azbil

Specification

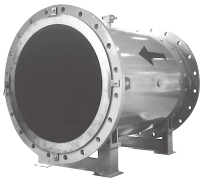
MagneW™ PLUS+
Electromagnetic Flowmeter Detector (General, FM Nonincendive Approval)

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.

Size 2.5 to 600 mm (0.1 to 24 inches)



Size 700 to 1100 mm (28 to 44 inches)

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).

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 month.
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.

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 5 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 5 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	
	(4) Maximum allowable pressure								
	mm	bar	MPa	bar	MPa	bar	MPa	bar	MPa
(3) Nominal size (DN)	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

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 ≤ Vs ≤ 10	±0.5 % of rate	±0.2 % of Vs
0.1 ≤ Vs ≤ 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 ≤ Vs ≤ 10	±0.5 % of rate	±0.1 % of Vs
0.1 ≤ Vs ≤ 1.0	±(0.1/Vs+0.4)% of rate	±0.2(0.1/Vs+0.4)% 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 ≤ Vs ≤ 10	±1.0 % of rate	±0.5 % of Vs
0.1 ≤ Vs ≤ 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: ±0.2 % FS (at 400 A/m) or less

Vibration effect

Integral style: 4.9 m/s^2 (0.5 G) max.
Remote style converter: 4.9 m/s^2 (0.5 G) max.
Remote style detector: 19.6 m/s^2 (2 G) max.

Output fluctuation:

When 1 ≤ Vs ≤ 10 m/s: ±0.1 % FS or less
When 0.1 ≤ Vs ≤ 1 m/s: ±0.1/Vs % 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	–

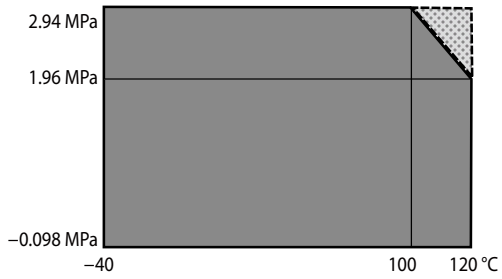
Measurable fluid pressure range (depending on Frange rating):

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

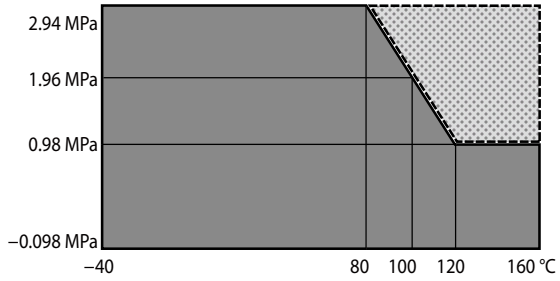
Integral/remote models

PFA lining

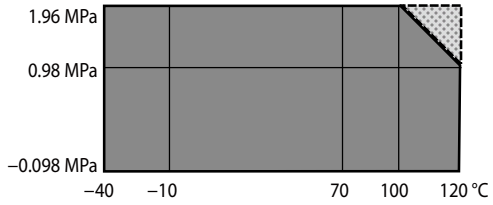
Diameter 2.5 to 10 mm



Diameter 15 to 200 mm



Diameter 250 to 600 mm

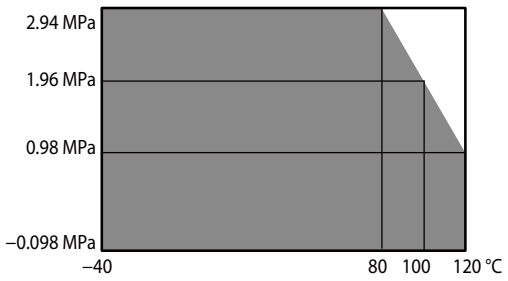


: Special support
(Please contact us.)

Integral/remote models

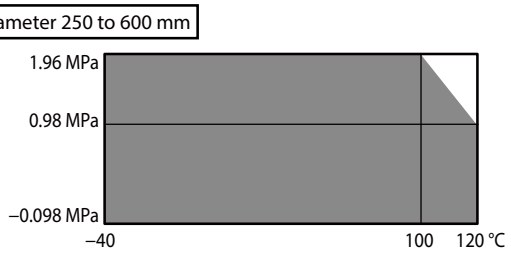
ETFE lining

Diameter 80 to 200 mm



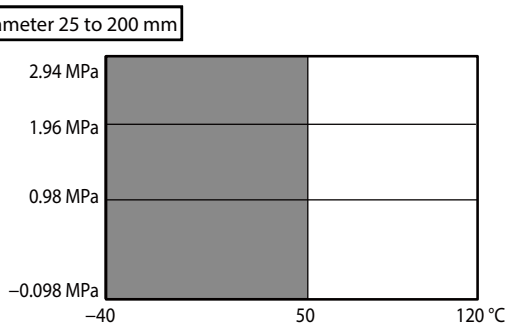
ETFE lining

Diameter 250 to 600 mm



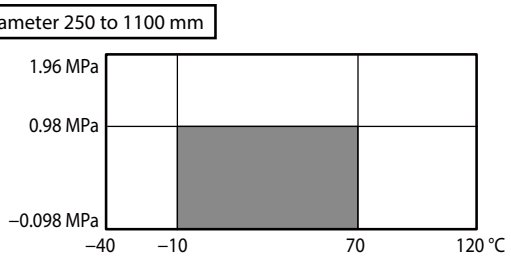
Polyurethane rubber lining

Diameter 25 to 200 mm



Chloroprene rubber lining

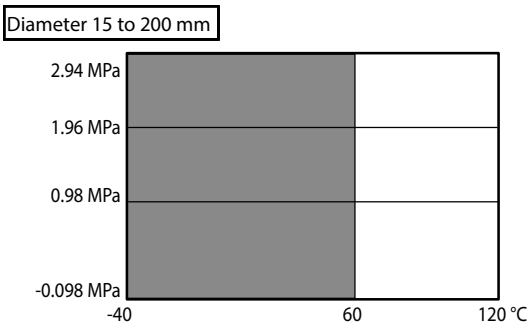
Diameter 250 to 1100 mm



Submersible model

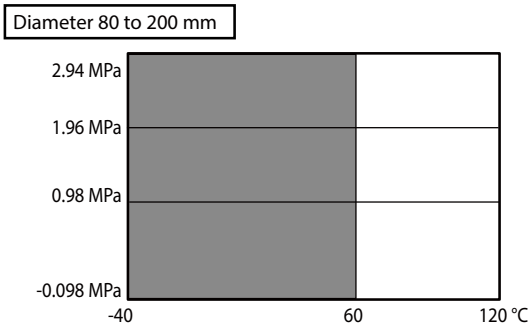
PFA lining

Diameter 15 to 200 mm



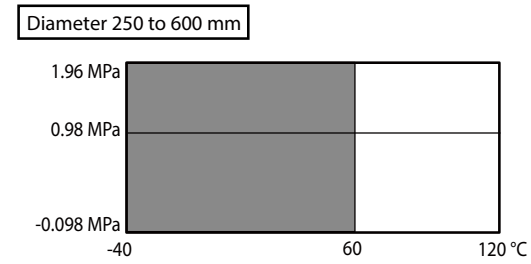
ETFE lining

Diameter 80 to 200 mm



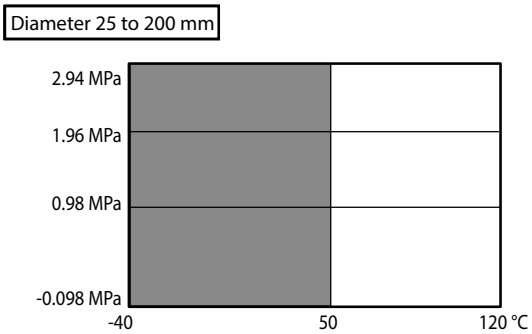
PFA/ETFE lining

Diameter 250 to 600 mm



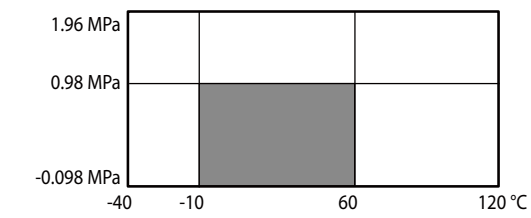
Polyurethane rubber lining

Diameter 25 to 200 mm



Chloroprene rubber lining

Diameter 250 to 600 mm



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	m^3/h	GPM	m^3/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

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

Q = Flow rate (m^3/h)

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 15 mm (0.1 to 1/2 inch))

Hose

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

IDF Clamp

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

Tri Clamp

SUS316 (size 2.5 to 15 mm (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 to + 80 °C (-22 to + 176 °F) (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 to + 50 °C (-22 to + 122 °F) (Submersible model, polyurethane rubber lining)

Ambient humidity limits

5 to 100 % RH

Electrical connection

Integral model

Connected to converter

Remote model

General model

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 Ω

Length of straight pipe

Upstream side

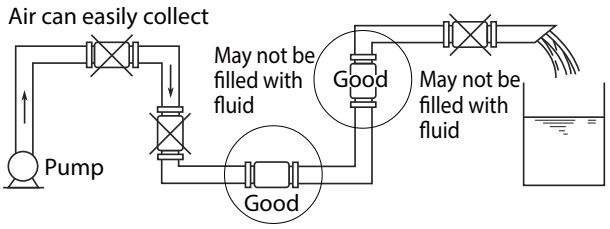
A minimum five straight pipe diameters
A minimum 10 straight pipe diameters is required if a diffuser/valve/pump is installed upstream side.

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.*

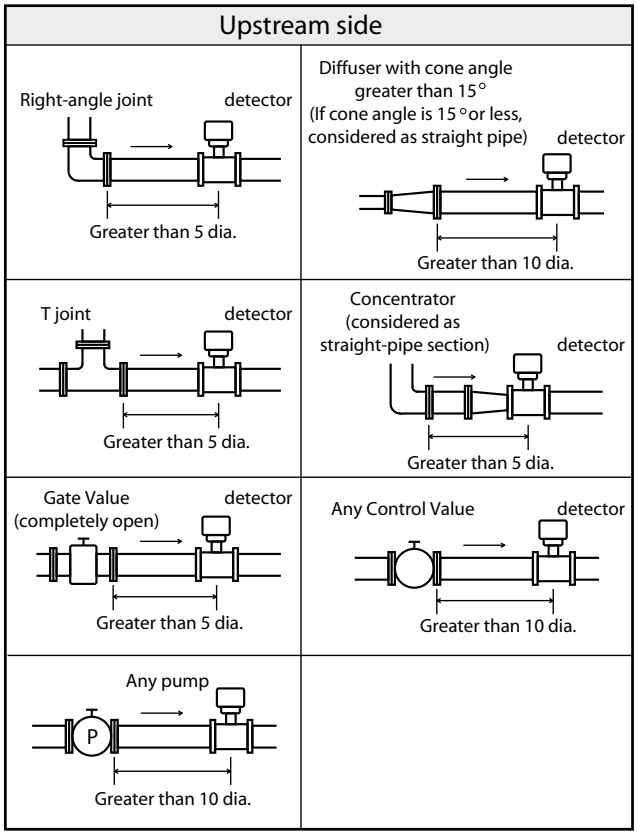


Figure 1.

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 mm^2) or equivalent (CVVS, CEEV etc.)

Excitation cable

Dedicated cable: MGA12W
(O.D. 10.5 mm, 2 mm^2) or equivalent (CVV and others)

Maximum cable length of MGA12W cable

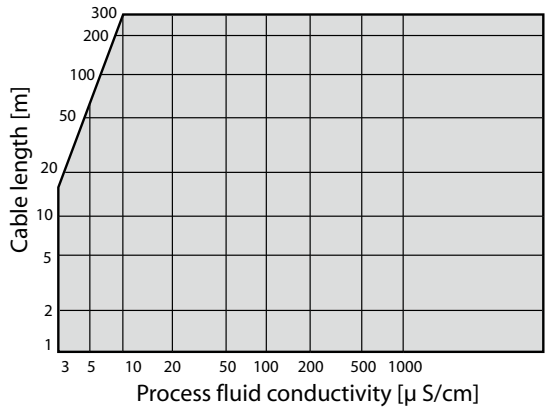


Figure 2. Maximum cable length of MGA12W cable

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.

⚠ 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.

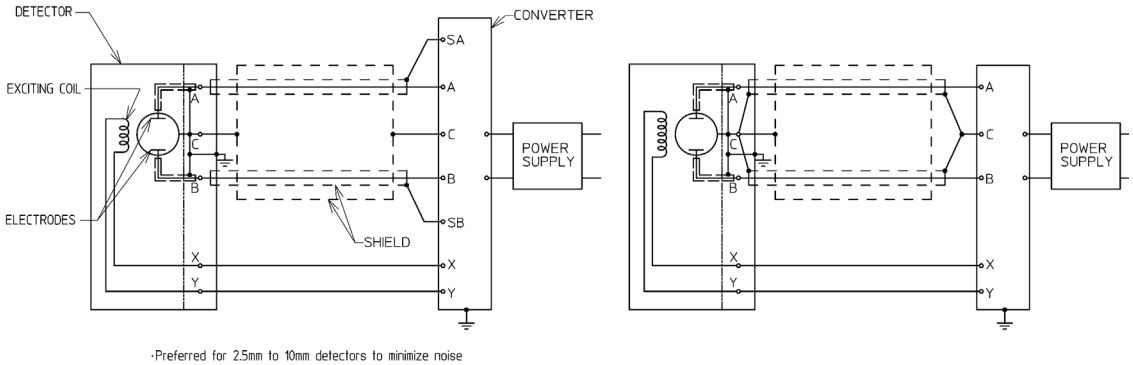
For FM Nonincendive model

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.



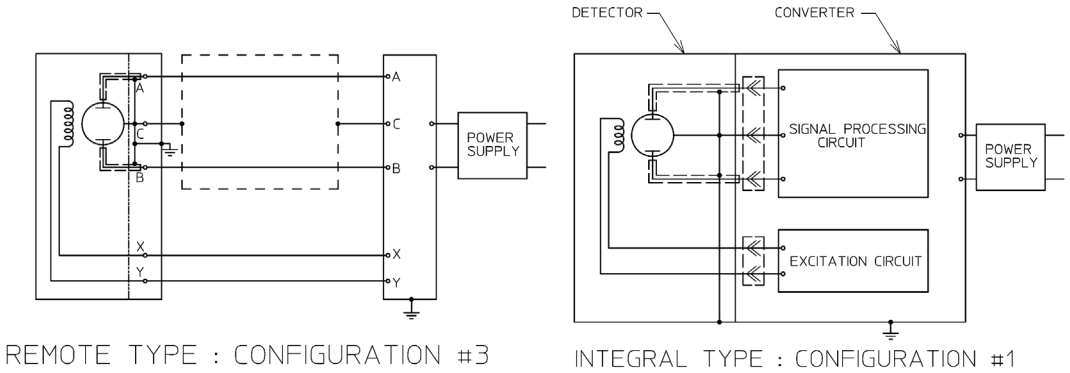


Table 2

TYPE	MODEL NO.	MAX.AMBIENT TEMP.	MAX.FLUID TEMP	LINING	SIZE
INTEGRAL	MGG14C	60 °C	–	–	–
	MGM14C		–	–	–
	MGM18D,F		120 °C	PFA,ETFE	40 to 600A
	MGG18D,F,U		120 °C	PFA,ETFE	2.5 to 600A
	MGG18D		50 °C	POLYURETHANE	25 to 200A
	MGS18U		120 °C	PFA	15 to 125A
REMOTE	MGG14C	60 °C	–	–	–
	MGG18D,F	80 °C	160 °C	PFA	2.5 to 200A
			120 °C	PFA	250 to 600A
				ETFE	2.5 to 600A
	MGG18D	60 °C	50 °C	POLYURETHANE	25 to 200A
	MGG18U	80 °C	120 °C	PFA,ETFE	2.5 to 15A
	MGG19D,F,U		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 2.*

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 14
Watertight model MGG18D	PFA	Wafer	2.5 to 10 mm	(0.1 to 3/8 inch)	page 15
Watertight model MGG18D	PFA / ETFE	Wafer	15 to 200 mm	(1/2 to 8 inches)	page 16
Watertight model MGG18F	PFA / ETFE	Flange	15 to 200 mm	(1/2 to 8 inches)	page 17
Watertight model MGG18F	PFA / ETFE	Flange	250 to 600 mm	(10 to 24 inches)	page 18
Watertight model MGG18D	Polyurethane rubber	Wafer	25 to 200 mm	(1 to 8 inches)	page 19
Watertight model MGG18F	Chloroprene rubber	Flange	250 to 600 mm	(10 to 24 inches)	page 20
Watertight model MGG11F	Chloroprene rubber	Flange	700 to 1100 mm	(28 to 44 inches)	page 21

Detector (Submersible model)

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

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)

	Basic model no.		Selections									Optional selections
	MGG18U	-									-	

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	Lining	PFA		P								
III	Piping 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							
IV	Electrode	SUS316L				L						
		ASTM B574 (Hastelloy C-276 equivalent)				C						
		Titanium				K						
		Zirconium				H						
		Tungsten carbide (only for size 10 mm or upper)				W						
		Other				_						
V	Grounding ring	SUS316					S					
VI	Electrical connection / watertight gland	Integral type						1				
		Remote type: G1/2 internal thread / without watertight gland						2				
		Remote type: G1/2 internal thread / with brass (Ni-plated) watertight gland						3				
		Remote type: G1/2 internal thread / with plastic watertight gland						4				
		Remote type: 1/2NPT internal thread / without watertight gland (Note 1)						5				
		Remote type: CM20 internal thread / without watertight gland						6				
		Remote type: Pg 13.5 internal thread / without watertight gland						7				
		Remote type: G1/2 internal thread / with SUS304 watertight gland						8				
VII	Face-to-face	Standard							A			
VIII	Installation / wiring direction	Integral type								H		
		Remote type: Upstream side (horizontal / vertical piping mounting)								A		
		Remote type: Downstream side (horizontal / vertical piping mounting)								B		
		Remote type: Horizontal piping mounting / left side viewed from upstream								C		
		Remote type: Horizontal piping mounting / right side viewed from upstream								D		
IX	Calibration	Standard									A	
		Other									_	

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

Options	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	Material certificate (only for electrodes and ground rings)	C
	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 (Note 2) (Note 3)	L
	PFA lining heat treatment	M
	Water free treatment	E
	Oil free treatment	F

Note) *1. Must be selected for FM NI approval*

2. Must be selected for Tag no. requirement

3. This option code cannot be selected with Electrical connection code "5".

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.		Selections									Optional selections	
	MGG18D	-									-		
I	Line size	2.5 mm (0.1 inch)	002										
		5 mm (0.2 inch)	005										
		10 mm (3/8 inch)	010										
II	Lining	PFA		P									
III	Piping connection	Wafer JIS 10K			11								
		Wafer JIS 20K			12								
		Wafer JIS 30K			13								
		Wafer JIS 10/20K for 10 mm flange			14								
		Wafer JIS 30K for 10 mm flange			15								
		Wafer ANSI 150			21								
		Wafer ANSI 300			22								
		Wafer DIN PN10			41								
		Wafer DIN PN16			42								
		Wafer DIN PN25			43								
		Wafer DIN PN40			44								
		Wafer DIN PN10/16/25/40 for 10 mm flange			45								
		Wafer JPI 150			61								
		Wafer JPI 300			62								
IV	Electrode	SUS316L				L							
		ASTM B574 (Hastelloy C-276 equivalent)				C							
		Titanium				K							
		Zirconium				H							
		Tantalum				T							
		Tungsten carbide (only for size 10 mm)				W							
		Platinum iridium				P							
		Other				_							
V	Grounding ring	SUS316					S						
		ASTM B575 (Hastelloy C-276 equivalent)					C						
		Titanium					K						
		Zirconium					H						
		Tantalum					T						
		Platinum					P						
		Other					_						
VI	Electrical connection / watertight gland	Integral type						1					
		Remote type: G1/2 internal thread / without watertight gland						2					
		Remote type: G1/2 internal thread / with brass (Ni-plated) watertight gland						3					
		Remote type: G1/2 internal thread / with plastic watertight gland						4					
		Remote type: 1/2NPT internal thread / without watertight gland (Note 1)						5					
		Remote type: CM20 internal thread / without watertight gland						6					
		Remote type: Pg 13.5 internal thread / without watertight gland						7					
		Remote type: G1/2 internal thread / with SUS304 watertight gland						8					
VII	Face-to-face dimensions	Standard							A				
		Other							_				
VIII	Installation / wiring direction	Integral type								H			
		Remote type: Upstream side (horizontal / vertical piping mounting)								A			
		Remote type: Downstream side (horizontal / vertical piping mounting)								B			
		Remote type: Horizontal piping mounting / left side viewed from upstream								C			
		Remote type: Horizontal piping mounting / right side viewed from upstream								D			
IX	Calibration	Standard									A		
		Other									_		
X	Finish	Standard										X	
		Corrosion-resistant finish										1	
		Corrosion-proof finish										2	
XI	Bolt / nut	None											X
		Carbon steel											1
		SUS304											2

Options		
	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 (Note 2) (Note 3)	L
	PFA lining heat treatment	M
	Water free treatment	E
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval

2. Must be selected for Tag no. requirement

3. This option code cannot be selected with Electrical connection code "5".

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)

	Basic model no.		Selections								Optional	selections
	MGG18D	-									-	
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))		E								
		PFA		P								
III	Piping connection	Wafer JIS 10K			11							
		Wafer JIS 20K			12							
		Wafer JIS 30K			13							
		Wafer ANSI 150			21							
		Wafer ANSI 300			22							
		Wafer JIS G3443-2 F12 (size 80 mm or larger)			31							
		Wafer DIN PN10			41							
		Wafer DIN PN16			42							
		Wafer DIN PN25			43							
		Wafer DIN PN40			44							
		Wafer JPI 150			61							
		Wafer JPI 300			62							
IV	Electrode	SUS316L				L						
		ASTM B574 (Hastelloy C-276 equivalent)				C						
		Titanium				K						
		Zirconium				H						
		Tantalum				T						
		Tungsten carbide				W						
		Platinum iridium				P						
		Other				_						
V	Grounding ring	SUS316					S					
		ASTM B575 (Hastelloy C-276 equivalent)					C					
		Titanium					K					
		Zirconium					H					
		Tantalum					T					
		Platinum					P					
		Other					_					
VI	Electrical connection / watertight gland	Integral type						1				
		Remote type: G1/2 internal thread / without watertight gland						2				
		Remote type: G1/2 internal thread / with brass (Ni-plated) watertight gland						3				
		Remote type: G1/2 internal thread / with plastic watertight gland						4				
		Remote type: 1/2NPT internal thread / without watertight gland (Note 1)						5				
		Remote type: CM20 internal thread / without watertight gland						6				
		Remote type: Pg 13.5 internal thread / without watertight gland						7				
		Remote type: G1/2 internal thread / with SUS304 watertight gland						8				
VII	Face-to-face dimensions	Standard							A			
		Other							_			
VIII	Installation / wiring direction	Integral type								H		
		Remote type: Upstream side (horizontal / vertical piping mounting)								A		
		Remote type: Downstream side (horizontal / vertical piping mounting)								B		
		Remote type: Horizontal piping mounting / left side viewed from upstream								C		
		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	
		Other									_	
X	Finish	Standard										X
		Corrosion-resistant finish										1
		Corrosion-proof finish										2
XI	Bolt / nut	None										X
		Carbon steel										1
		SUS304										2

Options		
	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 (Note 2) (Note 3)	L
	PFA lining heat treatment (Note 4)	M
	Water free treatment	E
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval

2. Must be selected for Tag no. requirement

3. This option code cannot be selected with Electrical connection code "5".

4. This option code can only be selected with Lining code "P".

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 selections			
MGG18F															-
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))			E										
		PFA			P										
III	Piping connection	Flange JIS 10K				J1									
		Flange JIS 20K				J2									
		Flange JIS 30K				J3									
		Flange ANSI 150				A1									
		Flange ANSI 300				A2									
		Flange JIS G3443-2 F12 (line size 80 mm or larger)				G1									
		Flange DIN PN10				D1									
		Flange DIN PN16				D2									
		Flange DIN PN25				D3									
		Flange DIN PN40				D4									
		Flange JPI 150				P1									
		Flange JPI 300				P2									
IV	Flange material	Standard					1								
		Other					_								
V	Electrode	SUS316L						L							
		ASTM B574 (Hastelloy C-276 equivalent)						C							
		Titanium						K							
		Zirconium						H							
		Tantalum						T							
		Tungsten carbide						W							
		Platinum iridium						P							
		Other						_							
VI	Grounding ring	SUS316							S						
		ASTM B575 (Hastelloy C-276 equivalent)							C						
		Titanium							K						
		Zirconium							H						
		Tantalum							T						
		Platinum							P						
		Other							_						
VII	Electrical connection / watertight gland	Integral type								1					
		Remote type	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 (Note 1)							5					
			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					
VIII	Face-to-face dimensions	Standard									A				
		Other									_				
IX	Installation / wiring direction	Integral type										H			
		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			
X	Calibration	Standard											A		
		+/- 0.35 % of rate calibration (Size 40 to 200 mm (1 1/2 to 8 inches))											U		
		Other											_		
XI	Finish	Standard													X
		Corrosion-resistant finish													1
		Corrosion-proof finish													2

Options		
	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 (Note 2) (Note 3)	L
	PFA lining heat treatment (Note 4)	M
	Water free treatment	E
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval

2. Must be selected for Tag no. requirement

3. This option code cannot be selected with Electrical connection code "5".

4. This option code can only be selected with Lining code "P".

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.			Selections							Optional selections			
	MGG18F	-												-
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 10K				J1								
		Flange JIS 20K				J2								
		Flange ANSI 150				A1								
		Flange ANSI 300 (Size 16 inches or smaller)				A2								
		Flange JIS G3443-2 F12				G1								
		Flange DIN PN10				D1								
		Flange DIN PN16				D2								
		Flange DIN PN25				D3								
		Flange JPI 150				P1								
		Flange JPI 300 (Size 400 mm or smaller)				P2								
IV	Flange material	Standard					1							
		Other					_							
V	Electrode	SUS316L						L						
		ASTM B574 (Hastelloy C-276 equivalent)						C						
		Titanium						K						
		Zirconium						H						
		Tantalum						T						
		Tungsten carbide						W						
		Platinum iridium						P						
		Other						_						
VI	Grounding ring	SUS316							S					
		ASTM B575 (Hastelloy C-276 equivalent)							C					
		Titanium							K					
		Other							_					
VII	Electrical connection / watertight gland	Integral type								1				
		Remote type	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 (Note 1)							5				
			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				
VIII	Face-to-face dimensions	Standard									A			
		Other									_			
IX	Installation / wiring direction	Integral type										H		
		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		
X	Calibration	Standard											A	
		+/- 0.35 % of rate calibration (Size 250 to 350 mm (10 to 14 inches))											U	
		Other											_	
XI	Finish	Standard												X
		Corrosion-resistant finish												1
		Corrosion-proof finish												2

Options		
	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 (Note 2) (Note 3)	L
	PFA lining heat treatment (Note 4)	M
	Water free treatment	E
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval

2. Must be selected for Tag no. requirement

3. This option code cannot be selected with Electrical connection code "5".

4. This option code can only be selected with Lining code "P".

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.				Selections									Optional selections	
MGG18D				-									-	
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 rubber			Q									
III	Piping connection	Wafer JIS 10K				11								
		Wafer JIS 20K				12								
		Wafer JIS 30K				13								
		Wafer ANSI 150				21								
		Wafer ANSI 300				22								
		Wafer JIS G3443-2 F12 (line size 80 mm or larger)				31								
		Wafer DIN PN10				41								
		Wafer DIN PN16				42								
		Wafer DIN PN25				43								
		Wafer DIN PN40				44								
		Wafer JPI 150				61								
		Wafer JPI 300				62								
IV	Electrode	SUS316L					L							
		Titanium					K							
		Tungsten carbide (only for size 10 mm)					W							
		Other					_							
V	Grounding ring	SUS316						S						
		Titanium						K						
		Other						_						
VI	Electrical connection / watertight gland	Integral type							1					
		Remote type	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 (Note 1)						5					
			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	Standard								A				
VIII	Installation / wiring direction	Integral type									H			
		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			
IX	Calibration	Standard										A		
		+/- 0.35 % of rate calibration (Size 40 to 200 mm (1 1/2 to 8 inches))										U		
		Other										_		
X	Finish	Standard											X	
		Corrosion-resistant finish											1	
		Corrosion-proof finish											2	
XI	Bolt / nut	None												X
		Carbon steel												1
		SUS304												2

Options		
	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 (Note 2) (Note 3)	L
	Water free treatment	E
	Oil free treatment	F

Note) 1. Must be selected for FM NI approval

2. Must be selected for Tag no. requirement

3. This option code cannot be selected with Electrical connection code "5".

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.			Selections							Optional	selections		
	MGG18F	-											-	
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	Chloroprene rubber			R									
III	Piping connection	Flange JIS 10K				J1								
		Flange ANSI 150				A1								
		Flange JIS G3443-2 F12				G1								
		Flange DIN PN10				D1								
		Flange JPI 150				P1								
IV	Flange material	Standard					1							
		Other					_							
V	Electrode	SUS316L						L						
		Titanium						K						
		Tungsten carbide						W						
		Other						_						
VI	Grounding ring	SUS316							S					
		Titanium							K					
		Other							_					
VII	Electrical connection / watertight gland	Integral type								1				
		Remote type	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 (Note 1)							5				
			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				
VIII	Face-to-face dimensions	Standard									A			
		Other									_			
IX	Installation / wiring direction	Integral type										H		
		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		
X	Calibration	Standard											A	
		+/- 0.35 % of rate calibration (Size 250 to 350 mm (10 to 14 inches))											U	
		Other											_	
XI	Finish	Standard												X
		Corrosion-resistant finish												1
		Corrosion-proof finish												2

Options	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 (Note 2) (Note 3)	L
	Water free treatment	E
	Oil free treatment	F

Note) *1. Must be selected for FM NI approval*

2. Must be selected for Tag no. requirement

3. This option code cannot be selected with Electrical connection code "5".

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.			Selections							Optional	selections		
	MGG11F	-											-	
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	Chloroprene rubber			R									
III	Piping connection	Wafer JIS 10K				J1								
		Wafer ANSI 150				A1								
		Wafer JIS G3443-2 F12				G1								
		Wafer DIN PN10				D1								
		Wafer JPI 150				P1								
IV	Flange material	Standard					1							
V	Electrode	SUS316L						L						
		Titanium						K						
		Tungsten carbide						W						
		Other						_						
VI	Grounding ring	SUS316							S					
		Other							_					
VII	Electrical connection / watertight gland	Integral type								1				
		Remote type	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				
			Pg 13.5 internal thread / without watertight gland							7				
			G1/2 internal thread / with SUS304 watertight gland							8				
VIII	Face-to-face dimensions	Standard									A			
		Other									_			
IX	Installation / wiring direction	Integral type										H		
		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		
X	Calibration	Standard											A	
		Other											_	
XI	Finish	Standard												X
		Corrosion-resistant finish												1
		Corrosion-proof finish												2

Options		
	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 (Note 1)	L
	Water free treatment	E
	Oil 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.			Selections							Optional		selections	
	MGG19D		-										-	
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))			E									
		PFA			P									
III	Piping connection	Wafer JIS 10K				11								
		Wafer JIS 20K				12								
		Wafer JIS 30K				13								
		Wafer ANSI 150				21								
		Wafer ANSI 300				22								
		Wafer JIS G3443-2 F12 (line size 80 mm or larger)				31								
		Wafer DIN PN10				41								
		Wafer DIN PN16				42								
		Wafer DIN PN25				43								
		Wafer DIN PN40				44								
		Wafer JPI 150				61								
		Wafer JPI 300				62								
IV	Electrode	SUS316L					L							
		ASTM B574 (Hastelloy C-276 equivalent)					C							
		Titanium					K							
		Zirconium					H							
		Tantalum					T							
		Tungsten carbide					W							
		Platinum iridium					P							
		Other					_							
V	Grounding ring	SUS316						S						
		ASTM B575 (Hastelloy C-276 equivalent)						C						
		Titanium						K						
		Zirconium						H						
		Tantalum						T						
		Platinum						P						
		Other						_						
VI	Electrical connection / watertight gland	Remote type	G1/2 internal thread / with brass (Ni-plated) watertight gland						3					
			G1/2 internal thread / with SUS304 watertight gland						8					
VII	Face-to-face dimensions	Standard								A				
		Other								_				
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			
IX	Calibration	Standard										A		
		+/- 0.35 % of 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

Options		
	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 1)	K
	PFA lining heat treatment (Note 2)	M
	Water free treatment	E
	Oil free treatment	F

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

2. This option code can only be selected with Lining code "P".

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.			Selections							Optional selections			
	MGG19F	-												-
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))			E									
		PFA			P									
III	Piping connection	Flange JIS 10K				J1								
		Flange JIS 20K				J2								
		Flange JIS 30K				J3								
		Flange ANSI 150				A1								
		Flange ANSI 300				A2								
		Flange JIS G3443-2 F12 (line size 80 mm or larger)				G1								
		Flange DIN PN10				D1								
		Flange DIN PN16				D2								
		Flange DIN PN25				D3								
		Flange DIN PN40				D4								
IV	Flange material	Standard					1							
		Other					_							
V	Electrode	SUS316L						L						
		ASTM B574 (Hastelloy C-276 equivalent)						C						
		Titanium						K						
		Zirconium						H						
		Tantalum						T						
		Tungsten carbide						W						
		Platinum iridium						P						
		Other						_						
VI	Grounding ring	SUS316							S					
		ASTM B575 (Hastelloy C-276 equivalent)							C					
		Titanium							K					
		Zirconium							H					
		Tantalum							T					
		Platinum							P					
		Other							_					
VII	Electrical connection / watertight gland	Remote type	G1/2 internal thread / with brass (Ni-plated) watertight gland							3				
			G1/2 internal thread / with SUS304 watertight gland							8				
VIII	Face-to-face dimensions	Standard									A			
		Other									_			
IX	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		
X	Calibration	Standard											A	
		+/- 0.35 % of rate calibration (Size 40 to 200 mm (1 1/2 to 8 inches))											U	
		Other											_	
XI	Finish	Standard												X

Options		
	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 1)	K
	PFA lining heat treatment (Note 2)	M
	Water free treatment	E
	Oil free treatment	F

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

2. This option code can only be selected with Lining code "P".

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.			Selections							Optional	selections		
	MGG19F		-											-
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 10K				J1								
		Flange JIS 20K				J2								
		Flange ANSI 150				A1								
		Flange ANSI 300 (Size 16 inches or smaller)				A2								
		Flange JIS G3443-2 F12				G1								
		Flange DIN PN10				D1								
		Flange DIN PN16				D2								
		Flange DIN PN25				D3								
IV	Flange material	Standard					1							
		Other					_							
V	Electrode	SUS316L						L						
		ASTM B574 (Hastelloy C-276 equivalent)						C						
		Titanium						K						
		Zirconium						H						
		Tantalum						T						
		Tungsten carbide						W						
		Platinum iridium						P						
		Other						_						
VI	Grounding ring	SUS316							S					
		ASTM B575 (Hastelloy C-276 equivalent)							C					
		Titanium							K					
		Other							_					
VII	Electrical connection / watertight gland	Remote type	G1/2 internal thread / with brass (Ni-plated) watertight gland							3				
			G1/2 internal thread / with SUS304 watertight gland							8				
VIII	Face-to-face dimensions	Standard									A			
		Other									_			
IX	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		
X	Calibration	Standard											A	
		+/- 0.35 % of rate calibration (Size 250 to 350 mm (10 to 14 inches))											U	
		Other											_	
XI	Finish	Standard												X

Options		
	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 1)	K
	PFA lining heat treatment (Note 2)	M
	Water free treatment	E
	Oil free treatment	F

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

2. This option code can only be selected with Lining code "P".

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.			Selections							Optional		selections	
	MGG19D											-		
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 rubber			Q									
III	Piping connection	Wafer JIS 10K				11								
		Wafer JIS 20K				12								
		Wafer JIS 30K				13								
		Wafer ANSI 150				21								
		Wafer ANSI 300				22								
		Wafer JIS G3443-2 F12 (line size 80 mm or larger)				31								
		Wafer DIN PN10				41								
		Wafer DIN PN16				42								
		Wafer DIN PN25				43								
		Wafer DIN PN40				44								
		Wafer JPI 150				61								
		Wafer JPI 300				62								
IV	Electrode	SUS316L					L							
		Titanium					K							
		Tungsten carbide (only for size 10 mm)					W							
		Other					_							
V	Grounding ring	SUS316						S						
		Titanium						K						
		Other						_						
VI	Electrical connection / watertight gland	Remote type	G1/2 internal thread / with brass (Ni-plated) watertight gland						3					
			G1/2 internal thread / with SUS304 watertight gland						8					
VII	Face-to-face dimensions	Standard								A				
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			
IX	Calibration	Standard										A		
		+/- 0.35 % of 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

Options	Azbil Corporation version (must be selected)	Y
	Traceability certificate for detector	B
	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 1)	K
	Water free treatment	E
	Oil free treatment	F

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

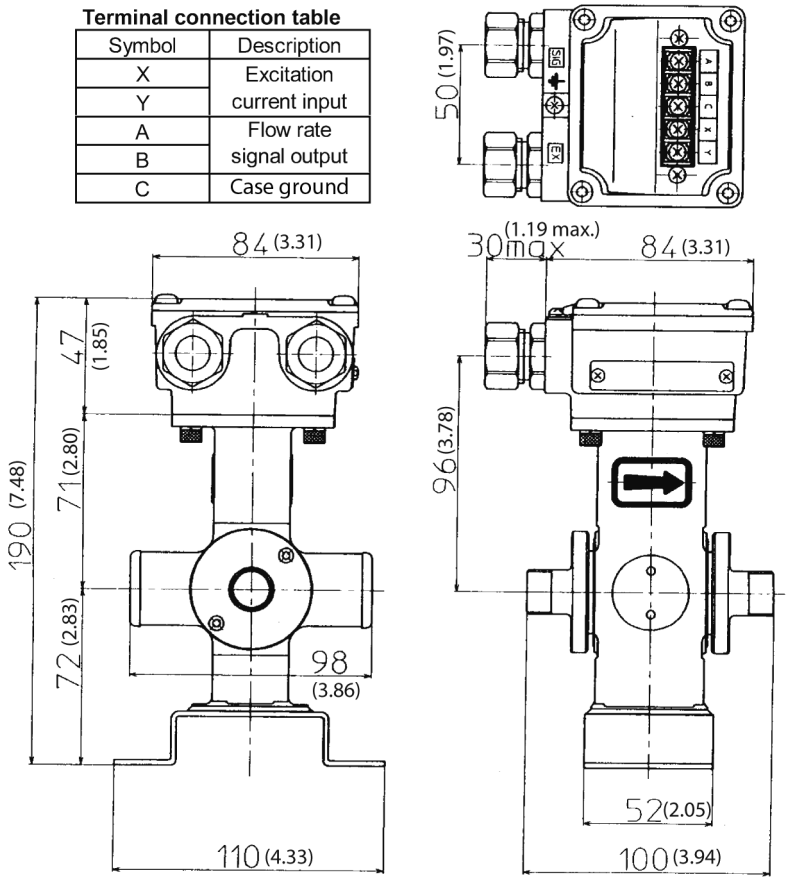
DIMENSIONS

(Unit : mm (inch))

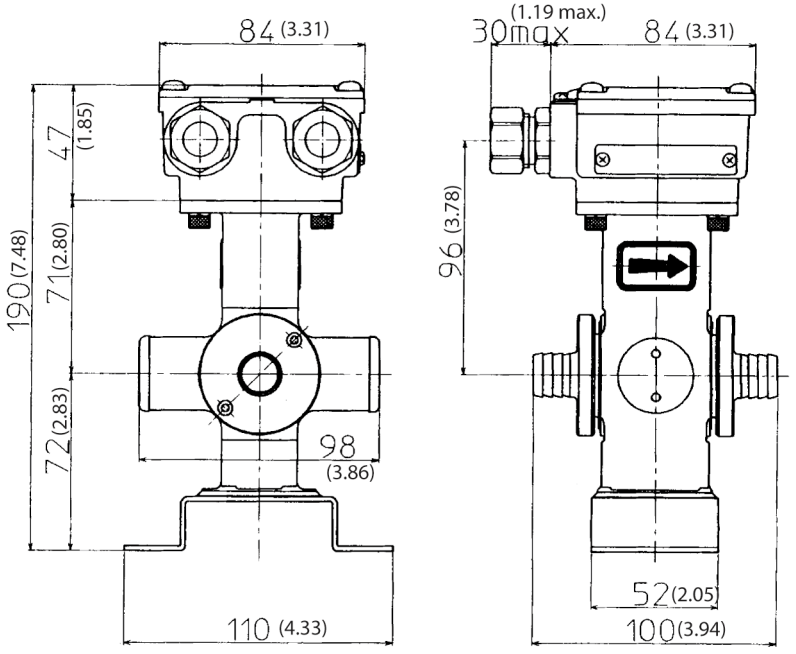
Union joint (size 2.5 to 15 mm (0.1 to 1/2 inch))

Terminal connection table

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

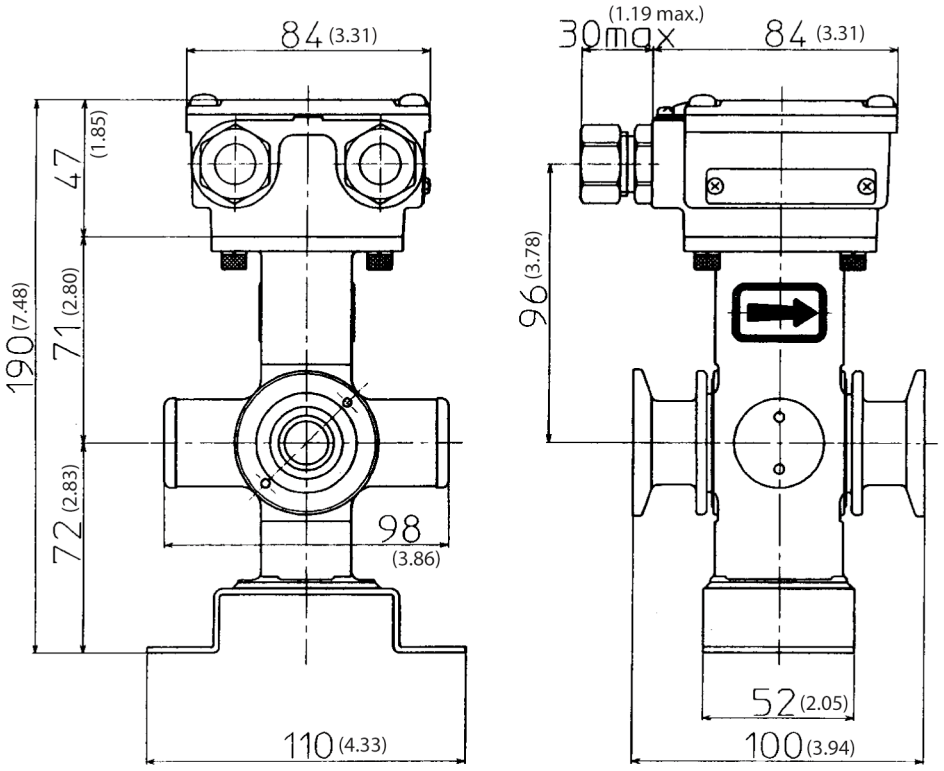


Hose joint (size 2.5 to 15 mm (0.1 to 1/2 inch))



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

(Unit : mm (inch))

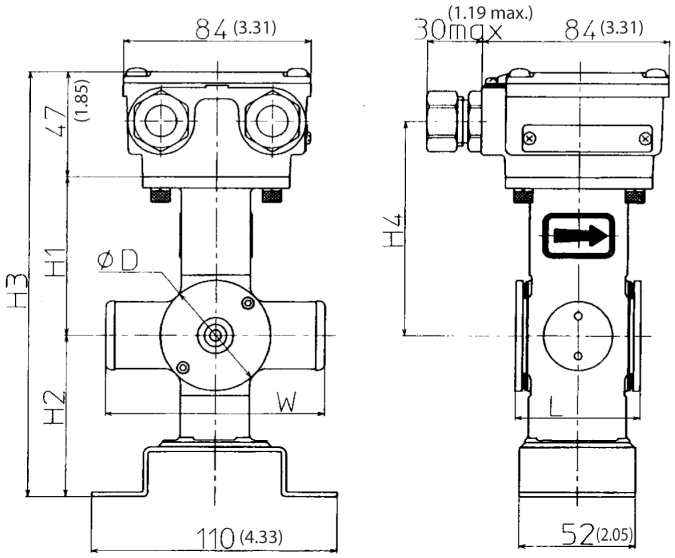


Note) 1. An integral detector includes an integral converter instead of a terminal box.

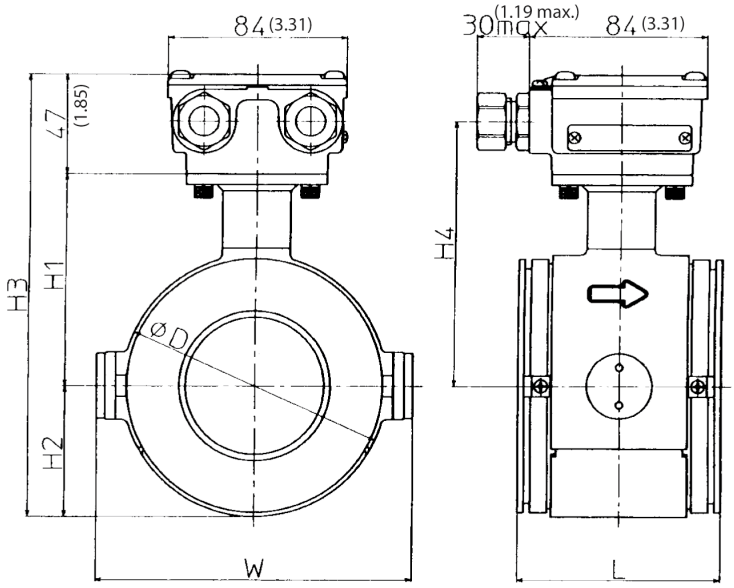
2. Clamp size: 1S

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))

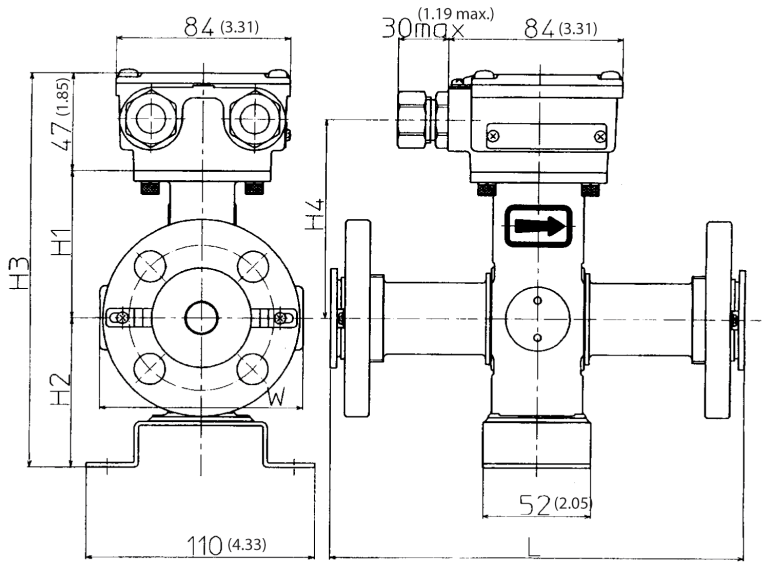


Size		mm	2.5	5	10	15	25	40	50	65	80	100	125	150	200
		(inches)	(0.1)	(0.2)	(3/8)	(1/2)	(1)	(1½)	(2)	(2½)	(3)	(4)	(5)	(6)	(8)
Face to face dimension	L	mm	56	56	56	56	56	80	86	96	106	120	140	160	200
		(inches)	(2.20)	(2.20)	(2.20)	(2.20)	(2.20)	(3.15)	(3.39)	(3.78)	(4.17)	(4.72)	(5.51)	(6.30)	(7.87)
Height	H1	mm	71	71	71	71	77	84	93	100	108	121	133	160	185
		(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
		(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)
	H3	mm	190	190	190	190	158	175	192	209	222	247	275	317	367
		(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
		(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 width	W	mm	98	98	98	98	106	125	135	148	164	189	214	240	290
		(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 outer diameter	ϕD	mm	49.5	49.5	49.5	49.5	68	87	104	124	134	159	190	220	270
		(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
		(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)

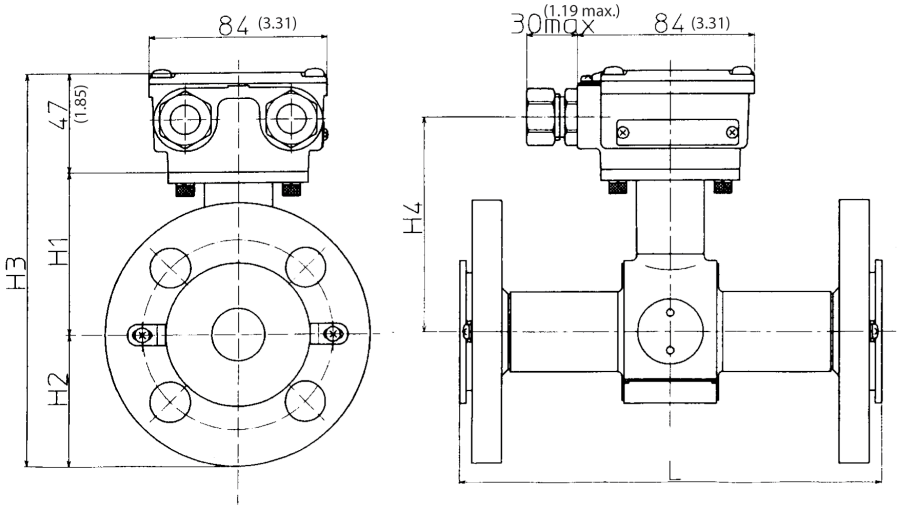
Note) 1. An integral detector includes an integral converter instead of a terminal box.

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
		(inches)	(0.1)	(0.2)	(3/8)	(1/2)	(1)	(1½)	(2)	(2½)	(3)	(4)	(5)	(6)
Face to face dimension	L	mm	160	160	160	200	200	200	200	200	200	250	250	300
		(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)
Height	H1	mm	71	71	71	71	77	84	93	100	108	121	133	160
		(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
		(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)
	H3	mm	190	190	190	190	187	201	218	235	248	273	305	347
		(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
		(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)
Weight		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
		(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)

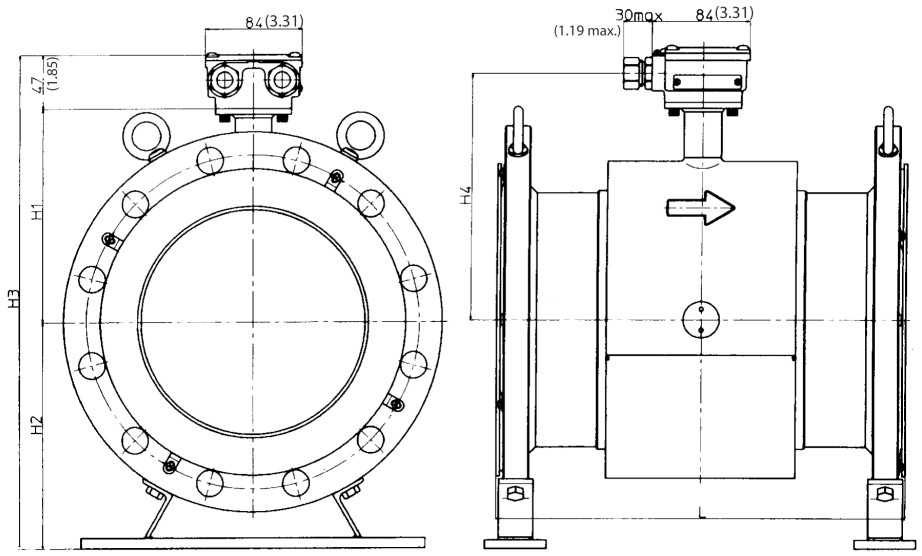
Note) 1. This table is for remote detectors.

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

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
		(inches)	(8)	(10)	(12)	(14)	(16)	(18)	(20)	(24)
Face to face dimension	L	mm	350	450	500	550	600	600	600	650
		(inches)	(13.78)	(17.72)	(19.69)	(21.65)	(23.62)	(23.62)	(23.62)	(25.59)
Height	H1	mm	185	235	258	282	310	339	366	415
		(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
		(inches)	(7.72)	(8.70)	(9.84)	(10.75)	(12.64)	(13.90)	(15.08)	(17.56)
	H3	mm	428	503	555	602	678	739	796	908
		(inches)	(16.85)	(19.80)	(21.85)	(23.70)	(26.69)	(29.09)	(31.34)	(35.75)
	H4	mm	210	260	283	307	335	364	391	440
		(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
		(lb)	(105.8)	(132.3)	(160.9)	(211.6)	(282.2)	(370.4)	(445.3)	(599.7)

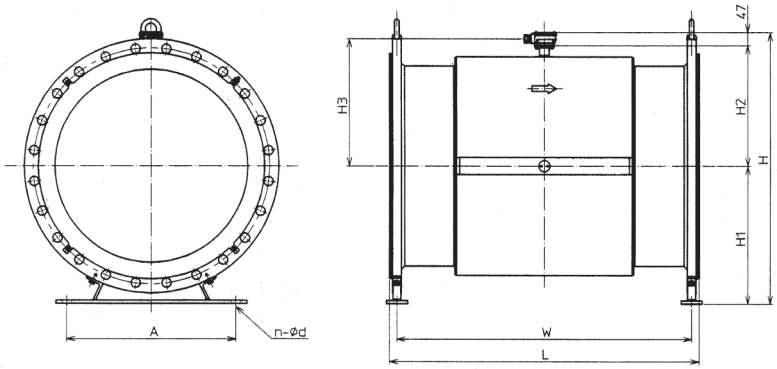
Note) 1. This table is for remote detectors.

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

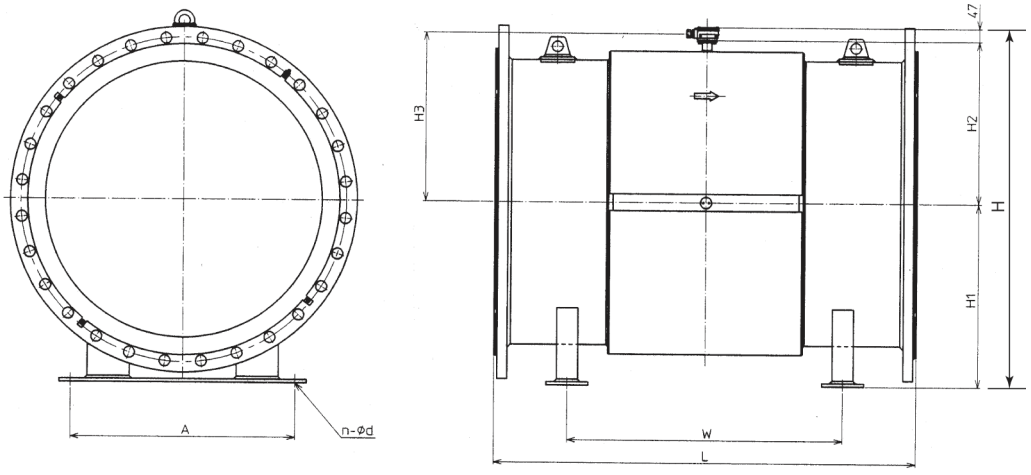
3. The table indicates dimensions for ANSI 150 flange.

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)
Face to face dimension	L	mm	1100	1200	1300	1500	1500
		(inches)	(43.31)	(47.24)	(51.18)	(59.06)	(59.06)
Height	H	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)
	H3	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-ϕd	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)

Note) The table indicates dimensions for ANSI 150 flange.

**: n = number, d = diameter*

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1st edition: Feb. 1997
19th edition: July 2024