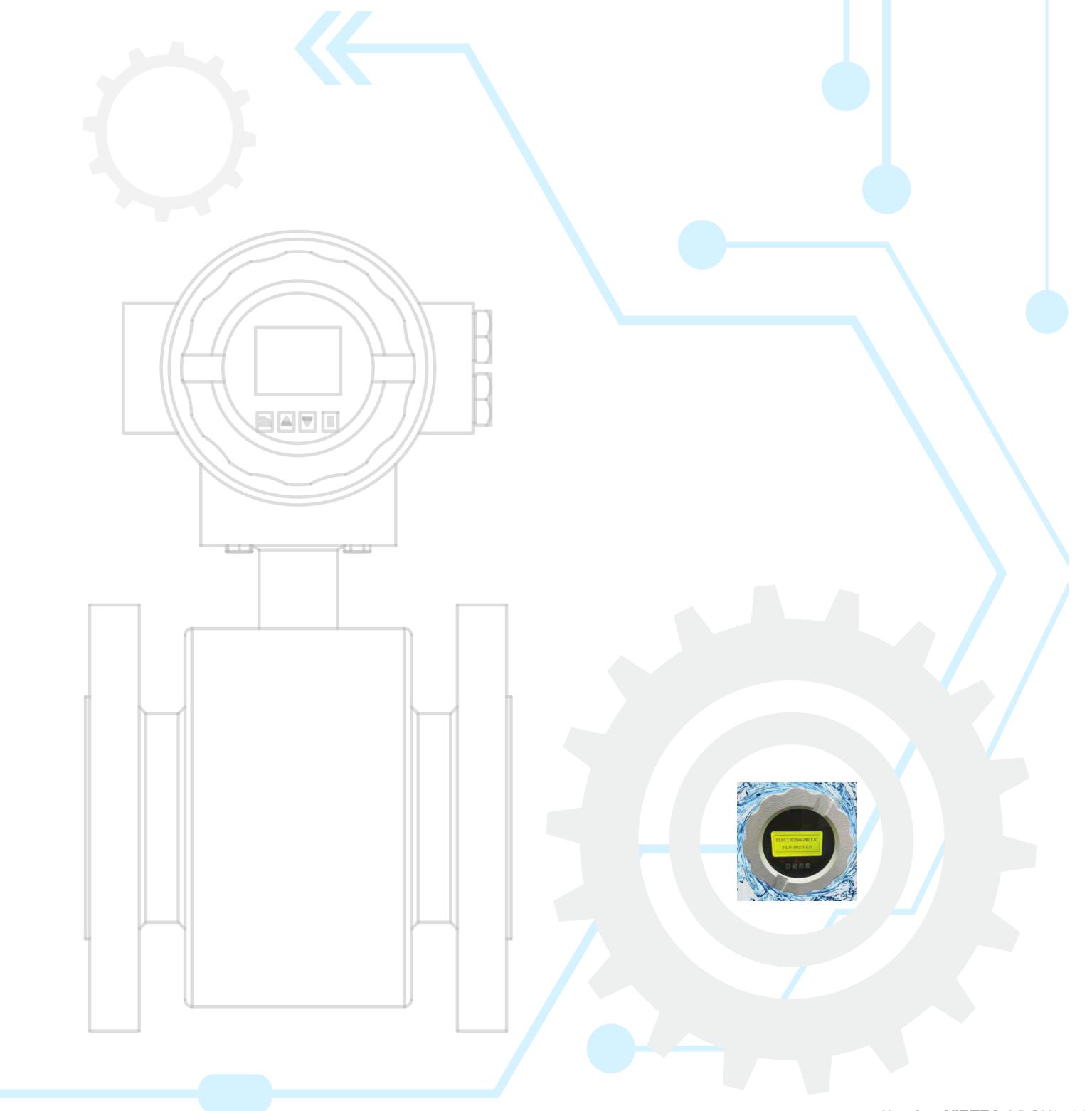


Magnetic Heat /Flow Meter



High Accuracy Electro Magnetic Heat Meter and Flow Meter

Virtec VIR-800 series Flanged and Insertion magnetic flow meter provide long-lasting, reliable performance in even the most challenging applications. An all-welded construction provides a hermetic seal that protects against moisture and other contaminants. The sealed housing ensures maximum sensor reliability by protecting all internal components and wiring from even the most aggressive environments. A removable and replaceable terminal block enables easy repair in the field without the need to replace the entire meter.

- Accuracy: Standard: 0.5% and Optional 0.2%
- Min. Flow Cutoff: Up to 1% of calibrated flow
- Line Sizes: (15-1000 mm)
- Liner Materials: PTFE-Hard Rubber
- Electrode Materials: 316L Stainless Steel, Nickel Alloy, Platinum, Tantalum, Titanium
- Flange Ratings: ASME B16.5 Class 150
- Protection Class: IP67 (Recommended with sealed cable glands)
- Interchangeability: Compatible with all VIR-800 Series transmitters.
Analog O/P; 4-20mA for flow output.

THE COMPANY

VIRTEC INSTRUMENT is engaged into the design, manufacture and service of measurement analysis instruments field, With 22 years development, we have become one of the outstanding enterprises in this field in China.

At present, Virtec Instrument is a professional and responsible flow meter enterprise with 353 staffs, 73000m² standardized workshops and machining centers, high-precision numerical control machines automated assembling line as well as other equipments.

With excellent staffs, advanced equipments, strict quality control system and good services, our products are widely sold to more than 97 countries and gain good reputation from customers. Our aim is to provide a metering solution that helps our customers achieve operational improvement through their production capability, usually, in the form of reduced energy usage, improved product quality, lower emissions and greater production throughout, Reducing emissions, carbon footprint, and your company's impact on the environment is our goal. Not only will have a strong social and environmental impact but also a positive economic impact today and future.



VIR-800 Series



In Line Type



Insertion Type

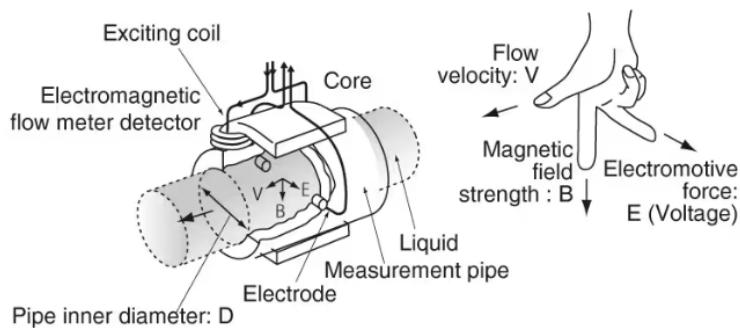
Electromagnetic Flow Meter

VIR-800 LDG Series

Working Principle

Electromagnetic flow meters detect flow by using Faraday's Law of induction.

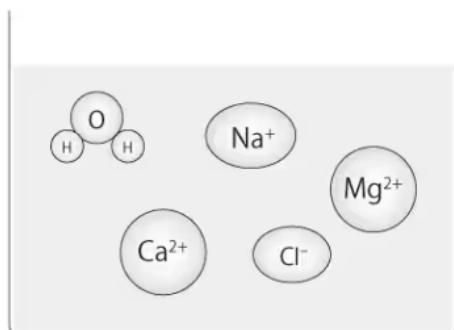
Inside an electromagnetic flow meter, there is an electromagnetic coil that generates a magnetic field, and electrodes that capture electromotive force(voltage). Due to this, although it may appear as if there is nothing inside the flow pipe of an electromagnetic flow meter, flow can be measured. Electromagnetic flow meter is flexible and universally applicable flow measurement systems. It is a velocity flow meter which does not have any moving parts and is ideal for conductive fluid.



Importance of Conductivity

Electrical conductivity is a physical quantity that measures the ability of a substance to conduct electricity, determining the ease with which charge can flow through the material. In electromagnetic flow meters, the conductivity of the fluid being measured must be high enough to generate a sufficient induced electromotive force for flow measurement.

Electromagnetic Flow meter Measurement: In electromagnetic flow meters, conductivity is a key factor that determines whether the flow meter can work properly. Only conductive liquids can generate induced electromotive force in a magnetic field, thus being measurable by the electromagnetic flow meter. Therefore, the level of conductivity directly affects the selection of the flow meter and the accuracy of the measurement results.



Conductivity of Common Medium

Medium	Conductive	Not Conductive
Acetic acid	✓	
Acetone		✗
Alcohol		✗
Beer	✓	
Blood	✓	
Body Lotion	✓	
Cleaning Agents	✓	
Coffee Extract	✓	
Corn Syrup		✗
Fruit Juice	✓	
Glycol/ Water Mixture	✓	
Hydrochloric Acid	✓	
Hydrogen Peroxide		✗
Latex Paint	✓	
Nitric Acid	✓	
Oils		✗
Potassium Hydroxide	✓	
Salt Water	✓	
Shampoo	✓	
Sugar (Pure)		✗
Sugar (Diluted with water)	✓	
Sulfuric Acid (Dilute)	✓	
Water (Deionized)		✗
Water	✓	
Water-based Coolant	✓	

Features

- High accuracy & wide flow range measurement
- 99.999% pure copper for oil
- No mechanically moving parts
- IP68 proof, maximum 3 meter immersion in water
- Bi-directional measure
- Wide choice of materials for housing and flanges including SS304 and SS316
- Advanced wire-winding technology, no drift zero point
- Robust, fully welded and potted construction
- Calibration for all diameters (up to DN3000)
- Three electrodes
- ≥3mm thickness PTFE liner, durable service life



Applications

- Water Treatment and Water Supply Systems: Used to measure the flow rate of tap water, wastewater, and sewage, helping to monitor and optimize the water treatment process.

- Chemical Industry: In the production process of chemical products, electromagnetic flow meters are used to measure the flow rate of corrosive liquids, slurries, and suspensions, ensuring precise control of chemical reactions.

- Food and Beverage Industry: Used to monitor the flow rate of liquid foods, beverages, syrups, etc., ensuring product quality and production efficiency.

- Pharmaceutical Industry: In pharmaceutical production, electromagnetic flowmeters are used to measure the flow rate of medicinal liquids, solvents, etc., to ensure the quality of drugs and the precision of the production process.

- Papermaking and Pulp Industry: Used to measure the flow rate of pulp, black liquor, white liquor, etc., to optimize the production process.

- Energy and Power Industry: In power plants, used to measure the flow rate of cooling water, steam, and other fluids, to monitor and control system efficiency.

- Mining Industry: Used to measure the flow rate of mine drainage, mineral slurries, etc., to help monitor and manage mining operations.

- Oil and Gas Industry: In the refining of oil and the processing of natural gas, used to measure the flow rate of oil products, natural gas, and other related fluids.

- Environmental Monitoring: Used to monitor the flow rate of rivers, lakes, and other water bodies, as well as in flood prevention and water resource management applications.



Electromagnetic Flow Meter Product Series

				
B-Compact Regular Type	Y-Explosion Proof Type	A-ATEX Explosion Type	HY-Slurry Type	W-Battery Type
				
B-Remote Type	H-Heat Meter Type	Mini Type	S-Sanitary Type	C-Insertion Type

Color Customization



For other color customization, please contact the supply.

Technical Data

*Common Type Magnetic Flow Meter

Diameter	PTFE: DN2.5-DN1000 Rubber: DN50-DN3000
Flow Direction	Bi-direction
Repeatability Error	±0.1%
Accuracy	±0.5% of reading; ±0.2% of reading
Medium Temperature	Rubber liner: -20...+60°C PTFE liner: -20...+120°C PFA: -20...+180°C Ceramic: -20...+180 °C
Velocity	0.3-10m/s
Ambient Temperature	-20...+60°C
Relative Humidity	5%-95%
Power Consumption	Running power consumption 8W; Start up power consumption 12W
Protection	IP 65; IP 68 (Only for remote type)
Electrical Connection	M20*1.5 as default: 1/2"NPT optional

Model Selection

Model	Suffix Code												Description
LDG-	1	2	3	4	5	6	-7	8	9	10	11	12	Electromagnetic Flow Meter
Type	B												B type
	Y												Y type
Diameter													Stand for diameter 0006: DN6; 0015: DN15 0100: DN100; 3000: DN3000
Structure	S												Compact Type with local display
	L												Remote Type; 10 meters cable default
Electrode Material	M												SS316L
	T												Titanium
	D												Tantalum
	H												Hastelloy C
	P												Platinum-Iridium
	W												Tungsten Carbide
	C												Ceramic
Signal Output	0												No Output
	1												4-20mA / Pulse
Liner Material	X												Rubber
	F												PTFE
	A												PFA
	Z												Polyurethane and other liners (on request)
Power Supply	-0												110-240V AC
	-1												24V DC (20-36V DC)
Communication	0												No Communication
	1												Modbus RS485
	2												HART
	3												GPRS
	4												On Request (Profibus DP / Profibus PA, BACnet / IP, GSM, 4G, Foundation Field FF, Bluetooth, etc)
Sensor Grounding	1												Grounding Ring
	2												Grounding Electrode
Connection	DXX												D16:DIN PN16 Flange ; D25: DIN PN25 Flange...
	AXX												A15: ANSI150# Flange; A30: ANSI 300# Flange...
	JXX												J10: JIS 10K Flange; J20: JIS 20K Flange...
	XXX												On request
Body Material	CS												Carbon Steel
	S4												Stainless Steel 304
	S6												Stainless Steel 316
Accuracy	2												± 0.2%
	5												± 0.5%

Electromagnetic Flow Meter Selection Guide

LDG-B-50-S-M-1-F-1-0-1-D16-S4-5

LDG: Electromagnetic Flow Meter

B: B Type

50: DN50

S: Compact Type

M: SS316L

1: 4-20mA / Pulse

F: PTFE

1: 24V DC

0: No Communication

1: Grounding Ring

D16: DIN PN16 Flange

S4: Stainless Steel 304

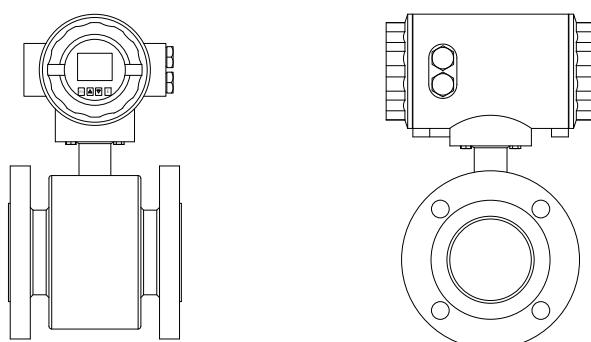
5: ±0.5%

Flow Range

Diameter	Inch	Flow Rate (m³/h)		
		V=0.3m/s	V=6m/s	V=10m/s
mm	Inch	Min	Calibrated	Max
2.5	1/10"	0.0053	0.106	0.177
4	1/8"	0.014	0.271	0.452
6	1/4"	0.03	0.6	1
10	3/8"	0.1	1.7	3
15	1/2"	0.2	4	6
20	3/4"	0.3	7	11
25	1"	0.5	11	18
32	1-1/4"	0.9	17	29
40	1-1/2"	1	27	45
50	2"	2	42	71
65	2-1/2"	4	72	120
80	3"	5	109	181
100	4"	8	170	283
125	5"	13	265	442
150	6"	20	382	636
200	8"	34	679	1131
250	10"	53	1060	1767
300	12"	76	1527	2545
350	14"	104	2078	3465
400	16"	136	2714	4524
450	18"	171	3435	5726
500	20"	212	4241	7069
600	24"	305	6107	10179
700	28"	415	8310	13850
800	32"	542	10860	18100
900	36"	662	13740	22900
1000	40"	848	16962	28270

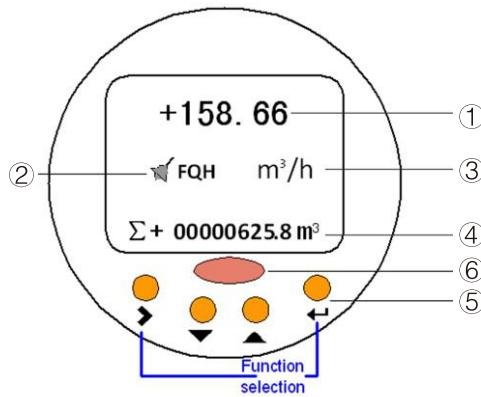
Note: *Our standard flow rate is refer to the velocity of 0.3m/s-6m/s, the 10m/s is customized.

Technical Drawings



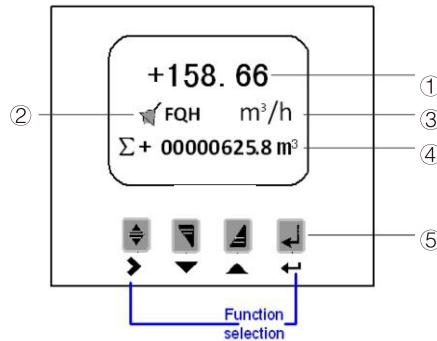
Display

Compact Type



①	Flow Rate
②	Alarm Symbol and Message: FQH; FQL; FGP; SYS
③	Flow Rate Unit
④	Flow Velocity; Percentage; Positive, Negative or Net Total (Switchable)
⑤	Keys (See table below for function and representation in text)
⑥	Infrared Sensor (not present in all signal converter versions)

Remote Type



①	Flow Rate
②	Alarm Symbol and Message: FQH; FQL; FGP; SYS
③	Flow Rate Unit
④	Flow Velocity; Percentage; Positive, Negative or Net Total (Switchable)
⑤	Keys (See table below for function and representation in text)

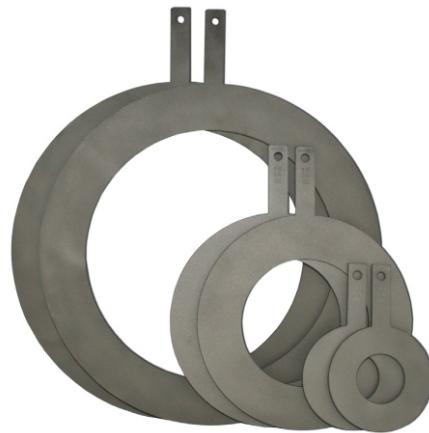
Grounding Rings

Grounding rings are used to suppress electrical interference at the installation location for electromagnetic flow meters.

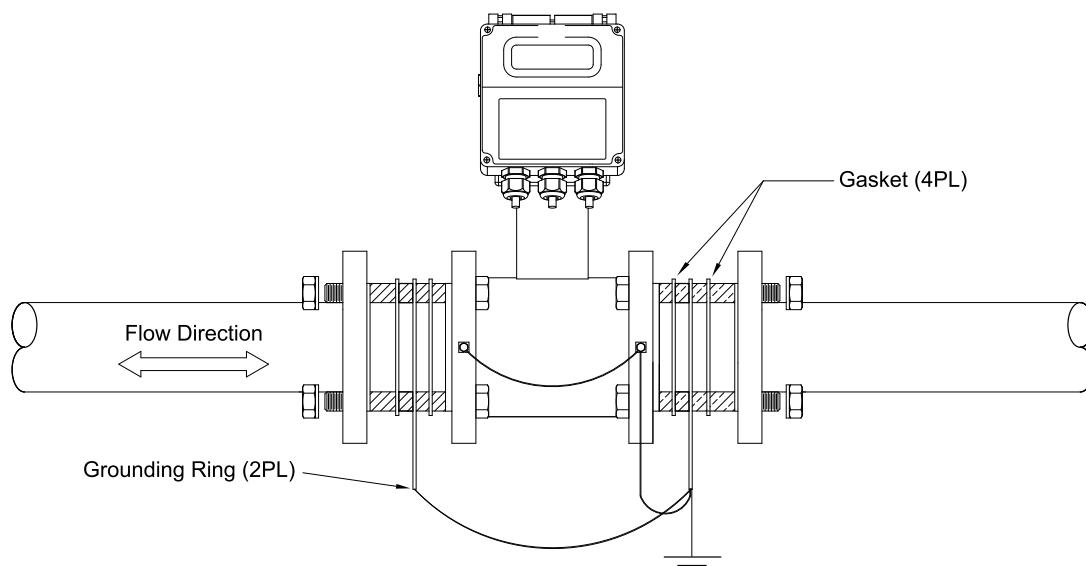
They are provided in pairs and are installed upstream and downstream of the flow meter. Grounding rings are flat wafer-style rings designed to be installed between an ANSI Class 150 flange and the inline electromagnetic flow meter flange face. The same grounding rings may also be sandwiched between flange pairs located upstream and downstream of Insertion Electromagnetic Flow Meters.

Use of grounding rings significantly reduces electrical noise and may be necessary for proper operation of electromagnetic flow meters installed in lined or non-conductive pipes.

The size of the grounding rings should always match the meter size (as opposed to the original pipe size) for installation with inline meters. Standard grounding rings are for use with ANSI Class 150 flanges and are made of 316 Stainless Steel. ANSI Class 300 grounding rings and rings made from Monel and Hastelloy are also available for special applications.



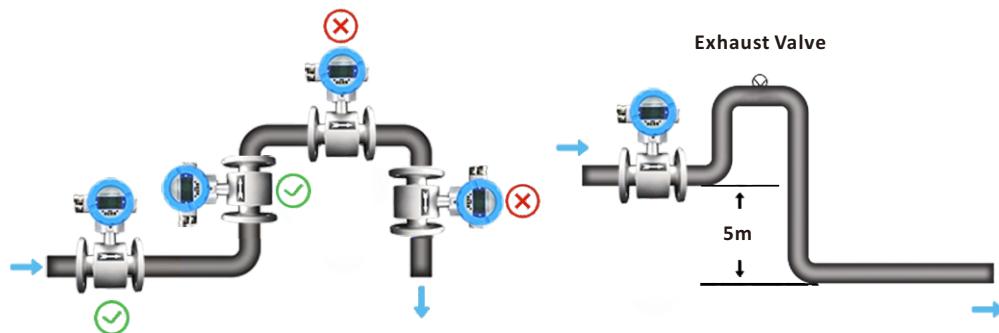
Inline Electromagnetic Flow Meter In Non-conductive Pipe



Main Performances of the Electrode Materials

Electrode Material	Application
SS316L	Applicable in water, sewage and low corrosive medium; Widely used in industries of petrol, chemistry, carbamide etc.
Titanium	Applicable in seawater, and kinds of chloride, hypochlorite salt, oxidizable acid (including fuming nitric acid), organic acid, alkali etc. Not resistant to a pure reducing acid (such as sulphuric acid, hydrochloric acid) corrosion. But if acid contains antioxidant (such as Fe ⁺⁺⁺ , Cu ⁺⁺) is greatly reduce corrosion
Tantalum	Having strong resistance to corrosive mediums that is similar with glass. Almost applicable in all chemicals mediums except for hydrofluoric acid, oleum and alkali
Hastelloy C	Be resistant to oxidizable acid such as nitric acid, mixed acid as well as oxidizable salt such as Fe ⁺⁺⁺ , Cu ⁺⁺ and sea water
Platinum-iridium	Almost be applicable in all chemical mediums except fortis, ammonium salt
Tungsten Carbide	Tungsten carbide electrodes, due to their excellent wear resistance, are often used to measure media containing solid particles or media with higher abrasiveness, such as mud and pulp.
Ceramic	Resistant to vacuum, corrosion, wear, and extreme temperatures, widely used in chemical industry, papermaking and pulp, and water and wastewater treatment.

Installation Guide

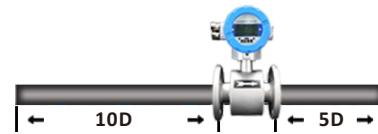


The flow meter should be installed at a lower level and vertically upwards of the horizontal pipe. Avoid installation at the highest and vertically downwards point of the pipe.

When drop is more than 5m, install exhaust valve at the downstream.



Install at the lowest point when used in pump drain pipe.



Need 10D of upstream and 5D of downstream



Don't install it at the entrance of pump, install it at the exit of pump.



Install at the rising direction.

Magnetic Flow Meter Certificate

ATEX
Certificate

PED
Certificate

CU-TR 012 COC
Certificate

SIL
Certificate

MID
Certificate

Product List

ELECTROMAGNETIC
FLOW METER



LIQUID TURBINE
FLOW METER



GAS TURBINE
FLOW METER



VORTEX STEAM
FLOW METER



CORIOLIS MASS
FLOW METER



ULTRASONIC
FLOW METER



GAS ROOTS
FLOW METER



VARIABLE AREA
FLOW METER



GEAR OIL
FLOW METER



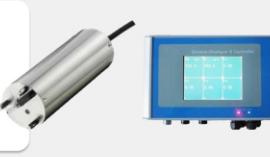
PRESSURE
TEMPERATURE
LEVEL
TOTALIZER



POSITIVE DISPLACEMENT
FLOW METER



WATER ANALYZER
SERIES





Virtec is one of the global leaders providing Heat & Flow management solutions in HVAC & Water applications. The solutions are based on two measuring technologies, Ultrasonic & Electromagnetic principle. Our high-end services and cutting-edge product solutions in this field have made us the leading providers of technologically advanced Heat and Fow measuring instruments.



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