUCT DESCRITION

DX-LSX-1 Doppler Ultrasonic Flow Meter is based on Doppler ultrasonic speed measurement. It adopts

DSP technology and advanced spectrum analysis algorithm. It is designed for water flow rate and flow measurement.

It does not have rotating parts such as rotating pulp and bearings. It uses Doppler technology to detect flow velocity, no friction, no inertia, measuring point in front of the body, does not destroy the flow field, has high measurement accuracy, wide range, sensitive sensing, linear flow measurement, Not afraid of sediment, floating debris, intuitive readings, easy operation, not easy to damage and so on.

DX-LSX-1 Doppler ultrasonic flow meter supports RS485 (Modbus), 4-20mA output, and can customize the communication protocol according to customer's requirements.

# Ultrasonic flow meter

PRODUCT DESCRITION

The advanced spectrum analysis algorithm can perform statistical analysis on the flow velocity of the water to be measured, and can provide accurate data statistic f the measurement target, such as instantaneous flow velocity, average flow velocity, real-time water level, instantaneous flow, and cumulative flow. Doppler ultrasonic flow meter casing is made of PVC material,equipment protection grade IP68, can easily deal with various harsh environments.

The DX-LSX-1 Doppler Ultrasonic Flowmeter can be used to monitor the level, velocity, and flow of artificial or natural channels, rivers, hydroelectric plants, and urban underground pipe networks. It is only necessary to fix the device to the bottom of the section to be measured, and extremely high measurement accuracy can be obtained whether it is a full pipe or a non-full pipe.