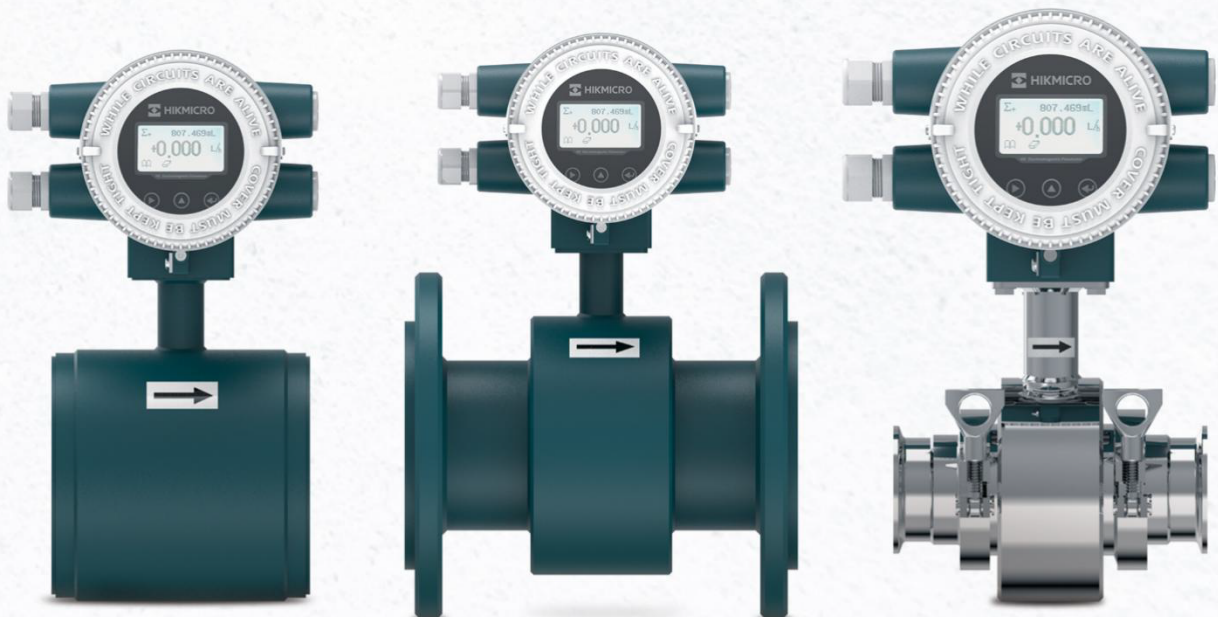




# HIKMICRO

## Electromagnetic Flow Meter





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## Benefits

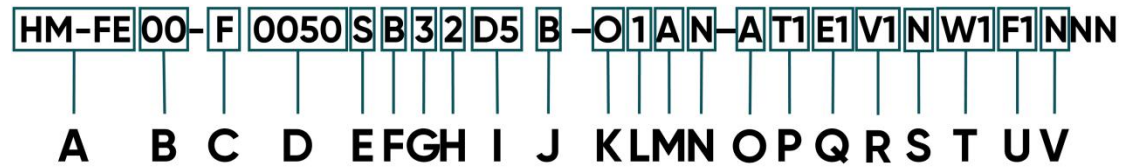
- ♦ Energy-saving flow measurement – no pressure loss due to cross-section constriction
- ♦ Maintenance-free – no moving parts
- ♦ Good corrosion resistance and abrasion resistance with multiple selection of lining and electrodes
- ♦ Low installation requirements, the front straight pipe section is not less than 5D, and the rear straight pipe section is not less than 2D (D is the inner diameter of the selected instrument).
- ♦ High accurate measurement, reaching  $\pm 0.3\%$  of the indicated value
- ♦ Low power consumption, less than 15VA
- ♦ The transmitters are interchangeable and accuracy can be achieved without recalibration of the actual flow
- ♦ Wide measuring range, up to 1000:1
- ♦ High input impedance of the converter ( $>10^{12} \Omega$ ), suitable for measuring low conductivity media  $\geq 1\mu\text{S/cm}$
- ♦ Flexible sensor & transmitter styles to ensure compatibility in various application

## Product Selection Guide

Several sensor types, liner types, electrode materials, electrode types, grounding options are available for FE0 Series Magnetic Flowmeters to ensure compatibility with any application and installation. The following tables are listed for the guidance on selecting those types and materials.



## Mode Code Structure



- A. Base Model-Magnetic Flow Meter
- B. Series
- C. Connection
- D. Line Size
- E. Electrode Material
- F. Grounding
- G. Lining Material
- H. Temp. Range
- I. Pipeline Pressure Standards
- J. Sensor Protection Rating
- K. Structure Type

- L. Output Signal
- M. Power Supply
- N. Flameproof
- O. Accuracy
- P. Flange (ring) Material
- Q. Sensor Housing Material
- R. Sensor Appearance Processing
- S. Signal Line Length for Remote Mount
- T. Sealing Plug
- U. PIO Configuration
- V. Sealing Gasket Material

The starred (★) offerings represent the available options and the letters in the brackets of the table's title represent the mode code.



**Table 1. Series Selection (B)**

| Code | Description             |
|------|-------------------------|
| 00   | Standard series         |
| 01   | Low conductivity series |
| 02   | Micro flow series       |
| 03   | Slurry series           |

**Table 2. Connection Selection (C)**

| Code | Description        |
|------|--------------------|
| F    | Flanged            |
| J    | Wafer (flangeless) |
| K    | Hygienic           |

Based on Table 1 and Table 2, the sensor can be divided into the following categories.

**Table 3. Sensor Category**

| Series (B) | Connection (C) | General Characteristics                                             |
|------------|----------------|---------------------------------------------------------------------|
| 00         | F              | Standard Process Sensor                                             |
|            |                | Flanged Process Connections                                         |
|            |                | 10mm (3/8 in.) to 1200mm (48 in.)                                   |
|            |                | Carbon Steel Housing (stainless steel housing is optional)          |
|            |                | Conductivity $\geq 5\mu\text{S/cm}$ , Flow Rate Range: 0.5~12m/s    |
| 00         | J              | Standard Process Sensor                                             |
|            |                | Wafer (flangeless) Design                                           |
|            |                | Economical, compact, and lightweight alternative to flanged sensors |
|            |                | 25mm (1 in.) to 200mm (8 in.)                                       |
|            |                | Carbon Steel Housing (stainless steel housing is optional)          |
| 00         | K              | Standard Process Sensor                                             |
|            |                | Hygienic Sensor                                                     |
|            |                | Designed for food, beverage, and pharmaceutical applications        |
|            |                | 15mm (1/2 in.) to 80mm (3 in.)                                      |
|            |                | 304 Stainless Steel ( 316 , 316L optional )                         |
| 01         | F              | Low Conductivity Process Sensor                                     |
|            |                | Flanged Process Connections                                         |
|            |                | 10mm (3/8 in.) to 600mm (24 in.)                                    |
|            |                | Carbon Steel Housing (stainless steel housing is optional)          |
|            |                | Conductivity $\geq 1\mu\text{S/cm}$ , Flow Rate Range: 0.5~12m/s    |
| 01         | J              | Low Conductivity Process Sensor                                     |
|            |                | Wafer (flangeless) Design                                           |
|            |                | Economical, compact, and lightweight alternative to flanged sensors |
|            |                | 50mm (2 in.) to 200mm (8 in.)                                       |
|            |                | Carbon Steel Housing (stainless steel housing is optional)          |
|            |                | Conductivity $\geq 1\mu\text{S/cm}$ , Flow Rate Range: 0.5~12m/s    |

|    |   |                                                                     |
|----|---|---------------------------------------------------------------------|
| 01 | K | Low Conductivity Process Sensor                                     |
|    |   | Hygienic Sensor                                                     |
|    |   | Designed for food, beverage, and pharmaceutical applications        |
|    |   | 15mm (1/2 in.) to 80mm (3 in.)                                      |
|    |   | 304 Stainless Steel ( 316 , 316L optional )                         |
|    |   | Conductivity $\geq 1\mu\text{S/cm}$ , Flow Rate Range: 0.5~12m/s    |
| 02 | F | Micro Flow Process Sensor                                           |
|    |   | Flanged Process Connections                                         |
|    |   | 10mm (3/8 in.) to 40mm (3/2 in.)                                    |
|    |   | Carbon Steel Housing (stainless steel housing is optional)          |
|    |   | Conductivity $\geq 5\mu\text{S/cm}$ , Flow Rate Range: 0.01~12m/s   |
| 02 | K | Micro Flow Process Sensor                                           |
|    |   | Hygienic Sensor                                                     |
|    |   | Designed for food, beverage, and pharmaceutical applications        |
|    |   | 10mm (3/8 in.) to 40mm (3/2 in.)                                    |
|    |   | 304 Stainless Steel ( 316 , 316L optional )                         |
|    |   | Conductivity $\geq 5\mu\text{S/cm}$ , Flow Rate Range: 0.01~12m/s   |
| 03 | F | Slurry Process Sensor                                               |
|    |   | Flanged Process Connections                                         |
|    |   | 10mm (3/8 in.) to 600mm (24 in.)                                    |
|    |   | Carbon Steel Housing (stainless steel housing is optional)          |
|    |   | Conductivity $\geq 5\mu\text{S/cm}$ , Flow Rate Range: 1~12m/s      |
| 03 | J | Slurry Process Sensor                                               |
|    |   | Wafer (flangeless) Design                                           |
|    |   | Economical, compact, and lightweight alternative to flanged sensors |
|    |   | 50mm (2 in.) to 200mm (8 in.)                                       |
|    |   | Carbon Steel Housing (stainless steel housing is optional)          |
|    |   | Conductivity $\geq 5\mu\text{S/cm}$ , Flow Rate Range: 1~12m/s      |

*Note: The rest of selections depends on the sensor category, so code of series and connection will be combined to generate the code of sensor (e.g. 00F for standard series with flanged connection).*



**Table 4. Magnetic Flow meter Line Size Selection (D)**

| 00F           | 00J           | 00K           | 01F           | 01J           | 01K           | 02F           | 02K           | 03F           | 03J           |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 0010-<br>1200 | 0025-<br>0200 | 0015-<br>0080 | 0010-<br>0600 | 0050-<br>0200 | 0015-<br>0080 | 0010-<br>0040 | 0015-<br>0040 | 0010-<br>0600 | 0050-<br>0200 |

The selected flowmeter sizing is not necessarily the same as the connected pipe diameter, and should be determined according to the flow rate of medium inside pipe.

Generally speaking, the flow rate is 0.5m/s~5m/s, which is the economical flow rate, and the sensor sizing can be the same as the pipe diameter. Unless the medium is less abrasive and abrasion-resistant materials are used, it is recommended that the long-term working flow rate should not exceed 7m/s.

For fluids containing substances that are easy to adhere, precipitate, scale, etc., it is recommended to use a common flow rate of not less than 2m/s, preferably 3m/s~4m/s or above, to play a role in self-cleaning, preventing adhesion and precipitation.

For fluids with strong abrasiveness such as slurry, the common flow rate should be lower than 3m/s to reduce abrasion on the lining and electrodes.

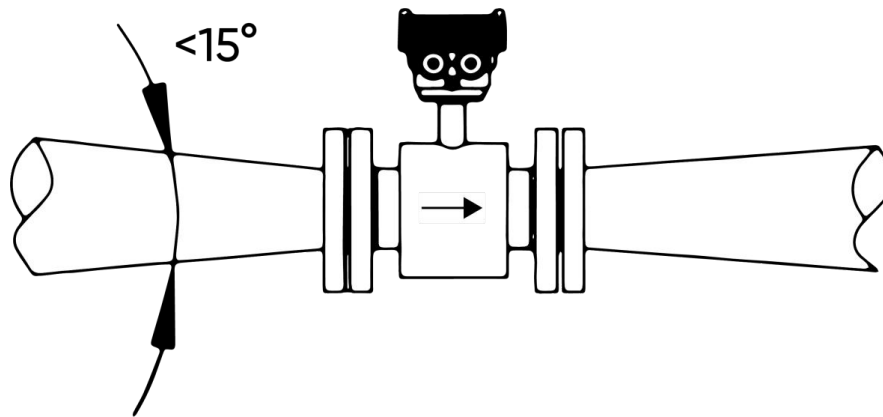
When measuring low-conductivity media with a conductivity of  $1\mu\text{S}/\text{cm}$ ~ $5\mu\text{S}/\text{cm}$ , try to choose a low flow rate (0.5m/s~1m/s), because the flow noise will increase with the increase of flow rate, and the output will shake.

It is suggested to select the same diameter of the sensor as the process pipe to be connected, which is very convenient for installation. However, in the following cases, the diameter of the sensor can be different from the diameter of the connected process pipeline:

**A.** The flow rate in the pipeline is low, and the process flow rate is relatively stable. In order to meet the flow rate range requirements of the flowmeter, the flow rate is partially increased in the flowmeter part, the sensor sizing is selected to be smaller than the process pipeline diameter, and a reducer is added before and after the sensor.

**B.** Considering the price, for large-diameter electromagnetic flowmeters, the larger the diameter, the higher the price. For the situation where the flow rate in the pipeline is low and the process parameters are stable, a smaller-diameter sensor can be selected, which can not only make the flowmeter run in a better working state, but also reduce the purchase cost.

**Issues to be noted when installing reducers:** In order not to affect the distribution of the velocity field too much and the measurement accuracy of the instrument, the central cone angle  $\alpha$  of the reducer is not greater than  $15^\circ$ , so that the reducer can be regarded as a part of the straight pipe section.



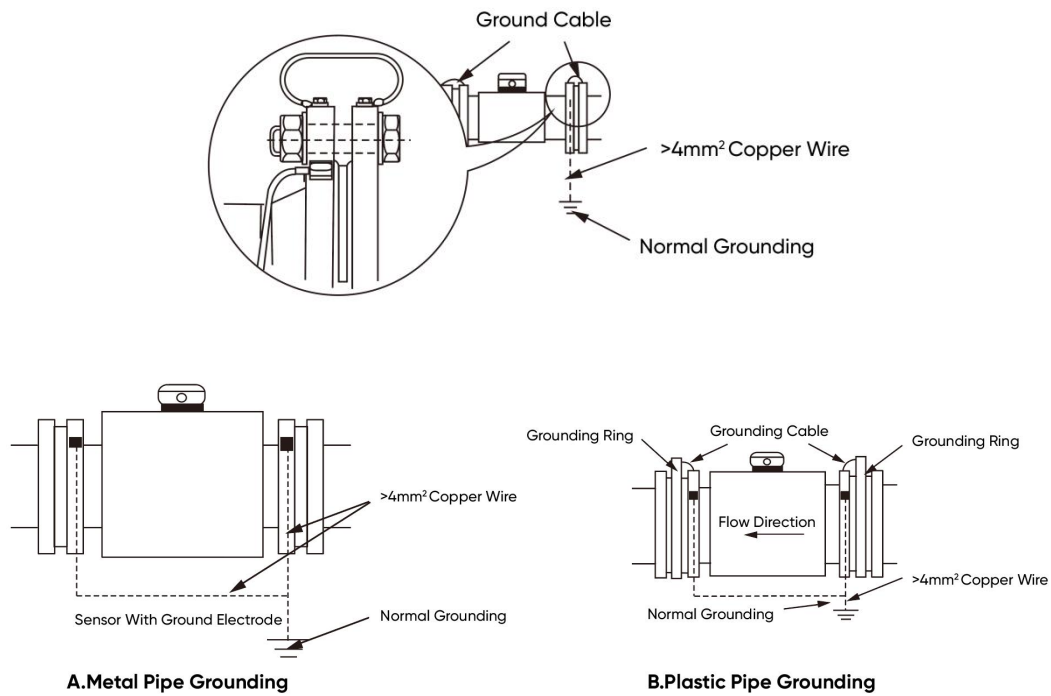
**Table 5. Electrode Material Selection (E)**

| Code | General Characteristics                                                                                                                                                                                        | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| S    | 316L Stainless Steel (316L): Used for measuring water, sewage or slightly corrosive media such as inorganic and organic acids                                                                                  | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| C    | Hastelloy C (HC): Resistant to oxidizing acids, such as nitric acid and mixed acid; also resistant to corrosion by oxidizing salts or other oxidants                                                           | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |
| L    | Titanium (Ti): It is very similar to glass. It is resistant to almost all chemical media except hydrofluoric acid, fuming sulfuric acid, fuming nitric acid, and alkali                                        | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |
| T:   | Tantalum (Ta) : It is resistant to corrosion from seawater, various chlorides and hypochlorites, oxidizing acids, organic acids, alkalis, etc., but not resistant to pure reducing acids                       | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |
| W    | Tungsten Carbide: Good abrasion resistance, can be used for measuring highly abrasive media, such as slurry; can also be used to reduce the noise caused by particles impacting the electrode. E.g. paper pulp | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |
| Y    | Platinum-iridium Alloy: Good corrosion resistance to various acids, alkalis and salts; not resistant to aqua regia corrosion                                                                                   | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |

**Table 6. Grounding Selection (F)**

| Code | Description                           | 00F                | 00J               | 00K | 01F                | 01J               | 01K | 02F                | 02K | 03F                | 03J               |
|------|---------------------------------------|--------------------|-------------------|-----|--------------------|-------------------|-----|--------------------|-----|--------------------|-------------------|
| N    | Dielectric Grounding (Dual Electrode) |                    |                   | ★   |                    |                   | ★   |                    | ★   |                    |                   |
| S    | Standard 304 Grounding Ring           | ★<br>(DN10-DN600)  | ★<br>(DN25-DN200) |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |     | ★<br>(DN10-DN600)  |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |
| A    | 304 Grounding Ring with Neck          | ★<br>(DN25-DN600)  | ★<br>(DN25-DN200) |     | ★<br>(DN25-DN600)  | ★<br>(DN50-DN200) |     | ★<br>(DN25-DN600)  |     | ★<br>(DN25-DN600)  | ★<br>(DN50-DN200) |
| B    | Ground Electrode (Three Electrodes)   | ★<br>(DN10-DN1200) | ★<br>(DN25-DN200) |     | ★<br>(DN10-DN1200) | ★<br>(DN50-DN200) |     | ★<br>(DN10-DN1200) |     | ★<br>(DN10-DN1200) | ★<br>(DN50-DN200) |
| F    | 316L Standard Grounding Ring          | ★<br>(DN10-DN600)  | ★<br>(DN25-DN200) |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |     | ★<br>(DN10-DN600)  |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |
| C    | Standard HC Grounding Ring            | ★<br>(DN10-DN600)  | ★<br>(DN25-DN200) |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |     | ★<br>(DN10-DN600)  |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |
| L    | Standard Ti Grounding Ring            | ★<br>(DN10-DN600)  | ★<br>(DN25-DN200) |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |     | ★<br>(DN10-DN600)  |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |
| T    | Standard TA Grounding Ring            | ★<br>(DN10-DN600)  | ★<br>(DN25-DN200) |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |     | ★<br>(DN10-DN600)  |     | ★<br>(DN10-DN600)  | ★<br>(DN50-DN200) |

The induction signal voltage of the electromagnetic flowmeter is very small and is easily affected by external noise or other electromagnetic signals. The function of the grounding ring is to form a space to shield external interference by grounding the flowmeter shell, thereby improving the measurement accuracy. (If the user uses non-metallic pipes, the grounding ring must be installed. It should be noted when ordering that the grounding ring option should be selected). Even for metal pipes, the instrument should be reliably and separately grounded, and the grounding resistance should be less than 10 ohms. The following is the installation method of the instrument under different conditions:



**Table 7. Lining Material Selection (G)**

| Code | General Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2    | <p>Fluorinated ethylene propylene (FEP):</p> <ol style="list-style-type: none"> <li>1. Hydrophobic and non-sticky.</li> <li>2. Its corrosion resistance is second only to PFA.</li> <li>3. Good resistance to negative pressure; When the negative pressure resistance requirement is high, metal mesh can be added to improve negative pressure resistance.</li> <li>4. Poor abrasion resistance.</li> </ol>                                                                                                                                                                                                                                 | ★   |     | ★   | ★   |     | ★   | ★   | ★   | ★   |     |
| 3    | <p>Polytetrafluoroethylene (PTFE):</p> <ol style="list-style-type: none"> <li>1. It is the material with the most stable chemical properties among plastics, resistant to boiling hydrochloric acid, sulfuric acid, nitric acid and aqua regia, as well as concentrated alkali and various organic solvents. Not resistant to corrosion by chlorine trifluoride, high temperature oxygen trifluoride, high flow rate liquid fluorine, liquid oxygen, and ozone.</li> <li>2. Poor abrasion resistance.</li> <li>3. Poor negative pressure resistance, easy to cause lining deformation or breakage, resulting in electrode leakage.</li> </ol> | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |



|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |  |  |   |  |  |   |  |   |  |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|--|---|--|--|---|--|---|--|
| 4 | Polyurethane (PU):<br>1. Excellent abrasion resistance and elasticity;<br>2. Poor acid and alkali resistance;                                                                                                                                                                                                                                                                                                                                         | ★ |  |  |   |  |  | ★ |  | ★ |  |
| 5 | Fusible polytetrafluoroethylene (PFA):<br>1. Good hydrophobicity and non-stickiness, strong high temperature resistance.<br>2. Excellent corrosion resistance, resistant to strong acid, Alkali, organic solvents and various salt solutions.<br>3. Good resistance to negative pressure; When the negative pressure resistance requirement is high, metal mesh can be added to improve negative pressure resistance.<br>4. Poor abrasion resistance. | ★ |  |  | ★ |  |  | ★ |  | ★ |  |

**Table 8. Lining Material Selection for Specific Sizing**

|         |     | FE01 |     |     | FE02 |    |     |     | FE03 |    |     |     |
|---------|-----|------|-----|-----|------|----|-----|-----|------|----|-----|-----|
|         |     | PTFE | FEP | PFA | PTFE | PU | FEP | PFA | PTFE | PU | FEP | PFA |
| Flanged | 10  |      | ★   | ★   |      |    | ★   | ★   |      |    | ★   | ★   |
|         | 15  |      | ★   | ★   |      |    | ★   | ★   |      |    | ★   | ★   |
|         | 20  | ★    | ★   | ★   | ★    |    | ★   | ★   | ★    |    | ★   | ★   |
|         | 25  | ★    | ★   | ★   | ★    | ★  | ★   | ★   | ★    | ★  | ★   | ★   |
|         | 32  | ★    | ★   | ★   | ★    | ★  | ★   | ★   | ★    | ★  | ★   | ★   |
|         | 40  | ★    | ★   | ★   | ★    | ★  | ★   | ★   | ★    | ★  | ★   | ★   |
|         | 50  | ★    | ★   | ★   | ★    | ★  | ★   | ★   | ★    | ★  | ★   | ★   |
|         | 65  | ★    | ★   | ★   |      |    |     |     | ★    | ★  | ★   | ★   |
|         | 80  | ★    | ★   | ★   |      |    |     |     | ★    | ★  | ★   | ★   |
|         | 100 | ★    | ★   | ★   |      |    |     |     | ★    | ★  | ★   | ★   |
|         | 125 | ★    | ★   | ★   |      |    |     |     | ★    | ★  | ★   | ★   |
|         | 150 | ★    | ★   | ★   |      |    |     |     | ★    | ★  | ★   | ★   |



|                       |     |   |   |   |   |   |   |  |   |   |   |   |
|-----------------------|-----|---|---|---|---|---|---|--|---|---|---|---|
|                       | 200 | ★ | ★ | ★ |   |   |   |  | ★ | ★ | ★ | ★ |
|                       | 250 | ★ | ★ | ★ |   |   |   |  | ★ | ★ | ★ | ★ |
|                       | 300 | ★ | ★ | ★ |   |   |   |  | ★ | ★ | ★ | ★ |
|                       | 350 | ★ | ★ | ★ |   |   |   |  | ★ | ★ | ★ | ★ |
|                       | 400 | ★ | ★ | ★ |   |   |   |  | ★ | ★ | ★ | ★ |
|                       | 450 | ★ | ★ | ★ |   |   |   |  | ★ | ★ | ★ | ★ |
|                       | 500 | ★ |   |   |   |   |   |  | ★ | ★ |   |   |
|                       | 600 | ★ |   |   |   |   |   |  | ★ | ★ |   |   |
| Wafer<br>(Flangeless) | 50  | ★ |   |   | ★ | ★ |   |  | ★ | ★ |   |   |
|                       | 65  | ★ |   |   | ★ | ★ |   |  | ★ | ★ |   |   |
|                       | 80  | ★ |   |   | ★ | ★ |   |  | ★ | ★ |   |   |
|                       | 100 | ★ |   |   | ★ | ★ |   |  | ★ | ★ |   |   |
|                       | 125 | ★ |   |   | ★ | ★ |   |  | ★ | ★ |   |   |
|                       | 150 | ★ |   |   | ★ | ★ |   |  | ★ | ★ |   |   |
|                       | 200 | ★ |   |   | ★ | ★ |   |  | ★ | ★ |   |   |
| Hygienic              | 15  |   | ★ |   |   |   | ★ |  |   |   |   |   |
|                       | 20  |   | ★ |   |   |   | ★ |  |   |   |   |   |
|                       | 25  |   | ★ |   |   |   | ★ |  |   |   |   |   |
|                       | 32  |   | ★ |   |   |   | ★ |  |   |   |   |   |
|                       | 40  |   | ★ |   |   |   | ★ |  |   |   |   |   |
|                       | 50  |   | ★ |   |   |   | ★ |  |   |   |   |   |
|                       | 65  |   | ★ |   |   |   | ★ |  |   |   |   |   |
|                       | 80  |   | ★ |   |   |   | ★ |  |   |   |   |   |

Note: FE00 can select corresponding lining material in all sizing range.

**Table 9. Medium Temperature Selection (H)**

| Code | Description  | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0    | AT ~ 80°C    | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| 2    | AT ~ 110°C   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| 3    | AT ~ 140°C   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| 4    | AT ~ 180°C   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| 5    | -40°C ~ 80°C | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |

*Note: AT refers to Ambient Temperature. If the difference temperature of the medium and the ambient is larger than 15°C, it is recommended to select the low temperature as -40°C to avoid the condensation. Normally "AT" is enough.*

**Table 10. Pipeline Pressure Standards Selection (I)**

| Code | Description                             | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|-----------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| D1   | PN6 (Default Value for DN1200 ~ DN2000) | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| D2   | PN10 (Default Value for DN200 ~ DN1000) | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| D3   | PN16 (Default Value for DN80 ~ DN150)   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| D4   | PN25                                    | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |



|    |                                               |   |   |  |   |   |  |   |  |   |   |
|----|-----------------------------------------------|---|---|--|---|---|--|---|--|---|---|
| D5 | PN40<br>(Default<br>Value for<br>DN10 ~ DN65) | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| D6 | PN63                                          | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| D7 | PN100                                         | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| D8 | PN160                                         | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| D9 | PN250                                         | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| J1 | JIS 5K                                        | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| J2 | JIS 10K                                       | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| J3 | JIS16K                                        | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| J4 | JIS 20K                                       | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| J5 | JIS 30K                                       | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| C1 | ANSI CLASS<br>150#                            | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |
| C2 | ANSI CLASS<br>300#                            | ★ | ★ |  | ★ | ★ |  | ★ |  | ★ | ★ |



**Table 11. Flanged Connection, Line Size, Pressure Standards, Lining Material, and Applicable Temperature**

| Line Size | Pressure<br>(MPa) | Length<br>(mm) | Lining Material & Applicable Temperature |                           |      |    |
|-----------|-------------------|----------------|------------------------------------------|---------------------------|------|----|
|           |                   |                | FEP                                      | PFA                       | PTFE | PU |
| 10        | 4.0               | 150            | -40~140℃<br>( -40~284°F )                | -40~180℃<br>( -40~356°F ) | /    | /  |
| 15        |                   |                |                                          |                           |      |    |
| 20        |                   |                |                                          |                           |      |    |
| 25        |                   |                |                                          |                           |      |    |
| 32        |                   |                |                                          |                           |      |    |
| 40        |                   |                |                                          |                           |      |    |
| 50        |                   | 200            |                                          |                           |      |    |
| 65        |                   |                |                                          |                           |      |    |
| 80        |                   |                |                                          |                           |      |    |
| 100       | 1.6               | 250            |                                          |                           |      |    |
| 125       |                   |                |                                          |                           |      |    |
| 150       |                   | 300            |                                          |                           |      |    |
| 200       |                   | 350            |                                          |                           |      |    |
| 250       | 1.0               | 400            |                                          |                           |      |    |
| 300       |                   | 450            |                                          |                           |      |    |



|      |     |      |   |   |  |   |
|------|-----|------|---|---|--|---|
| 350  |     |      |   |   |  |   |
| 400  |     | 500  |   |   |  |   |
| 450  |     |      |   |   |  |   |
| 500  |     | 600  |   |   |  |   |
| 600  |     |      |   |   |  |   |
| 700  |     | 700  |   |   |  |   |
| 800  |     | 800  |   |   |  |   |
| 900  |     | 900  |   |   |  |   |
| 1000 |     | 1000 |   |   |  |   |
| 1200 | 0.6 | 1200 | / | / |  | / |
| 1400 |     | 1400 |   |   |  |   |
| 1600 |     | 1600 |   |   |  |   |
| 1800 |     | 1800 |   |   |  |   |
| 2000 |     | 2000 |   |   |  |   |



**Table 12. Flangeless (Wafer) Connection, Line Size, Lining Material, and Applicable Temperature**

| Line Size | Lining Material & Applicable Temperature |                         |                         |                        |
|-----------|------------------------------------------|-------------------------|-------------------------|------------------------|
|           | FEP                                      | PFA                     | PTFE                    | PU                     |
| 50        | -40~140°C ( -40~284°F )                  | -40~180°C ( -40~356°F ) | -40~110°C ( -40~230°F ) | -40~80°C ( -40~176°F ) |
| 65        |                                          |                         |                         |                        |
| 80        |                                          |                         |                         |                        |
| 100       |                                          |                         |                         |                        |
| 125       |                                          |                         |                         |                        |
| 150       |                                          |                         |                         |                        |
| 200       |                                          |                         |                         |                        |



**Table 13. Hygienic Connection, Line Size, Lining Material, and Applicable Temperature**

| Line Size | Lining Material & Applicable Temperature |
|-----------|------------------------------------------|
|           | FEP                                      |
| 15        | -40~140°C ( -40~284°F )                  |
| 20        |                                          |
| 25        |                                          |
| 32        |                                          |
| 40        |                                          |
| 50        |                                          |
| 65        |                                          |
| 80        |                                          |

**Table 14. Sensor Protection Degrees Selection (J)**

| Code | Description | Sensor + Integral Mount Transmitter | Sensor + Remote Mount Transmitter |
|------|-------------|-------------------------------------|-----------------------------------|
| A    | IP65        | ★                                   | ★                                 |
| B    | IP67        | ★                                   | ★                                 |
| C    | IP68        |                                     | ★                                 |

*Note: For remote mount transmitter, the highest protection degree is IP67.*



IP65 (Spray Type): It is allowed to spray water from any direction with a tap, the water pressure is 30kPa, the water output is 12.5L/Min, and the nozzle is 3m away from the instrument.

IP67 (Immersion Type): The instrument can be completely immersed in water for a short time (1m underwater), and the duration is 30Min.

IP68 (Submersible Type): It can work underwater for a long time (5m underwater), and the maximum depth is negotiated with the manufacturer.

The protection level should be selected according to the above requirements and the actual conditions of the instrument. When no protective box is designed for outdoor use, it should be considered that the instrument above IP66 should be installed in a cool place. Avoid direct sunlight, and special attention should be paid when used in hot climate areas. Avoid direct exposure to the climate environment.

If the instrument is installed below the ground and is often flooded or the instrument is installed on the ground with high air humidity or steam exposure environment, it is advisable to use a remote mount transmitter, the sensor is IP68, and the transmitter is placed in a protective box or indoors.

### Table 15. Transmitter Structure Type Selection (K)

[illegible]

Note: If the Temp. Range is chosen as "AT ~ 140°C" or "AT ~ 180°C", please choose Remote Mount as the structure Type.

### Table 16. Output Signal Selection (L)

[illegible]



**Table 17. Power Supply Selection (M)**

| Code | Description                          | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|--------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| D    | DC24V<br>(-20%~+15%)                 | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| A    | 220V AC<br>(-15%~+10%),<br>47.5~63Hz | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |

**Table 18. Flameproof Selection (N)**

| Code | Description                | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| N    | Non-explosion-<br>proof    | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| D    | Explosion-proof<br>(NEPSI) | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |

**Table 19. Accuracy Selection (O)**

| Code | Description       | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A    | 0.5%<br>(Default) | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| B:   | 0.3%              | ★   | ★   | ★   |     |     |     |     |     |     |     |

*Note: For FE02 series, the accuracy is 0.5% when the flow rate is above 0.3m/s, and 0.5%+1mm/s when it is less than 0.3m/s;*

**Table 20. Flange (ring) Material Selection (P)**

| Code | Description               | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| T1   | Carbon Steel<br>(Default) | ★   |     |     | ★   |     |     | ★   |     | ★   |     |
| T2   | 304 Stainless<br>Steel    | ★   |     |     | ★   |     |     | ★   |     | ★   |     |



|    |                      |   |  |  |   |  |  |   |  |   |  |
|----|----------------------|---|--|--|---|--|--|---|--|---|--|
| T4 | 316L Stainless Steel | ★ |  |  | ★ |  |  | ★ |  | ★ |  |
|----|----------------------|---|--|--|---|--|--|---|--|---|--|

Table 21. Sensor Housing Material Selection (Q)

| Code | Description            | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| E1   | Carbon Steel (Default) | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |
| E2   | 304 Stainless Steel    | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| E4   | 316L Stainless Steel   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |

Note: Table 20 and Table 21 are related. The flange ring material and sensor housing material need to be the same.

Table 22. Sensor Appearance Processing Selection (R)

| Code | Description                     | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| V1   | Polyurethane Coating (Default)  | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| V2   | Anti-Corrosion Epoxy Coating    | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| V3   | Enhanced Anti-Corrosion Coating | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| V4   | Polishing                       |     |     | ★   |     |     | ★   |     | ★   |     |     |



**Table 23. Signal Line Length Selection for Remote Mount Transmitter (S)**

| Code | Description    | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| N    | None (Default) | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| L10  | 10 meters      | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| L15  | 15 meters      | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| L20  | 20 meters      | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| L25  | 25 meters      | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| L30  | 30 meters      | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| L50  | 50 meters      | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| L70  | 70 meters      | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| L90  | 90 meters      | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |
| LA5  | 150 meters     | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |

The connecting cable between the sensor and the transmitter is a special multi-shielded cable. The cable length in the model specification table refers to this cable. Its length is related to the conductivity of the medium. The maximum length is 5 times the minimum conductivity, but generally does not exceed 100m (the length exceeding the limit is negotiated with the manufacturer). The connecting cable between the sensor and the transmitter is generally required to be protected by an iron pipe during on-site installation. The cable is not allowed to be connected continuously. If an accidental break or extension occurs, please purchase a special junction box with sealant to extend it.





|    |                      |   |   |   |   |   |   |   |   |   |   |
|----|----------------------|---|---|---|---|---|---|---|---|---|---|
| F8 | Flow Direction Alarm | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
|----|----------------------|---|---|---|---|---|---|---|---|---|---|

Pulse output: It is pulse signal output;

Empty Pipe Alarm: When the flow meter reports an empty pipe, it outputs a switch signal;

Contact Input: Receive a switch signal to clear the accumulated value;

Batch Control: When the accumulated amount reaches the set amount, a switch signal will be output;

Upper/Lower Limit Alarm: When the flow reaches the upper and lower limits, a switch alarm signal is output;

Flow Direction Alarm: When the flow direction is reversed, a switch alarm signal is output;

**Table 26. Sealing Gasket Material Selection (V)**

| Code | Description                          | 00F | 00J | 00K | 01F | 01J | 01K | 02F | 02K | 03F | 03J |
|------|--------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| N    | None (Default)                       | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |
| H2   | PTFE                                 | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |
| H3   | Metal PTFE<br>Spiral Wound<br>Gasket | ★   | ★   |     | ★   | ★   |     | ★   |     | ★   | ★   |
| H4   | O-Ring                               |     |     | ★   |     |     | ★   |     | ★   |     |     |

# Features and Specification

## Electromagnetic Sensor for Standard Process

|                               |                                                                                                                                                                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                               |                                                                                                                                             |  |  |  |  |  |
|                               | Integral Mount Transmitter                                                                                                                                                                                                   | Remote Mount Transmitter                                                          | Integral Mount Transmitter                                                        | Remote Mount Transmitter                                                           | Integral Mount Transmitter                                                          | Remote Mount Transmitter                                                            |
|                               | Flanged Sensor                                                                                                                                                                                                               |                                                                                   | Wafer (flangeless) Sensor                                                         |                                                                                    | Hygienic Sensor                                                                     |                                                                                     |
| Basic Error                   | 0.3% or ± 0.5% of indicated value                                                                                                                                                                                            |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Diameter                      | DN10~DN1200 (other diameters can be ordered by negotiation with our company)                                                                                                                                                 |                                                                                   | DN25~DN200 (other diameters can be ordered by negotiation with our company)       |                                                                                    | DN15~DN80 (other diameters can be ordered by negotiation with our company)          |                                                                                     |
| Electrode Materials           | 316L Stainless Steel, Hastelloy C , Hastelloy B , Titanium, Tantalum, Tungsten Carbide, Platinum-Iridium Alloy                                                                                                               |                                                                                   |                                                                                   |                                                                                    | 316L Stainless Steel                                                                |                                                                                     |
| Grounding Method              | Dielectric Grounding, Double Electrode; Standard 304 Grounding Ring; 304 Grounding Ring with Neck; Grounding Electrode, Three Electrodes; Standard Hc Grounding Ring; Standard Ti Grounding Ring; Standard Ta Grounding Ring |                                                                                   |                                                                                   |                                                                                    | NA                                                                                  |                                                                                     |
| Lining Material               | FEP , PTFE , PU , PFA                                                                                                                                                                                                        |                                                                                   | PTFE                                                                              |                                                                                    | FEP                                                                                 |                                                                                     |
| Ambient Temperature Range     | -25 °C ~55 °C                                                                                                                                                                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Output Signal                 | 4 ~ 20 mA + Pulse + MODBUS ; 4 ~ 20 mA + Pulse + MODBUS + HART ( 4mA~20mA analog output is active output)                                                                                                                    |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Power Supply                  | DC 24V ( -15%~+20% ); AC 220V ( -15%~+10% ), 47~63Hz                                                                                                                                                                         |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Conductivity                  | ≥ 5μS/cm ( negotiate with our company for order below 5μS/cm )                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Ambient Temperature Influence | < ± 0.15%/10 °C (Accuracy: 0.3%) or < ± 0.25%/10 °C (Accuracy: 0.5%)                                                                                                                                                         |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Repeatability                 | ≤± 0.1% (Accuracy: 0.3%) or ± 0.16% (Accuracy: 0.5%)                                                                                                                                                                         |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Analog Output Error           | ≤± 0.016mA                                                                                                                                                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Measuring Range Flow Rate     | 0.5~ 12m/s                                                                                                                                                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |

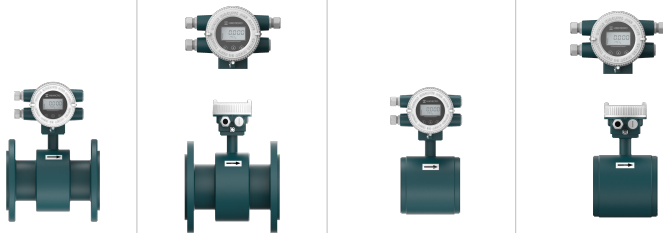
## Electromagnetic Sensor for Low Conductivity Process

|                               |                                                                                                                                                                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                               |                                                                                                                                             |  |  |  |  |  |
|                               | Integral Mount Transmitter                                                                                                                                                                                                   | Remote Mount Transmitter                                                          | Integral Mount Transmitter                                                        | Remote Mount Transmitter                                                           | Integral Mount Transmitter                                                          | Remote Mount Transmitter                                                            |
|                               | Flanged Sensor                                                                                                                                                                                                               |                                                                                   | Wafer (flangeless) Sensor                                                         |                                                                                    | Hygienic Sensor                                                                     |                                                                                     |
| Basic Error                   | 0.5% of indicated value                                                                                                                                                                                                      |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Diameter                      | DN10~DN600 (other diameters can be ordered by negotiation with our company)                                                                                                                                                  |                                                                                   | DN50~DN200 (other diameters can be ordered by negotiation with our company)       |                                                                                    | DN15~DN80 (other diameters can be ordered by negotiation with our company)          |                                                                                     |
| Electrode Materials           | 316L Stainless Steel, Hastelloy C , Hastelloy B , Titanium, Tantalum, Tungsten Carbide, Platinum-Iridium Alloy                                                                                                               |                                                                                   |                                                                                   |                                                                                    | 316L Stainless Steel                                                                |                                                                                     |
| Grounding Method              | Dielectric Grounding, Double Electrode; Standard 304 Grounding Ring; 304 Grounding Ring with Neck; Grounding Electrode, Three Electrodes; Standard Hc Grounding Ring; Standard Ti Grounding Ring; Standard Ta Grounding Ring |                                                                                   |                                                                                   |                                                                                    | NA                                                                                  |                                                                                     |
| Lining Material               | FEP , PTFE , PU , PFA                                                                                                                                                                                                        |                                                                                   | PTFE                                                                              |                                                                                    | FEP                                                                                 |                                                                                     |
| Ambient Temperature Range     | -25 °C ~55 °C                                                                                                                                                                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Output Signal                 | 4 ~ 20 mA + Pulse + MODBUS ; 4 ~ 20 mA + Pulse + MODBUS + HART ( 4mA~20mA analog output is active output)                                                                                                                    |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Power Supply                  | DC 24V ( -15%~+20% ); AC 220V ( -15%~+10% ), 47~63Hz                                                                                                                                                                         |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Conductivity                  | ≥ 1μS/cm ( negotiate with our company for order below 1μS/cm )                                                                                                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Ambient Temperature Influence | <±0.25%/10 °C                                                                                                                                                                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Repeatability                 | ≤0.16%                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Analog Output Error           | ≤±0.016mA                                                                                                                                                                                                                    |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Measuring Range Flow Rate     | 0.5~ 12m/s                                                                                                                                                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |

## Electromagnetic Sensor for Micro Flow Process

|                               |                                                                                                                                                                                                                              |                                                                                   |                                                                                    |                                                                                     |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                               |                                                                                                                                             |  |  |  |
|                               | Integral Mount Transmitter                                                                                                                                                                                                   | Remote Mount Transmitter                                                          | Integral Mount Transmitter                                                         | Remote Mount Transmitter                                                            |
|                               | Flanged Sensor                                                                                                                                                                                                               |                                                                                   | Hygienic Sensor                                                                    |                                                                                     |
| Basic Error                   | 0.5% of indicated value (0.3~12m/s); 0.5%+1mm/s (0.01~0.3m/s)                                                                                                                                                                |                                                                                   |                                                                                    |                                                                                     |
| Diameter                      | DN10~DN40 (other diameters can be ordered by negotiation with our company)                                                                                                                                                   |                                                                                   | DN15~DN40 (other diameters can be ordered by negotiation with our company)         |                                                                                     |
| Electrode Materials           | 316L Stainless Steel, Hastelloy C , Hastelloy B , Titanium, Tantalum, Tungsten Carbide, Platinum-Iridium Alloy                                                                                                               |                                                                                   | 316L Stainless Steel                                                               |                                                                                     |
| Grounding Method              | Dielectric Grounding, Double Electrode; Standard 304 Grounding Ring; 304 Grounding Ring with Neck; Grounding Electrode, Three Electrodes; Standard Hc Grounding Ring; Standard Ti Grounding Ring; Standard Ta Grounding Ring |                                                                                   | NA                                                                                 |                                                                                     |
| Lining Material               | FEP , PTFE , PU , PFA                                                                                                                                                                                                        |                                                                                   | FEP                                                                                |                                                                                     |
| Ambient Temperature Range     | -25℃~55℃                                                                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                     |
| Output Signal                 | 4 ~ 20 mA + Pulse + MODBUS ; 4 ~ 20 mA + Pulse + MODBUS + HART ( 4mA~20mA analog output is active output)                                                                                                                    |                                                                                   |                                                                                    |                                                                                     |
| Power Supply                  | DC 24V ( -15%~+20% ); AC 220V ( -15%~+10% ), 47~63Hz                                                                                                                                                                         |                                                                                   |                                                                                    |                                                                                     |
| Conductivity                  | ≥ 5μS/cm ( negotiate with our company for order below 5μS/cm )                                                                                                                                                               |                                                                                   |                                                                                    |                                                                                     |
| Ambient Temperature Influence | <±0.25%/10 ℃                                                                                                                                                                                                                 |                                                                                   |                                                                                    |                                                                                     |
| Repeatability                 | ≤0.16%                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                     |
| Analog Output Error           | ≤±0.016mA                                                                                                                                                                                                                    |                                                                                   |                                                                                    |                                                                                     |
| Measuring Range Flow Rate     | 0.01~ 12m/s                                                                                                                                                                                                                  |                                                                                   |                                                                                    |                                                                                     |

## Electromagnetic Sensor for Slurry Process

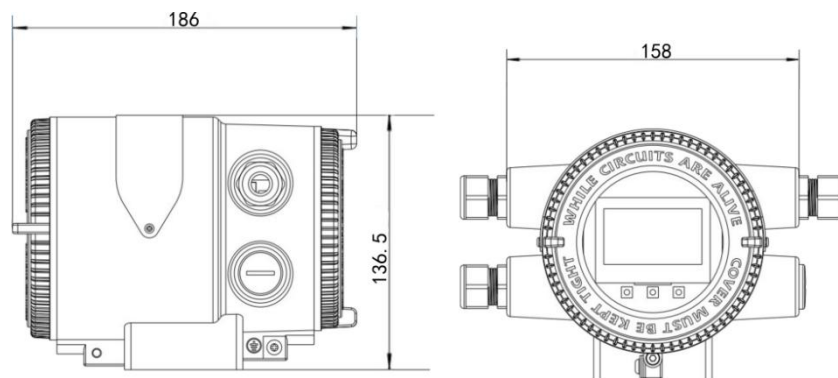
|                               |                                                                                                                                                                                                                              |                          |                                                                             |                          |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------|--------------------------|
|                               |                                                                                                                                            |                          |                                                                             |                          |
|                               | Integral Mount Transmitter                                                                                                                                                                                                   | Remote Mount Transmitter | Integral Mount Transmitter                                                  | Remote Mount Transmitter |
|                               | Flanged Sensor                                                                                                                                                                                                               |                          | Wafer (flangeless) Sensor                                                   |                          |
| Basic Error                   | 0.5% of indicated value                                                                                                                                                                                                      |                          |                                                                             |                          |
| Diameter                      | DN10~DN600 (other diameters can be ordered by negotiation with our company)                                                                                                                                                  |                          | DN50~DN200 (other diameters can be ordered by negotiation with our company) |                          |
| Electrode Materials           | 316L Stainless Steel, Hastelloy C , Hastelloy B , Titanium, Tantalum, Tungsten Carbide, Platinum-Iridium Alloy                                                                                                               |                          |                                                                             |                          |
| Grounding Method              | Dielectric Grounding, Double Electrode; Standard 304 Grounding Ring; 304 Grounding Ring with Neck; Grounding Electrode, Three Electrodes; Standard Hc Grounding Ring; Standard Ti Grounding Ring; Standard Ta Grounding Ring |                          |                                                                             |                          |
| Lining Material               | FEP , PTFE , PU , PFA                                                                                                                                                                                                        |                          | PTFE                                                                        |                          |
| Ambient Temperature Range     | -25℃~55℃                                                                                                                                                                                                                     |                          |                                                                             |                          |
| Output Signal                 | 4 ~ 20 mA + Pulse + MODBUS ; 4 ~ 20 mA + Pulse + MODBUS + HART ( 4mA~20mA analog output is active output)                                                                                                                    |                          |                                                                             |                          |
| Power Supply                  | DC 24V ( -15%~+20% ); AC 220V ( -15%~+10% ), 47~63Hz                                                                                                                                                                         |                          |                                                                             |                          |
| Conductivity                  | ≥ 5μS/cm ( negotiate with our company for order below 5μS/cm )                                                                                                                                                               |                          |                                                                             |                          |
| Ambient Temperature Influence | <±0.25%/10 °C                                                                                                                                                                                                                |                          |                                                                             |                          |
| Repeatability                 | ≤0.16%                                                                                                                                                                                                                       |                          |                                                                             |                          |
| Analog Output Error           | ≤±0.016mA                                                                                                                                                                                                                    |                          |                                                                             |                          |
| Measuring Range Flow Rate     | 1~ 12m/s                                                                                                                                                                                                                     |                          |                                                                             |                          |



## Dimensional Drawings

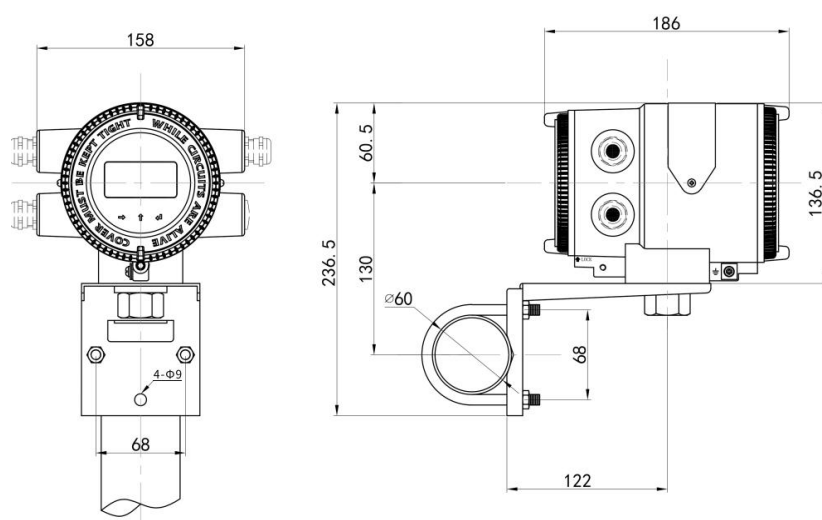
### Integral Mount Transmitter

Unit: mm



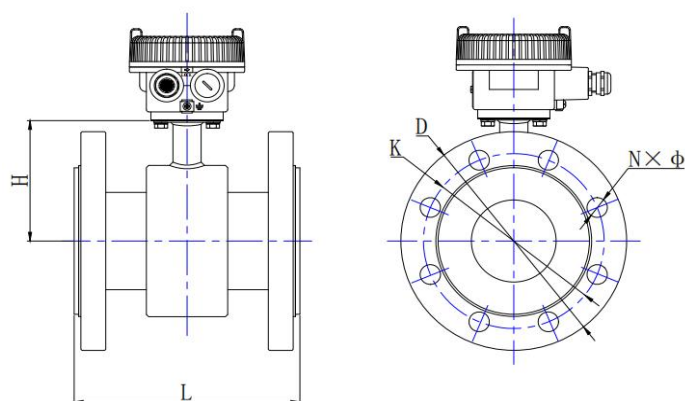
### Remote Mount Transmitter (With Bracket)

Unit: mm



### Flanged Sensor

Unit: mm



| Size<br>(mm) | Nominal<br>Pressure<br>(MPa) | Overall Dimensions<br>(mm) |      |      | Connection Dimensions (mm) |                     |                 | Weight<br>(Kg) |
|--------------|------------------------------|----------------------------|------|------|----------------------------|---------------------|-----------------|----------------|
|              |                              | L                          | D    | H    | K                          | N<br>(No. of holes) | Φ<br>(Diameter) |                |
| 10           | 4.0                          | 150                        | 90   | 84   | 60                         | 4                   | 14              | 3.5            |
| 15           |                              |                            | 95   | 84   | 65                         |                     |                 |                |
| 20           |                              |                            | 105  | 84   | 75                         |                     |                 | 4.5            |
| 25           |                              |                            | 115  | 90   | 85                         |                     |                 |                |
| 32           |                              |                            | 140  | 93   | 100                        | 4                   | 18              | 6.5            |
| 40           |                              |                            | 150  | 93   | 110                        |                     |                 | 7.0            |
| 50           |                              | 200                        | 165  | 100  | 125                        | 8                   | 18              | 9.5            |
| 65           |                              |                            | 185  | 113  | 145                        |                     |                 | 12             |
| 80           | 1.6                          | 200                        | 200  | 113  | 160                        |                     |                 | 18             |
| 100          |                              |                            | 250  | 220  | 126                        | 180                 | 17              |                |
| 125          |                              | 250                        |      | 138  | 210                        | 21                  |                 |                |
| 150          |                              | 1.0                        | 300  | 285  | 151                        | 240                 | 8               | 22             |
| 200          | 350                          |                            | 340  | 190  | 295                        | 36                  |                 |                |
| 250          | 400                          |                            | 395  | 222  | 350                        | 12                  | 22              | 49             |
| 300          |                              |                            | 450  | 445  | 248                        |                     |                 | 400            |
| 350          | 505                          |                            |      | 264  | 460                        | 16                  | 22              | 79             |
| 400          | 500                          |                            | 565  | 299  | 515                        | 16                  | 26              | 99             |
| 450          | 600                          |                            | 615  | 325  | 565                        | 20                  | 26              | 121            |
| 500          |                              |                            | 670  | 360  | 620                        |                     |                 | 143            |
| 600          |                              |                            | 780  | 412  | 725                        | 20                  | 30              | 187            |
| 700          | 700                          |                            | 895  | 445  | 840                        | 24                  | 30              | 260            |
| 800          | 800                          |                            | 1015 | 492  | 950                        | 24                  | 33              | 342            |
| 900          | 900                          |                            | 1115 | 555  | 1050                       | 28                  | 33              | 420            |
| 1000         | 1000                         | 1230                       | 605  | 1160 | 28                         | 36                  | 503             |                |
| 1200         | 0.6                          | 1200                       | 1405 | 705  | 1340                       | 32                  | 33              | 666            |



| Size<br>(mm) | Nominal<br>Pressure<br>(Class) | Overall Dimensions<br>(mm) |     |     | Connection Dimensions (mm) |                     |                 | Weight<br>(kg) |
|--------------|--------------------------------|----------------------------|-----|-----|----------------------------|---------------------|-----------------|----------------|
|              |                                | L                          | D   | H   | K                          | N<br>(No. of holes) | Φ<br>(Diameter) |                |
| 15           | Class 300                      | 200                        | 95  | 84  | 66.7                       | 4                   | 18              | 4.8            |
| 20           |                                |                            | 115 | 84  | 82.6                       |                     |                 | 5.1            |
| 25           |                                |                            | 125 | 90  | 88.9                       |                     |                 | 5.5            |
| 32           |                                |                            | 135 | 93  | 98.4                       |                     |                 | 6.7            |
| 40           |                                |                            | 155 | 93  | 114.3                      | 4                   | 22              | 7.5            |
| 50           |                                |                            | 165 | 100 | 127                        | 8                   | 18              | 9.1            |
| 65           |                                |                            | 190 | 113 | 149.2                      | 8                   | 22              | 11.2           |
| 80           |                                |                            | 210 | 113 | 168.3                      |                     |                 | 13             |
| 100          |                                | 250                        | 255 | 126 | 200                        |                     |                 | 15             |
| 125          |                                |                            | 280 | 138 | 235                        |                     |                 | 19             |
| 150          |                                | 300                        | 320 | 151 | 269.9                      | 12                  | 22              | 24             |
| 200          |                                | 350                        | 380 | 190 | 330.2                      | 12                  | 26              | 37             |
| 250          |                                | 400                        | 445 | 222 | 387.4                      | 16                  | 30              | 50             |
| 300          |                                | 450                        | 520 | 248 | 450.8                      | 16                  | 33              | 70             |
| 350          |                                |                            | 585 | 264 | 514.4                      | 20                  | 33              | 92             |
| 400          |                                | 500                        | 650 | 299 | 571.5                      | 20                  | 36              | 115            |
| 450          |                                | 600                        | 710 | 325 | 628.6                      | 24                  | 36              | 140            |
| 500          |                                |                            | 775 | 360 | 685.8                      |                     | 36              | 160            |
| 600          |                                |                            | 915 | 412 | 812.8                      | 24                  | 42              | 188            |
| 15           | Class 150                      | 200                        | 90  | 84  | 60.3                       | 4                   | 16              | 4.6            |
| 20           |                                |                            | 100 | 84  | 69.9                       |                     |                 | 4.9            |
| 25           |                                |                            | 110 | 90  | 79.4                       |                     |                 | 5.3            |
| 32           |                                |                            | 115 | 93  | 88.9                       |                     |                 | 6.5            |
| 40           |                                |                            | 125 | 93  | 98.4                       | 4                   | 18              | 7.2            |
| 50           |                                |                            | 150 | 100 | 120.7                      |                     |                 | 8.8            |
| 65           |                                |                            | 180 | 113 | 139.7                      |                     |                 | 10.8           |
| 80           |                                |                            | 190 | 113 | 152.4                      |                     |                 | 12.5           |
| 100          |                                | 250                        | 230 | 126 | 190.5                      | 8                   | 22              | 14             |
| 125          |                                |                            | 255 | 138 | 215.9                      |                     |                 | 18             |
| 150          |                                | 300                        | 280 | 151 | 241.3                      | 8                   | 22              | 22             |
| 200          |                                | 350                        | 380 | 190 | 330.2                      | 12                  | 26              | 36             |
| 250          |                                | 400                        | 445 | 222 | 387.4                      | 16                  | 30              | 50             |
| 300          |                                | 450                        | 520 | 248 | 450.8                      | 16                  | 33              | 71             |
| 350          |                                |                            | 585 | 264 | 514.4                      | 20                  | 33              | 90             |
| 400          |                                | 500                        | 650 | 299 | 571.5                      | 20                  | 36              | 112            |
| 450          |                                | 600                        | 710 | 325 | 628.6                      | 24                  | 36              | 138            |
| 500          |                                |                            | 775 | 360 | 685.8                      |                     | 36              | 158            |
| 600          |                                |                            | 915 | 412 | 812.8                      | 24                  | 42              | 185            |



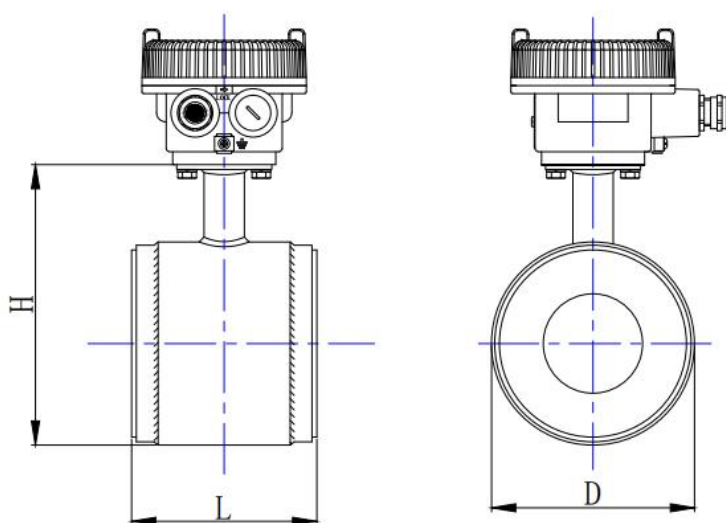
| Size<br>(mm) | Nominal<br>Pressure<br>(JIS) | Overall Dimensions<br>(mm) |     |     | Connection Dimensions (mm) |                     |                 | Weight<br>(kg) |
|--------------|------------------------------|----------------------------|-----|-----|----------------------------|---------------------|-----------------|----------------|
|              |                              | L                          | D   | H   | K                          | N<br>(No. of holes) | Φ<br>(Diameter) |                |
| 10           | 30K                          | 200                        | 110 | 84  | 75                         | 4                   | 19              | 4.6            |
| 15           |                              |                            | 115 | 84  | 80                         |                     |                 | 4.8            |
| 20           |                              |                            | 120 | 84  | 85                         |                     |                 | 5.1            |
| 25           |                              |                            | 130 | 90  | 95                         |                     |                 | 5.5            |
| 32           |                              |                            | 140 | 93  | 105                        |                     |                 | 6.7            |
| 40           |                              |                            | 160 | 93  | 120                        | 4                   | 23              | 7.5            |
| 50           |                              | 250                        | 165 | 100 | 130                        | 8                   | 19              | 9.1            |
| 65           |                              |                            | 200 | 113 | 160                        | 8                   | 23              | 11.2           |
| 80           |                              |                            | 210 | 113 | 170                        |                     |                 | 13             |
| 100          |                              | 250                        | 240 | 126 | 195                        | 8                   | 25              | 15             |
| 125          |                              |                            | 275 | 138 | 230                        |                     |                 | 19             |
| 150          |                              | 300                        | 325 | 151 | 275                        | 12                  | 27              | 24             |
| 200          |                              | 350                        | 370 | 190 | 320                        |                     |                 | 37             |
| 250          |                              | 400                        | 450 | 222 | 390                        | 12                  | 33              | 50             |
| 300          |                              | 450                        | 515 | 248 | 450                        | 16                  | 33              | 70             |
| 350          |                              |                            | 560 | 264 | 495                        |                     |                 | 75             |
| 400          |                              | 500                        | 630 | 299 | 560                        | 16                  | 39              | 95             |
| 10           | 20K                          | 200                        | 90  | 84  | 65                         | 4                   | 15              | 4.5            |
| 15           |                              |                            | 95  | 84  | 70                         |                     |                 | 4.6            |
| 20           |                              |                            | 100 | 84  | 75                         |                     |                 | 4.9            |
| 25           |                              |                            | 125 | 90  | 90                         | 4                   | 19              | 5.3            |
| 32           |                              |                            | 135 | 93  | 100                        |                     |                 | 6.5            |
| 40           |                              |                            | 140 | 93  | 105                        |                     |                 | 7.2            |
| 50           |                              | 200                        | 155 | 100 | 120                        | 8                   | 19              | 8.8            |
| 65           |                              |                            | 175 | 113 | 140                        |                     |                 | 10.8           |
| 80           |                              |                            | 200 | 113 | 160                        | 8                   | 23              | 12.5           |
| 100          |                              | 250                        | 225 | 126 | 185                        | 8                   | 23              | 14             |
| 125          |                              |                            | 270 | 138 | 225                        | 8                   | 25              | 18             |
| 150          |                              | 300                        | 305 | 151 | 260                        | 12                  | 25              | 22             |
| 200          |                              | 350                        | 350 | 190 | 305                        |                     |                 | 32             |
| 250          |                              | 400                        | 430 | 222 | 380                        | 12                  | 27              | 44             |
| 300          |                              | 450                        | 480 | 248 | 430                        | 16                  | 27              | 61             |
| 350          |                              |                            | 540 | 264 | 480                        | 16                  | 33              | 79             |
| 400          |                              | 500                        | 605 | 299 | 540                        |                     |                 | 99             |
| 450          |                              | 600                        | 675 | 325 | 605                        | 20                  | 33              | 118            |
| 500          |                              |                            | 730 | 360 | 660                        |                     |                 | 137            |
| 600          |                              |                            | 845 | 412 | 770                        |                     |                 | 165            |
| 10           | 16K                          | 150                        | 90  | 84  | 65                         | 4                   | 15              | 4.5            |
| 15           |                              |                            | 95  | 84  | 70                         |                     |                 | 4.6            |
| 20           |                              |                            | 100 | 84  | 75                         |                     |                 | 4.9            |
| 25           |                              |                            | 125 | 90  | 90                         | 4                   | 19              | 5.3            |
| 32           |                              |                            | 135 | 93  | 100                        |                     |                 | 6.5            |
| 40           |                              |                            | 140 | 93  | 105                        |                     |                 | 7.2            |
| 10           |                              | 200                        | 90  | 84  | 65                         | 4                   | 15              | 4.5            |
| 15           |                              |                            | 95  | 84  | 70                         |                     |                 | 4.6            |
| 20           |                              |                            | 100 | 84  | 75                         |                     |                 | 4.9            |
| 25           |                              |                            | 125 | 90  | 90                         | 4                   | 19              | 5.3            |
| 32           |                              |                            | 135 | 93  | 100                        |                     |                 | 6.5            |
| 40           |                              |                            | 140 | 93  | 105                        |                     |                 | 7.2            |
| 50           |                              |                            | 155 | 100 | 120                        | 8                   | 19              | 8.8            |
| 65           |                              |                            | 175 | 113 | 140                        |                     |                 | 10.8           |

|     |     |     |     |     |     |    |    |      |
|-----|-----|-----|-----|-----|-----|----|----|------|
| 80  |     |     | 200 | 113 | 160 | 8  | 23 | 12.5 |
| 100 |     |     | 225 | 126 | 185 |    |    | 14   |
| 125 |     |     | 270 | 138 | 225 | 8  | 25 | 18   |
| 150 |     |     | 300 | 151 | 260 | 12 | 25 | 22   |
| 200 |     |     | 350 | 190 | 305 | 12 | 25 | 32   |
| 250 |     |     | 400 | 222 | 380 | 12 | 27 | 44   |
| 300 |     |     | 450 | 480 | 430 | 16 | 27 | 61   |
| 350 |     |     |     | 540 | 480 | 16 | 33 | 79   |
| 400 |     |     | 500 | 605 | 540 |    |    | 99   |
| 450 |     |     | 600 | 675 | 605 | 20 | 33 | 118  |
| 500 |     |     |     | 730 | 660 |    |    | 137  |
| 600 |     |     |     | 845 | 770 | 24 | 39 | 165  |
| 10  | 10K | 150 | 90  | 84  | 65  | 4  | 15 | 4.5  |
| 15  |     |     | 95  | 84  | 70  |    |    | 4.6  |
| 20  |     |     | 100 | 84  | 75  |    |    | 4.9  |
| 25  |     |     | 125 | 90  | 90  | 4  | 19 | 5.3  |
| 32  |     |     | 135 | 93  | 100 |    |    | 6.5  |
| 40  |     |     | 140 | 93  | 105 |    |    | 7.2  |
| 10  |     | 200 | 90  | 84  | 65  | 4  | 15 | 4.5  |
| 15  |     |     | 95  | 84  | 70  |    |    | 4.6  |
| 20  |     |     | 100 | 84  | 75  |    |    | 4.9  |
| 25  |     |     | 125 | 90  | 90  | 4  | 19 | 5.3  |
| 32  |     |     | 135 | 93  | 100 |    |    | 6.5  |
| 40  |     |     | 140 | 93  | 105 |    |    | 7.2  |
| 50  |     |     | 155 | 100 | 120 |    |    | 8.8  |
| 65  |     |     | 175 | 113 | 140 |    |    | 10.8 |
| 80  |     |     | 185 | 113 | 150 |    |    | 12.5 |
| 100 |     | 250 | 210 | 126 | 175 | 8  | 19 | 14   |
| 125 |     |     | 250 | 138 | 210 | 8  | 23 | 18   |
| 150 |     | 300 | 280 | 151 | 240 |    |    | 22   |
| 200 |     | 350 | 330 | 190 | 290 | 12 | 23 | 32   |
| 250 |     | 400 | 400 | 222 | 355 | 12 | 25 | 44   |
| 300 |     | 450 | 445 | 248 | 400 | 16 | 25 | 61   |
| 350 |     |     | 490 | 264 | 445 |    |    | 79   |
| 400 |     | 500 | 560 | 299 | 510 | 16 | 27 | 99   |
| 450 |     | 600 | 620 | 325 | 565 | 20 | 27 | 118  |
| 500 |     |     | 675 | 360 | 620 |    |    | 137  |
| 600 |     |     | 795 | 412 | 730 | 24 | 33 | 165  |
| 10  | 5K  | 150 | 75  | 84  | 55  | 4  | 12 | 4.5  |
| 15  |     |     | 80  | 84  | 60  |    |    | 4.6  |
| 20  |     |     | 85  | 84  | 65  |    |    | 4.9  |
| 25  |     |     | 95  | 90  | 75  | 4  | 15 | 5.3  |
| 32  |     |     | 115 | 93  | 90  |    |    | 6.5  |
| 40  |     |     | 120 | 93  | 95  |    |    | 7.2  |
| 10  |     | 200 | 75  | 84  | 55  | 4  | 12 | 4.5  |
| 15  |     |     | 80  | 84  | 60  |    |    | 4.6  |
| 20  |     |     | 85  | 84  | 65  |    |    | 4.9  |
| 25  |     |     | 95  | 90  | 75  | 4  | 15 | 5.3  |
| 32  |     |     | 115 | 93  | 90  |    |    | 6.5  |
| 40  |     |     | 120 | 93  | 95  |    |    | 7.2  |
| 50  |     |     | 130 | 100 | 105 |    |    | 4.5  |
| 65  |     |     | 155 | 113 | 130 |    |    | 4.6  |
| 80  |     |     | 180 | 113 | 145 | 4  | 19 | 12.5 |
| 100 |     | 250 | 200 | 126 | 165 | 8  | 19 | 14   |
| 125 |     |     | 235 | 138 | 200 |    |    | 18   |
| 150 |     | 300 | 265 | 151 | 230 |    |    | 22   |



|     |  |     |     |     |     |    |    |     |
|-----|--|-----|-----|-----|-----|----|----|-----|
| 200 |  | 350 | 320 | 190 | 280 | 8  | 23 | 32  |
| 250 |  | 400 | 385 | 222 | 345 | 12 | 23 | 44  |
| 300 |  | 450 | 430 | 248 | 390 | 12 | 23 | 61  |
| 350 |  |     | 480 | 264 | 435 | 12 | 25 | 79  |
| 400 |  | 500 | 540 | 299 | 495 | 16 | 25 | 99  |
| 450 |  | 600 | 605 | 325 | 555 |    | 25 | 118 |
| 500 |  |     | 655 | 360 | 605 | 20 | 25 | 137 |
| 600 |  |     | 770 | 412 | 715 | 20 | 27 | 165 |

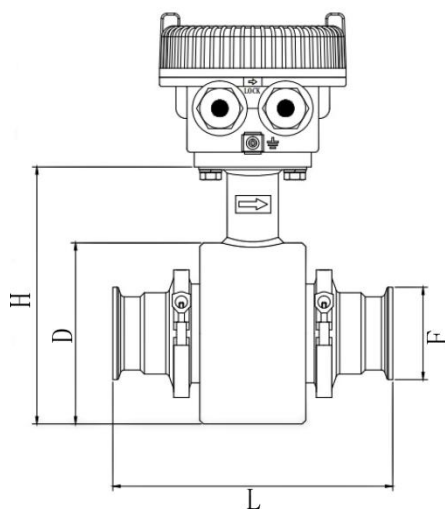
## Wafer (flangeless) Sensor



| Size (mm) | Nominal Pressure (MPa) | Overall Dimensions (mm) |     |     | Weight (Kg) |
|-----------|------------------------|-------------------------|-----|-----|-------------|
|           |                        | L                       | D   | H   |             |
| 50        | 4.0                    | 115                     | 96  | 145 | 5           |
| 65        |                        |                         | 116 | 165 | 6           |
| 80        | 1.6                    | 130                     | 127 | 176 | 6.5         |
| 100       |                        | 155                     | 147 | 196 | 9           |
| 125       |                        |                         | 177 | 226 | 11          |
| 150       |                        | 185                     | 202 | 251 | 13.5        |
| 200       | 1.0                    | 215                     | 257 | 306 | 21          |



**HIKMICRO**  
**Hygienic Sensor**



| Size (mm) | Overall Dimensions (mm) |     |       | F Chuck Outer Diameter |         |      |
|-----------|-------------------------|-----|-------|------------------------|---------|------|
|           | L                       | D   | H     | DIN32676               | ISO2852 | 3A   |
| 10        | 150                     | 84  | 125.5 | 34                     | 34      | 25   |
| 15        |                         |     |       | 34                     | 34      | 25   |
| 20        |                         |     |       | 34                     | /       | /    |
| 25        |                         |     |       | 50.5                   | 50.5    | 50.5 |
| 32        |                         | 93  | 134.5 | 50.5                   | 50.5    | /    |
| 40        |                         | 99  | 140.5 | 50.5                   | 50.5    | /    |
| 50        |                         | 112 | 153.5 | 64                     | 64      | 64   |
| 65        | 200                     | 125 | 166.5 | 91                     | 77.5    | 77.5 |
| 80        |                         | 137 | 178.5 | 106                    | 91      | 91   |

## Instrument Working Environment

The instrument working environment is divided into two types: general workplace and hazardous workplace. General workplace refers to a safe place without flammable gas, explosive substances. The working environment temperature is below 65°C, and the upper limit of the medium temperature is divided into 80 °C, 140 °C and 180 °C, where the transmitter can be selected as integral mount or remote mount (remote mount is recommended when the medium temperature is higher than 80 °C). Hazardous places refer to places where flammable gas, explosive substances exist. The working environment temperature should not be higher than 60 °C, and the medium temperature should not be higher than 80-130 °C (depending on the explosion-proof temperature level). The working temperature of the transmitter should not be higher than 65 °C. The housing and flange of the sensor body are completed by integral welding, which can meet the working environment mentioned above.

## Electromagnetic Flow meter Selection Table

[illegible]

# HIKMICRO

## Electromagnetic Flow Meter



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