

# PMF series

## Electromagnetic Flowmeter



---

**PG**<sup>®</sup> Hangzhou Pangu Automation System Co., Ltd

Headquarters address : 6-7/F, Building 3, Zone B, Xigang New Territories, No. 206, Zhenhua Road, Xihu District, Hangzhou, Zhejiang

Factory address: Building 1, No. 889, Huancheng North Road, Fuxi Street, Deqing County, Huzhou City, Zhejiang Province

Switchboard : 0571-87770830 87770831 87770832

Fax : 0571-87770820

Email : [hzpg@vip.163.com](mailto:hzpg@vip.163.com)

Http : [www.pangu.com.cn](http://www.pangu.com.cn)

2022





# COMPANY INTRODUCTION

Hangzhou Pangu Automation System Co., Ltd. is a national high-tech enterprise, has been focusing on the electromagnetic flow meter, electromagnetic energy meter, electromagnetic water meter design, manufacturing.

After 20 years of accumulation, the company has a professional and efficient R & D, manufacturing team, is one of the influential companies in the field of domestic industrial automation.

The company has dozens of products related patents. Products have been widely used in petroleum, chemical industry, electric power, thermal power, metallurgy, building materials, food, pharmaceutical, environmental protection and municipal and other industries.

Hangzhou Pangu has been committed to providing customers with excellent products, so that Pangu manufactured products become synonymous with high quality.

# COMPANY QUALIFICATION

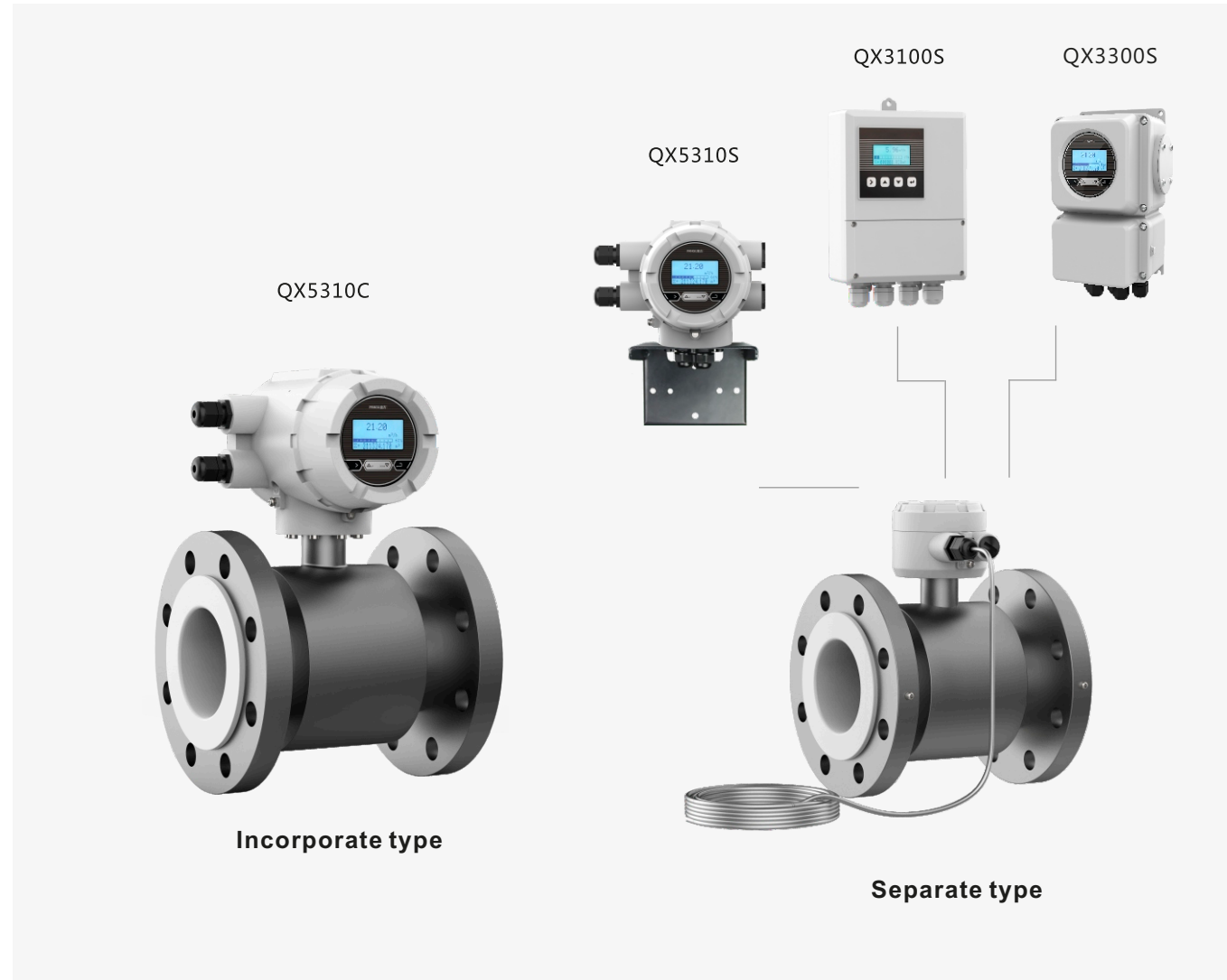


## PANGU make 'Made in China' as a synonym of excellent quality.

- ◆ First-class production facilities and production environment, strict product quality management throughout the process
- ◆ More than 20 years of industrial application experience and technical precipitation
- ◆ Rapid response of professional marketing services and technical support
- ◆ 100% product delivery inspection



# Electromagnetic flowmeter



## PMF series electromagnetic flowmeter

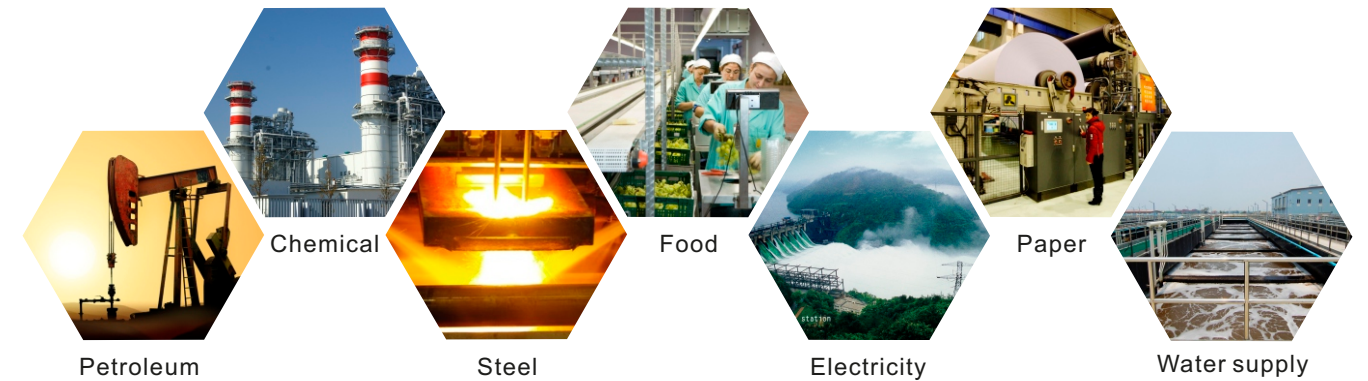
Suitable for conductive medium with conductivity greater than 5μS/cm, nominal diameter range is wide, adapt to various actual environmental conditions, with a variety of power supply mode, a variety of signal output, using standard RS-485 serial communication interface, support the international standard MODBUS-RTU communication protocol and GPRS and other wireless and wired. Communication networking mode, with cumulative pulse equivalent output. Provide wireless meter reading system (computer management software and database) with remote network access.

### Functional Features

- The measurement multiplicity and linearity of non - constant optimum
- Good reliability and resistance to interference
- Good pressure resistance and sealing
- Low pressure loss measuring tube
- High intellectual energy
- Maintenance free care

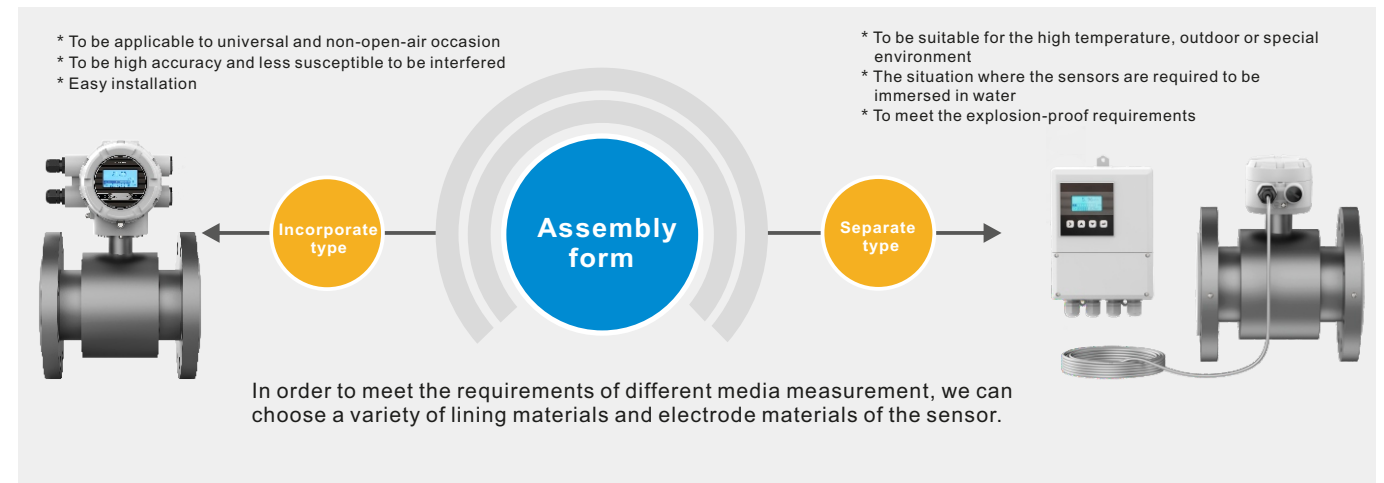
### Industry Application

Electromagnetic flowmeter is a kind of high precision, high reliability speed flowmeter, widely used in petroleum, chemical industry, steel, food, power, papermaking, water treatment, water supply, heating, environmental protection and other industries



### Product Overview

The electromagnetic flowmeter is composed of a sensor and a converter. The sensor is composed of a measuring tube, an electrode, an exciting coil, an iron core and a shell. The converter will flow signal amplification, processing, calculation, can display instantaneous flow, cumulative flow, output pulse, analog current and other signals, used for fluid flow measurement and control. PMF series electromagnetic flowmeter adopts intelligent converter, which not only has measurement, display and other functions, but also supports data transmission, wireless remote control, alarm and other functions.



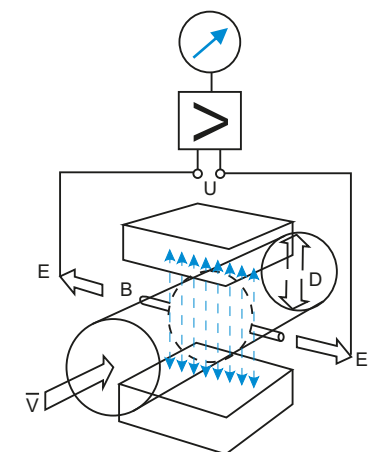
### Working principle

The working principle of electromagnetic flowmeter is based on Faraday's law of electromagnetic induction. The two electromagnetic coils of upper and lower ends in the right figure generate a constant or alternating magnetic field, and the induced electromotive force can be detected by the space on flow meter wall between two electrodes on the left and right when the conductive medium flows through the electromagnetic flow meter. The induced electromotive force is proportional to the conductive medium velocity, the magnetic flux density of the magnetic field and the conductor width (flow meter tube diameter), then the medium flow can be achieved through operation.

The induced electromotive force process parameters equation:

$$E = K B V D$$

Where: E—induced electromotive force; D—measuring tube diameter;  
 B—magnetic induction intensity; V—average velocity;  
 K—it is a coefficient that relates to the field distribution and axial length;



## Performance Parameters

Executive standard	JB/T 9248-2015	
Nominal diameter	15-2000mm	
Velocity range	0 - 10m/s	
Degree of accuracy	±0.5%R, ±1%R (< DN20 )	
Medium conductivity	≥5uS/cm, Actual conductivity≥30uS/cm	
Nominal pressure	1.0 ~ 4.0MPa	
Environment temperature	LCD Display	-10°C ~ +55°C
	OLED Display	-30°C ~ +55°C
Medium temperature	Lining	Temperature Limited
	CR	0 ~ 80°C
	PTFE	0 ~ 120°C
	FEP	0 ~ 120°C
	PFA	-10 ~ 180°C
	FVMQ	70 ~ 250°C
	PU	-20 ~ 60°C
Output signal	4-20mA; Pulse/Frequency 2kHz(Default), 5KHz(Max)	
Cable entry size	M20 × 1.5 (Standard nylon waterproof connector, optional explosion-proof metal connector)	
Supply voltage	110/220VAC(100-240VAC), 50Hz/60Hz; 24VDC ±10%	
Power dissipation	≤15VA	
Digital communication	RS-485,Support standard Modbus-RTU protocol;GPRS	
Signal electrode and the ground electrode material	Stainless steel 316L,Hastelloy C,Hastelloy B,titanium, tantalum, platinum	
Form of electric pole	Interpolating, extrapolating electrode need to customize	
Number of electrodes	Standard configuration 3-4 electrodes (two measuring electrodes plus a grounding electrode), according to the caliber configuration	
Flange Standard	Conform to the international GB9119 ( customize according to customer's demand)	
Connecting flange material	Standard carbon steel and stainless steel are needed to be customized	
Grounding ring material	Stainless steel, and stainless steel that contains molybdenum, etc.	
	DN15-DN450	Stainless steel 1Cr18Ni9Ti(Ordinary austenitic stainless steel SUS321)
Housing material	Standard carbon steel and stainless steel are needed to be customized	
Level of protection	Separate body-type	IP68, IP65
	Incorporate type	IP65
Interval / wire length (Separate body-style)	10m standard configuration connecting line, optional 1 ~ 300m.	

The selection of electromagnetic flowmeter should be clear as follows:

- (1) The measured medium must be a conductive fluid, for gas, oil, organic solvents and other non-conductive medium can not be measured.
- (2) The measuring range of the electromagnetic flowmeter should be provided to the manufacturer when ordering the model and specification, and the manufacturer should calibrate in this measuring range to ensure the measuring accuracy of the instrument.
- (3) The user shall provide the parameters in the selection table, such as the measured medium, process parameters, flow rate and working temperature and pressure, to the manufacturer, and choose the right flowmeter according to these parameters.
- (4) Optional separate type electromagnetic flow timing, the user according to the converter installation position to the sensor distance, put forward the length of wiring requirements to the factory.
- (5) If the user needs to install accessories, such as supporting flange, metal ring pad, bolts, nuts, washers and other additional requirements, can be put forward when ordering.

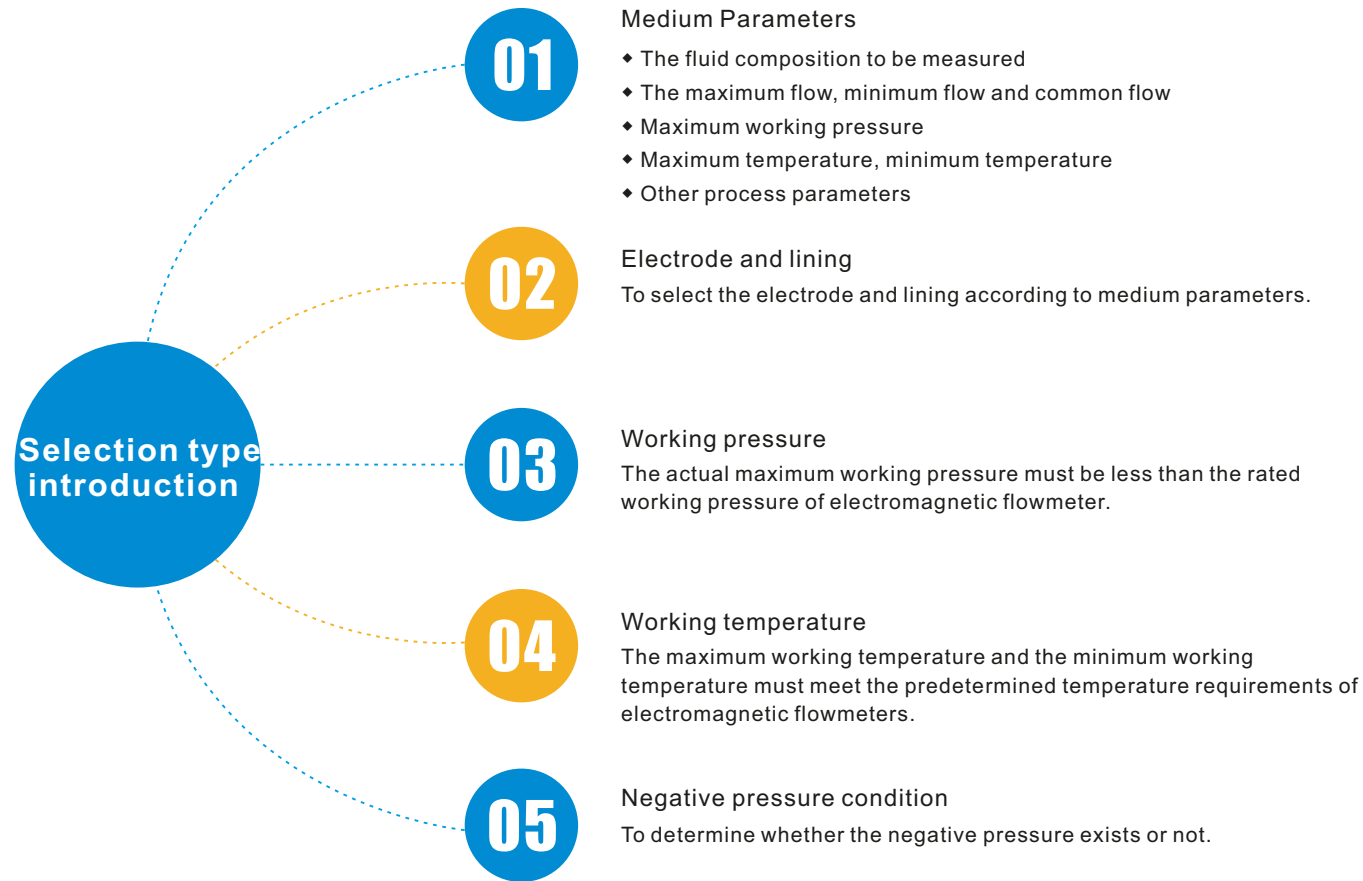
## PMF-G series electromagnetic flowmeter selection table

model	Suffix Code											instructions
	□	□	-	□	□	□	□	□	□	□	□	
PMF-G-												Electromagnetic flowmeter
Flange type	G											Flange type
Ordinary type	F											Ordinary type
Pressure rating				PN6								National flange,0.6Mpa
				PN10								National flange,1.0Mpa
				PN16								National flange,1.6Mpa
				PN25								National flange,2.5Mpa
				PN40								National flange,4.0Mpa
				JIS10K								Japanese flange,JIS10K
			ANSI150								American flange,ASME/ANSI150	
caliber												Minimum diameter(mm)
												Maximum diameter(mm)
Body material												Carbon steel (default)
												Stainless steel 304
Electrode material												Stainless steel 316L
												Hastelloy C
												Hastelloy B
												Titanium
												Tantalum
												Platinum
												Tungsten carbide
Lining material												Neoprene (CR)
												P46(FEP)
												P46(FEP) lined steel mesh
												Teflon
												Teflon lined steel mesh
												PTFE(F4)
Degree of protection												W65
												W67
												W68
Converter type												Q5310C
												Q5310S
												Q3100S
												Q3300S
Electrical interface												M20*1.5(default)
												/HC1
												/HC2
												/HC3
												/HC4
Additional Features												/HC5
												/TH1
												/EX
												/P1
												/CT
											/KD1	



## Selection type introduction

The selection type of instrumentation is very an important work in instrument application, the relevant data shows that two-thirds of the fault is the instrument wrong selection type in actual application or is caused by incorrect installation, please pay special attention.



## Examples

Electromagnetic flowmeter type PMF-G1.0A1-80K1F1A1C3P0/T1 means that the instrumental function as the working pressure 1.0Mpa, LGB1 flange mounting, caliber 80mm, stainless steel 316L electrode, CR lining, and the maximum temperature is less than or equals to 80°C, the incorporate complete machine structure (meter head and sensors are installed together, which can refer to "body-type" electromagnetic flowmeter picture "in the form of product assembling" on page 3), 1st path 4-20mA signal output, the working power supply AC 110 / 220V.

## Engineering Application Case

Clean water flow measurement—the main points of option type

- ◆ Pressure: we should be clear of the working pressure of the medium to be measured.
- ◆ To usually select flange mounting, CR lining and stainless steel 316L electrode.
- ◆ Maximum using temperature: according to the temperature of still clean water plus the rise of clean water flow temperature, such as the temperature of medium to be measured at still condition is 75 °C, and the flow rate of is 3m / s, suggesting that the users choose the highest using temperature option A2 which is less than or equals to 120 °C.
- ◆ Grounding Rings: PMF series flowmeters have 1-2 ground electrodes, and usually needs no grounding rings. Small caliber DN15 and DN20 have no grounding level, and should select the grounding ring in accordance with site conditions.
- ◆ The default protection level of body-type electromagnetic flowmeter is IP65, /T1 (1 Channel 4-20mA) or /TF1 (1 Channel frequency / pulse) signal output, and the working power supply AC is 220V.
- ◆ Typically, 1-3m/s is the economic velocity, the measurement range is generally set based on economy velocity.

## Optional type table details

### Pressure level

- ◆ Pressure level means that the default pressure rating of sensor that can withstand is 1.0Mpa, this is adaptable to most electromagnetic flowmeters occasions. Typically, pressure that loaded by sensors is determined by the applying pressure of medium inside the flow pipe through a device (such as a pump, etc.), the excess of the sensors rated pressure can cause a leak of electromagnetic flowmeter so that it cannot work properly and even damage the electromagnetic flowmeter.
- ◆ Other pressure ratings that may be used are 0.6Mpa, 1.6Mpa, 2.5Mpa, 4.0Mpa, ultra-high pressure levels and so on.
- ◆ In the selection of pressure rating, it should leave a margin. For example, the working pressure of medium inside the pipe is 0.8Mpa, then 1.6Mpa at least is selected as the electromagnetic flowmeters pressure rating.

### Installation form

- ◆ LGB1 flange mounting.
- ◆ It needs to cooperate with the mounting way of flow pipe. Flange mounting need to install a flange interface on the flow pipe that is measured.
- ◆ The tube pipe that can be installed with electromagnetic flowmeters has a stainless steel, cast iron pipes and PE pipes, and different pipes need to select electromagnetic flowmeters that have different installation forms, and they need to be grounded when installation. PE pipe and other non-metallic pipes should pay a special attention during installation.

### Caliber

Caliber of electromagnetic flowmeter should generally match the caliber of flow pipe that is measured, and selection of caliber should match flow rate of the medium, which can be seen the caliber selection table, and try to make the usual flow of the measured medium lies in the yellow font area of the table.

### Caliber optional table

Caliber DN(mm)	Volume flow <sub>q<sub>v</sub></sub> (m <sup>3</sup> /h)													
	v(m/s)	0.57	0.7	0.9	1.1	1.4	1.7	2.3	2.8	3.4	4.5	5.7	6.8	9.1
25	1.0	1.2	1.6	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10	12	16	
32	1.6	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10	12	16	20	25	
40	2.5	3.0	4.0	5.0	6.0	8.0	10	12	16	20	25	30	40	
50	4.0	5.0	6.0	8.0	10	12	16	20	25	30	40	50	60	
65	6.0	8.0	10	12	16	20	25	30	40	50	60	80	100	120
80	10	12	16	20	25	30	40	50	60	80	100	120	160	
100	16	20	25	30	40	50	60	80	100	120	160	200	250	
125	25	30	40	50	60	80	100	120	160	200	250	300	400	
150	40	50	60	80	100	120	160	200	250	300	400	500	600	
200	60	80	100	120	160	200	250	300	400	500	600	800	1000	
250	100	120	160	200	250	300	400	500	600	800	1000	1200		
300	160	200	250	300	400	500	600	800	1000	1200	1600	2000		
350	200	250	300	400	500	600	800	1000	1200	1600	2000	2500		
400	250	300	400	500	600	800	1000	1200	1600	2000	2500	3000		
450	300	400	500	600	800	1000	1200	1600	2000	2500	3000			

Note:

1. The flow/velocity data in table is the approximate value, the yellow area is the recommended flowmeter flow/velocity rate.

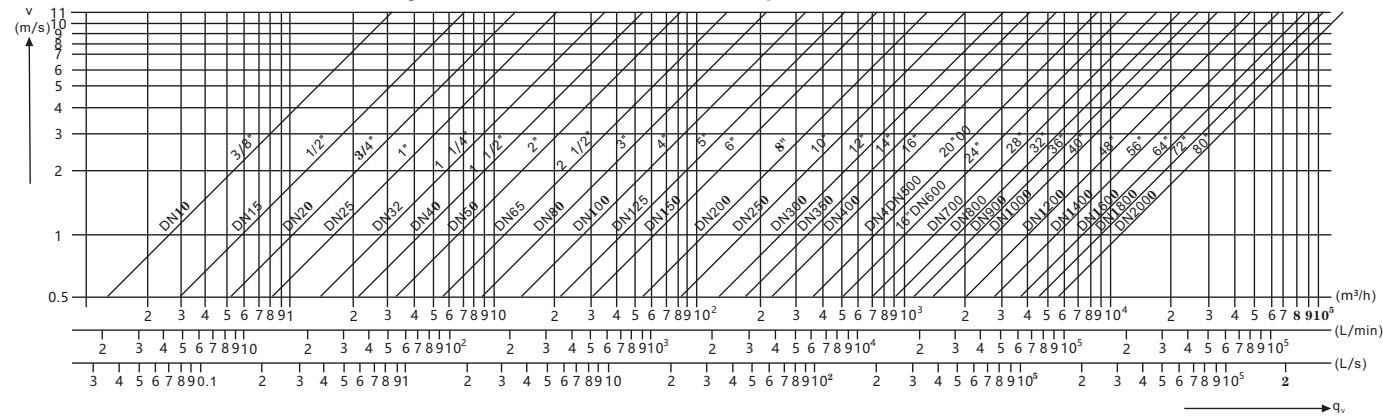
2. Other calibers can be customized.

The velocity and flow conversion formula: velocity  $V = 354 \times \text{flow } q / D^2$

Where:  $q$  -m<sup>3</sup> / h,  $v$ -m / s,  $D$  (DN) -mm

Velocity range: 0.3-10m / s

### Flow meter diameter, velocity and flow rate relationship curve



### The situation where caliber of option sensor is same with the connected technology pipe caliber

- ◆ Usually, the option flowmeter caliber is the same with caliber of process piping, which not only meets the project needs, but also easily installs, as well as has no pressure loss, and the recommendation flow rate is within the range of 0.5 ~ 5m / s.
- ◆ The new design project not only considers the current work but also consider the full load operation of the equipment in the future when chooses the flow rate. When the new equipment is running, the flow rate is at a low state, the inner tube keeps a high flow rate state when normally generated.
- ◆ In the premise of the correct selection, simply changing the settings of the instrument range can be adapted to different flow rates.

### Electrode material

- ◆ Electrode is used to obtain traffic signals, which will directly contact with the measured medium, so when chooses the electrode material, the suitability between the electrode material and measured medium is needed to be considered, namely that the corrosion resistance of the electrode material, passivation, wear, and other factors are needed to considered.
- ◆ You can choose a variety of electrode materials (including stainless steel 316L, Hastelloy B (HB), Hastelloy C (HC), titanium (Ti), tantalum (Ta), platinum (Pt), etc.) to accommodate different measurement medium.
- ◆ The selection of electrode materials should be determined according to the corrosive property of medium, and the corrosion resistance of the electrode material can be seen in the table of electrode material corrosion resistance and use range, more detailed information can be found in the preservative manual.

### The corrosion resistance and the use range table of the electrode material

Material	Corrosion Resistance
Stainless steel 316L	Application: 1. Domestic water, industrial water, raw water wells, urban pollution. 2. Weak corrosive acid, alkali, salt solution.
Hastelloy B (HB)	Application: 1. Non-oxidizing acid, such as hydrochloric acid (concentration is less than 10 percent); 2. The alkali (part), for example, sodium hydroxide (concentration is less than 50%), all concentrations of ammonium hydroxide solution; 3. Acid (part), such as phosphoric acid, and organic acid. NA: nitric acid.
Hastelloy C (HC)	Application: 1. mixed acid, for example, a mixed solution of chromic acid and sulfuric acid. 2. oxidizing salts, such as Fe <sup>3+</sup> , Cu <sup>2+</sup> , sea water. NA: hydrochloric acid.
Titanium (Ti)	Application: 1. salt (part), for example, (1) hydrogen chloride (chloride/magnesium/aluminum/ calcium / ammonia / iron, etc.); (2) the sodium, potassium, ammonium, hypochlorite, sea water. 2. The alkali (part), such as the potassium hydroxide, ammonium hydroxide, barium hydroxide alkaline solution which have a less than 50% concentration. NA: hydrochloric acid, phosphoric acid, sulfuric acid, hydrofluoric acid and other reducing acids.
Tantalum (Ta)	Application: 1 strong acid, such as hydrochloric acid (concentration is less than 40%), sulfuric acid and concentrated sulfuric acid (not including oleum). 2. chlorine dioxide, ferric chloride, hypochlorous acid, sodium cyanide and lead acetate. 3. oxidizing acids such as nitric acid (including fuming nitric acid) and the aqua regia whose temperature is below 80°C. NA: alkali, hydrofluoric acid.
Platinum (Pt)	Application: 1 almost all acids, alkalis, salt solutions (including fuming sulfuric acid, fuming nitric acid) NA: aqua regia, ammonium salt

### Lining material

- ◆ Lining material is selected according to the corrosion, abrasion resistance and temperature of the measured medium, and the adaptability of lining material which is commonly used can be seen in the performance table for common lining material suitable.
- ◆ Rubber has the wear-resisting feature and is widely used for the measurement water, industrial water, waste water, sewage, pulp, mud fiber pulp and other mediums.
- ◆ PTFE lining has excellent resistance to acid and strong alkali, it also has a reliable heat resistance and won't deform under a high temperature and reduce the performance of the insulation resistance. It also has a non-stick property, which isn't bonded with other material because of a smooth surface. Therefore, a high measurement of viscosity (e.g. syrup) or readily stuttering medium (such as alumina), or corrosive medium (such as sulfuric acid, nitric acid, hydrochloric acid, phosphoric acid, etc.), or the situation where high temperature medium or regularly flushing medium pipe using steam and the food which has the hygiene requirements (such as beer, milk, malt extract) can select the PTFE lining.

### Common lining materials application performance table

Inner lining material	Name	Symbol	Performance	Maximum working temperature	application caliber
Rubber	CR	CR	1. Resistance to oil, solvent, oxidation and general acid and alkali salt and other corrosive mediums. 2. It has excellent flexibility, abrasion resistance, but a poor resistance to cold.	1. 0°C - + 80°C non-strong acid, alkali, oxidizing mediums. 2. Measurable sewage and mud.	DN6-DN2200
Fluoro-plastics	PTFE	PTFE或F4	1.It is the material which has the most stable chemical properties among plastics and can bear the boiling hydrochloric acid, sulfuric acid, nitric acid and aqua regia. In addition, it can be also resistant to concentrated alkali and various organic solvents, but not to chlorine trifluoride, high temperature trifluoride itch, high velocity fluid fluorine, oxygen and ozone corrosion. 2.Poor wear resistance 3.Poor ability to resist negative pressure	1. -25°C - + 120°C. 2. Concentrated acid, alkali and other strong corrosive mediums. 3. Health category medium.	DN10-DN600
	Poly FEP	FEP或F46	1. Hydrophobic and non-adhesive property. 2. the ability to resist corrosion is only after PTFE. 3. If have a higher requirement to negative resistance, we can add metal net to improve the ability to resist negative pressure. 4. Poor wear resistance.	1. -25°C - + 120°C Non-strong grinding medium. 2. Health category medium.	DN6-DN200
	Teflon	PFA	Performance is close to polytetrafluoroethylene	1. -10°C - +180°C Non-strong grinding medium. 2. Health category medium.	Need to customize

### Highest Temperature

- ◆ Highest temperature is mainly determined by the temperature of the measured medium, the flow field conditions (velocity) and other conditions, and sometimes there also needs to consider the influence of the ambient temperature.
- ◆ The temperature of the medium in the pipe flow is usually higher than the standstill condition. If the still temperature of measured medium is close to a certain selection range (for example, the maximum temperature A1 level 80°C), then select a higher level using temperature option. For example when the still temperature of the measured medium is 70°C so that it recommended that users choose the highest temperature option A2 is less than or equals to 120°C.
- ◆ To obtain accurate measured medium temperature, it recommends that users install the temperature measurement instrument in the measured medium pipe.

### Flowmeter structure

#### Incorporate type

Under good environmental conditions of the site, generally choose the incorporate type, that is the combination of sensor and converter which can be seen the overview of product on third page, incorporate type electromagnetic flowmeter Figure.

- ◆ Sensors and intelligent converter are assembled together, prices and installation costs are more economical, and the visual display is more intuitional.
- ◆ When installed in an inaccessible place, the maintenance is inconvenient.
- ◆ prevent the electronic component of smart converter from being influenced by pipe fluid temperature.
- ◆ Avoid directly installing outdoor or using in harsh environment.
- ◆ Default protection class of incorporate type is IP65.

#### Separate type

Select the separate body-type when use in the following cases:

- ◆ Ambient temperature or converter surface temperature is greater than 55°C.
- ◆ Piping vibration is larger.
- ◆ The aluminum case of converters will be seriously corroded.
- ◆ High humidity or corrosive gas.
- ◆ Flowmeter is installed at high altitude or underground debugging and other inconvenient occasions.
- ◆ The default protection class of separate body-type is IP68. When there is no need to immerse into water or other special conditions, we can choose the separate body-type electromagnetic flowmeter of IP65 protection class, which should put forward specially when ordering.

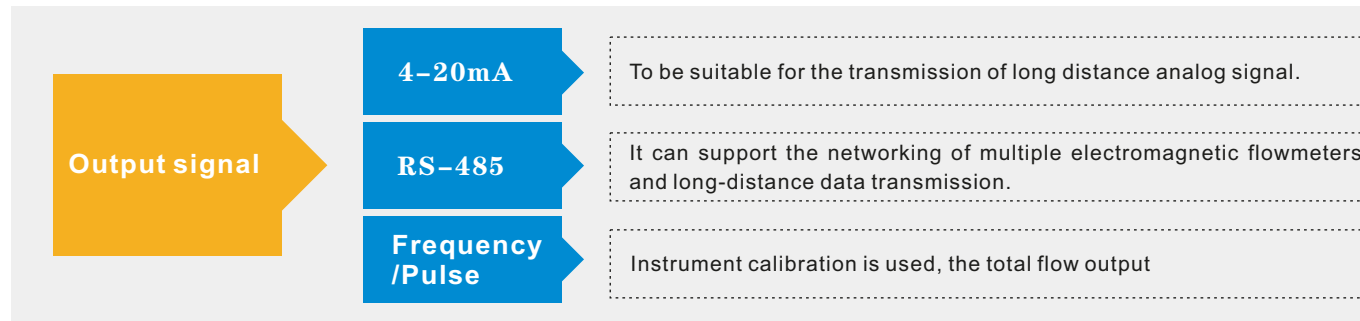
Explanation:

- ◆ Separate body-type electromagnetic flowmeter sensors are mounted on the process piping, but also can be long-buried underground water spaces (IP68 type), and smart converter installed in the control room or sensor attachment.
- ◆ When using separate body-type electromagnetic flowmeter, intelligent converter can be away from the scene in harsh environments, and the personnel can inspect, adjust, set the instrument working condition.
- ◆ Should consider the impact and installation of transmission distance of cable, which is usually less than 20m.
- ◆ Connection cable between sensor and transducer needed to be protected by the cloth wiring pipe at on-site installation.



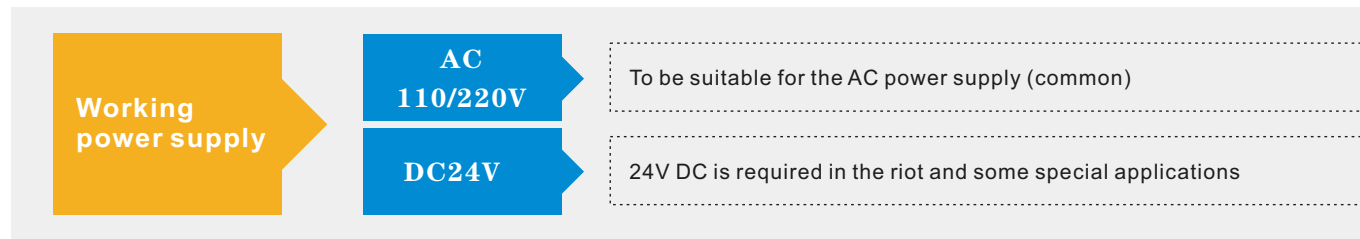
## Output signal

PMF series electromagnetic flowmeter output signals are 4-20mA, RS-485, Frequency/Pulse. Users need to select the output signal according to the actual situation and ancillary equipment.



## Working power supply

The power supply of PMF series electromagnetic flowmeter has AC 110 / 220V (100-240V), and DC 24V.

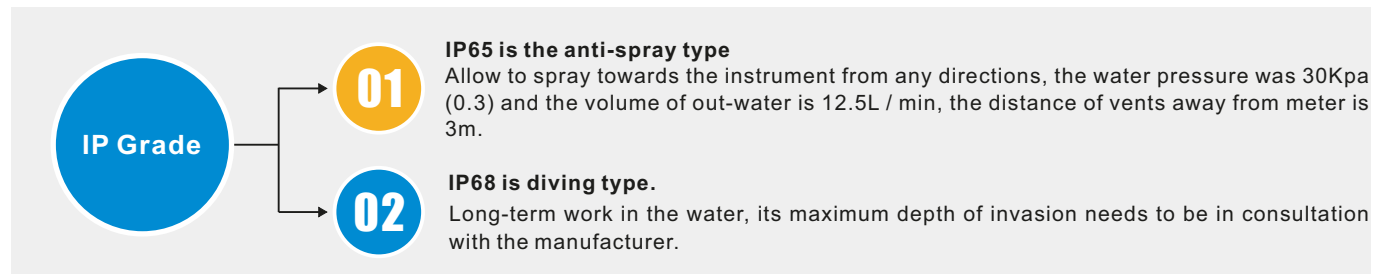


## Grounding ring option

- ◆ Grounding ring is used to ground the process fluid measured so as to improve the stability of electromagnetic flowmeter. There is a possibility of erosion and abrasion since the grounding ring need to touch the process fluid measured. Generally the grounding ring should be changed after being used for a while.
- ◆ Instead of using grounding ring, PMF series electromagnetic flowmeter has adopted grounding electrode to increase the convenience and reliability of using, which is already enough for achieving a good result for grounding.
- ◆ Some small-bore electromagnetic flowmeters have only got two electrodes. User can choose double grounding ring according to the field needs.
- ◆ When installing the grounding ring, it should be put on the right position of the pipe to avoid the influence of fluency of the process fluid measured.

## IP Grade

In accordance with the national standard GB 4208-48 or the IEC standards (IEC529-76) on shell protection grade:



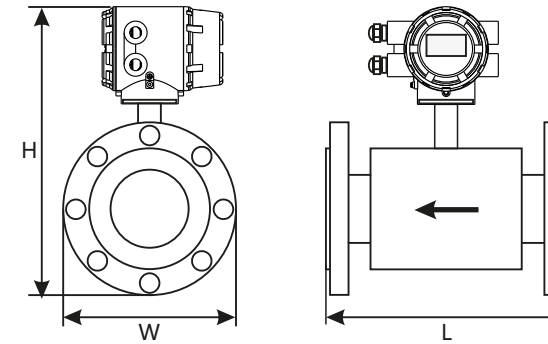
Protection class selection principles should be selected based on the actual conditions of instrumentation and the above requirements, if the meter is below ground and is often affected by flooding, so we should select IP68; if the meter is installed above ground and non-exposed environment, the choice is IP65.

## Notification of electromagnetic flowmeters

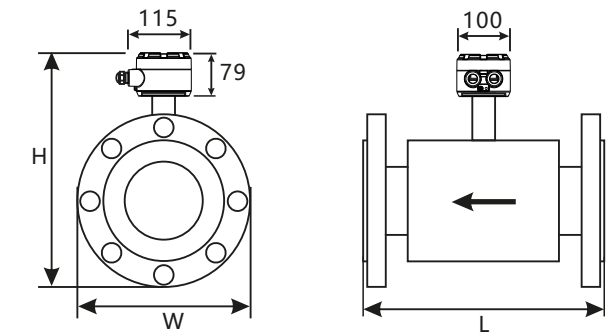
- ◆ Reducing pipe installation should refer to Electromagnetic Flowmeter Installation Reducing Pipe Technical Description or Electromagnetic Flowmeter Manual Instruction.
- ◆ Installation of electromagnetic flowmeters has the appropriate technical requirements which can be seen "Electromagnetic Flowmeter Installation Manual Instruction or Electromagnetic Flowmeter Manual Instruction.
- ◆ The wiring way of electromagnetic flowmeter can be seen Electromagnetic Flowmeter Wiring Instructions or Electromagnetic Flowmeter Manual Instruction.
- ◆ Other matters may consult the supplier

## The overall and mounting dimension of PMF Series flowmeters

### Flange type ( incorporate type)



### Flange (separate type)



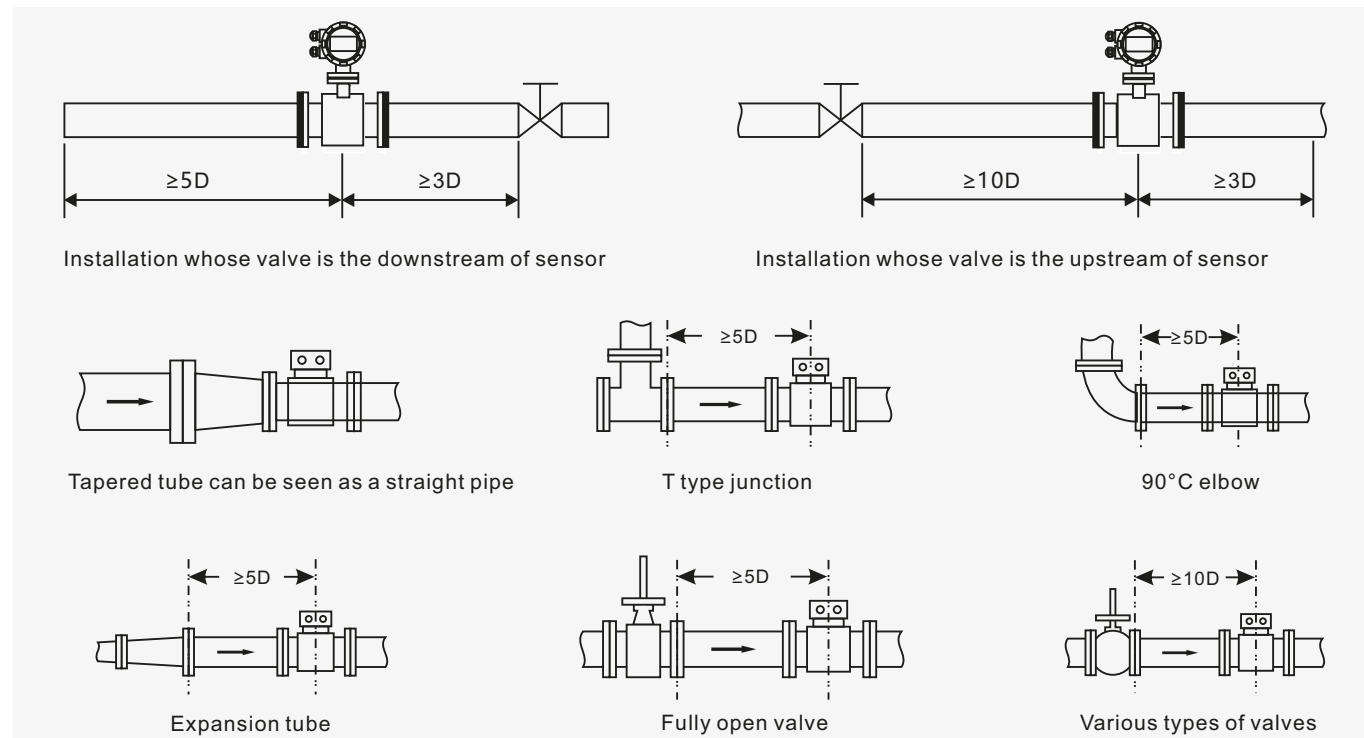
CALIBER( mm )	SIZE			WEIGHT(kg)
	L	W	H	
15	200	95	315	6
20		105	315	6.5
25		115	315	6.8
32		140	315	7.1
40		150	315	7.6
50		165	320	9.9
65		185	350	10.6
80		200	365	12.3
100	250	220	380	14.7
125		250	410	17.9
150		300	440	24.6
200		350	495	32.7
250	450	395	560	43.5
300	500	445	600	58
350	550	505	670	78
400	600	565	720	97
450		615	765	110
500		670	820	122
600		780	930	161
700	700	860	1010	241
800	800	975	1110	420
900	900	1075	1210	541
1000	1000	1175	1310	668
1200	1200	1405	1540	858

CALIBER( mm )	SIZE			WEIGHT(kg)	
	L	W	H		
15	200	95	220	5.5	
20		105	220	6	
25		115	220	6.3	
32		140	220	6.6	
40		150	220	7.1	
50		165	225	9.4	
65		185	255	10.1	
80		200	275	11.8	
100	250	220	285	14.2	
125		250	315	17.4	
150		300	285	345	24.1
200		350	340	400	32.2
250	450	395	465	43	
300	500	445	505	58	
350	550	505	575	78	
400	600	565	625	97	
450		615	670	112	
500		670	725	122	
600		780	835	161	
700	700	860	915	241	
800	800	975	1015	420	
900	900	1075	1115	541	
1000	1000	1175	1215	668	
1200	1200	1405	1445	858	

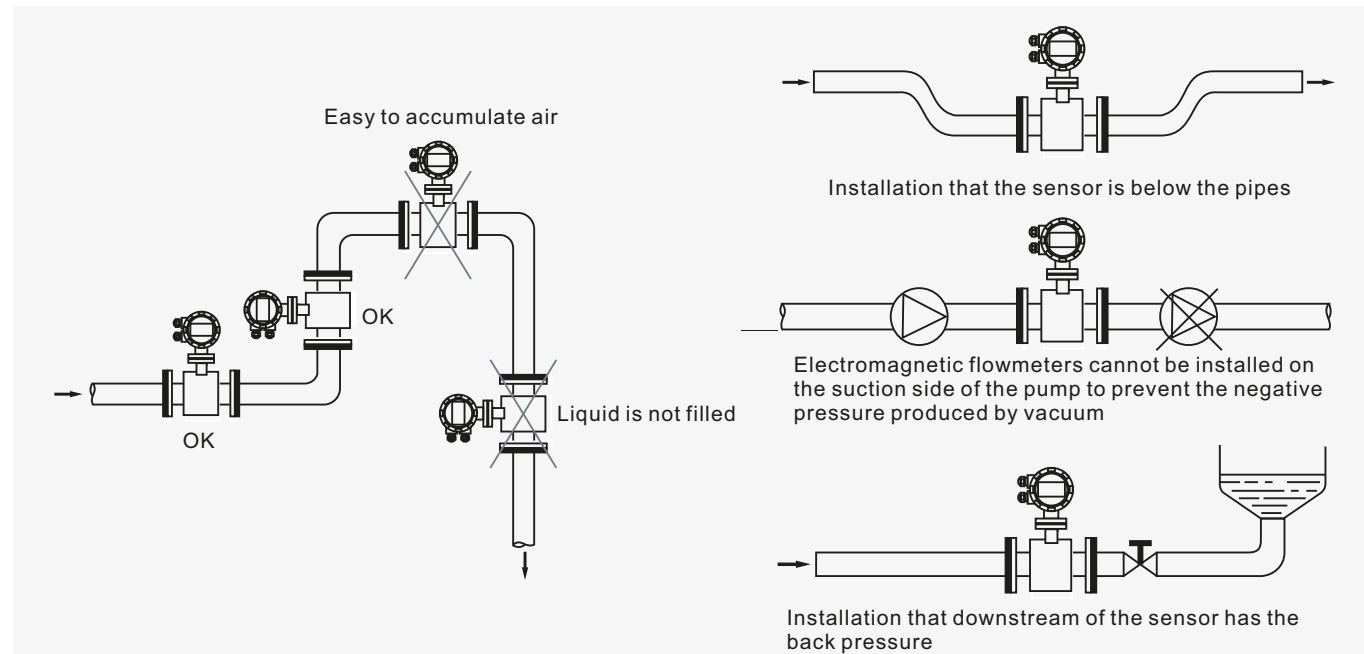
Note: Here the size and weight of electromagnetic flowmeter may differ from the product and it can be standardized according to actual object.

## Installation

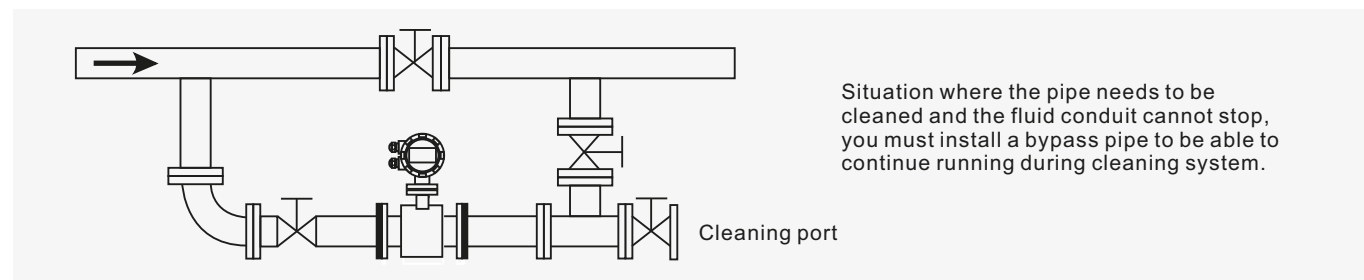
### Straight pipe length requirements



### Recommended mounting position



### The connection which is easy to clean pipe

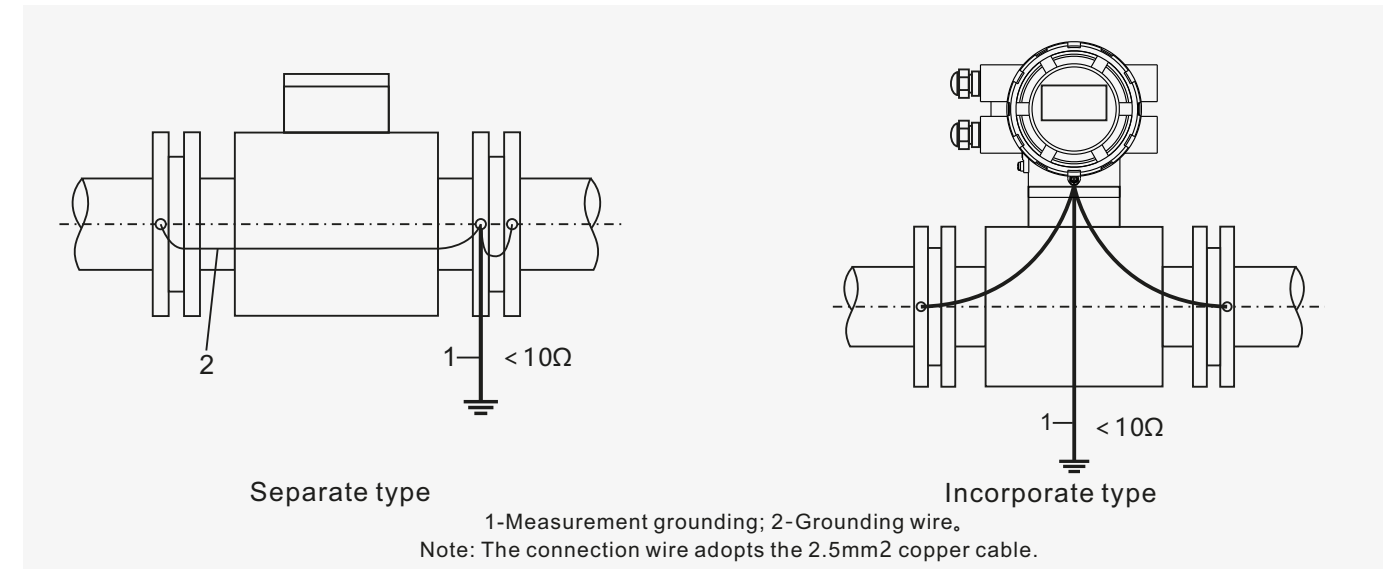


## Grounding

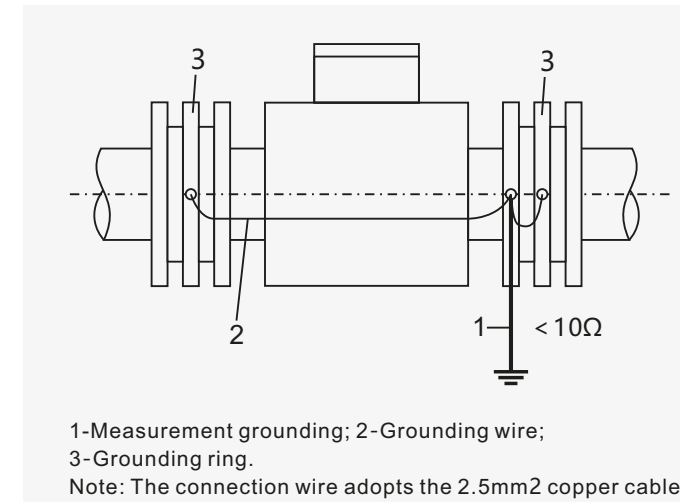
Electromagnetic Flowmeter sensor should be well grounded, the measuring accuracy of flowmeter depends on the grounding effect in a considerable extent.

Sensor grounding at different installation situation

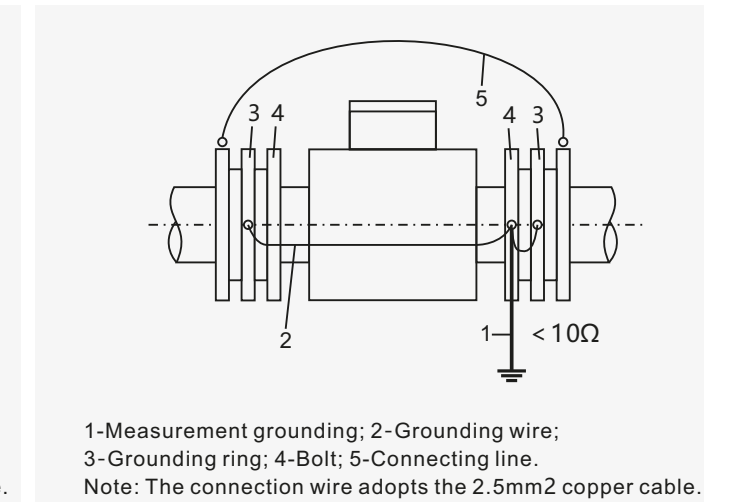
1. Grounding that sensor mounted on metal pipe.



2. Grounding that the sensor mounted on the insulating pipes.



3. Grounding that the sensor installed on the cathodic protection pipe



4. The sensor is installed in the pipeline stray strong current place

