

# WEIZIDOM



## WEIZIDOM GROUP

集团总部：中国·郑州华南城中原电商大厦  
分工厂：天津·安徽·山东·连云港·温州  
驻外分公司：非洲·坦桑尼亚·赞比亚·肯尼亚

销售热线：+86-13849013722

www.wdsolution.com  
www.wsdvalves.com

www.facebook.com/hawsd

Group headquarters: Central Plains E-Commerce Building, Zhengzhou South City, China  
Branch Factory: Tianjin, Anhui, Shandong, Lianyungang, Wenzhou  
Branch Company in Overseas: Tanzania, Zambia, Kenya in Africa

Sales Hotline: +86-13849013722

info@wsdvalve.com  
weizidun@hawsd.com

www.linkedin.com/company/henan-wesdom



## Flow Meter

## WEIZIDOM GROUP



# WEIZIDOM GROUP

## Enterprise Social Responsibility

WEIZIDOM are not only concerned about products, services and solutions.

**WEIZIDOM promise to implement sustainable development and benefit society with energy-saving and environmental protection.**

**Our Purpose:** People-Oriented, Hard Work, Never forget the original intention, Innovation and forge ahead.

**Our Mission:** To be a high-quality supplier of fluid control systems and plan maker; To contribute our wisdom and strength to the development of the cutting-edge technology of fluid control systems.

**Our Vision:** Explore the internal innovation spirit and creativity, pursuit, innovation and continuous improvement. Use wisdom, foresight and hard work to make "WEIZIDOM" a world-renowned brand; Make the group company grow into a respectable "Four Satisfaction" enterprise.

**Customer Satisfaction:** Use high-quality products and refined services to add value to customers.

**Employee Satisfaction:** People-oriented, build a platform for all employees to realize their dreams, everyone is the CEO.

**Partner Satisfaction:** Mutual promotion, improve, mutual benefit and win-win.

**Shareholder Satisfaction:** Enable the company to develop and grow, and return profits.

**Our Values:** Create differentiated value-added services for customers, let everyone in the company has a sense of accomplishment.





# WEIZIDOM GROUP

## Enterprise Culture

**Our Purpose:** People-Oriented, Hard Work, Never Forget the Original Intention; Innovation and Forge Ahead.

**Our Mission:** To be a high-quality supplier of fluid control systems and plan maker; To contribute our wisdom and strength to the development of the cutting-edge technology of fluid control systems.

**Our Vision:** Explore the internal innovation spirit and creativity, pursuit, innovation and continuous improvement. Use wisdom, foresight and hard work to make "WESDOM" a world-renowned brand; Make the group company grow into a respectable "Four Satisfaction" enterprise:

**Customer Satisfaction:** Use high-quality products and refined services to add value to customers;

**Employee Satisfaction:** People-oriented, build a platform for all employees to realize their dreams, everyone is the CEO;

**Partner Satisfaction:** Mutual promotion, improvement, mutual benefit and win-win;

**Shareholder Satisfaction:** Enable the company to develop and grow, and return profits.

**Our Values:** Create differentiated value-added services for customers, let everyone in the company has a sense of accomplishment.



## Company Introduction



The flow meter factory of WESDOM Group was established in 2005 and covers an area of 69,000 square meters. It is a high-tech enterprise integrating R&D, production, sales of flow, liquid level and flow detection instruments.

The company has ISO9001, CE, ATEX and other certifications, and its products are exported to more than 150 countries and regions in Asia, Europe, America, Australia, and Africa. The factory has more than 20 years of production and manufacturing capacity, with a monthly production capacity of more than 2000 units. It is the first Chinese company to have 5 sets of calibration systems, with a measurement accuracy of 0.2, and 8 national patents, which are comparable to world-renowned brands.

As of 2021, our company has installed DN15-DN50, DN65-DN300, DN350-DN700, DN800-DN2000 standard volumetric method in

the past few years, the maximum flow rate is 16000m<sup>3</sup>/h, DN80-DN300, DN350-DN700mt mass method water flow Standard Devices, is a recognized pioneer and world-leading supplier of high-quality process control instruments for flow, level, temperature, pressure, and more.

WESDOM provides the best solutions for major end users around the world. WESDOM flow meter products mainly include: electromagnetic flow meter, vortex flow meter, turbine flow meter, ultrasonic flow meter, rotor flow meter, oval gear flow meter, radar level gauge and calibration equipment, test bench equipment, water treatment plant control systems and more.

WESDOM is committed to providing the most advanced renewable solutions to users around the world.





# WEIZIDOM GROUP

## Development History



## 2010

WESDOM was established

In December 2010, WESDOM was registered with a registered capital of 5 million yuan;

June 2013, WESDOM passed ISO and other international certifications;

## 2015

WESDOM established the first overseas branch

In June 2014, TIANJIN WESDOM VALVE MANUFACTURING CO.,LTD. was established in Tianjin, where the production of butterfly valves is concentrated;

## 2016

WESDOM products are exported to overseas regions and markets

In July 2015, the first overseas branch company WEISIDUN MATERIAL SOLUTION COMPANY was established in the beautiful African continent –Tanzania, and WESDOM began to expand into the international market;

In December 2015, WESDOM established a special foreign trade import and export company in Zhengzhou, the hinterland of the Central Plains HENAN WEISIDUN IMPORT AND EXPORT TRADE CO.,LTD., to make up for the domestic shortcomings of entering the international market;

In 2016, WESDOM brand products have been exported to Tanzania, Zambia, Egypt, Turkey, Pakistan, Thailand, Indonesia, Vietnam, the Philippines, Saudi Arabia, Mexico and other countries and regions;

In 2017, the company carried out production, procurement adjustments and layouts, expanded product series, initially formed a production and procurement system for water series products (control and connection systems), and established a procurement system for major production clusters across the south and north. ;

## 2018

Zambia branch was established, and the group company expanded its measurement products series

In January 2018, the second exclusive import and export company was established—HENAN WESDOM FLOW CONTROL CO.,LTD. In August of the same year, the second overseas branch company –WESDOM VALVES AND FITTINGS COMPANY LIMITED was established in Zambia, Africa;

## 2019

WESDOM launched a series of plastic materials

In 2018, the series of measurement products (water meters, flow meters) were expanded, and the supply chain system was further enriched and improved;

## 2020

WESDOM sales exceeded 100 million yuan

In 2019, a series of plastic material products were launched; the company's valves and pipe fittings passed the CE certification; WESDOM overall sales performance exceeded 90 million in the same year;

## 2021

Kenya branch is established, WESDOM products occupy the African market

.....

In 2020, under the influence of the unfavorable factors of the domestic and foreign epidemic situation, the company has achieved the goal of breaking 100 million yuan in addition to the continuous growth of sales.

In April 2021, the Kenya branch WESDOM VALVES AND FITTINGS(K) CO LIMITED was established and operated well, its products occupy the African market successfully.

To be continued...





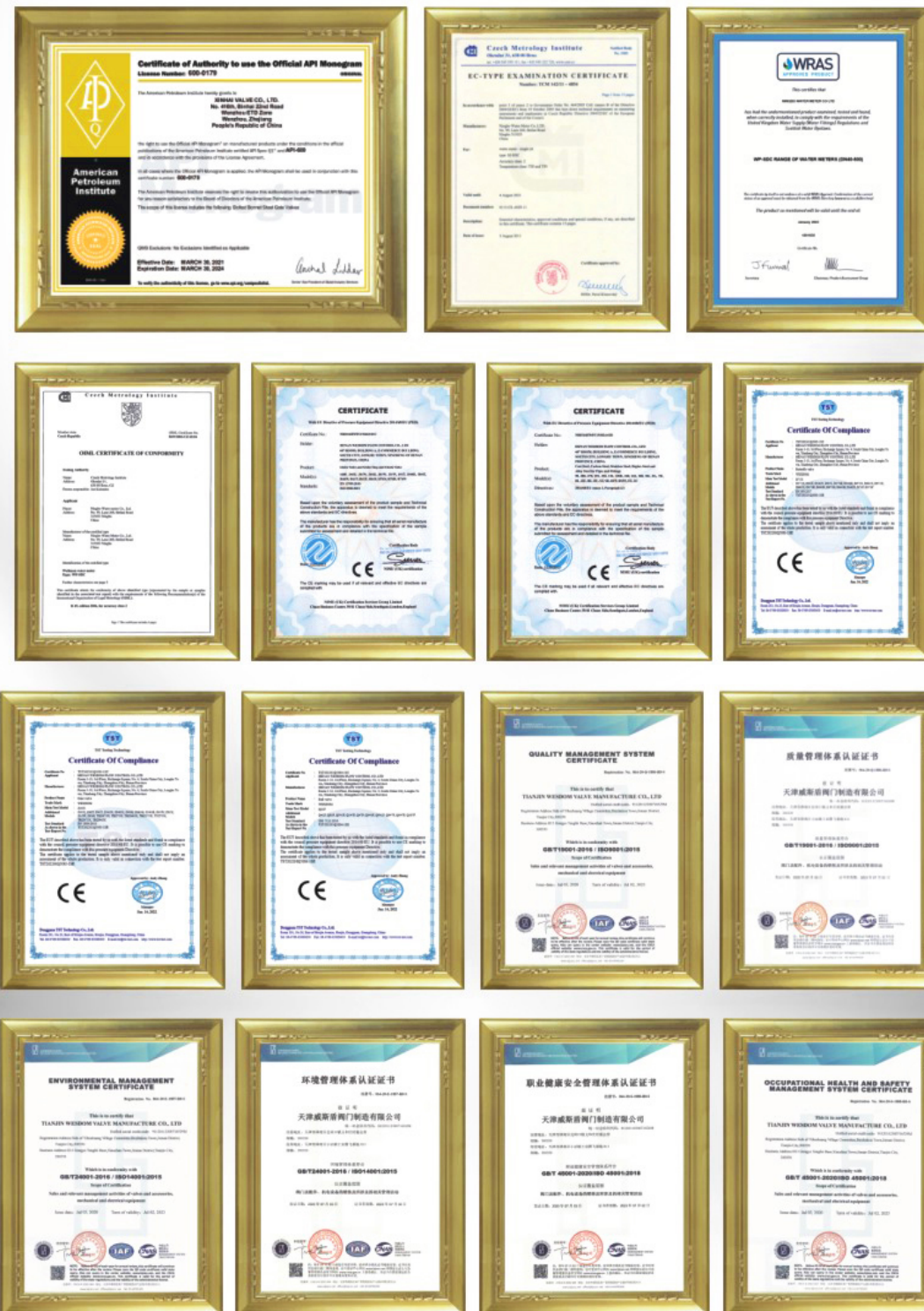
# WEIZIDOM GROUP

## Qualification Certificate



## Contents

- 01 Electromagnetic Flow Meter
- 12 Vortex Flow Meter
- 22 Wall mounted Ultrasonic Flow Meter
- 26 Handheld Ultrasonic Flow Meter
- 30 Gas Turbine Flow Meter
- 35 Liquid Turbine Flow Meter
- 40 Thermal Gas Mass Flow Meter
- 47 Oval Gear Flow Meter
- 55 Metal Tube Rotameter





## Electromagnetic Flow Meter



## Electromagnetic Flow Meter

## Electromagnetic Flow Meter



### Description

WSDLD magnetic flow meter, also known as electromagnetic flow meter or mag meter, is widely used because less obstruction, cost-effective and accurate measurement. Electromagnetic flow meter don't have any moving parts to wear down, reducing the need for maintenance or replacement. We offer flowmeters with a range of liners, electrodes, and sizes, which can meet various conductive liquids.



Compact



Remote



## Electromagnetic Flow Meter

### Industries

- Effluent Treatment Plant
- Sewage Treatment Plant Water Supply Scheme
- Steel & Aluminum Industries
- Chemical & Fertilizer Industries
- Dairy Industries
- Sugar Industries
- Textile Processing Industries

### Applications



### Features

- No moving parts, no pressure loss.
- Self-diagnosis, empty pipe alarm, exciting alarm, high and low flow alarm.
- Infrared telecontrol keyboard.
- Recording time when power off, record power broken time automatically.
- Dual frequency excitation and stable zero point.
- Precision coil winding technology, makes magnetic field more uniform.
- Built-in reference electrodes, no need to connect ground ring.
- Measure forward and reverse direction flows.
- High accuracy:  $\pm 0.5\%$  of reading,  $\pm 0.2\%$  optional, velocity  $>0.5$  m/s.

## Electromagnetic Flow Meter

## Electromagnetic Flow Meter

### Technical Data

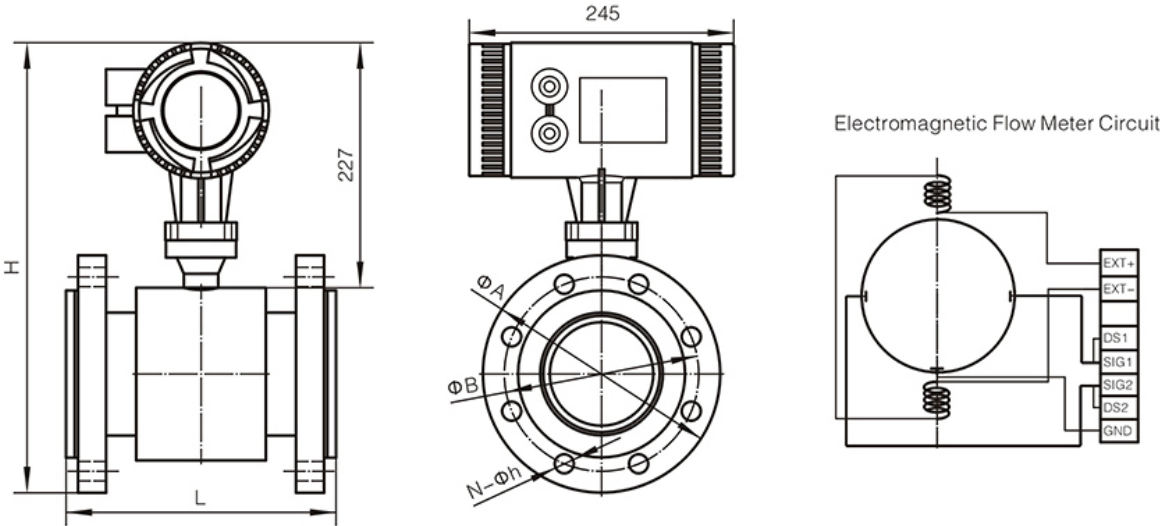
Size	DN3–DN3000mm (1/8"– 120")	
Accuracy	$\pm 0.5\%$ of reading at flow velocity $\geq 0.5$ m/s $\pm 0.2\%$ optional at flow velocity $\geq 0.5$ m/s	
Velocity	0. 1~15 m/s	
Repeatability	$\leq 0.17\%$	
Structure	Compact / remote, cable length 10m standard, 100m max	
Conductivity	$> 5 \mu\text{S/cm}$ , demineralized water $> 20 \mu\text{S/cm}$	
Protection Grade	Transmitter: IP65 standard, IP67 optional Sensor: IP65 standard, IP68 (submersible, only available for remote type)	
Electrode	SS316L, Hastelloy C, Hastelloy B, Titanium, Tantalum, Platinum–iridium	
Power Supply	85~250 VAC (50/60 Hz), 20~36 VDC	
Power Consumption	$<20\text{W}$	4~20mA ( load resistor 0~750 $\Omega$ )
	Analog	Forward & reverse flow output with a frequency range of 1~5000Hz
	Frequency	Two isolated open collector transistor (OCT) outputs for alarm signals
Protocol	Alarm	
Display	RS485 MODBUS RTU standard, HART, GPRS, PROFIBUS optional	
Ambient Temperature	LCD Display, 128X128mm, three lines, 4 buttons	
Fluid Temperature	$-20^{\circ}\text{C}\sim 60^{\circ}\text{C}$	
Liner Material	Compact: $-20^{\circ}\text{C}\sim 80^{\circ}\text{C}$ , Remote: $-20^{\circ}\text{C}\sim 120^{\circ}\text{C}$	
	PTFE ( $-20^{\circ}\text{C}\sim 150^{\circ}\text{C}$ , DN15–DN1600)	
	FEP ( $-20^{\circ}\text{C}\sim 120^{\circ}\text{C}$ , DN3–DN1800)	
	PFA ( $-20^{\circ}\text{C}\sim 160^{\circ}\text{C}$ , DN3–DN800)	
	Polyurethane ( $-10^{\circ}\text{C}\sim 60^{\circ}\text{C}$ , DN40–DN1600)	
	Neoprene ( $-10^{\circ}\text{C}\sim 80^{\circ}\text{C}$ , DN40–DN3000)	
	Hard Rubber ( $-10^{\circ}\text{C}\sim 80^{\circ}\text{C}$ , DN 40–DN3000)	
Flange Standard	DIN, ANSI, JIS	
	Measuring tube: SS304	
	Flange & housing: carbon steel (standard), SS304 / SS316 optional	
Transmitter Material	Aluminium alloy with epoxy painting	
Nominal Pressure	PN10 / PN16 / PN25 / PN40	
	10K / 20K / 30K	
	150# / 300# / 600#	
	High pressure 42 MPa / ANSI 2500# can be customized	
Display	Instantaneous flow, total flow, velocity	
Function	High and low alarm, empty pipe alarm, empty pipe alarm, self-diagnosis	
Totalizer	Three built-in totalizers: forward flow, reverse flow and net flow	
Display Unit	L/s, L/m, L/h, $\text{m}^3/\text{s}$ , $\text{m}^3/\text{m}$ , $\text{m}^3/\text{h}$ , UKG, USG	
Language	English, Chinese, Italian, Portuguese, French, Spanish, Korean	



Electromagnetic Flow Meter

Dimension

Size is from 1/2"-24", other sizes can be provided upon request.



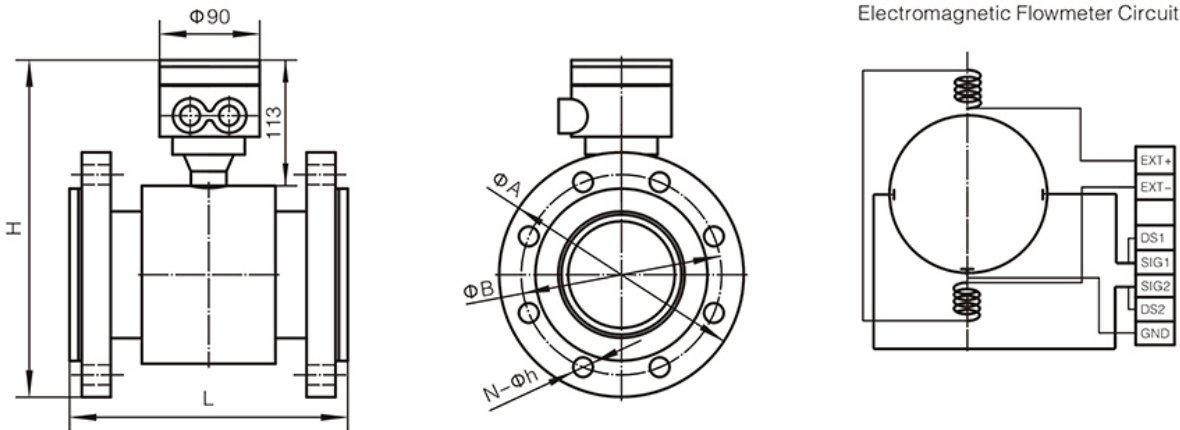
1/2"-24" Compact Electromagnetic Flow Meter with ANSI 150# Drawing

Size	Flange Standard	Pressure Rate	H (mm)	L (mm)	ΦA (mm)	ΦB (mm)	N (mm)	Φh (mm)
1/2"	ANSI	150#	318	200	88.9	60.45	4	15.7
3/4"	ANSI	150#	323	200	98.6	69.85	4	15.7
1"	ANSI	150#	328	200	108	79.25	4	15.7
1 1/4"	ANSI	150#	333	200	117.3	88.9	4	15.7
1 1/2"	ANSI	150#	343	200	127	98.6	4	15.7
2"	ANSI	150#	363	200	152.4	120.7	4	19.1
2 1/2"	ANSI	150#	383	200	177.8	139.7	4	19.1
3"	ANSI	150#	398	200	190.5	152.4	4	19.1
4"	ANSI	150#	426	250	228.6	190.5	8	19.1
5"	ANSI	150#	449	250	254	215.9	8	22.4
6"	ANSI	150#	477	300	279.4	241.3	8	22.4
8"	ANSI	150#	538	350	342.9	298.5	8	22.4
10"	ANSI	150#	613	450	406.4	362	12	25.4
12"	ANSI	150#	678	500	482.6	431.8	12	25.4
14"	ANSI	150#	728	550	533.4	476.3	12	28.4
16"	ANSI	150#	784	600	596.9	539.8	16	28.4
18"	ANSI	150#	830	600	635	577.9	16	31.75
20"	ANSI	150#	887	600	698.5	635	20	31.75
24"	ANSI	150#	999	600	812.8	749.3	20	35.1

Electromagnetic Flow Meter

Electromagnetic Flow Meter

Dimension



1/2"-24" Remote Electromagnetic Flow Meter with ANSI 150# Drawing

Size	Flange Standard	Pressure Rate	H (mm)	L (mm)	ΦA (mm)	ΦB (mm)	N (mm)	Φh (mm)
1/2"	ANSI	150#	204	200	88.9	60.45	4	15.7
3/4"	ANSI	150#	209	200	98.6	69.85	4	15.7
1"	ANSI	150#	214	200	108	79.25	4	15.7
1 1/4"	ANSI	150#	219	200	117.3	88.9	4	15.7
1 1/2"	ANSI	150#	229	200	127	98.6	4	15.7
2"	ANSI	150#	249	200	152.4	120.7	4	19.1
2 1/2"	ANSI	150#	269	200	177.8	139.7	4	19.1
3"	ANSI	150#	284	200	190.5	152.4	4	19.1
4"	ANSI	150#	312	250	228.6	190.5	8	19.1
5"	ANSI	150#	335	250	254	215.9	8	22.4
6"	ANSI	150#	363	300	279.4	241.3	8	22.4
8"	ANSI	150#	424	350	342.9	298.5	8	22.4
10"	ANSI	150#	499	450	406.4	362	12	25.4
12"	ANSI	150#	562	500	482.6	431.8	12	25.4
14"	ANSI	150#	614	550	533.4	476.3	12	28.4
16"	ANSI	150#	670	600	596.9	539.8	16	28.4
18"	ANSI	150#	716	600	635	577.9	16	31.75
20"	ANSI	150#	773	600	698.5	635	20	31.75
24"	ANSI	150#	885	600	812.8	749.3	20	35.1



## Electromagnetic Flow Meter

### Main Performance of Electrode Material

Electrode Material	Application
SS316L	Applicable to industrial and municipal water, wastewater and low corrosive mediums. Widely used in petroleum, chemical industries.
Hastelloy B	Strong resistance to hydrochloric acids below the boiling point. Resist against oxidable acids, alkali and non-oxidable salts, like vitriol, phosphate, hydrofluoric acids and organic acids.
Hastelloy C	Exceptional resistance to strong solutions of oxidizing salts and acids, like Fe <sup>+++</sup> , Cu <sup>++</sup> , Nitric acids, mixed acids.
Titanium	Titanium can withstand corrosive mediums such as seawater, chloride salt solutions, hypochlorite salts, oxidable acids (including fuming nitric acids), organic acids, and alkali. Not resistant to high purity reducing acids such as sulphuric acids, hydrochloric acids.
Tantalum	Highly resistant to corrosive mediums. Applicable to all chemical mediums except Hydrofluoric Acids, Oleum and Alkali.
Platinum-iridium	Applicable to all chemical mediums except for Ammonium salts and Fortis.

### Main Performance of Liner Material

Electrode Material	Application
PTFE	Best chemical resistance, withstand boiling hydrochloric acid, sulfuric acid, nitric acid, alkali and a variety of organic solvents. Poor wear resistance and poor adhesion.
PFA	Highly resistant to chemicals. Performance well under vacuum pressure condition.
Neoprene	Excellent elasticity, good abrasion resistance. Withstand the corrosion of low-concentration acid, alkali, salt and other media. Not resistant to corrosion by oxidizing medium.
Polyurethane	Strong abrasion resistant, applicable for slurries and muds. Poor corrosion resistance, can't be used for corrosive medium.
Hard Rubber	Withstand the corrosion of hydrochloric acid, acetic acid, oxalic acid, ammonia water, phosphoric acid and 50% sulfuric acid, sodium hydroxide, potassium hydroxide. Use for general acid, alkali, and salt solutions, not resistant to the corrosion of strong oxidants.
Ceramic	Withstands high temperature, corrosion and wear smooth inner totally vacuum resistant.

## Electromagnetic Flow Meter

## Electromagnetic Flow Meter

### Selection Table WSDLD

WSDLD		X	X	X	X	X	X	X	X	X	X	X	X
Caliber size	DN3-DN3000 (1/8" - 120")												
Structure	Compact		1										
	Remote		2										
	Compact with explosion proof		3										
	Remote with explosion proof		4										
Accuracy	±0.5%			1									
	±0.2%			2									
	Others			3									
Lining Material	PTFE				1								
	FEP				2								
	PFA				3								
	Neoprene				4								
	Polyurethane				5								
	Hard Rubber				6								
	Ceramic				7								
	Others				8								
Electrode Material	SS316L					1							
	Hastelloy B					2							
	Hastelloy C					3							
	Titanium					4							
	Tantalum					5							
	Platinum-iridium					6							
	Stainless steel covered with tungsten carbide					7							
	Others					8							
Sensor Material	Carbon steel						1						
	SS304						2						
	SS316						3						
Power Supply	20~36 VDC							G					
	85~265 VAC							E					
	9~36 VDC solar power							SD					
	Others							X					
Signal Output / Communication	4~20 mA + Pulse + RS485 MODBUS								A				
	4~20 mA + HART								B				
	4~20 mA + Profibus PA/DP								C				
	GPRS								D				
Flange Process Connection	DIN D10: DIN PN10, D16: DIN PN16, D25: DIN PN25, D40: DIN PN40								D**				
	ANSI A15: ANSI 150#, A30: ANSI 300#, A60: ANSI 600#								A**				
	JIS J10: JIS 10K, J20: JIS 20K, J30: JIS 30K								J**				
	Others								O				
Protection Grade	IP65 Transmitter + IP65 sensor										1		
	IP65 Transmitter + IP68 sensor (remote)										2		
Transmitter	Square											A	
	Round											B	



## Electromagnetic Flow Meter

Flow Range Table

Size		Flow Range & Velocity Table							
mm	Inch	0.1m/s	0.2m/s	0.5m/s	1m/s	4m/s	10m/s	12m/s	15m/s
DN3	1/8"	0.003	0.005	0.013	0.025	0.102	0.254	0.305	0.382
DN6	1/4"	0.01	0.02	0.051	0.102	0.407	1.017	1.221	1.526
DN10	3/8"	0.028	0.057	0.141	0.283	1.13	2.826	3.391	4.239
DN15	1/2"	0.064	0.127	0.318	0.636	2.543	6.359	7.63	9.538
DN20	3/4"	0.113	0.226	0.565	1.13	4.522	11.304	13.56	16.956
DN25	1"	0.177	0.353	0.883	1.766	7.065	17.663	21.2	26.494
DN32	1 1/4"	0.289	0.579	1.447	2.894	11.575	28.938	34.73	43.407
DN40	1 1/2"	0.452	0.904	2.261	4.522	18.086	45.216	54.26	67.824
DN50	2"	0.707	1.413	3.533	7.065	28.26	70.65	84.78	105.9
DN65	2 1/2"	1.19	2.39	5.97	11.94	47.76	119.4	143.3	179.1
DN80	3"	1.81	3.62	9.04	18.09	72.35	180.86	217	271.3
DN100	4"	2.83	5.65	14.13	28.26	113.04	282.6	339.1	423.9
DN125	5"	4.42	8.83	22.08	44.16	176.63	441.56	529.9	662.34
DN150	6"	6.36	12.72	31.79	63.59	254.34	635.85	763	953.78
DN200	8"	11.3	22.61	56.52	113.04	452.16	1130.4	1356	1696
DN250	10"	17.66	35.33	88.31	176.53	706.5	1766.25	2120	2649
DN300	12"	25.43	50.87	127.2	254.34	1017	2543.4	3052	3815
DN350	14"	34.62	69.24	173.1	346.19	1385	3461.85	4154	5193
DN400	16"	45	90	226.1	452	1809	4522	5426	6782
DN450	18"	57	114	286.1	572	2289	5723	6867	8584
DN500	20"	71	141	353.3	707	2826	7065	8478	10598
DN600	24"	102	203	508.7	1017	4069	10174	12208	15260
DN700	28"	138	277	692.4	1385	5539	13847	16617	20771
DN800	32"	181	362	904.3	1809	7235	18086	21704	27130
DN900	36"	229	458	1145	2289	9156	22891	27469	34336
DN1000	40"	283	565	1413	2826	11304	28260	33912	42390
DN1200	48"	407	814	2035	4069	16278	40694	48833	61042
DN1400	56"	554	1108	2769	5539	22156	55390	66468	83084
DN1600	64"	723	1447	3617	7235	28938	72346	86815	108518
DN1800	72"	916	1831	4578	9156	36625	91562	109875	137344
DN2000	80"	1130	2261	5652	11304	45216	113040	135648	169560
DN2200	88"	1368	2736	6839	13678	54711	136778	164134	205168
DN2400	96"	1628	3256	8139	16278	65111	162778	195333	244166
DN2600	104"	1910	3821	9552	19104	76415	191038	229245	286556
DN2800	112"	2216	4431	11078	22156	88623	221558	265870	332338
DN3000	120"	2543	5087	12717	25434	101736	254340	305208	381510

Remark: Recommend flow velocity range 0.5 ~ 15 m/s

## Electromagnetic Flow Meter

## Electromagnetic Flow Meter



### Description

WSDLD battery-powered electromagnetic flow meter is an ideal flow measurement device for water and wastewater systems located at remote sites. Various signal and communication are available, like 4–20mA, pulse, RS485 etc. all real-time flow data can be monitored on computer or mobile phone by GPRS. Beside flow, it also can measure temperature or pressure. With 5 pcs of 3.6V lithium battery, lifespan is up to 8 years, and battery can be changed when it's used up. The transmitter body is SS304 and the protection grade is IP68, which is available to be buried or submerged in the water.

### Industries

- Effluent Treatment Plant
- Sewage Treatment Plant Water Supply Scheme
- Steel & Aluminum Industries
- Food & Drug Industries
- Chemical & Fertilizer Industries
- Dairy Industries
- Sugar Industries
- Textile Processing Industries





## Electromagnetic Flow Meter

### Applications



### Features

- It has a long life span, standard battery can work for 3–8 years, determined by the excitation current.
- Dual power supply: it's equipped with external power supply interface, which can be powered by external 12–24VDC power supply, enabling users to have a variety of power options.
- Multiple work mode: WSDLD has "Flow Only" mode, "Flow + Pressure" mode, "Flow + Temperature" mode for users.
- Multiple network interfaces: WSDLD has GPRS, RS485, HART and other network communication for users.
- 3.6V lithium battery can be changed if it's used up.
- Infrared remote control display and operation.

### Technical Data

Size	DN10–DN2000 (3/8"~80")
Accuracy	± 0.5% of reading at flow velocity ≥ 0.5m/s, ± 0.2% optional at flow velocity ≥ 0.5m/s
Velocity	0.1~15 m/s
Repeatability	≤ 0.17%
Structure	Compact / remote, cable length 10m standard, 100m max

## Electromagnetic Flow Meter

## Electromagnetic Flow Meter

### Technical Data

Conductivity	> 5μS/cm, demineralized water > 20μS/cm	
Protection Grade	Transmitter: IP65 standard, IP68 optional	
	Sensor: IP65 standard, IP68 (submersible, only available for remote type)	
Electrode	SS316L, Hastelloy C, Hastelloy B, Titanium, Tantalum, Platinum–iridium	
Power Supply	3.6V lithium Battery	
Power Consumption	<20W	
Signal Output	4 ~ 20 mA, Pulse	
Protocol	RS485 MODBUS standard, HART, GPRS, PROFIBUS optional	
Display	LCD Display, 128X128mm, three lines, 4 buttons	
Ambient Temperature	–20°C~60°C	
Fluid Temperature	Compact: –20°C~80°C, Remote: –20°C~120°C	
Liner Material	PTFE (–20°C~150°C, DN15–DN1600)	
	FEP (–20°C~120°C, DN3–DN1800)	
	PFA (–20°C~160°C, DN3–DN800)	
	Polyurethane (–10°C~60°C, DN15–DN1600)	
	Neoprene (–10°C~80°C, DN40–DN3000)	
	Hard Rubber (–10°C~80°C, DN40–DN3000)	
Process connection	Ceramic (–20°C~180°C, DN15–DN200)	
	Flange, tri-clamp, wafer, thread, insertion	
	Measuring tube: SS304	
Sensor Material	Flange & housing: carbon steel (standard), SS304/SS316 optional	
Transmitter Material	SS304	
Nominal Pressure	Flange	PN10 / PN16 / PN25 / PN40 DIN 10K / 20K / 30 K JIS 150# / 300# / 600# ANSI
	Insertion, tri-clamp, wafer, thread	PN16
Display	Instantaneous flow, total flow, velocity	
Function	High and low alarm, empty pipe alarm, self–diagnosis	
Totalizer	Three built–in totalizers: forward flow, reverse flow and net flow	
Display Unit	L/s, L/m, L/h, m³/s, m³/m, m³/h, UKG, USG	



## Vortex Flow Meter



## Vortex Flow Meter

## Vortex Flow Meter

### Introduction

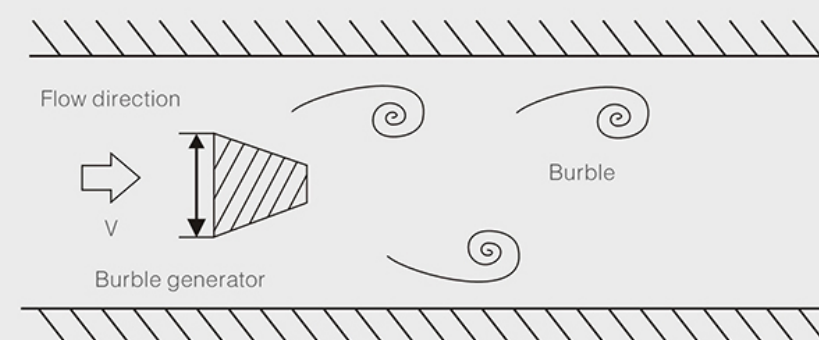
Vortex Flowmeter works on the Karman vortex street principle that swirls generated by a bluff body in the pipe. The number of swirls are proportional to the volumetric flow in the pipe. Vortex flowmeter widely used for gases, steam and liquid applications. It is ideal for measuring saturated and superheated steam in large facilities to improve steam production efficiency.

### Principle

When the fluid in the pipeline passes the burble generator(triangular prism), burble will generate due to the acceleration of partial flow rate. The burble will arise alternatively in two burble lines, which is called Karman vortex.

The releasing frequency of Karman vortex depends on the size of triangle prim and flow rate of fluid, while independent of the medium feature parameter, such as the temperature, pressure, it can be indicated by the following formulas:

$F = sR \cdot v (1 - 1.27 \cdot d/D)$	$Q = 3600 \cdot F/K$	$M = Q \cdot P$
F	The releasing frequency of Karman vortex (Hz)	
Sr	Strouhal number (unit: dimensionless)	
V	Medium flow rate (m/s)	
d	The width of triangle prim	
D	Vortex meter inner diameter (m)	
Q	Instantaneous volume flow rate (m³/h)	
K	Vortex meter coefficient (unit pulse number/m³)	
M	Instantaneous quality flow rate (kg/h)	
P	Fluid density (kg/m³)	





## Vortex Flow Meter

### Application

Applications in the chemicals and petrochemicals industries, for example, in power generation and heat–supply systems involve widely differing fluids: saturated steam, superheated steam, compressed air, nitrogen, liquefied gases, flue gases, carbon dioxide, fully demineralized water, solvents, heat –transfer oils, boiler feedwater, condensate, etc.

### Features

- Integrated pressure and temperature compensation
- 4–20mA, pulse with HART or pulse with RS485 are selectable
- Wide temperature range up to highest temperature 350°C
- Adopt Japan OVAL technology and design
- Embedded sensor, 4 piezo–electric crystal encapsulated inside the sensor.
- No moving parts, no abrasion, non–wearing parts inside, fully welded SS304 body (SS316 selectable)

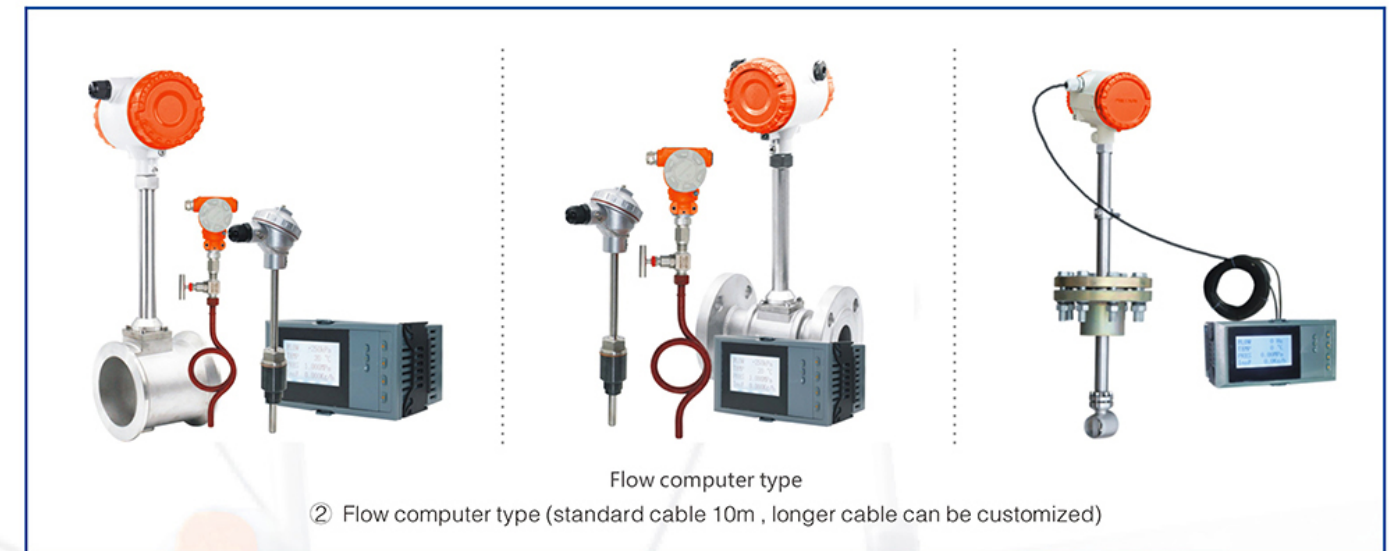
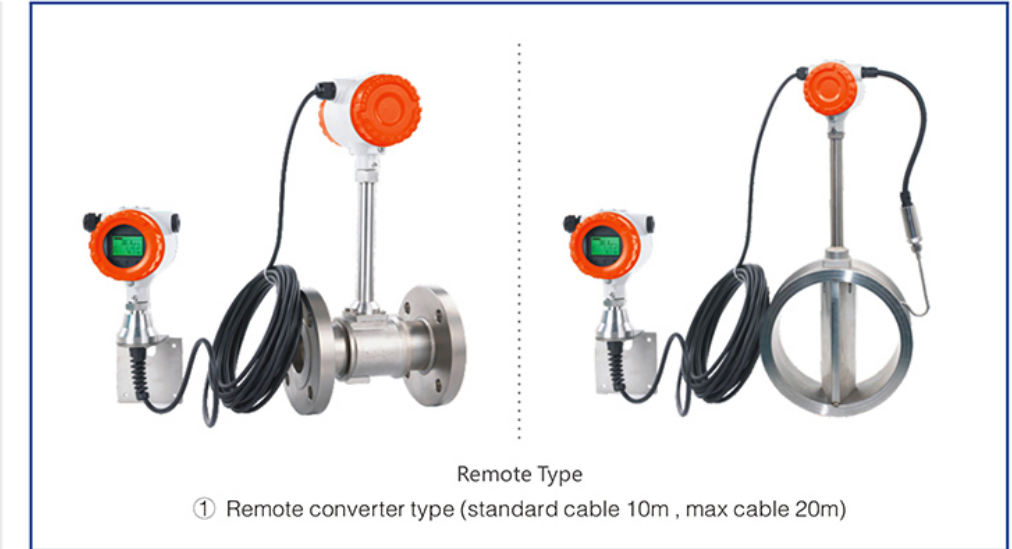
### Structure

#### • Connection Type



## Vortex Flow Meter

#### • Compact Type and Remote Type





Parameters

Measured Medium	Liquid, Gas, Steam	
Medium Temp.	-40 ~ +250°C; 40 ~ +350°C (high temperature type)	
Nominal Pressure	0.6MPa, 1.0MPa, 1.6MPa, 2.5MPa, 4.0MPa	
Accuracy	± 1.0% (Flange/Wafer/Thread/Tri-clamp) ± 1.5% (Insertion type)	
Flow Range	Liquid:0.4-7.0m/s; Gas:4.0-60.0m/s; Steam:5.0-70.0m/s	
Specifications	DN15-DN300 (flange/wafer type) DN80-DN2000 (insertion type) DN15-DN100 (thread/sanitary type)	
Material	SS 304 (standard) SS 316 (optional)	
Reynolds Number	Normal $2 \times 10^4 \sim 7 \times 10^6$	
Resistance Coefficient	$C_d \leq 2.6$	
Vibration Acceleration Allowed	$\leq 0.2g$	
IEP ATEX	IIG Exia IICT5 Ga	
Ambient Condition	Ambient Temp.	-40°C~65°C (Non ex-proof site) -20 ~55 (Ex-proof site)
	Relative Humidity	$\leq 85\%$
	Pressure	86-106kPa
Power Supply	DC12-30V or 3.6V lithium battery powered	
Signal Output	4-20mA, Pulse	
Communication	RS485 Modbus or HART	

Table 1 Liquid and Air Flow Range Table (m³/h)

Nominal DN(mm)	Liquid (m³/h)		Air (m³/h)	
	Standard Range	Extended Range	Standard Range	Extended Range
15	0.8-6	0.5-8	6-40	5-50
20	1-8	0.5-12	8-50	6-60
25	1.5-12	0.8-16	10-80	8-120
32	2-20	1.5-25	15-150	10-200
40	2.5-30	2-40	25-200	20-300
50	3-50	2.5-60	30-300	25-500
65	5-80	4-100	50-500	40-800
80	8-120	6-160	80-800	60-1200
100	12-200	8-250	120-1200	100-2000
125	20-300	12-400	160-1600	150-3000
150	30-400	18-600	250-2500	200-4000
200	50-800	30-1200	400-4000	350-8000
250	80-1200	40-1600	600-6000	500-12000
300	100-1600	60-2500	1000-10000	600-16000
400	200-3000	120-5000	1600-16000	1000-25000
500	300-5000	200-8000	2500-25000	1600-40000
600	500-8000	300-10000	4000-40000	2500-60000



Table 2 Saturated Steam Mass Flow Range Table (kg/h)

Absolute Pressure (MPa)		0.2	0.3	0.4	0.5	0.6	0.7	0.8
Temperature (°C)		120.2	133.5	143.62	151.84	158.94	164.96	170.41
Density (kg/m³)		1.129	1.651	2.163	2.669	3.17	3.667	4.162
DN15	Qmin	5.645	8.255	10.815	13.345	15.85	18.335	20.81
	Qmax	56.45	82.55	108.15	133.45	158.5	183.35	208.1
DN20	Qmin	6.774	9.906	12.978	16.014	19.02	22.002	24.972
	Qmax	67.74	99.06	129.78	160.14	190.2	220.02	249.72
DN25	Qmin	9.032	13.208	17.304	21.352	25.36	29.336	33.296
	Qmax	135.48	198.12	259.56	320.28	380.4	440.04	499.44
DN32	Qmin	20.322	29.718	38.934	48.042	57.06	66.006	74.916
	Qmax	203.22	297.18	389.34	480.42	570.6	660.06	749.16
DN40	Qmin	22.58	33.02	43.26	53.38	63.4	73.34	83.24
	Qmax	338.7	495.3	648.9	800.7	951	1100.1	1248.6
DN50	Qmin	28.225	41.275	54.075	66.725	79.25	91.675	104.05
	Qmax	564.5	825.5	1081.5	1334.5	1585	1833.5	2081
DN65	Qmin	45.16	66.04	86.52	106.76	126.8	146.68	166.48
	Qmax	903.2	1320.8	1730.4	2135.2	2536	2933.6	3329.6
DN80	Qmin	67.74	99.06	129.78	160.14	190.2	220.02	249.72
	Qmax	1354.8	1981.2	2595.6	3202.8	3804	4400.4	4994.4
DN100	Qmin	112.9	165.1	216.3	266.9	317	366.7	416.2
	Qmax	2258	3302	4326	5338	6340	7334	8324
DN125	Qmin	169.35	247.65	324.45	400.35	475.5	550.05	624.3
	Qmax	3387	4953	6489	8007	9510	11001	12486
DN150	Qmin	225.8	330.2	432.6	533.8	634	733.4	832.4
	Qmax	4516	6604	8652	10676	12680	14668	16648
DN200	Qmin	395.15	577.85	757.05	934.15	1109.5	1283.45	1456.7
	Qmax	9032	13208	17304	21352	25360	29336	33296
DN250	Qmin	564.5	825.5	1081.5	1334.5	1585	1833.5	2081
	Qmax	13548	19812	25956	32028	38040	44004	49944
DN300	Qmin	677.4	990.6	1297.8	1601.4	1902	2200.2	2497.2
	Qmax	18064	26416	34608	42704	50720	58672	66592

Table 2 Saturated Steam Mass Flow Range Table (kg/h)

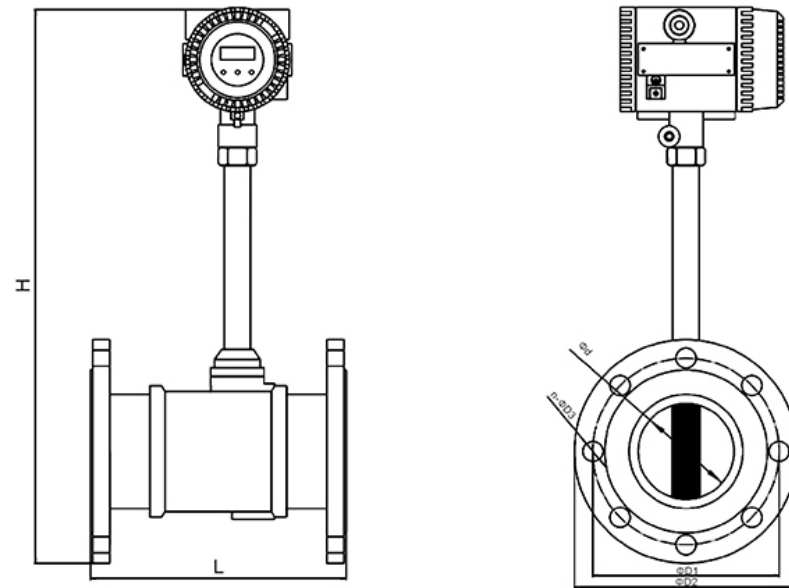
Absolute Pressure (MPa)		0.9	1.0	1.2	1.4	1.6	1.8	2.0
Temperature (°C)		175.36	179.68	187.96	195.04	201.37	207.11	212.37
Density (kg/m³)		4.665	5.147	6.127	7.106	8.085	9.065	10.05
DN15	Qmin	23.325	25.735	30.635	35.53	440.425	45.325	50.25
	Qmax	233.25	257.35	306.35	355.3	404.25	453.25	502.5
DN20	Qmin	27.99	30.882	36.762	42.636	48.51	54.39	60.3
	Qmax	279.9	308.82	367.62	426.36	485.1	543.9	603
DN25	Qmin	37.32	41.176	49.016	56.848	64.68	72.52	80.4
	Qmax	559.8	617.64	735.24	852.72	970.2	1087.8	1206
DN32	Qmin	83.97	92.646	110.286	127.908	145.53	163.17	180.9
	Qmax	839.7	926.46	1102.86	1279.08	1455.3	1631.7	1809
DN40	Qmin	93.3	102.94	122.54	142.12	161.7	181.3	201
	Qmax	1399.5	1544.1	1838.1	2131.8	2425.5	2719.5	3015
DN50	Qmin	116.625	128.675	153.175	177.65	202.125	226.625	251.25
	Qmax	2332.5	2573.5	3063.5	3553	4042.5	4532.5	5025
DN65	Qmin	186.6	205.88	245.08	284.24	323.4	362.6	402
	Qmax	3732	4117.6	4901.6	5684.8	6468	7252	8040
DN80	Qmin	279.9	308.82	367.62	426.36	485.1	543.9	603
	Qmax	5598	6176.4	7352.4	8527.2	9702	10878	12060
DN100	Qmin	466.5	514.7	612.7	710.6	808.5	906.5	1005
	Qmax	9330	10294	12254	14212	16170	18130	20100
DN125	Qmin	699.75	772.05	919.05	1065.9	1212.75	1359.75	1507.5
	Qmax	13995	15441	18381	21318	24255	27195	30150
DN150	Qmin	933	1029.4	1225.4	1421.2	1617	1813	2010
	Qmax	18660	20588	24508	28424	32340	36260	40200
DN200	Qmin	1632.75	1801.45	2144.45	2487.1	2829.75	3172.75	3517.5
	Qmax	37320	41176	49016	56848	64680	72520	80400
DN250	Qmin	2332.5	2573.5	3063.5	3553	4042.5	4532.5	5025
	Qmax	55980	61764	73524	85272	97020	108780	120600
DN300	Qmin	2799	3088.2	3676.2	4263.6	4851	5439	6030
	Qmax	74640	82352	98032	113696	129360	145040	160800



## Vortex Flow Meter

### Dimension

- Flange Connection Type (DIN PN16 as reference)



DIN PN16 Flange Connection Dimension

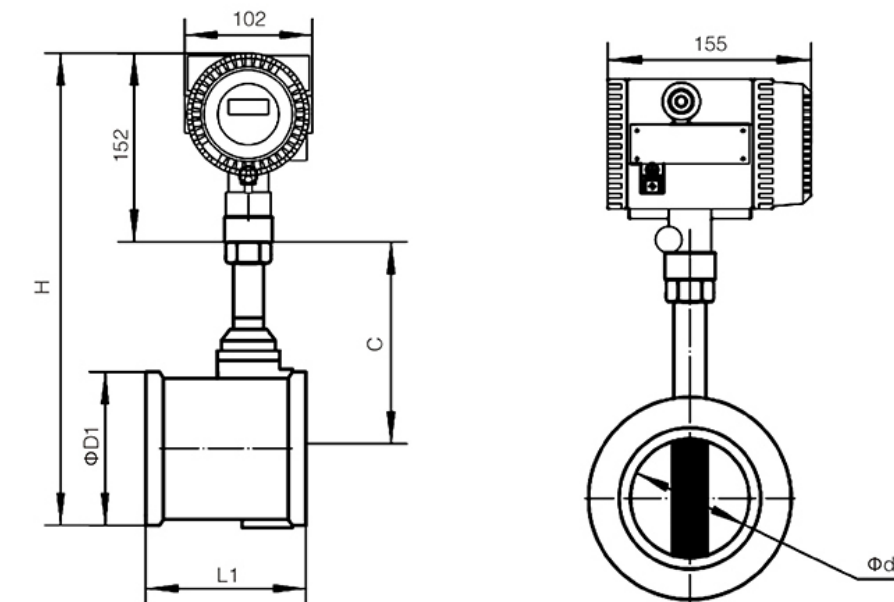
Size	L	H	d	D1	D2	n-D3
DN15	170	440	15	65	95	4-Φ 14
DN20	170	445	20	75	105	4-Φ 14
DN25	170	450	26	85	115	4-Φ 14
DN32	170	462	32	100	140	4-Φ 18
DN40	190	465	38	110	150	4-Φ 18
DN50	190	473	48	125	165	4-Φ 18
DN65	220	487	62	145	185	4-Φ 18
DN80	220	500	73	160	200	8-Φ 18
DN100	240	533	95	180	220	8-Φ 18
DN125	260	560	118	210	250	8-Φ 18
DN150	280	608	140	240	285	8-Φ 22
DN200	300	640	200	295	340	12-Φ 22
DN250	360	705	250	355	405	12-Φ 26
DN300	400	752	300	410	460	12-Φ 26

Noted: Above dimension as per flange DIN PN16.

## Vortex Flow Meter

### Dimension

- Wafer Connection Type

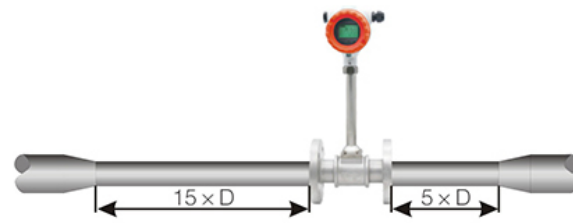


Size	L1	D1	d	C
DN15	65	65	15	240.5
DN20	65	65	20	240.5
DN25	65	65	26	240.5
DN32	65	65	32	240.5
DN40	80	76	38	237
DN50	80	88	48	237
DN65	92	101	62	242.5
DN80	100	112	73	247
DN100	124	134	95	271
DN125	145	158	118	284
DN150	165	180	140	313
DN200	195	247	200	319.5
DN250	115	300	250	348
DN300	130	347	300	369.5

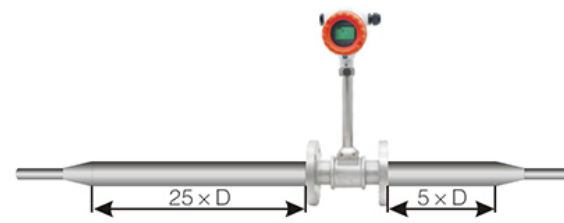


## Vortex Flow Meter

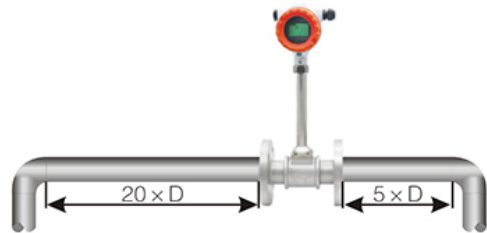
### Vortex Flow Meter Installation



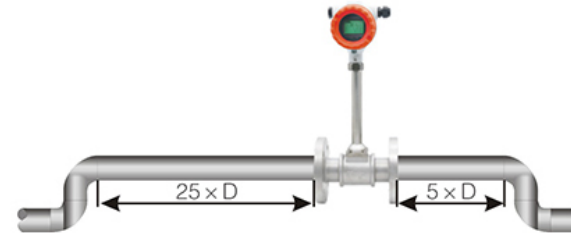
Concentric Reducers Pipeline



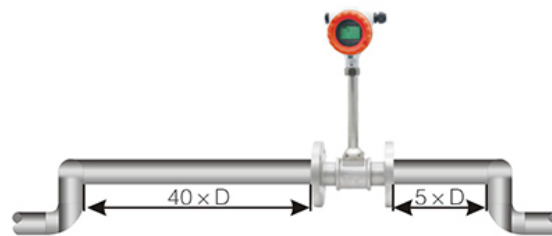
Concentric Expansion Pipeline



Single Square Bend



Two Square Bends At Same Plane



Two Square Bends At Different Plane



Regulating Valve, Half-open Gate Valve

## Wall mounted Ultrasonic Flow Meter





## Wall mounted Ultrasonic Flow Meter



### Feature

- **High Accuracy**  
Accuracy better than 1%.
- **Measure Range**  
Select different model sensors, can achieve DN15–DN6000mm pipe flow measurement.
- **High Reliability**  
Adopt low voltage, multi-pulse radiating circuit. Accuracy, Lifetime and Reliability are better.
- **High Anti-interference**  
Adopt double balanced signal differential transmission, receiving circuit, effective resist the drive, tower, Strong power lines and other source of interference.
- **Powerful Memory Function**  
Automatic memory the cumulative flow of 512 days before, 128 months before, 10 years before. Automatic memory the power-on and off of 64times before and the flow. Automatic memory the meter working condition of 32days before.
- **Support Temperature Sensor**  
Connect with Temperature sensor, it can measure heat flow.
- **Support SD card memory- 1**  
Select SD card memory, it can realize mass storage by ultrasonic flow meter




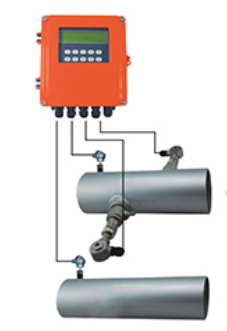


### Product Introduction

- The PUFM Ultrasonic Flow meter is widely used to measure different kinds of liquid.
- Transmitter and transducer install separately. Transmitter can install at indoor, Instrument cabinet, Dashboard.
- Transducer install on the pipes. Transmitter and Transducer connect by special cable.
- It can realize to measure flow. Connect with temperature sensor, it can measure heat flow.
- Widely used in Running water, Heating, Water conservation, Metallurgy, Chemical industry, Machinery, Energy etc.
- Used for production monitoring, water balance testing, thermal equilibrium network commissioning, energy monitoring.
- It is the most important flow measure instrument during manufacturing process.

## Wall mounted Ultrasonic Flow Meter

## Wall mounted Ultrasonic Flow Meter

### Measurement Composition

Flow Measurement	Heat/Cold Energy Measurement	Feature
 <p>Clamp On Type</p>	 <p>Water supply pipe Water return pipe</p>	<ul style="list-style-type: none"> <li>• Installation without drying up, no pressure loss</li> <li>• Easy installation and maintenance</li> <li>• Mating clamp temperature sensor that can measure the temperature of the outside of tube to achieve heat measure</li> </ul>
 <p>Insertion Type</p>	 <p>Water supply pipe Water return pipe</p>	<ul style="list-style-type: none"> <li>• Installation without drying up, no pressure loss</li> <li>• Stable and reliable during long-term operation</li> <li>• Mating clamp temperature sensor that can measure the temperature of the outside of tube to achieve heat measure</li> </ul>
 <p>Pipe Type</p>	 <p>Water supply pipe Water return pipe</p>	<ul style="list-style-type: none"> <li>• Installation require drying off the pipe</li> <li>• High accuracy, stable and reliable during long-term operation</li> <li>• Mating clamp temperature sensor that can measure the temperature of the outside of tube to achieve heat measure</li> </ul>

### Transmitter

Due to different installation circumstance, choose different transmitter



- Wall-Mounted Type PUFM-W
- Used to mount on the wall
- Dimension: 170\*180\*56mm
- Power supply:  
DC8–36V or AC85–264V



- Panel Mounted Type PUFM-S
- Used for meter cabinet installation
- Dimension: 152\*76mm
- Power supply:












- Explosion Proof Type PUFM-D
- Used for hazardous area
- Dimension: 298\*298\*110mm
- Power supply: DC8–36V or AC85–264V
- Ex-proof Class: DII BT4







## Wall mounted Ultrasonic Flow Meter

### Transducer

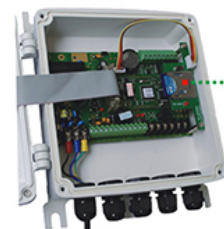
Type	Picture	Specification	Model	Pipe Size	Temperature	Dimension
Standard Clamp On Type		Small	S2	DN15 ~DN100	-30~90℃	45 × 25 × 32mm
		Medium	M2	DN50 ~DN700	-30~90℃	64 × 39 × 44mm
		Large	L2	DN300 ~DN6000	-30~90℃	97 × 54 × 53mm
High Temperature Clamp On Type		Small	S2H	DN15 ~DN100	-30~160℃	45 × 25 × 32mm
		Medium	M2H	DN50 ~DN700	-30~160℃	64 × 39 × 44mm
		Large	L2H	DN300 ~DN6000	-30~160℃	97 × 54 × 53mm
Insertion Type		Standard	TC-1	DN80 ~DN6000	-30~160℃	190 × 80 × 55mm
		longer type	TC-2	DN80 ~DN6000	-30~160℃	335 × 80 × 55mm
Pipeline Type		π	G3	DN15 ~DN25	-30~160℃	SS304 Thread Connection
		Standard	G2	DN32 /DN40	-30~160℃	CS Thread Connection
		Standard	G1	DN50 ~Dn6000	-30~160℃	CS Flange Connection

### Temperature Sensor

Picture	Specification	Model	Measurement Range	Temperature Range	Installation Requirement	Accuracy
	Three Wire PT100 Clamp Temperature Sensor	CT-1	≥ DN50	-40~160℃	No need cut	100℃ ± 0.8℃ temperature difference <0.1℃
	Three Wire PT100 Insertion Temperature Sensor	TCT-1	≥ DN50	-40~160℃	Need cut flow	
	Three Wire PT100 pressure installation insertion temperature sensor	PCT-1	≥ DN50	-40~160℃	No need cut	
	Small size three wire PT100 Insertion Type temperature sensor	SCT-1	< DN50	-40~160℃	Need cut Flow	

### SD Memory Card

SD card can realize the mass storage for ultrasonic flowmeter. Measuring data can use our company software "flow data analysis, statistical".



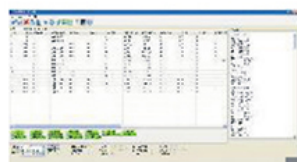
SD card memorize & cassette

• Recorded original

• Software import data

• Instantaneous flow curve formed by software

• Accumulated flow histogram formed by software



## Wall mounted Ultrasonic Flow Meter

## Wall mounted Ultrasonic Flow Meter

### Technical Parameters

Type	Performance, specification	
Transmitter	Principle	Ultrasonic transit-time principle, Four-byte IEEE754 floating-point arithmetic
	Accuracy	Better than ± 1%
	Display	LCD display with Chinese, English Display
	Output	One 4~20mA Current output, Impedance 0~1K, Accuracy 0.1%
		One OCT Pulse output (Width 6~1000ms, Default 200ms)
		One Relays output
	Input	Three 4~20mA current input, accuracy 0.1%, can collect temperature, pressure, level signal etc. Can connect with three-wire PT100 Platinum resistance to measure heat flow.
Cable	Data Interface	Isolated RS485 interface, can upgrade flowmeter through PC, support modbus
		Normal below 50m; Select RS485 Communication, Transmission distance can over thousand meters.
Pipe Condition	Material	Steel, Stainless steel, Cast iron, copper, PVC, aluminium, FRP etc. (liner allowed)
	Diameter	15~6000mm
	Installation	Upstream 10D, downstream 5D, 30D away from the pump outlet (D for diameter)
Medium	Fluid	Water, sea water, acid liquid, beer, alcohol, oil and any other liquid that can spread sonic
	Temperature	-30~160 deg C
	Turbidity	10000ppm and with little bubbles
Operating Environment	Velocity	0~ ± 10m/s
	Temperature	Transmitter: -20~60 deg C; Transducer: -30~160 deg C
Power Supply	Humidity	Transmitter: 85%RH; transmitter protection grade: IP 68; Water Depth<2m
		DC8~36V or AC85~264V
Consumption		1.5W

### Model Selection

	Transmitter	Transducer	Diameter	Material	Nominal Pressure	Cable Length	Temperature Sensor	SD Card Data Storage
PUFM	<div><div></div></div> -----	<div><div></div></div> -DN	<div><div></div></div> mm	- <div><div></div></div> --	<div><div></div></div> MPa	- <div><div></div></div> m	- <div><div></div></div> -----	<div><div></div></div>
	W Wall Mounted	S2	0	Carbon steel	N	No temperature sensor	0 with this function	
	S Panel mounted	M2	1	Stainless steel	C	clamp on type	1 without this function	
	D Ex-proof	L2	2	Cast iron	I	insertion type		
		S2H	3	FRP	I2	insertion installation with pressure		
		M2H	4	PVC	S	small size temperature sensor		
		L2H	5	Cement				
		TC-1	6	Others				
		TC-2						
		G						

For Example: PUFM-W-S2-15-0-1-5-N-1

Explanation: Fixed Remote type ultrasonic flow meter; Wall mounted transmitter, small size standard transducer, DN15, carbon steel material, nominal pressure 1.0MPa, 5m cable, No temperature sensor without SD card data storage.



## Handheld Ultrasonic Flow Meter



## Handheld Ultrasonic Flow Meter

## Handheld Ultrasonic Flow Meter



### Feature

- **High Accuracy**  
Accuracy better than 1%.
- **Wide Measurement Range**  
Measurement range from DN15~DN6000mm
- **Rechargeable Power Supply**  
Built-in high-capacity NiMH rechargeable batteries will last more than 10 hours (Fully charged).
- **Non-invasive Measurement**  
Can achieve measurement with clamp on sensors
- **Data Storage**  
32K BIT built-in data storage, can store two thousand rows of data
- **LCD Display**  
LCD display can display the instant flow, total flow, flow velocity and working condition

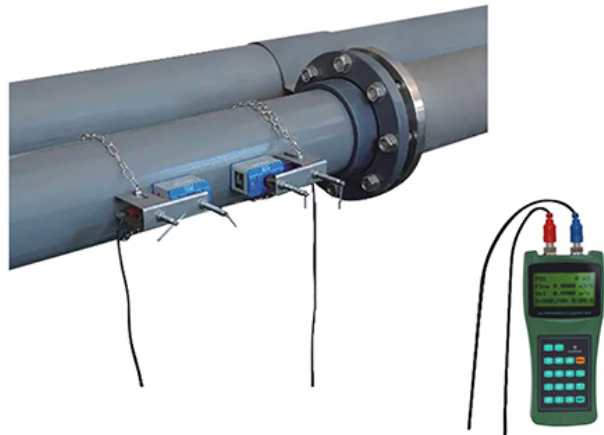


## Handheld Ultrasonic Flow Meter

### Product Introduction

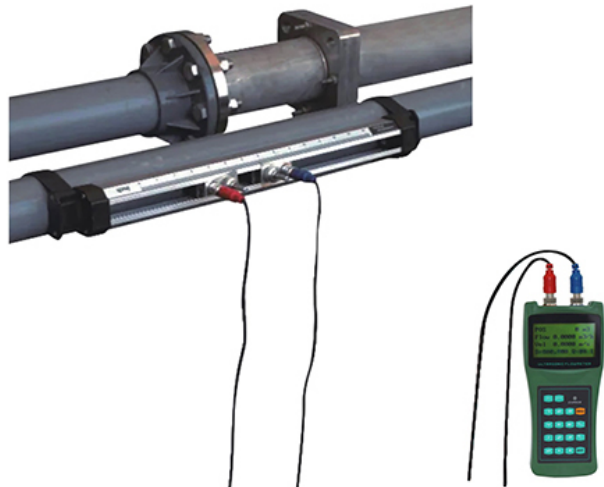
The handheld ultrasonic flowmeter is designed to work with clamp-on transducers to enable the flow of a liquid within a closed pipe to be measured accurately without needing to insert any mechanical parts through the pipe wall or protrude into the flow system.

Using ultrasonic transit time techniques, the flow meter is controlled by a micro-processor system which contains a wide range of data that enables it to be used with pipes with an outside diameter ranging from 15mm up to 6000mm (depending on model) and constructed of almost any material. The instrument will also operate over a wide range of fluid temperatures.



### Clamp on transducer

- Easy to install and no need to cut off the flow, no pressure loss
- Different transducer from DN15~DN6000
- Different transducer for temperature -30~160°C



- Reduces installation time, improve installation accuracy
- Easy installation, no need cut the flow, no pressure loss
- Easy to install and no need to cut off the flow, no pressure loss
- Different transducer from DN15~DN700
- Different transducer for temperature - 30 ~ 160°C

### Application

Water supply    Supply heating    Building Energy Conservation    Metallurgy    Petroleum & Chemical    Power plant



## Handheld Ultrasonic Flow Meter

## Handheld Ultrasonic Flow Meter

### The main components feature



### Optional transducer

Type	Picture	Size	Model	Measuring range	Temperature	Dimension
Standard Clamp on Type		Small	S2	DN15~DN100	-30~90°C	45 × 25 × 32mm
		Medium	M2	DN50~DN700	-30~90°C	64 × 39 × 44mm
		Large	L2	DN300~DN6000	-30~90°C	97 × 54 × 53mm
High Temperature Clamp on Type		Small	S2H	DN15~DN100	-30~160°C	45 × 25 × 32mm
		Medium	M2H	DN50~DN700	-30~160°C	64 × 39 × 44mm
		Large	L2H	DN300~DN6000	-30~160°C	97 × 54 × 53mm
Standard Bracket Type		Small	S2B	DN15~DN100	-30~90°C	318 × 59 × 85mm
		Medium	M2B	DN100~DN300	-30~90°C	568 × 59 × 85mm
		Large	L2B	DN300~DN700	-30~90°C	188 × 59 × 49mm
High Temperature Bracket Type		Small	S2BH	DN15~DN100	-30~160°C	318 × 59 × 110mm
		Medium	M2BH	DN100~DN300	-30~160°C	568 × 59 × 110mm
		Large	L2BH	DN300~DN700	-30~160°C	188 × 59 × 49mm



## Handheld Ultrasonic Flow Meter

### Basic technical parameters

Type	Performance parameter	
Transmitter	Principle	Ultrasonic transit-time principle, Four-byte IEEE754 floating-point arithmetic
	Accuracy	Flow: Better than $\pm 1\%$
	Display	LCD display with Chinese, English, Italian language
	Output	One OCT pulse output (pulse width 6-1000ms, Default 200ms)
	Data interface	Isolation of 232 communication interface, can upgrade flowmeter through PC
Pipeline Conditions	Pipe Material	Steel, Stainless steel, Cast iron, copper, PVC, aluminium, FRP etc. (liner allowed)
	Diameter	15~6000mm
	Installation	Upstream 10D, downstream 5D, 30D away from the pump outlet (D for diameter)
Medium	Fluid	Water, sea water, acid liquid, beer, alcohol, oil and any other liquid that can spread sonic
	Temperature	Temperature: $-30 \sim 160^{\circ}\text{C}$
	Turbidity	10000ppm and with little bubbles
	Velocity	$0 \sim \pm 32 \text{ m/s}$
Operating Environment	Temperature	Transmitter: $-20 \sim 60^{\circ}\text{C}$ ; Transducer: $-30 \sim 160^{\circ}\text{C}$
	Humidity	Transmitter: 85%RH; transmitter protection grade: IP 67
Power	Three internal 1.2V, 2000mAh rechargeable Ni-MH battery. Can work 12 hours fully charged. Can achieve continuous measurement with AC100-240V power adapter	
Consumption	1.5W	
Case Material	Flame retardant ABS	
Weight	Transmitter: 514g	

## Gas Turbine Flow Meter



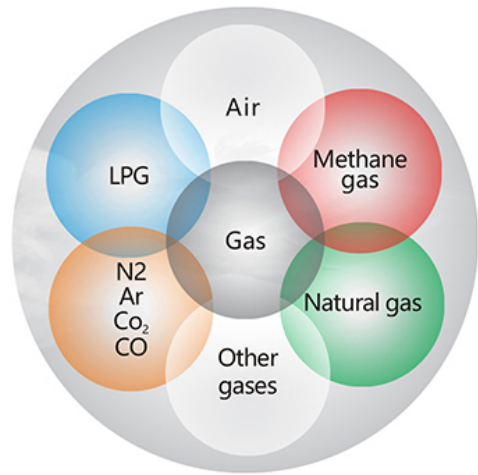


## Gas Turbine Flow Meter

### Overview

WSDWG series gas turbine flow meter is one kind of precision measuring instruments which for gas measuring. This flow meter has the characteristics of low pressure loss, high accuracy, low initiating flow, anti vibration and pulsation flow resistance, widely range ratio etc.

When design WSDWG series gas turbine flow meter, we consider the gas compressibility, Volume quantity is closely related with medium temperature and pressure, thus we add the temperature and pressure sensors so that monitor the change of medium temperature and pressure, directly make working condition flow change into standard condition flow and ensure measuring accuracy.



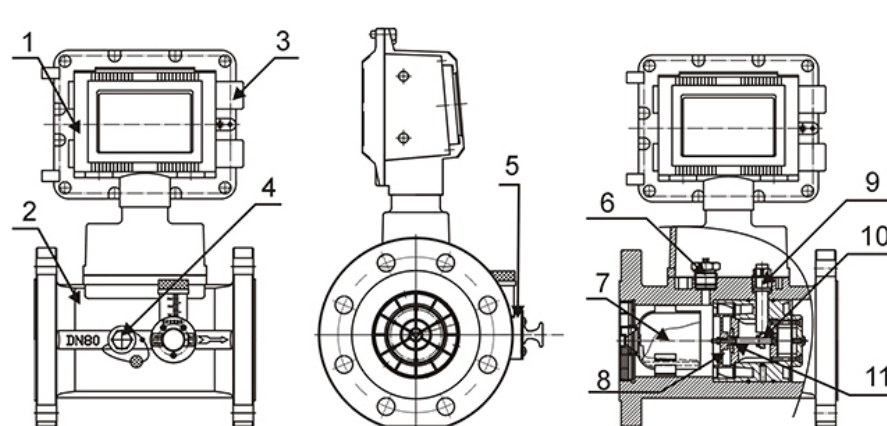
WSDWG series gas turbine flow meter could be separately used for gas that is clean, low viscosity, such as Air, Natural gas, LPG, Methane gas, N<sub>2</sub>, Ar, CO<sub>2</sub>, CO etc.

WSDWG could be widely used in gas measuring from Petroleum, Chemical, Electric power, Industrial boiler etc. In addition, WSDWG series gas turbine flow meter also be used in Gas-fired, Gas pipeline network, city gas field etc.



### Working Principle

WSDWG gas turbine flow meter is made up of base table and display, among them, the base table contains body, Rectifier, Turbo, Temperature sensor, Magnetic switch sensor, Pressure sensor and other important parts.



1. Flow totalizer
2. Shell
3. Cable entry
4. Pressure port
5. Fuel pump
6. Pressure sensor
7. Rectifier
8. High-strength antioxidation turbine
9. Temperature and flow sensor
10. Signal wheel
11. High-precision imported dustproof bearings

## Gas Turbine Flow Meter

## Gas Turbine Flow Meter

When medium enter the flow meter, through integration of the two level rectifier, medium be rectified and accelerated, then acts on the turbine blades which make a certain angle with flow direction, same time turbine will produces rotational torque, turbine blades begins to rotate after turbine overcomes the resistance moment and friction moment. When all moments reach balance, invariables turning speed, turbine rotation angular velocity is liner relationship with flow. Utilizing electromagnetic induction principle, through the top magnetizer of rotating turbine generator periodically change magnetic resistance and make magnetic field change accordingly, thus induction of the pulse signal that it is proportional to the volume flow rate.

This signal is amplified by preamplifier and shaped, the signal will be entered into integrating instrument together the temperature and pressure signal, then the integrating instrument will calculate and convert to flow value, the directly display standard instantaneous volume flow and total flow.

### Features

Rectifying device could be installed at the installation condition is not good and medium velocity change larger, also could keep thereliability of measurement.

Adopt RS485 communication, could be matched with MODEM, through telephone network could build automatic reading management system, higher automation.

Dust-proof structure can effectively prevent the impurity of the medium enter into bearing and cause rapid wear and stuck.

Adopt E2-PROM data storage technology, setup parameters could be keep long time after outage.

Low installation requirements, front straight pipe  $\geq 2D$ , back straight pipe  $\geq 1D$ , this could ensure the accuracy of flow meter

The low voltage alarm ( $\leq 2.7V$ ) of internal battery could remind user to replace battery.

Intelligent integration design could dynamically detect the temperature and pressure of medium, and automatic compensation and compression factor correction, directly display gas standard instantaneous flow and standard total flow.

The intelligent integrating instrument could rotate 180 degrees, it is convenient reading, Unexpected power outage, Autosave data, Prevent data lost.

Aluminum alloy turbine have some features: High strength, Corrosion resistance, Anti-aging, Long service life, High accuracy and good repeatability.

Flow meter with signal output calibration function and could 4, 8, 16, 20mA and 0~1000Hz

Advanced microcomputer technology and high performance single chip make complete meter more powerful and superior performance.

Adopt over wide temperature LCD technology, and LCD display converter can bear max. 80°C.

Advanced double power supply and micro power consumption technology, complete meter with low power consumption. Both could run on battery for a long time (Two lithium batteries could be used 3 years) and also could connect outside power.

Outside power is isolated with main circuit of flow meter, Isolation voltage reach 1000V

Large screen backlight LCD display, could clearly reading under dark environment.

Reliable electromagnetic compatibility design

Flow meter with pulse output, also could add 4~20mA output, IC card quantitative pulse signal etc. according to user's requirement.

One aviation plug, all output terminal



## Gas Turbine Flow Meter

### Flow Range

Diameter (mm/inch)	Model	Flow Specification	Flow Range (m³/h)	Startup Flow Rate (m³/h)	Max. Pressure Loss (kPa)	Shell Material	Weight (kg)
DN25(1")	25(A)	G50	5-50	≤1	1	Standard: Aluminum Alloy (Pressure ≤1.6MPa)	7
DN40(1 1/2")	40(A)	G60	6-60	≤1	1		8
50(2")	50(A)	G40	6.5-65	≤1.3	0.9		8.5
	50(B)	G65	8-100	≤1.6	0.8		
	50(C)	G100	10-160	≤2.4	2.0		
80(3")	80(A)	G100	8-160	≤2.4	1.0		9.5
	80(B)	G160	13-250	≤3.0	1.6		
	80(C)	G250	20-400	≤5.0	2.0		
100(4")	100(A)	G160	13-250	≤3.3	1.0	Optional: SS304	15
	100(B)	G250	20-400	≤4.2	1.6		
	100(C)	G400	32-650	≤6.7	1.8		
150(6")	150(A)	G400	32-650	≤7.8	1.6		27
	150(B)	G650	50-1000	≤10	2.0		
	150(C)	G1000	80-1600	≤12	2.3		
200(8")	200(A)	G650	50-1000	≤13	1.6		45
	200(B)	G1000	80-1600	≤16	2.0		
	200(C)	G1600	130-2500	≤20	2.2		
250(10")	250(A)	G1000	80-1600	≤20	1.2	SS304	128
	250(B)	G1600	130-2500	≤22	2.0		
	250(C)	G2500	200-4000	≤25	2.3		
300(12")	300(A)	G1600	130-2500	≤22	1.6		265
	300(B)	G2500	200-4000	≤25	2.0		
	300(C)	G4000	320-6500	≤35	2.3		
400(16")	400(A)	G1600	300-2500	≤25	1.8		380
	400(B)	G2500	500-4000	≤35	2.0		
	400(C)	G4000	600-8000	≤40	2.3		

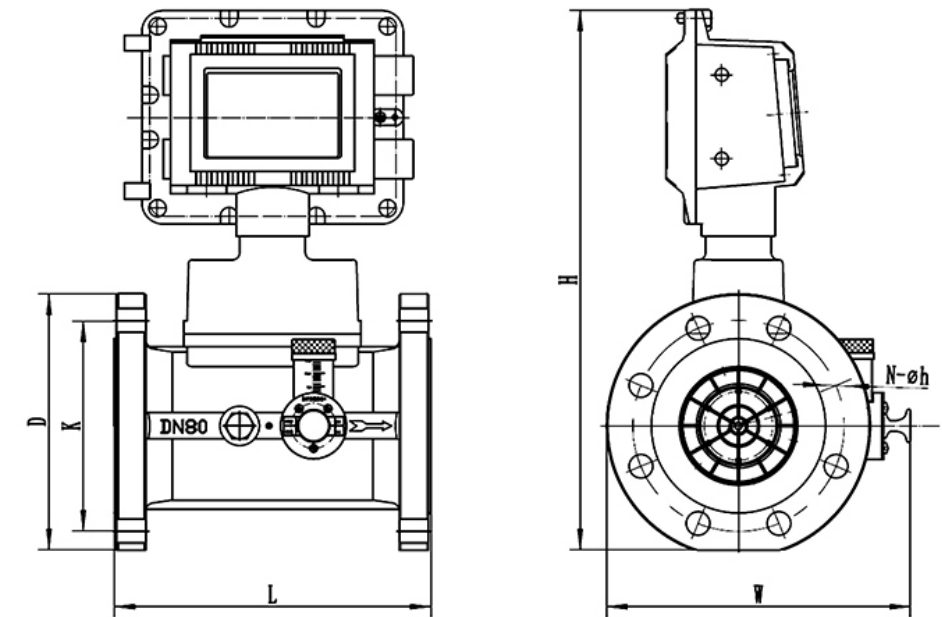
Note:

1. Standard Accuracy 1.5%; Optional 1.0%;
2. "Max Pressure Loss" is the pressure loss under standard condition, air, flow at Qmax ;
3. Weight: under 1.6MPa reference value;
4. If need other pressure range or material, need double check;

## Gas Turbine Flow Meter

## Gas Turbine Flow Meter

### Dimension



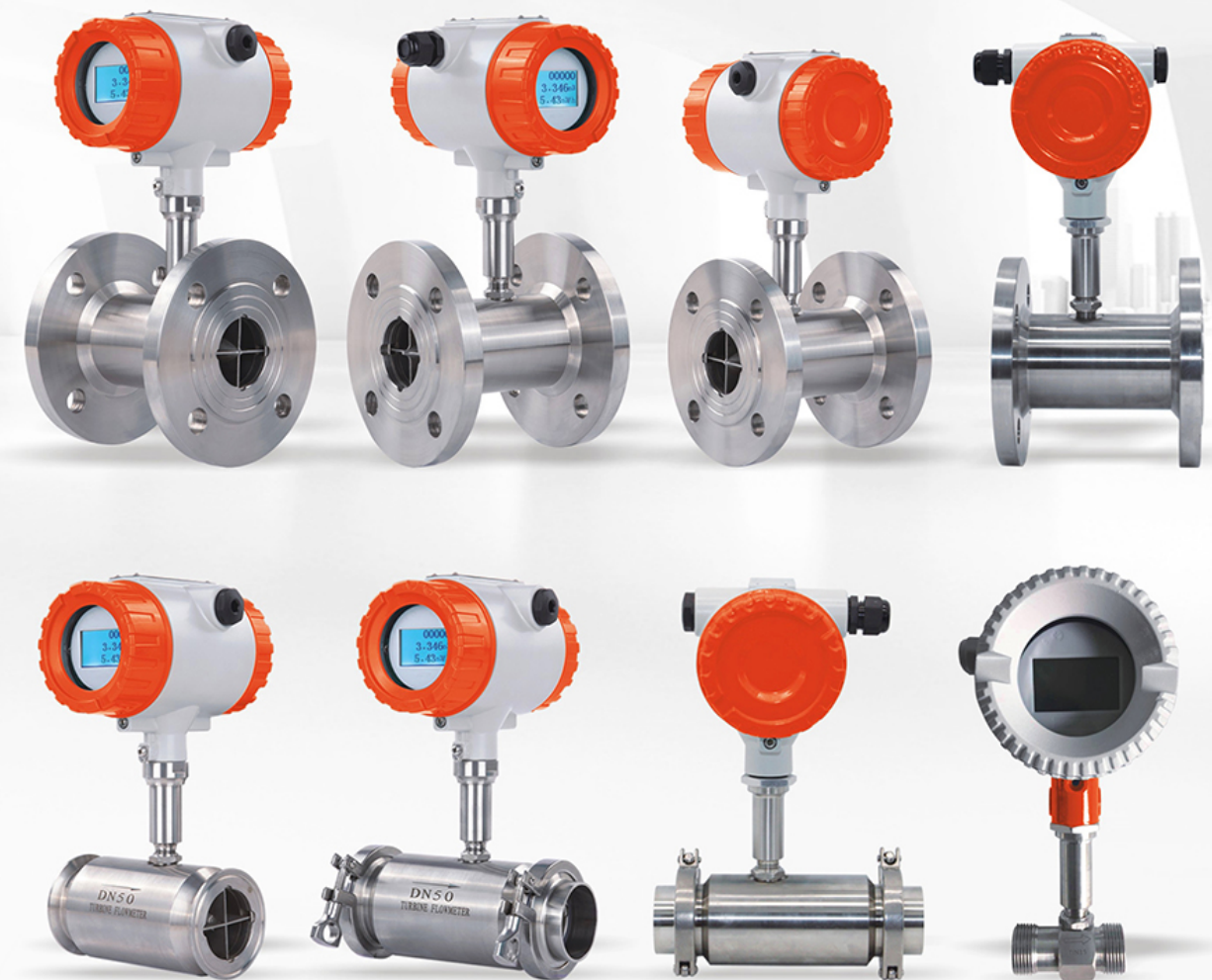
Nominal Dia.	L	D	K	N-Φh	H	W	Notes
DN25(1")	200	115	85	4-Φ14	335	200	1.Flange: DIN PN16 2.Dimension according to pressure of 1.6MPa
DN40(1 1/2")	200	150	110	4-Φ18	365	230	
DN50(2")	150	165	125	4-Φ18	375	275	
DN80(3")	240	200	160	8-Φ18	409	280	
DN100(4")	300	220	180	8-Φ18	430	285	
DN150(6")	450	285	240	8-Φ22	495	370	
DN200(8")	600	340	295	12-Φ22	559	390	
DN250(10")	750	405	355	12-Φ26	629	480	
DN300(12")	900	460	410	12-Φ26	680	535	
DN400(16")	1200	580	525	16-Φ30	793	665	



Selection Table

WSDWG	Parameters	XXX	X	X	X	X	X	X	X
Size (mm)	DN25–DN400mm								
Accuracy	1.5% (Standard)		1						
	1.0%		2						
Body Material	Aluminum Alloy (Size ≤DN150mm)				1				
	SS304				2				
	SS316				3				
Output/Communication	Pulse+4~20mA					1			
	Pulse+4~20mA+RS485						3		
	Pulse+4~20mA+HART							4	
Power Supply	Battery Powered + External Power DC24V (two–wire)						1		
	Battery Powered +External Power DC24V (three–wire)							2	
Flange standard	DIN D10: DIN PN10, D16: DIN PN16, D25: DIN PN25, D40: DIN PN40								D**
	JIS J10: JIS 10K, J20: JIS 20K, J30: JIS 30K								A**
	ANSI A15: ANSI 150#, A30: ANSI 300#, A60: ANSI 600#								J**
	Other								O
Ex–proof	With								1
	Without								2

## Liquid Turbine Flow Meter





## Liquid Turbine Flow Meter

### General Information



### Warning

For your safety, review the major warnings and cautions below before operating your equipment.

1. Use only fluids that are compatible with the housing material and wetted components of your turbine.
2. When measuring flammable liquids, observe precautions against fire or explosion.
3. When handling hazardous liquids, always follow the liquid manufacturer's safety precautions.
4. When working in hazardous environments, always exercise appropriate safety precautions.

### Product Description

Liquid flows through the turbine housing causing an internal rotor to spin. As the rotor spins, an electrical signal is generated in the pickup coil. This signal is converted into engineering units (liters, cubic meters, gallons etc.) on the local display where is applicable. Optional accessory modules can be used to export the signal to other equipment.

Upon receipt, examine your meter for visible damage. The turbine is a precision measuring instrument and should be handled carefully.

5. During turbine removal, liquid may spill. Follow the liquid manufacturer's safety precautions for clean up of minor spills.
6. Do not blow compressed air through the turbine.
7. Handle the rotor carefully. Even small scratches or nicks can affect accuracy.
8. When tightening the turbine, use a wrench only on the wrench flats.
9. For best results, calibrate the meter at least 1 time per year.

Remove the protective plugs and caps for a thorough inspection. If any items are damaged or missing, contact.

Make sure the turbine flow model meets your specific needs. For your future reference, it might be useful to record this information on nameplate in the manual in case it becomes unreadable on the turbine. Refer to the nameplate for your customized product's specification.

## Liquid Turbine Flow Meter

## Liquid Turbine Flow Meter

### Technical Data

#### Measuring system

Application Range	Liquid: water; diesel; etc (1) Without Impurity (2) Low viscosity
Measured Value	
Primary Measured Value	Flow Rate
Secondary Measured Value	Volume flow

#### Design

Features	
Modular Construction	The measurement system consists of a flow sensor and a signal converter. It is available as compact and as separate version.
Compact Version Converter	N Type: Pulse output without local display
	A Type: 4–20mA Output without local display
	B Type: Local Display; Lithium Battery Power; No Output
	C Type: Local Display; 24V DC Power; 4–20mA Output; Optional Function: (1) Backup Power Supply: Lithium Battery (2) Modbus RS485 (3) Pulse Output
Connection	Thread: DN4–DN50
	Flange: DN15–DN200 (DIN, ANSI, JIS)
	Wafer: DN15–DN100
Measure Ment Ratio	Standard – 10:1; Optional: 20:1

#### Measuring accuracy

Reference Conditions	Flow conditions similar to EN 29104
	Medium: Water
	Electrical conductivity: $\geq 300 \mu S/cm$
	Temperature: $+10...+30^{\circ}C / +50...+86^{\circ} F$
	Inlet section: $\geq 10 DN$
Flow Meter Accuracy	Operating pressure: 1 bar / 14.5 psi
	Standard: 0.5% of rate
	Optional: 0.2% of rate



## Liquid Turbine Flow Meter

### Operating Conditions

Temperature	
Process temperature	T1 Level: -20...+80°C
	T2 Level: -20...+120°C
	T3 Level: -20...+150°C
Ambient temperature (all versions)	Standard (with aluminum converter housing): -20...+55°C
Storage temperature	-20...+70°
EN 1092-1	DN100...DN200: PN 16
	DN15...DN80: PN 25
	Other pressures on request
ASME B16.5	1/2" ...8": 150 Lb RF
	Other pressures on request
JIS	1/2" ...8": 10K
	Other pressures on request

### Installation Conditions

Installation	Take care that flow sensor is always fully filled
	For detailed information see chapter "Cautions for Installation"
Flow direction	Forward
	Arrow on flow sensor indicates flow direction.
Inlet run	≥ 10 DN
Outlet run	≥ 5 DN

## Liquid Turbine Flow Meter

## Liquid Turbine Flow Meter

### Materials

Sensor housing	SS304		
	Other materials on request		
Flanges	SS202/SS304		
	Other materials on request		
Rotor			
Standard: 2Cr13	EN10088–3	1.4021	X20Cr13
	AISI	420	
	BS	420S37	
	JIS	SUS410J1	
Optional: CD4MCu	DN15···DN80		
Bearings and Shaft	Tungsten Carbide		
Converter Housing	Standard: polyurethane coated die–cast aluminum		

### Process Connections

Flange	
EN 1092-1	DN15...200 in PN 6...40
ASME	1/2" ...8" in 150 lb RF
JIS	1/2" ...8" in 10...20K
Design of gasket surface	RF
	Other sizes or pressure ratings on request
Thread	DN4...DN50 in PN63

Note: The flow range as blow is for reference only. Consult the factory if you have special requirement. Refer to the nameplate or certificate for actual flow range.

Nominal Diameter		Standard Flow Range	Extended Flow Range
(mm)	(in.)	(m³/h)	(m³/h)
4	0.15	0.04 to 0.25	0.04 to 0.4
6	0.25	0.1 to 0.6	0.06 to 0.6
10	0.4	0.2 to 1.2	0.15 to 1.5
15	0.5	0.6 to 6	0.4 to 8
20	0.75	0.8 to 8	0.45 to 9
25	1	1 to 10	0.5 to 10
32	1.25	1.5 to 15	0.8 to 15
40	1.5	2 to 20	1 to 30
50	2	4 to 40	2 to 40
65	2.5	7 to 70	4 to 70
80	3	10 to 100	5 to 100
100	4	20 to 200	10 to 200
125	5	25 to 250	13 to 250
150	6	30 to 300	15 to 300
200	8	80 to 800	40 to 800



## Liquid Turbine Flow Meter

### Model and Selection

Model Selection Guidance for Liquid Turbine Flowmeter

Model Suffix Code										Description
LUGB-										
Diameter										Three Digitals; for example: 010: 10 mm; 015: 15 mm; 080: 80 mm; 100: 100 mm
Converter	N									No display; 24V DC; Pulse Output
	A									No display; 24V DC; 4–20mA Output
	B									Local display; Lithium Battery Power; No output
	C									Local display; 24V DC Power; 4–20mA Output
	C1									Local display; 24V DC Power; 4–20mA Output; Modbus RS485 Communication
	C2									Local display; 24V DC Power; 4–20mA Output; HART Communication
Accuracy		05								0.5% of Rate
		02								0.2% of Rate
Flow Range			S							Standard Range: refer to flow range table
			W							Wide Range: refer to flow range table
Body Material				S						SS304
				L						SS316
Explosion Rating					N					Safety Field without Explosion
					E					ExdIIBT6
Pressuring Rating						N				Per Standard
						H(x)				Customized Pressure Rating
Connection								-DXX		DXX: D06, D10, D16, D25, D40 D06: DIN PN6; D10: DIN PN10 D16: DIN PN16; D25: DIN PN25 D40: DIN PN40
								-AX		AX: A1, A3, A6 A1: ANSI 150#; A3: ANSI 300# A6: ANSI 600#
								-JX		JX: J1, J2, J4 J1: JIS 10K; J2: JIS 20K; J4: JIS 40K
								-TH		Thread; DN4...DN50
Fluid Temperature									-T1	-20...+80°C
									-T2	-20...+120°C
									-T3	-20...+220°C

Model Code: LWGY-050C05SSNN-A1-T1

Explanation-Diameter: 50mm; Converter: 24V DC Power Supply, 4–20mA Output, Local Display

Accuracy: 0.5%; Flow range: 4–40 m³/h; Body Material: SS304; No Explosion;

Connection: ANSI 150# Flange; Fluid Temperature: -20...+80°C

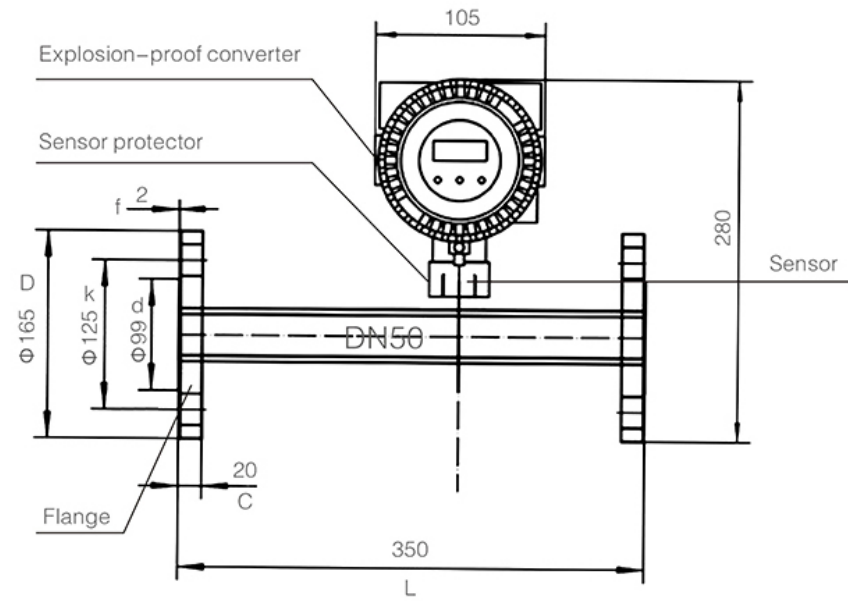
## Thermal Gas Mass Flow Meter





## Thermal Gas Mass Flow Meter

### Thermal Gas Mass Flow Meter Dimension



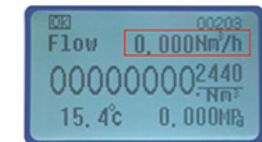
### Thermal Gas Mass Flow Meter Installation Parameters

Nominal Diameter	Flange outer diameter	Center hole	Bolt hole	Screw Threads	Sealing face		Flange thickness	Installation length
DN	D	k	n×L		d	f	C	L
15	95	65	4×14	M12	46	2	14	280
20	105	75	4×14	M12	56	2	16	280
25	115	85	4×14	M12	65	2	16	280
32	140	100	4×18	M16	76	2	18	350
40	150	110	4×18	M16	84	2	18	350
50	165	125	4×18	M16	99	2	20	350
65	185	145	4×18	M16	118	2	20	400
80	200	160	8×18	M16	132	2	20	400
100	220	180	8×18	M16	156	2	22	500

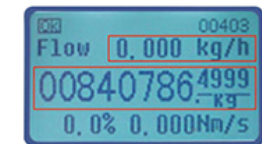
## Thermal Gas Mass Flow Meter

### LCD HD Display

Multiple flow units



Nominal standard volume flow

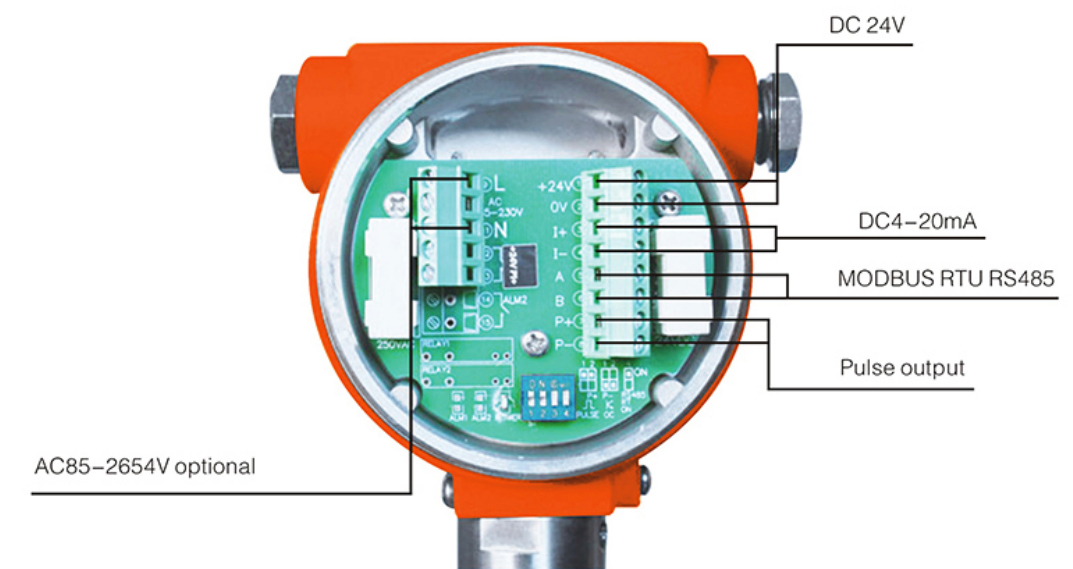


Mass flow and accumulated flow

High accuracy, Stable performance, Multiple flow units seamless switching and multi-function setting

### Dual Power Supply

More options in the wiring process



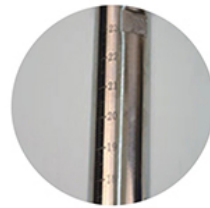
With DC4-20mA four-wire output, which is more convenient for remote reception. Support MODBUS RTU RS485 protocol, coordinating the receiving system to collect more data and modify system



## Thermal Gas Mass Flow Meter

### Refined Shielded Rod

Stainless steel 304 Rod, Corrosion Resistant



Standard rod dia.: Φ 18  
 Optional rod dia.: Φ 12

### Anti-Shedding Design

Standard:  
 Copper material



Option: PTFE



## Thermal Gas Mass Flow Meter

### High Precision Reinforced Sensor

The sensor is adopted reinforcing design and the root is partially reinforced to make the probe stronger and more suitable for a variety of media.



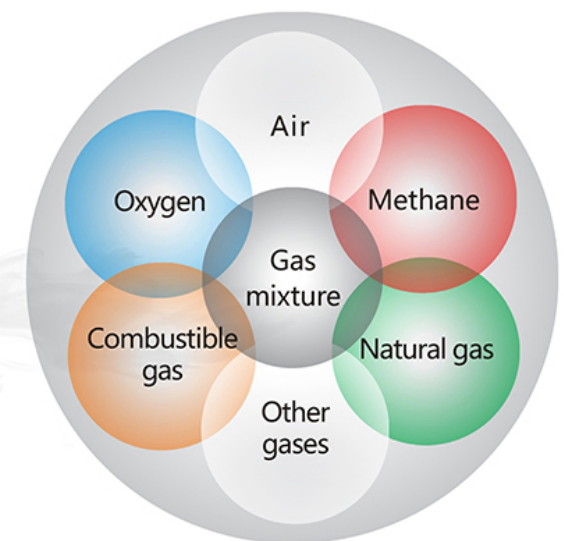
Optional sensor



Standard sensor

### Could Measure Mixed Gas

(Except acetylene and humid gas)



Detailed gas composition is needed for model selection



## Thermal Gas Mass Flow Meter

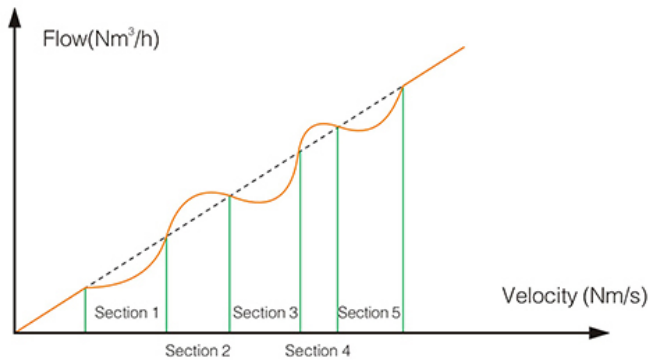
### Wide Flow Range, High Sensitivity

The minimum flow velocity is 0.1Nm/s



The thermal gas flowmeter is mainly used for measuring gas with low flow and the range could reach 1:1000, which is better than gas flowmeter on market and low flow could be measured.

### Thermal Gas Mass Flowmeter Segment Correction



Can be divided into five sections for correction, this operation will make measuring more accurate

### Easy To Install and Maintain

Could be installed and maintained without stopping production



Insertion type thermal gas mass flow meter need to reserve 20mm mounting hole, which could be used to weld and fix the base.  
(Option: Inline type thermal gas mass flow meter could be made Min. size 10mm)

## Thermal Gas Mass Flow Meter

### Thermal Gas Flowmeter Parameter

Description	Specifications
Measuring Medium	Various Gases(Except acetylene)
Pipe Size	DN10–DN4000mm
Velocity	0.1–100Nm/s
Accuracy	± 1~2.5%
Working Temperature	Sensor: –40~+220 degC Transmitter: –20~+45 degC
Working Pressure	Insertion Sensor: Medium pressure ≤1.6MPa Flanged Sensor: Medium pressure ≤1.6MPa Special pressure please double check
Power Supply	Compact type: 24VDC or 220VAC, Power consumption ≤18W Remote type: 220VAC, Power consumption ≤19W
Response Time	1s
Output	4–20mA(optoelectronic isolation, maximum load 500Ω), Pulse RS485(optoelectronic isolation) and HART
Alarm Output	1–2 line Relay, Normally Open state, 10A/220V/AC or 5A/30V/DC
Sensor Type	Standard Insertion, Hot–tapped Insertion and Flanged
Construction	Compact and Remote
Pipe Material	Carbon Steel, Stainless Steel, Plastic etc.
Display	4 lines LCD Mass flow, Volume flow in standard condition, Flow totalizer, Date and Tiem, Working time, and Velocity, etc.
Protection	IP 65



Thermal Gas Mass Flow Meter

Thermal Gas Flowmeter Flow-rate Range Table

Caliber (Nm <sup>3</sup> /h)	Range of air (Nm <sup>3</sup> /h)	Range of oxygen (Nm <sup>3</sup> /h)	Range of combustible gas (Nm <sup>3</sup> /h)
10	0.5-28	0.5-14	0.5-5
15	0.5-65	0.5-32	0.5-10
20	0.5-100	0.5-55	0.5-20
25	0.5-175	0.5-89	0.5-28
32	0.5-290	0.5-144	0.5-45
40	0.5-450	0.5-226	0.5-70
50	1-600	0.7-352	0.7-110
65	1.5-1000	1.2-600	1.2-185
80	2-1500	2-900	2-280
100	3-2300	3-1420	3-470
125	4.5-3500	4.5-2210	4.5-700
150	6.5-5200	6.5-3200	6.5-940
200	12-9000	12-5650	12-1880
250	18-14500	18-8830	18-2820
300	25-21000	25-12720	25-4060
350	35-28000	35-17000	35-5600
400	45-36500	45-22600	45-7200
450	60-46500	60-29000	60-9200
500	70-57000	70-35300	70-11280
600	100-81000	100-50600	100-16300
700	140-110000	140-69000	140-22100
800	180-150000	180-90000	180-29000
900	230-185000	230-115000	230-36500
1000	290-230000	290-140000	290-45000
2000	1150-900000	1150-560000	1150-18500

Nominal Condition Flow is the flow rate at Temperature 20°C and Pressure 101.325KPa.

Oval Gear Flow Meter



## Oval Gear Flow Meter

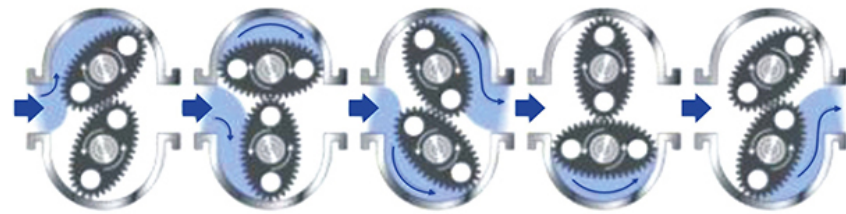
### Overview

Oval gear flow meter is one of positive displacement flow meter and mainly composed of meter shell, oval gear rotor and converter. It is an instrument used for continuous or discontinuous metering and control of liquids in the pipeline. It has advantages of large metering range, excellent accuracy, small pressure loss and high viscosity adaptability etc; It has good performance on measuring high-temperature and high-viscosity liquids. It is applicable to the calibration and metering of crude oil, chemical, chemical fiber, traffic, commerce, food, medicine and health, scientific research and military etc.

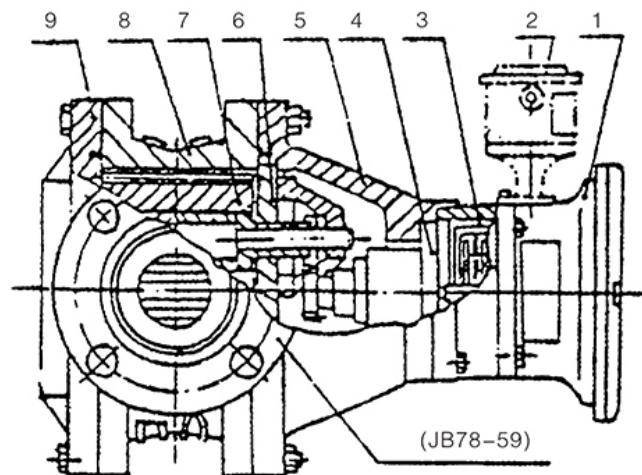


### Working Principle and Structure

Flow meter is installed in the metering tank and the measurement of a pair of oval box gear, with the upper and lower cover, an early Lunar sealed cavity (due to rotation of the gear, so sealing is not an absolute) as a unit of emissions. When measured by the pipe into the liquid flow meter, due to pressure generated by the Import and Export Department to promote a pair of differential gears for rotation, the constant measurement by cavity after the beginning of the Lunar liquid delivery to the exit, elliptical gear with each revolution time displacement is the product of four times the measured volume of liquid flow.



Flow meter is made by the shell, counter, oval gear and coupling (magnetic coupling and sub-axial coupling) and so on.



- |   |                         |               |
|---|-------------------------|---------------|
| 1. Counter                                      | 4. Sealing the coupling | 7. Oval gear  |
| 2. Signal output                                | 5. Front cover          | 8. Shell      |
| 3. Precision regulator<br>(DN50 and above only) | 6. Flat                 | 9. Rear cover |

## Oval Gear Flow Meter

## Oval Gear Flow Meter

### Main Technical Parameters

Model	PHLC
Transmitter Type	Pointer Display; Pointer with zero returning; Pointer display with Output; LCD
Medium	Fuel Oil; Petroleum; Petroleum Products; Vegetable Oil; Food; Chemicals
Accuracy	± 0.2%; ± 0.5%
Nominal Diameter	DN8~DN200mm
Nominal Pressure	PN1.6~6.3MPa
Medium Temperature	-10℃~280℃
Medium Viscosity	2~3000MPa·s
Power Supply	12V.DC; 24V.DC
Output Signal	Pulse; 4~20mA.DC; RS485
Display	Accumulative Flow, Single Measurement(Mechanical Dial); Remote transmission of total and instantaneous flow
Error Adjustment	Changing Gear Adjustment
Level Of Protection	IP65
Explosion Proof	Flame-proof Type, ExdIIBT4
Ambient Temperature	-20~55℃
Sensor Material	Cast Iron; Cast Steel; Stainless Steel
Sensor Connection	Flange, Screw, Sanitary tri-clamp

### Flow Range for Different Model:

Cast Iron type(A), Cast Steel type(E), Stainless Steel type (B)

Item \ Model	LC-A Cast Iron	LC-E Cast Steel	LC-B Stainless Steel
Pressure (MPa)	1.0, 1.6	2.5, 4.0, 6.4	1.0, 1.6
Medium's Viscosity	2~200mPa.s		
Operating Temperature	-20~100deg C		



## Oval Gear Flow Meter

Flow range m<sup>3</sup>/h

Model Nominal size	LC-A Cast Iron		LC-E Cast Steel		LC-B Stainless Steel	
	0.5	0.2	0.5	0.2	0.5	0.2
10	0.08~0.4	0.1~0.4	0.08~0.4	0.1~0.4	0.1~0.5	0.1~0.5
15	0.25~1.5	0.5~1.5	0.25~1.5	0.3~1.5	0.3~1.5	0.3~1.5
20	0.5~3	0.6~3	0.5~3	0.6~3	0.6~3	0.6~3
25	1~6	1.2~6	1~6	1.2~6	1.2~6	1.2~6
40	2.5~15	3~15	2.5~15	3~15	3~15	3~15
50	4~24	4.8~24	4~24	4.8~24	4.8~24	4.8~24
80	10~60	12~60	10~60	12~60	12~60	12~60
100	16~100	20~100	16~100	20~100	20~100	20~100
150	32~190	38~190	32~190	38~190	38~190	38~190
200	34~340	68~340	34~340	68~340	68~340	68~340

High temperature Cast Iron (TA), Cast Steel type (TE) , Stainless Steel type (TB)

Item	Model	LC-TA Cast Iron	LC-TE Cast Steel	LC-TB Stainless Steel
Pressure (MPa)		1.0, 1.6	2.5, 4.0, 6.4	1.0, 1.6
Medium's Viscosity		2~200mPa.s		
Operating Temperature		100~280deg C		

## Oval Gear Flow Meter

## Oval Gear Flow Meter

Flow range m<sup>3</sup>/h

Item Pressure (MPa)	LC-TA Cast Iron		LC-TE Cast Steel		LC-TB Stainless Steel	
	0.5	0.2	0.5	0.2	0.5	0.2
10	0.08~0.4	0.1~0.4	0.08~0.4	0.1~0.4	0.1~0.5	0.1~0.5
15	0.24~1.35	0.35~1.35	0.24~1.35	0.35~1.35	0.36~1.35	0.36~1.35
20	0.54~2.7	0.72~2.7	0.54~2.7	0.72~2.7	0.72~2.7	0.72~2.7
25	1.2~5.4	1.4~5.4	1.2~5.4	1.4~5.4	1.4~5.4	1.4~5.4
40	2.7~13.5	3.6~13.5	2.7~13.5	3.6~13.5	3.6~13.5	3.6~13.5
50	4.4~21.6	5.75~21.6	4.4~21.6	5.75~21.6	5.75~21.6	5.75~21.6
80	10.8~54	14.4~54	10.8~54	14.4~54	14.4~54	14.4~54
100	18~90	24~90	18~90	24~90	24~90	24~90
150	38~170	45.6~170	38~170	45.6~170	45.6~170	45.6~170
200	34~340	68~340	34~340	68~340	68~340	68~340

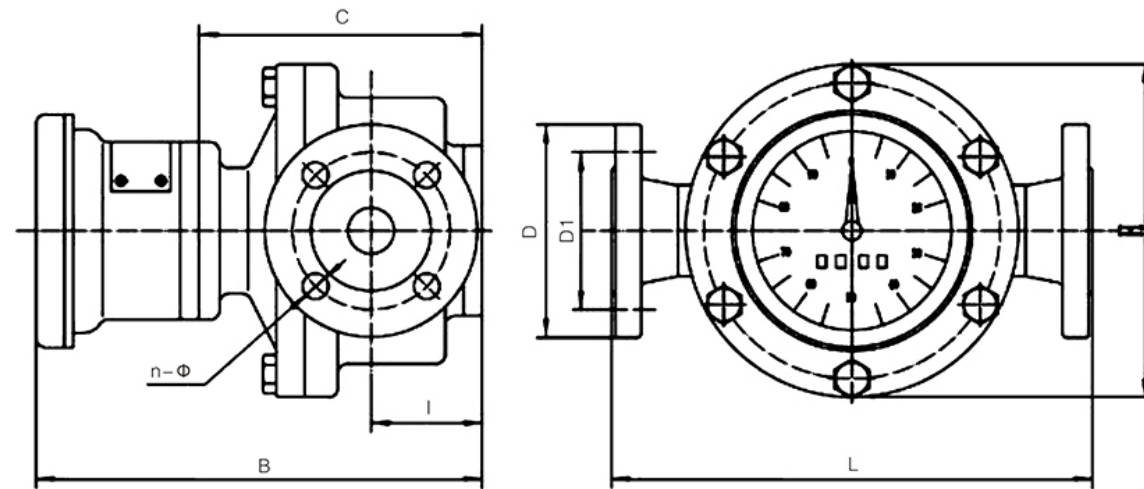
High viscosity Cast Iron (NA), Cast Steel type (NE)

Item	Model	LC-NA Cast Iron	LC-NB Stainless Steel	LC-NE Cast Steel
Pressure (MPa)		1.6		2.5, 6.4
Medium's Viscosity		200~3000 mPa.s		
Operating Temperature		-10~100 deg C		
Accuracy		0.5		

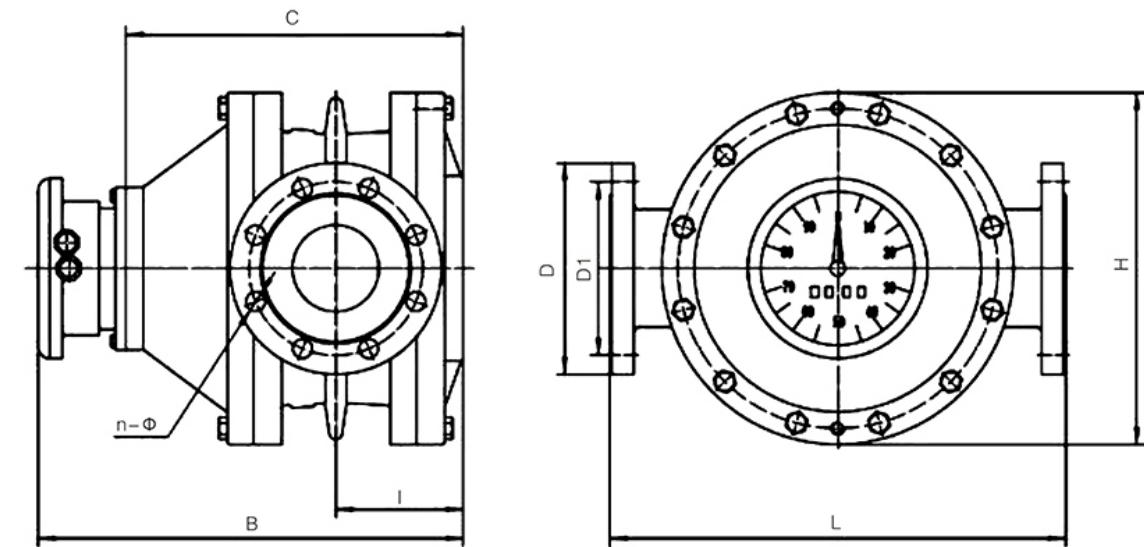
Flow range m<sup>3</sup>/h

DN	10	15	20	25	40	50	80	100	150	200
Flow	0.04~0.2	0.15~0.75	0.3~1.5	0.6~3	1.5~7.5	2.4~12	6~30	10~50	38~100	34~300

## Oval Gear Flow Meter

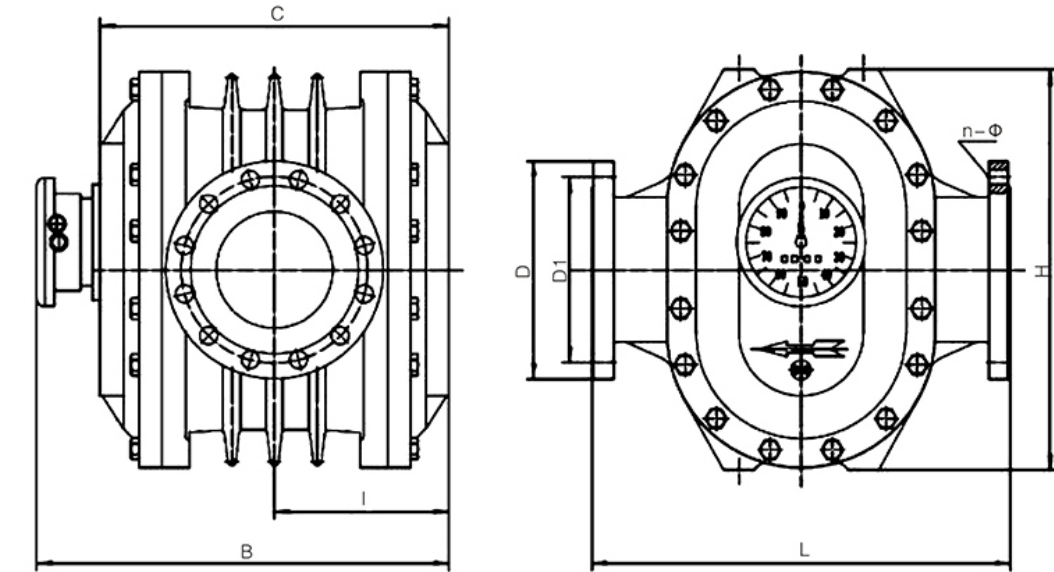


DN10-40



DN50-100

## Oval Gear Flow Meter



DN150-200

(A) Cast iron Type; Cast iron high viscosity type; High temperature cast iron type; Other cast iron type

(Units: mm)

DN	L	H	A	B	D	D1	N	Φ
10	150	100	165	210	90	60	4	14
15	170	118	172	226	95	65	4	14
20	200	150	225	238	105	75	4	14
25	260	180	232	246	115	85	4	14
40	245	180	249	271	145	110	4	18
50	265	250	230	372	160	125	4	18
65	265	325	270	386	180	145	4	18
80	265	325	315	433	195	160	8	18
100	515	418	370	458	215	180	8	18
150	540	515	347	557	280	240	8	23
200	650	650	476	720	335	295	12	23



## Oval Gear Flow Meter

(B) Cast Steel Type, steel high viscosity type, high temperature steel type

(Units: mm)

DN	L	H	B	A	D	D1	N	Φ
15	200	138	232	180	105	75	4	14
20	250	164	220	160	125	90	4	18
25	300	202	252	185	135	100	4	18
40	300	202	293	208	165	125	4	23
50	384	262	394	312	175	135	4	23
80	450	337	452	332	210	170	8	23
100	555	442	478	310	250	200	8	25
150	540	510	557	347	300	250	8	26
200	650	650	720	476	360	310	12	26

Note: Cast iron, cast steel oval gear flow meters type high-temperature size: DN15 ~ DN25, A, B according to the table, data size plus 160mm extension tube heat: DN40 ~ DN80, A, B-size table size increases by thermal extension of 300mm pipe, rest size of the corresponding size table Ibid

(C) Stainless steel Type

(Units: mm)

DN	L	H	B	A	D	D1	N	Φ
15	208	120	228	172	95	65	4	14
20	236	150	238	225	105	75	4	14
25	287	195	246	232	115	85	4	14
40	265	178	349	265	145	110	4	18
50	265	178	349	265	160	125	4	18
65	365	260	436	319	180	145	4	18
80	420	305	459	324	200	160	8	18
100	515	400	554	373	220	180	8	18
150	540	515	607	397	280	240	8	23

## Oval Gear Flow Meter

## Oval Gear Flow Meter

### Model Selection

Model	Special Mark	Special Function	Material (Body)	Material (Gear)	DN	Special Request	PN	Counter	Signal Output Box	Remark
1	2	3	4	5	6	7	8	9	10	12
PHLC-										
	U									with warm-keeping sleeve
	G									Thread Connection
		N								High Viscosity
		SP								Sanitary Type
		T1; 2								With Cooling Tube
			A							Cast Iron
			B/C							Stainless Steel
			E							Cast Steel
				A						Cast Iron
				B/C						Stainless Steel
				L						Aluminum
				Z						Engineering Material
					10					DN10mm
					.....					
					200					DN200mm
						S(K)				Flange Shrinkage
						II				Updated Model
							.2/			1.6MPa
							.3/			2.5MPa
							.4/			4.0MPa
							.6/			6.3MPa
								A; A1		Used for Below DN40
								A5; J1		Above DN50
								BELZ		Electronic Counter
								A6.Z		Counter with 0-Return
									FX	Used for Bottle Filling
									GF-I	12V 3-wire pulse output
									GF-II	24V 3-wire pulse output
									MF	4-20MA Analog
										Code J: High Accuracy

1. When the material of body and gear is the same, just need write one code.

2. Material: B-0Cr18Ni9Ti; C-0Cr18Ni12M02Ti

3. Example: PHLC-E80.3/A5GF-II (Cast Steel Material, DN80; PN2.5Mpa; A5 Counter; 24V Pulse Output )

## Metal Tube Rotameter



## Metal Tube Rotameter

### Introduction

WSDLZZ Series intelligent metal tube rotameter is a variable area flow meter which is based on the float position measurement. With full-metal structure, it has the features of small size, low pressure loss, large range ratio (10~20:1), optional transmitter with HART communication function, and convenient installation & maintenance etc. It is widely used in flow measurement and process control of small flow, low flow rate, and various industries under complex and harsh environments.

## Metal Tube Rotameter



### Working Principle

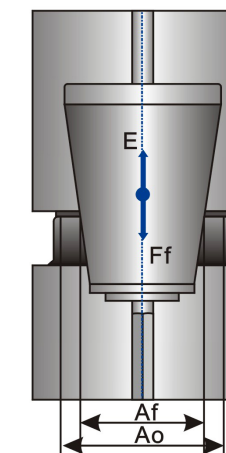
The flow meter consists of a measuring tube and a float inside it. The flow pushes the float to an equilibrium point. The area obtained between the float and the tube is proportional to the flow rate.

The point of equilibrium depends on:

- E = Force of the fluid flow
- Ff = Weight of the float
- A1 = Free area of flow

Where:

A1 = A0 (calibrated orifice area) – Af (float area)



### Features

- 01 Robust all-metal structure design.
- 02 Suitable for gas and liquid measurement in various industries.
- 03 Cone-shape measuring tube design, which has wide measuring range and good linearity.
- 04 Wetted parts material are optional: SS304 SS316L, FEP, Hastelloy C, Titanium.
- 05 Adopt advanced magnetic coupling system design, improve the accuracy and stability.
- 06 The upper row displays the instantaneous flow, the lower row displays the total flow.

Instantaneous flow	0.000~99999
Total flow	0.00~99999999
Current range	3.80~21.00mA
Instantaneous flow percentage	0~100%
Pointer angle	0.00~90.00°
Ambient temperature	-40~+150°C
Total flow small signal cutoff	0~10%
Damping time setting range	0~10 seconds

Various flow units are optional, the range is automatically converted when unit is changed.



## Metal Tube Rotameter

- 07** For the digital LCD display type, the flow range of the instantaneous flow can be corrected onsite based on the different measuring medium.
- 08** It adopts advanced six level data backup technology, data of total flow can be saved automatically when power –off, (the total flow sending period is 0.3S).
- 09** Besides AC/DC power supply, it supports battery power supply function.
- 10** No need to open the cover, it can be operated by a magnetic pen; the key operation function is also available.
- 11** Through the HART protocol, you can use the handheld operator or host computer software to perform partial or full configuration operations on the flowmeter.

### Technical Parameters

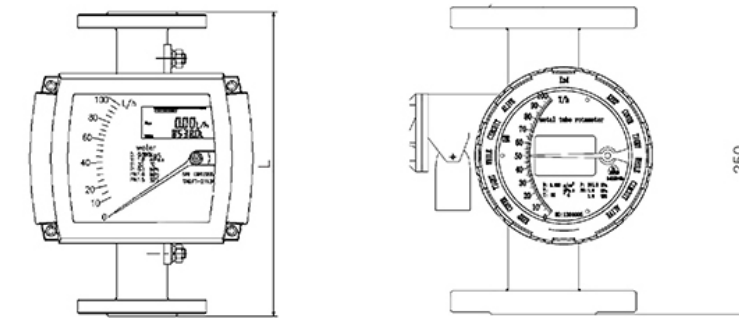
Measuring range	16~150000 l/h water (20°C) 0.5~4000 m³/h gas (0.1013 MPa 20°C)
Turn down ration	10:1 (Special type 20:1)
Accuracy level	± 2.5% (Special type 1.5% or 1.0%)
Working pressure	DN15 ~ DN50 1.6 MPa DN80 ~ DN150 1.0 MPa (Special type 1.6 MPa) Jacket pressure: 1.6 MPa
Medium temperature	Standard: -20°C ~ +200°C display with 4~20 mA High temperature: 300°C (Mechanical with Indicator) FEP liner type 90°C
Ambient temperature	-20°C ~ +100°C (remote type without LCD display ≤85°C) (remote type with LCD display ≤70°C)
Medium viscosity	DN15: ≤30 mPa.s    DN25: ≤250 mPa.s DN50 ~ DN150: ≤300 mPa.s
LCD display	Instantaneous flow numerical range: 0.000 ~ 99999 Total flow numerical range: 0.00 ~ 99999999
Signal output	Standard signal: Two–wire 4~20 mA (HART optional) Standard signal :Three–wire 0~10 mA Pulse
Communication	RS485, HART
Alarm signal	Two relay outputs (Limits 125VAC/0.25A) One or two proximity switches Pulse output:0~1KHz, Isolated output (Output Level Vpp >4.5V)
Power supply	Standard: 24 VDC ± 20% Customized: 220 VAC (85~265 VAC) Battery powered: 3.7@4.4~5.2 AH Lithium Battery, 12 ~ 36 months.
Connection	Flange ( DIN, ANSI, JIS )    Tri–clamp    Thread (BSP, NPT)
Protection grade	IP65 / IP67
Ex-proof mark	Flame–proof : Exd IIC T4~T6 Gb Intrinsically Safe Explosion Proof: Ex ia IIC T3 ~ T6
Wetted parts	SS304 SS316L, FEP, Hastelloy C, Titanium

## Metal Tube Rotameter

## Metal Tube Rotameter

### Drawing

#### · Standard Type: Dimensions and Weight

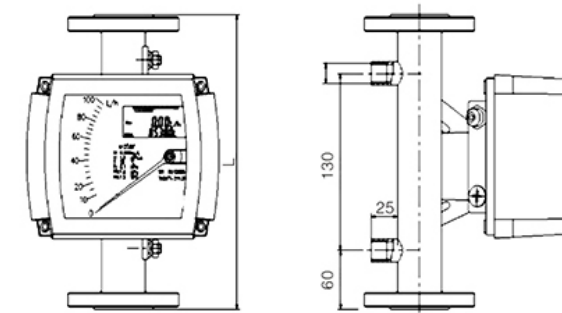


Square Converter

Round Converter

Caliber	L (mm)	Weight (kg)
DN15	250	5.0
DN25	250	6.5
DN50	250	10
DN80	250	15.5
DN100	250	17
DN150	250	35

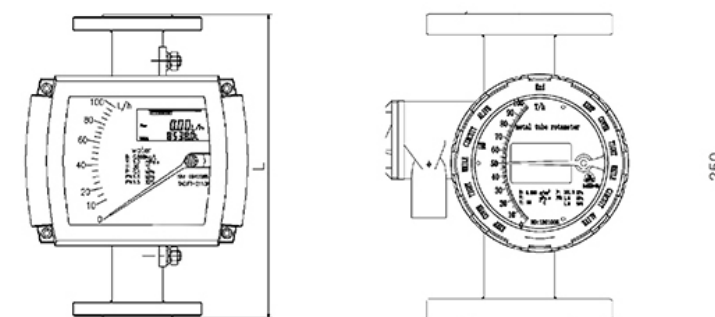
#### · Jacket Type: Dimensions and Weight



Insulation Jacket type

Caliber	L (mm)	Weight (kg)
DN15	250	7.5
DN25	250	10
DN50	250	13
DN80	250	19
DN100	250	21
DN150	250	38

#### · FEP Liner Type: Dimensions and Weight



Square Converter

Round Converter

Caliber	L (mm)	Weight (kg)
DN15	250	5.0
DN25	250	6.5
DN50	250	10
DN80	250	15.5
DN100	250	16.5
DN150	250	32