

# MagneW™ FLEX+ Electromagnetic Flowmeter Detector

Model MGG11\_ (Watertight Model)

Model MGG12\_ (Submersible Model)

## Introduction

The MagneWFLEX+ electromagnetic flowmeter detector is a high performance, highly reliable flowmeter developed with Azbil Corporation's proven MagneW 3000 flow measurement technologies. MGG11 and MGG12 models for watertight and submerged use offer superior flowrate and process measurement when couple a with one of our MagneW FLEX+ converters.

## Special features

### (1) High performance lining

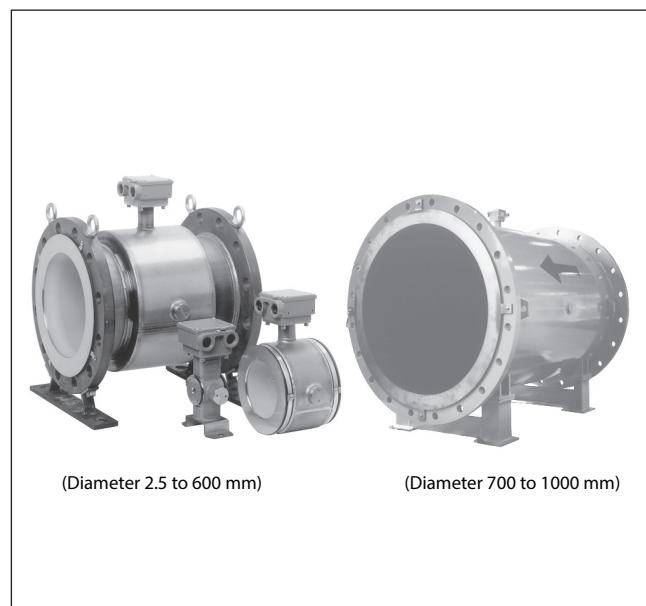
- A new, exclusive high quality lining technology and a special, mirror-finish PFA lining offer higher antiadhesive properties than existing models.
- The specular finish PFA lining is particularly applicable for measurement of sticky pulp and gypsum slurries.
- Only pure white PFA with no additives is used to make new linings.
- The successful embedded punch plate that offers proven performance under conditions such as rapid thermal change and negative pressure.
- PFA linings with diameter ranges from 2.5 mm to 600 mm available, making selection of the best lining easy for a wide variety of applications.

### (2) Replacement interfacing detector (optional)

- This detector can replace the detector interfaces of our existing models and those of other manufacturers. Please consult your Azbil Corporation representative for details.

### (3) Rugged detector structure

- A stainless steel case has been adopted for diameters of 2.5 mm to 200 mm.
- A watertight structure effective for environments where moisture condensation tends to occur is used for the water-tight model (MGG11).



### (4) A wide variety of piping connections

- A hose or union joint or clamp can be selected for very small diameter models (diameters of 2.5 to 15 mm).
- A flange structure is used for all diameters (diameters of 2.5 to 1100 mm).
- A wafer construction can be also selected (diameters of 2.5 to 200 mm).
- Diameters of 65 and 125 mm have been added to our existing product lineup.

### (5) Compatibility

- Remote model converters can be used in combination with our conventional converters. Please consult your Azbil Corporation representative for details.

## Wide variety of applications

### Pulp and paper:

Pulp liquids, chemicals, corrosive liquids, industrial water, wastewater, etc.

### Petroleum/petrochemical/chemicals:

Corrosive liquids, dyestuffs, chemicals, industrial water, waste water, etc.

### Public utilities:

Water supply systems, sewage systems, community drainage, human waste, sludge, sediment slurry, regulation of total effluent, etc.

### Food:

Potable water, light, medium and high density fluids, industrial water, waste water, etc.

### Steel/nonferrous metals/ceramics:

Alumina slurry, cooling water, industrial water, corrosive liquids, wastewater, etc.

### Machinery/equipment/electric machinery:

Corrosive liquids, cooking water, circulating water, industrial water, wastewater, etc.

### Construction:

Building material slurry, sediment slurry, cement slurry, industrial water, etc.

### Shipbuilding:

Sediment slurry etc.

### Electric power:

Corrosive liquids, cooling water, industrial water, wastewater, etc.

### Gas:

Circulating water for air conditioning, etc.

## Detector Specifications (standard)

### Equipment specifications

#### Structure:

**MGG11:** JIS C 0920 water-tight model  
NEMA ICS6-110 TYPE4X  
IEC PUBL 529 IP67

**MGG12:** JIS C 0920 submersible model  
NEMA ICS6-110 TYPE6  
IEC PUBL 529 IP68

*Note: The performance of the submersible model was evaluated by sinking it 1 m below the surface of contaminated water for 1 month. If the product will be submerged for a long consecutive period of time or in a corrosive fluid, please contact us.*

#### Paint:

**MGG11:**

##### Standard:

##### Terminal box

Baked acrylic paint

##### Detector case (size 250 to 1100 mm (10 to 44 inches))

Epoxy paint

##### Corrosion-resistant paint:

##### Terminal box

Baked acrylic paint

##### Detector case (size 250 to 1100 mm (10 to 44 inches))

Epoxy paint

#### Corrosion-proof paint:

##### Terminal box

Baked acrylic paint

##### Detector case (size 250 to 1100 mm (10 to 44 inches))

Epoxy paint

**MGG12:** Tar epoxy paint

#### Color:

**MGG11:** Light beige (Munsell 4Y7.2/1.3)

**MGG12:** Black

#### Main body material:

**Measuring pipe materials:** SUS304 stainless steel

**Flange:** SUS304 stainless steel

(diameter: 2.5 to 65 mm)

Carbon steel + corrosion-preventive coating

(diameter 80 to 600 mm)

Carbon steel

(diameter 700 to 1100 mm)

**Case:** SCS13 stainless steel

(diameter 2.5 to 15 mm)

SUS304 stainless steel

(diameter 25 to 200 mm)

SS400 carbon steel

(diameter 250 to 1100 mm)

**Terminal box:** Aluminum alloy (remote model)

#### Material of parts in contact with liquid:

**Lining:** PFA (diameter: 2.5 to 600 mm)

ETFE (diameter: 80 to 600 mm)

Polyurethane rubber

(diameter 25 to 200 mm)

Chloroprene rubber

(diameter 250 to 1100 mm)

**Electrode:** SUS316L, ASTM B574 (Hastelloy C-276

equivalent), titanium, zirconium, tantalum, tungsten-carbide, platinum/iridium

**Ground ring:** SUS316, ASTM B575 (Hastelloy C-276

equivalent), titanium, zirconium, tantalum, platinum

**Union joint:** SUS316 (diameter 2.5 to 15 mm)

**Hose:** SUS316 (diameter 2.5 to 15 mm)

**IDF Clamp:** SUS316

**Tri Clamp:** SUS316

**Gasket:** PTFE (if the grounding ring is not made of SUS316)

**O-ring:** Fluoro rubber (with union joints)

Fluoro rubber (with hose)

#### Structure of electrode:

**MGG11:** External insertion

(electrode can be removed)

**MGG12:** External insertion

(electrode cannot be removed)

## European Pressure Equipment Directive (2014/68/EU)

This product is subject to the European Pressure Equipment Directive (PED).

Article 4 of the PED differentiates pressure equipment according to the degree of danger.

The maximum allowable pressure of this product is stated on page 6 of this document. Note, however, that because this product is designed and manufactured in accordance with sound engineering practice (SEP) as described in article 4, section 3 of the PED, there are restrictions on the pressure range when this product is used in a country where PED is applicable.

Determine the maximum allowable pressure by checking the following items.

### (1) Group of the fluid

Check the group of the fluid according to article 13 of the PED.

- Group 1: Hazardous fluids
- Group 2: Non-hazardous fluids

### (2) Vapor pressure at the maximum allowable temperature of the measured fluid

Check the applicable category, (i) or (ii).

- (i) Liquid whose vapor pressure at the maximum allowable temperature is greater than 0.5 bar above normal atmospheric pressure (1013 mbar)
- (ii) Liquid having a vapor pressure at the maximum allowable temperature of not more than 0.5 bar above normal atmospheric pressure (1013 mbar)

### (3) Nominal size (DN) of the electromagnetic flowmeter

Check the nominal size of the flowmeter.

### (4) Maximum allowable pressure for equipment designed by SEP.

In table 1, find the cell where the results of (1), (2), and (3) meet.

“Tables 6–9” shown in table 1 below are taken from article 4 and annex II of the PED.

### (5) Maximum pressure

Whichever of the pressures below is the lowest is the applicable pressure.

- Maximum pressure for this product: see page 6 of this document
- Maximum pressure for SEP equipment defined by the PED: see (4) above
- Maximum pressure for the flange: see the applicable standard

**Table 1: Maximum allowable pressure for SEP products**

(1) Fluid group		Group 1		Group 2		Group 1		Group 2	
(2) Vapor pressure		(i)		(i)		(ii)		(ii)	
PED table		Table 6		Table 7		Table 8		Table 9	
(3) Nominal size (DN)	(4) Maximum allowable pressure								
	mm	bar	MPa	bar	MPa	bar	MPa	bar	MPa
	2.5	No limit	No limit	No limit	No limit	No limit	No limit	No limit	No limit
	5	No limit	No limit	No limit	No limit	No limit	No limit	No limit	No limit
	10	No limit	No limit	No limit	No limit	No limit	No limit	No limit	No limit
	15	No limit	No limit	No limit	No limit	No limit	No limit	No limit	No limit
	25	No limit	No limit	No limit	No limit	No limit	No limit	No limit	No limit
	40	0.5	0.05	25.0	2.50	No limit	No limit	No limit	No limit
	50	0.5	0.05	20.0	2.00	No limit	No limit	No limit	No limit
	65	0.5	0.05	15.3	1.53	No limit	No limit	No limit	No limit
	80	0.5	0.05	12.5	1.25	25.0	2.50	No limit	No limit
	100	0.5	0.05	10.0	1.00	20.0	2.00	No limit	No limit
	125	0.5	0.05	8.0	0.80	16.0	1.60	No limit	No limit
	150	0.5	0.05	6.6	0.66	13.3	1.33	No limit	No limit
	200	0.5	0.05	5.0	0.50	10.0	1.00	No limit	No limit
	250	0.5	0.05	4.0	0.40	8.0	0.80	20.0	2.00
	300	0.5	0.05	3.3	0.33	6.6	0.66	16.6	1.66
	350	0.5	0.05	2.8	0.28	5.7	0.57	14.2	1.42
	400	0.5	0.05	2.5	0.25	5.0	0.50	12.5	1.25
	450	0.5	0.05	2.2	0.22	4.4	0.44	11.1	1.11
	500	0.5	0.05	2.0	0.20	4.0	0.40	10.0	1.00
	600	0.5	0.05	1.6	0.16	3.3	0.33	10.0	1.00
	700	0.5	0.05	1.4	0.14	2.8	0.28	10.0	1.00
	800	0.5	0.05	1.2	0.12	2.5	0.25	10.0	1.00
	900	0.5	0.05	1.1	0.11	2.2	0.22	10.0	1.00
	1000	0.5	0.05	1.0	0.10	2.0	0.20	10.0	1.00
	1100	0.5	0.05	0.9	0.09	1.8	0.18	10.0	1.00

## Installation specifications

### Ambient temperature:

- 25 to +60 °C (integral model)
- 30 to +80 °C (remote model, PFA lining)
- 30 to +60 °C (remote model, polyurethane rubber lining/  
chloroprene rubber lining)
- 30 to + 60 °C (Submersible model, PFA/ETFA lining/  
chloroprene rubber lining)
- 30 to + 50 °C (Submersible model, polyurethane rubber  
lining)

**Ambient humidity:** 5 to 100 % RH

### Cable connection port:

**Integral model;** Connected to converter

**Remote model;**

G1/2 (PF1/2) internal thread, 1/2 NPT internal thread,  
CM20 internal thread, Pg 13.5 internal thread

### Pipe connection;

- Wafer (models 2.5 to 200 mm in diameter)
- Flange (models 2.5 to 1100 mm in diameter)
- Union (models 2.5 to 15 mm in diameter)
- Hose (models 2.5 to 15 mm in diameter)
- IDF Clamp (models 2.5 to 15 mm in diameter)
- Tri Clamp (models 2.5 to 15 mm in diameter)

### Nuts and bolts (for models of wafer construction):

S20C carbon steel, SUS304 stainless steel

### Flange rating:

JIS10K, JIS20K, JIS30K,  
JPI150, JPI300, ANSI150, ANSI300,  
DIN PN10, DIN PN16, DIN PN25,  
DIN PN40 (diameter 2.5 to 50 mm)

JIS10K, JIS20K, JIS30K,  
JPI150, JPI300, ANSI150, ANSI300,  
DIN PN10, DIN PN16, DIN PN25,  
DIN PN40, JIS G3443-2 F12  
(diameter 80 to 200 mm)

JIS10K, JIS20K, JPI150, JPI300,  
ANSI150, ANSI300, DIN PN10,  
DIN PN16, DIN PN25, JIS G3443-2 F12  
(diameter 250 to 600 mm, PFA/ETFE lining)

JIS10K, JPI150, ANSI150, DIN PN10  
JIS G3443-2 F12(diameter 250 to 1100 mm,  
chloroprene rubber lining)

### Reference flange standard:

JIS; JIS B2210 (1984)  
ANSI; ANSI B 16.5 (1988)  
JPI; JPI-7S-15-93

**Grounding:** Category D  
(Grounding resistance: lower than 100 Ω )

**Mounting:** Horizontally-mounted electrode

## Length of straight pipe:

### Upstream side;

Five (5) times or longer than the diameter. However,  
10 times or longer than the diameter if a diffuser, valve,  
pump, etc., are installed.

### Downstream side;

Not required. However, 2 times or longer than the diam-  
eter if influence exists from drift current of such equip-  
ment as a valve.

## Cable (between remote detector and converter):

Maximum length:300 m (depending on fluid conductivity)

Outer diameter: 10 to 12 mm

Signal cable      Dedicated cable  
                         (11.4 mm, 0.75 mm<sup>2</sup> diameter)  
                         or equivalent (CVVS, CEEV, etc.)

Excitation cable: Dedicated cable  
                         (10.5 mm, 2 mm<sup>2</sup> diameter)  
                         or equivalent (CVV and others)

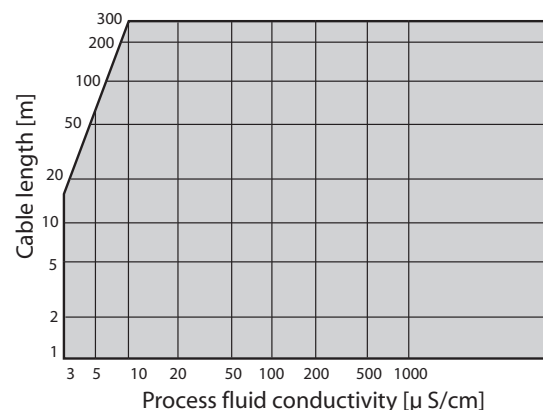


Figure 1. Maximum cable length of MGA12W cable

## Additional specifications (optional)

### Certification of traceability:

From 3 sources: configuration of measuring management  
system for electromagnetic flowmeter, repair certification,  
and test report.

### Mill sheet:

Data sheet describing materials and charge numbers of elec-  
trodes and grounding rings.

### Moisture treatment:

When shipped, condensation is removed from wetted sur-  
faces.

### Oil removal treatment:

When shipped, oil is removed from wetted surfaces.

## Gasket for resin pipe (for general use):

When installing the detector on a resin pipe, attach this gas-  
ket between the lining and the grounding ring, and between  
the grounding ring and the pipe flange.

### Attaching the tag number to the terminal box:

Mark the tag with the specified number and attach to the terminal box of the cover. The maximum number of characters in the tag number is 8.

### Attaching the tag number on the neck section:

Mark the tag number specified and attach it to the neck section of the detector. The maximum number of characters in the tag number is 16.

### Countermeasure for condensation:

With this option selected, the flowmeter is protected from water drops formed from condensed ambient moisture when the process fluid is colder than the ambient temperature.

For additional specifications, please contact your Azbil Corporation representative.

## Performance (standard)

### Accuracy (in combination with the MGG10C converter)

Table 2.

<diameter 2.5 to 15 mm>

Upper limit value of  $V_s$ =set velocity range

$V_s$ (m/s)	Velocity during measurement $\geq V_s \times 40\%$	Velocity during measurement $\leq V_s \times 40\%$
$1.0 \leq V_s \leq 10$	$\pm 0.5\%$ of indicated value	$\pm 0.2\%$ of $V_s$
$0.1 \leq V_s \leq 1.0$	$\pm (0.1/V_s + 0.4)\%$ of the indicated value	$\pm 0.4(0.1/V_s + 0.4)\%$ of $V_s$

<diameter 25 to 600 mm>

Upper limit value of  $V_s$ =set velocity range

$V_s$ (m/s)	Velocity during measurement $\geq V_s \times 20\%$	Velocity during measurement $\leq V_s \times 20\%$
$1.0 \leq V_s \leq 10$	$\pm 0.5\%$ of indicated value	$\pm 0.1\%$ of $V_s$
$0.1 \leq V_s \leq 1.0$	$\pm (0.1/V_s + 0.4)\%$ of the indicated value	$\pm 0.2(0.1/V_s + 0.4)\%$ of $V_s$

<diameter 700 to 1100 mm>

Upper limit value of  $V_s$ =set velocity range

$V_s$ (m/s)	Velocity during measurement $\geq V_s \times 50\%$	Velocity during measurement $\leq V_s \times 50\%$
$1.0 \leq V_s \leq 10$	$\pm 1.0\%$ of indicated value	$\pm 0.5\%$ of $V_s$
$0.1 \leq V_s \leq 1.0$	$\pm (0.2/V_s + 0.8)\%$ of the indicated value	$(0.1/V_s + 0.4)\%$ of $V_s$

Accuracy is guaranteed by the totalized flow volume under the condition of continuous flow measurement for 30 seconds or longer. With the damping function set to 3 seconds.

### Additional accuracy:

Effect of ambient magnetic field:  $\pm 0.2\%$  FS (at 400 A/m) or less

### Vibration effect

Integral style:  $4.9 \text{ m/s}^2$  (0.5 G) max.

Remote style converter:  $4.9 \text{ m/s}^2$  (0.5 G) max.

Remote style detector:  $19.6 \text{ m/s}^2$  (2 G) max.

### Output fluctuation:

When  $1 \leq V_s \leq 10 \text{ m/s}$ :  $\pm 0.1\%$  FS or less

When  $0.1 \leq V_s \leq 1 \text{ m/s}$ :  $\pm 0.1/V_s\%$  FS or less

### Measurable fluid temperature range:

PFA lining

Diameter (mm)	Measurable fluid temperature (°C)		
	Integral model	Remote model	Submersible model
2.5 to 10	-40 to +120	-40 to +100	—
15 to 200	-40 to +120	-40 to +160	-40 to +60
250 to 600	-40 to +120	-40 to +120	-40 to +60

Note: The maximum measurable fluid temperature for the submersible model (MGG12) is 60 °C.

ETFE lining

Diameter (mm)	Measurable fluid temperature (°C)		
	Integral model	Remote model	Submersible model
80 to 200	-40 to +120	-40 to +120	-40 to +60
250 to 600	-40 to +120	-40 to +120	-40 to +60

Polyurethane rubber lining

Diameter (mm)	Measurable fluid temperature (°C)		
	Integral/remote/submersible models		
25 to 200	-40 to +50		

Chloroprene rubber lining

Diameter (mm)	Measurable fluid temperature (°C)	
	Integral/remote models	Submersible model
250 to 600	-10 to +70	-10 to +60
700 to 1100	-10 to +70	—

Measurable fluid pressure range(depending on Frange rating):

- PFA/ETFE lining;  
-0.098 to +2.94 MPa
- Polyurethane rubber lining;  
-0.098 to +2.94 MPa
- Chloroprene rubber lining;  
-0.098 to +0.98 MPa

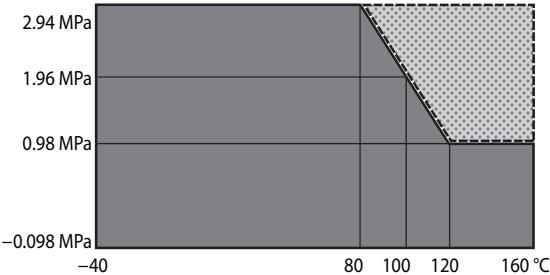
Integral/remote models

PFA lining

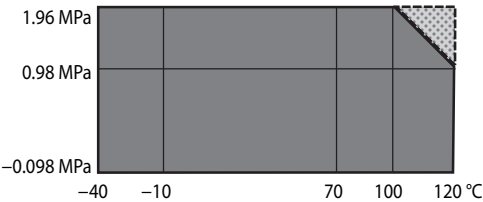
Diameter 2.5 to 10 mm




Diameter 15 to 200 mm



Diameter 250 to 600 mm

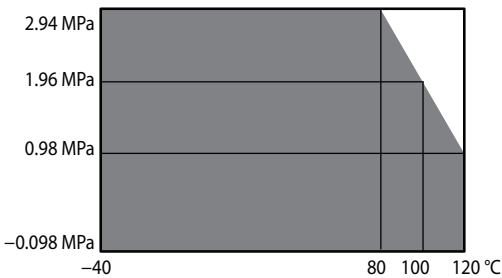


 : Special support  
(Please contact us.)

Integral/remote models

ETFE lining

Diameter 80 to 200 mm



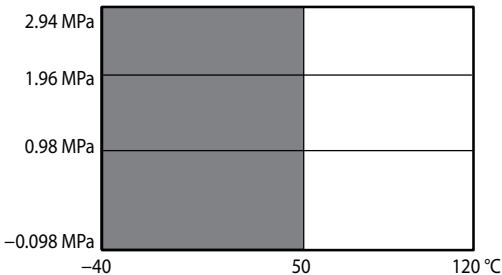
ETFE lining

Diameter 250 to 600 mm



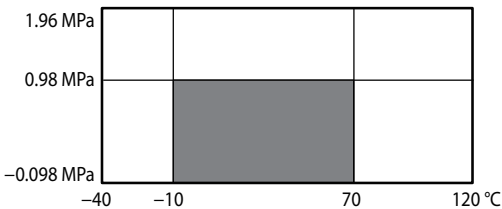
Polyurethane rubber lining

Diameter 25 to 200 mm



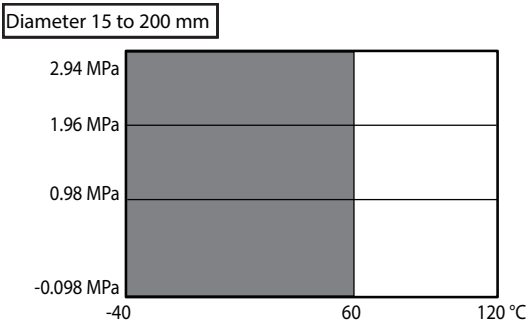
Chloroprene rubber lining

Diameter 250 to 1100 mm

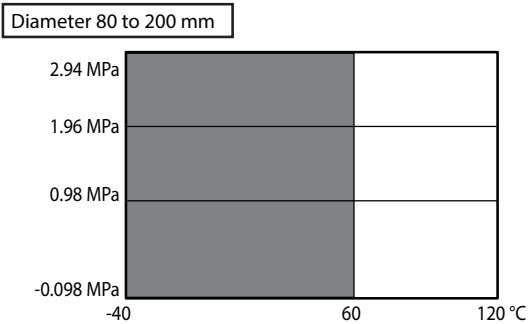


Submersible model

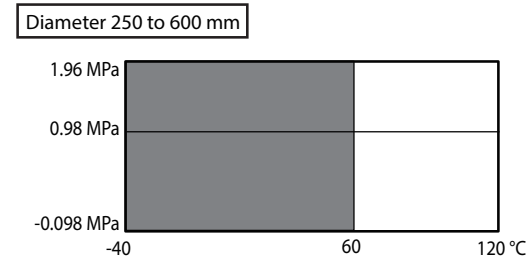
PFA lining



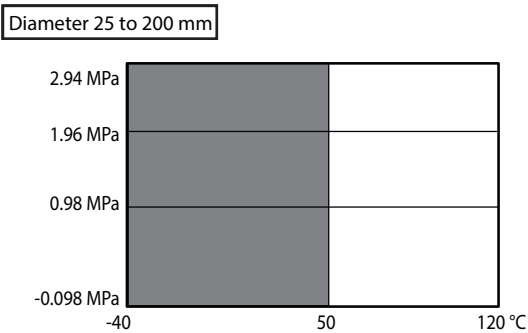
ETFE lining



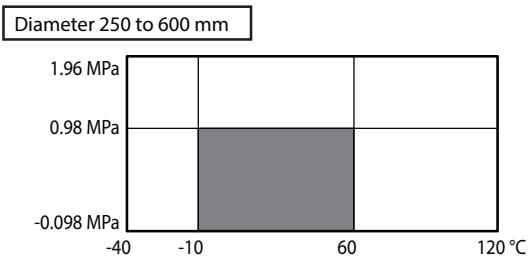
PFA/ETFE lining



Polyurethane rubber lining



Chloroprene rubber lining





**Measurable electrical conductivity**

Combined with model MGG14C converter 3 μS/cm or more

**Measurement flow range**

Refer to the minimum/maximum set ranges shown in the table below

Size		Minimum flow velocity range is 0 to 0.1 m/s (0 to 0.33 ft/s)		Maximum flow velocity range is 0 to 10 m/s (0 to 32.8 ft/s)		Conversion factor K
		Minimum range		Maximum range		
mm	inch	m³/h	GPM	m³/h	GPM	
2.5	0.1	0 to 0.001768	0 to 0.007782	0 to 0.1767	0 to 0.7781	56.59
5	0.2	0 to 0.007069	0 to 0.03113	0 to 0.7068	0 to 3.112	14.15
10	3/8	0 to 0.02828	0 to 0.1246	0 to 2.827	0 to 12.45	3.537
15	1/2	0 to 0.06362	0 to 0.2802	0 to 6.361	0 to 28.01	1.572
25	1	0 to 0.1768	0 to 0.7782	0 to 17.67	0 to 77.81	0.5659
40	1½	0 to 0.4524	0 to 1.993	0 to 45.23	0 to 199.2	0.2210
50	2	0 to 0.7069	0 to 3.113	0 to 70.68	0 to 311.2	0.1415
65	2½	0 to 1.195	0 to 5.261	0 to 119.4	0 to 526.0	0.08371
80	3	0 to 1.810	0 to 7.969	0 to 180.9	0 to 796.8	0.05526
100	4	0 to 2.828	0 to 12.46	0 to 282.7	0 to 1245	0.03537
125	5	0 to 4.418	0 to 19.46	0 to 441.7	0 to 1945	0.02264
150	6	0 to 6.362	0 to 28.02	0 to 636.1	0 to 2801	0.01572
200	8	0 to 11.31	0 to 49.81	0 to 1130	0 to 4980	0.008842
250	10	0 to 17.68	0 to 77.82	0 to 1767	0 to 7781	0.005659
300	12	0 to 25.45	0 to 112.1	0 to 2544	0 to 11205	0.003930
350	14	0 to 34.64	0 to 152.6	0 to 3463	0 to 15251	0.002887
400	16	0 to 45.24	0 to 199.3	0 to 4523	0 to 19920	0.002210
450	18	0 to 57.26	0 to 252.2	0 to 5725	0 to 25211	0.001747
500	20	0 to 70.69	0 to 311.3	0 to 7068	0 to 31125	0.001415
600	24	0 to 101.8	0 to 448.3	0 to 10178	0 to 44820	0.0009824
700	28	0 to 138.6	0 to 610.1	0 to 13854	0 to 61005	0.0007218
800	32	0 to 181.0	0 to 796.9	0 to 18095	0 to 79680	0.0005526
900	36	0 to 229.1	0 to 1009	0 to 22902	0 to 100846	0.0004366
1000	40	0 to 282.8	0 to 1246	0 to 28274	0 to 124501	0.0003537
1100	44	0 to 342.2	0 to 1507	0 to 34211	0 to 150646	0.0002923

Flow conversion Velocity  $V(\text{m/s}) = K \times Q$      $K = \text{Flow conversion factor} = \frac{1}{3600} \times \frac{4}{\pi D^2}$   
 $Q = \text{Flow rate (m}^3/\text{h)}$



## Notice for installation

To fully enjoy the performance of the device, please choose an appropriate location according to the following.

### Notice after installation

#### WARNING

When removing the device from the piping, make sure that there is no line pressure or process fluid inside of the device. Removing the device before depressurizing may result in serious injury.

#### CAUTION

Do not use the device as a foothold. It may cause injury or damage of the device.

### Notice for environment

- Install the flowmeter in a location with an ambient temperature of -25 °C to 60 °C (-13 °F to 140 °F) and an ambient humidity of 5 to 100%RH to prevent equipment malfunction or output errors.
- Do not install the flowmeter near high-current power lines, motors or transformers to prevent damage from electromagnetic induction, which can cause equipment malfunction or output errors.
- Do not install the flowmeter in a location subject to severe vibration or in a highly corrosive atmosphere. The converter and detector can be damaged.
- When install some electromagnetic flowmeters in closer location, keep minimum 500 mm (20 inch) space from each flowmeter. Closer electromagnetic flowmeter installation may cause magnetic interference each other and results in output errors.
- When installing DC-powered electromagnetic flow meters adjacent to each other, make sure that there is a space of 500 mm or more between the ends of the detectors.

### Notice for application

- Electrochemically homogeneous fluid  
Install the device where the process fluid is electrochemically homogeneous. If two kind of process fluids are mixed at the upstream side, the process fluid must be uniformly mixed.
- The application which the electric conductivity changes or non-homogeneous fluid  
Do not use the device for the following fluid conditions even if the electric conductivity, temperature, and pressure are within the device specifications. Those fluid may cause of inaccurate flow measurement.
  - Fluids that have sufficient conductivity at high temperature but do not meet the conductivity requirement at room temperature (about 20 °C (68 °F)).  
(e.g. fatty acids and soap)
  - Some fluids contain surfactant

(e.g. rinse, shampoo and CWM (coal water mixture))

- Insulating adhesive materials  
(eg. kaolinite, kaolin, calcium stearate)
- Insufficiently mixed fluid  
(Ex.: Fluid just after chemical dosing)
- If the fluid is cold water and there is a possibility of condensation, select optional specification 6, "Condensation countermeasure," when ordering.
- The following fluids will permeate the PFA liner. The vent hole option is recommended for the following fluids.
  - Nitric acid
  - Aqueous ammonia
  - High temperature sodium hydrate

If an electromagnetic flowmeter is installed in air-conditioning equipment, etc., where black pipes are often used for closed piping and water temperature is about 85 °C, black rust (a conductive substance) may be generated due to pipe corrosion. If it sticks to the inner surface of the flowmeter, the measured output value may drop. To be precise, depending on various environmental conditions such as the amount of dissolved oxygen, black rust may occur even at temperatures around 60 °C. The rate of progress of corrosion, the type and amount of corrosion, and the amount of adhesion also differ depending on the environment at the installation site. If the electromagnetic flowmeter is used in such an installation environment, it is necessary to control the water quality to prevent pipe corrosion by measures such as using a corrosion inhibitor.

To further ensure reliable measurement, periodic wiping of the inside of the electromagnetic flowmeter is needed.

\* Please contact an Azbil representative for cleaning of the inside of the electromagnetic flowmeter.

Notes on installation location:

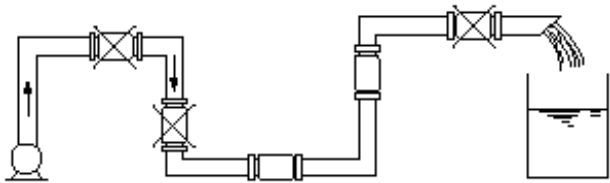
- Legs are attached to some models to prevent them from falling over before installation. If the product is installed with the legs attached, please also consider earthquake resistance where appropriate.

Notes on submersible models:

- The entire surface of the detector's terminal box is covered with waterproof paint. If opened, the terminal box is no longer waterproof.

Installation location

Install this product in a place where the inside of the detector will always be filled with the process fluid. An installation example is shown in the figure below.



Installation example

Note:

- Install the detector in a place like those circled in the above figure so that it stays full of fluid. If the detector is used when it is not full of fluid, an output error may result.
- If the process fluid is highly viscous, installing the detector in a vertical pipe is recommended in order to ensure axisymmetric flow.
- Provide a straight pipe section upstream of the installation location. Refer to the figure below for the straight pipe length.



Upstream side	
<div>Right-angle joint</div> <div>detector</div> <div>Greater than 5 dia.</div>	<div>Diffuser with cone angle greater than 15° (If cone angle is 15° or less, considered as straight pipe)</div> <div>detector</div> <div>Greater than 10 dia.</div>
<div>T joint</div> <div>detector</div> <div>Greater than 5 dia.</div>	<div>Concentrator (considered as straight-pipe section)</div> <div>detector</div> <div>Greater than 5 dia.</div>
<div>Gate Value (completely open)</div> <div>detector</div> <div>Greater than 5 dia.</div>	<div>Any Control Value</div> <div>detector</div> <div>Greater than 10 dia.</div>
<div>Any pump</div> <div>Greater than 10 dia.</div>	

Figure 2.

## Contents of Model Number Tables

### Detector (General Model)

Structure/Basic Model No.	Lining	Pipe connection	Diameter (mm)	Ref. page
Watertight model MGG11U	PFA	Union/Hose/Clamp	2.5 to 15	12
Watertight model MGG11D	PFA	Wafer	2.5 to 10	13
Watertight model MGG11D	PFA/ETFE	Wafer	15 to 200	14
Watertight model MGG11F	PFA	Flange	2.5 to 10	15
Watertight model MGG11F	PFA/ETFE	Flange	15 to 200	16
Watertight model MGG11F	PFA/ETFE	Flange	250 to 600	17
Watertight model MGG11D	Polyurethane rubber	Wafer	25 to 200	18
Watertight model MGG11F	Chloroprene rubber	Flange	250 to 600	19
Watertight model MGG11F	Chloroprene rubber	Flange	700 to 1100	20
Submersible mode MGG12U	PFA	Union/Hose/Clamp	15	21
Submersible mode MGG12D	PFA/ETFE	Wafer	15 to 200	22
Submersible mode MGG12F	PFA/ETFE	Flange	15 to 200	23
Submersible mode MGG12F	PFA/ETFE	Flange	250 to 600	24
Submersible model MGG12D	Polyurethane rubber	Wafer	25 to 200	25
Submersible model MGG12F	Chloroprene rubber	Flange	250 to 600	26

	PFA/ETFE lining
	Rubber lining

## Lining Characteristics

### PFA:

PFA is a chemical-resistant, heat-resistant, and adhesion-resistant lining material that can be used for almost any corrosive liquid. Select this lining for use with corrosive liquids (sulfuric acid, hydrochloric acid, caustic soda, acetic acid, etc.). However, for nitric acid and hydrofluoric acid, the service life may be shorter if the concentration and pressure are high.

### ETFE:

Chemical resistance is slightly lower than that of a PFA lining. Do not use ETFE for strongly corrosive liquids such as sulfuric acid, fluoric acid, nitric acid, and hydrochloric acid. In terms of abrasion resistance, ETFE is about 1.5 times stronger than PFA. Therefore, it can be used for pulp slurry (except for black liquor) and will have a longer service life than PFA. However, because it has lower heat resistance than PFA, it cannot be used in a pipeline with fluids at 120 °C or higher. Do not use the flowmeter in a pipeline that will be cleaned with steam.

### Rubber:

Both polyurethane and chloroprene are excellent for abrasion resistance, but because they have little chemical resistance, they cannot be used for corrosive liquids.

Basic Model No.

## Selections

Optional selections Options

MGG11U					
Diameter	2.5 mm	002			
	5 mm	005			
	10 mm	010			
	15 mm	015			
Lining	PFA	P			
Pipe connection	Union joint R1/2 (PT1/2) external thread	U1			
	Union joint 1/2NPT external thread	U2			
	Union joint R1/2 (PT1/2) internal thread	U3			
	Union joint 1/2NPT internal thread	U4			
	Hose joint	H1			
	IDF clamp	C1			
	Tri clamp	C2			
	Others	-			
Electrodes	SUS316L	L			
	ASTM B574 (Hastelloy C-276 equivalent)	O			
	Titanium	K			
	Zirconium	H			
	Tungsten carbide	W			
	Others	-			
Union/Hose/Clamp material	SUS316	S			
Wiring connection/Watertight gland	Integral model	1			
	G1/2 internal thread/Without watertight gland	2			
	G1/2 internal thread/With brass (Ni-plated) watertight gland	3			
	G1/2 internal thread/With plastic watertight gland	4			
	1/2NPT internal thread/Without watertight gland	5			
	CM20 internal thread/Without watertight gland	6			
	Pg13.5 internal thread/Without watertight gland	7			
	Others	-			
Face to face	Standard	A			
Installation/Wiring direction	Integral model	H			
	Upstream side	A			
	Downstream side	B			
	Horizontal piping mounting/Left side viewed from upstream	C			
	Horizontal piping mounting/Right side viewed from upstream	D			
Calibration/Approval	Standard calibration	A			
	Others	-			

## Basic Model No.

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13

## Basic Model No.

MGG11D

## Selections

### Optional selections

## Options

14

## Basic Model No.

—

[illegible]

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7

	X	No option
	B	Certification of traceability
	C	Mill sheet
	E	Moisture treatment
	F	Oil removal treatment
	J	Gasket for resin pipe (for general purposes)
	K	Attaching the TAG number plate to the terminal box (remote detector)
	L	Attaching the TAG number plate to the neck section
	6	Countermeasure for condensation
	—	Other



## MagneW FLEX+ (General Model) (Flange detector 15 to 200 mm) PFA/ETFE Lining

Basic Model No.

Selections

Optional selections Options

MGG11F																			
Diameter	15 mm	015																	
	25 mm	025																	
	40 mm	040																	
	50 mm	050																	
	65 mm	065																	
	80 mm	080																	
	100 mm	100																	
	125 mm	125																	
	150 mm	150																	
	200 mm	200																	
Lining	PFA	P																	
	ETFE (Diameter 80 mm to 200 mm)	E																	
Pipe connection	Flange JIS10K	J1																	
	Flange JIS20K	J2																	
	Flange JIS30K	J3																	
	Flange ANSI150	A1																	
	Flange ANSI300	A2																	
	Flange JIS G3443-2 F12 (Diameter 80 mm or more)	G1																	
	Flange DIN PN10	D1																	
	Flange DIN PN16	D2																	
	Flange DIN PN25	D3																	
	Flange DIN PN40	D4																	
	Flange JPI150	P1																	
	Flange JPI300	P2																	
	Flange material	Standard	1																
		Others	—																
Electrodes	SUS316L	L																	
	ASTM B574 (Hastelloy C-276 equivalent)	C																	
	Titanium	K																	
	Zirconium	H																	
	Tantalum	T																	
	Tungsten carbide	W																	
	Platinum iridium	P																	
	Others	—																	
Grounding ring	SUS316	S																	
	ASTM B575 (Hastelloy C-276 equivalent)	C																	
	Titanium	K																	
	Zirconium	H																	
	Tantalum	T																	
	Platinum	P																	
	Others	—																	
Wiring connection/ Watertight gland	Integral model		1																
	Remote model	G1/2 internal thread/Without watertight gland	2																
		G1/2 internal thread/With brass (Ni-plated) watertight gland	3																
		G1/2 internal thread/With plastic watertight gland	4																
		1/2NPT internal thread/Without watertight gland	5																
		CM20 internal thread/Without watertight gland	6																
		Pg13.5 internal thread/Without watertight gland	7																
		Others	—																
	Face to face	Standard	A																
Others		—																	
Installation/ Wiring direction	Integral model		H																
	Remote model	Upstream side	A																
		Downstream side	B																
		Horizontal piping mounting/Left side viewed from upstream	C																
		Horizontal piping mounting/Right side viewed from upstream	D																
Calibration/ Approval	Standard calibration		A																
	Others		—																

X	No option
B	Certification of traceability
C	Mill sheet
E	Moisture treatment
F	Oil removal treatment
J	Gasket for resin pipe (for general purposes)
K	Attaching the TAG number plate to the terminal box (remote)
L	Attaching the TAG number plate to the neck section
6	Countermeasure for condensation
—	Other

X	Finish	Standard
1		Corrosion-resistant finish
2		Corrosion-proof finish

## MagneW FLEX+ (General Model) (Flange detector 250 to 600 mm) PFA/ETFE Lining

Basic Model No.

## Selections

Optional selections Options

MGG11F

Diameter	250 mm	250		
	300 mm	300		
	350 mm	350		
	400 mm	400		
	450 mm	450		
	500 mm	500		
	600 mm	600		
	Lining	PFA		P
ETFE		E		
Pipe connection	Flange JIS10K	J1		
	Flange ANSI150	A1		
	Flange JIS G3443-2 F12	G1		
	Flange DIN PN10	D1		
	Flange JPI150	P1		
Flange material	Standard	1		
	Others	—		
Electrodes	SUS316L	L		
	ASTM B574 (Hastelloy C-276 equivalent)	C		
	Titanium	K		
	Zirconium	H		
	Tantalum	T		
	Tungsten carbide	W		
	Platinum iridium	P		
	Others	—		
Grounding ring	SUS316	S		
	ASTM B575 (Hastelloy C-276 equivalent)	C		
	Titanium	K		
	Others	—		
Wiring connection/ Watertight gland	Integral model	1		
	Remote model	G1/2 internal thread/Without watertight gland		2
		G1/2 internal thread/With brass (Ni-plated) watertight gland		3
		G1/2 internal thread/With plastic watertight gland		4
		1/2NPT internal thread/Without watertight gland		5
		CM20 internal thread/Without watertight gland		6
		Pg13.5 internal thread/Without watertight gland		7
		Others		—
Face to face	Standard	A		
	Others	—		
Installation/ Wiring direction	Integral model	H		
	Remote model	Upstream side		A
		Downstream side		B
		Horizontal piping mounting/Left side viewed from upstream		C
		Horizontal piping mounting/Right side viewed from upstream		D
Calibration/ Approval	Standard calibration	A		
	Others	—		

X	No option
B	Certification of traceability
C	Mill sheet
E	Moisture treatment
F	Oil removal treatment
J	Gasket for resin pipe (for general purposes)
K	Attaching the TAG number plate to the terminal box (remote)
L	Attaching the TAG number plate to the neck section
6	Countermeasure for condensation
—	Other

X	Finish	Corrosion-proof finish
1		Corrosion-resistant finish
2		Corrosion-proof finish

## Basic Model No.

## Selections

## Optional selections

## Options

MGG11D

		-	
		X	No option
		B	Certification of traceability
		C	Mill sheet
		E	Moisture treatment
		F	Oil removal treatment
		J	Gasket for resin pipe (for general purposes)
		K	Attaching the TAG number plate to the terminal box (remote detector)
		L	Attaching the TAG number plate to the neck section
		6	Countermeasure for condensation
		_	Other
X	Finish		Standard
1			Corrosion-resistant finish
2			Corrosion-proof finish
X	Bolt/nuts		None
1			Carbon steel
2			SUS304

MagneW FLEX+ (General Model) (Flange detector 250 to 600 mm) Chloroprene rubber lining

Basic Model No.

## Selections

Optional selections Options

MGG11F

—

Diameter	250 mm	250	
	300 mm	300	
	350 mm	350	
	400 mm	400	
	450 mm	450	
	500 mm	500	
	600 mm	600	
Lining	Chloroprene rubber lining	R	
Pipe connection	Flange JIS10K	J1	
	Flange ANSI150	A1	
	Flange JIS G3443-2 F12	G1	
	Flange DIN PN10	D1	
	Flange JPI150	P1	
Flange material	Standard	1	
	Others	—	
Electrodes	SUS316L	L	
	Titanium	K	
	Tungsten carbide	W	
	Others	—	
Grounding ring	SUS316	S	
	Titanium	K	
	Others	—	
Wiring connection/ Watertight gland	Integral model		1
	Remote model	G1/2 internal thread/Without watertight gland	2
		G1/2 internal thread/With brass (Ni-plated) watertight gland	3
		G1/2 internal thread/With plastic watertight gland	4
		1/2NPT internal thread/Without watertight gland	5
		CM20 internal thread/Without watertight gland	6
		Pg13.5 internal thread/Without watertight gland	7
		Others	—
Face to face	Standard	A	
	Others	—	
Installation/ Wiring direction	Integral model		H
	Remote model	Upstream side	A
		Downstream side	B
		Horizontal piping mounting/Left side viewed from upstream	C
		Horizontal piping mounting/Right side viewed from upstream	D
Calibration/ Approval	Standard calibration		A
	Others		

	-	
		X No option
		B Certification of traceability
		C Mill sheet
		E Moisture treatment
		F Oil removal treatment
		J Gasket for resin pipe (for general purposes)
		K Attaching the TAG number plate to the terminal box (remote)
		L Attaching the TAG number plate to the neck section
		6 Countermeasure for condensation
		- Other
X	Finish	Standard
1		Corrosion-resistant finish
2		Corrosion-proof finish

## MagneW FLEX+ (General Model) (Flange type detector 700 to 1100 mm)

Basic Model No.

Selections

Optional selections Options

MGG11F																			
Diameter	700 mm	700																	
	800 mm	800																	
	900 mm	900																	
	1000 mm	10H																	
	1100 mm	11H																	
Lining	Chloroprene rubber	R																	
Pipe connection	Flange JIS10K	J1																	
	Flange ANSI150	A1																	
	Flange DIN PN10	D1																	
	Flange JPI150	P1																	
	Flange JIS G3443-2 F12	G1																	
Flange material	Standard	1																	
	Others	-																	
Electrodes	SUS316L	L																	
	Titanium	K																	
	Tungsten carbide	W																	
	Others	-																	
Grounding ring	SUS316	S																	
	Others	-																	
Wiring connection/ Watertight gland	Integral type		1																
		G1/2 internal thread/Without watertight gland	2																
		G1/2 internal thread/With brass (Ni-plated) watertight gland	3																
		G1/2 internal thread/With plastic watertight gland	4																
		1/2NPT internal thread/Without watertight gland	5																
		CM20 internal thread/Without watertight gland	6																
		Pg13.5 internal thread/Without watertight gland	7																
		Others	-																
Face to face	Standard	A																	
	Others	-																	
Installation/ Wiring direction	Integral type		H																
		Remote type	Upstream side	A															
			Downstream side	B															
			Horizontal piping mounting/Left side viewed from upstream	C															
				Horizontal piping mounting/Right side viewed from upstream	D														
Calibration/ Approval	Standard calibration	A																	
	Others	-																	

X	No option
B	Certification of traceability
C	Mill sheet
E	Moisture treatment
F	Oil removal treatment
K	Attaching the TAG number plate to the terminal box (remote type)
L	Attaching the TAG number plate to the neck section
6	Countermeasure for condensation
-	Other

X	Finish	Standard
1		Corrosion-resistant finish
2		Corrosion-proof finish

Basic Model No.		Selections				Optional selections		Options	
MGG12U									
Diameter	15 mm	015							
Lining	PFA		P						
Pipe connection	Union joint R1/2 (PT1/2) external thread		U1						
	Union joint 1/2NPT external thread		U2						
	Union joint R1/2 (PT1/2) internal thread		U3						
	Union joint 1/2NPT internal thread		U4						
	Hose joint		H1						
	IDF clamp		C1						
	Tri clamp		C2						
	Others		-						
Electrodes	SUS316L		L						
	Hastelloy C		C						
	Titanium		K						
	Zirconium		H						
	Tungsten carbide		W						
	Others		-						
Union/ Hose/ Clamp material	SUS316		S						
Wiring connection/ Watertight gland	Remote model	G1/2 internal thread/With brass (Ni-plated) watertight gland		3					
		G1/2 internal thread /With SUS304 watertight gland		8					
Face to face	Standard		A						
Installation/ Wiring direction	Remote model	Upstream side		A					
		Downstream side		B					
		Horizontal piping mounting/Left side viewed from upstream		C					
		Horizontal piping mounting/Right side viewed from upstream		D					
Calibration/ Approval	Standard calibration		A						
	Others		-						

Basic Model No.

### Optional selections

Options

—

[illegible]

1

X	Fin	
		X
		1
		2

X	No option
B	Certification of traceability
C	Mill sheet
E	Moisture treatment
F	Oil removal treatment
J	Gasket for resin pipe (for general purposes)
K	Attaching the TAG number plate to the terminal box (remote detector)
L	Attaching the TAG number plate to the neck section
—	Other

X	Finish	Standard
---	--------	----------

X	Bolt/nuts	None
1		Carbon steel
2		SUS304



Basic Model No.

## Selections

Optional selections Options

—

[illegible]

---

X	No option
B	Certification of traceability
C	Mill sheet
E	Moisture treatment
F	Oil removal treatment
J	Gasket for resin pipe (for general purposes)
K	Attaching the TAG number plate to the terminal box (remote)
L	Attaching the TAG number plate to the neck section
—	Other

X	Finish	Standard
---	--------	----------

Basic Model No.

## Selections

Optional selections Options

[illegible]

MagneW FLEX+ (General Model) (Submersible model/Wafer detector 25 to 200 mm) Polyurethane rubber lining

Basic Model No.

Selections

Optional selections

Options

Basic Model No.		MGG12D		-		Selections		Optional selections		Options	
Diameter		25 mm	025								
		40 mm	040								
		50 mm	050								
		65 mm	065								
		80 mm	080								
		100 mm	100								
		125 mm	125								
		150 mm	150								
		200 mm	200								
Lining		Polyurethane rubber lining		Q							
Pipe connection		Wafer JIS10K	11								
		Wafer JIS20K	12								
		Wafer JIS30K	13								
		Wafer ANSI150	21								
		Wafer ANSI300	22								
		Wafer JIS G3443-2 F12 (Diameter 80 mm or more)	31								
		Wafer DIN PN10	41								
		Wafer DIN PN16	42								
		Wafer DIN PN25	43								
		Wafer DIN PN40	44								
		Wafer JPI150	61								
		Wafer JPI300	62								
Electrodes		SUS316L	L								
		Titanium	K								
		Tungsten carbide	W								
		Others	-								
Grounding ring		SUS316	S								
		Titanium	K								
		Others	-								
		Remote model	G1/2 internal thread/With brass (Ni-plated) watertight gland	3							
			G1/2 internal thread /With SUS304 watertight gland	8							
Face to face		Standard		A							
		Remote model	Upstream side	A							
			Downstream side	B							
			Horizontal piping mounting/Left side viewed from upstream	C							
			Horizontal piping mounting/Right side viewed from upstream	D							
Calibration/ Approval		Standard calibration		A							
		Others		-							

X	No option
B	Certification of traceability
C	Mill sheet
E	Moisture treatment
F	Oil removal treatment
J	Gasket for resin pipe (for general purposes)
K	Attaching the TAG number plate to the terminal box (remote detector)
L	Attaching the TAG number plate to the neck section
-	Other

X	Finish	Standard
1		Corrosion-resistant finish
2		Corrosion-proof finish

X	Bolt/nuts	None
1		Carbon steel
2		SUS304

MagneW FLEX+ (General Model) (Submersible model/Flange detector 250 to 600 mm) Chloroprene rubber lining

Basic Model No.

Selections

Optional selections Options

MGG12F		-										-		-						
Diameter	250 mm	250																		
	300 mm	300																		
	350 mm	350																		
	400 mm	400																		
	450 mm	450																		
	500 mm	500																		
	600 mm	600																		
	Lining	Chloroprene rubber lining	R																	
Pipe connection	Flange JIS10K	J1																		
	Flange ANSI150	A1																		
	Flange JIS G3443-2 F12	G1																		
	Flange DIN PN10	D1																		
	Flange JPI150	P1																		
	Flange material	Standard	1																	
	Others	-																		
Electrodes	SUS316L	L																		
	Titanium	K																		
	Tungsten carbide	W																		
	Others	-																		
Grounding ring	SUS316	S																		
	Titanium	K																		
	Others	-																		
Wiring connection/ Watertight gland	Remote model	G1/2 internal thread/With brass (Ni-plated) watertight gland	3																	
		G1/2 internal thread /With SUS304 watertight gland	8																	
Face to face	Standard		A																	
	Others		-																	
Installation/ Wiring direction	Remote model	Upstream side		A																
		Downstream side		B																
		Horizontal piping mounting/Left side viewed from upstream		C																
		Horizontal piping mounting/Right side viewed from upstream		D																
Calibration/ Approval	Standard calibration		A																	
	Others		-																	

X	Finish	Standard
---	--------	----------

X	No option
B	Certification of traceability
C	Mill sheet
E	Moisture treatment
F	Oil removal treatment
J	Gasket for resin pipe (for general purposes)
K	Attaching the TAG number plate to the terminal box (remote)
L	Attaching the TAG number plate to the neck section
-	Other

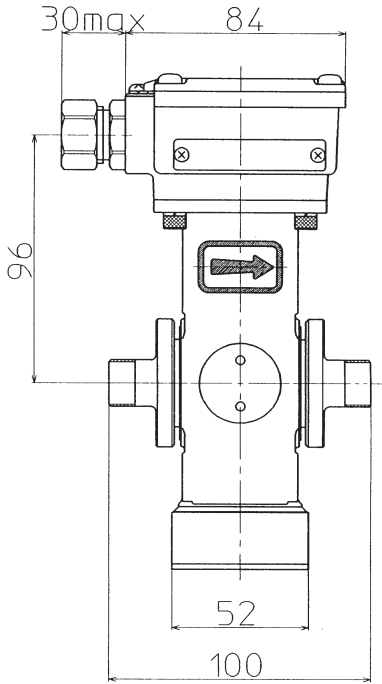
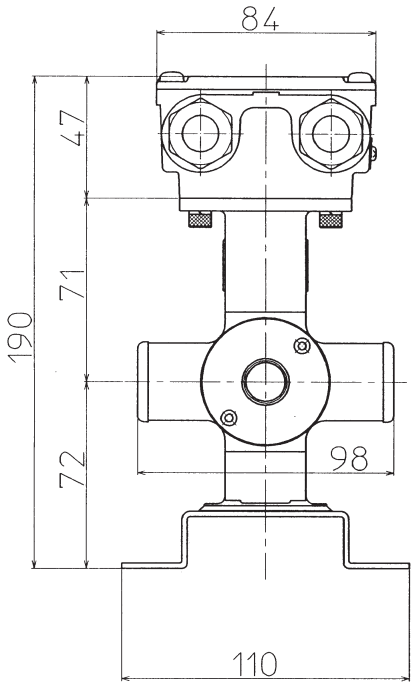
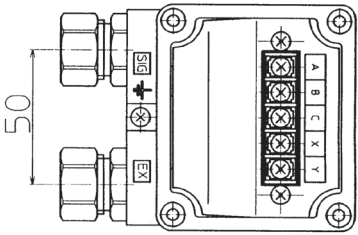
Dimension and terminal connection drawings

Union Joint

(Meter size 2.5 to 15 mm)

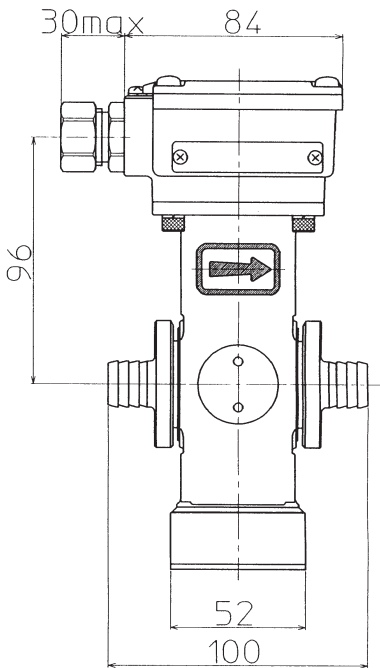
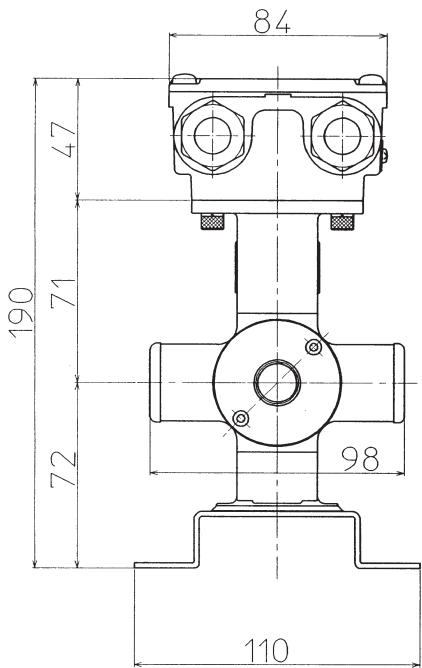
Terminal connection table

Symbol	Description
X	Excitation current input
Y	
A	Flow rate signal output
B	
C	Case-internal ground terminal



Hose Joint

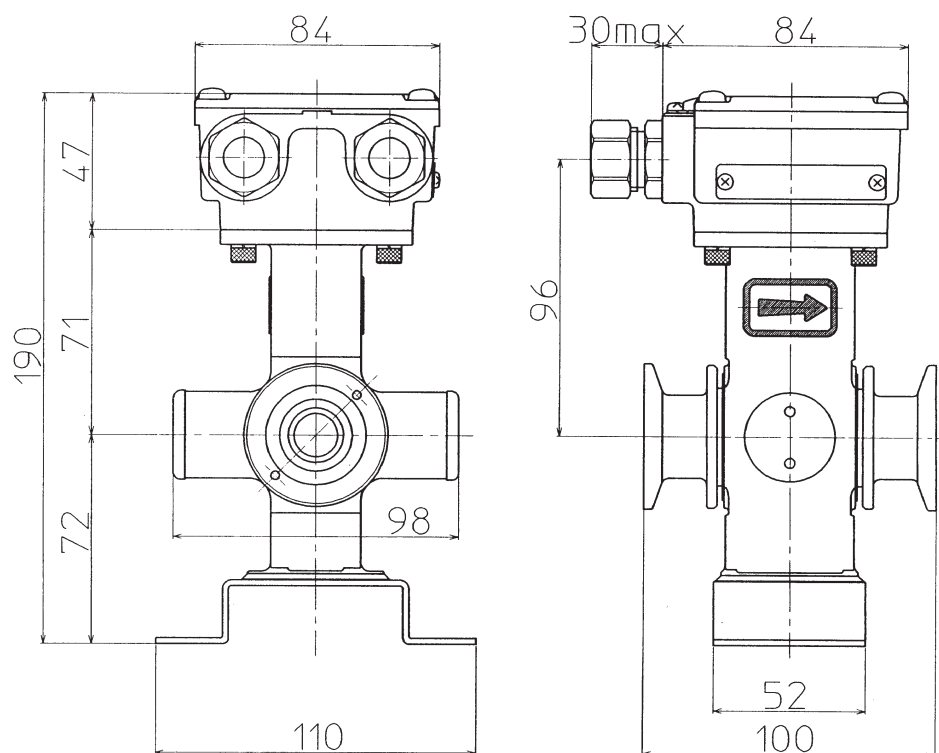
(Meter size 2.5 to 15 mm)



## IDF/Tri Clamp

(Meter size 2.5 to 15 mm)

(Unit: mm)



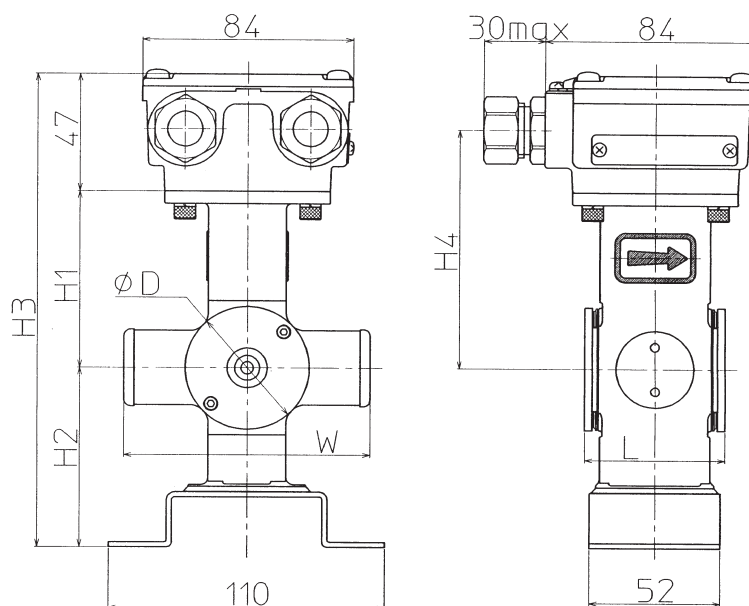
Note) 1. An integral detector includes an integral converter instead of a terminal box.

2. Clamp size : 1S

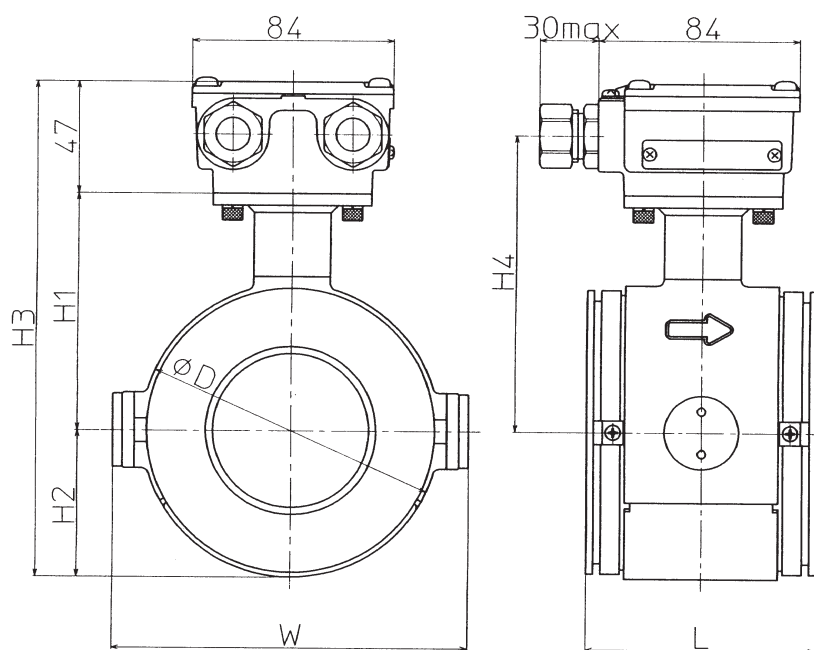
**Wafer**

(Meter size 2.5 to 15 mm)

(Unit: mm)

**Wafer**

(Meter size 25 to 200 mm)



(Unit: mm)

Detector diameter		2.5	5	10	15	25	40	50	65	80	100	125	150	200
Face to face dimension	L	56	56	56	56	56	80	86	96	106	120	140	160	200
	H1	71	71	71	71	77	84	93	100	108	120.5	133	160	185
Height	H2	72	72	72	72	34	43.5	52	62	67	79.5	95	110	135
	H3	190	190	190	190	158	174.5	192	209	222	247	275	317	367
	H4	96	96	96	96	102	109	118	125	133	145.5	158	185	210
Width	W	98	98	98	98	106	125	135	148	164	189	214	240	290
Outer diameter	$\phi D$	49.5	49.5	49.5	49.5	68	87	104	124	134	159	190	220	270
Mass (kg)		2.6	2.6	2.6	2.3	2.6	2.8	3.4	4.5	5.2	6.7	10.0	13.6	22.0

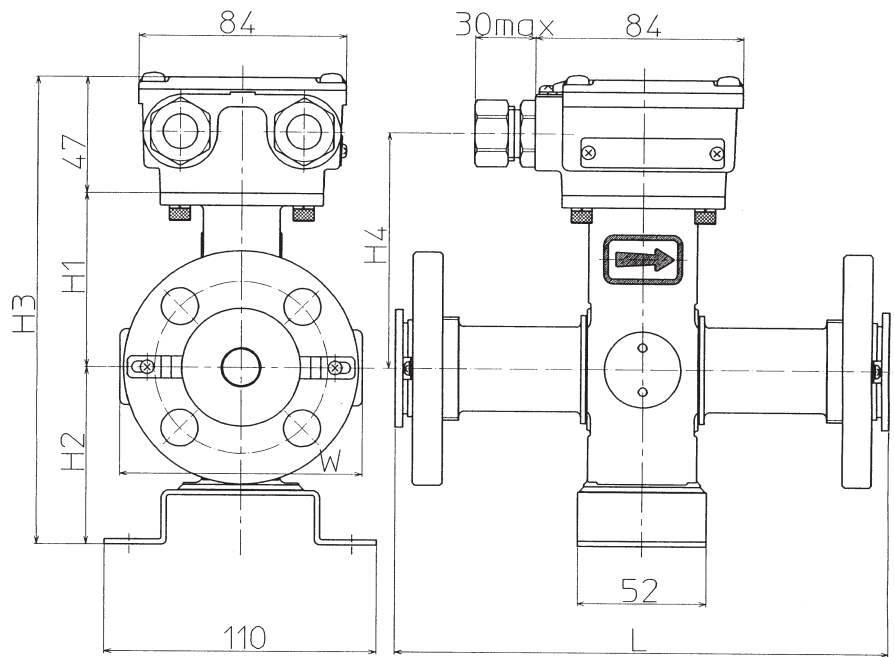
Note) 1. An integral detector includes an integral converter instead of a terminal box.



**Flange**

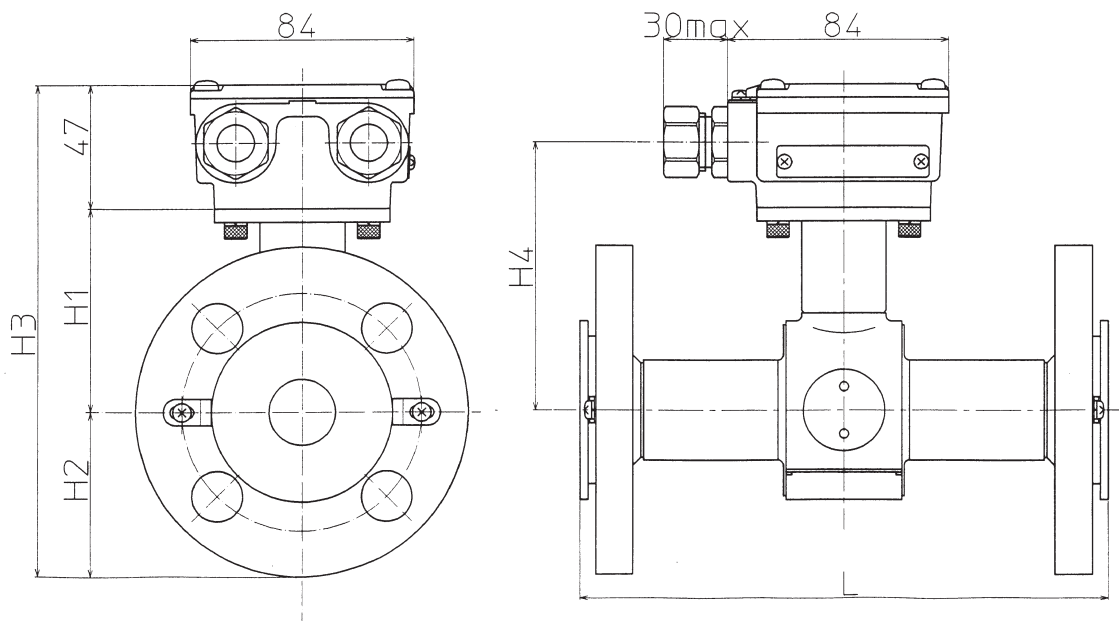
(Meter size 2.5 to 15 mm)

(Unit: mm)

**Flange**

(Meter size 25 to 150 mm)

(Unit: mm)



(Unit: mm)

Detector diameter		2.5	5	10	15	25	40	50	65	80	100	125	150
Face to face dimension	L	160	160	160	200	200	200	200	200	200	250	250	300
	Height												
Height	H1	71	71	71	71	77	84	93	100	108	120.5	133	160
	H2	72	72	72	72	63	70	77.5	87.5	92.5	105	125	140
	H3	190	190	190	190	187	201	217.5	234.5	247.5	272.5	305	347
	H4	96	96	96	96	102	109	118	125	133	145.5	158	185
Mass (kg)		5.0	5.0	5.0	5.0	7.4	6.5	10.1	12.1	12.6	18.4	26.0	30.6

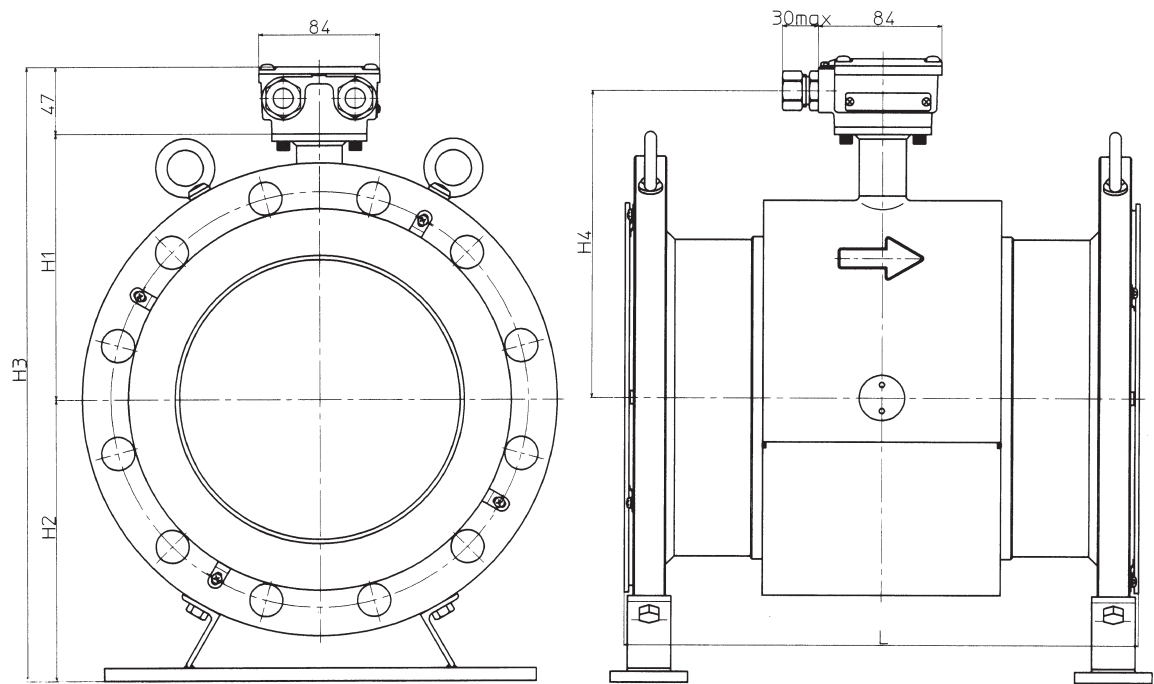
Note) 1. This table is for remote detectors .

2. An integral detector includes an integral converter instead of a terminal box.

Flange

(Meter size 200 to 600 mm)

(Unit: mm)



(Unit: mm)

		200	250	300	350	400	450	500	600
Face to face dimension	L	350	450	500	550	600	600	600	650
Height	H1	185	235	258	282	310	339	366	415
	H2	196	221	250	273	321	353	383	446
	H3	428	503	555	602	678	739	796	908
	H4	210	260	283	307	335	364	391	440
Mass (kg)		48.0	60.0	73.0	96.0	128.0	168.0	202.0	272.0

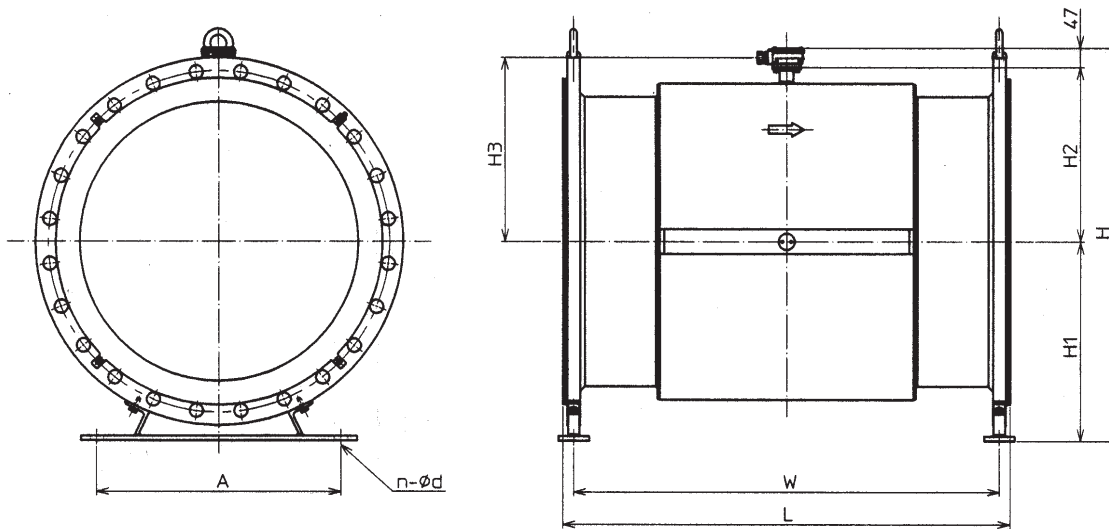
Note) 1. This table is for the remote detector .

2. An integral detector includes an integral converter instead of a terminal box.

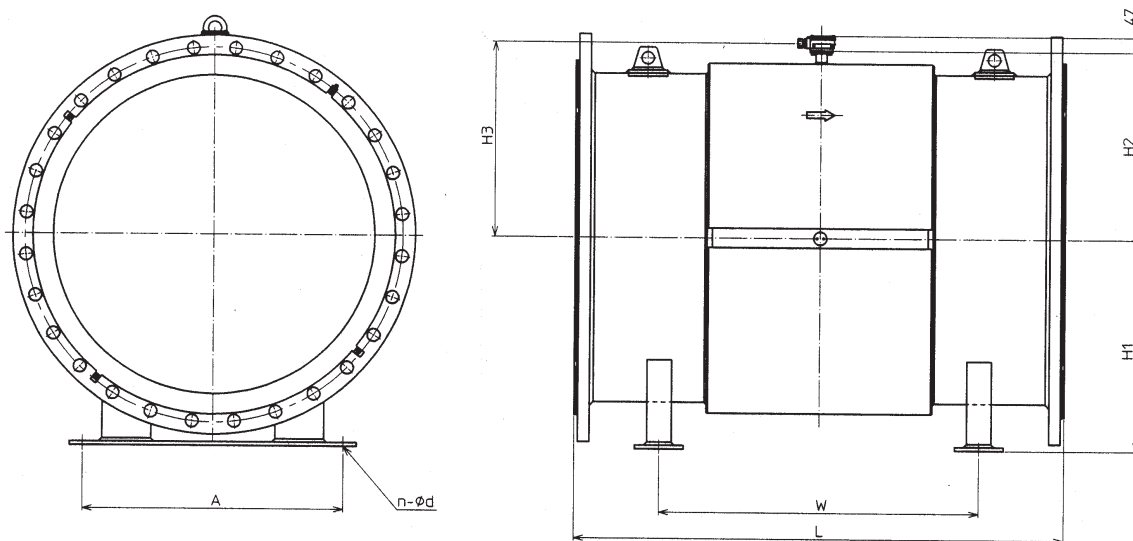
**Flange**

(Meter size 700 to 900 mm)

(Unit: mm)

**Flange**

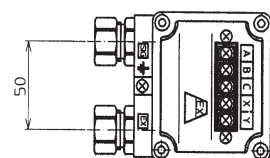
(Meter size 1000 to 1100 mm)



Detector diameter		700A	800A	900A	1000A	1100A
Face to face dimension	L	1100	1200	1300	1500	1500
Height	H	967	1081	1185	1278	1399
	H1	491	554	608	650	720
	H2	429	480	530	581	632
	H3	454	505	555	606	657
Feet length	W	1049	1147	1245	980	1000
Feet width	A	600	600	600	800	800
Feet holes*	n - φd	4 - φ33	4 - φ33	4 - φ33	4 - φ33	4 - φ33
Mass (kg)		394	476	566	823	930

Terminal connection table

Symbol	Description
X	Excitation current input
Y	
A	Flow rate signal output
B	
C	Case-internal ground terminal



\*: n = quantity, φd = diameter







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