

General Specifications

ADMAG TI Series AXW Magnetic Flowmeter [Size: 25 to 400 mm (1 to 16 in.)]



GS 01E24A01-01EN

■ GENERAL DESCRIPTION

The ADMAG TI series AXW magnetic flowmeter is a high-quality and highly reliable product developed based on years of experience and achievement, such as enhancement of application by our proprietary dual frequency excitation method.

The AXW magnetic flowmeter is ideal for general industrial process lines and water supply / sewage applications. With outstanding reliability and ease of operation and maintenance, developed on decades of field-proven experience, the AXW will increase user benefits while reducing total cost of ownership.

The sizes are available from 25 mm to 1800 mm (1 to 72 in.). Besides fluorocarbon PTFE, lining can be selected from various rubber linings. Process connection also supports various specifications such as ASME, EN, AS, and JIS.

Note: For large sizes from 500 to 1800 mm (20 to 72 in.), see GS 01E25D11-01EN.



Integral Type Flowmeter

Remote Transmitter



Remote Sensor

■ FEATURES

● Stable Measurement

Our own dual frequency excitation method realizes stable flow measurement even under high flow noise in the fluid with inhomogeneous conductivity or highly concentrated slurry.

● Multiple Inputs and Outputs

Maximum four inputs/outputs of current, pulse, and status signals can be equipped.

● Improved Operation and Monitoring Function

Operation authority level setting for ensuring safety, process data trend display, display backlight flashing (Squawk) function, and data store / restore function with display unit internal memory or microSD card are available.

● Improved Maintainability

Diagnostic functions that contribute to preventive maintenance of the plant are equipped. Diagnosis of the device (built-in verification function) that can be executed without demounting from piping, electrode adhesion diagnosis, and wiring connection diagnosis are available.

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■ GENERAL

Measuring Principal:

By applying the occurrence of electromotive force proportional to the flow velocity when fluid moves in the magnetic field, the meter can measure the flow velocity of conductive liquid. It calculates the instantaneous flow rate, integrated flow rate, etc. from the measured flow velocity.

System Configuration:

The meter consists of a sensor that detects the flow rate and a transmitter that amplifies, converts, and transmits the signal. Structurally, there is an integral type of sensor and transmitter, and a separate type which is separated. In the separated type, the signal cable for the flow signal and the excitation cable for the coil excitation are added to the constituent elements.

The sensor part and the transmitter part for the integral type are simply referred to as a sensor and a transmitter respectively. The integral type is also called as an integral type flowmeter. As for the components of separate type, they are also called as a remote sensor and a remote transmitter.

Main Element of Sensor:

Wetted Part:

Lining, Electrodes, Grounding devices (Grounding rings plate type)

Note: Grounding devices are to take the reference electric potential from the process fluid to measure the electromotive force from the process fluid, and they are fixed at two locations upstream and downstream of the flow. They are unnecessary when taking the reference potential from customer piping. Please also refer to "Cautions on Selection and Installation".

Non-wetted Part:

Flanges, Housing, Excitation coil, Measuring tube

Main Element of Transmitter:

Display unit, Setting keys, Amplifier unit (including I/Os and power supply unit)

■ CONSTRUCTION

Use:

There are some types of constructions available for different purposes as shown in the table below.

Use	Specification
General-purpose	Non explosion protection for the use in non-hazardous area. Integral or Remote type available. IP Protection Grade: IP66/67, Type 4X CSA)
Submersible	Temporary submersion is possible. Applicable to Remote Sensor only. Note: Signal and excitation cables, 30 m (98 ft) length as standard, are wired, fixed with union-joint waterproof glands and urethane-potted in the terminal box of remote sensor when shipped. Performance: Conforms to continuous immersion under the following test condition. Test Condition: 50 m below the surface of the water, equivalent to 0.5 MPa hydraulic pressure, for one month. In case of bad condition such as sewage and seawater, this does not apply. Also, please waterproof and protect the cable separately by conduit piping, etc.

Construction:

Integral Type:

A flowmeter in integrated structure of a sensor and a transmitter.

Remote Type:

A flowmeter in separated structure of a sensor and a transmitter, which are connected by a signal cable and excitation cable. The excitation cable is to be supplied by customer except for submersible type.

Combined Transmitter (*1) (*2):

AXW Remote Sensor (25 to 400 mm, 1 to 16 in.) to be combined with

(i) AXW4A Remote Transmitter

(ii) AXFA11G Remote Transmitter

*1: When changing the combination transmitter from (i) to (ii) or vice versa, readjustment of the meter factor by actual flow calibration is necessary to ensure accuracy.

*2: For AXFA11G, please refer to GS 01E20C01-01E. Also, please read "Cautions on Selection and Installation" in this document.

Maximum Cable Length:

100 m (328 ft) for AXW4A

200 m (656 ft) for AXFA11G

Process Connection:

Available connections are wafer and flange type. The specifications of each connection are shown below. For the linings and size ranges that can be combined with these connections, refer to "Limitations on Specification Selection" in this document.

Wafer:

ASME Class 150, Class 300

EN PN10, PN16, PN40

JIS F12, 10K, 20K

Flange:

ASME Class 150, Class 300

EN PN10, PN16, PN40

JIS F12, 10K, 20K

Lining Material:

- Fluorocarbon PTFE lining
- Polyurethane rubber lining
- Natural hard rubber lining (with ethylene propylene diene rubber EPDM for sealing)
- Natural soft rubber lining

Electrode Material:

- Stainless steel 316L, Nickel alloy (*)
- *: ASTM B574 UNS N10276 or ASME SB-574 UNS N10276

Electrode Construction:

- Fluorocarbon PTFE lining: Internal insertion type
- Polyurethane rubber lining: External insertion type
- Natural hard rubber lining: Internal insertion type
- Natural soft rubber lining: Internal insertion type

Grounding Device Material:

- Grounding Ring Plate:
 - Stainless steel 316L, Nickel alloy (*)
 - *: ASTM B575 UNS N10276 or ASME SB-575 UNS N10276

Grounding Device Construction:

- Grounding Ring Plate:
 - Ring flat plate, with mounting bracket (*)
 - *: Grounding ring plates (type N, type J) for flange type sizes 150 to 400 mm with the lining cord F (PTFE) and H (natural hard rubber) have a handle. Hook the pin attached to the handle on the outer circumference of the flange and install it between the flowmeter and piping.

Gasket Material:

- Note: The following is a description of the material of gaskets, which are supplied with flowmeter, to be used between the lining sensor pipe and grounding rings, or the customer pipe flanges. This includes if the gaskets are necessary or not, or if some gaskets should be supplied by customer. Please also refer to "Cautions on Selection and Installation" for recommended gaskets and "Optional Specification Code" for optional gaskets.

For PTFE lining:

- Standard:
 - Not necessary for sizes 125 mm or below or, should be supplied by customer. Necessary for sizes 150 mm and above and should be supplied by customer. For metal piping, PTFE-sheathed rubber gasket is recommended.

- Optional (for plastic piping):
 - GA: Fluororubber
 - GC: Acid-resistant fluororubber
 - GD: Alkali-resistant fluororubber

- For natural hard rubber lining:
 - Supplied by customer.
- For natural soft rubber lining:
 - None (not necessary), or supplied by customer.
- For polyurethane rubber lining:
 - None (not necessary), or supplied by customer.

For Customer Pipe:

- Standard:
 - None (supplied by customer)
- Optional (*):
 - BSC: Chloroprene rubber (CR)
 - BSF: PTFE-sheathed non-asbestos
 - *: For wafer type only, with bolts and nuts.

Non-wetted Part Material:

- Sensor Terminal Box:
 - Low copper aluminum alloy EN AC-43400
- Transmitter Housing:
 - Low copper aluminum alloy EN AC-43400
- Sensor Housing:

Size	Material
25 to 125 mm (1 to 5 in.)	Stainless steel 304
150 to 400 mm (6 to 16 in.)	Carbon steel SPCC (*1)

*1: JIS standard or JIS standard-based material

Mini-flange (subject to pressure in wafer connection):

Size	Material
150 to 200 mm (6 to 8 in.)	Carbon steel A105 (*2)

Note: In the wafer type other than the above, there is no mini flange because the measuring pipe and the connecting part have a one-piece casting structure.

Flange:

Process Connection Code	Material
B□□	Stainless steel F304
C□□	Carbon steel A105 (*2)

*2: ASTM standard forged material

Measuring Pipe:

Size	Material
25 to 125 mm (1 to 5 in.)	Stainless steel CF8 (*3)
150 to 400 mm (6 to 16 in.)	Stainless steel 304

*3: ASME standard casting material

Coating:

Coating specification depends on "Use" specification. For "General-purpose Use", either Standard Coating (Coating code 1) or Rugged Coating (Coating code 2) can be selected. Standard Coating for "Submersible Use" is for its own specification.

For General-purpose Use (Integral type flowmeter / Remote sensor and transmitter):

Standard Coating (Coating code 1):

Coated Part	Coating Specification
Sensor housing	Polyurethane resin solvent coating, or no coating(*1)
Sensor flanges (for flange type)	
Terminal box (for remote sensor, incl. cover)	Urethane curing type polyester resin powder coating
Transmitter housing (incl. cover)	

Rugged Coating (Coating code 2) (*2):

Coated Part	Coating Specification
Sensor housing	Epoxy and polyurethane resin solvent coating, or no coating(*1)
Sensor flanges (for flange type)	
Terminal box (for remote sensor, incl. cover)	Epoxy and polyurethane resin solvent coating
Transmitter housing (incl. cover)	

For Submersible Use (Remote sensor):

Standard Coating (Coating code 1):

Coated Part	Coating Specification
Sensor housing	Non-tar epoxy resin solvent coating
Sensor flanges	
Terminal box (incl. cover)	

- *1: No coating for General-purpose Use with stainless steel flanges in sizes 25 to 125 mm. Coating is done for sizes 150 mm and more, or for carbon steel flanges.
- *2: Rugged coating is for applications which need salt tolerance resistance, alkali resistance, acid resistance, and/or weather resistance. Three-layer coating (polyurethane coating on two-layer epoxy resin coating) against the same part as that for the standard coating.

Coating Color:

Mint green (RAL color number 190 30 15) for both Standard and Rugged Coating except for Submersible Use

Black (close to RAL color number 9011) for Submersible Use

Cable Entry:

JIS G 1/2 female, ASME 1/2 NPT female, ISO M20 x 1.5 female

Cable Entry Direction:

For Integral Type Flowmeter and Remote Sensor, the cable entry direction can be specified from +90, +180, or -90 degree rotation when ordering, or can be changed by customer after delivery. However, it can not be changed after delivery when submersible use, or district heating and cooling / condensation-proof use (optional code DHC) is selected.

Wiring Terminal:

Intra-system Connection Part (*1): M4 Screw type

Extra-system Connection Part (*2):

M4 Screw type or Clamp type (specified by "Transmitter Wiring Terminal" code)

- *1: Connections between Remote Sensor and Remote Transmitter for flow signal and excitation current.
- *2: Connections at Integral Type Flowmeter and Remote Transmitter for input/output signals and power supply.

Installation Work:

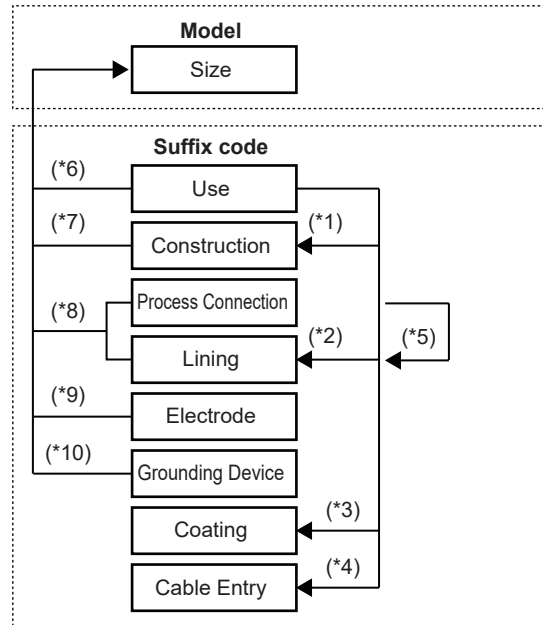
Mounting of Remote Transmitter: 2-inch pipe

Grounding Resistance: 10 Ω or less

Note: When lightning protection performance by the built-in lightning protectors is not required, grounding resistance 100 Ω or less can be applied.

Limitations on Specification Selection:

Selectable structural specifications are limited between Use, Construction, Process Connection, Lining, Electrode, Grounding Device, Coating, and Cable Entry specifications. In addition, the selectable sizes are determined by each specification of Use, Construction, combination of Lining and Process Connection, Electrode, and Grounding Device. Please check the following items. Please also refer to "Cautions on Selection and Installation" in this document.



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- *1: Use and Construction
Submersible use only for Remote Sensor
- *2: Use and Lining
For Submersible use, PTFE can not be selected.
- *3: Use and Coating
For Submersible use, Standard Coating (code 1) only.
- *4: Use and Cable Entry
For Submersible use, JIS G 1/2 only.
- *5: Process Connection and Lining
For Wafer type, PTFE can not be selected.
- *6: Size Range by Use
General-purpose: 25 to 400 mm (1 to 16 in.)
Submersible: 25 to 400 mm (1 to 16 in.)
- *7: Size Range by Construction
Integral Type: 25 to 400 mm (0.1 to 16 in.)
Remote Type: 25 to 400 mm (0.1 to 16 in.)

*8: Size Range by Lining and Process Connection

PTFE Lining:

Process Connection	Size Range	Connection Code
Flange (Stainless Steel F304):		
ASME Class 150	25 to 400 mm (1 to 16 in.)	BA1
ASME Class 300	25 to 300 mm (1 to 12 in.)	BA2
EN PN10	200 to 400 mm (8 to 16 in.)	BE1
EN PN16	65 to 300 mm (2.5 to 12 in.)	BE2
EN PN40	25 to 50 mm (1 to 2 in.)	BE4
JIS F12	80 to 400 mm (3 to 16 in.)	BG1
JIS 10K	25 to 400 mm (1 to 16 in.)	BJ1
JIS 20K	25 to 300 mm (1 to 12 in.)	BJ2
Flange (Carbon Steel):		
ASME Class 150	50 to 400 mm (2 to 16 in.)	CA1
ASME Class 300	50 to 300 mm (2 to 12 in.)	CA2
EN PN10	200 to 400 mm (8 to 16 in.)	CE1
EN PN16	65 to 300 mm (2.5 to 12 in.)	CE2
EN PN40	50 mm (2 in.)	CE4
JIS F12	80 to 400 mm (3 to 16 in.)	CG1
JIS 10K	50 to 400 mm (2 to 16 in.)	CJ1
JIS 20K	50 to 300 mm (2 to 12 in.)	CJ2

Polyurethane Rubber Lining:

Process Connection	Size Range	Connection Code
Wafer:		
ASME Class 150	25 to 200 mm (1 to 8 in.)	AA1
ASME Class 300	25 to 200 mm (1 to 8 in.)	AA2
EN PN10	200 mm (8 in.)	AE1
EN PN16	65 to 200 mm (2.5 to 8 in.)	AE2
EN PN40	25 to 50 mm (1 to 2 in.)	AE4
JIS F12	80 to 200 mm (3 to 8 in.)	AG1
JIS 10K	25 to 200 mm (1 to 8 in.)	AJ1
JIS 20K	25 to 200 mm (1 to 8 in.)	AJ2
Flange (Stainless Steel F304):		
ASME Class 150	25 to 400 mm (1 to 16 in.)	BA1
ASME Class 300	25 to 300 mm (1 to 12 in.)	BA2
EN PN10	200 to 400 mm (8 to 16 in.)	BE1
EN PN16	65 to 300 mm (2.5 to 12 in.)	BE2
EN PN40	25 to 50 mm (1 to 2 in.)	BE4
JIS F12	80 to 400 mm (3 to 16 in.)	BG1
JIS 10K	25 to 400 mm (1 to 16 in.)	BJ1
JIS 20K	25 to 300 mm (1 to 12 in.)	BJ2
Flange (Carbon Steel):		
ASME Class 150	50 to 400 mm (2 to 16 in.)	CA1
ASME Class 300	50 to 300 mm (2 to 12 in.)	CA2
EN PN10	200 to 400 mm (8 to 16 in.)	CE1
EN PN16	150 to 300 mm (6 to 12 in.)	CE2
EN PN40	50 mm (2 in.)	CE4
JIS F12	80 to 400 mm (3 to 16 in.)	CG1
JIS 10K	50 to 400 mm (2 to 16 in.)	CJ1
JIS 20K	50 to 300 mm (2 to 12 in.)	CJ2

Natural Hard Rubber / Natural Soft Rubber Lining:

Process Connection	Size Range	Connection Code
Wafer:		
ASME Class 150	50 to 200 mm (2 to 8 in.)	AA1
ASME Class 300	50 to 200 mm (2 to 8 in.)	AA2
EN PN10	200 mm (8 in.)	AE1
EN PN16	65 to 200 mm (2.5 to 8 in.)	AE2
EN PN40	50 mm (2 in.)	AE4
JIS F12	80 to 200 mm (3 to 8 in.)	AG1
JIS 10K	50 to 200 mm (2 to 8 in.)	AJ1
JIS 20K	50 to 200 mm (2 to 8 in.)	AJ2
Flange (Stainless Steel F304):		
ASME Class 150	50 to 400 mm (2 to 16 in.)	BA1
ASME Class 300	50 to 300 mm (2 to 12 in.)	BA2
EN PN10	200 to 400 mm (8 to 16 in.)	BE1
EN PN16	65 to 300 mm (2.5 to 12 in.)	BE2
EN PN40	50 mm (2 in.)	BE4
JIS F12	80 to 400 mm (3 to 16 in.)	BG1
JIS 10K	50 to 400 mm (2 to 16 in.)	BJ1
JIS 20K	50 to 300 mm (2 to 12 in.)	BJ2
Flange (Carbon Steel):		
ASME Class 150	50 to 400 mm (2 to 16 in.)	CA1
ASME Class 300	50 to 300 mm (2 to 12 in.)	CA2
EN PN10	200 to 400 mm (8 to 16 in.)	CE1
EN PN16	65 to 300 mm (2.5 to 12 in.)	CE2
EN PN40	50 mm (2 in.)	CE4
JIS F12	80 to 400 mm (3 to 16 in.)	CG1
JIS 10K	50 to 400 mm (2 to 16 in.)	CJ1
JIS 20K	50 to 300 mm (2 to 12 in.)	CJ2

*9: Size Range by Electrode Material
 Stainless Steel 316L: 25 to 400 mm (1 to 16 in.)
 Nickel Alloy: 25 to 400 mm (1 to 16 in.)

*10: Size Range by Grounding Device
 Plate Type (Grounding Ring Plate):
 Stainless Steel 316L: 25 to 400 mm (1 to 16 in.)
 Nickel Alloy: 25 to 400 mm (1 to 16 in.)

■ FUNCTIONS

Note: For functional specifications in case of remote type with AXFA11G, please refer to GS 01E20C01-01E.

Display and Setting:

Parameter setting is possible through LCD display with three infrared switches without opening the cover of the display.

Note: Parameter setting by setting tool such as HHT (handheld terminal) and FieldMate (device adjustment / management software) is also possible.

Display:

Construction: Full dot matrix LCD, 64 × 128 dots, with backlight, dot reversal display available

Display Language (*):

Display Code 1:

English, French, German, Italian, Spanish, Portuguese, Russian and Japanese. The display languages are selectable and can be changed by customer.

Display Code 2:

English and Chinese. The display languages are selectable and can be changed by customer.

*: The setting is English when shipped from factory.

Display Screen Configuration:

Display Screen Item:

Status display (icon), Time (necessary to set the time at power-on), Data display(max. four lines), Infrared switch operation status

Flow Rate Screen:

Measured Data Screen (*1) or Online Trend Screen (*2) available. Update period selectable from 0.2, 0.4, 1, 2, 4, and 8 seconds

*1: Display up to 4 data points simultaneously with numbers, bar graphs, icons, or character strings. Specify up to 8 points of data and change display data with infrared switches or automatic scroll function (scroll period 2, 4, or 8 seconds).

Selectable Data:

Flow rate (%), Flow velocity, Volumetric flow rate, Mass flow rate, Totalizer 1, Totalizer 2, Totalizer 3, Adhesion level, Current output 1, Tag number (maximum 32 characters), Communication protocol

*2: Display one data as a trend graph. The display data can be changed with infrared switches or automatic scroll function (scroll period 2, 4, or 8 seconds) selecting up to four data.

Selectable Data:

Flow rate (%), Flow velocity, Volumetric flow rate, Mass flow rate, Totalizer 1, Totalizer 2, Totalizer 3, Current output 1

Alarm Screen:

When an alarm occurs, the flow rate screen and the alarm screen are alternately displayed in the cycle (2, 4, or 8 seconds) linked with the flow rate screen update cycle. Select simple screen (single line display) or detail screen (with alarm countermeasure display).

NAMUR NE 107 Alarm Display Function:

Based on NAMUR NE 107, alarms are classified and displayed as follows. It can also be set to hide.

F: Failure

C: Function Check

S: Out of Specification

M: Maintenance Required

microSD Screen:

Available when optional microSD is selected.

Offline Trend Screen:

Data stored by the data logging function can be displayed on the trend screen. The selectable data is the same as that for the Online Trend Screen.

Display Backlight Blinking (Squawk) Function:

Display backlight can be set to blink once or continuously at 4-second cycle to identify the device.

Display Operation Authority:

Display operation authority level against the parameters can be controlled by selecting from operator, maintenance, or specialist by passcode.

Operator:

Only parameters related to display setting can be set.

Maintenance:

Only parameters related to display setting and zero adjustment can be set.

Specialist:

All parameters can be set.

Communication Function:

BRAIN Communication:

Communication Signal:

Superimposed on the Current Output 1

Communication Line Condition:

Load Resistance:

250 to 450Ω (including cable resistance)

Load Capacitance: 0.22 μF or less

Load Inductance: 3.3 mH or less

Input Impedance of Communicating Device:

10 kΩ or more (at 2.4 kHz)

Communication Distance:

Up to 1.5 km (0.93 miles), when polyethylene insulated PVC-sheathed cables (CEV cables) are used. Communication distance varies depending on the type of cable and wiring used.

Distance from Power Line:

15 cm (6 in.) or more. (Parallel wiring should be avoided)

HART Communication:

Protocol Version: HART 7

Communication Signal:

Superimposed on the Current Output 1

Communication Line Condition:

Load Resistance:

230 to 600Ω (including cable resistance)

Input/Output Function:

Input/Output Signal:

Input/Output up to four points can be selected from three types, type A, E, and G in the table.

Input/Output Table: AXW Sizes 25 to 400 mm (1 to 16 in.) Integral Type Flowmeter / AXW4A Remote Transmitter

Type	Input/Output Signal for each Terminal				Code	
	I/O1	I/O2	I/O3	I/O4	BRAIN	HART 7
Type A	Current Output 1 (Active)	Pulse/Status Output 1 (Passive)	None	None	DA	JA
Type E	Current Output 1 (Active)	Pulse/Status Output 1 (Passive)	Status Input (No-voltage)	Pulse/Status Output 2 (Passive)	DE	JE
Type G	Current Output 1 (Active)	Pulse/Status Output 1 (Passive)	Status Input (No-voltage)	Pulse/Status Output 2 (Active, without internal resistor)	DG	JG

Input Signal:

Status Input: Dry contact

Load Resistance:

200 Ω or less (ON), 100 kΩ or more (OFF)

Output Signal:

Current Output (Active):

4 to 20 mA DC signal

Load Resistance:

750Ω maximum, including cable resistance

Pulse / Status Output (Passive):

Transistor contact output (open collector)

Contact Capacity:

30 V DC (OFF), 200 mA (ON)

Pulse Rate:

0.0001 to 10000 pps (pulse per second)

Pulse Width:

0.05, 0.1, 0.5, 1, 20, 33, 50, 100, 200, 330, 500, 1000, or 2000 ms configurable

Frequency Output Range:

1 to 12500 Hz

Pulse / Status Output (Active):

Without Internal Resistor:

- For Driving Electronic Counter

Load Resistance: 1 kΩ or more

Internal Power Supply:

24 V DC ±20 %

Pulse Rate:

0.0001 to 10000 pps (pulse per second)

Pulse Width:

0.05, 0.1, 0.5, 1, 20, 33, 50, 100, 200, 330, 500, 1000, or 2000 ms configurable

Frequency Output Range: 1 to 12500 Hz

- For Driving Electromechanical Counter

Maximum Current: 150 mA

Internal Power Supply: 24 VDC ±20 %

Pulse Rate:

0.0001 to 2 pps (pulse per second)

Pulse Width:

20, 33, 50, or 100 ms configurable

Flow Calculation Function:

Excitation Method:

Dual Frequency Excitation (Sizes 25 to 400 mm, 1 to 16 in.)

Span Setting:

Span flow can be set in units such as volume flow rate, mass flow rate, time, or flow rate value. The velocity unit can also be set.

Volume Flow Rate Unit:

kcf, cf, mcf, Mgal (US), kgal (US), gal (US), mgal (US), kbbbl (US)*, bbl (US)*, mbbbl (US)*, μbbbl (US)*, MI (megaliter), m³, kl (kiloliter), l (liter), cm³
 *: "US Oil" or "US Beer" can be selected.

Mass Flow Rate Unit:

klb (US), lb (US), t (ton), kg, g

Velocity Unit: ft, m (meter)

Time Unit: s (sec), min, h (hour), d (day)

Damping Function (63% response):

Can be set for each measurement value of flow velocity, volume flow rate, and mass flow rate.

- Output Damping:

For each measured value, the time constant for instantaneous value output and the time constant for totalization / pulse output can be individually set. Time constant 0.1 to 200.0 seconds (shipped with 3.0 seconds). In the case of piston pump etc., it is possible to measure pulsatile flow up to 1 Hz with output damping 0.1 sec. However, note that decreasing damping time generally increases output fluctuation.

- Display Damping:

A common time constant can be set for each screen display value of each measurement value. Time constant 0.0 to 200.0 seconds (shipped with 0.0 seconds).

Current Output:

Current signal (4 to 20 mA DC) proportional to instantaneous flow rate is outputted.

Pulse Output:

The totalized value of the flow rate is converted into the number of pulses converted by the pulse rate, and is outputted.

Frequency Output:

Frequency signal (Duty 50%) proportional to the instantaneous value of the flow rate is outputted. Output terminal is shared with pulse output.

Totalization Function:

Three independent totalizers can be allocated independently, including the start and stop of integration, for each measured value of volume flow rate, mass flow rate, and heat flow rate.

Totalization Type:

Forward / reverse difference flow totalization, Absolute value totalization, Forward direction totalization, Reverse direction totalization

Totalization Display:

Select from actual flow rate display or count value display scaled by counter conversion rate.

Low-cut Function(*):

Cut below the set actual flow rate value for each flow rate of current output, pulse output, and frequency output. It is independent for current output, common for pulse output and frequency output.

*: When "Forward and Reverse Flow Measurement" or "Absolute Range" is used, cut below the set actual flow rate value against the absolute value of the measured value.

Output Processing Function:**Multi-range Function:**

Flow range can be switched to 2 ranges by status input or automatic switching. By status output, it is possible to identify in what range the measurement is being measured, and the status is also displayed on the display.

Forward and Reverse Flow Measurement:

Flow rate measurement in both forward and reverse directions is possible. By status output, it is possible to identify in which direction the measurement is being performed, and the status is also displayed on the display.

Absolute Range:

With 12 mA as flow rate zero, measurements in the forward (12 to 20 mA) and reverse (4 to 12 mA) directions are possible in a single range.

Totalization Switch:

Status signal is outputted when the totalized value becomes equal to or larger than the set value.

Preset Totalization:

By parameter setting or status input, the totalized value is preset to zero or a set value.

0% Signal Lock:

With status input, the current output is forcibly fixed to 0%. Instantaneous flow rate display, pulse output, and flow rate totalization continue.

Alarm Function:**Alarm Configuration:**

Alarms are classified into system alarm (device failure), process alarm, setting alarm, and warning. Alarm output availability can be selected for each item.

Current Output at Alarm Occurrence:

The current output at alarm occurrence is arbitrarily selected from less than 2.4 mA, 3.8 mA fixed, 4 mA fixed, 20.5 mA fixed, more than 21.6 mA, measured value, or HOLD.

Alarm Countermeasure Indication:

A specific countermeasure method can be displayed on the display when an alarm occurs.

Alarm Type:**System Alarm:**

CPU failure, A/D converter failure, Sensor coil circuit break (open), Sensor coil short circuit

Process Alarm:

Input signal error (signal overflow), Sensor empty pipe, Electrode adhesion (of insulator)

Setting Alarm:

Detect inconsistency in parameter setting

Warning:

Warning in a state where measurement can be continued

Alarm History: Keep history of up to 4 alarms.

Verification Function:

Function to check the soundness of the device itself. Check the magnetic circuit, excitation circuit, arithmetic processing circuit, etc. offline (i.e. flow measurement function stopped) and display the result without demounting the device from piping.

Data Management Function:**Store / Restore of Parameters:**

Main parameters can be stored and restored using nonvolatile memory of display unit or optional microSD card. The restore can also be used for copying parameters to another device (except for parameters under unmatched specification for the devices).

Data Logging Function:

By using an optional microSD card, it is possible to log up to 4 process data at the same time. In addition to displaying the logged results on the trend screen, it is also possible to connect the microSD card to a PC and retrieve the data.

Logging Cycle:

1 second, 10 seconds, 30 seconds, 1 minute, 5 minutes, 30 minutes, 1 hour

Logging Time:

10 minutes, 30 minutes, 1 hour, 3 hours, 12 hours, 24 hours, 72 hours, 240 hours

Logging Data:

Flow velocity, Volume flow rate, Mass flow rate, Adhesion level, Electrode potential (A, B), Flow signal peak value

Data Security During Power Failure:

Protection of data, such as parameters and integrated values, by nonvolatile memory at power failure.

Factory Default Parameter Restore:

It is possible to restore the parameters to the values that were set at the time of factory shipment.

Lightning Protection:

Built-in lightning protector for excitation, signal common, input / output terminals, and power supply terminal.

Test Standard: IEC61000-4-5**Test Method:**

Series mode 1 kV / Common mode 2 kV
Surge waveform 8/20 μ S

■ CONFORMITY STANDARDS**Safety Requirements:**

EN61010-1
EN61010-2-030
CAN/CSA-C22.2 No.61010-1-12
CAN/CSA-C22.2 No.61010-2-30-12
CAN/CSA-C22.2 No.94.02-07
UL 61010-1 (3rd Edition)
UL 61010-2-030 (1st Edition)
UL 50E
IEC 60529
Altitude at Installation Site:
Max. 2000 m above sea level
Installation Category (Overvoltage category): II
Micro Pollution Degree: 2
Macro Pollution Degree: 4
Protection Degree: IP66/67, Type 4X (CSA)

EMC:

EN61326-1 Class A, Table 2 (For use in industrial locations)
EN61326-2-3
EN61000-3-2 Class A
EN61000-3-3

■ PERFORMANCE

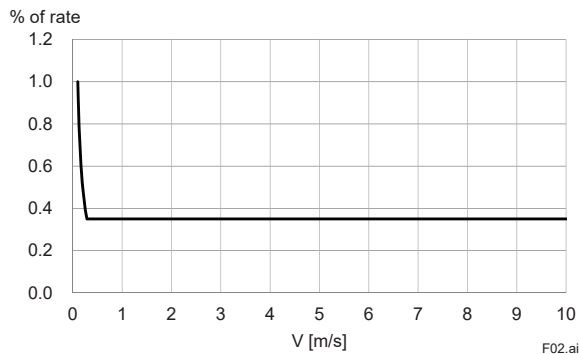
Accuracy:

AXW Integral Type Flowmeter, the combination of AXW Sensor and Transmitter, or the combination of AXW Remote Sensor and AXFA11 Remote Transmitter

Size mm (in.)	Flow Velocity V m/s (ft/s)	Standard Accuracy
25 to 400 (1) (16)	$V < 0.3$ (1)	± 1.0 mm/s
	$0.3 \leq V \leq 10$ (1) (33)	± 0.35 % of rate

Sizes 25 to 400 mm (1 to 16 in.)

Accuracy



Note: - The accuracy above is the result of calibration test at our water flow facility before shipment. It is defined by the integrated value of the pulse output. As for the current output accuracy, add $\pm 8 \mu\text{A}$ ($\pm 0.05\%$ of span) to the accuracy above.

- Calibration takes place at reference conditions as below.

Medium: Water, Density: 0.9 to 1.1 kg/l
Medium temperature: 10 to 35°C (50 to 95°F)
(Average temperature 22.5°C (72.5°F))

Ambient temperature: 10 to 35°C (50 to 95°F)

Process pressure (absolute):
0.1 to 0.2 MPa (15 to 29 psi)

- Reference Standards:

JIS B 7554, ISO 4185, ISO 5168, ISO 9104,
BS EN 29104

Measurement Range:

Minimum Span Velocity: 0.1 m/s

Maximum Span Velocity: 10 m/s

Note: Please refer to the chart in "Sizing Data", and description on the Span Flow Rate in "Ordering Information".

Repeatability:

$\pm 0.1\%$ of rate (Velocity 1 m/s (3.3 ft/s) or above)

$\pm 0.05\%$ of rate ± 0.5 mm/s (Velocity below 1 m/s (3.3 ft/s))

Power Consumption:

Integral Type: 13 W

Remote Type: 13 W (with AXW4 A Transmitter)

20 W (with AXFA11 Transmitter)

Note: The power consumption is the same as above regardless of the communication and I/O type.

Insulation Resistance:

Integral Type:

Between power supply terminals and ground terminal:

100 M Ω /500 V DC

Between power supply terminals and input/output terminals:

100 M Ω /500 V DC

Between ground terminal and input/output terminals:

20 M Ω /100 V DC or 125 V DC

Between input/output terminals:

20 M Ω /100 V DC or 125 V DC

Remote Sensor:

Between signal terminals:

100 M Ω /500 V DC

Between signal terminals and common terminal:

100 M Ω /500 V DC

Between excitation current terminal and signal / common terminals:

100 M Ω /500 V DC

Remote Transmitter:

Between power supply terminals and ground terminal:

100 M Ω /500 V DC

Between power supply terminals and input/output or excitation current terminals:

100 M Ω /500 V DC

Between ground terminal and input/output or excitation current terminals:

20 M Ω /100 V DC or 125 V DC

Between input/output and excitation current terminals:

20 M Ω /100 V DC or 125 V DC

Withstand Voltage:

Integral Type:

Between power supply terminals and ground terminal:

1400 V AC for 2 seconds

Between power supply terminals and input/output terminals:

1400 V AC for 2 seconds

Remote Sensor (Optional code WT1):

Between excitation current terminal and ground terminal:

1000 V AC for 1 minute

Remote Sensor (Optional code WT2):

Between excitation current terminal and ground terminal:

1500 V AC for 1 minute

Between signal terminals and excitation current terminal:

1500 V AC for 1 minute

Remote Transmitter:

Between power supply terminals and ground terminal:

1400 V AC for 2 seconds

Between power supply terminals and input/output terminals:

1400 V AC for 2 seconds

Between excitation current terminal and ground terminal:

160 V AC for 2 seconds

Between excitation current terminal and input/output terminals:

350 V AC for 2 seconds

NORMAL OPERATING CONDITIONS

Ambient Temperature:

-10 to +60°C (14 to +140°F)

Note: Minimum temperature should also be limited according to minimum fluid temperature of sensor's specification. Refer to description of "Fluid Temperature and Pressure".

Ambient Humidity:

0 to 100%

Note: Lengthy continuous operation at 95% or more is not recommended.

Power Supply:

Power Supply Code 1:

AC Type:

Rated Power Supply: 100 to 240 V AC, 50/60 Hz
Operating Voltage Range: 80 to 264 V AC

DC Type:

Rated Power Supply: 100 to 120 V DC
Operating Voltage Range: 90 to 130 V DC

Power Supply Code 2:

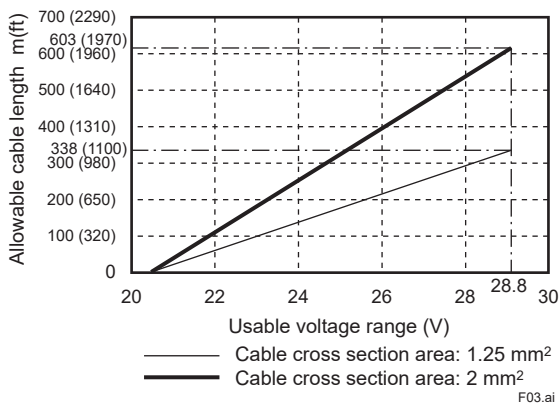
AC Type:

Rated Power Supply: 24 V AC, 50/60 Hz
Operating Voltage Range: 20.4 to 28.8 V AC

DC Type:

Rated Power Supply: 24 V DC
Operating Voltage Range: 20.4 to 28.8 V DC

Supply Voltage and Power Supply Cable Length for Power Supply Code 2:



Fluid Conductivity:

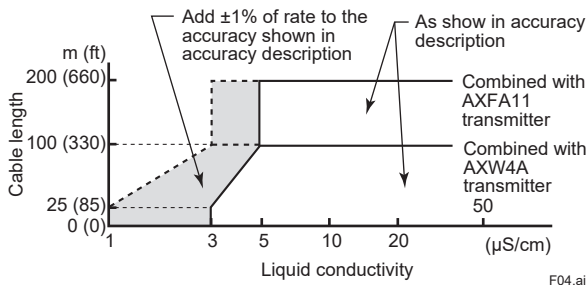
Size 25 to 125 mm (1 to 5 in.): 1 μS/cm or larger

Size 150 to 400 mm (6 to 16 in.): 3 μS/cm or larger

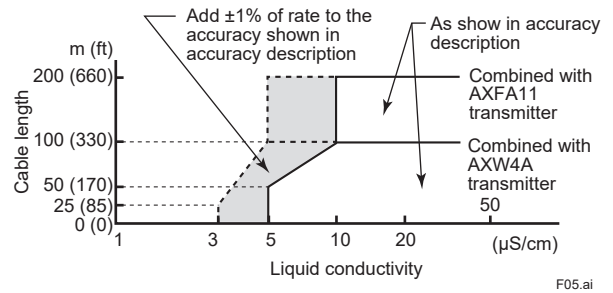
Note: Regarding low conductivity fluids, please read "Cautions on Selection and Installation".

Signal Cable Length and Fluid Conductivity (Remote Sensor):

Size 25 to 125 mm (1 to 5 in.)



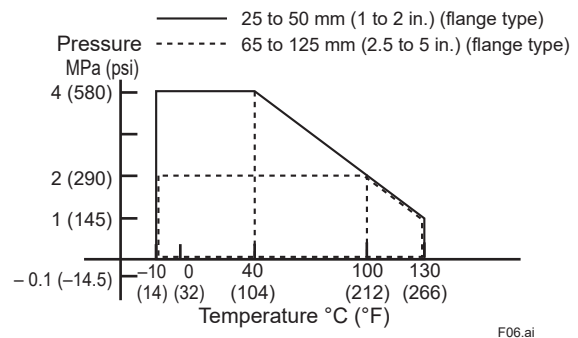
Size 150 to 400 mm (6 to 16 in.)



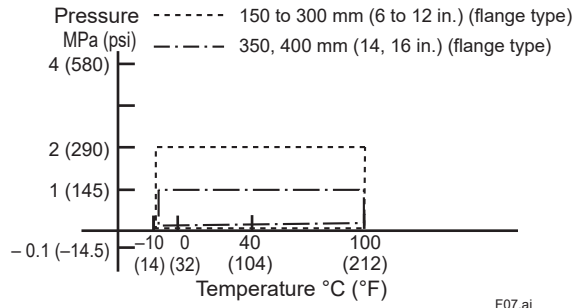
Fluid Temperature and Pressure:

The figure shows the usable range of the sensor in each specification. It is also limited by the flange pressure rating of the process connection.

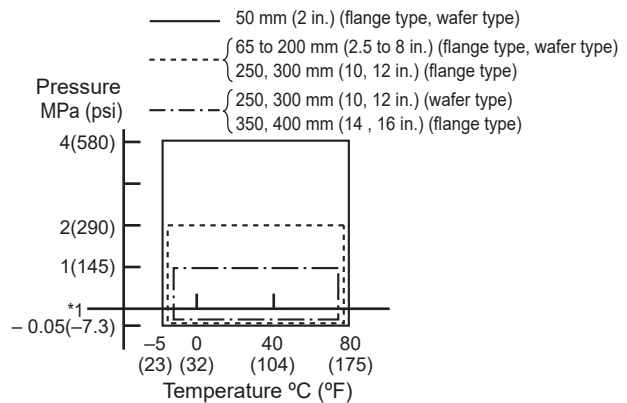
PTFE Lining (Sizes 25 to 125 mm, 0.1 to 5 in.)



PTFE Lining (Sizes 150 to 400 mm, 6 to 16 in.)

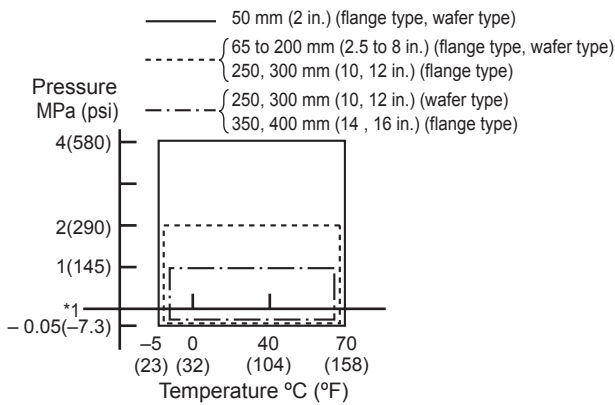


Natural Hard Rubber Lining



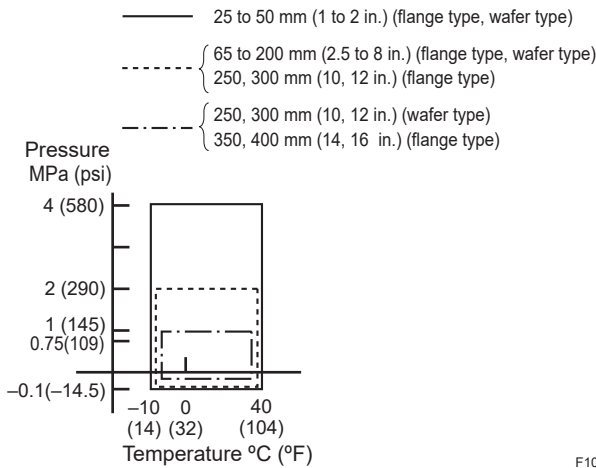
*1: -0.04 MPa (-5.7 psi) for sizes 350 mm (14 in.) and 400 mm (16 in.)

Natural Soft Rubber Lining



*1 : -0.04 MPa (-5.7 psi) for sizes 350 mm (14 in.) and 400 mm (16 in.)
F09.ai

Polyurethane Rubber Lining



F10.ai

Vibration Conditions:

Integral Type:

19.6 m/s² - rms (5 to 2000 Hz)

Remote Sensor:

34.3 m/s² - rms (5 to 2000 Hz)

Remote Transmitter:

19.6 m/s² - rms (5 to 2000 Hz)

Note: Vibration conditions are based on IEC 60068-2-64.
Avoid installation in a place with much vibration (vibration frequency 2000 Hz or more). It may cause damage to the device.

■ CAUTIONS ON SELECTION AND INSTALLATION

Combined Transmitter:

If it is considered that the flow noise in the fluid could be large because of low conductivity, conductivity nonuniformity, or high concentration slurry, etc. and the meter size is 250 mm or more, it is recommended to use a remote sensor in combination with AXFA11G (refer to GS 01E20C01-01E).

Lining:

PTFE Lining:

It is excellent in chemical resistance and suitable for general chemical fluids.

Note: For applications where permeable fluids, highly corrosive fluids, large temperature and pressure fluctuations are applied, we recommend PFA lining or ceramics tube type of the AXG magnetic flowmeter, or the capacitance magnetic flowmeter ADMAG CA.

Polyurethane Lining:

It has abrasion resistance and suitable for low slurry fluid of water, water-based solution, muddy water, or seawater.

Natural Hard Rubber Lining:

It has chemical resistance and suitable for acid / alkali fluid of low concentration, and also wastewater / sewage.

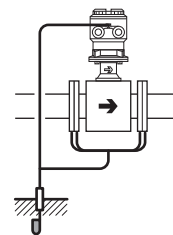
Natural Soft Rubber Lining:

It is a material that can reduce wear of the lining due to slurry mixed fluid. If the concentration of slurry is high, separate measures are required for the electrode part, so please consult us.

Note: When the diameter is 200 mm or less, please also consider the ceramics tube type of AXG magnetic flowmeter.

Selection of Grounding Device:

The grounding device is optional. It is unnecessary to use it for metal piping which has no lining. In that case, please connect the piping and the sensor flange part (mini-flange or one-piece casting structured measuring pipe for wafer type) with grounding wire supplied by customer (see the figure below). Be sure to select the grounding device when installed at resin or lining piping.



F11.ai

There are thin type (thickness 1 or 2 mm) and thick type (thickness 3 mm) for grounding rings. If the flange is ASME Class 300, EN PN 40 etc. for high fluid pressure and the tightening torque is high, the thick type is recommended.

Recommended Gasket (for customer piping flange):

Unit: mm (approx. in.)

Use compressed non-asbestos fiber gaskets, PTFE sheathed gaskets or gaskets which have equivalent elasticity. When selecting optional code GA, GC, or GD for plastic piping, use rubber gaskets or ones which have equivalent elasticity (such as PTFE-sheathed rubber gaskets).

When the customer's piping is a lining pipe, the following types of gasket are recommended depending on the lining material of the magnetic flowmeter.

- PTFE lining: PTFE-sheathed gasket
- Polyurethane rubber or natural soft rubber lining: No gasket required
- Natural hard rubber: Gasket with hardness equivalent to hard rubber

Dimensions of the gasket should be determined with reference to the following table (by process connection and lining) and figure. If the inner diameter of the gasket is too large or the outer diameter is too small, liquid leakage may occur.

Unit: mm (approx. in.)

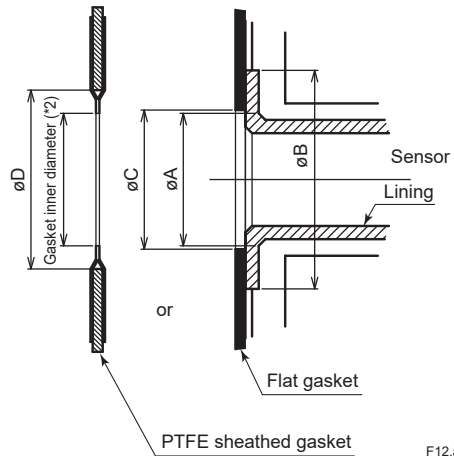
Wafer, Polyurethane Rubber / Natural Hard Rubber / Natural Soft Rubber Lining				
Size	Inner diameter for effective sealing [øA]	Outer diameter for effective sealing [øB]	Recommended inner diameter of gasket [øC] or [øD]	Minimum inner diameter of gasket
25 (1)	32 (1.26)	54 (2.13)	35 (1.38)	28 (1.10)
32 (1.25)	37 (1.46)	58 (2.28)	43 (1.69)	34 (1.34)
40 (1.5)	45 (1.76)	71 (2.80)	49 (1.93)	41 (1.61)
50 (2)	58 (2.26)	84 (3.31)	61 (2.40)	53 (2.09)
65 (2.5)	69 (2.73)	103 (4.06)	84 (3.31)	66 (2.60)
80 (3)	81 (3.19)	114 (4.49)	90 (3.54)	81 (3.19)
100 (4)	106 (4.19)	140 (5.51)	115 (4.53)	102 (4.02)
125 (5)	131 (5.14)	165 (6.50)	141 (5.55)	128 (5.04)
150 (6)	164 (6.46)	190 (7.48)	167 (6.57)	147 (5.79)
200 (8)	218 (8.58)	240 (9.45)	218 (8.58)	199 (7.83)

Unit: mm (approx. in.)

Flange, PTFE / Natural Hard Rubber / Natural Soft Rubber Lining				
Size	Inner diameter for effective sealing [øA]	Outer diameter for effective sealing [øB]	Recommended inner diameter of gasket [øC] or [øD]	Minimum inner diameter of gasket
25 (1)	35 (1.39)	54 (2.13)	35 (1.38)	29 (1.14)
32 (1.25)	40 (1.59)	64 (2.53)	43 (1.69)	34 (1.34)
40 (1.5)	48 (1.89)	72 (2.83)	49 (1.93)	41 (1.61)
50 (2)	61 (2.39)	89 (3.50)	61 (2.40)	53 (2.09)
65 (2.5)	72 (2.84)	108 (4.25)	84 (3.31)	66 (2.60)
80 (3)	85 (3.33)	119 (4.69)	90 (3.54)	81 (3.19)
100 (4)	110 (4.34)	146 (5.75)	115 (4.53)	102 (4.02)
125 (5)	136 (5.34)	173 (6.81)	141 (5.55)	128 (5.04)
150 (6)	164 (6.46)	209 {216} *1 (8.23 {8.50})	167 (6.57)	150 (5.91)
200 (8)	218 (8.58)	259 {272} *1 (10.20 {10.71})	218 (8.58)	201 (7.91)
250 (10)	270 (10.61)	320 {332} *1 (12.60 {13.07})	270 (10.63)	250 (9.84)
300 (12)	321 (12.64)	367 {392} *1 (14.44 {15.43})	321 (12.64)	301 (11.85)
350 (14)	350 (13.76)	412 (16.22)	359 (14.13)	330 (12.99)
400 (16)	401 (15.78)	475 (18.70)	410 (16.14)	381 (15.00)

Flange, Polyurethane Rubber Lining				
Size	Inner diameter for effective sealing [øA]	Outer diameter for effective sealing [øB]	Recommended inner diameter of gasket [øC] or [øD]	Minimum inner diameter of gasket
25 (1)	35 (1.39)	54 (2.13)	35 (1.38)	29 (1.14)
32 (1.25)	40 (1.59)	64 (2.53)	43 (1.69)	34 (1.34)
40 (1.5)	48 (1.89)	72 (2.83)	49 (1.93)	41 (1.61)
50 (2)	61 (2.39)	89 (3.50)	61 (2.40)	53 (2.09)
65 (2.5)	72 (2.84)	108 (4.25)	84 (3.31)	66 (2.60)
80 (3)	85 (3.33)	119 (4.69)	90 (3.54)	81 (3.19)
100 (4)	110 (4.34)	146 (5.75)	115 (4.53)	102 (4.02)
125 (5)	136 (5.34)	173 (6.81)	141 (5.55)	128 (5.04)
150 (6)	164 (6.46)	203 {209} *1 (7.99 {8.23})	167 (6.57)	150 (5.91)
200 (8)	218 (8.58)	253 {259} *1 (9.96 {10.20})	218 (8.58)	201 (7.91)
250 (10)	270 (10.61)	316 {320} *1 (12.44 {12.60})	270 (10.63)	250 (9.84)
300 (12)	321 (12.64)	361 {367} *1 (14.21 {14.45})	321 (12.64)	301 (11.85)
350 (14)	350 (13.76)	406 (15.98)	359 (14.13)	330 (12.99)
400 (16)	401 (15.78)	469 (18.46)	410 (16.14)	381 (15.00)

*1: The value varies depending on the selection of process connection code.
In case of the code BA2, BJ2, CA2, or CJ2: Value in { }



*2: To prevent the gasket from protruding into the flow path, make sure that this length is smaller than the minimum inner diameter of the gasket in the table.

Recommended Gasket (between sensor and grounding ring):

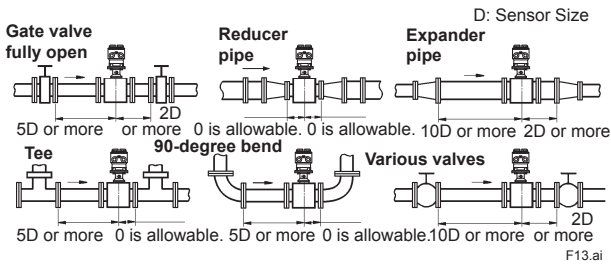
In case of natural hard rubber lining sizes 50 to 400 mm (2 to 16 in.) and PTFE lining sizes 150 to 400 mm (6 to 16 in.), prepare the gasket on the sensor side (between the sensor flange and the grounding ring). The recommended gasket inner diameter and material are the same as those for the customer piping flange side gasket in the previous section.

Installing PTFE Sensor:

When installing PTFE lining sensor to the piping and tightening it, be careful not to apply uneven tension and torque to the PTFE. It is recommended to install the PTFE lining sensor with grounding rings or with short pipes at both upstream and downstream side fixed beforehand.

Mounting of Flowmeters and Required Lengths of Straight Runs:

Based on JIS B 7554 “Electromagnetic Flowmeters” and our piping condition test data, we recommend the piping conditions as shown in the following figures. This is not always enough when the piping line incorporates multiple conditions at the same time. When installing two or more magnetic flowmeters on a single pipe, provide a run of at least 5D between them.



Required straight runs

- *1: Do not install anything in the vicinity that may interfere with the magnetic field, induced signal voltages, or flow velocity distributions of the flowmeter.
- *2: A straight run may not be required on the downstream side of the flowmeter. However, if a downstream valve or other fitting causes irregularity or deviation in flows, provide a straight run of 2D to 3D on the downstream side.
- *3: The valves shall be mounted on the downstream side so that deviated flows do not occur in the sensor and to avoid startup from an empty condition.
- *4: In case the piping conditions are compounded, install on the straight pipe section where the upstream part is sufficiently rectified.

Maintaining Stable Fluid Conductivity

Do not install the flowmeter where fluid conductivity tends to become uneven. If chemicals are fed near the upstream side of a magnetic flowmeter, they may affect the flow-rate’s indications. To avoid this situation, it is recommended that the chemical feed ports be located on the downstream side of the flowmeter. If it is unavoidable that chemicals must be fed on the upstream side, provide a sufficient length of straight run (approximately 50D) to ensure the proper mixture of fluids.

Low Conductivity Fluid:

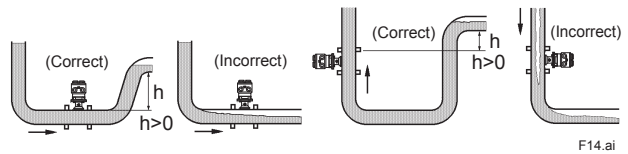
When used for fluids with high flow noise (pure water, low viscosity and low conductivity fluid such as alcohols), the output fluctuation increases and the measurement is affected. In that case, using the capacitance magnetic flowmeter ADMAG CA, vortex flowmeter, or Coriolis flowmeter is recommended.

Abrasive Slurry Fluid:

For abrasive slurry fluids mixed with minerals, earth and sand etc., install on vertical piping. This reduces uneven wear of the lining. For sizes 200 mm (8 in.) or less, the AXG magnetic flowmeter with ceramics tube, the capacitance magnetic flowmeter ADMAG CA, or the AXW magnetic flowmeter with natural soft rubber lining is recommended.

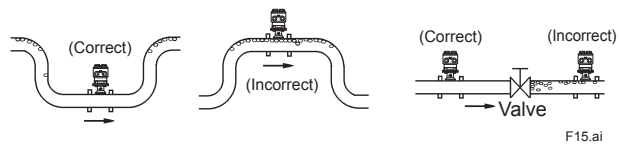
Mounting Positions:

- Pipes must be fully filled with liquids. It is essential that pipes remain fully filled at all times, otherwise flow rate indications may be affected and measurement errors may be caused. Piping shall be designed so as to maintain the sensor filled with fluids. Vertical mounting is effective in such cases as when fluids tend to separate or solid matter may be precipitated. When employing vertical mounting, direct the fluids from the bottom to the top to ensure that the pipes remain fully filled.



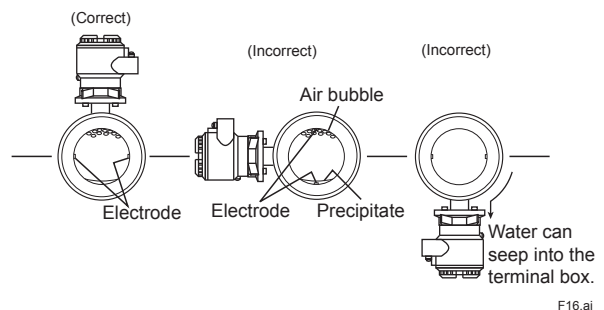
Mounting Positions

- Avoiding Air Bubbles. If air bubbles enter a measurement pipe, flow rate indications may be affected and measurement errors may be caused. In cases where fluids contain air bubbles, piping must be designed to prevent them from accumulating in the measurement pipe of a sensor. If a valve exists near the sensor, try to mount the sensor on the valve’s upstream side in order to prevent a possible reduction of pressure inside the pipe, thereby avoiding the possibility of air bubbles.



Avoiding Air Bubbles

- Mounting Orientation. If electrodes are perpendicular to the ground, air bubbles near the top or precipitates at the bottom may cause measurement errors. Ensure that the terminal box of a remote sensor and transmitter of an integral type flowmeter are mounted above the piping to prevent water from entering them.




Mounting Orientation

■ MODEL AND SUFFIX CODE

MODEL AND SUFFIX CODE	
General-purpose, Wafer	P.15
General-purpose, Flange	P.16
Submersible, Wafer	P.18
Submersible, Flange	P.19
Remote Transmitter	P.20
Signal Cable	P.20
Details: Communication and I/O	P.20
OPTIONAL SPECIFICATION CODE	
Application, Usage, and Operating Function	P.21
Tag Plate and Mounting Bracket	P.22
Piping Parts	P.22
Grounding Device	P.22
Gasket	P.23
Direction of Cable Entry / Cable Gland	P.23
Applicable Models for the Waterproof and Plastic Gland Options	P.24
Certificate / Test Report on Material, Calibration, Hydrostatic Test, etc.	P.25

Note:

- 1: There are some limitations on the combination of selectable specifications. Please refer to "Limitations on Specification Selection" when selecting specification code.
- 2: For EN standard wafer and flange type of sizes 50 mm (2 in.) or less, select PN40 even for lower pressure rating because the dimensions of mating faces for PN10, 16, and 40 are the same. Likewise, for the EN standard wafer and flange type of sizes 65 to 150 mm (2.5 to 6 in.), select PN16 even for lower pressure rating because the dimensions of mating faces for PN10 and 16 are the same as well.
- "3: The dimensions of mating faces are based on the following flange standards. The usable range is also limited by fluid temperature and pressure conditions.
JIS F12: JIS G 3443-2, JIS 10K/20K: JIS B 2220 and JIS G 3443-2,
ASME: ASME B 16.5, EN: EN 1092-1"
- 4: The grounding device is selectable from none (code 1) or grounding ring (code 2). When selecting the grounding ring (code 2), it is also necessary to select its type (material etc.) from the optional specifications.
- 5: The lay length (face to face) of the flange type of polyurethane rubber, natural hard rubber, and natural soft rubber conforms to ISO standard (ISO 13359). The lay length increases with the optional grounding rings or gaskets, so please check the tables in the Dimensional Drawings.
- 6:  Lining, electrode, and grounding device (grounding ring plate) are wetted parts. Users must consider the characteristics of selected wetted parts material and influence of process fluids. The use of inappropriate materials can result in the leakage of corrosive process fluids and cause injury to personnel and/or damage to plant facilities. It is also possible that the instrument itself can be damaged and that fragments from the instrument can contaminate the user's process fluids. Be very careful with highly corrosive process fluids such as hydrochloric acid, sulfuric acid, hydrogen sulfide, sodium hypochlorite, and high-temperature steam (150°C [302°F] or above). Contact Yokogawa for detailed information of the wetted parts material.
- 7: In the case of remote sensor, select "None (or Without)" for each specification code of "Power Supply", "Communication and I/O", "Transmitter Wiring Terminal" and "Display".

●General-purpose, Wafer

Model	Suffix Code		Description
AXW025			Magnetic Flowmeter (25 mm/1 in)
AXW032			Magnetic Flowmeter (32 mm/1.25 in)
AXW040			Magnetic Flowmeter (40 mm/1.5 in)
AXW050			Magnetic Flowmeter (50 mm/2 in)
AXW065			Magnetic Flowmeter (65 mm/2.5 in)
AXW080			Magnetic Flowmeter (80 mm/3 in)
AXW100			Magnetic Flowmeter (100 mm/4 in)
AXW125			Magnetic Flowmeter (125 mm/5 in)
AXW150			Magnetic Flowmeter (150 mm/6 in)
AXW200			Magnetic Flowmeter (200 mm/8 in)
Use	-G		General-purpose
Construction	A		Integral Type Flowmeter
	D		Remote Sensor (for AXFA11)
	W		Remote Sensor (for AXW4A)
Explosion Protection	000		Non Explosion Protection Approval
Process Connection	Wafer	AA1	ASME Class 150 Wafer
		AA2	ASME Class 300 Wafer
		AE1	EN PN10 Wafer
		AE2	EN PN16 Wafer
		AE4	EN PN40 Wafer
		AG1	JIS F12 Wafer
		AJ1	JIS 10K Wafer
Lining	U		Polyurethane Rubber Lining
	H		Natural Hard Rubber Lining
	D		Natural Soft Rubber Lining
Electrode	L		Stainless Steel 316L
	H		Nickel Alloy
Grounding Device	1		None
	2		Grounding Rings (Select an optional code)
Housing and Coating	1		Standard Material with Standard Coating
	2		Standard Material with Rugged Coating
Cable Entry	0		JIS G1/2 Female
	2		ASME 1/2 NPT Female
	4		ISO M20 x 1.5 Female
Accuracy	B		Standard
Power Supply	-1		100-240 V AC / 100-120 V DC
	-2		24 V AC / DC
	-N		None (Remote Sensor)
Communication and I/O	D <input type="checkbox"/>		<input type="checkbox"/> : A, E, G BRAIN and I/O (Type A, E, G. See separate table.)
	J <input type="checkbox"/>		<input type="checkbox"/> : A, E, G HART 7 and I/O (Type A, E, G. See separate table.)
	NN		None (Remote Sensor)
Transmitter Wiring Terminal	1		M4 Screw-type
	2		Clamp Type
	N		None (Remote Sensor)
Display	1		With Display (English, Multi-language)
	2		With Display (English, Chinese)
	N		Without Display/Remote Sensor
Optional Specification			<input type="checkbox"/> Refer to optional specification table.

●General-purpose, Flange

Model	Suffix Code		Description
AXW025			Magnetic Flowmeter (25 mm/1 in)
AXW032			Magnetic Flowmeter (32 mm/1.25 in)
AXW040			Magnetic Flowmeter (40 mm/1.5 in)
AXW050			Magnetic Flowmeter (50 mm/2 in)
AXW065			Magnetic Flowmeter (65 mm/2.5 in)
AXW080			Magnetic Flowmeter (80 mm/3 in)
AXW100			Magnetic Flowmeter (100 mm/4 in)
AXW125			Magnetic Flowmeter (125 mm/5 in)
AXW150			Magnetic Flowmeter (150 mm/6 in)
AXW200			Magnetic Flowmeter (200 mm/8 in)
AXW250			Magnetic Flowmeter (250 mm/10 in)
AXW300			Magnetic Flowmeter (300 mm/12 in)
AXW350			Magnetic Flowmeter (350 mm/14 in)
AXW400			Magnetic Flowmeter (400 mm/16 in)
Use	-G		General-purpose
Construction	A		Integral Type Flowmeter
	D		Remote Sensor (for AXFA11)
	W		Remote Sensor (for AXW4A)
Explosion Protection	000		Non Explosion Protection Approval
Process Connection	Stainless Steel Flange (F304)	BA1	ASME Class 150 Flange
		BA2	ASME Class 300 Flange
		BE1	EN PN10 Flange
		BE2	EN PN16 Flange
		BE4	EN PN40 Flange
		BG1	JIS F12 Flange
		BJ1	JIS 10K Flange
		BJ2	JIS 20K Flange
	Carbon Steel Flange	CA1	ASME Class 150 Flange
		CA2	ASME Class 300 Flange
		CE1	EN PN10 Flange
		CE2	EN PN16 Flange
		CE4	EN PN40 Flange
		CG1	JIS F12 Flange
	CJ1	JIS 10K Flange	
	CJ2	JIS 20K Flange	
Lining	F		Fluorocarbon PTFE Lining
	U		Polyurethane Rubber Lining
	H		Natural Hard Rubber Lining
	D		Natural Soft Rubber Lining
Electrode	L		Stainless Steel 316L
	H		Nickel Alloy
Grounding Device	1		None
	2		Grounding Rings (Select an optional code)
Housing and Coating	1		Standard Material with Standard Coating
	2		Standard Material with Rugged Coating
Cable Entry	0		JIS G1/2 Female
	2		ASME 1/2 NPT Female
	4		ISO M20 x 1.5 Female
Accuracy	B		Standard
Power Supply	-1		100-240 V AC / 100-120 V DC
	-2		24 V AC / DC
	-N		None (Remote Sensor)
Communication and I/O	D <input type="checkbox"/>		<input type="checkbox"/> : A, E, G BRAIN and I/O (Type A, E, G. See separate table.)
	J <input type="checkbox"/>		<input type="checkbox"/> : A, E, G HART 7 and I/O (Type A, E, G. See separate table.)
	NN		None (Remote Sensor)

(Continued)

Model	Suffix Code	Description
Transmitter Wiring Terminal	1	M4 Screw-type
	2	Clamp Type
	N	None (Remote Sensor)
Display	1	With Display (English, Multi-language)
	2	With Display (English, Chinese)
	N	Without Display/Remote Sensor
Optional Specification		/☐ Refer to optional specification table.

●Submersible, Wafer

Model	Suffix Code		Description
AXW025			Magnetic Flowmeter (25 mm/1 in)
AXW032			Magnetic Flowmeter (32 mm/1.25 in)
AXW040			Magnetic Flowmeter (40 mm/1.5 in)
AXW050			Magnetic Flowmeter (50 mm/2 in)
AXW065			Magnetic Flowmeter (65 mm/2.5 in)
AXW080			Magnetic Flowmeter (80 mm/3 in)
AXW100			Magnetic Flowmeter (100 mm/4 in)
AXW125			Magnetic Flowmeter (125 mm/5 in)
AXW150			Magnetic Flowmeter (150 mm/6 in)
AXW200			Magnetic Flowmeter (200 mm/8 in)
Use	-W		Submersible
Construction	D		Remote Sensor (for AXFA11)
	W		Remote Sensor (for AXW4A)
Explosion Protection	000		Non Explosion Protection Approval
Process Connection	Wafer	AA1	ASME Class 150 Wafer
		AA2	ASME Class 300 Wafer
		AE1	EN PN10 Wafer
		AE2	EN PN16 Wafer
		AE4	EN PN40 Wafer
		AG1	JIS F12 Wafer
		AJ1	JIS 10K Wafer
		AJ2	JIS 20K Wafer
Lining	U		Polyurethane Rubber Lining
	H		Natural Hard Rubber Lining
	D		Natural Soft Rubber Lining
Electrode	L		Stainless Steel 316L
	H		Nickel Alloy
Grounding Device	1		None
	2		Grounding Rings (Select an optional code)
Housing and Coating	1		Standard Material with Standard Coating
Cable Entry	0		JIS G1/2 Female
Accuracy	B		Standard
Power Supply	-N		None (Remote Sensor)
Communication and I/O	NN		None (Remote Sensor)
Transmitter Wiring Terminal	N		None (Remote Sensor)
Display	N		Without Display/Remote Sensor
Optional Specification	/□ Refer to optional specification table.		

●Submersible, Flange

Model	Suffix Code		Description
AXW025			Magnetic Flowmeter (25 mm/1 in)
AXW032			Magnetic Flowmeter (32 mm/1.25 in)
AXW040			Magnetic Flowmeter (40 mm/1.5 in)
AXW050			Magnetic Flowmeter (50 mm/2 in)
AXW065			Magnetic Flowmeter (65 mm/2.5 in)
AXW080			Magnetic Flowmeter (80 mm/3 in)
AXW100			Magnetic Flowmeter (100 mm/4 in)
AXW125			Magnetic Flowmeter (125 mm/5 in)
AXW150			Magnetic Flowmeter (150 mm/6 in)
AXW200			Magnetic Flowmeter (200 mm/8 in)
AXW250			Magnetic Flowmeter (250 mm/10 in)
AXW300			Magnetic Flowmeter (300 mm/12 in)
AXW350			Magnetic Flowmeter (350 mm/14 in)
AXW400			Magnetic Flowmeter (400 mm/16 in)
Use	-W		Submersible
Construction	D		Remote Sensor (for AXFA11)
	W		Remote Sensor (for AXW4A)
Explosion Protection	000		Non Explosion Protection Approval
Process Connection	Stainless Steel Flange (F304)	BA1	ASME Class 150 Flange
		BA2	ASME Class 300 Flange
		BE1	EN PN10 Flange
		BE2	EN PN16 Flange
		BE4	EN PN40 Flange
		BG1	JIS F12 Flange
		BJ1	JIS 10K Flange
		BJ2	JIS 20K Flange
	Carbon Steel Flange	CA1	ASME Class 150 Flange
		CA2	ASME Class 300 Flange
		CE1	EN PN10 Flange
		CE2	EN PN16 Flange
		CE4	EN PN40 Flange
		CG1	JIS F12 Flange
		CJ1	JIS 10K Flange
		CJ2	JIS 20K Flange
Lining	U		Polyurethane Rubber Lining
	H		Natural Hard Rubber Lining
	D		Natural Soft Rubber Lining
Electrode	L		Stainless Steel 316L
	H		Nickel Alloy
Grounding Device	1		None
	2		Grounding Rings (Select an optional code)
Housing and Coating	1		Standard Material with Standard Coating
Cable Entry	0		JIS G1/2 Female
Accuracy	B		Standard
Power Supply	-N		None (Remote Sensor)
Communication and I/O	NN		None (Remote Sensor)
Transmitter Wiring Terminal	N		None (Remote Sensor)
Display	N		Without Display/Remote Sensor
Optional Specification	/□ Refer to optional specification table.		

●Remote Transmitter

Model	Suffix Code	Description
AXW4A		Magnetic Flowmeter Remote Transmitter
Use	-G	General-purpose
Explosion Protection	000	Non Explosion Protection Approval
Housing and Coating	1	Standard Material with Standard Coating
	2	Standard Material with Rugged Coating
Cable Entry	0	JIS G1/2 Female
	2	ASME 1/2 NPT Female
	4	ISO M20 x 1.5 Female
Power Supply	1	100-240 V AC / 100-120 V DC
	2	24 V AC / DC
Communication and I/O	D□	□: A, E, G BRAIN and I/O (Type A, E, G. See separate table.)
	J□	□: A, E, G HART 7 and I/O (Type A, E, G. See separate table.)
Transmitter Wiring Terminal	1	M4 Screw-type
	2	Clamp Type
Display	1	With Display (English, Multi-language)
	2	With Display (English, Chinese)
	N	Without Display
Optional Specification		/□ Refer to optional specification table.

●Signal Cable

Model	Suffix Code	Optional Code	Description
AX01C			Magnetic Flowmeter Signal Cable
Cable Finish and Length	-A□□□ (*1)		Unfinished, Cable length □□□ m, Set of Finishing Parts for M4 Screws
	-C□□□ (*1)		Finished for AXW4A, Cable Length □□□ m
	-D□□□ (*1)		Finished for AXFA11, Cable Length □□□ m
Finishing Parts		/C□ (*2)	Finishing Parts (□ sets)

*1: Specify the cable length in three digits (001 to 200) as multiple of 1 meter (e.g., 001, 002, or 005) for a length up to 5 m, as multiple of 5 meters up to 100 m (e.g. 010, 020, or 100), or as multiple of 10 meters up to 200 m (e.g. 110, 120, or 200).

The maximum cable length:

- A□□□: 200 m
- C□□□: 100 m (for combined use with AXW4A)
- D□□□: 200 m (for combined use with AXFA11)

*2: Specify the quantity of sets in one digit from 1 to 9.

●Details: Communication and I/O

Communication and I/O Code	Specification	Number of Input and Output			
		Current Output (Active)	Pulse/Status Output (Passive)	Status Input (No-voltage)	Pulse/Status Output (Active, without internal resistor)
□A	□=D: BRAIN and I/O (Type A) □=J: HART 7 and I/O (Type A)	1	1	—	—
□E	□=D: BRAIN and I/O (Type E) □=J: HART 7 and I/O (Type E)	1	2	1	—
□G	□=D: BRAIN and I/O (Type G) □=J: HART 7 and I/O (Type G)	1	1	1	1

■ OPTIONAL SPECIFICATIONS CODE

●Application, Usage, and Operating Function

Item	Specification	Applicable Condition	Code
DC Noise Cut Circuit (for electrolytic bath)	Built-in DC noise cut circuit. It works effectively when the fluid conductivity is 50 μ S/cm or more. Empty pipe detection, electrode adhesion diagnosis, electrode potential measurement, and wetted resistance measurement function can not be used.	Applicable for integral type (sizes 15 to 400 mm) and remote transmitter (size of combined sensor should be 15 mm or above).	ELC
Potting Terminal Box with Cable (For district heating and cooling or condensation-proof)	Urethane resin potting is applied in the terminal box of a remote sensor. 30-meter length signal and excitation cables are pre-wired and waterproof glands with union joints are attached at factory.	Applicable for General-purpose Use and Hygienic Use of remote sensor. For cable entry, selection of JIS G1/2 female thread is necessary. Note: Optional waterproof glands are not necessary to be selected, or can not be selected, including other types of optional glands.	DHC
Signal and Excitation Cable Length (□□□ m)	Change the length of signal cable and excitation cable pre-wired for a remote sensor of Submersible Use or one with optional code DHC. Specify the cable length in the "□□□" part with the numerical value 3 digits. It is 1 m unit up to 5 m (001, 002, 003 ...), 5 m units for 5 m or more (005, 010, 015 ...), and 10 m units for 100 m or more (100, 110, 120 ...). The maximum cable length is 100 m in combination with the AXW4A transmitter, and 200 m in combination with the AXFA11 transmitter. If not with this optional code, a 30-meter length cable as standard is pre-wired.	Applicable for Submersible Use of remote sensor. Also applicable for General-purpose Use of remote sensor with optional code DHC.	L□□□
Oil Prohibited Use	Electrodes, linings, grounding devices (grounding rings plate type), and gaskets are assembled and packed with polyethylene after being cleaned with water and acetone and dried with air. The label 'OIL FREE' is affixed.	Applicable for General-purpose Use of integral type and remote sensor.	K1
Oil Prohibited Use with Dehydration	Electrodes, linings, and grounding devices (grounding rings plate type) are assembled and packed with polyethylene including desiccants after being cleaned with water and acetone and dried with air. The label 'OIL & WATER FREE' is affixed.	Applicable for General-purpose Use of integral type and remote sensor.	K5
Mass Unit Setting	The flow rate calculation is performed in mass unit. In addition to fluid density, specify span flow rate, pulse weight, and totalization weight in mass unit. For specifying procedures, please refer to "Ordering Information".	Applicable for integral type and remote sensor. For remote sensor, specified parameters are set in the transmitter that is ordered in combination.	MU
Signal Down on Failure	Set the current output signal as follows when shipped. Output signal at CPU failure or alarm occurrence: 2.4 mA (-10 %) or less Note: The standard setting is 21.6 mA (110%) or more at CPU failure or alarm occurrence.	Applicable for integral type and remote transmitter.	C1
Signal Down on Failure (NAMUR NE 43 Compliant)	Set the current output signal range as follows when shipped. - Output signal limits: 3.8 to 20.5 mA - Output signal at CPU failure or alarm occurrence: 2.4 mA (-10%) or less	Applicable for integral type and remote transmitter.	C2
Signal Up on Failure (NAMUR NE 43 Compliant)	Set the current output signal range as follows when shipped. - Output signal limits: 3.8 to 20.5 mA - Output signal at CPU failure or alarm occurrence: 21.6 mA (110%) or more	Applicable for integral type and remote transmitter.	C3
microSD Card	A microSD card slot is added to the display unit, and a microSD card (capacity 1 GB, format FAT 16) is inserted. Select this option when using parameter store / restore function, and/or data logging function.	Applicable for integral type and remote transmitter.	MC

●Tag Plate and Mounting Bracket

Item	Specification	Applicable Condition	Code
Stainless Steel Tag Plate	Hang the pendant type tag plate (stainless steel 304) from the neck (for integral type and remote sensor), or screw it (for remote transmitter). Select this option when necessary in addition to that on the nameplate, on which the Tag No. is inscribed as standard. Plate size (Height x Width): Approx. 12.5 x 40 mm (4.92 x 15.7 in.)	Applicable for integral type, remote sensor, and remote transmitter.	SCT
Mounting Bracket	Change the material of accessory mounting bracket for remote transmitter to stainless steel 304, where the standard material is carbon steel.	Applicable for remote transmitter.	SB

●Piping Parts

Item	Specification	Applicable Condition	Code
Bolts, Nuts and Gaskets (Type C)	Wafer mounting bolts, nuts and gaskets are supplied (material as below). Bolt: Stainless steel 304 Nut: Stainless steel 304 Gasket: Chloroprene rubber (CR) (*) * The allowable temperature and pressure range of chloroprene rubber gasket is equivalent to that of Valqua #2010.	Applicable for wafer type JIS 10K, JIS 20K, and ASME Class 150.	BSC
Bolts, Nuts and Gaskets (Type F)	Wafer mounting bolts, nuts and gaskets are supplied (material as below). Bolt: Stainless steel 304 Nut: Stainless steel 304 Gasket: PTFE-sheathed non-asbestos joint sheet (*) * The allowable temperature and pressure range of PTFE-sheathed non-asbestos joint sheet is equivalent to that of Valqua #7030 (S) series.	Applicable for wafer type JIS 10K, JIS 20K, and ASME Class 150.	BSF

●Grounding Device

Item	Specification	Applicable Condition	Code
Grounding Rings (Plate Type L)	Stainless Steel 316L, Thin Type. Thickness: 1 mm (0.04 in.) for sizes 25 to 200 mm (1 to 8 in.) 2 mm (0.08 in.) for sizes 250 to 400 mm (10 to 16 in.)	Applicable for polyurethane rubber and natural hard rubber lining.	GRL
Grounding Rings (Plate Type N)	Stainless Steel 316L, Thick Type. Thickness: 3 mm (0.12 in.)	Applicable for wafer type of natural hard rubber lining. Also applicable for flange type of PTFE, polyurethane rubber, natural hard rubber, and natural soft rubber lining.	GRN
Grounding Rings (Plate Type H)	Nickel Alloy, Thin Type. Thickness: 1 mm (0.04 in.) for sizes 25 to 200 mm (1 to 8 in.) 2 mm (0.08 in.) for sizes 250 to 400 mm (10 to 16 in.)	Applicable for polyurethane rubber and natural hard rubber lining.	GRH
Grounding Rings (Plate Type J)	Nickel Alloy, Thick Type. Thickness: 3 mm (0.12 in.)	Applicable for wafer type of natural hard rubber lining. Also applicable for flange type of PTFE, polyurethane rubber, natural hard rubber, and natural soft rubber lining.	GRJ

●Gasket

Item	Specification	Applicable Condition	Code
Plastic Pipe Gaskets	Fluoro rubber gasket (Viton) for resin piping such as PVC. The allowable temperature and pressure range is the same as those of Valqua #4010 with no special formulation.	Applicable for PTFE lining sizes 25 to 125 mm (1 to 5 in.). Necessary to be combined with thick grounding rings plate type (N, J).	GA
Plastic Pipe Acid-resistant Gaskets	Fluoro rubber gasket (Viton) for resin piping such as PVC. The allowable temperature and pressure range is the same as those of Valqua #4010 with special formulation D2470.		GC
Plastic Pipe Alkali-resistant Gaskets	Fluoro rubber gasket (Viton) for resin piping such as PVC. The allowable temperature and pressure range is the same as those of Valqua #4010 with special formulation D0970.		GD

●Direction of Cable Entry / Cable Gland

Item	Specification	Applicable Condition	Code
Cable Entry Direction Change	Rotate the transmitter part of integral type or the terminal box of remote sensor and change the direction of the cable entry. Specify + 90 °, + 180 °, or -90 °. For specifying procedures, please refer to "Ordering Information".	Applicable for integral type and remote sensor.	RH
Waterproof Glands (Type G)	2 pcs. of waterproof gland	Applicable for General-purpose Use of remote sensor. For cable entry, selection of JIS G1/2 female thread is necessary.	EG
Waterproof Glands (Type G2)	2 pcs. of waterproof gland, and a blanking plug	Applicable for General-purpose Use of integral type. For cable entry, selection of JIS G1/2 female thread is necessary.	EG2
Waterproof Glands (Type G3)	3 pcs. of waterproof gland		EG3
Waterproof Glands (Type G4)	4 pcs. of waterproof gland, and a blanking plug	Applicable for remote transmitter. For cable entry, selection of JIS G1/2 female thread is necessary.	EG4
Waterproof Glands (Type G5)	5 pcs. of waterproof gland		EG5
Waterproof Glands (Type U)	2 pcs. of waterproof gland with union joint	Applicable for General-purpose Use of remote sensor. For cable entry, selection of JIS G1/2 female thread is necessary.	EU
Waterproof Glands (Type U2)	2 pcs. of waterproof gland with union joint, and a blanking plug	Applicable for General-purpose Use of integral type. For cable entry, selection of JIS G1/2 female thread is necessary.	EU2
Waterproof Glands (Type U3)	3 pcs. of waterproof gland with union joint		EU3
Waterproof Glands (Type U4)	4 pcs. of waterproof gland with union joint, and a blanking plug	Applicable for remote transmitter. For cable entry, selection of JIS G1/2 female thread is necessary.	EU4
Waterproof Glands (Type U5)	5 pcs. of waterproof gland with union joint		EU5
Plastic Glands (Type P)	2 pcs. of plastic gland	Applicable for General-purpose Use of remote sensor. For cable entry, selection of JIS G1/2 female thread is necessary.	EP
Plastic Glands (Type P2)	2 pcs. of plastic gland, and a blanking plug	Applicable for General-purpose Use of integral type. For cable entry, selection of JIS G1/2 female thread is necessary.	EP2
Plastic Glands (Type P3)	3 pcs. of plastic gland		EP3
Plastic Glands (Type P4)	4 pcs. of plastic gland, and a blanking plug	Applicable for remote transmitter. For cable entry, selection of JIS G1/2 female thread is necessary.	EP4
Plastic Glands (Type P5)	5 pcs. of plastic gland		EP5
Waterproof Glands (Type W)	2 pcs. of waterproof gland for JIS G3/4 conduit or flexible tube	Applicable for General-purpose Use of remote sensor. For cable entry, selection of JIS G1/2 female thread is necessary.	EW

●Applicable Models for the Waterproof and Plastic Gland Options:

○: Available —:Not available

Specification	Optional Code	Applicable Model		
		Integral Type	Remote Sensor	AXW4A Transmitter
Waterproof Glands (Type G)	EG	—	○	—
Waterproof Glands (Type G2)	EG2	○	—	—
Waterproof Glands (Type G3)	EG3	○	—	—
Waterproof Glands (Type G4)	EG4	—	—	○
Waterproof Glands (Type G5)	EG5	—	—	○
Waterproof Glands (Type U)	EU	—	○	—
Waterproof Glands (Type U2)	EU2	○	—	—
Waterproof Glands (Type U3)	EU3	○	—	—
Waterproof Glands (Type U4)	EU4	—	—	○
Waterproof Glands (Type U5)	EU5	—	—	○
Plastic Glands (Type P)	EP	—	○	—
Plastic Glands (Type P2)	EP2	○	—	—
Plastic Glands (Type P3)	EP3	○	—	—
Plastic Glands (Type P4)	EP4	—	—	○
Plastic Glands (Type P5)	EP5	—	—	○
Waterproof Glands (Type W)	EW	—	○	—

●Certificate / Test Report on Material, Calibration, Hydrostatic Test, etc.

Item	Specification	Applicable Condition	Code
Material Certificate	Material certificates for measuring tube, electrodes, grounding devices (grounding ring plate type), flanges (for flange type), and mini flanges (for wafer type).	Applicable for integral type and remote sensor.	M01
Material Certificate (EN 10204-3.1)	Material certificates according to EN 10204 Type 3.1 with a dedicated cover. The target parts are the same as the above (Optional code M01).	Applicable for integral type and remote sensor.	E01
Calibration Certificate (Level 2)	Level 2: The Declaration and the Calibration Equipment List are issued.	Applicable for integral type, remote sensor, and remote transmitter.	L2
Calibration Certificate (Level 3)	Level 3: The Declaration and the Primary Standard List are issued.		L3
Calibration Certificate (Level 4)	Level 4: The Declaration and the Yokogawa Measuring Instruments Control System are issued.		L4
Specified Span Five-point Calibration	With the customer's specified span, the actual flow inspection of 5 points around 0, 25, 50, 75, and 100% is performed. Instead of the flow inspection at the standard flow rate of 2 m/s, the result of flow inspection with the customer specified span is described in a test certificate (QIC). For specifiable spans, please refer to "Ordering Information".	Applicable for integral type and remote sensor.	SC
Hydrostatic Test	The water pressure depending on the process connection is applied to the lining (measuring pipe) for 10 minutes to check that there is no leakage, and the result is described in a test certificate (QIC). Refer to the separate table for the test water pressure on each process connection.	Applicable for integral type and remote sensor.	T01
Withstand Voltage Test (Type 1)	A voltage of 1000 V AC for 1 minute is applied between the excitation current terminal and the ground terminal, and the result is described in a test certificate (QIC).	Applicable for remote sensor.	WT1
Withstand Voltage Test (Type 2)	A voltage of 1500 V AC for 1 minute is applied between the excitation current terminal and the ground terminal, between the signal terminal and the excitation current terminal, and the result is described in a test certificate (QIC).		WT2
PMI Test (Type 1)	Fluorescent X-ray analysis of nickel, chromium and molybdenum is performed on parts made of stainless steel or nickel alloy, and a test report is issued. Test Part: Grounding Rings (Plate Type) Note: The optional code for the grounding rings is necessary to be selected.	Applicable for integral type and remote sensor.	PM1
PMI Test (Type 2)	The same as above. Test Part: Stainless steel flanges (for flange type)		PM2
PMI Test (Type 3)	The same as above. Test Part: Sensor Pipe		PM3
Liquid Penetration Test	Liquid penetrating test on welded parts of flanges (for flange type) or mini-flanges (for wafer type) is performed and a test report is issued.	Wafer type of sizes 25 to 125 mm is not applicable because of no welded parts.	PT

Test Water Pressure for Hydrostatic Test (Optional Code T01):

Process connection code	Process connection	Size: mm (in.)	Water pressure (MPa)
□A1	ASME Class 150	25 to 50 (1 to 2)	3.0
		65 to 125 (2.5 to 5)	3.0
		150 to 300 (6 to 12)	3.0
		350, 400 (14, 16)	1.5
□A2	ASME Class 300	25 to 50 (1 to 2)	6.0
		65 to 125 (2.5 to 5)	3.0
		150 to 300 (6 to 12)	3.0
□E1	EN PN10	200 to 400 (8 to 16)	1.5
□E2	EN PN16	65 to 300 (2.5 to 12)	2.4
□E4	EN PN40	25 to 50 (1 to 2)	6.0
□G1	JIS F12	80 to 300 (3 to 12)	1.8
		350, 400 (14, 16)	1.5
□J1	JIS 10K	25 to 300 (1 to 12)	2.1
		350, 400 (14, 16)	1.5
□J2	JIS 20K	25 to 50 (0.1 to 2)	6.0
		65 to 300 (2.5 to 12)	3.0

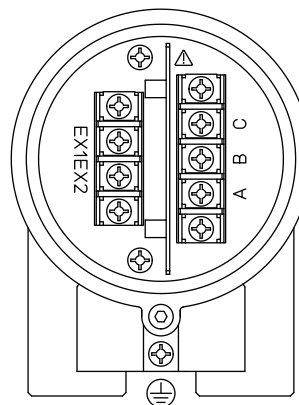
■ ACCESSORIES

Centering device (wafer type only): 1 pc.

■ TERMINAL CONFIGURATION AND WIRING

Remote Sensor:

<To be wired to Remote Transmitter>



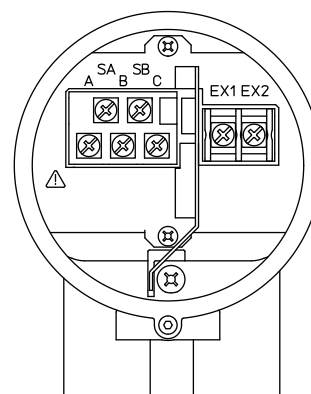
Terminal Symbol	Description
A B C	Flow Signal Output
EX1 EX2	Excitation Current Input
⊕	Protective Grounding (Outside of the terminal box)

F17.ai

Note: When Submersible Use or optional code DHC is selected, waterproof glands with union joints and a 30-meter length cable as standard are attached.

Remote Transmitter:

<To be wired to Remote Sensor>

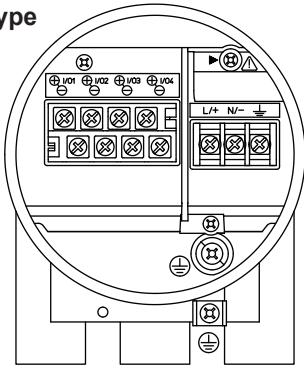


Terminal Symbol	Description
SA SB A B C	Flow Signal Input
EX1 EX2	Excitation Current Output

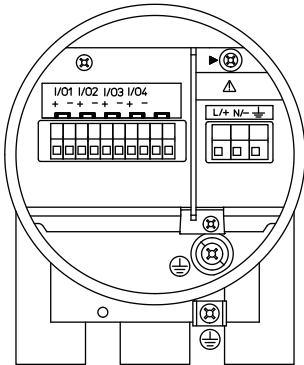
F18.ai

Integral Type Flowmeter / Remote Transmitter:
 <To be wired to Power Supply and I/Os>

M4 Screw Type



Clamp Type



Recommended Cable for Excitation, Power and Input / Output:

- JIS C 3401 control cable equivalent
- JIS C 3312 power cable equivalent
- 14 AWG Belden 8720 equivalent

Outer Diameter:

With no gland option:

6.5 to 12 mm (0.26 to 0.47 in.)

With waterproof gland option (code EG, EG□, EU, EU□, EW):

For excitation cable:

10.5 or 11.5 mm (0.41 or 0.45 in.)

For power and output cable:

7.5 to 12 mm (0.3 to 0.47 in.)

With plastic gland option (code EP, EP□):

6 to 12 mm (0.24 to 0.47 in.)

Nominal Cross Section:

Single wire: 0.5 to 2.5 mm²

Stranded wire: 0.5 to 1.5 mm²

Excitation Cable for Submersible Use and Optional Code DHC:

- Heat resistant vinyl resin sheath cable
- Outer diameter ø 10.5 mm

Terminal Symbol	Description
▶	Shorting Screw (Need to be fixed for normal operation)
⊥	Functional Grounding
N/- L/+	Power Supply
I/O4 - I/O4 + I/O3 - I/O3 + I/O2 - I/O2 + I/O1 - I/O1 +	Refer to Input/Output Table
⊕	Protective Grounding (Inside and outside of the terminal box)

F19.ai

■ DIMENSIONAL DRAWINGS

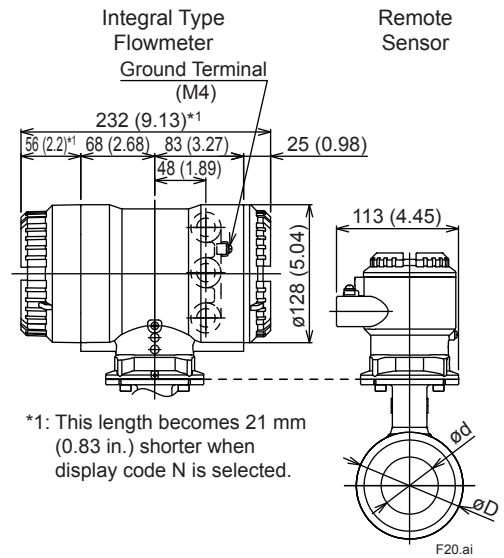
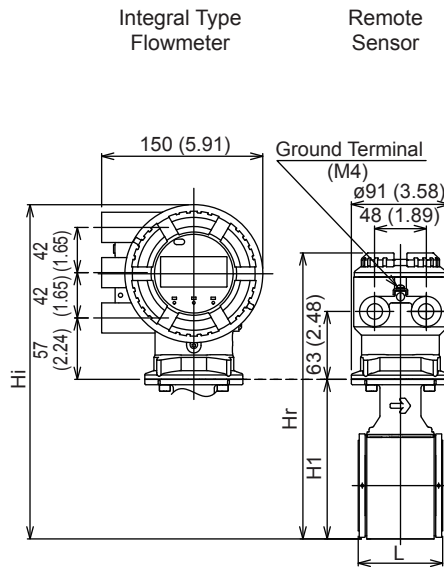
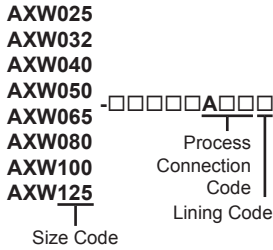
List of Drawings	
(1) Integral Type Flowmeter, Remote Sensor	P.29
Wafer	P.29
Flange	P.31
- ASME Class 150	P.32
- ASME Class 300	P.34
- EN PN16/PN40	P.36
- EN PN10	P.38
- JIS F12	P.39
- JIS 10K	P.41
- JIS 20K	P.43
Grounding Ring (Handle Bracket Type)	P.45
- Flange, 150 to 200 mm, Lining Code F/H	P.45
- Flange, 250 to 400 mm, Lining Code F/H	P.45
(2) Remote Transmitter AXW4A	P.46
(3) Signal Cable AX01C	P.46
(4) Dimensional Tolerance	P.47

(1) Integral Type Flowmeter, Remote Sensor

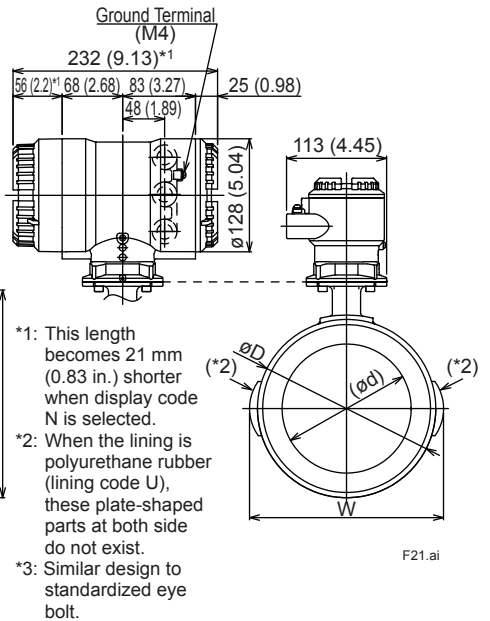
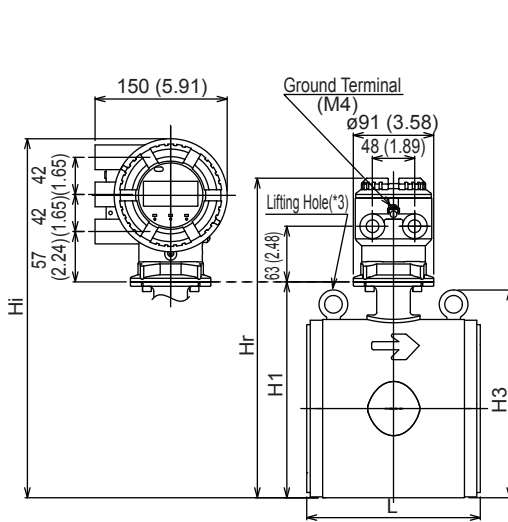
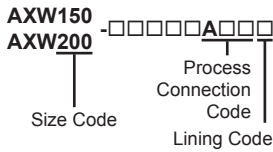
- Wafer (Polyurethane Rubber / Natural Hard Rubber / Natural Soft Rubber Lining)

Unit: mm (approx. in.)

Size 25 to 125 mm



Size 150, 200 mm



○ Wafer (Polyurethane Rubber / Natural Hard Rubber / Natural Soft Rubber Lining)

Unit: mm (approx. in.)

Model	Process Connection Code	AA1, AA2, AJ1, AJ2																	
		AE4				AE2								AE1					
		AG1																	
		Size Code	025	032	040	050	050	065	065	080	100	100	100	125	125	150	150	200	200
Size	(1)	(1.25)	(1.5)	(2)	(2)	(2.5)	(2.5)	(3)	(4)	(4)	(4)	(5)	(5)	(6)	(6)	(8)	(8)		
Lining Code	U	U	U	U	H,D	U	H,D	U,H,D	U	H	D	U,D	H	U	H,D	U	H,D		
Remote Sensor	Lay Length (*1)	L	58 (2.30)	68 (2.69)	68 (2.69)	78 (3.09)	78 (3.09)	98 (3.87)	98 (3.87)	118 (4.66)	148 (5.84)	148 (5.84)	148 (5.84)	198 (7.81)	198 (7.81)	197 (7.74)	197 (7.74)	247 (9.70)	247 (9.70)
	Outer Diameter	øD	68 (2.66)	73 (2.87)	86 (3.39)	99 (3.90)	99 (3.90)	117 (4.61)	117 (4.61)	129 (5.08)	155 (6.10)	155 (6.10)	155 (6.10)	183 (7.20)	183 (7.20)	202 (7.94)	202 (7.94)	252 (9.91)	252 (9.91)
	Lining Inner Diameter	ød	24 (0.93)	29 (1.13)	37 (1.44)	49 (1.94)	50 (1.95)	61 (2.40)	61 (2.41)	73 (2.87)	97 (3.82)	98 (3.87)	96 (3.79)	121 (4.76)	123 (4.84)	145 (5.71)	147 (5.80)	194 (7.63)	198 (7.81)
Integral Type Flowmeter	Width	W	-	-	-	-	-	-	-	-	-	-	-	-	-	220 (8.65)	-	270 (10.61)	-
	Height	H1	110 (4.33)	116 (4.57)	129 (5.08)	148 (5.83)	148 (5.83)	165 (6.50)	165 (6.50)	175 (6.89)	201 (7.91)	201 (7.91)	201 (7.91)	230 (9.06)	230 (9.06)	244 (9.62)	244 (9.62)	294 (11.59)	294 (11.59)
	Height	H3	-	-	-	-	-	-	-	-	-	-	-	-	-	235 (9.26)	235 (9.26)	285 (11.22)	285 (11.22)
Remote Sensor	Maximum Height	Hr	227 (8.94)	233 (9.17)	246 (9.69)	265 (10.43)	265 (10.43)	282 (11.10)	282 (11.10)	292 (11.50)	318 (12.52)	318 (12.52)	318 (12.52)	347 (13.66)	347 (13.66)	362 (14.24)	362 (14.24)	412 (16.21)	412 (16.21)
	Approx. Weight, Unit: kg (lb) (*2)		2.2 (4.9)	2.4 (5.3)	2.6 (5.7)	3.2 (7.1)	3.2 (7.1)	3.9 (8.6)	3.9 (8.6)	4.6 (10.1)	6.3 (13.9)	6.3 (13.9)	6.3 (13.9)	10.5 (23.2)	10.5 (23.2)	14 (30.9)	14 (30.9)	20 (44.2)	20 (44.2)
Integral Type Flowmeter	Maximum Height	Hi	272 (10.71)	278 (10.94)	291 (11.46)	310 (12.20)	310 (12.20)	327 (12.87)	327 (12.87)	337 (13.27)	363 (14.29)	363 (14.29)	363 (14.29)	392 (15.43)	392 (15.43)	406 (16.00)	406 (16.00)	456 (17.97)	456 (17.97)
	Approx. Weight, Unit: kg (lb)		4.8 (10.6)	4.9 (10.8)	5.1 (11.2)	5.7 (12.6)	5.7 (12.6)	6.4 (14.1)	6.4 (14.1)	7.2 (15.9)	8.8 (19.4)	8.8 (19.4)	8.8 (19.4)	13.1 (28.9)	13.1 (28.9)	16 (35.3)	16 (35.3)	23 (50.8)	22 (48.6)
Grounding rings thin type (GRL, GRH) (*1) (*3)			+2 (+0.08)	+2 (+0.08)	+2 (+0.08)	+2 (+0.08)	+2 (+0.08)	+2 (+0.08)	+2 (+0.08)	+2 (+0.08)	-	+2 (+0.08)	+2 (+0.08)	-	+2 (+0.08)	+2 (+0.08)	+2 (+0.08)	+2 (+0.08)	
Grounding rings thick type (GRN, GRJ) (*1) (*4)			-	-	-	-	+6 (+0.24)	-	+6 (+0.24)	+6 (+0.24)	-	+6 (+0.24)	-	-	+6 (+0.24)	-	+6 (+0.24)	-	+6 (+0.24)

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code H but for U and D.
- *4: These grounding rings (GRN, GRJ) are applied only to lining code H. Also, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 2 mm (0.08 in.) per one, bringing 4 mm (0.16 in.) per two to be additionally added for getting the total lay length.

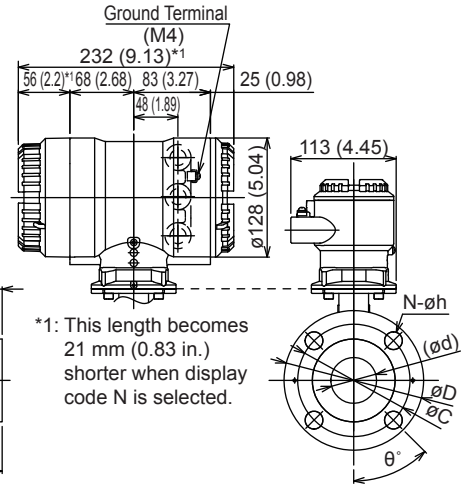
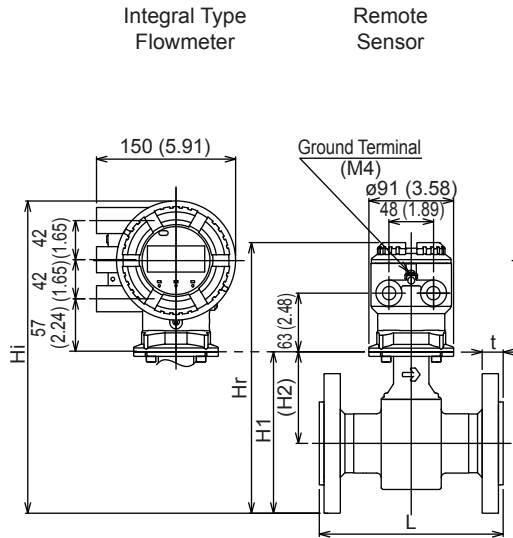
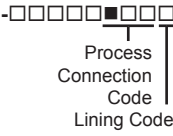
● Flange (PTFE / Polyurethane Rubber / Natural Hard Rubber / Natural Soft Rubber Lining)

Unit: mm (approx. in.)
Remote Sensor

Size 25 to 125 mm

- AXW025
- AXW032
- AXW040
- AXW050
- AXW065
- AXW080
- AXW100
- AXW125

■=B, C

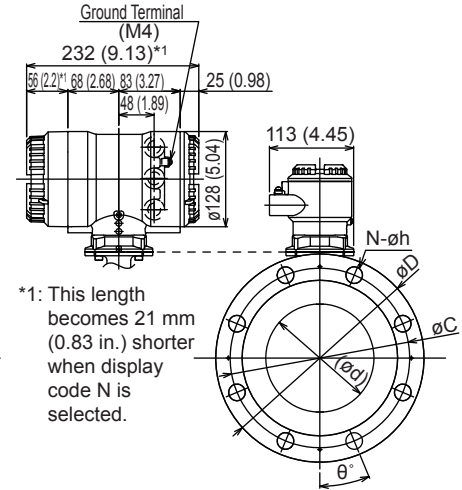
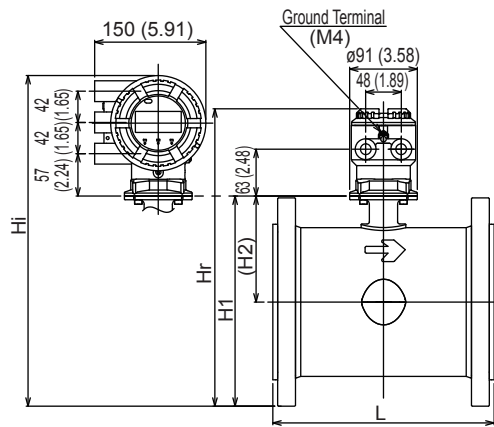
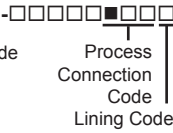


F22.ai

Size 150, 200 mm

- AXW150
- AXW200

■=B, C

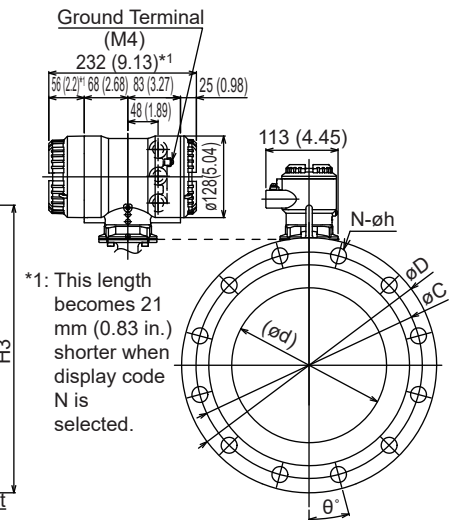
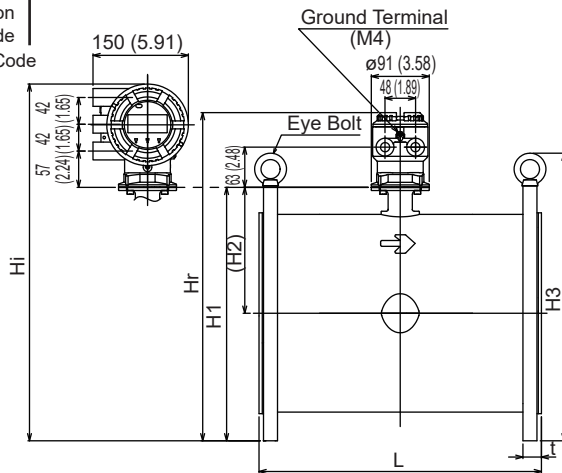
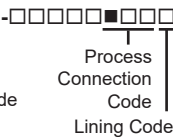


F23.ai

Size 250 to 400 mm

- AXW250
- AXW300
- AXW350
- AXW400

■=B, C



F24.ai

○ Flange, ASME Class 150 (continued)

Unit: mm (approx. in.)

Model	Process Connection Code		BA1																		
			CA1																		
	Size Code		150	150	150	200	200	200	250	250	250	300	300	300	300	350	350	350	400	400	400
Size		(6)	(6)	(6)	(8)	(8)	(8)	(10)	(10)	(10)	(12)	(12)	(12)	(12)	(14)	(14)	(14)	(16)	(16)	(16)	
Lining Code		F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D		
Remote sensor	Lay Length (*1)	L	299 (11.75)	299 (11.75)	299 (11.75)	349 (13.72)	349 (13.72)	349 (13.72)	448 (17.62)	448 (17.62)	448 (17.62)	498 (19.59)	498 (19.59)	498 (19.59)	548 (21.56)	548 (21.56)	548 (21.56)	598 (23.52)	598 (23.52)	598 (23.52)	
	Flange Outer Diameter	øD	280 (11.02)	280 (11.02)	280 (11.02)	345 (13.58)	345 (13.58)	345 (13.58)	405 (15.94)	405 (15.94)	405 (15.94)	485 (19.09)	485 (19.09)	485 (19.09)	535 (21.06)	535 (21.06)	535 (21.06)	595 (23.43)	595 (23.43)	595 (23.43)	
	Flange Thickness (incl. lining flare)	t	30.9 (1.22)	30.9 (1.22)	30.9 (1.22)	34.0 (1.34)	34.0 (1.34)	34.0 (1.34)	36.6 (1.44)	36.6 (1.44)	36.6 (1.44)	38.2 (1.50)	38.2 (1.50)	38.2 (1.50)	41.9 (1.65)	41.9 (1.65)	41.9 (1.65)	43.5 (1.71)	43.5 (1.71)	43.5 (1.71)	
	Lining Inner Diameter	ød	149 (5.87)	145 (5.71)	147 (5.80)	200 (7.89)	194 (7.63)	198 (7.81)	248 (9.78)	242 (9.53)	247 (9.74)	300 (11.79)	292 (11.48)	299 (11.75)	330 (12.97)	323 (12.70)	330 (12.97)	381 (14.98)	373 (14.67)	381 (14.98)	
	Bolt	øC	241.3 (9.50)	241.3 (9.50)	241.3 (9.50)	298.5 (11.75)	298.5 (11.75)	298.5 (11.75)	362.0 (14.25)	362.0 (14.25)	362.0 (14.25)	431.8 (17.00)	431.8 (17.00)	431.8 (17.00)	476.3 (18.75)	476.3 (18.75)	476.3 (18.75)	539.8 (21.25)	539.8 (21.25)	539.8 (21.25)	
	Circle Diameter	øC	241.3 (9.50)	241.3 (9.50)	241.3 (9.50)	298.5 (11.75)	298.5 (11.75)	298.5 (11.75)	362.0 (14.25)	362.0 (14.25)	362.0 (14.25)	431.8 (17.00)	431.8 (17.00)	431.8 (17.00)	476.3 (18.75)	476.3 (18.75)	476.3 (18.75)	539.8 (21.25)	539.8 (21.25)	539.8 (21.25)	
	Bolt Hole Interval	θ°	22.5 (0.88)	22.5 (0.88)	22.5 (0.88)	22.5 (0.88)	22.5 (0.88)	22.5 (0.88)	15 (0.59)	15 (0.59)	15 (0.59)	15 (0.59)	15 (0.59)	15 (0.59)	15 (0.59)	15 (0.59)	15 (0.59)	11.25 (0.44)	11.25 (0.44)	11.25 (0.44)	
	Bolt Hole Diameter	øh	22.3 (0.88)	22.3 (0.88)	22.3 (0.88)	22.3 (0.88)	22.3 (0.88)	22.3 (0.88)	25.4 (1.00)	25.4 (1.00)	25.4 (1.00)	25.4 (1.00)	25.4 (1.00)	25.4 (1.00)	28.6 (1.13)	28.6 (1.13)	28.6 (1.13)	28.6 (1.13)	28.6 (1.13)	28.6 (1.13)	
	Number of Bolt Holes	N	8	8	8	8	8	8	12	12	12	12	12	12	12	12	12	12	16	16	16
	Integral type flowmeter	Height	H1	283 (11.12)	283 (11.12)	283 (11.12)	340 (13.39)	340 (13.39)	340 (13.39)	401 (15.78)	401 (15.78)	401 (15.78)	465 (18.32)	465 (18.32)	465 (18.32)	512 (20.14)	512 (20.14)	512 (20.14)	569 (22.41)	569 (22.41)	569 (22.41)
Height		H2	143 (5.61)	143 (5.61)	143 (5.61)	168 (6.60)	168 (6.60)	168 (6.60)	198 (7.81)	198 (7.81)	198 (7.81)	223 (8.77)	223 (8.77)	223 (8.77)	244 (9.61)	244 (9.61)	244 (9.61)	272 (10.70)	272 (10.70)	272 (10.70)	
Height		H3	-	-	-	-	-	-	456 (17.95)	456 (17.95)	456 (17.95)	536 (21.10)	536 (21.10)	536 (21.10)	595 (23.43)	595 (23.43)	595 (23.43)	655 (25.79)	655 (25.79)	655 (25.79)	
Remote sensor	Maximum Height	Hr	400 (15.74)	400 (15.74)	400 (15.74)	457 (18.01)	457 (18.01)	457 (18.01)	518 (20.40)	518 (20.40)	518 (20.40)	583 (22.94)	583 (22.94)	583 (22.94)	629 (24.76)	629 (24.76)	629 (24.76)	687 (27.03)	687 (27.03)	687 (27.03)	
	Approx. Weight, Unit: kg (lb) (*2)		30 (66.2)	29 (64.0)	29 (64.0)	46 (101.6)	46 (101.6)	46 (101.6)	74 (163.4)	73 (161.2)	73 (161.2)	102 (225.2)	101 (223.0)	100 (220.8)	128 (282.6)	126 (278.2)	126 (278.2)	161 (355.4)	160 (353.2)	158 (348.8)	
Integral type flowmeter	Maximum Height	Hi	445 (17.50)	445 (17.50)	445 (17.50)	502 (19.77)	502 (19.77)	502 (19.77)	563 (22.16)	563 (22.16)	563 (22.16)	627 (24.69)	627 (24.69)	627 (24.69)	674 (26.52)	674 (26.52)	674 (26.52)	731 (28.79)	731 (28.79)	731 (28.79)	
	Approx. Weight, Unit: kg (lb)		32 (70.6)	32 (70.6)	32 (70.6)	49 (108.2)	48 (106.0)	48 (106.0)	76 (167.8)	76 (167.8)	75 (165.6)	104 (229.6)	104 (229.6)	102 (225.2)	130 (287.0)	129 (284.8)	128 (282.6)	164 (362.0)	163 (359.8)	161 (355.4)	
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2 (+0.08)	+2 (+0.08)	-	+2 (+0.08)	+2 (+0.08)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code F or H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 3 to 5 mm (0.12 to 0.20 in.) per one, bringing 6 to 10 mm (0.24 to 0.39 in.) per two to be additionally added for getting the total lay length.

○ Flange, ASME Class 300

Unit: mm (approx. in.)

Model	Process Connection Code	BA2																					
		CA2																					
		025	025	032	032	040	040	050	050	050	065	065	080	080	100	100	100	100	125	125	125	125	
Size Code	025	025	032	032	040	040	050	050	050	065	065	080	080	100	100	100	100	125	125	125	125		
Size	(1)	(1)	(1.25)	(1.25)	(1.5)	(1.5)	(2)	(2)	(2)	(2.5)	(2.5)	(3)	(3)	(4)	(4)	(4)	(4)	(5)	(5)	(5)	(5)		
Lining Code	F	U	F	U	F	U	F	U	H,D	F	U,H,D	F	U,H,D	F	U	H	D	F	U	H	D		
Remote sensor	Lay Length (*1)	L	198	198	198	198	198	198	198	198	198	198	198	198	248	248	248	248	248	248	248	248	
	Flange Outer Diameter	øD	125	125	135	135	155	155	165	165	165	190	190	210	210	255	255	255	255	280	280	280	280
	Flange Thickness (incl. lining flare)	t	23.4	21.9	24.0	22.5	25.6	24.1	27.2	25.7	25.7	30.4	28.9	33.5	32.0	36.7	35.2	35.2	35.2	39.9	38.4	38.4	38.4
	Lining Inner Diameter	ød	26	24	31	29	39	37	52	49	50	63	61	75	73	100	97	98	96	125	121	123	121
Integral type flowmeter	Bolt	øC	88.9	88.9	98.4	98.4	114.3	114.3	127.0	127.0	127.0	149.2	149.2	168.3	168.3	200.0	200.0	200.0	200.0	235.0	235.0	235.0	235.0
	Circle Diameter	øC	(3.50)	(3.50)	(3.87)	(3.87)	(4.50)	(4.50)	(5.00)	(5.00)	(5.00)	(5.87)	(5.87)	(6.63)	(6.63)	(7.87)	(7.87)	(7.87)	(7.87)	(9.25)	(9.25)	(9.25)	(9.25)
	Bolt Hole Interval	ø*	45	45	45	45	45	45	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
	Bolt Hole Diameter	øh	19.1	19.1	19.1	19.1	22.2	22.2	19.1	19.1	19.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
				(0.75)	(0.75)	(0.75)	(0.87)	(0.87)	(0.75)	(0.75)	(0.75)	(0.87)	(0.87)	(0.87)	(0.87)	(0.87)	(0.87)	(0.87)	(0.87)	(0.87)	(0.87)	(0.87)	(0.87)
	Number of Bolt Holes	N	4	4	4	4	4	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Height	H1	143	143	154	154	164	164	182	182	182	203	203	219	219	252	252	252	252	278	278	278	278
			(5.63)	(5.63)	(6.06)	(6.06)	(6.46)	(6.46)	(7.17)	(7.17)	(7.17)	(7.99)	(7.99)	(8.62)	(8.62)	(9.92)	(9.92)	(9.92)	(9.92)	(10.94)	(10.94)	(10.94)	(10.94)
	Height	H2	80	80	86	86	86	86	99	99	99	108	108	114	114	124	124	124	124	138	138	138	138
			(3.15)	(3.15)	(3.39)	(3.39)	(3.39)	(3.39)	(3.90)	(3.90)	(3.90)	(4.25)	(4.25)	(4.49)	(4.49)	(4.88)	(4.88)	(4.88)	(4.88)	(5.43)	(5.43)	(5.43)	(5.43)
Remote sensor	Maximum Height	Hr	260	260	271	271	281	281	299	299	299	320	320	336	336	369	369	369	369	395	395	395	395
			(10.24)	(10.24)	(10.67)	(10.67)	(11.06)	(11.06)	(11.77)	(11.77)	(11.77)	(12.60)	(12.60)	(13.23)	(13.23)	(14.53)	(14.53)	(14.53)	(14.53)	(15.55)	(15.55)	(15.55)	(15.55)
	Approx. Weight, Unit: kg (lb) (*2)		5.2	5.2	6.2	6.2	8.0	8.0	9.3	9.3	9.3	13.2	13.2	17.2	17.2	26.7	26.7	26.7	26.7	35.5	35.5	35.5	35.5
			(11.5)	(11.5)	(13.7)	(13.7)	(17.6)	(17.6)	(20.5)	(20.5)	(20.5)	(29.1)	(29.1)	(37.9)	(37.9)	(58.9)	(58.9)	(58.9)	(58.9)	(78.3)	(78.3)	(78.3)	(78.3)
Integral type flowmeter	Maximum Height	Hi	305	305	316	316	326	326	344	344	344	365	365	381	381	414	414	414	414	440	440	440	440
			(12.01)	(12.01)	(12.44)	(12.44)	(12.83)	(12.83)	(13.54)	(13.54)	(13.54)	(14.37)	(14.37)	(15.00)	(15.00)	(16.30)	(16.30)	(16.30)	(16.30)	(17.32)	(17.32)	(17.32)	(17.32)
	Approx. Weight, Unit: kg (lb)		7.8	7.8	8.8	8.8	10.5	10.5	11.8	11.8	11.8	15.7	15.7	19.7	19.7	29.2	29.2	29.2	29.2	38.0	38.0	38.0	38.0
			(17.2)	(17.2)	(19.4)	(19.4)	(23.2)	(23.2)	(26.0)	(26.0)	(26.0)	(34.6)	(34.6)	(43.4)	(43.4)	(64.4)	(64.4)	(64.4)	(64.4)	(83.8)	(83.8)	(83.8)	(83.8)
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2	-	+2	-	+2	-	+2	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2
			-	(+0.08)	-	(+0.08)	-	(+0.08)	-	(+0.08)	(+0.08)	-	(+0.08)	-	(+0.08)	-	(+0.08)	-	(+0.08)	-	(+0.08)	-	(+0.08)
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6
			(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)	(+0.24)
Grounding rings thick type (GRN, GRJ) with gaskets (GA, GC, GD) (*1)			+10	-	+10	-	+10	-	+10	-	+10	-	+10	-	+10	-	+10	-	+10	-	+10	-	+10
			(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 2 mm (0.08 in.) per one, bringing 4 mm (0.16 in.) per two to be additionally added for getting the total lay length.

○ Flange, ASME Class 300 (continued)

Unit: mm (approx. in.)

Model	Process Connection Code		BA2 CA2												
			150			200			250		300		300		
	Size Code	150	150	150	200	200	200	250	250	250	300	300	300		
Size	(6)	(6)	(6)	(8)	(8)	(8)	(10)	(10)	(10)	(12)	(12)	(12)			
Lining Code	F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D			
Remote sensor	Lay Length (*1)	L	299 (11.75)	299 (11.75)	299 (11.75)	349 (13.72)	349 (13.72)	349 (13.72)	448 (17.62)	448 (17.62)	448 (17.62)	498 (19.59)	498 (19.59)	498 (19.59)	
		Flange Outer Diameter	øD	320 (12.60)	320 (12.60)	320 (12.60)	380 (14.96)	380 (14.96)	380 (14.96)	445 (17.52)	445 (17.52)	445 (17.52)	520 (20.47)	520 (20.47)	520 (20.47)
	Flange Thickness (incl. lining flare)	t	42.0 (1.65)	42.0 (1.65)	42.0 (1.65)	46.7 (1.84)	46.7 (1.84)	46.7 (1.84)	54.1 (2.13)	54.1 (2.13)	54.1 (2.13)	57.3 (2.26)	57.3 (2.26)	57.3 (2.26)	
	Lining Inner Diameter	ød	149 (5.87)	145 (5.71)	147 (5.80)	200 (7.89)	194 (7.63)	198 (7.81)	248 (9.78)	242 (9.53)	247 (9.74)	300 (11.79)	292 (11.48)	299 (11.75)	
	Bolt	øC	269.9 (10.63)	269.9 (10.63)	269.9 (10.63)	330.2 (13.00)	330.2 (13.00)	330.2 (13.00)	387.4 (15.25)	387.4 (15.25)	387.4 (15.25)	450.8 (17.75)	450.8 (17.75)	450.8 (17.75)	
	Bolt Hole Interval	θ°	15	15	15	15	15	15	11.25	11.25	11.25	11.25	11.25	11.25	
	Bolt Hole Diameter	øh	22.3 (0.88)	22.3 (0.88)	22.3 (0.88)	25.4 (1.00)	25.4 (1.00)	25.4 (1.00)	28.6 (1.13)	28.6 (1.13)	28.6 (1.13)	31.8 (1.25)	31.8 (1.25)	31.8 (1.25)	
	Number of Bolt Holes	N	12	12	12	12	12	12	16	16	16	16	16	16	
	Height	H1	303 (11.91)	303 (11.91)	303 (11.91)	358 (14.08)	358 (14.08)	358 (14.08)	421 (16.57)	421 (16.57)	421 (16.57)	483 (19.01)	483 (19.01)	483 (19.01)	
	Height	H2	143 (5.61)	143 (5.61)	143 (5.61)	168 (6.60)	168 (6.60)	168 (6.60)	198 (7.81)	198 (7.81)	198 (7.81)	223 (8.77)	223 (8.77)	223 (8.77)	
	Height	H3	-	-	-	-	-	-	496 (19.53)	496 (19.53)	496 (19.53)	571 (22.48)	571 (22.48)	571 (22.48)	
	Remote sensor	Maximum Height	Hr	420 (16.53)	420 (16.53)	420 (16.53)	475 (18.70)	475 (18.70)	475 (18.70)	538 (21.19)	538 (21.19)	538 (21.19)	600 (23.62)	600 (23.62)	600 (23.62)
		Approx. Weight, Unit: kg (lb) (*2)		46 (101.6)	45 (99.3)	45 (99.3)	68 (150.1)	67 (147.9)	67 (147.9)	106 (234.0)	106 (234.0)	105 (231.8)	144 (317.9)	143 (315.7)	143 (315.7)
Integral type flowmeter	Maximum Height	Hi	465 (18.29)	465 (18.29)	465 (18.29)	520 (20.46)	520 (20.46)	520 (20.46)	583 (22.95)	583 (22.95)	583 (22.95)	645 (25.38)	645 (25.38)	645 (25.38)	
	Approx. Weight, Unit: kg (lb)		48 (106.0)	48 (106.0)	48 (106.0)	70 (154.5)	69 (152.3)	69 (152.3)	109 (240.6)	108 (238.4)	108 (238.4)	147 (324.5)	146 (322.3)	145 (320.1)	
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2 (+0.08)	+2 (+0.08)	-	+2 (+0.08)	+2 (+0.08)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code F or H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 3 to 5 mm (0.12 to 0.20 in.) per one, bringing 6 to 10 mm (0.24 to 0.39 in.) per two to be additionally added for getting the total lay length.

○ Flange, EN PN16/PN40

Unit: mm (approx. in.)

Model	Process Connection Code	BE4										BE2											
		CE4					CE2 (*5)					CE2 (*5)					CE2 (*5)						
		025	025	032	032	040	040	050	050	050	065	065	080	080	100	100	100	100	125	125	125	125	
	Size Code	25	25	32	32	40	40	50	50	50	65	65	80	80	100	100	100	100	125	125	125	125	
	Size	(1)	(1)	(1.25)	(1.25)	(1.5)	(1.5)	(2)	(2)	(2)	(2.5)	(2.5)	(3)	(3)	(4)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	
	Lining Code	F	U	F	U	F	U	F	U	H,D	F	U,H,D	F	U,H,D	F	U	H	D	F	U	H	D	
Remote sensor	Lay Length (*1)	L	198	198	198	198	198	198	198	198	198	198	198	198	248	248	248	248	248	248	248	248	
	Flange Outer Diameter	øD	115	115	140	140	150	150	165	165	165	185	185	200	200	220	220	220	220	250	250	250	
	Flange Thickness (incl. lining flare)	t	23.5	22.0	22.5	21.0	22.5	21.0	24.5	23.0	23.0	22.5	21.0	24.5	23.0	24.5	23.0	23.0	23.0	26.5	25.0	25.0	
	Lining Inner Diameter	ød	26	24	31	29	39	37	52	49	50	63	61	75	73	100	97	98	96	125	121	123	121
	Bolt	øC	85	85	100	100	110	110	125	125	125	145	145	160	160	180	180	180	180	210	210	210	210
	Circle Diameter	ø°	45	45	45	45	45	45	45	45	45	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
	Bolt Hole Interval	øh	14	14	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	Bolt Hole Diameter	øh	(0.55)	(0.55)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)
	Number of Bolt Holes	N	4	4	4	4	4	4	4	4	4	8	8	8	8	8	8	8	8	8	8	8	8
	Height	H1	138	138	156	156	161	161	182	182	182	201	201	214	214	234	234	234	234	263	263	263	263
Height	H2	80	80	86	86	86	86	99	99	99	108	108	114	114	124	124	124	124	138	138	138	138	
Remote sensor	Maximum Height	Hr	255	255	273	273	278	278	299	299	299	318	318	331	331	351	351	351	351	380	380	380	380
	Approx. Weight, Unit: kg (lb) (*2)		4.8	4.8	6.4	6.4	7.1	7.1	8.9	8.9	8.9	9.9	9.9	12.4	12.4	15.0	15.0	15.0	15.0	20.7	20.7	20.7	20.7
Integral type flowmeter	Maximum Height	Hi	300	300	318	318	323	323	344	344	344	363	363	376	376	396	396	396	396	425	425	425	425
	Approx. Weight, Unit: kg (lb)		7.4	7.4	9.0	9.0	9.6	9.6	11.4	11.4	11.4	12.4	12.4	15.0	15.0	17.6	17.6	17.6	17.6	23.3	23.3	23.3	23.3
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	
Grounding rings thick type (GRN, GRJ) with gaskets (GA, GC, GD) (*1)			(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 2 mm (0.08 in.) per one, bringing 4 mm (0.16 in.) per two to be additionally added for getting the total lay length.
- *5: For process connection code CE2, lining cord U (polyurethane rubber) is not available in sizes 65 to 125 mm (2.5 to 5 in.).

○ Flange, EN PN16/PN40 (continued)

Unit: mm (approx. in.)

Model	Process Connection Code		BE2 CE2												
			150	150	150	200	200	200	250	250	250	300	300	300	
	Size	150	150	150	200	200	200	250	250	250	300	300	300		
	Size	(6)	(6)	(6)	(8)	(8)	(8)	(10)	(10)	(10)	(12)	(12)	(12)		
	Lining Code	F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D		
Remote sensor	Lay Length (*1)	L	299 (11.75)	299 (11.75)	299 (11.75)	349 (13.72)	349 (13.72)	349 (13.72)	448 (17.62)	448 (17.62)	448 (17.62)	498 (19.59)	498 (19.59)	498 (19.59)	
		Flange Outer Diameter	øD	285 (11.22)	285 (11.22)	285 (11.22)	340 (13.39)	340 (13.39)	340 (13.39)	405 (15.94)	405 (15.94)	405 (15.94)	460 (18.11)	460 (18.11)	460 (18.11)
	Flange Thickness (incl. lining flare)	t	26.0 (1.02)	26.0 (1.02)	26.0 (1.02)	28.0 (1.10)	28.0 (1.10)	28.0 (1.10)	31.0 (1.22)	31.0 (1.22)	31.0 (1.22)	32.0 (1.26)	32.0 (1.26)	32.0 (1.26)	
	Lining Inner Diameter	ød	149 (5.87)	145 (5.71)	147 (5.80)	200 (7.89)	194 (7.63)	198 (7.81)	248 (9.78)	242 (9.53)	247 (9.74)	300 (11.79)	292 (11.48)	299 (11.75)	
	Bolt	øC	240 (9.45)	240 (9.45)	240 (9.45)	295 (11.61)	295 (11.61)	295 (11.61)	355 (13.98)	355 (13.98)	355 (13.98)	410 (16.14)	410 (16.14)	410 (16.14)	
	Circle Diameter	ø*	22.5 (0.87)	22.5 (0.87)	22.5 (0.87)	15 (0.87)	15 (0.87)	15 (0.87)	15 (0.87)	15 (0.87)	15 (0.87)	15 (0.87)	15 (0.87)	15 (0.87)	
	Bolt Hole Interval	øh	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	26 (1.02)	26 (1.02)	26 (1.02)	26 (1.02)	26 (1.02)	26 (1.02)	
	Bolt Hole Diameter	N	8	8	8	12	12	12	12	12	12	12	12	12	
	Number of Bolt Holes	H1	285 (11.22)	285 (11.22)	285 (11.22)	338 (13.29)	338 (13.29)	338 (13.29)	401 (15.78)	401 (15.78)	401 (15.78)	453 (17.82)	453 (17.82)	453 (17.82)	
	Height	H2	143 (5.61)	143 (5.61)	143 (5.61)	168 (6.60)	168 (6.60)	168 (6.60)	198 (7.81)	198 (7.81)	198 (7.81)	223 (8.77)	223 (8.77)	223 (8.77)	
	Height	H3	-	-	-	-	-	-	456 (17.95)	456 (17.95)	456 (17.95)	511 (20.12)	511 (20.12)	511 (20.12)	
	Remote sensor	Maximum Height	Hr	402 (15.84)	402 (15.84)	402 (15.84)	455 (17.91)	455 (17.91)	455 (17.91)	518 (20.40)	518 (20.40)	518 (20.40)	570 (22.44)	570 (22.44)	570 (22.44)
		Approx. Weight, Unit: kg (lb) (*2)		27 (59.6)	27 (59.6)	27 (59.6)	41 (90.5)	40 (88.3)	40 (88.3)	68 (150.1)	67 (147.9)	66 (145.7)	84 (185.4)	83 (183.2)	82 (181.0)
Integral type flowmeter	Maximum Height	Hi	-	447 (17.60)	447 (17.60)	-	500 (19.67)	500 (19.67)	-	563 (22.16)	563 (22.16)	-	615 (24.20)	615 (24.20)	
	Approx. Weight, Unit: kg (lb)		30 (66.2)	29 (64.0)	30 (66.2)	43 (94.9)	43 (94.9)	43 (94.9)	70 (154.5)	69 (152.3)	69 (152.3)	86 (189.9)	86 (189.9)	85 (187.6)	
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2 (+0.08)	+2 (+0.08)	-	+2 (+0.08)	+2 (+0.08)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code F or H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 3 to 5 mm (0.12 to 0.20 in.) per one, bringing 6 to 10 mm (0.24 to 0.39 in.) per two to be additionally added for getting the total lay length.

○ Flange, EN PN10

Unit: mm (approx. in.)

Model	Process Connection Code		BE1															
			CE1															
	Size Code		200	200	200	250	250	250	300	300	300	300	350	350	350	400	400	400
Size		200	200	200	250	250	250	300	300	300	300	350	350	350	400	400	400	
Lining Code		F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D		
Remote sensor	Lay Length (*1)	L	349 (13.72)	349 (13.72)	349 (13.72)	448 (17.62)	448 (17.62)	448 (17.62)	498 (19.59)	498 (19.59)	498 (19.59)	548 (21.56)	548 (21.56)	548 (21.56)	598 (23.52)	598 (23.52)	598 (23.52)	
	Flange Outer Diameter	øD	340 (13.39)	340 (13.39)	340 (13.39)	395 (15.55)	395 (15.55)	395 (15.55)	445 (17.52)	445 (17.52)	445 (17.52)	505 (19.88)	505 (19.88)	505 (19.88)	565 (22.24)	565 (22.24)	565 (22.24)	
	Flange Thickness (incl. lining flare)	t	28.0 (1.10)	28.0 (1.10)	28.0 (1.10)	31.0 (1.22)	31.0 (1.22)	31.0 (1.22)	30.0 (1.18)	30.0 (1.18)	30.0 (1.18)	30.5 (1.20)	30.5 (1.20)	30.5 (1.20)	30.5 (1.20)	30.5 (1.20)	30.5 (1.20)	
	Lining Inner Diameter	ød	200 (7.89)	194 (7.63)	198 (7.81)	248 (9.78)	242 (9.53)	247 (9.74)	300 (11.79)	292 (11.48)	299 (11.75)	330 (12.97)	323 (12.70)	330 (12.97)	381 (14.98)	373 (14.67)	381 (14.98)	
	Bolt	øC	295 (11.61)	295 (11.61)	295 (11.61)	350 (13.78)	350 (13.78)	350 (13.78)	400 (15.75)	400 (15.75)	400 (15.75)	460 (18.11)	460 (18.11)	460 (18.11)	515 (20.28)	515 (20.28)	515 (20.28)	
	Circle Diameter	ø°	22.5 (0.87)	22.5 (0.87)	22.5 (0.87)	15 (0.59)	15 (0.59)	15 (0.59)	15 (0.59)	15 (0.59)	15 (0.59)	11.25 (0.44)	11.25 (0.44)	11.25 (0.44)	11.25 (0.44)	11.25 (0.44)	11.25 (0.44)	
	Bolt Hole Interval	øh	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	22 (0.87)	26 (1.02)	26 (1.02)	26 (1.02)
	Bolt Hole Diameter	N	8	8	8	12	12	12	12	12	12	12	16	16	16	16	16	16
	Number of Bolt Holes	H1	338 (13.29)	338 (13.29)	338 (13.29)	396 (15.58)	396 (15.58)	396 (15.58)	445 (17.53)	445 (17.53)	445 (17.53)	497 (19.55)	497 (19.55)	497 (19.55)	554 (21.82)	554 (21.82)	554 (21.82)	
	Height	H2	168 (6.60)	168 (6.60)	168 (6.60)	198 (7.81)	198 (7.81)	198 (7.81)	223 (8.77)	223 (8.77)	223 (8.77)	244 (9.61)	244 (9.61)	244 (9.61)	272 (10.70)	272 (10.70)	272 (10.70)	
Height	H3	-	-	-	446 (17.56)	446 (17.56)	446 (17.56)	496 (19.53)	496 (19.53)	496 (19.53)	565 (22.24)	565 (22.24)	565 (22.24)	625 (24.61)	625 (24.61)	625 (24.61)		
Remote sensor	Maximum Height	Hr	455 (17.91)	455 (17.91)	455 (17.91)	513 (20.20)	513 (20.20)	513 (20.20)	563 (22.15)	563 (22.15)	563 (22.15)	614 (24.17)	614 (24.17)	614 (24.17)	672 (26.44)	672 (26.44)	672 (26.44)	
	Approx. Weight, Unit: kg (lb) (*2)		41 (90.5)	40 (88.3)	40 (88.3)	65 (143.5)	64 (141.3)	64 (141.3)	77 (170.0)	76 (167.8)	75 (165.6)	97 (214.1)	96 (211.9)	94 (207.5)	121 (267.1)	120 (264.9)	118 (260.5)	
Integral type flowmeter	Maximum Height	Hi	500 (19.67)	500 (19.67)	500 (19.67)	558 (21.96)	558 (21.96)	558 (21.96)	607 (23.91)	607 (23.91)	607 (23.91)	659 (25.93)	659 (25.93)	659 (25.93)	716 (28.20)	716 (28.20)	716 (28.20)	
	Approx. Weight, Unit: kg (lb)		43 (94.9)	43 (94.9)	43 (94.9)	67 (147.9)	67 (147.9)	66 (145.7)	79 (174.4)	79 (174.4)	78 (172.2)	99 (218.5)	98 (216.3)	97 (214.1)	123 (271.5)	122 (269.3)	120 (264.9)	
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2 (+0.08)	+2 (+0.08)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code F or H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 3 to 5 mm (0.12 to 0.20 in.) per one, bringing 6 to 10 mm (0.24 to 0.39 in.) per two to be additionally added for getting the total lay length.

○ Flange, JIS F12

Unit: mm (approx. in.)

Model	Process Connection Code	BG1																					
		CG1																					
		080	080	100	100	100	100	125	125	125	125	150	150	150	200	200	200	250	250	250			
Size	80	80	100	100	100	100	125	125	125	125	150	150	150	200	200	200	250	250	250				
Size	(3)	(3)	(4)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(6)	(6)	(6)	(8)	(8)	(8)	(10)	(10)	(10)				
Lining Code	F	U,H,D	F	U	H	D	F	U	H	D	F	U	H,D	F	U	H,D	F	U	H,D				
Remote sensor	Lay Length (*1)	L	198 (7.78)	198 (7.78)	248 (9.74)	248 (9.74)	248 (9.74)	248 (9.74)	248 (9.74)	248 (9.74)	248 (9.74)	248 (9.74)	248 (9.74)	299 (11.75)	299 (11.75)	299 (11.75)	349 (13.72)	349 (13.72)	349 (13.72)	448 (17.62)	448 (17.62)	448 (17.62)	
	Flange Outer Diameter	øD	211 (8.31)	211 (8.31)	238 (9.37)	238 (9.37)	238 (9.37)	238 (9.37)	263 (10.35)	263 (10.35)	263 (10.35)	263 (10.35)	263 (10.35)	290 (11.42)	290 (11.42)	290 (11.42)	342 (13.46)	342 (13.46)	342 (13.46)	410 (16.14)	410 (16.14)	410 (16.14)	
	Flange Thickness (incl. lining flare)	t	24.5 (0.96)	23.0 (0.91)	24.5 (0.96)	23.0 (0.91)	23.0 (0.91)	23.0 (0.91)	26.5 (1.04)	25.0 (0.98)	25.0 (0.98)	25.0 (0.98)	25.0 (0.98)	27.0 (1.06)	27.0 (1.06)	27.0 (1.06)	27.0 (1.06)	27.0 (1.06)	27.0 (1.06)	30.0 (1.18)	30.0 (1.18)	30.0 (1.18)	
	Lining Inner Diameter	ød	75 (2.96)	73 (2.87)	100 (3.95)	97 (3.82)	98 (3.87)	96 (3.79)	125 (4.91)	121 (4.76)	123 (4.83)	121 (4.75)	149 (5.87)	145 (5.71)	147 (5.80)	200 (7.89)	194 (7.63)	198 (7.81)	248 (9.78)	242 (9.52)	247 (9.74)		
	Bolt Circle Diameter	øC	168 (6.61)	168 (6.61)	195 (7.68)	195 (7.68)	195 (7.68)	195 (7.68)	220 (8.66)	220 (8.66)	220 (8.66)	220 (8.66)	247 (9.72)	247 (9.72)	247 (9.72)	299 (11.77)	299 (11.77)	299 (11.77)	360 (14.17)	360 (14.17)	360 (14.17)		
	Bolt Hole Interval	θ°	45	45	45	45	45	45	30	30	30	30	30	30	30	22.5	22.5	22.5	22.5	22.5	22.5	22.5	
	Bolt Hole Diameter	øh	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	19 (0.75)	23 (0.91)	23 (0.91)	23 (0.91)	23 (0.91)	
	Number of Bolt Holes	N	4	4	4	4	4	4	6	6	6	6	6	6	6	6	6	8	8	8	8	8	8
	Height	H1	220 (8.66)	220 (8.66)	243 (9.57)	243 (9.57)	243 (9.57)	243 (9.57)	270 (10.63)	270 (10.63)	270 (10.63)	270 (10.63)	288 (11.32)	288 (11.32)	288 (11.32)	339 (13.33)	339 (13.33)	339 (13.33)	403 (15.88)	403 (15.88)	403 (15.88)		
	Height	H2	114 (4.49)	114 (4.49)	124 (4.88)	124 (4.88)	124 (4.88)	124 (4.88)	138 (5.43)	138 (5.43)	138 (5.43)	138 (5.43)	143 (5.61)	143 (5.61)	143 (5.61)	168 (6.60)	168 (6.60)	168 (6.60)	198 (7.81)	198 (7.81)	198 (7.81)		
Height	H3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	461 (18.15)	461 (18.15)	461 (18.15)			
Remote sensor	Maximum Height	Hr	337 (13.27)	337 (13.27)	360 (14.17)	360 (14.17)	360 (14.17)	360 (14.17)	387 (15.24)	387 (15.24)	387 (15.24)	387 (15.24)	405 (15.94)	405 (15.94)	405 (15.94)	456 (17.95)	456 (17.95)	456 (17.95)	521 (20.50)	521 (20.50)	521 (20.50)		
	Approx. Weight, Unit: kg (lb) (*2)		12.8 (28.2)	12.8 (28.2)	16.1 (35.5)	16.1 (35.5)	16.1 (35.5)	16.1 (35.5)	21.2 (46.7)	21.2 (46.7)	21.2 (46.7)	21.2 (46.7)	29 (64.0)	28 (61.8)	28 (61.8)	40 (88.3)	40 (88.3)	40 (88.3)	39 (86.1)	68 (150.1)	67 (147.9)	67 (147.9)	
Integral type flowmeter	Maximum Height	Hi	382 (15.04)	382 (15.04)	405 (15.94)	405 (15.94)	405 (15.94)	405 (15.94)	432 (17.01)	432 (17.01)	432 (17.01)	432 (17.01)	450 (17.70)	450 (17.70)	450 (17.70)	501 (19.71)	501 (19.71)	501 (19.71)	565 (22.26)	565 (22.26)	565 (22.26)		
	Approx. Weight, Unit: kg (lb)		15.3 (33.7)	15.3 (33.7)	18.7 (41.2)	18.7 (41.2)	18.7 (41.2)	18.7 (41.2)	23.6 (52.0)	23.6 (52.0)	23.6 (52.0)	23.6 (52.0)	31 (68.4)	31 (68.4)	31 (68.4)	42 (92.7)	42 (92.7)	42 (92.7)	70 (154.5)	70 (154.5)	69 (152.3)		
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2 (+0.08)	-	+2 (+0.08)	-	+2 (+0.08)	-	+2 (+0.08)	-	+2 (+0.08)	-	+2 (+0.08)	-	+2 (+0.08)	-	+2 (+0.08)	-	+4 (+0.16)	+4 (+0.16)	+4 (+0.16)	
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	
Grounding rings thick type (GRN, GRJ) with gaskets (GA, GC, GD) (*1)			+10 (+0.39)	-	+10 (+0.39)	-	-	-	+10 (+0.39)	-	-	-	-	-	-	-	-	-	-	-	-	-	

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code F or H, gaskets supplied by customer are necessary, except for lining code F with sizes 125 mm (5 in.) or less. For sizes up to 125 mm (5 in.), recommended thickness of the gasket is 2 mm (0.08 in.) per one, bringing 4 mm (0.16 in.) per two, and for sizes 150 mm (6 in.) and above, it is 3 to 5 mm (0.12 to 0.20 in.) per one, bringing 6 to 10 mm (0.24 to 0.39 in.) per two, to be additionally added for getting the total lay length.

○ Flange, JIS F12 (continued)

Unit: mm (approx. in.)

Model	Process Connection Code		BG1								
			CG1								
	Size Code		300	300	300	350	350	350	400	400	400
Size		300	300	300	350	350	350	400	400	400	
		(12)	(12)	(12)	(14)	(14)	(14)	(16)	(16)	(16)	
Lining Code		F	U	H, D	F	U	H, D	F	U	H, D	
Remote sensor	Lay Length (*1)	L	498 (19.59)	498 (19.59)	498 (19.59)	548 (21.56)	548 (21.56)	548 (21.56)	598 (23.52)	598 (23.52)	598 (23.52)
		Flange Outer Diameter	øD	464 (18.27)	464 (18.27)	464 (18.27)	530 (20.87)	530 (20.87)	530 (20.87)	582 (22.91)	582 (22.91)
	Flange Thickness (incl. lining flare)	t	29.0 (1.14)	29.0 (1.14)	29.0 (1.14)	31.5 (1.24)	31.5 (1.24)	31.5 (1.24)	31.5 (1.24)	31.5 (1.24)	31.5 (1.24)
	Lining Inner Diameter	ød	300 (11.79)	292 (11.48)	299 (11.75)	330 (12.97)	323 (12.70)	330 (12.97)	381 (14.98)	373 (14.67)	384 (15.13)
	Bolt	øC	414 (16.30)	414 (16.30)	414 (16.30)	472 (18.58)	472 (18.58)	472 (18.58)	524 (20.63)	524 (20.63)	524 (20.63)
	Circle Diameter	θ°	18	18	18	18	18	18	15	15	15
	Bolt Hole Interval	øh	23 (0.91)	23 (0.91)	23 (0.91)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)
	Bolt Hole Diameter	N	10	10	10	10	10	10	12	12	12
	Number of Bolt Holes	H1	455 (17.90)	455 (17.90)	455 (17.90)	509 (20.04)	509 (20.04)	509 (20.04)	563 (22.16)	563 (22.16)	563 (22.16)
	Height	H2	223 (8.77)	223 (8.77)	223 (8.77)	244 (9.61)	244 (9.61)	244 (9.61)	272 (10.70)	272 (10.70)	272 (10.70)
Height	H3	515 (20.28)	515 (20.28)	515 (20.28)	581 (22.87)	581 (22.87)	581 (22.87)	633 (24.92)	633 (24.92)	633 (24.92)	
Remote sensor	Maximum Height	Hr	572 (22.52)	572 (22.52)	572 (22.52)	626 (24.66)	626 (24.66)	626 (24.66)	680 (26.78)	680 (26.78)	680 (26.78)
	Approx. Weight, Unit: kg (lb) (*2)		81 (178.8)	80 (176.6)	79 (174.4)	106 (234.0)	105 (231.8)	103 (227.4)	129 (284.8)	128 (282.6)	126 (278.2)
Integral type flowmeter	Maximum Height	Hi	617 (24.28)	617 (24.28)	617 (24.28)	671 (26.42)	671 (26.42)	671 (26.42)	725 (28.54)	725 (28.54)	725 (28.54)
	Approx. Weight, Unit: kg (lb)		83 (183.2)	83 (183.2)	82 (181.0)	108 (238.4)	107 (236.2)	106 (234.0)	131 (289.2)	130 (287.0)	128 (282.6)
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code F or H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 3 to 5 mm (0.12 to 0.20 in.) per one, bringing 6 to 10 mm (0.24 to 0.39 in.) per two to be additionally added for getting the total lay length.

○ Flange, JIS 10K

Unit: mm (approx. in.)

Model	Process Connection Code	BJ1																				
		CJ1																				
		025	025	032	032	040	040	050	050	050	065	065	080	080	100	100	100	100	125	125	125	125
	Size Code	025	025	032	032	040	040	050	050	050	065	065	080	080	100	100	100	100	125	125	125	125
	Size	(1)	(1)	(1.25)	(1.25)	(1.5)	(1.5)	(2)	(2)	(2)	(2.5)	(2.5)	(3)	(3)	(4)	(4)	(4)	(4)	(5)	(5)	(5)	(5)
	Lining Code	F	U	F	U	F	U	F	U	H,D	F	U,H,D	F	U,H,D	F	U	H	D	F	U	H	D
Remote sensor	Lay Length (*1)	L	198	198	198	198	198	198	198	198	198	198	198	198	248	248	248	248	248	248	248	248
	Flange Outer Diameter	øD	125	125	135	135	140	140	155	155	155	175	175	185	185	210	210	210	210	250	250	250
	Flange Thickness (incl. lining flare)	t	21.5	20.0	22.5	21.0	22.5	21.0	22.5	21.0	21.0	24.5	23.0	24.5	23.0	24.5	23.0	23.0	23.0	26.5	25.0	25.0
	Lining Inner Diameter	ød	26	24	31	29	39	37	52	49	50	63	61	75	73	100	97	98	96	125	121	123
	Bolt	øC	90	90	100	100	105	105	120	120	120	140	140	150	150	175	175	175	175	210	210	210
	Circle Diameter	øC	(3.54)	(3.54)	(3.94)	(3.94)	(4.13)	(4.13)	(4.72)	(4.72)	(4.72)	(5.51)	(5.51)	(5.91)	(5.91)	(6.89)	(6.89)	(6.89)	(6.89)	(8.27)	(8.27)	(8.27)
	Bolt Hole Interval	θ°	45	45	45	45	45	45	45	45	45	45	45	45	45	22.5	22.5	22.5	22.5	22.5	22.5	22.5
	Bolt Hole Diameter	øh	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	23	23	23
	Number of Bolt Holes	N	4	4	4	4	4	4	4	4	4	4	4	8	8	8	8	8	8	8	8	8
	Integral type flowmeter	Height	H1	143	143	154	154	156	156	177	177	177	196	196	207	207	229	229	229	229	263	263
Height		H2	80	80	86	86	86	86	99	99	99	108	108	114	114	124	124	124	124	138	138	138
Remote sensor	Maximum Height	Hr	260	260	271	271	273	273	294	294	294	313	313	324	324	346	346	346	346	380	380	380
	Approx. Weight, Unit: kg (lb) (*2)		4.8	4.8	5.9	5.9	6.1	6.1	7.3	7.3	7.3	9.6	9.6	10.2	10.2	13.0	13.0	13.0	13.0	19.1	19.1	19.1
Integral type flowmeter	Maximum Height	Hi	305	305	316	316	318	318	339	339	339	358	358	369	369	391	391	391	391	425	425	425
	Approx. Weight, Unit: kg (lb)		7.3	7.3	8.4	8.4	8.7	8.7	9.8	9.8	9.8	12.1	12.1	12.7	12.7	15.6	15.6	15.6	15.6	21.6	21.6	21.6
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6
Grounding rings thick type (GRN, GRJ) with gaskets (GA, GC, GD) (*1)			(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-	(+0.39)	-

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 2 mm (0.08 in.) per one, bringing 4 mm (0.16 in.) per two to be additionally added for getting the total lay length.

○ Flange, JIS 10K (continued)

Unit: mm (approx. in.)

Model	Process Connection Code		BJ1																		
			CJ1																		
	Size Code		150	150	150	200	200	200	250	250	250	300	300	300	350	350	350	400	400	400	
Size		(6)	(6)	(6)	(8)	(8)	(8)	(10)	(10)	(10)	(12)	(12)	(12)	(14)	(14)	(14)	(16)	(16)	(16)		
Lining Code		F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D		
Remote sensor	Lay Length (*1)	L	299 (11.75)	299 (11.75)	299 (11.75)	349 (13.72)	349 (13.72)	349 (13.72)	448 (17.62)	448 (17.62)	448 (17.62)	498 (19.59)	498 (19.59)	498 (19.59)	548 (21.56)	548 (21.56)	548 (21.56)	598 (23.52)	598 (23.52)	598 (23.52)	
	Flange Outer Diameter	øD	280 (11.02)	280 (11.02)	280 (11.02)	330 (12.99)	330 (12.99)	330 (12.99)	400 (15.75)	400 (15.75)	400 (15.75)	445 (17.52)	445 (17.52)	445 (17.52)	490 (19.29)	490 (19.29)	490 (19.29)	560 (22.05)	560 (22.05)	560 (22.05)	
	Flange Thickness (incl. lining flare)	t	27.0 (1.06)	27.0 (1.06)	27.0 (1.06)	27.0 (1.06)	27.0 (1.06)	27.0 (1.06)	30.0 (1.18)	30.0 (1.18)	30.0 (1.18)	29.0 (1.14)	29.0 (1.14)	29.0 (1.14)	31.5 (1.24)	31.5 (1.24)	31.5 (1.24)	33.5 (1.32)	33.5 (1.32)	33.5 (1.32)	
	Lining Inner Diameter	ød	149 (5.87)	145 (5.71)	147 (5.80)	200 (7.89)	194 (7.63)	198 (7.81)	248 (9.78)	242 (9.53)	247 (9.74)	300 (11.79)	292 (11.48)	299 (11.75)	330 (12.97)	323 (12.70)	330 (12.97)	381 (14.98)	373 (14.67)	381 (14.98)	
	Bolt	øC	240 (9.45)	240 (9.45)	240 (9.45)	290 (11.42)	290 (11.42)	290 (11.42)	355 (13.98)	355 (13.98)	355 (13.98)	400 (15.75)	400 (15.75)	400 (15.75)	445 (17.52)	445 (17.52)	445 (17.52)	510 (20.08)	510 (20.08)	510 (20.08)	
	Circle Diameter	øC	240 (9.45)	240 (9.45)	240 (9.45)	290 (11.42)	290 (11.42)	290 (11.42)	355 (13.98)	355 (13.98)	355 (13.98)	400 (15.75)	400 (15.75)	400 (15.75)	445 (17.52)	445 (17.52)	445 (17.52)	510 (20.08)	510 (20.08)	510 (20.08)	
	Bolt Hole Interval	θ°	22.5 (0.91)	22.5 (0.91)	22.5 (0.91)	15 (0.91)	15 (0.91)	15 (0.91)	15 (0.98)	15 (0.98)	15 (0.98)	11.25 (0.98)	11.25 (0.98)	11.25 (0.98)	11.25 (0.98)	11.25 (0.98)	11.25 (0.98)	11.25 (1.06)	11.25 (1.06)	11.25 (1.06)	
	Bolt Hole Diameter	øh	23 (0.91)	23 (0.91)	23 (0.91)	23 (0.91)	23 (0.91)	23 (0.91)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	27 (1.06)	27 (1.06)	27 (1.06)	
	Number of Bolt Holes	N	8	8	8	12	12	12	12	12	12	16	16	16	16	16	16	16	16	16	16
	Integral type flowmeter	Height	H1	283 (11.12)	283 (11.12)	283 (11.12)	333 (13.10)	333 (13.10)	333 (13.10)	398 (15.68)	398 (15.68)	398 (15.68)	445 (17.53)	445 (17.53)	445 (17.53)	489 (19.25)	489 (19.25)	489 (19.25)	552 (21.72)	552 (21.72)	552 (21.72)
Height		H2	143 (5.61)	143 (5.61)	143 (5.61)	168 (6.60)	168 (6.60)	168 (6.60)	198 (7.81)	198 (7.81)	198 (7.81)	223 (8.77)	223 (8.77)	223 (8.77)	244 (9.61)	244 (9.61)	244 (9.61)	272 (10.70)	272 (10.70)	272 (10.70)	
Height		H3	-	-	-	-	-	-	451 (17.76)	451 (17.76)	451 (17.76)	496 (19.53)	496 (19.53)	496 (19.53)	550 (21.65)	550 (21.65)	550 (21.65)	620 (24.41)	620 (24.41)	620 (24.41)	
Maximum Height		Hr	400 (15.74)	400 (15.74)	400 (15.74)	450 (17.71)	450 (17.71)	450 (17.71)	516 (20.30)	516 (20.30)	516 (20.30)	563 (22.15)	563 (22.15)	563 (22.15)	606 (23.87)	606 (23.87)	606 (23.87)	669 (26.34)	669 (26.34)	669 (26.34)	
Remote sensor	Approx. Weight, Unit: kg (lb) (*2)		26 (57.4)	25 (55.2)	26 (57.4)	36 (79.5)	35 (77.3)	35 (77.3)	61 (134.7)	61 (134.7)	60 (132.5)	71 (156.7)	70 (154.5)	69 (152.3)	87 (192.1)	85 (187.6)	84 (185.4)	115 (253.9)	114 (251.7)	112 (247.2)	
	Maximum Height	Hi	445 (17.50)	445 (17.50)	445 (17.50)	495 (19.47)	495 (19.47)	495 (19.47)	560 (22.06)	560 (22.06)	560 (22.06)	607 (23.91)	607 (23.91)	607 (23.91)	651 (25.63)	651 (25.63)	651 (25.63)	714 (28.10)	714 (28.10)	714 (28.10)	
Integral type flowmeter	Approx. Weight, Unit: kg (lb)		28 (61.8)	28 (61.8)	28 (61.8)	38 (83.9)	38 (83.9)	38 (83.9)	64 (141.3)	63 (139.1)	63 (139.1)	73 (161.2)	73 (161.2)	72 (158.9)	89 (196.5)	88 (194.3)	86 (189.9)	117 (258.3)	116 (256.1)	114 (251.7)	
	Grounding rings thin type (GRL, GRH) (*1) (*3)		-	+2 (+0.08)	+2 (+0.08)	-	+2 (+0.08)	+2 (+0.08)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code F or H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 3 to 5 mm (0.12 to 0.20 in.) per one, bringing 6 to 10 mm (0.24 to 0.39 in.) per two to be additionally added for getting the total lay length.

○ Flange, JIS 20K

Unit: mm (approx. in.)

Model	Process Connection Code	BJ2																			
		CJ2																			
		025	025	032	032	040	040	050	050	050	065	065	080	080	100	100	100	100	125	125	125
Size Code	(1)	(1)	(1.25)	(1.25)	(1.5)	(1.5)	(2)	(2)	(2)	(2.5)	(2.5)	(3)	(3)	(4)	(4)	(4)	(4)	(5)	(5)	(5)	(5)
Size	F	U	F	U	F	U	F	U	H,D	F	U,H,D	F	U,H,D	F	U	H	D	F	U	H	D
Lining Code																					
Remote sensor	Lay Length (*1)	L	198	198	198	198	198	198	198	198	198	198	198	198	248	248	248	248	248	248	248
	Flange Outer Diameter	øD	125	125	135	135	140	140	155	155	155	175	175	200	200	225	225	225	225	270	270
	Flange Thickness (incl. lining flare)	t	23.5	22.0	24.5	23.0	24.5	23.0	24.5	23.0	23.0	26.5	25.0	28.5	27.0	30.5	29.0	29.0	29.0	32.5	31.0
	Lining Inner Diameter	ød	26	24	31	29	39	37	52	49	50	63	61	75	73	100	97	98	96	125	121
	Bolt	øC	90	90	100	100	105	105	120	120	120	140	140	160	160	185	185	185	185	225	225
	Circle Diameter	øC	(3.54)	(3.54)	(3.94)	(3.94)	(4.13)	(4.13)	(4.72)	(4.72)	(4.72)	(5.51)	(5.51)	(6.30)	(6.30)	(7.28)	(7.28)	(7.28)	(7.28)	(8.86)	(8.86)
	Bolt Hole Interval	θ°	45	45	45	45	45	45	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
	Bolt Hole Diameter	øh	19	19	19	19	19	19	19	19	19	19	19	23	23	23	23	23	23	25	25
	Number of Bolt Holes	N	4	4	4	4	4	4	8	8	8	8	8	8	8	8	8	8	8	8	8
	Height	H1	143	143	154	154	156	156	177	177	177	196	196	214	214	237	237	237	237	273	273
Height	H2	80	80	86	86	86	86	99	99	99	108	108	114	114	124	124	124	124	138	138	
Remote sensor	Maximum Height	Hr	260	260	271	271	273	273	294	294	294	313	313	331	331	354	354	354	354	390	390
	Approx. Weight, Unit: kg (lb) (*2)		5.2	5.2	6.3	6.3	6.6	6.6	7.5	7.5	7.5	9.9	9.9	13.1	13.1	17.7	17.7	17.7	17.7	26.5	26.5
Integral type flowmeter	Maximum Height	Hi	305	305	316	316	318	318	339	339	339	358	358	376	376	399	399	399	399	435	435
	Approx. Weight, Unit: kg (lb)		7.7	7.7	8.8	8.8	9.2	9.2	10.0	10.0	10.0	12.5	12.5	15.6	15.6	20.2	20.2	20.2	20.2	29.1	29.1
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-	+2	-
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6
Grounding rings thick type (GRN, GRJ) with gaskets (GA, GC, GD) (*1)			(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)	(+0.39)

- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 2 mm (0.08 in.) per one, bringing 4 mm (0.16 in.) per two to be additionally added for getting the total lay length.

○ Flange, JIS 20K (continued)

Unit: mm (approx. in.)

Model	Process Connection Code		BJ2												
			CJ2												
	Size Code		150	150	150	200	200	200	250	250	250	300	300	300	
Size		150	150	150	200	200	200	250	250	250	300	300	300		
Lining Code		F	U	H, D	F	U	H, D	F	U	H, D	F	U	H, D		
Remote sensor	Lay Length (*1)	L	299 (11.75)	299 (11.75)	299 (11.75)	349 (13.72)	349 (13.72)	349 (13.72)	448 (17.62)	448 (17.62)	448 (17.62)	498 (19.59)	498 (19.59)	498 (19.59)	
	Flange Outer Diameter	øD	305 (12.01)	305 (12.01)	305 (12.01)	350 (13.78)	350 (13.78)	350 (13.78)	430 (16.93)	430 (16.93)	430 (16.93)	480 (18.90)	480 (18.90)	480 (18.90)	
	Flange Thickness (incl. lining flare)	t	33.0 (1.30)	33.0 (1.30)	33.0 (1.30)	35.0 (1.38)	35.0 (1.38)	35.0 (1.38)	40.0 (1.57)	40.0 (1.57)	40.0 (1.57)	41.0 (1.61)	41.0 (1.61)	41.0 (1.61)	
	Lining Inner Diameter	ød	149 (5.87)	145 (5.71)	147 (5.80)	200 (7.89)	194 (7.63)	198 (7.81)	248 (9.78)	242 (9.53)	247 (9.74)	300 (11.79)	292 (11.48)	299 (11.75)	
	Bolt	øC	260.0 (10.24)	260.0 (10.24)	260.0 (10.24)	305.0 (12.01)	305.0 (12.01)	305.0 (12.01)	380 (14.96)	380 (14.96)	380 (14.96)	430 (16.93)	430 (16.93)	430 (16.93)	
	Circle Diameter	ø°	15 (0.98)	15 (0.98)	15 (0.98)	15 (0.98)	15 (0.98)	15 (0.98)	15 (1.06)	15 (1.06)	15 (1.06)	11.25 (1.06)	11.25 (1.06)	11.25 (1.06)	
	Bolt Hole Interval	øh	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)	27 (1.06)	27 (1.06)	27 (1.06)	27 (1.06)	27 (1.06)	27 (1.06)	
	Bolt Hole Diameter	N	12	12	12	12	12	12	12	12	12	16	16	16	
	Number of Bolt Holes	H1	295 (11.61)	295 (11.61)	295 (11.61)	343 (13.49)	343 (13.49)	343 (13.49)	413 (16.27)	413 (16.27)	413 (16.27)	463 (18.22)	463 (18.22)	463 (18.22)	
	Height	H2	143 (5.61)	143 (5.61)	143 (5.61)	168 (6.60)	168 (6.60)	168 (6.60)	198 (7.81)	198 (7.81)	198 (7.81)	223 (8.77)	223 (8.77)	223 (8.77)	
	Height	H3	-	-	-	-	-	-	481 (18.94)	481 (18.94)	481 (18.94)	531 (20.91)	531 (20.91)	531 (20.91)	
	Remote sensor	Maximum Height	Hr	412 (16.23)	412 (16.23)	412 (16.23)	460 (18.11)	460 (18.11)	460 (18.11)	531 (20.89)	531 (20.89)	531 (20.89)	580 (22.84)	580 (22.84)	580 (22.84)
		Approx. Weight, Unit: kg (lb) (*2)		35 (77.3)	35 (77.3)	35 (77.3)	48 (106.0)	47 (103.8)	47 (103.8)	85 (187.6)	85 (185.4)	83 (183.2)	101 (223.0)	100 (220.8)	100 (220.8)
Integral type flowmeter	Maximum Height	Hi	457 (17.99)	457 (17.99)	457 (17.99)	505 (19.87)	505 (19.87)	505 (19.87)	575 (22.65)	575 (22.65)	575 (22.65)	625 (24.60)	625 (24.60)	625 (24.60)	
	Approx. Weight, Unit: kg (lb)		37 (81.7)	37 (81.7)	37 (81.7)	50 (110.4)	50 (110.4)	50 (110.4)	87 (192.1)	86 (189.9)	86 (189.9)	104 (229.6)	102 (225.2)	102 (225.2)	
Grounding rings thin type (GRL, GRH) (*1) (*3)			-	+2 (+0.08)	+2 (+0.08)	-	+2 (+0.08)	+2 (+0.08)	-	+4 (+0.16)	+4 (+0.16)	-	+4 (+0.16)	+4 (+0.16)	
Grounding rings thick type (GRN, GRJ) (*1) (*4)			+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	+6 (+0.24)	

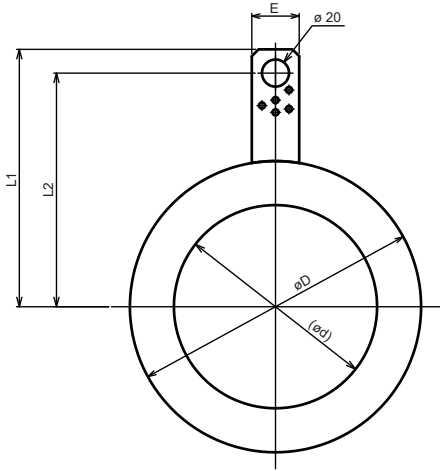
- *1: Add the value above (which is the total of both ends) to the lay length "L" when selecting optional grounding rings with/without gaskets. Also, the thickness of customer supplied gaskets should be added for getting the total lay length.
- *2: When submersible use or optional code DHC is selected, waterproof glands and a 30-meter length cable as standard are attached. Add 9.5 kg (20.9 lb) to the weight in the table.
- *3: These grounding rings (GRL, GRH) are not applied to lining code F nor H but for U and D.
- *4: When applying these grounding rings (GRN, GRJ) to lining code F or H, gaskets supplied by customer are necessary. For the sizes in this table, recommended thickness of the gasket is 3 to 5 mm (0.12 to 0.20 in.) per one, bringing 6 to 10 mm (0.24 to 0.39 in.) per two to be additionally added for getting the total lay length.

● Grounding Ring (Handle Bracket Type)

○ Flange, 150 to 200 mm, Lining Code F (PTFE) / H (Natural Hard Rubber)

Optional Code: GRN, GRJ

Unit: mm (approx. in.)



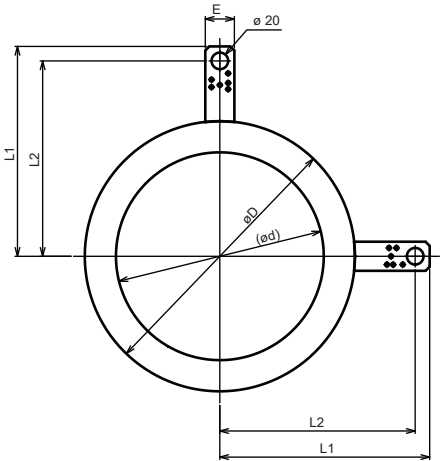
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Process Connection Code	BA1, BE2, BG1, BJ1, CA1, CE2, CG1, CJ1	BA2, BJ2, CA2, CJ2	BA1, BE1, BE2, BG1, BJ1, CA1, CE1, CE2, CG1, CJ1	BA2, BJ2, CA2, CJ2
Size Code	150	150	200	200
Size	150 (6)	150 (6)	200 (8)	200 (8)
Lining Code	F, H			
Ring Outer Diameter	ϕD 215 (8.46)	222 (8.74)	265 (10.43)	278 (10.94)
Ring Inner Diameter	ϕd 150 (5.91)	150 (5.91)	201 (7.91)	201 (7.91)
Length	L1 197.5 (7.78)	201.0 (7.91)	222.5 (8.76)	229.0 (9.02)
Length	L2 180 (7.09)	183.5 (7.22)	205 (8.07)	211.5 (8.33)
Bracket Width	E 35 (1.38)	35 (1.38)	35 (1.38)	35 (1.38)
Ring Thickness	3 (0.12)			
Approx. Weight, Unit: kg (lb)	0.5 (1.10)	0.6 (1.32)	0.6 (1.32)	0.8 (1.76)
Approx. Weight, Unit: kg (lb)	0.6 (1.32)	0.6 (1.32)	0.7 (1.54)	0.8 (1.76)

○ Flange, 250 to 400 mm, Lining Code F (PTFE) / H (Natural Hard Rubber)

Optional Code: GRN, GRJ

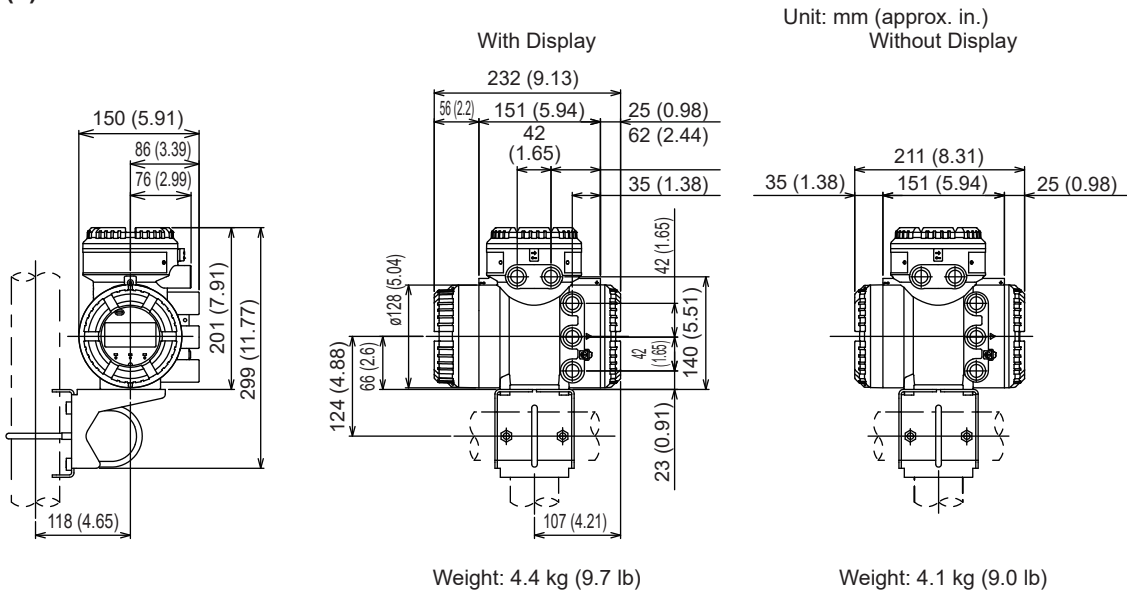
Unit: mm (approx. in.)



F26.ai

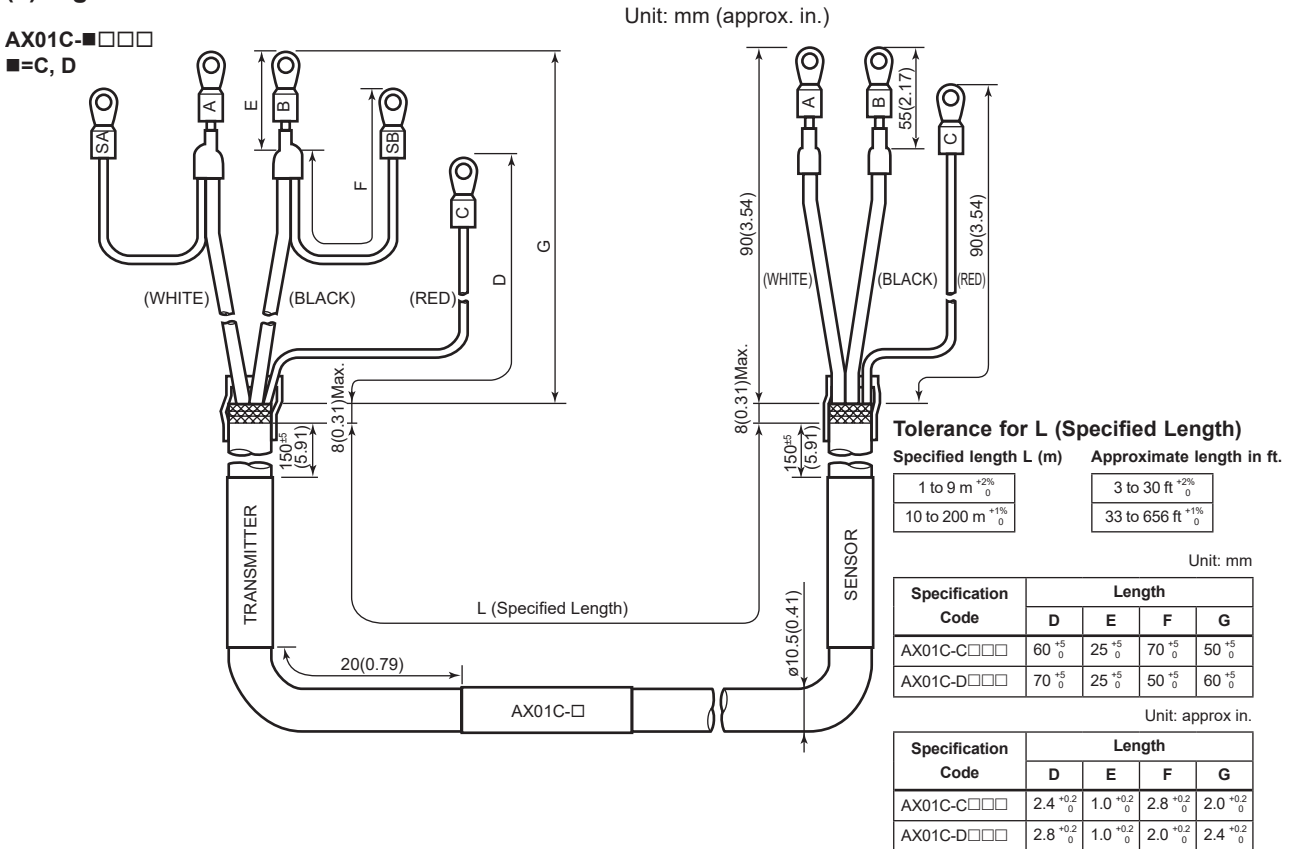
Process Connection Code	BA1, BE1, BE2, BG1, BJ1, CA1, CE1, CE2, CG1, CJ1	BA2, BJ2, CA2, CJ2	BA1, BE1, BE2, BG1, BJ1, CA1, CE1, CE2, CG1, CJ1	BA2, BJ2, CA2, CJ2	BA1, BE1, BG1, BJ1, CA1, CE1, CG1, CJ1	400
Size Code	250	250	300	300	350	400
Size	250 (10)	250 (10)	300 (12)	300 (12)	350 (14)	400 (16)
Lining Code	F, H					
Ring Outer Diameter	ϕD 325 (12.80)	337 (13.27)	370 (14.57)	395 (15.55)	415 (16.34)	478 (18.82)
Ring Inner Diameter	ϕd 250 (9.84)	250 (9.84)	301 (11.85)	301 (11.85)	330 (12.99)	381 (15.00)
Length	L1 252.5 (9.94)	258.5 (10.18)	292.0 (11.50)	304.5 (11.99)	314.5 (12.38)	346.0 (13.62)
Length	L2 235 (9.25)	241 (9.49)	274.5 (10.81)	287 (11.30)	297 (11.69)	328.5 (12.93)
Bracket Width	E 35 (1.38)	35 (1.38)	35 (1.38)	35 (1.38)	35 (1.38)	35 (1.38)
Ring Thickness	3 (0.12)					
Approx. Weight, Unit: kg (lb)	0.8 (1.76)	1.0 (2.20)	0.9 (1.98)	1.2 (2.65)	1.2 (2.65)	1.6 (3.53)
Approx. Weight, Unit: kg (lb)	0.9 (1.98)	1.1 (2.43)	1.0 (2.20)	1.4 (3.09)	1.3 (2.87)	1.8 (3.97)

(2) Remote Transmitter AXW4A

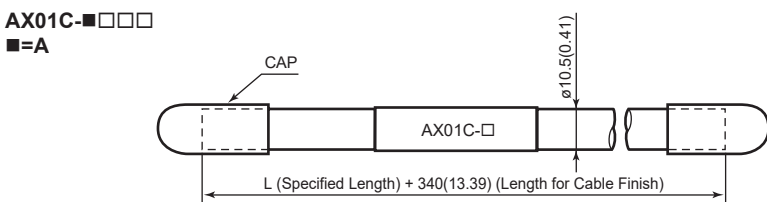


F27.ai

(3) Signal Cable AX01C



F28.ai



F29.ai

Tolerance for L (Specified Length) +340 mm (13.39 in.) (Length for Cable Finish)

Specified length L (m)	Approximate length in ft.
1 to 9 m ^{+4%} ₀	3 to 30 ft ^{+4%} ₀
10 to 100 m ^{+2%} ₀	33 to 328 ft ^{+2%} ₀
101 to 200 m ^{+1%} ₀	331 to 656 ft ^{+1%} ₀

(4) Dimensional Tolerance

Unless otherwise specified, dimensional tolerances on the drawings are as shown in the following table.

General tolerance in the dimensional outline drawing.

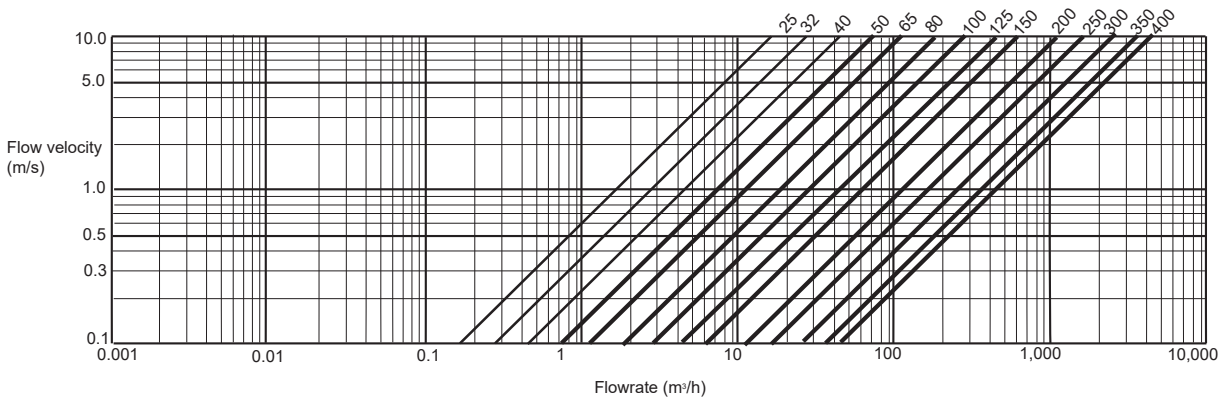
Unit: mm (approx. in.)

Category of basic dimension		Tolerance	Category of basic dimension		Tolerance
Above	Equal or below		Above	Equal or below	
3 (0.12)	3 (0.12)	±0.7 (±0.03)	500 (19.69)	630 (24.80)	±5.5 (±0.22)
6 (0.24)	6 (0.24)	±0.9 (±0.04)	630 (24.80)	800 (31.50)	±6.25 (±0.25)
10 (0.39)	10 (0.39)	±1.1 (±0.04)	800 (31.50)	1000 (39.37)	±7.0 (±0.28)
18 (0.71)	18 (0.71)	±1.35 (±0.05)	1000 (39.37)	1250 (49.21)	±8.25 (±0.32)
30 (1.18)	30 (1.18)	±1.65 (±0.06)	1250 (49.21)	1600 (62.99)	±9.75 (±0.38)
50 (1.97)	50 (1.97)	±1.95 (±0.08)	1600 (62.99)	2000 (78.74)	±11.5 (±0.45)
80 (3.15)	80 (3.15)	±2.3 (±0.09)	2000 (78.74)	2500 (98.43)	±14.0 (±0.55)
120 (4.72)	120 (4.72)	±2.7 (±0.11)	2500 (98.43)	3150 (124.02)	±16.5 (±0.65)
180 (7.09)	180 (7.09)	±3.15 (±0.12)			
250 (9.84)	250 (9.84)	±3.6 (±0.14)			
315 (12.40)	315 (12.40)	±4.05 (±0.16)			
400 (15.75)	400 (15.75)	±4.45 (±0.18)			
500 (19.69)	500 (19.69)	±4.85 (±0.19)			

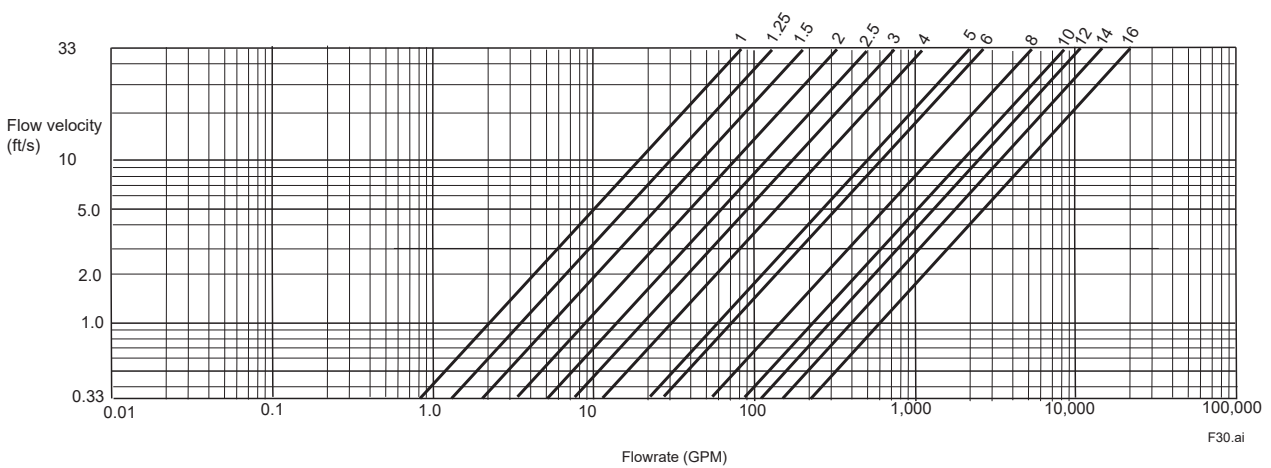
Remarks: The numeric is based on criteria of tolerance class IT18 in JIS B 0401-1.

■ SIZING DATA

SI Units Size: mm



English Units Size: inch



* Measurable flow velocity is from 0 m/s.

■ ORDERING INFORMATION

- Note 1:** When ordering, the span flow rate, unit, output pulse weight, and totalizer display pulse weight can be specified. These parameters will then be set before shipment. In the case of remote type, specify combination information of sensor and transmitter. These parameters will be set in the combined transmitter. When ordering of a remote sensor alone or a remote transmitter alone, these parameters cannot be specified. Custom configuration request is necessary for setting these parameters out of regular setting range.
- Note 2:** Some options, if ordered, require the relevant specifications to be input when ordering.
- Note 3:** When ordering AXFA11 as a combined remote transmitter, please also refer to the ordering information in GS 01E20D01-01E as there are some differences in ordering procedure and specification.

1. Model, Specification and Optional Code
2. Combination (Remote Type)

This is necessary when ordering remote type flowmeters with certain combination of sensors and transmitters. Specify the combination of a sensor and a transmitter one by one by their model name, specification code, or Tag No. etc. On the nameplate of each sensor and transmitter, the serial number of the specified combination partner is described.

3. Tag No.

The tag No. can be specified by a combination of uppercase letters, lowercase letters (for HART communication excludes lower case letters), numbers, "-" (hyphen), "." (period), and " " (space)". Please refer to the table below for specifying procedure.

Items to be Specified	Described / Setting Destination	Maximum Number of Characters
TAG NO	<ul style="list-style-type: none"> Nameplate Stainless steel tag plate (with optional code SCT) Memory in transmitter amplifier 	30
SOFTWARE TAG	<ul style="list-style-type: none"> Memory in transmitter amplifier (Overrides TAG NO designation) 	See below

In the case of integral type and remote transmitter, the characters specified by "TAG NO" are also written to the memory (parameter) in the transmitter amplifier. If it is necessary to specify a different tag number only for the transmitter memory, please specify "SOFTWARE TAG". It is also possible to specify only SOFTWARE TAG. Names of the parameter to be written and the maximum number of characters are as shown in the table below. If the number of specified characters exceed the maximum number, the characters from the beginning up to the maximum number is written.

Items to be Specified	Transmitter Memory		Maximum Number of Characters
	Communication	Parameter Name	
TAG NO	BRAIN	TAG NO	16
and SOFTWARE TAG	HART 7	Long Tag	30
		Tag	8

Note: For AXFA11 transmitter, the "TAG NO" is maximum 16 characters. And as its HART protocol is HART 5, the "Long Tag" is not available.

4. Span Flow Rate and Unit

Specify the range of span flow rate in the range of 0.0001 to 999999000000.0000 (the number of significant digits in operation is the upper 6 digits). Up to four digits below the decimal point that can be specified (by 0.001 unit). However, if the transmitter is BRAIN communication type, specify so that it is within the range of 0.0001 to 32000, it is up to four digits below the decimal point when it is included, and the numerical value excluding the decimal point is within 32000.

Specify units in the unit described in "Span Setting". This span flow rate is set to the positive first range. Be sure to specify the span flow rate and unit when selecting the Mass Unit Setting (optional code MU), Specified Span 5-point Calibration (optional code SC). If not specified, it is set in volume unit (m³/h) equivalent to 1 m/s flow rate when shipped, except for AXFA11 transmitter where it is set as 1 m/s in velocity unit.

The measurement flow range (minimum and maximum of span flow rate) is shown below (in the case of flow rate unit m³/h and GPM). Specify the span flow within this range. The range specifying different unit must also fall into the same flow rate (flow velocity) range after conversion.

- (1) Integral Type Flowmeter or Remote Sensor combined with AXW4A Transmitter

Measurable Flow Rate Range:

SI Units (Size: mm, Flow rate: m³/h)

Size (mm)	0 to Min. Span Flow Rate	0 to Max. Span Flow Rate
	m ³ /h (0.1 m/s)	m ³ /h (10 m/s)
25	0 to 0.1768	0 to 17.6714
32	0 to 0.2896	0 to 28.9529
40	0 to 0.4524	0 to 45.2389
50	0 to 0.7069	0 to 70.6858
65	0 to 1.1946	0 to 119.459
80	0 to 1.8096	0 to 180.955
100	0 to 2.8275	0 to 282.743
125	0 to 4.4179	0 to 441.786
150	0 to 6.3618	0 to 636.172
200	0 to 11.3098	0 to 1130.97
250	0 to 17.6715	0 to 1767.14
300	0 to 25.447	0 to 2544.69
350	0 to 34.6361	0 to 3463.6
400	0 to 45.239	0 to 4523.89

Measurable Flow Rate Range:

English Units (Size: in., Flow rate: GPM)

Size (in.)	0 to Min. Span Flow Rate GPM (0.33 ft/s)	0 to Max. Span Flow Rate GPM (33 ft/s)
1	0 to 0.7781	0 to 77.805
1.25	0 to 1.2748	0 to 127.475
1.5	0 to 1.9919	0 to 199.181
2	0 to 3.1123	0 to 311.22
2.5	0 to 5.2597	0 to 525.962
3	0 to 7.9673	0 to 796.724
4	0 to 12.4489	0 to 1244.88
5	0 to 19.4513	0 to 1945.12
6	0 to 28.0099	0 to 2800.98
8	0 to 49.7953	0 to 4979.52
10	0 to 77.8051	0 to 7780.5
12	0 to 112.04	0 to 11203.9
14	0 to 152.498	0 to 15249.7
16	0 to 199.182	0 to 19918.1

(2) Remote Sensor combined with AXFA11 Transmitter

Measurable Flow Rate Range:

SI Units (Size: mm, Flow rate: m³/h)

Size (mm)	0 to Min. Span Flow Rate m ³ /h (0.1 m/s)	0 to Max. Span Flow Rate m ³ /h (10 m/s)
25	0 to 0.1768	0 to 17.671
32	0 to 0.2896	0 to 28.952
40	0 to 0.4524	0 to 45.23
50	0 to 0.7069	0 to 70.68
65	0 to 1.1946	0 to 119.45
80	0 to 1.8096	0 to 180.95
100	0 to 2.8275	0 to 282.74
125	0 to 4.418	0 to 441.7
150	0 to 6.362	0 to 636.1
200	0 to 11.310	0 to 1130.9
250	0 to 17.672	0 to 1767.1
300	0 to 25.447	0 to 2544.6
350	0 to 34.64	0 to 3463
400	0 to 45.24	0 to 4523

Measurable Flow Rate Range:

English Units (Size: in., Flow rate: GPM)

Size (in.)	0 to Min. Span Flow Rate GPM (0.33 ft/s)	0 to Max. Span Flow Rate GPM (33 ft/s)
1	0 to 0.7781	0 to 77.80
1.25	0 to 1.216	0 to 121.5
1.5	0 to 1.751	0 to 175.0
2	0 to 3.113	0 to 311.2
2.5	0 to 4.863	0 to 486.2
3	0 to 7.003	0 to 700.2
4	0 to 12.45	0 to 1244
5	0 to 19.46	0 to 1945
6	0 to 28.01	0 to 2800
8	0 to 49.80	0 to 4979
10	0 to 77.81	0 to 7780
12	0 to 112.1	0 to 11203
14	0 to 152.5	0 to 15249
16	0 to 199.2	0 to 19918

5. Output Pulse Weight (Pulse Status Output 1)

Specify the volume flow per pulse, after specifying the span flow rate. This output pulse weight is set to the Pulse Status Output 1. Specify it in the same unit as the span flow rate.

(Example: When "m³" is selected as "Span Flow Rate", specify "10 m³/p" as pulse weight unit.)

The specifiable numerical digit and range is the same as that for "4. Span Flow Rate and Unit".

Unless specified, it is set as 0 [span unit/p] when shipped.

6. Totalizer Display Pulse Weight (Totalizer 1)

Specify the volume flow per pulse, after specifying the span flow rate. This totalizer display pulse weight is set to the Totalizer 1. Specify it in the same unit as the span flow rate.

(Example: When "m³" is selected as "Span Flow Rate", specify "10 m³/p" as totalizer display pulse weight unit.)

The specifiable numerical digit and range is the same as that for "4. Span Flow Rate and Unit".

Unless specified, it is set as 1 [span unit/p] when shipped, except for AXFA11 transmitter where it is set as 0. Additionally, if there were no setting for the span flow rate, it is always set as 0 [span unit/p] when shipped.

7. Mass Unit (optional code MU)

This option performs flow rate calculation in mass unit. In addition to fluid density, specify span flow rate, output pulse weight, and totalizer display pulse weight in mass unit.

The specifiable numerical digit and range is the same as that for "4. Span Flow Rate and Unit".

(1) Density

Numerical Range:

Specify within 6 digits (up to 4 digits below the decimal point) in the range of 500 to 2000 kg/m³ (4.2 to 16.7 lb/gal *, 31.2 to 124.8 lb/cf). If the transmitter is BRAIN communication type, specify so that the numerical value excluding the decimal point is within 32000.

Unit:

kg/m³, lb/gal, lb/cf

The density of water is about 1000 kg/m³. Then specify "1000 kg/m³" in this case. However, as the density varies with temperature, specify the density at the time of flow measurement.

(2) Span Flow Rate

Numerical Range:

When setting the mass span flow rate, calculate the volume span flow rate from the "density" and it must be within the measurable flow rate range. The settable numerical range for the mass span flow rate is the same as that for the volume span flow rate.

Unit:

Mass Unit: t, kg, g, klb, lb

Time Unit: /d, /h, /min, /s

(3) Output Pulse Weight, Totalizer Display Pulse Weight

Set the value with the same unit as that for the mass span flow rate.

8. Specified Span Five-point Calibration (optional code SC)

A flow test at the five points around 0, 25, 50, 75, 100% of the customer specified span is performed. In the test certificate (QIC), the result for the customer specified span is recorded instead of that for the standard flow rate of 2 m/s. Corresponding flow velocity of the selectable span lies between 0.5 to 10 m/s (1.64 to 33 ft/s) or 0.8 to 10 m/s (2.62 to 33 ft/s). The latter is applied when the size is 32, 65, or 125 mm (1.25, 2.5, or 5 in.). It is also limited by the capacity of our flow test facility. Specify it within the following range. The specifiable numerical digit and range is the same as that for "4. Span Flow Rate and Unit".

Selectable Range of Span Flow Rate (m³/h)

Size (mm)	Min. Span Flow Rate	Max. Span Flow Rate
	m ³ /h (m/s)	m ³ /h (m/s)
25	0.89 (0.5)	11.0 (6.22)
32	2.32 (0.8)	28.9 (9.98)
40	2.27 (0.5)	28.0 (6.19)
50	3.54 (0.5)	56.0 (7.92)
65	9.56 (0.8)	80.0 (6.70)
80	9.05 (0.5)	126 (6.96)
100	14.2 (0.5)	190 (6.72)
125	35.4 (0.8)	300 (6.79)
150	31.9 (0.5)	380 (5.97)
200	56.6 (0.5)	670 (5.92)
250	88.4 (0.5)	1000 (5.66)
300	128 (0.5)	1200 (4.72)
350	174 (0.5)	1200 (3.46)
400	227 (0.5)	1350 (2.98)

Selectable Range of Span Flow Rate (GPM)

Size (in.)	Min. Span Flow Rate	Max. Span Flow Rate
	GPM (ft/s)	GPM (ft/s)
1	3.8903 (1.64)	48.4315 (20.4)
1.25	10.1981 (2.62)	127.242 (32.7)
1.5	9.9591 (1.64)	123.28 (20.3)
2	15.5611 (1.64)	246.56 (25.9)
2.5	42.077 (2.62)	352.229 (21.9)
3	39.8363 (1.64)	554.761 (22.8)
4	62.2441 (1.64)	836.544 (22.0)
5	156.052 (2.62)	1320.86 (22.2)
6	140.05 (1.64)	1673.08 (19.5)
8	248.977 (1.64)	2949.92 (19.4)
10	389.026 (1.64)	4402.86 (18.5)
12	560.197 (1.64)	5283.44 (15.4)
14	762.49 (1.64)	5283.44 (11.3)
16	995.906 (1.64)	5943.87 (9.78)

9. Direction of Cable Entry (optional code RH)

This option rotates the transmitter part of the integral type flowmeter or the terminal box of the remote sensor and change the direction of the cable entry. Refer to the table below and specify either +90°, +180° or -90°. For the standard direction (0°), this optional code is not necessary.

	Direction of Cable Entry			
	Standard (0°)	+90° rotation	+180° rotation	-90° rotation
Integral Type				
Remote Sensor				

10. Direction of Display

When the specification "With Display" is selected for the integral type flowmeter or the remote transmitter, specify direction of the display. For the integral type flowmeter, specify according to the horizontal or vertical direction of the installation piping. For the remote transmitter, specify according to the positional relation of mounting bracket or mounting pipe.

	Direction of Display		Without Display
	Horizontal	Vertical	
Integral Type			
Remote Transmitter			

11. Fluid Name

RELATED INSTRUMENTS

Product	Document Number
AM012 Calibrator for Magnetic Flowmeter	GS 1E6K2-E
BT200 BRAIN TERMINAL	GS 01C00A11-00EN
AXFA11G Magnetic Flowmeter Remote Converter	GS 01E20C01-01E
ADMAG CA Capacitance Magnetic Flowmeter	GS 01E08B01-00E
FieldMate Versatile Device Management Wizard	GS 01R01A01-01E
ADMAG TI Series AXG Magnetic Flowmeter	GS 01E22A01-01EN
ADMAG TI Series AXW Magnetic Flowmeter [Size: 500 to 1800 mm]	GS 01E25D11-01EN

REFERENCE STANDARD

Design and Test on Magnetic Flowmeters:

JIS B 7554(1997), ISO 6817(1992), ISO 9104(1991), NAMUR NE70(2006), ASME MFC-16-2014

TRADEMARKS

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Note: The terms "transmitter" and "sensor" in this document are used in the same manner as "converter" and "flowtube" respectively which are used for our previous magnetic flowmeter models.