# MagneW<sup>™</sup> PLUS+

# **Electromagnetic Flowmeter Detector** (General, FM Nonincendive Approval)

Model MGG18/MGG19/MGG11

#### **OVERVIEW**

The MagneW PLUS+ electromagnetic flowmeter detector is a high performance, highly reliable flowmeter developed with Azbil Corporation's proven MagneW3000 flow measurement technologies. Model MGG18 (watertight model) and model MGG19 (submersible model) offer superior process flowrate measurement and couple with a wide range of MagneW PLUS+ converters.

#### **FEATURES**

#### **High performance lining**

- A new, exclusive high quality lining technology and a special mirror-finish PFA lining offers higher anti-adhesive properties than existing models.
- The mirror-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 (0.1 to 24 inches) are available, making selection of the best lining easy for a wide variety of applications.

#### Replacement interfacing detector (optional)

• This detector can replace the detector interfaces of our existing models and those of other manufacturers. Please consult an Azbil Corp. representative for details.

#### **Rugged detector structure**

- A stainless steel case has been adopted for sizes of 2.5 mm to 200 mm (0.1 to 8 inches).
- A watertight structure effective for environments where moisture and condensation tends to occur is used for the water-tight model (model MGG18).



Size 2.5 to 600 mm (0.1 to 24 inches)



Size 700 to 1100 mm (28 to 44 inches)

## A wide variety of piping connections

- A hose or union joint or clamp can be selected for very small size models (diameters of 2.5 to 15 mm (0.1 to 1/2 inches)).
- A flange structure is available for all sizes (sizes of 2.5 to 1100 mm (0.1 to 44 inches).
- A wafer construction can be also selected (sizes of 2.5 to 200 mm (0.1 to 8 inches)).
- Sizes of 65 and 125 mm (2½ and 5 inches) have been added to our existing product lineup.

#### Compatibility

 Remote model converters can be used in combination with our conventional converters. Please consult an Azbil Corp. representative for details.

#### Type of protection

Model MGG 18/19 are suitable for use in FM Nonincendive Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III, Division 2.

#### **Improved Accuracy Specification**

The standard accuracy is +/- 0.5 % of rate. Also available is an optional high accuracy calibration rated at +/- 0.35 % of rate (sizes of 40 mm to 350 mm (1½ to 14 inches), combined with MGG14C).

#### **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

Aluminum 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.

#### **FUNCTIONAL SPECIFICATIONS**

#### Type of protection

#### Model MGG18, MGG11

JIS C 0920 watertight model NEMA ICS6-110 TYPE4X IEC PUBL 529 IP67

#### **Model MGG19**

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

If the product will be submerged for a long consecutive period of time or in a corrosive fluid, please contact us.

#### FM approval for MGG18 and MGG19

Nonincendive for Class I, Division 2, Groups A, B, C and D Suitable for Class II, Division 2, Groups F and G Suitable for Class III, Division 2, indoor and outdoor (type 4X) hazardous locations.

#### Line size

2.5, 5, 10, 15, 25, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000, 1100 mm

(0.1, 0.2, 3/8, 1/2, 1, 1½, 2, 2½, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24, 28, 32, 36, 40, 44 inches)

## Flange rating

JIS 10K, JIS 16K, JIS 20K, JIS 30K, JPI 150, JPI 300, ANSI 150, ANSI 300, DIN PN10, DIN PN16, DIN PN25, DIN PN40 (Size 2.5 to 65 mm (0.1 to 2.5 inches))

JIS 10K, JIS 16K, JIS 20K, JIS 30K, JIS G3443-2 F12 JPI 150, JPI 300, ANSI 150, ANSI 300, DIN PN10, DIN PN16, DIN PN25, DIN PN40 (Size 80 to 200 mm (3 to 8 inches))

JIS 10K, JIS 16K, JIS 20K, JIS G3443-2 F12 JPI 150, JPI 300, ANSI 150, ANSI 300, DIN PN10, DIN PN16, DIN PN25 (Size 250 to 600 mm (10 to 24 inches), PFA/ETFE lining)

JIS 10K, JIS G3443-2 F12, JPI 150, ANSI 150, DIN PN10 (Size 700 to 1100 mm (28 to 44 inches), chloroprene rubber lining)

#### Reference flange standard

JIS B 2210 (1984) ANSI B16.5 (1988) JPI-7S-15-93

#### **Optional specifications**

#### **Test report**

Calibration certificate, withstand voltage test, insulation resistant, hydrostatic pressure test, physical inspection are included.

#### **Traceability certificate**

The following three documents are included.

- Traceability System Chart
- Traceability Certificate
- Test Report

#### **Material certificate**

Material certificate for electrode/grounding ring

#### Gasket for plastic piping

When the detector is being mounted on plastic pipe, attach this gasket between the lining and the grounding ring, and between the grounding ring and the plastic pipe flange.

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

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

#### Attaching the tag number to the neck section

Stamp the tag with the specified number and attach to the neck section of the detector with stainless wire. The maximum number of characters of the tag number is 16.

#### Water free treatment

Condensation is removed from wetted surfaces.

#### Oil free treatment

When removed from wetted surfaces.

Note) For additional specifications, please contact your Azbil Corporation representative.

#### **PERFORMANCE SPECIFICATIONS**

#### **Accuracy**

(in combination with the model MGG14C converter) <Size 2.5 to 15 mm (0.1 to 1/2 inch)> Vs = Velocity of setting range

Vs (m/s)	Velocity during measurement ≥ Vs × 40 %	Velocity during measurement ≤ Vs × 40 %	
$1.0 \le Vs \le 10$	±0.5 % of rate	±0.2 % of Vs	
$0.1 \le \text{Vs} \le 1.0$	±(0.1/Vs+0.4)% of rate	±0.4(0.1/Vs+0.4)% of Vs	

<Size 25 to 600 mm (1 to 24 inches)>

Vs = Velocity of setting range

Vs (m/s)	Velocity during measurement ≥ Vs ×20 %	Velocity during measurement ≤ Vs ×20 %
$1.0 \le Vs \le 10$	±0.5 % of rate	±0.1 % of Vs
$0.1 \le \text{Vs} \le 1.0$	±(0.1/Vs+0.4)%	±0.2(0.1/Vs+0.4)%
$0.1 \leq \sqrt{8} \leq 1.0$	of rate	of Vs

<Size 700 to 1100 mm (28 to 44 inches)>

Vs = Velocity of setting range

Vs (m/s)	Velocity during measurement ≥ Vs × 50 %	Velocity during measurement ≤ Vs × 50 %
$1.0 \le Vs \le 10$	±1.0 % of rate	±0.5 % of Vs
$0.1 \le \text{Vs} \le 1.0$	±(0.2/Vs+0.8)% of rate	(0.1/Vs+0.4)% of Vs

Accuracy is guaranteed by the totalized flow volume under the condition of continuous flow measurement for 30 seconds or longer.

## **Additional accuracy:**

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

#### **Vibration effect**

Integral style: 4.9 m/s<sup>2</sup> (0.5 G) max.

Remote style converter: 4.9 m/s<sup>2</sup> (0.5 G) max. Remote style detector: 19.6 m/s<sup>2</sup> (2 G) max.

#### **Output fluctuation:**

When  $1 \le Vs \le 10$  m/s:  $\pm 0.1$  % FS or less When  $0.1 \le Vs \le 1$  m/s:  $\pm 0.1/Vs$  % FS or less

### Measurable fluid temperature range:

#### PFA lining

Diamantan	Measura	ble fluid tempera	ture (°C)
Diameter (mm)	Integral model	Remote model	Submersible
(111111)	_		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  $^{\circ}$ C.

#### ETFE lining

Diameter	Measura	Measurable fluid temperature (°C)			
Diameter (mm)	Integral model	Remote model	Submersible		
(111111)	_		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	Measurable fluid temperature (°C)
(mm)	Integral/remote/submersible models
25 to 200	-40  to  +50

## Chloroprene rubber lining

Diameter	Measurable fluid temperature (°C)		
(mm)	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;

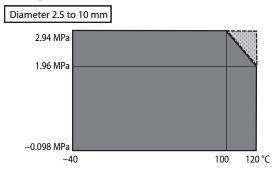
-0.098 to +2.94 MPa

Chloroprene rubber lining;

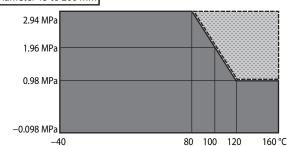
-0.098 to +0.98 MPa

## Integral/remote models

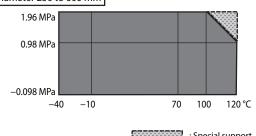
#### PFA lining



#### Diameter 15 to 200 mm

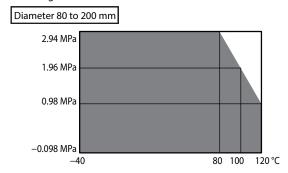


#### Diameter 250 to 600 mm

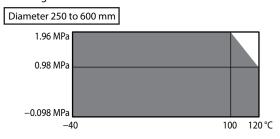


## Integral/remote models

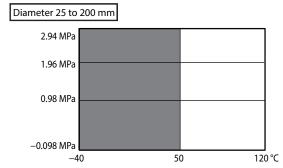
#### ETFE lining



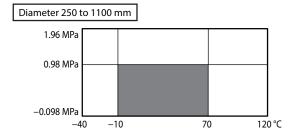
#### ETFE lining



#### Polyurethane rubber lining

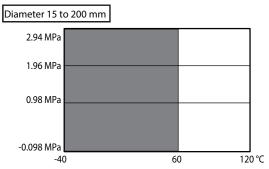


#### Chloroprene rubber lining

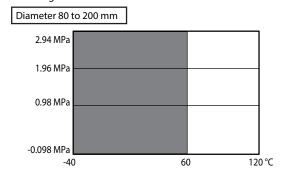


## Submersible model

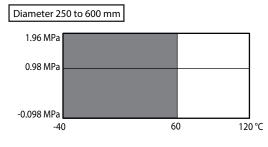
#### **PFA lining**



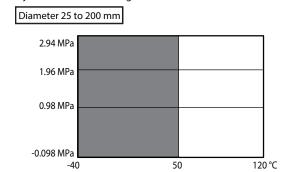
#### ETFE lining



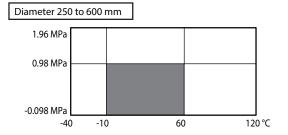
#### PFA/ETFE lining



#### Polyurethane rubber lining



#### Chloroprene rubber lining



## Measurable electrical conductivity

Combined with model MGG14C converter 3  $\mu\text{S/cm}$  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) Minimum range		Maximum flow velocity range is 0 to 10 m/s (0 to 32.8 ft/s) Maximum range		Conversion
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 to636.1	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

#### PHYSICAL SPECIFICATIONS

#### Main body material

#### Measuring pipe materials

SUS304 stainless steel

#### **Flange**

SUS304 stainless steel (size 2.5 to 65 mm (0.1 to 2½ inches))

Carbon steel + corrosion-preventive coating (size 80 to 600 mm (3 to 24 inches))

Carbon steel (size 700 to 1100 mm (28 to 44 inches))

#### Case

SCS13 stainless steel (size 2.5 to 15 mm (0.1 to 1/2 inch)) SUS304 stainless steel (size 25 to 200 mm (1 to 8 inches)) SS400 carbon steel (size 250 to 1100 mm (10 to 44 inches))

#### **Terminal box**

Aluminum alloy (remote model)

finish

#### **Paint**

#### **Model MGG18**

#### 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

Epoxy paint

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

Epoxy paint

#### Model MGG19

Tar epoxy paint

#### Color

#### **Model MGG18**

Cover: light beige (Munsell 4Y7.2/1.3)

Housing: dark beige (Munsell 10YR4.7/0/5)

#### **Model MGG19**

black

#### **Process wetted material**

#### Lining

PFA (size 2.5 to 600 mm (0.1 to 24 inches)) ETFE (size 80 to 600 mm (3 to 24 inches))

Polyurethane rubber (size 25 to 200 mm (1 to 8 inches)) Chloroprene rubber (size 250 to 1100 mm (10 to 44 inches))

#### **Electrode**

SUS316L, ASTM B574 (Hastelloy C-276 equivalent), titanium, zirconium, tantalum, tungsten-carbide, platinum/iridium

#### **Grounding ring**

SUS316, ASTM B575 (Hastelloy C-276 equivalent), titanium, zirconium, tantalum, platinum

#### **Union joint**

SUS316 (size 2.5 to 15mm (0.1 to 1/2 inch))

#### Hose

SUS316 (size 2.5 to 15mm (0.1 to 1/2 inch))

#### **IDF Clamp**

SUS316 (size 2.5 to 15mm (0.1 to 1/2 inch))

#### **Tri Clamp**

SUS316 (size 2.5 to 15mm (0.1 to 1/2 inch))

#### Gasket

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

#### **O-ring**

Viton rubber (with union joints)

## **INSTALLATION**

#### **Ambient temperature limits**

- -25 to + 60 °C (-13 to + 140 °F) (integral model)
- $-30 \text{ to} + 80 \,^{\circ}\text{C} (-22 \text{ to} + 176 \,^{\circ}\text{F}) \text{ (remote model, PFA lining)}$
- -30 to + 60 °C (-22 to + 140 °F) (remote model, polyurethane rubber lining/chloroprene rubber lining)
- -30 to + 60 °C (-22 to + 140 °F) (Submersible model, PFA/ ETFA lining)
- $-30 \text{ to} + 50 \,^{\circ}\text{C} (-22 \text{ to} + 122 \,^{\circ}\text{F})$  (Submersible model, polyurethane rubber lining)

#### **Ambient humidity limits**

5 to 100 % RH

#### **Electrical connection**

#### Integral model

Connected to converter

#### Remote model

#### **General** model

 $\mathrm{G1/2}$  (PF1/2) internal thread, 1/2 NPT internal thread, CM20 internal thread,

Pg 13.5 internal thread.

#### **FM Nonincendive model**

1/2NPT internal thread for model MGG18 Watertight gland for model MGG19

#### Pipe connection

Wafer (size 2.5 to 200 mm (0.1 to 8 inches))
Flange (size 2.5 to 1100 mm (0.1 to 44 inches))
Union (size 2.5 to 15 mm (0.1 to 1/2 inch))
Hose (size 2.5 to 15 mm (0.1 to 1/2 inch))
IDF Clamp (size 2.5 to 15 mm (0.1 to 1/2 inch))

Tri Clamp (size 2.5 to 15 mm (0.1 to 1/2 inch))

#### Nuts and bolts (for wafer models)

S20C carbon steel, SUS304 stainless steel

#### Grounding

Resistance less than 100  $\Omega$ 

#### Length of straight pipe

#### **Upstream side**

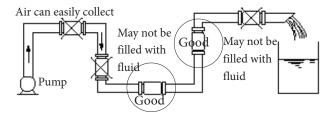
A minimum five straight pipe diameters A minimum 10 straight pipe diameters is required if a diffuser/valve/pump is installed upstream side.

#### Downstream side

Two straight pipe diameters is recommended.

#### **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.

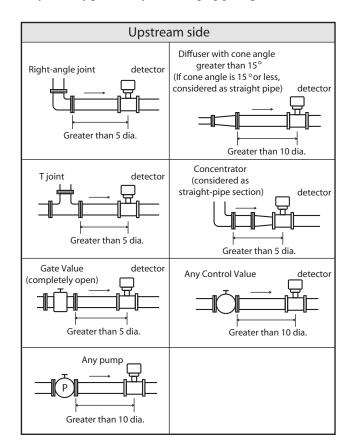


Figure 1.

# Cable (between remote detector and converter)

Maximum length 300 m (984 ft) (depends on fluid conductivity) Outer diameter 10 to 12 mm (0.4 to 0.47 inch)

#### Signal cable

Dedicated cable: MGA12W (O.D. 11.4 mm,  $0.75 \text{ mm}^2$ ) or equivalent (CVVS, CEEV etc.)

#### **Excitation cable**

 $\label{eq:mga12W} Dedicated \ cable: MGA12W \\ (O.D.\ 10.5\ mm,\ 2\ mm^2) \ or \ equivalent \ (CVV \ and \ others)$ 

## Maximum cable length of MGA12W cable

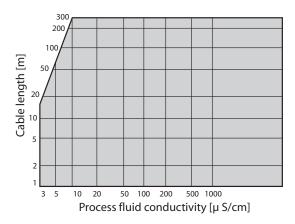


Figure 2. Maximum cable length of MGA12W cable

#### **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.

#### **A** 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.

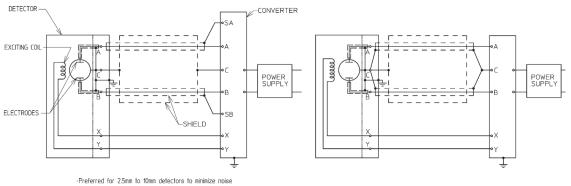
#### For FM Nonincendive model

This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D, Class II, Division 2, Groups F and G; Class III, Division 2.

If the combination of detector MGG 18/19 and converter MGG 14 C is used as an FM - NI product, both the detector and the converter must be used in combination with the NI specification.

#### **⚠** CAUTION

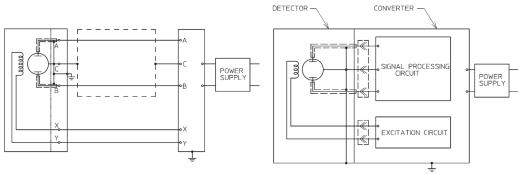
Power supply and internal voltage of ordinary equipment to the earth shall not exceed 250 V AC 50/60 Hz, 250 V DC in case of normal /fault conditions.



REMOTE TYPE : CONFIGURATION #1

REMOTE TYPE : CONFIGURATION #2

INTEGRAL TYPE : CONFIGURATION #1



REMOTE TYPE: CONFIGURATION #3

Table. 1

TYPE	MODEL NO.	MAX.AMBIENT TEMP.	MAX.FLUID TEMP	LINING	SIZE
	MGG14C		_	-	_
	MGM14C		_	_	-
INTEGRAL	MGM18D,F	60.00	120 °C	PFA,ETFE	40 to 600A
INTEGRAL	MGG18D,F,U	60 °C	120 °C	PFA,ETFE	2.5 to 600A
	MGG18D		50 °C	POLYURETHANE	25 to 200A
	MGS18U		120 °C	PFA	15 to 125A
	MGG14C	60 °C	-	_	-
	MGG18D,F	80 °C	160 °C	PFA	2.5 to 200A
			100.00	PFA	250 to 600A
			120 °C	120 °C	ETFE
REMOTE	MGG18D	60 °C	50 °C	POLYURETHANE	25 to 200A
	MGG18U	22.00	120 °C	PFA,ETFE	2.5 to 15A
	MGG19D,F,U	80 °C	120 °C	PFA,ETFE	2.5 to 600A
	MGG19D	60 °C	50 °C	POLYURETHANE	25 to 200A
	MGS18U 80 °C		160 °C	PFA	15 to 125A

Note

- 1. Ambient Temperature, Process Temperature: See Table. 1.
- 2. Power Supply and Internal Voltage of Ordinary Equipment to the Earth. shall not exceed AC250V 50/60Hz, DC250V incase of Normal/Fault conditions.
- 3. In Division 2 Location.

- Fluid being measured must be non-flammable.
- Install Wiring per NEC 501-4(b) or 502-4(b).
- 4. Degree of Protetion of Enclosure

MGG14C, MGG18D,U,F, MGS18U, MGM14C, MGM18D,F: Type 4X MGG19D,U,F: Type 6P

#### **MODEL SELECTION**

#### Contents of model number table

Detector (General model)

Structure / Basic model no.	Lining	Pipe connection	Size		Ref. page
Watertight model MGG18U	PFA	Union / Hose / Clamp	2.5 to 15 mm	(0.1 to 1/2 inch)	page 13
Watertight model MGG18D	PFA	Wafer	2.5 to 10 mm	(0.1 to 3/8 inch)	page 14
Watertight model MGG18D	PFA / ETFE	Wafer	15 to 200 mm	(1/2 to 8 inches)	page 15
Watertight model MGG18F	PFA / ETFE	Flange	15 to 200 mm	(1/2 to 8 inches)	page 16
Watertight model MGG18F	PFA / ETFE	Flange	250 to 600 mm	(10 to 24 inches)	page 17
Watertight model MGG18D	Polyurethane rubber	Wafer	25 to 200 mm	(1 to 8 inches)	page 18
Watertight model MGG18F	Chloroprene rubber	Flange	250 to 600 mm	(10 to 24 inches)	page 19
Watertight model MGG11F	Chloroprene rubber	Flange	700 to 1100 mm	(28 to 44 inches)	page 20

#### Detector (Submersible model)

Structure / Basic model no.	Lining	Pipe connection	S	ize	Ref. page
Submersible model MGG19D	PFA / ETFE	Wafer	15 to 200 mm	(1/2 to 8 inches)	page 21
Submersible model MGG19F	PFA / ETFE	Flange	15 to 200 mm	(1/2 to 8 inches)	page 22
Submersible model MGG19F	PFA / ETFE	Flange	250 to 600 mm	(10 to 24 inches)	page 23
Submersible model MGG19D	Polyurethane rubber	Wafer	25 to 200 mm	(1 to 8 inches)	page 24

Note) All MGG19 models satisfy FM Nonincendive approval.

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.

## Union / Hose / Clamp type (2.5 to 15 mm (0.1 to 1/2 inch)) PFA lining

Model MGG18U - I II III IV V VI VII VIII IX - X - Y / Options (some options can be selected per each model)

ъ	Basic model no.			Selections							Optiona		select	tions
	MGG18	U											] -	
			•										Ī	
I I	Line size	2.5 mm	(0.1 inch)	002										
		5 mm	(0.2 inch)	005										
		10 mm	(3/8 inch)	010										
		15 mm	(1/2 inch)	015										
II I	Lining	PFA			P									
	Piping	Union joint	R1/2 (PT1/2) external thread			U1								
	connection	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								
IV 1	Electrode	SUS316L					L	1						
		ASTM B574	(Hastelloy C-276 equivalent)				С	]						
		Titanium					K							
		Zirconium					Н	1						
		Tungsten ca	rbide (only for size 10 mm or upper)				W	1						
		Other					_	]						
V	Grounding ring	SUS316						S						
	Electrical	Integral type							1					
	connection /	Remote	G1/2 internal thread / without watertight glan	d					2					
'	watertight gland	type	G1/2 internal thread / with brass (Ni-plated) v		nt glan	d			3					
			G1/2 internal thread / with plastic watertight	-					4					
			1/2NPT internal thread / without watertight g		ote 1)				5					
			CM20 internal thread / without watertight gla	nd					6					
			Pg 13.5 internal thread / without watertight gl						7					
			G1/2 internal thread / with SUS304 watertight	gland					8					
VII ]	Face-to-face	Standard								A				
	Installation /	Integral type									Н			
7	wiring direction	Remote	Upstream side (horizontal / vertical piping mo								A			
		type	Downstream side (horizontal / vertical piping								В			
			Horizontal piping mounting / left side viewed								С			
			Horizontal piping mounting / right side viewe	d from 1	ıpstrea	am					D			
IX	Calibration	Standard										A		
		Other										_		
X	Finish	Standard												X
		Corrosion-r	esistant finish											1
		Corresion-r	proof finish											2

su	Azbil Corporation version (must be selected)	Y
Options	Traceability certificate for detector	В
0	Material certificate (only for electrodes and ground rings)	С
	Attachment of the TAG number to the terminal box for detector (Note 2)	K
	Attachment of the TAG number plate to the neck section for detector	L
	Water free treatment	Е
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval

## Wafer type (2.5 to 10 mm (0.1 to 3/8 inch)) PFA lining

Model MGG18D - I II III IV V VI VII VIII IX - X XI - Y / Options (some options can be selected per each model)

	Basic model no.			Selecti	ions						Optio	nal	selec	tions	
	MGG18	BD	1 -										1 -		
			•										1		
I	Line size	2.5 mm	(0.1 inch)	002											
1	Line Size	5 mm	(0.2 inch)	005											
		10 mm	(3/8 inch)	010											
II	Lining	PFA	(370 men)	010	P										
III		Wafer JIS 10	NV		1	11									
111	Piping connection	Wafer JIS 20				12									
	Connection	Wafer JIS 30				13									
			)/20K for 10 mm flange			14									
			VK for 10 mm flange			15									
		Wafer ANSI				21									
		Wafer ANSI	1			22									
		Wafer DIN I				41									
		Wafer DIN I				42									
		Wafer DIN I	-			43							-		
		Wafer DIN I				43									
			PN10/16/25/40 for 10 mm flange			45									
		Wafer JPI 15				61									
		Wafer JPI 13				62									
IV	Electrode	SUS316L				02	L								
1 V	Electrode		(Hastelloy C-276 equivalent)				C								
		Titanium	(Trustency C-2/0 equivalent)				K								
		Zirconium					Н								
		Tantalum					Т								
			-1: 1. (1-610)												
		Platinum iri	rbide (only for size 10 mm)				W P								
			dium				P								
		Other					_								
V	Grounding ring	SUS316						S							
			(Hastelloy C-276 equivalent)					С							
		Titanium						K							
		Zirconium						H							
		Tantalum						T							
		Platinum						P							
		Other						_							
VI	Electrical	Integral type							1						
	connection /	Remote	G1/2 internal thread / without watertig						2						
	watertight gland	type	G1/2 internal thread / with brass (Ni-p		gland				3						
			G1/2 internal thread / with plastic wat						4						
			1/2NPT internal thread / without water		1)				5						
			CM20 internal thread / without watert						6						
			Pg 13.5 internal thread / without water						7						
			G1/2 internal thread / with SUS304 wa	tertight gland					8						
VII	Face-to-face	Standard								A					
	dimensions	Other								_					
VIII	Installation /	Integral type									Н				
	wiring direction	Remote	Upstream side (horizontal / vertical pi								A				
		type	Downstream side (horizontal / vertical								В				
			Horizontal piping mounting / left side								С				
			Horizontal piping mounting / right sid	le viewed from ups	stream						D				
IX	Calibration	Standard										A			
		Other									T				
													-		
X	Finish	Standard												X	
			esistant finish											1	1
		Corrosion-p												2	1
XI	Bolt / nut	None													
	_ = = = = = = = = = = = = = = = = = = =														+-
		Carbon steel													

su	Azbil Corporation version (must be selected)	Y
Options	Traceability certificate for detector	В
Op	Material certificate (only for electrodes and ground rings)	С
	With gasket for plastic piping	J
	Attachment of the TAG number to the terminal box for detector (Note 2)	K
	Attachment of the TAG number plate to the neck section for detector	L
	Water free treatment	Е
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval
2. Must be selected for Tag no. requirement

**Azbil Corporation** 

## Wafer type (15 to 200 mm (1/2 to 8 inches)) PFA / ETFE lining

Model MGG18D - I II III IV V VI VII VIII IX - X XI - Y / Options (some options can be selected per each model)

Line size		Basic model no.		_	Selec	tions							Optiona	l <u>s</u> elec	ctions
25 mm		MGG18	D	1 -											
25 mm				•											
25 mm	I	Line size	15 mm	(1/2 inch)	015										
	1	Line size													
Somm															
65 mm   20 inches   0.65   80 mm   3 inches   0.80   100 mm   4 inches   1.00   125 mm   5 inches   1.00   125 mm   5 inches   1.00   125   150 mm   6 inches   1.50   100 mm   6 inches   1.50   12   100 mm   6 inches   1.50   100 mm   6															
Street				( )		1									
100 mm						-									
125 mm (5 inches)   150															
150 mm						1									
II			-			1									
Image						-									
PPA   Wafer IS 10 N	**	T			200	-									
Piping	11	Lining		to 200 mm (3 to 8 inches))											
Connection   Wafer IB 20R   13   13   14   15   15   15   15   15   15   15	***	D				P		-							
Wafer JAS 30R   31   Wafer ANSI 300   22   Wafer ANSI 300   22   Wafer JDN PN10   41   Wafer DDN PN10   42   Wafer DDN PN10   42   Wafer DDN PN10   42   Wafer DDN PN10   42   Wafer DDN PN10   44   Wafer DDN PN10   44   Wafer DDN PN10   42   Wafer DDN PN10   62   Wafer DDN PN10   Wafer DDN PN10   62   Wafer DDN PN10   62   Wafer DDN PN10   62   Wafer DDN PN10   62   Wafer DDN PN10   Wafer DDN PN	III						_	4							
Wafer ANSI 150		connection						4							
Wafer ANSI 300															
Wafer ING 5443-2 F12 (size 80 mm or larger)			Wafer ANSI 15	50			21	_							
Wafer DIN PN16															
Wafer DIN PN16			Wafer JIS G34	43-2 F12 (size 80 mm or larger)			31								
Wafer DIN PN25			Wafer DIN PN	10			41								
Wafer DIN PN40			Wafer DIN PN	16			42								
Wafer   P1   150			Wafer DIN PN	25			43								
Note			Wafer DIN PN	40			44	1							
Note			Wafer JPI 150				61	1							
V							62	1							
ASTM B574 (Hastelloy C-276 equivalent)	IV	Electrode	+				!	L	1						
Titanium	1 4	Licetrode		Hastellov C-276 equivalent)				_	1						
V   Grounding ring   Tantahum				instelloy of 270 equivalent)				_	1						
Tantalum								+	1						
Tungsten carbide								_	1						
Platinum iridium				do				_	1						
Other			_					_	┨						
V   Grounding ring   SUS316				ım				P	-						
ASTM B575 (Hastelloy C-276 equivalent)										_					
Titanium	V	Grounding ring							+						
VI				Hastelloy C-276 equivalent)					_	-					
Tantalum									_						
Platinum									_						
Other									_						
VI   Electrical connection / watertight gland   Remote type   G1/2 internal thread / without watertight gland   G1/2 internal thread / with plastic watertight gland   G1/2 internal thread / with plastic watertight gland   G1/2 internal thread / without watertight gland   G1/2 internal thread / with SUS304 watertight gland   S1/2 internal thread / without watertight gland   S1/2 internal thread / with SUS304 watertight gland   S1/2 internal thread / without watertight gland   S1									P						
connection / watertight gland			Other						_						
connection / watertight gland	VI	Electrical	Integral type							1					
watertight gland  G1/2 internal thread / with brass (Ni-plated) watertight gland G1/2 internal thread / with plastic watertight gland (A) 1/2NPT internal thread / without watertight gland (B) 1/2NPT internal thread / without watertight gland (CM20 internal thread / without watertig				G1/2 internal thread / without watertight g	land					2	i				
G1/2 internal thread / with plastic watertight gland 4 1/2NPT internal thread / without watertight gland (Note 1) 5 CM20 internal thread / without watertight gland 6 Pg 13.5 internal thread / without watertight gland 7 G1/2 internal thread / without watertight gland 8  VII Face-to-face dimensions Other A Unstallation / wiring direction P Wiring direction Wiring direction Obovers and the province of the plant of the pl			/1			nd				3	i				
1/2NPT internal thread / without watertight gland (Note 1)   5		stor tigitt gitting								_	1				
CM20 internal thread / without watertight gland   6   Pg 13.5 internal thread / without watertight gland   7   G1/2 internal thread / with SUS304 watertight gland   8      VII   Face-to-face dimensions   Other						)					1				
Pg 13.5 internal thread / without watertight gland   7   G1/2 internal thread / with SUS304 watertight gland   8											1				
VII   Face-to-face dimensions   Other   Continue   Co					, ,						1				
VII       Face-to-face dimensions       Standard       A         VIII       Installation / wiring direction       Integral type Remote type Wiring direction and power type Programs (horizontal / vertical piping mounting)       Horizontal piping mounting (horizontal / vertical piping mounting)       B         IX       Calibration       Standard Horizontal piping mounting / right side viewed from upstream Integral piping mounting / right side viewed from upstream										_	1				
Calibration   Other   Other   Calibration   Other   Other   Calibration   Other   Cali	3711	Eace to face	Standard	with 50000 waterti	D-11 D-11110						А				
VIII   Installation / wiring direction   Remote type   Upstream side (horizontal / vertical piping mounting)   A   Downstream side (horizontal / vertical piping mounting)   B   Horizontal piping mounting / left side viewed from upstream   C   Horizontal piping mounting / right side viewed from upstream   D	V 11										- 11				
wiring direction  Remote type  Upstream side (horizontal / vertical piping mounting)  Downstream side (horizontal / vertical piping mounting)  Horizontal piping mounting / left side viewed from upstream  C  Horizontal piping mounting / right side viewed from upstream  D  IX  Calibration  Standard  +/- 0.35 % of rate calibration (Size 40 to 200 mm (1 1/2 to 8 inches))  U	****														
Downstream side (horizontal / vertical piping mounting)   B   Horizontal piping mounting / left side viewed from upstream   C   Horizontal piping mounting / right side viewed from upstream   D	VIII			Iv.								_			
Horizontal piping mounting / left side viewed from upstream  C Horizontal piping mounting / right side viewed from upstream  D  IX Calibration Standard +/- 0.35 % of rate calibration (Size 40 to 200 mm (1 1/2 to 8 inches))  U		wiring direction	Remote type									_			
Horizontal piping mounting / right side viewed from upstream   D															
IX   Calibration   Standard   A   +/- 0.35 % of rate calibration (Size 40 to 200 mm (1 1/2 to 8 inches))   U															
+/- 0.35 % of rate calibration (Size 40 to 200 mm (1 1/2 to 8 inches))			1	Horizontal piping mounting / right side vie	wed from upstr	eam						D	igsquare		
+/- 0.35 % of rate calibration (Size 40 to 200 mm (1 1/2 to 8 inches))	IX	Calibration													
Other			+/- 0.35 % of r	ate calibration (Size 40 to 200 mm (1 1/2 to 8	inches))								U		
· · · · · · · · · · · · · · · · · · ·			Other												
X Finish Standard X	Y	Finish	Standard											X	1
Corrosion-resistant finish	Λ	1 1111011		stant finish										_	-
Corrosion-proof finish 2															$\dashv$
	VI	Polt /t	1	01 1111011										1 4	X
XI Bolt / nut None	Al	DOIT / NUT													_
Carbon steel															1
SUS304			SUS304												2

ſ	su	Azbil Corporation version (must be selected)	Y
l	Options	Traceability certificate for detector	В
l	OF	Material certificate (only for electrodes and ground rings)	С
l		With gasket for plastic piping	J
١		Attachment of the TAG number to the terminal box for detector (Note 2)	K
l		Attachment of the TAG number plate to the neck section for detector	L
١		Water free treatment	Е
١		Oil free treatment	F

Note) 1. Must be selected for FM NI approval

## Flange type (15 to 200 mm (1/2 to 8 inches)) PFA / ETFE lining

Model MGG18F - I II III IV V VI VII VIII IX X - XI - Y / Options (some options can be selected per each model)

	Basic model no.	Selections Optional sel								select	ions				
	MGG18	3F	1 .											-	Г
			•												T
Ι	Line size	15 mm	(1/2 inch)	015											
		25 mm	(1 inch)	025											Ì
		40 mm	(1½ inches)	040											
		50 mm	(2 inches)	050											İ
		65 mm	(2½ inches)	065											İ
		80 mm	(3 inches)	080											
		100 mm	(4 inches)	100											ı
		125 mm	(5 inches)	125											
		150 mm	(6 inches)	150											İ
		200 mm	(8 inches)	200											İ
II	Lining	ETFE (Size 80	to 200 mm (3 to 8 inches))		Е										
		PFA			P	1									İ
II	Piping	Flange JIS 10K				J1									
11	connection	Flange JIS 20K				J2									
		Flange JIS 30K				J3									
		Flange ANSI 1				A1									
		Flange ANSI 3				A2									
			143-2 F12 (line size 80 mm or larger)			G1									
		Flange DIN Pi				D1									
		Flange DIN Pi		,		D2									1
		Flange DIN Pi				D3									
		Flange DIN Pi				D4									
		Flange JPI 150		-		P1									1
		Flange JPI 300				P2									
V	Flange material	Standard	<u>'</u>			12	1	1							
V	Flange material	Other					1	1							
7	Pl . 1							T							
V	Electrode	SUS316L	(It-ll C 276ilt)					L							
			Hastelloy C-276 equivalent)					C							
		Titanium						K							
		Zirconium						H							
		Tantalum	:1.					T							
		Tungsten carb						W							
		Platinum iridi	um					P							
		Other						_	_						-
VI	Grounding ring	SUS316							S	ļ					
			Hastelloy C-276 equivalent)						С						
		Titanium							K	ļ					
		Zirconium							Н						
		Tantalum							Т						
		Platinum							P						
		Other							_						
ΊI	Electrical	Integral type								1					-
	connection /	Remote type	G1/2 internal thread / without watertight gl							2					
	watertight gland		G1/2 internal thread / with brass (Ni-plated		nd					3					
			G1/2 internal thread / with plastic watertigh							4					
			1/2NPT internal thread / without watertigh		)					5					
			CM20 internal thread / without watertight §							6					
			Pg 13.5 internal thread / without watertight							7					
			G1/2 internal thread / with SUS304 watertig	ght gland						8					
III	Face-to-face	Standard									A				
	dimensions	Other									_				
X	Installation /	Integral type										Н			1
	wiring direction	Remote type	Upstream side (horizontal / vertical piping	mounting)								A			
			Downstream side (horizontal / vertical pipi									В			
			Horizontal piping mounting / left side view	ed from upstrea	ım							С			
			Horizontal piping mounting / right side vie									D			
X	Calibration	Standard											A		
		+/- 0.35 % of r	ate calibration (Size 40 to 200 mm (1 1/2 to 8	inches))									U		
		Other	•										$\sqcap$		
	l.														
ΧI	Finish	Standard													+
*1	1 1111011	Corrosion-res	istant finish		-										+
	I														+
		Corrosion-pro	oof finish												-

ns	Azbil Corporation version (must be selected)	Y
Options	Traceability certificate for detector	В
Op	Material certificate (only for electrodes and ground rings)	С
	With gasket for plastic piping	J
	Attachment of the TAG number to the terminal box for detector (Note 2)	K
	Attachment of the TAG number plate to the neck section for detector	L
	Water free treatment	Е
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval

## Flange type (250 to 600 mm (10 to 24 inches)) PFA / ETFE lining

Model MGG18F - I II III IV V VI VII VIII IX X - XI - Y / Options (some options can be selected per each model)

	Basic model no.			Select	ions						Optio	onal	select	ions	
	MGG18	3F	1 .											-	
		1	•											Ī	
I	Line size	250 mm	(10 inches)	250											
		300 mm	(12 inches)	300											
		350 mm	(14 inches)	350											
		400 mm	(16 inches)	400											
		450 mm	(18 inches)	450											
		500 mm	(20 inches)	500											
		600 mm	(24 inches)	600											
II	Lining	ETFE			Е										
		PFA			P										
III	Piping	Flange JIS 10K				J1									
	connection	Flange JIS 20K				J2									
		Flange ANSI 1				A1									
		_	00 (Size 16 inches or smaller)			A2									
		Flange JIS G34				G1									
		Flange DIN PN				D1									
		Flange DIN PN				D2									
		Flange DIN PN				D3									
		Flange JPI 150				P1									
77.7	T1 1	Standard	(Size 400 mm or smaller)			P2	,								
IV	Flange material	Other					1								
V	Electrode	SUS316L	Y . 11 Come . 1 1 .)					L							
			Hastelloy C-276 equivalent)					C							
		Titanium						K							
		Zirconium						H							
		Tantalum	.1					T							
		Tungsten carbi						W							
		Other	ım					P							
***															
VI	Grounding ring	SUS316	Jactallay C 276 aguirralant)						S						
		Titanium	Hastelloy C-276 equivalent)						C K						
		Other							K						
7.777	DI I								_	1					
VII	Electrical	Integral type	G1/2 internal thread / without watertight gla	and .						2					
	connection / watertight gland	Remote type	G1/2 internal thread / with brass (Ni-plated)		, d					3					
	water tigitt grand		G1/2 internal thread / with plastic watertigh		IU					4					
			1/2NPT internal thread / without watertight							5					
			CM20 internal thread / without watertight g			-				6					
			Pg 13.5 internal thread / without watertight							7					
			G1/2 internal thread / with SUS304 watertig							8					
VIII	Face-to-face	Standard	1 Section 1								A	1			
V 111	dimensions	Other										1			
IX	Installation /	Integral type										Н			
ıΛ	wiring direction	Remote type	Upstream side (horizontal / vertical piping n	nounting)								A			
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- comote type	Downstream side (horizontal / vertical piping in									В	-		
			Horizontal piping mounting / left side viewe		m							С	-		
			Horizontal piping mounting / right side view			-						D			
X	Calibration	Standard											A		
21			ate calibration (Size 250 to 350 mm (10 to 14 i	nches))									U		
		Other	, , , , , , , , , , , , , , , , , , , ,	**											
	1													I	
XI	Finish	Standard													X
ЛІ	1 1111511	Corrosion-resi	stant finish												1
		Corrosion-pro													2
	I	1 January Pro				-									

us	Azbil Corporation version (must be selected)	Y
Options	Traceability certificate for detector	В
l o	Material certificate (only for electrodes and ground rings)	C
	With gasket for plastic piping	J
	Attachment of the TAG number to the terminal box for detector (Note 2)	K
	Attachment of the TAG number plate to the neck section for detector	L
	Water free treatment	E
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval

## Wafer type (25 to 200 mm (1 to 8 inches)) Polyurethane rubber lining

Model MGG18D - I II III IV V VI VII VIII IX - X XI - Y / Options (some options can be selected per each model)

	Basic model no.			Selecti	ions						Optio	nal	select	ions	
	MGG18	BD	1 .										1 - 1		Т
			-										1 '		Г
I	Line size	25 mm	(1 inch)	025											
		40 mm	(1½ inches)	040											
		50 mm	(2 inches)	050											
		65 mm	(2½ inches)	065											
		80 mm	(3 inches)	080											
		100 mm	(4 inches)	100											
		125 mm	(5 inches)	125											
		150 mm	(6 inches)	150											
		200 mm	(8 inches)	200											
II	Lining	Polyurethane i	rubber	· I	Q										
III	Piping	Wafer JIS 10K				11									
111	connection	Wafer JIS 20K				12									
		Wafer JIS 30K				13									
		Wafer ANSI 1				21									
		Wafer ANSI 30				22									
			43-2 F12 (line size 80 mm or larger)			31									
		Wafer DIN PN				41									
		Wafer DIN PN				42									
		Wafer DIN PN				43									
		Wafer DIN PN				44									
		Wafer JPI 150	110			61									
		Wafer JPI 300				62									
IV	Electrode	SUS316L				02	L	1							
1 V	Electrode	Titanium					K	1							
			ide (only for size 10 mm)				W	1							
		Other	ide (only for size to min)				VV	1							
* 7	0 1: :						_								
V	Grounding ring	SUS316						S							
		Titanium						K							
		Other													
VI	Electrical	Integral type							1						
	connection /	Remote type	G1/2 internal thread / without watertigh						2						
	watertight gland		G1/2 internal thread / with brass (Ni-pla		ıd				3						
			G1/2 internal thread / with plastic water						4						
			1/2NPT internal thread / without watert						5						
			CM20 internal thread / without watertig						6						
			Pg 13.5 internal thread / without waterti	ght gland					7						
			G1/2 internal thread / with SUS304 water	ertight gland					8						
VII	Face-to-face	Standard								A					
	dimensions									11					
VIII	Installation /	Integral type									Н				
	wiring direction	Remote type	Upstream side (horizontal / vertical pipi	ng mounting)							A				
			Downstream side (horizontal / vertical p								В				
			Horizontal piping mounting / left side vi	iewed from upstream	n						С				
			Horizontal piping mounting / right side	viewed from upstrea	am						D				
IX	Calibration	Standard	·								•	A	1		
		+/- 0.35 % of r	rate calibration (Size 40 to 200 mm (1 1/2 to	o 8 inches))								U	]		
		Other										_	1		
	1	1											1		
X	Finish	Standard												X	1
Λ	1.1111211	Corrosion-res	istant finish											1	1
		Corrosion-pro												2	1
VI	D - 14 / 1		701 11111311												+
XI	Bolt / nut	None Corbon steel													╀
		Carbon steel SUS304													+

ns	Azbil Corporation version (must be selected)	Y
tio	Traceability certificate for detector	В
Options	Material certificate (only for electrodes and ground rings)	С
	With gasket for plastic piping	J
	Attachment of the TAG number to the terminal box for detector (Note 2)	K
	Attachment of the TAG number plate to the neck section for detector	L
	Water free treatment	Е
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval
2. Must be selected for Tag no. requirement

## Flange type (250 to 600 mm (10 to 24 inches)) Chloroprene rubber lining

Model MGG18F - I II III IV V VI VII VIII IX X - XI - Y / Options (some options can be selected per each model)

	Basic model no.		-	Selection	18					Optio	onai	seiect	ions
	MGG1	8F											-
	ı	1											
Ι	Line size	250 mm	(10 inches)	250									
		300 mm	(12 inches)	300									
		350 mm	(14 inches)	350									
		400 mm	(16 inches)	400									
		450 mm	(18 inches)	450									
		500 mm	(20 inches)	500									
**		600 mm	(24 inches)	600									
II	Lining	Chloroprer		R	-								
III	Piping connection	Flange JIS			J1								
	Connection	Flange AN			A1								
			G3443-2 F12		G1								
		Flange DIN Flange JPI			D1								
13.7	Elamas mastanial	Standard	150		P1	1	-						
IV	Flange material	Other				1	-						
V	Electrode	SUS316L				_	L						
V	Electrode	Titanium					K						
		Tungsten c	arhida				W						
		Other	arbide										
VI	Grounding ring	SUS316					_	S					
V I	Grounding ring	Titanium						K					_
		Other						K					
VII	Electrical	Integral typ	ne .					_	1	-			
V 11	connection /	Remote	G1/2 internal thread / without v	vatertight gland					2	_	A H A B C D A U		
	watertight gland	type	G1/2 internal thread / with bras		ight glan	d			3	_			
		71	G1/2 internal thread / with plas		igiit giaii		-		4	-			
			1/2NPT internal thread / without		Note 1)				5	-			
			CM20 internal thread / without		11010 1)				6	-			
			Pg 13.5 internal thread / withou						7				
			G1/2 internal thread / with SUS						8	-			
/III	Face-to-face	Standard		8 8						A	1		
	dimensions	Other									1		
IX	Installation /	Integral typ	oe .								Н	-	
	wiring direction	Remote	Upstream side (horizontal / ver	tical piping mountin	ng)						_		
		type	Downstream side (horizontal /	vertical piping mour	nting)								
			Horizontal piping mounting / le	eft side viewed from	upstrean	n					С		
			Horizontal piping mounting / ri	ght side viewed from	n upstrea	am					D		
X	Calibration	Standard										A	1
		+/- 0.35 %	of rate calibration (Size 250 to 350	mm (10 to 14 inche	es))							U	1
		Other										_	
				,									•
		Standard											
XI	Finish	Standard											
XI	Finish		resistant finish										
XI	Finish	Corrosion-	resistant finish proof finish										

suo	Azbil Corporation version (must be selected)	Y
Options	Traceability certificate for detector	В
0	Material certificate (only for electrodes and ground rings)	С
	With gasket for plastic piping	J
	Attachment of the TAG number to the terminal box for detector (Note 2)	K
	Attachment of the TAG number plate to the neck section for detector	L
	Water free treatment	Е
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval

## Flange type (700 to 1100 mm (28 to 44 inches)) Chloroprene rubber lining

Model MGG11F - I II III IV V VI VII VIII IX X - XI - Y / Options (some options can be selected per each model)

	Basic model no.		_	Selection	ıs					Optio	nal	nal selections		
	MGG1	1F	-										-	
														Ī
I	Line size	700 mm	(28 inches)	700										
		800 mm	(32 inches)	800										
		900 mm	(36 inches)	900										
		1000 mm	(40 inches)	10H										
		1100 mm	(44 inches)	11H										
II	Lining	Chloropren	e rubber	I	₹									
III	Piping	Wafer JIS 1	0K		J1									
	connection	Wafer ANS	I 150		A1									
		Wafer JIS G	3443-2 F12		G1									
		Wafer DIN	PN10		D1									
		Wafer JPI 1	50		P1									
IV	Flange material	Standard				1								
V	Electrode	SUS316L					L							
		Titanium					K							
		Tungsten ca	arbide				W							
		Other					_							Ì
VI	Grounding ring	SUS316						S	]					Ì
		Other						_	1					
VII	Electrical	Integral type												
	connection /	Remote	G1/2 internal thread / without wa		2	1				Ì				
	watertight gland	type	G1/2 internal thread / with brass	(Ni-plated) water	ight glar	nd			3					Ì
			G1/2 internal thread / with plastic	c watertight gland					4	1				
			1/2NPT internal thread / without	watertight gland					5	1				
			CM20 internal thread / without v	vatertight gland					6	1				İ
			Pg 13.5 internal thread / without	watertight gland					7			A	Ì	
			G1/2 internal thread / with SUS3	04 watertight glan	d				8					
VIII	Face-to-face	Standard								A				
	dimensions	Other								_				
IX	Installation /	Integral typ	e							•	Н			
	wiring direction	Remote	Upstream side (horizontal / vertice	cal piping mounti	ng)						A			
		type	Downstream side (horizontal / ve	ertical piping mou	nting)						В			
			Horizontal piping mounting / left	t side viewed from	upstrea	m					С			
			Horizontal piping mounting / rig	ht side viewed fro	m upstre	am					D			
X	Calibration	Standard	•									A		
		Other										_		
XI	Finish	Standard												T
		Corrosion-	resistant finish											T
		Corrosion-	proof finish											Ī
														_
ptions	Azbil Corporation			Y										
ίţ	Traceability certifi	icate for detec	ctor	В										

Azbil Corporation version (must be selected)

Traceability certificate for detector

Material certificate (only for electrodes and ground rings)

C

Attachment of the TAG number to the terminal box for detector (Note 1)

K

Attachment of the TAG number plate to the neck section for detector

Water free treatment

Cil free treatment

F

Note) 1. Must be selected for Tag no. requirement

## Submersible detector with FM NI approval

## Wafer type (15 to 200 mm (1/2 to 8 inches)) PFA / ETFE lining

Model MGG19D - I II III IV V VI VII VIII IX - X XI - Y / Options (some options can be selected per each model)

	Basic model no.			Selection	ons						Optio	nal	selec	ctions	j
	MGG19D		1 -										- F		_
	•		•												_
I	Line size	15 mm	(1/2 inch)	015											
		25 mm	(1 inch)	025											
		40 mm	(1½ inches)	040											
		50 mm	(2 inches)	050											
		65 mm	(2½ inches)	065											
		80 mm	(3 inches)	080											
		100 mm	(4 inches)	100											
		125 mm	(5 inches)	125											
		150 mm	(6 inches)	150											
		200 mm	(8 inches)	200											
II	Lining	ETFE (Size 80	to 200 mm (3 to 8 inches))		Е										
		PFA			P							İ			
III	Piping connection	Wafer JIS 10K		'		11									
	1 8	Wafer JIS 20K				12									
		Wafer JIS 30K				13									
		Wafer ANSI 1	50			21									
		Wafer ANSI 3	00			22									
			43-2 F12 (line size 80 mm or larger)			31									
		Wafer DIN PN				41									
		Wafer DIN PN				42									
		Wafer DIN PN				43									
		Wafer DIN PN				44									
		Wafer JPI 150				61						İ			
		Wafer JPI 300				62									
IV	Electrode	SUS316L					L					İ			
- '	Electrode		Hastelloy C-276 equivalent)				С								
		Titanium	* :				K					İ			
		Zirconium					Н								
		Tantalum					Т								
		Tungsten carb	ide				W								
		Platinum iridi					P								
		Other													
V	Grounding ring	SUS316					_	S							
v	Grounding ring		Hastelloy C-276 equivalent)					С							
		Titanium						K							
		Zirconium						Н							
		Tantalum						Т							
		Platinum						P							
		Other													
VI	Electrical connection	Remote type	G1/2 internal thread / with brass (Ni-	nlated) watertight o	dand		!		3						
V I	/ watertight gland	remote type			;iaiid										
* * * * *		C4 1 1	G1/2 internal thread / with SUS304 w	atertignt gland					8						
VII	Face-to-face	Standard								A					
	dimensions	Other	Tan and an an an an an an an an an an an an an												
VIII	Installation / wiring	Remote type	Upstream side (horizontal / vertical p								A				
	direction		Downstream side (horizontal / vertica	1 1 0							В				
			Horizontal piping mounting / left side								С				
			Horizontal piping mounting / right si	de viewed from ups	tream						D				
IX	Calibration	Standard										A			
			rate calibration (Size 40 to 200 mm (1 1/	2 to 8 inches))								U			
		Other													
X	Finish	Standard												X	
XI	Bolt / nut	None													X
		Carbon steel													1
		SUS304													2
	ı														_
18	Azbil Corporation version	(must be selecte	ed)	Y											
Options	Traceability certificate for o			В											
)pt	Material certificate (only fo		d ground rings)	C											
)	With gasket for plastic pipi		0,	1											
			ninal box for detector (Note 1)	K											
	Water free treatment			E											
	Oil free treatment			F											
				*											

Note) 1. Must be selected for Tag no. requirement

## Submersible detector with FM NI approval

## Flange type (15 to 200 mm (1/2 to 8 inches)) PFA / ETFE lining

Model MGG19F - I II III IV V VI VII VIII IX X - XI - Y / Options (some options can be selected per each model)

	Basic model no.			Select	ions						Optio	nal	select	ions	
	MGG19F		-											-	
														Ī	
I	Line size	15 mm	(1/2 inch)	015											
		25 mm	(1 inch)	025											
		40 mm	(1½ inches)	040											
		50 mm	(2 inches)	050											
		65 mm	(2½ inches)	065											
		80 mm	(3 inches)	080											
		100 mm	(4 inches)	100											
		125 mm	(5 inches)	125											
		150 mm	(6 inches)	150											
		200 mm	(8 inches)	200											
II	Lining	ETFE (Size 80 t	to 200 mm (3 to 8 inches))		Е										
	8	PFA			P										
III	Piping connection	Flange JIS 10K				J1									
111	i iping connection	Flange JIS 20K				J2									
		Flange JIS 30K				J3									
		Flange ANSI 15	50			A1									
		Flange ANSI 30				A2									
			43-2 F12 (line size 80 mm or larger)			G1									
		Flange DIN PN				D1									
		Flange DIN PN				D2									
		Flange DIN PN				D3									
		Flange DIN PN				D4	-								
IV	Flange material	Standard				DŦ	1	-							
1 V	Trange material	Other					1	-							
<b>T</b> 7	El 4 l	SUS316L					_	T							
V	Electrode		(t-11C 276i1t)					L C							
			Iastelloy C-276 equivalent)					K							
		Titanium													
		Zirconium						H T							
		Tantalum	1												
		Tungsten carbi						W							
		Platinum iridiu	m					P							
		Other						_		ļ					
VI	Grounding ring	SUS316							S						
			lastelloy C-276 equivalent)						С						
		Titanium							K						
		Zirconium							H	-					
		Tantalum							Т						
		Platinum							P	-					
		Other													
VII	Electrical connection	Remote type	G1/2 internal thread / with brass (Ni-p	lated) watertigh	t gland					3					
	/ watertight gland		G1/2 internal thread / with SUS304 was	tertight gland						8					
VIII	Face-to-face	Standard									A				
	dimensions	Other													
IX	Installation / wiring	Remote type	Upstream side (horizontal / vertical pip	oing mounting)							_	A			
121	direction		Downstream side (horizontal / vertical		ıg)							В	1		
			Horizontal piping mounting / left side	110	<u> </u>							C			
			Horizontal piping mounting / right side			1						D	1		
X	Calibration	Standard	1-10		1								A		
Λ	Calibration		ate calibration (Size 40 to 200 mm (1 1/2	to 8 inches))									U		
		Other	the cameration (office to to 200 mm (1 1/2	to o meneoj)									H		
	1	Louici												J	
XI	Finish	Cr. 1 1													┿.
	Literatob	Standard													1 2

su	Azbil Corporation version (must be selected)	Y
Options	Traceability certificate for detector	В
Op	Material certificate (only for electrodes and ground rings)	С
	With gasket for plastic piping	J
	Attachment of the TAG number to the terminal box for detector (Note 1)	K
	Water free treatment	Е
	Oil free treatment	F

Note) 1. Must be selected for Tag no. requirement

## Submersible detector with FM NI approval

## Flange type (250 to 600 mm (10 to 24 inches)) PFA / ETFE lining

Model MGG19F - I II III IV V VI VII VIII IX X - XI - Y / Options (some options can be selected per each model)

	Basic model no.		_	Select	ions						Optio	nal	select	ions	
	MGG19F		] .											-	
														'	Г
I	Line size	250 mm	(10 inches)	250											
		300 mm	(12 inches)	300											
		350 mm	(14 inches)	350											
		400 mm	(16 inches)	400											
		450 mm	(18 inches)	450											
		500 mm	(20 inches)	500											
		600 mm	(24 inches)	600											
II	Lining	ETFE			E										
		PFA		,	P										
III	Piping connection	Flange JIS 1	0K			J1									
		Flange JIS 2	0K			J2									
		Flange ANS	SI 150			A1									
		Flange ANS	SI 300 (Size 16 inches or smaller)			A2									
		Flange JIS C	G3443-2 F12			G1									
		Flange DIN	PN10			D1									
		Flange DIN	PN16			D2									
		Flange DIN	PN25			D3									
IV	Flange material	Standard					1	1							
		Other					_	1							
V	Electrode	SUS316L						L							
		ASTM B574	4 (Hastelloy C-276 equivalent)					С							
		Titanium						K							
		Zirconium						Н							
		Tantalum						Т							
		Tungsten ca	arbide					W							
		Platinum ir	idium					P							
		Other						_							
VI	Grounding ring	SUS316							S						
		ASTM B575	5 (Hastelloy C-276 equivalent)						С						
		Titanium							K						
		Other							_						
VII	Electrical connection	Remote	G1/2 internal thread / with brass	(Ni-plated)	water	tight g	gland			3					
	/ watertight gland	type	G1/2 internal thread / with SUS3	304 watertigl	ht glar	nd				8					İ
VIII	Face-to-face	Standard	•								A				
	dimensions	Other									_				
IX	Installation / wiring	Remote	Upstream side (horizontal / verti	ical piping n	nounti	ing)						A			
	direction	type	Downstream side (horizontal / v									В			
			Horizontal piping mounting / lef	ft side viewe	d fron	n upsti	ream					С			
			Horizontal piping mounting / rig	ght side view	ed fro	om ups	tream					D			
X	Calibration	Standard											A		
		+/- 0.35 % 0	of rate calibration (Size 250 to 350	mm (10 to 1	4 inch	nes))							U		
		Other											_		
XI	Finish	Standard													Ť

su	Azbil Corporation version (must be selected)	Y
Options	Traceability certificate for detector	В
Op	Material certificate (only for electrodes and ground rings)	С
	With gasket for plastic piping	J
	Attachment of the TAG number to the terminal box for detector (Note 1)	K
	Water free treatment	Е
	Oil free treatment	F

Note) 1. Must be selected for Tag no. requirement

No. SS2-MGG200-0100 Azbil Corporation

## **Submersible detector with FM NI approval**

## Wafer type (25 to 200 mm (1 to 8 inches)) Polyurethane rubber lining

Model MGG19D - I II III IV V VI VII VIII IX - X XI - Y / Options (some options can be selected per each model)

	Basic model no.			Selec	tions						Optio	onal	se	lection	18
	MGG19E	)	] .										_		
	•		•										l		
I	Line size	25 mm	(1 inch)	025											
		40 mm	(1½ inches)	040	1										
		50 mm	(2 inches)	050	1										
		65 mm	(2½ inches)	065											
		80 mm	(3 inches)	080											
		100 mm	(4 inches)	100	-										
		125 mm	(5 inches)	125	-										
			(6 inches)	150	_										
		150 mm	(8 inches)												
TT	Timin ~	200 mm		200		-									
II	Lining	Polyurethan			Q										
III	Piping connection	Wafer JIS 1				11									
		Wafer JIS 2				12									
		Wafer JIS 3				13									
		Wafer ANS				21									
		Wafer ANS				22									
		Wafer JIS G	33443-2 F12 (line size 80 mm or l	larger)		31									
		Wafer DIN	PN10			41									
		Wafer DIN	PN16			42									
		Wafer DIN	PN25			43									
		Wafer DIN	PN40			44									
		Wafer JPI 1				61									
		Wafer JPI 3				62									
IV	Electrode	SUS316L				02	L								
1 4	Electrode	Titanium			-		K								
			anhida (ambu fan aina 10 mana)	1			W								
		Other	arbide (only for size 10 mm)				VV								
3.7	0 1: :						-								
V	Grounding ring	SUS316						S							
		Titanium						K							
		Other													
VI	Electrical connection	Remote	G1/2 internal thread / with bra				land		3						
	/ watertight gland	type	G1/2 internal thread / with SU	S304 waterti	ght glai	nd			8						
VII	Face-to-face	Standard								A					
X 77 T T	dimensions		177	1		. \									
VIII	Installation / wiring direction	Remote	Upstream side (horizontal / ve								A				
	ancedon	type	Downstream side (horizontal /							-	В				
			Horizontal piping mounting /								С				
			Horizontal piping mounting /	right side vie	wed fro	om ups	tream				D				
IX	Calibration	Standard										A			
		+/- 0.35 %	of rate calibration (Size 40 to 200	mm (1 1/2 to	8 incl	nes))						U			
		Other													
X	Finish	Standard												X	
XI	Bolt / nut	None													2
		Carbon stee	el												]
		SUS304													2
															_
suc	Azbil Corporation version		ed)	Y	_										
Options	Traceability certificate for o		1 1	В	_										
O	Material certificate (only fo		a ground rings)	C	$\dashv$										
	With gasket for plastic pipi Attachment of the TAG nu	J K	+												
	Water free treatment	moer to the terr	minar box for detector (Note 1)	E	_										
	Oil for a treatment			E	-										

Note) 1. Must be selected for Tag no. requirement

Oil free treatment

F

## **DIMENSIONS**

(Unit:mm (inch))

## Union joint (size 2.5 to 15 mm (0.1 to 1/2 inch))

Terminal connection table

Symbol Description

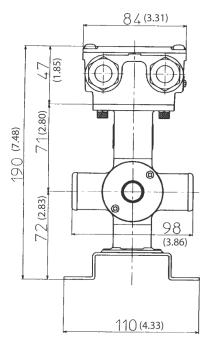
X Excitation

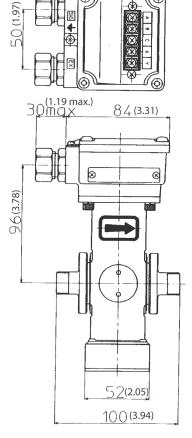
Y current input

A Flow rate

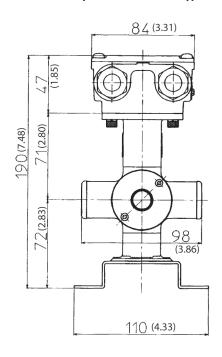
B signal output

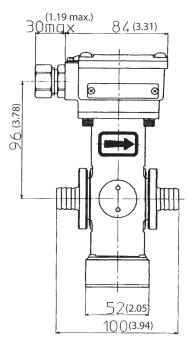
C Case ground





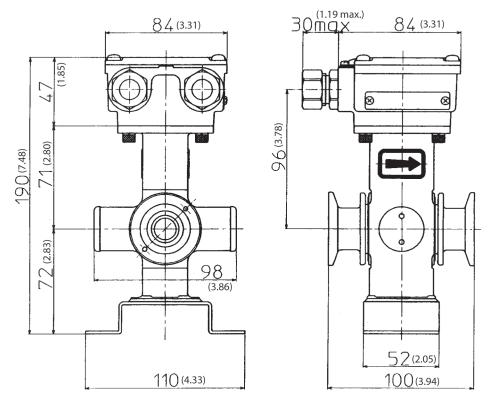
## Hose joint (size 2.5 to 15 mm (0.1 to 1/2 inch))





## IDF / Tri clamp (size 2.5 to 15 mm (0.1 to 1/2 inch))

(Unit:mm (inch))

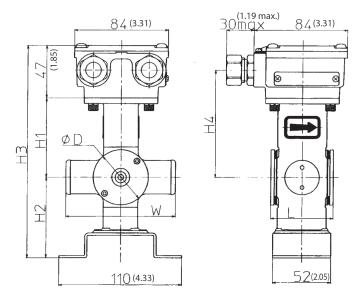


Note) 1. An integral detector includes an integral converter instead of a terminal box.

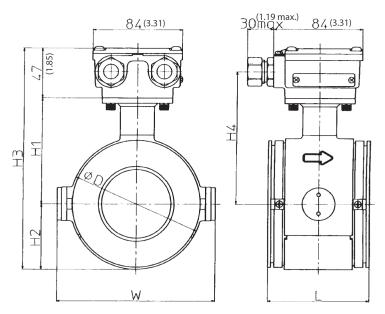
2. Clamp size: 1S

## Wafer type (size 2.5 to 15 mm (0.1 to 1/2 inch))

(Unit:mm (inch))



## Wafer type (size 25 to 200 mm (1 to 8 inches))

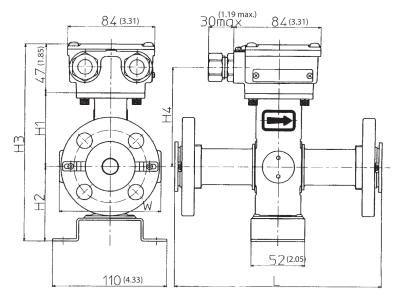


Size		mm	2.5	5	10	15	25	40	50	65	80	100	125	150	200
Size		(inches)	(0.1)	(0.2)	(3/8)	(1/2)	(1)	(1½)	(2)	(21/2)	(3)	(4)	(5)	(6)	(8)
Face to face	L	mm	56	56	56	56	56	80	86	96	106	120	140	160	200
dimension	L	(inches)	(2.20)	(2.20)	(2.20)	(2.20)	(2.20)	(3.15)	(3.39)	(3.78)	(4.17)	(4.72)	(5.51)	(6.30)	(7.87)
	H1	mm	71	71	71	71	77	84	93	100	108	121	133	160	185
	пі	(inches)	(2.80)	(2.80)	(2.80)	(2.80)	(3.03)	(3.31)	(3.66)	(3.94)	(4.25)	(4.76)	(5.24)	(6.30)	(7.28)
	H2	mm	72	72	72	72	34	43.5	52	62	67	79.5	95	110	135
Haiaht	П	(inches)	(2.83)	(2.83)	(2.83)	(2.83)	(1.34)	(1.71)	(2.05)	(2.44)	(2.64)	(3.13)	(3.74)	(4.33)	(5.31)
Height -	Н3	mm	190	190	190	190	158	175	192	209	222	247	275	317	367
	пэ	(inches)	(7.48)	(7.48)	(7.48)	(7.48)	(6.22)	(6.89)	(7.56)	(8.23)	(8.74)	(9.72)	(10.83)	(12.48)	(14.45)
	H4	mm	96	96	96	96	102	109	118	125	133	146	158	185	210
	П4	(inches)	(3.78)	(3.78)	(3.78)	(3.78)	(4.02)	(4.29)	(4.65)	(4.92)	(5.24)	(5.75)	(6.22)	(7.28)	(8.27)
Housing	W	mm	98	98	98	98	106	125	135	148	164	189	214	240	290
width	**	(inches)	(3.86)	(3.86)	(3.86)	(3.86)	(4.17)	(4.92)	(5.31)	(5.83)	(6.46)	(7.44)	(8.43)	(9.45)	(11.42)
Housing		mm	49.5	49.5	49.5	49.5	68	87	104	124	134	159	190	220	270
outer diameter	φD	(inches)	(1.95)	(1.95)	(1.95)	(1.95)	(2.68)	(3.43)	(4.09)	(4.88)	(5.28)	(6.26)	(7.48)	(8.66)	(10.63)
Weight		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
vveigiii		(lb)	(5.7)	(5.7)	(5.7)	(5.1)	(5.7)	(6.2)	(7.5)	(9.9)	(11.5)	(14.8)	(22.0)	(30.0)	(48.5)

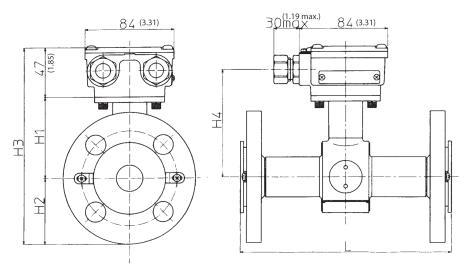
Note) 1. An integral detector includes an integral converter instead of a terminal box.

## Flange type (size 2.5 to 15 mm (0.1 to 1/2 inch))

(Unit:mm (inch))



## Flange type (size 25 to 150 mm (1 to 6 inch))



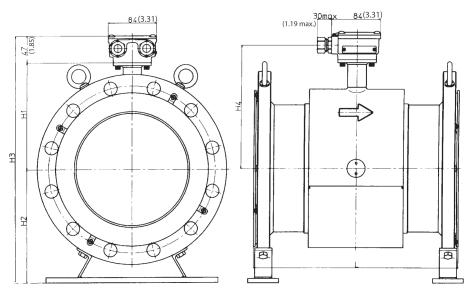
Size		mm	2.5	5	10	15	25	40	50	65	80	100	125	150
Size		(inches)	(0.1)	(0.2)	(3/8)	(1/2)	(1)	(11/2)	(2)	(21/2)	(3)	(4)	(5)	(6)
Face to face	ī	mm	160	160	160	200	200	200	200	200	200	250	250	300
dimension	L	(inches)	(6.30)	(6.30)	(6.30)	(7.87)	(7.87)	(7.87)	(7.87)	(7.87)	(7.87)	(9.84)	(9.84)	(11.81)
	H1	mm	71	71	71	71	77	84	93	100	108	121	133	160
	пі	(inches)	(2.80)	(2.80)	(2.80)	(2.80)	(3.03)	(3.31)	(3.66)	(3.94)	(4.25)	(4.74)	(5.24)	(6.30)
	H2	mm	72	72	72	72	63	70	78	88	93	105	125	140
Height	П2	(inches)	(2.83)	(2.83)	(2.83)	(2.83)	(2.48)	(2.76)	(3.05)	(3.44)	(3.64)	(4.13)	(4.92)	(5.51)
пеідпі	Н3	mm	190	190	190	190	187	201	218	235	248	273	305	347
	пэ	(inches)	(7.48)	(7.48)	(7.48)	(7.48)	(7.36)	(7.91)	(8.56)	(9.23)	(9.74)	(10.73)	(12.01)	(13.66)
	H4	mm	96	96	96	96	102	109	118	125	133	146	158	185
	П4	(inches)	(3.78)	(3.78)	(3.78)	(3.78)	(4.02)	(4.29)	(4.65)	(4.92)	(5.24)	(5.73)	(6.22)	(7.28)
Misiaht		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
Weight		(lb)	(11.0)	(11.0)	(11.0)	(11.0)	(16.3)	(14.3)	(22.3)	(26.7)	(27.8)	(40.6)	(57.3)	(67.5)

Note) 1. This table is for remote detectors.

- 2. An integral detector includes an integral converter instead of a terminal box.
- ${\it 3. The table indicates dimensions for ANSI~150 flange.}$

## Flange type (size 200 to 600 mm (8 to 24 inches))

#### (Unit:mm (inch))

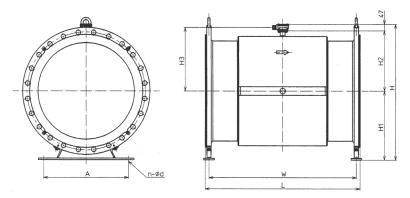


Size		mm	200	250	300	350	400	450	500	600
SIZE		(inches)	(8)	(10)	(12)	(14)	(16)	(18)	(20)	(24)
Face to face	L	mm	350	450	500	550	600	600	600	650
dimension	L	(inches)	(13.78)	(17.72)	(19.69)	(21.65)	(23.62)	(23.62)	(23.62)	(25.59)
	H1	mm	185	235	258	282	310	339	366	415
	пі	(inches)	(7.28)	(9.25)	(10.16)	(11.10)	(12.20)	(13.35)	(14.41)	(16.34)
	H2	mm	196	221	250	273	321	353	383	446
Haiaht	П2	(inches)	(7.72)	(8.70)	(9.84)	(10.75)	(12.64)	(13.90)	(15.08)	(17.56)
Height	Н3	mm	428	503	555	602	678	739	796	908
	пэ	(inches)	(16.85)	(19.80)	(21.85)	(23.70)	(26.69)	(29.09)	(31.34)	(35.75)
	114	mm	210	260	283	307	335	364	391	440
	H4	(inches)	(8.27)	(10.24)	(11.14)	(12.09)	(13.19)	(14.33)	(15.39)	(17.32)
Weight (kg)		kg	48.0	60.0	73.0	96.0	128.0	168.0	202.0	272.0
Weight (kg)	(lb)	(105.8)	(132.3)	(160.9)	(211.6)	(282.2)	(370.4)	(445.3)	(599.7)	

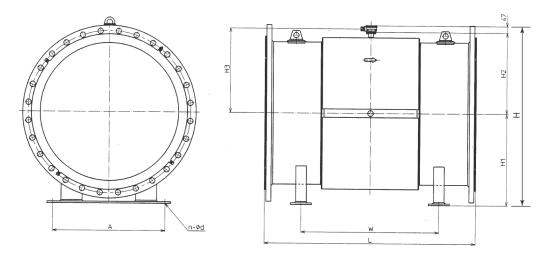
- $2.\ An\ integral\ detector\ includes\ an\ integral\ converter\ instead\ of\ a\ terminal\ box.$
- ${\it 3. The table indicates dimensions for ANSI~150 flange.}$

## Flange type (size 700 to 900 mm (28 to 36 inches))

(Unit:mm (inch))



## Flange type (size 1000, 1100 mm (40, 44 inches))



Size		mm	700	800	900	1000	1100
		(inches)	(28)	(32)	(36)	(40)	(44)
		mm	1100	1200	1300	1500	1500
Face to face dimension	L	(inches)	(43.31)	(47.24)	(51.18)	(59.06)	(59.06)
Height	Н	mm	967	1081	1185	1278	1399
		(inches)	(38.07)	(42.56)	(46.65)	(50.31)	(55.08)
	H1	mm	491	554	608	650	720
		(inches)	(19.33)	(21.81)	(23.94)	(25.59)	(28.35)
	H2	mm	429	480	530	581	632
		(inches)	(16.89)	(18.90)	(20.87)	(22.87)	(24.88)
	Н3	mm	454	505	555	606	657
		(inches)	(17.87)	(19.88)	(21.85)	(23.86)	(25.87)
Feet length	W	mm	1049	1147	1245	980	1000
		(inches)	(41.30)	(45.16)	(49.02)	(38.58)	(39.37)
Feet width	A	mm	600	600	600	800	800
		(inches)	(23.62)	(23.62)	(23.62)	(31.50)	(31.50)
Feet halls *	n-фd	mm	4-φ33	4-φ33	4-φ33	4-φ33	4-φ33
		(inches)	(1.30)	(1.30)	(1.30)	(1.30)	(1.30)
Weight		kg	394	476.0	566	823	930
		(lb)	(15.51)	(18.74)	(22.28)	(32.40)	(36.61)

<sup>\*:</sup> n = number, d = diameter

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