

General Specifications

AXW Magnetic Flowmeter Remote Flowtube

ADMAG AXW™

GS 01E25D11-01EN

■ GENERAL DESCRIPTION

The ADMAG AXW™ series of magnetic flow meters has been developed based on Yokogawa's decades long experience in Magnetic Flowmeters. The AXW series continues the tradition of high quality and reliability that has become synonymous with the Yokogawa name.

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

Sizes are available from 500 mm (20 in.) to 1800 mm (72 in.) with a wide liner selection such as PTFE, hard rubber, soft rubber, and polyurethane lining. Offering industry standard process connections such as ASME, AWWA, EN, JIS, and AS flange standards. A submersible version is also available.



■ STANDARD SPECIFICATIONS

Protection:

General-purpose type: IP66, IP67
Submersible type: IP68 (can be used for temporary submergence)

Note: Test Condition: 50 m below the surface of the water, equivalent to 0.5 MPa hydraulic pressure, for one month.

Cable should be protected at customer site. In the case of installations that are continuously submerged, contact Yokogawa office.

Material (non-wetted parts):

Flowtube:
Housing: Carbon steel
Flange: Carbon steel
Pipe: Stainless steel
Terminal box: Aluminum alloy

Material (wetted parts):

Lining:
Fluorocarbon PTFE
Natural hard rubber (plus EPDM for sealing)
Natural soft rubber
Polyurethane rubber
Contact Yokogawa office for others.

Electrode:
JIS SUS316L(AISI 316L SS Equivalent)
Hastelloy C276 Equivalent

Grounding ring (option):
JIS SUS304 or SUS304 (AISI 304 SS Equivalent)

Gasket (for option GR2):
Mixture of SBR and NR

Coating:

General-purpose type:
Pipe, Housing, Flange, Terminal Box:
Corrosion-resistant coating
Coating color: Mint green
Submersible type:
Pipe, Housing, Flange, Terminal Box:
Non-tar epoxy coating (black)

Wiring:

Electrical connection:
ANSI 1/2 NPT female
ISO M20 x 1.5 female
JIS G1/2 (PF1/2) female
Direction of Electrical Connection:
The direction can be changed even after delivery except for submersible type and DHC option type.
Wiring Terminal:
M4 screw

Grounding:

Grounding resistance 100 Ω or less

Combined Converter:

AXFA11 converter

Signal Cable:

AXFC, Maximum cable length to AXFA11 converter up to 200 m (660 ft)

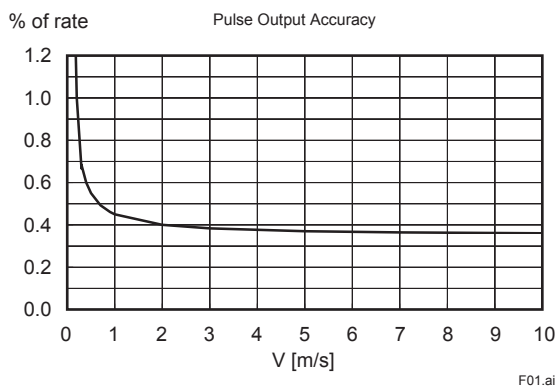
■ STANDARD PERFORMANCE

Accuracy (Pulse Output):

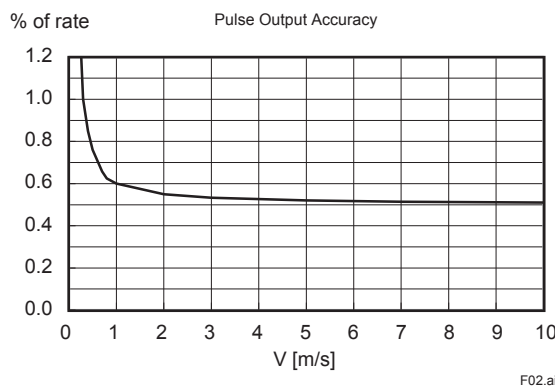
0.35% of rate for sizes 500 mm (20 in.) to 1000 mm (40 in.)
 0.5% of rate for sizes 1100 mm (44 in.) to 1800 mm (72 in.)

Size mm (in.)	Flow Velocity V m/s (ft/s)	Accuracy
500 (20) to 1000 (40)	$V < 0.3 (1.0)$	$\pm 2.0 \text{ mm/s}$
	$0.3 \leq V \leq 10 (1.0) (33)$	$\pm 0.35\% \text{ of rate } \pm 1.0 \text{ mm/s}$
1100 (44) to 1800 (72)	$V < 0.3 (1.0)$	$\pm 3.0 \text{ mm/s}$
	$0.3 \leq V < 1$	$\pm 0.4\% \text{ of rate } \pm 1.8 \text{ mm/s}$
	$1 \leq V \leq 10$	$\pm 0.5\% \text{ of rate } \pm 1.0 \text{ mm/s}$

For sizes 500 mm (20 in.) to 1000 mm (40 in.)



For sizes 1100 mm (44 in.) to 1800 mm (72 in.)



Note: The accuracy of a product before shipment is defined as totalized value at the result of calibration test in our water actual flow test facility.
 Calibrated conditions in our water actual test facility are as follows:

- Fluid temperature: $20 \pm 10^\circ\text{C}$
- Ambient temperature: $20 \pm 5^\circ\text{C}$
- Length of straight runs:
 - 10 D or more on the upstream side
 - 5 D or more on the downstream side
- Reference conditions:
 - Similar to BS EN29104, ISO 9104

Accuracy (Current Output):

Accuracy (Pulse Output) plus $\pm 0.05\%$ of span

Repeatability:

$\pm 0.2\%$ of rate ($V \geq 1 \text{ m/s (3.3 ft/s)}$)
 $\pm 0.1\%$ of rate $\pm 1 \text{ mm/s (} V < 1 \text{ m/s (3.3 ft/s))}$

Maximum Power Consumption:

Combined with AXFA11: 20 W

Insulation Resistance(*1):

Between excitation current terminal and signal / common terminals : 100 MΩ at 500 V DC
 Between signal terminals : 100 MΩ at 500 V DC
 Between signal terminals and common terminal (C) : 100 MΩ at 500 V DC

*1: CAUTION: Refer to the Instruction Manual when performing the insulation resistance test.

EMC Conformity Standards: **CE** N200

EN61326-1 Class A, Table2 (For use in industrial locations)
 EN61326-2-3
 EN61000-3-2 Class A
 EN61000-3-3

■ NORMAL OPERATING CONDITIONS

Ambient Temperature:

$-10 \text{ to } +60^\circ\text{C (} +14 \text{ to } +140^\circ\text{F)}$

Note: Minimum temperature should also be limited according to minimum fluid temperature of flow tube's specification. Refer to description of "Fluid Temperature and Pressure". Contact Yokogawa office for lower temperature.

Ambient Humidity:

0 to 100%

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

Fluid Conductivity:

20 μS/cm or larger for sizes 1000 mm and below
 50 μS/cm or larger for sizes 1100 mm and above

Measurable Flow Rate Range:

Size mm (in.)	Min. Span 0.1 m/s (0.33 ft/s)	Max. Span 10 m/s (33 ft/s)
500 (20)	0 to 70.69 m ³ /h (0 to 311.3 GPM)	0 to 7,068 m ³ /h (0 to 31,122 GPM)
600 (24)	0 to 101.79 (0 to 448.2)	0 to 10,178 (0 to 44,815)
700 (28)	0 to 138.55 (0 to 610.0)	0 to 13,854 (0 to 60,999)
800 (32)	0 to 180.96 (0 to 796.8)	0 to 18,095 (0 to 79,672)
900 (36)	0 to 229.03 (0 to 1,009)	0 to 22,902 (0 to 100,835)
1000 (40)	0 to 282.75 (0 to 1,245)	0 to 28,274 (0 to 124,488)

Size mm (in.)	Min. Span 0.3 m/s (1 ft/s)	Max. Span 10 m/s (33 ft/s)
1100 (44)	0 to 1,026.4 m ³ /h (0 to 4,519 GPM)	0 to 34,211 m ³ /h (0 to 150,630 GPM)
1200 (48)	0 to 1,221.5 (0 to 5,378)	0 to 40,715 (0 to 179,262)
1350 (54)	0 to 1,545.9 (0 to 6,807)	0 to 51,529 (0 to 226,879)
1400 (56)	0 to 1,662.5 (0 to 7,320)	0 to 55,418 (0 to 243,997)
1500 (60)	0 to 1,908.6 (0 to 8,403)	0 to 63,617 (0 to 280,098)
1600 (64)	0 to 2,171.5 (0 to 9,561)	0 to 72,382 (0 to 318,689)
1800 (72)	0 to 2,748.3 (0 to 12,101)	0 to 91,608 (0 to 403,341)

Fluid Temperature and Pressure:

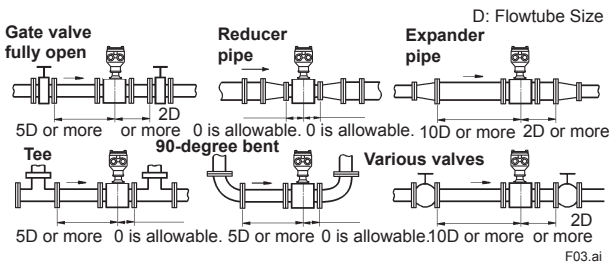
Note: The following values show maximum allowable fluid pressure for the flowtube. Further fluid pressure should also be limited according to flange rating.

Lining Material	Fluid Temperature	Fluid Pressure
Fluorocarbon PTFE	-10 to 120°C (14 to 248°F)	0 to 1 MPa (0 to 145 psi)
Natural hard rubber	-5 to 80°C (23 to 175°F)	0 to 1 MPa (0 to 145 psi)
Natural soft rubber	-10 to 70°C (14 to 158°F)	0 to 1 MPa (0 to 145 psi)
Polyurethane rubber	-10 to 40°C (14 to 104°F)	-0.1 to 1 MPa (-14.5 to 145 psi)

CAUTIONS FOR INSTALLATION

Straight Pipe Run

Based on JIS B7554 “Electromagnetic Flowmeters” and our piping condition test data, we recommend the piping conditions as shown in the following figures. When installing two or more magnetic flowmeters on a single pipe, provide a run of at least 10D 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 flowtube and to avoid startup from an empty condition.

Fluid Conductivity Change

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 indication. 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.

Mounting Positions

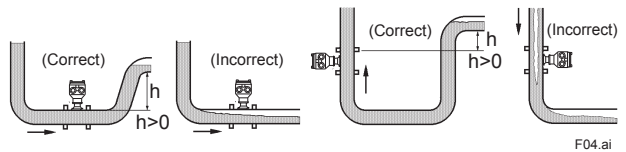
1. Pipe fully filled with liquid

It is essential that pipes remain fully filled at all times, otherwise flow rate indication may be affected and measurement errors may occur.

Piping shall be designed so as to maintain the flowtube filled with fluids.

Vertical mounting is effective in such cases as when fluids tend to separate or solid matter may precipitate.

When employing vertical mounting, direct the fluid from the bottom to the top to ensure that the pipe remains fully filled.



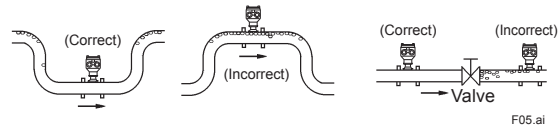
Mounting Positions

2. Avoiding Air Bubbles

If air bubbles arise in the pipe, flow rate indication may be affected and measurement errors may occur.

In cases where the fluid contains air bubbles, piping must be designed to prevent them from accumulating in the magnetic flowmeter flowtube.

If a valve exists near the flowtube, try to mount the flowtube 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.

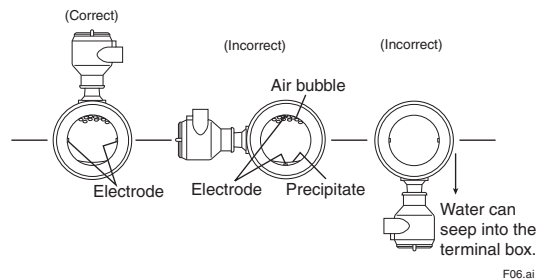


Avoiding Air Bubbles

3. 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 flowtube is mounted above the piping to prevent water from entering.

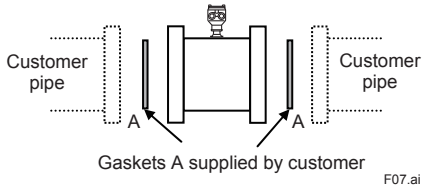


Mounting Orientation

Gaskets and Grounding Rings

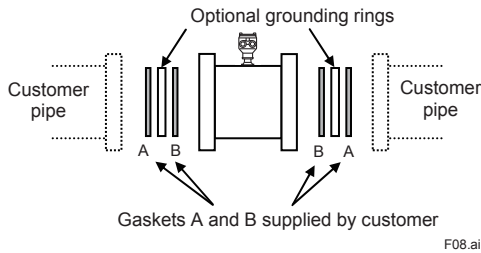
Necessary gaskets for piping connection are as below depending on the choice of grounding rings. Use sheet gaskets designed to fit for flange standard. The GF type-1 gaskets by JIS G 3443-2 should be used for the JIS F12 flange models in sizes 1100 mm (44 in.) and above. In this case, the gasket groove is required on the customer pipe flanges. The thickness of gasket should be 2mm (0.08in.) to 5mm (0.2in.) for sizes up to 1000 mm (40 in.), and 5 mm (0.2 in.) or more for larger sizes. The type of gasket should be a kind of soft rubber, or its equivalent in hardness.

1. Standard (no grounding rings)



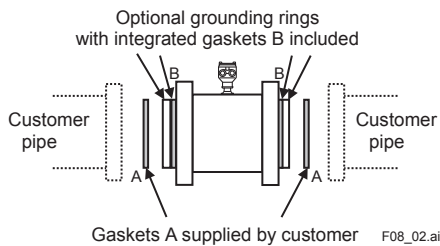
When using the GF type-1 gaskets, the gasket groove is required as mentioned above.

2. With optional grounding rings (code GR1)



It is recommended to use the same gasket for A and B. Both gaskets A and B are to be supplied by customer. When polyurethane or natural soft rubber lining, the gaskets B are not necessary.

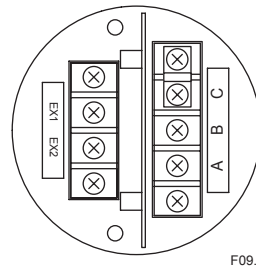
3. With optional grounding rings (code GR2)



This is available for the models with process connection JIS F12 (JIS 75M) in sizes 1100 mm (44 in.) and above. Only gaskets A are to be supplied by customer. The grounding rings are installed and locked onto the flowtube with gaskets B when shipped from factory.

■ TERMINAL ASSIGNMENT / WIRING

Terminal Assignment



Terminal Wiring

Terminal Symbols	Description
A B C	Flow signal output
EX1 EX2	Excitation current input
	Protective grounding (Outside of the terminal)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached.

Recommended Cable for Excitation, Power and Output

- JIS C3401 control cable equivalent
- JIS C3312 power cable equivalent
- 14 AWG Belden 8720 equivalent

Note: Operation conditions of the cable should be checked by customer.

Outer Diameter:

- 6.5 to 12 mm (0.26 to 0.47 in.)
- 10.5 to 11.5 mm (0.41 to 0.45 in.) for optional code EG, EU and EW.

Nominal Cross section

- Single wire: 0.5 to 2.5 mm²
- Stranded wire: 0.5 to 1.5 mm²

■ MODEL AND SUFFIX CODE

● For Process Connections other than JIS F12 (JIS 75M)

Model	Suffix Code	Description	Available Size / Model
AXW500		Size 500 mm (20 in.) Remote Flowtube	
AXW600		Size 600 mm (24 in.) Remote Flowtube	
AXW700		Size 700 mm (28 in.) Remote Flowtube	
AXW800		Size 800 mm (32 in.) Remote Flowtube	
AXW900		Size 900 mm (36 in.) Remote Flowtube	
AXW10L		Size 1000 mm (40 in.) Remote Flowtube	
AXW12L		Size 1200 mm (48 in.) Remote Flowtube	
AXW14L		Size 1400 mm (56 in.) Remote Flowtube	
AXW16L		Size 1600 mm (64 in.) Remote Flowtube	
AXW18L		Size 1800 mm (72 in.) Remote Flowtube	
Use	G	General-purpose type	
	W	Submersible type	
Converter	-N	Remote Flowtube for Combined Use with AXFA11	
Power Supply	N	Remote Flowtube	
Lining (*1)	F	Fluorocarbon PTFE	See "Process Connection"
	H	Natural Hard Rubber	See "Process Connection"
	D	Natural Soft Rubber	See "Process Connection"
	U	Polyurethane Rubber	See "Process Connection"
Electrode Material (*1)	L	JIS SUS316L (AISI 316L SS Equivalent)	
	H	Hastelloy C276 Equivalent	
Electrode Structure	1	Non-replaceable	
Grounding Structure (*2)	N	None (*3), available as optional feature (GR1)	
Process Connection (*4)	-CA1	ASME B16.5 Class 150 Flange (Carbon Steel)	500 mm (20 in.) and 600 mm (24 in.) for lining code F/H/D/U
		ASME B16.47 Series A Class 150 Flange (Carbon Steel)	700 mm (28 in.) to 1000 mm (40 in.) for lining code F/H/D/U
	-CB1	AWWA C207 Class D (Carbon Steel)	700 mm (28 in.) to 1000 mm (40 in.) for lining code F/H/D/U 1200 mm (48 in.) for lining code H
	-CEJ	EN1092-1 PN6 Flange (Carbon Steel)	1200 mm (48 in.) to 1800 mm (72 in.) for lining code H
	-CEK	EN1092-1 PN10 Flange (Carbon Steel) (fluid pressure up to 0.6 MPa)	
	-CE1	EN1092-1 PN10 Flange (Carbon Steel) (fluid pressure up to 1 MPa)	500 mm (20 in.) to 1000 mm (40 in.) for lining code F/H/D/U 1200 mm (48 in.) to 1800 mm (72 in.) for lining code H
	-CE2	EN1092-1 PN16 Flange (Carbon Steel) (fluid pressure up to 1 MPa)	500 mm (20 in.) to 1000 mm (40 in.) for lining code F/H/D/U
	-CJ1	JIS B2220 10K Flange (Carbon Steel)	
	-CS1	AS2129 Table D (Carbon Steel)	
	-CS2	AS2129 Table E (Carbon Steel)	500 mm (20 in.) to 1000 mm (40 in.) for lining code F/H/D/U
-CT1	AS4087 PN16 (Carbon Steel)		
Lay Length	N	Standard	
Electrical Connection	-0	JIS G1/2 female	
	-2	ANSI 1/2 NPT female	Not available for Submersible type
	-4	ISO M20 x 1.5 female	Not available for Submersible type
Indicator	N	None	
Calibration	B	Standard	
Optional Specifications	/□	Optional code	

*1: ⚠ 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.

*2: Select optional grounding rings (code GR1) if necessary. For example, grounding rings are necessary for plastic piping.

*3: "None" is applicable only for metal piping and wiring for grounding will be necessary so that the electric potentials between flowtube and piping flange should be the same.

*4: Contact Yokogawa office for ISO flange connection.

● For Process Connection JIS F12 (JIS 75M)

Model	Suffix Code	Description	Available Size / Model
AXW500		Size 500 mm (20 in.) Remote Flowtube	
AXW600		Size 600 mm (24 in.) Remote Flowtube	
AXW700		Size 700 mm (28 in.) Remote Flowtube	
AXW800		Size 800 mm (32 in.) Remote Flowtube	
AXW900		Size 900 mm (36 in.) Remote Flowtube	
AXW10L		Size 1000 mm (40 in.) Remote Flowtube	
AXW11L		Size 1100 mm (44 in.) Remote Flowtube	
AXW12L		Size 1200 mm (48 in.) Remote Flowtube	
AXW13L		Size 1350 mm (54 in.) Remote Flowtube	
AXW15L		Size 1500 mm (60 in.) Remote Flowtube	
AXW16L		Size 1600 mm (64 in.) Remote Flowtube	
AXW18L		Size 1800 mm (72 in.) Remote Flowtube	
Use	G	General-purpose type	
	W	Submersible type	
Converter	-N	Remote Flowtube for Combined Use with AXFA11	
Power Supply	N	Remote Flowtube	
Lining (*1)	U	Polyurethane Rubber	
Electrode Material (*1)	L	JIS SUS316L (AISI 316L SS Equivalent)	
	H	Hastelloy C276 Equivalent	
Electrode Structure	1	Non-replaceable	
Grounding Structure (*2)	N	None (*3), available as optional feature (GR1 or GR2)	
Process Connection	-CG1	JIS F12 (JIS 75M) Flange (Carbon Steel)	
Lay Length	N	Standard	
Electrical Connection	-0	JIS G1/2 female	
	-2	ANSI 1/2 NPT female	Not available for Submersible type
	-4	ISO M20 x 1.5 female	Not available for Submersible type
Indicator	N	None	
Calibration	B	Standard	
Optional Specifications	/□	Optional code	

*1: ⚠ 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.

*2: Select optional grounding rings (code GR1 or GR2) if necessary. For example, grounding rings are necessary for plastic piping. The code GR1 is optional only for sizes 500 mm (20 in.) to 1000 mm (40 in.). The code GR2 is optional only for sizes 1100 mm (44 in.) to 1800 mm (72 in.).

*3: "None" is applicable only for metal piping and wiring for grounding will be necessary so that the electric potentials between flowtube and piping flange should be the same.

OPTIONAL SPECIFICATIONS





○ : Available – : Not available

Item	Specifications	Applicable Model		Code
		General	Submersible	
		AXW***G	AXW***W	
Grounding Rings (*1)	JIS SUS304 (AISI 304 SS Equivalent), a set of two rings	○	○	GR1
Grounding Rings (*2)	SUSF304 (AISI 304 SS Equivalent), a set of two rings with gaskets "B".	○	○	GR2
For District Heating and Cooling or Condensation-proof	Urethane resin potting is applied in the terminal box of a remote flowtube. Select JIS G1/2 for the electrical connections. 30-meter dedicated signal and excitation cables are pre-wired and waterproof glands with union joints are attached at factory.	○	–	DHC
User-specified Signal and Excitation Cable Length	Available for the submersible type and a model with optional code DHC. The cable length is limited up to 200 meters combined with an AXFA11 converter. Following "L," specify the cable length in three digits as a multiple of 1 meter (e. g., 001, 002, or 005) for a length up to 5 meters, or as a multiple of 5 meters (i. e., 005, 010, 015, or the like) for a length of 5 meters or more. If this optional code is not selected, a 30-meter length cable is attached.	○	○	L***
Mass Unit Setting	The flow rate span, transmission pulse weight, and totalizer display pulse weight can be set in terms of mass unit. Specify the density of the process fluid when ordering in addition to the mass flow rate span, transmission pulse weight (for mass unit), and totalizer display pulse weight (for mass unit). When ordering a remote flowtube, parameters for 'Mass Unit Setting' will be set in the corresponding converter before shipment. 1. Density a. Available density Numerics: Specify the numeric within the value of 500 to 2000 kg/m ³ , 4.2 to 16.7 lb/gal, or 31.2 to 124.8 lb/cf. And it can be up to five digits, to a maximum of 32000 ignoring the decimal point. A fraction is limited to the fourth decimal place. b. Available density units: kg/m ³ , lb/gal, lb/cf Example: A water density is about 1000 kg/m ³ . In this case specify "1000kg/m ³ ". However a density is changed by temperature. Specify the actual density. (The 1000 kg/m ³ is equivalent to 8.345lb/gal and 62.43lb/cf.) 2. The mass flow rate span, transmission pulse weight, and totalizer display pulse weight a. Available density Numerics: Specify the numeric within the value of 0.0001 to 32000. And it can be up to five digits, to a maximum of 32000 ignoring the decimal point. A fraction is limited to the fourth decimal place. b. Mass Units Available mass units: t, kg, g, klb, lb Available time units: /d, /h, /min, /s Note1: In case of specifying the mass flow span, calculate the volumetric flow span by the setting density, and specify the available value in the mass flow span. Note2: In case of transmission pulse weight and totalizer display pulse weight, specify the mass unit which was specified as the flow unit.	○	○	MU
G3/4 Female Waterproof Glands	Waterproof glands for G3/4 conduits or flexible tubes are attached to the electrical connections. Available only for JIS G1/2 electric connections.	○	–	EW
Waterproof Glands	Waterproof glands are attached to the electrical connections. Available only for JIS G1/2 electric connections.	○	–	EG
Waterproof Glands with Union Joints	Waterproof glands with union joints are attached to the electrical connections. Available only for JIS G1/2 electric connections.	○	–	EU
Stainless Steel Tag Plate	A pendant tag plate of stainless steel (AISI 304 SS equivalent) is provided in addition to the standard nameplate with the tag number inscribed on it. Dimension (Height x Width): Approx. 12.5 (4.92) x 40 (15.7) mm (inch)	○	○	SCT
Direction Change of Electrical Connection (*3)	+90 degrees rotated terminal box to change the direction of the electrical connection.	○	○	RA
	+180 degrees rotated terminal box to change the direction of the electrical connection.	○	○	RB
	–90 degrees rotated terminal box to change the direction of the electrical connection.	○	○	RC
Material Certificate	Material certificates are provided for pipe, electrodes, flanges, and also optional grounding rings when specified.	○	○	M01

*1: This is not available for models with process connection JIS F12 (JIS 75M) of sizes 1100 mm (44 in.) to 1800 mm (72 in.). Refer to "CAUTIONS FOR INSTALLATION" on necessary gaskets.

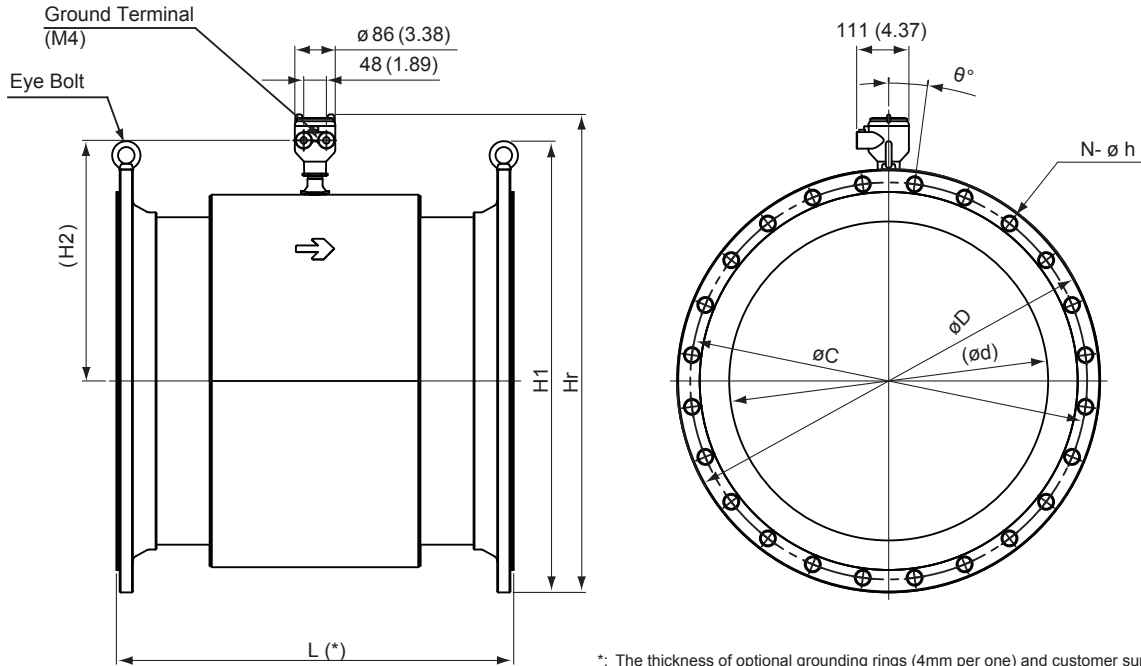
*2: This is available only for models with process connection JIS F12 (JIS 75M) of sizes 1100 mm (44 in.) to 1800 mm (72 in.). Refer to the page on "CAUTIONS FOR INSTALLATION" on necessary gaskets.

*3: Refer to the image below.

Standard	+90 degree rotation	+180 degree rotation	–90 degree rotation
	Optional Code RA	Optional Code RB	Optional Code RC
	Electrical Connection 		 Electrical Connection

■ DIMENSIONAL DRAWINGS

● AXW500 to AXW10L, Sizes 500 mm (20 in.) to 1000 mm (40 in.)



*: The thickness of optional grounding rings (4mm per one) and customer supplied gaskets are not included in "L" here.

F10.ai

(1) ASME Flange Type

Unit: mm (approx. in.)

Process Connection Code	CA1						
Flange Type	ASME B16.5 Class150		ASME B16.47 Class150				
Size Code	500	600	700	800	900	10L	
Size	500 (20)	600 (24)	700 (28)	800 (32)	900 (36)	1000 (40)	
Lining Code	H, F, U, D						
Lay Length L	600 (23.62)	720 (28.35)	840 (33.07)	960 (37.80)	1080 (42.52)	1200 (47.24)	
Flange Outer Diameter øD	700 (27.56)	815 (32.09)	927 (36.50)	1060 (41.75)	1168 (46.00)	1289 (50.75)	
Bolt Circle Diameter øC	635 (25.00)	749.3 (29.50)	863.6 (34.00)	977.9 (38.50)	1086 (42.75)	1200 (47.25)	
Inner Diameter ød	Lining H, F, D	477 (18.78)	578 (22.76)	675 (26.57)	777 (30.59)	878 (34.57)	976 (38.43)
	Lining U	469 (18.46)	570 (22.44)	667 (26.26)	769 (30.28)	870 (34.25)	968 (38.11)
Bolt Hole Pitch Half Angle θ	9°	9°	6.4°	6.4°	5.6°	5°	
Bolt Hole Diameter øh	31.8 (1.25)	34.9 (1.37)	35.1 (1.38)	41.1 (1.62)	41.1 (1.62)	41.1 (1.62)	
Number of Bolt Holes N	20	20	28	28	32	36	
Height H1	760 (29.92)	875 (34.45)	998 (39.29)	1150 (45.28)	1278 (50.31)	1399 (55.08)	
Height H2	408 (16.06)	459 (18.07)	509 (20.04)	560 (22.05)	611 (24.06)	662 (26.06)	
Height Hr	812 (31.97)	921 (36.26)	1027 (40.43)	1144 (45.04)	1249 (49.17)	1361 (53.58)	
Inner Diameter of Eye Bolt	35 (1.38)	35 (1.38)	40 (1.57)	50 (1.97)	60 (2.36)	60 (2.36)	
Approx. Weight, Unit: kg (lb)	212 (467)	305 (672)	479 (1056)	680 (1499)	882 (1944)	1125 (2480)	

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(2) AWWA Flange Type

Unit: mm (approx. in.)

Process Connection Code	CB1				
Flange Type	AWWA C207 Class D				
Size Code	700	800	900	10L	
Size	700 (28)	800 (32)	900 (36)	1000 (40)	
Lining Code	H, F, U, D				
Lay Length L	840 (33.07)	960 (37.80)	1080 (42.52)	1200 (47.24)	
Flange Outer Diameter ϕ D	927 (36.50)	1060 (41.75)	1168 (46.00)	1289 (50.75)	
Bolt Circle Diameter ϕ C	863.6 (34.00)	977.9 (38.50)	1086 (42.75)	1200 (47.25)	
Inner Diameter ϕ d	Lining H, F, D	675 (26.57)	777 (30.59)	878 (34.57)	976 (38.43)
	Lining U	667 (26.26)	769 (30.28)	870 (34.25)	968 (38.11)
Bolt Hole Pitch Half Angle θ	6.4°	6.4°	5.6°	5°	
Bolt Hole Diameter ϕ h	34.9 (1.375)	41.3 (1.625)	41.3 (1.625)	41.3 (1.625)	
Number of Bolt Holes N	28	28	32	36	
Height H1	987 (38.86)	1131 (44.53)	1239 (48.78)	1379 (54.29)	
Height H2	509 (20.04)	560 (22.05)	611 (24.06)	662 (26.06)	
Height Hr	1027 (40.43)	1144 (45.04)	1249 (49.17)	1361 (53.58)	
Inner Diameter of Eye Bolt	35 (1.38)	40 (1.57)	40 (1.57)	50 (1.97)	
Approx. Weight, Unit: kg (lb)	288 (635)	387 (853)	485 (1069)	659 (1453)	

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(3) EN PN10 Flange Type

Unit: mm (approx. in.)

Process Connection Code	CE1						
Flange Type	EN1092-1 PN10						
Size Code	500	600	700	800	900	10L	
Size	500 (20)	600 (24)	700 (28)	800 (32)	900 (36)	1000 (40)	
Lining Code	H, F, U, D						
Lay Length L	600 (23.62)	720 (28.35)	840 (33.07)	960 (37.80)	1080 (42.52)	1200 (47.24)	
Flange Outer Diameter ϕ D	670 (26.38)	780 (30.71)	895 (35.24)	1015 (39.96)	1115 (43.90)	1230 (48.43)	
Bolt Circle Diameter ϕ C	620 (24.41)	725 (28.54)	840 (33.07)	950 (37.40)	1050 (41.34)	1160 (45.67)	
Inner Diameter ϕ d	Lining H, F, D	477 (18.78)	578 (22.76)	675 (26.57)	777 (30.59)	878 (34.57)	976 (38.43)
	Lining U	469 (18.46)	570 (22.44)	667 (26.26)	769 (30.28)	870 (34.25)	968 (38.11)
Bolt Hole Pitch Half Angle θ	9°	9°	7.5°	7.5°	6.4°	6.4°	
Bolt Hole Diameter ϕ h	26 (1.02)	30 (1.18)	30 (1.18)	33 (1.30)	33 (1.30)	36 (1.42)	
Number of Bolt Holes N	20	20	24	24	28	28	
Height H1	730 (28.74)	840 (33.07)	955 (37.60)	1086 (42.76)	1186 (46.69)	1320 (51.97)	
Height H2	408 (16.06)	459 (18.07)	509 (20.04)	560 (22.05)	611 (24.06)	662 (26.06)	
Height Hr	797 (31.38)	903 (35.51)	1011 (39.80)	1122 (44.17)	1223 (48.15)	1331 (52.40)	
Inner Diameter of Eye Bolt	35 (1.38)	35 (1.38)	35 (1.38)	40 (1.57)	40 (1.57)	50 (1.97)	
Approx. Weight, Unit: kg (lb)	170 (375)	232 (511)	285 (628)	380 (838)	491 (1082)	646 (1424)	

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(4) EN PN16 Flange Type (fluid pressure up to 1 MPa)

Unit: mm (approx. in.)

Process Connection Code		CE2					
Flange Type		EN1092-1 PN16					
Size Code		500	600	700	800	900	10L
Size		500 (20)	600 (24)	700 (28)	800 (32)	900 (36)	1000 (40)
Lining Code		H, F, U, D					
Lay Length L		600 (23.62)	720 (28.35)	840 (33.07)	960 (37.80)	1080 (42.52)	1200 (47.24)
Flange Outer Diameter ϕ D		715 (28.15)	840 (33.07)	910 (35.83)	1025 (40.35)	1125 (44.29)	1255 (49.41)
Bolt Circle Diameter ϕ C		650 (25.59)	770 (30.31)	840 (33.07)	950 (37.40)	1050 (41.34)	1170 (46.06)
Inner Diameter ϕ d	Lining H, F, D	477 (18.78)	578 (22.76)	675 (26.57)	777 (30.59)	878 (34.57)	976 (38.43)
	Lining U	469 (18.46)	570 (22.44)	667 (26.26)	769 (30.28)	870 (34.25)	968 (38.11)
Bolt Hole Pitch Half Angle θ		9°	9°	7.5°	7.5°	6.4°	6.4°
Bolt Hole Diameter ϕ h		33 (1.30)	36 (1.42)	36 (1.42)	39 (1.54)	39 (1.54)	42 (1.65)
Number of Bolt Holes N		20	20	24	24	28	28
Height H1		775 (30.51)	900 (35.43)	970 (38.19)	1096 (43.15)	1196 (47.09)	1345 (52.95)
Height H2		408 (16.06)	459 (18.07)	509 (20.04)	560 (22.05)	611 (24.06)	662 (26.06)
Height Hr		820 (32.28)	933 (36.73)	1018 (40.08)	1127 (44.37)	1228 (48.37)	1344 (52.91)
Inner Diameter of Eye Bolt		35 (1.38)	35 (1.38)	35 (1.38)	40 (1.57)	40 (1.57)	50 (1.97)
Approx. Weight, Unit: kg (lb)		230 (507)	350 (772)	330 (728)	427 (941)	535 (1179)	742 (1636)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(5) JIS 10K Flange Type

Unit: mm (approx. in.)

Process Connection Code		CJ1					
Flange Type		JIS B2220 10K					
Size Code		500	600	700	800	900	10L
Size		500 (20)	600 (24)	700 (28)	800 (32)	900 (36)	1000 (40)
Lining Code		H, F, U, D					
Lay Length L		600 (23.62)	720 (28.35)	840 (33.07)	960 (37.80)	1080 (42.52)	1200 (47.24)
Flange Outer Diameter ϕ D		675 (26.57)	795 (31.30)	905 (35.63)	1020 (40.16)	1120 (44.09)	1235 (48.62)
Bolt Circle Diameter ϕ C		620 (24.41)	730 (28.74)	840 (33.07)	950 (37.40)	1050 (41.34)	1160 (45.67)
Inner Diameter ϕ d	Lining H, F, D	477 (18.78)	578 (22.76)	675 (26.57)	777 (30.59)	878 (34.57)	976 (38.43)
	Lining U	469 (18.46)	570 (22.44)	667 (26.26)	769 (30.28)	870 (34.25)	968 (38.11)
Bolt Hole Pitch Half Angle θ		9°	9°	7.5°	6.4°	6.4°	6.4°
Bolt Hole Diameter ϕ h		27 (1.06)	33 (1.30)	33 (1.30)	33 (1.30)	33 (1.30)	39 (1.54)
Number of Bolt Holes N		20	24	24	28	28	28
Height H1		735 (28.94)	855 (33.66)	965 (37.99)	1091 (42.95)	1191 (46.89)	1325 (52.17)
Height H2		408 (16.06)	459 (18.07)	509 (20.04)	560 (22.05)	611 (24.06)	662 (26.06)
Height Hr		800 (31.50)	911 (35.87)	1016 (40.00)	1124 (44.25)	1225 (48.23)	1334 (52.2)
Inner Diameter of Eye Bolt		35 (1.38)	35 (1.38)	35 (1.38)	40 (1.57)	40 (1.57)	50 (1.97)
Approx. Weight, Unit: kg (lb)		156 (344)	223 (492)	310 (683)	408 (899)	522 (1151)	689 (1519)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(6) AS2129 Table D Flange Type

Unit: mm (approx. in.)

Process Connection Code		CS1					
Flange Type		AS2129 Table D					
Size Code		500	600	700	800	900	10L
Size		500 (20)	600 (24)	700 (28)	800 (32)	900 (36)	1000 (40)
Lining Code		H, F, U, D					
Lay Length L		600 (23.62)	720 (28.35)	840 (33.07)	960 (37.80)	1080 (42.52)	1200 (47.24)
Flange Outer Diameter ϕ D		705 (27.76)	825 (32.48)	910 (35.83)	1060 (41.73)	1175 (46.26)	1255 (49.41)
Bolt Circle Diameter ϕ C		641 (25.24)	756 (29.76)	845 (33.27)	984 (38.74)	1092 (42.99)	1175 (46.26)
Inner Diameter ϕ d	Lining H, F, D	477 (18.78)	578 (22.76)	675 (26.57)	777 (30.59)	878 (34.57)	976 (38.43)
	Lining U	469 (18.46)	570 (22.44)	667 (26.26)	769 (30.28)	870 (34.25)	968 (38.11)
Bolt Hole Pitch Half Angle θ		11.3°	11.3°	9°	9°	7.5°	7.5°
Bolt Hole Diameter ϕ h		26 (1.02)	30 (1.18)	30 (1.18)	36 (1.42)	36 (1.42)	36 (1.42)
Number of Bolt Holes N		16	16	20	20	24	24
Height H1		765 (30.12)	885 (34.84)	970 (38.19)	1131 (44.53)	1265 (49.80)	1345 (52.95)
Height H2		408 (16.06)	459 (18.07)	509 (20.04)	560 (22.05)	611 (24.06)	662 (26.06)
Height Hr		815 (32.09)	926 (36.46)	1018 (40.08)	1144 (45.04)	1253 (49.33)	1344 (52.91)
Inner Diameter of Eye Bolt		35 (1.38)	35 (1.38)	35 (1.38)	40 (1.57)	50 (1.97)	50 (1.97)
Approx. Weight, Unit: kg (lb)		157 (346)	225 (496)	290 (639)	433 (977)	594 (1310)	728 (1605)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(7) AS2129 Table E Flange Type

Unit: mm (approx. in.)

Process Connection Code		CS2					
Flange Type		AS2129 Table E					
Size Code		500	600	700	800	900	10L
Size		500 (20)	600 (24)	700 (28)	800 (32)	900 (36)	1000 (40)
Lining Code		H, F, U, D					
Lay Length L		600 (23.62)	720 (28.35)	840 (33.07)	960 (37.80)	1080 (42.52)	1200 (47.24)
Flange Outer Diameter ϕ D		705 (27.76)	825 (32.48)	910 (35.83)	1060 (41.73)	1175 (46.26)	1255 (49.41)
Bolt Circle Diameter ϕ C		641 (25.24)	756 (29.76)	845 (33.27)	984 (38.74)	1092 (42.99)	1175 (45.67)
Inner Diameter ϕ d	Lining H, F, D	477 (18.78)	578 (22.76)	675 (26.57)	777 (30.59)	878 (34.57)	976 (38.43)
	Lining U	469 (18.46)	570 (22.44)	667 (26.26)	769 (30.28)	870 (34.25)	968 (38.11)
Bolt Hole Pitch Half Angle θ		11.3°	11.3°	9°	9°	7.5°	7.5°
Bolt Hole Diameter ϕ h		26 (1.02)	33 (1.30)	33 (1.30)	36 (1.42)	36 (1.42)	39 (1.54)
Number of Bolt Holes N		16	16	20	20	24	24
Height H1		765 (30.12)	885 (34.84)	970 (38.19)	1131 (44.53)	1265 (49.80)	1345 (52.95)
Height H2		408 (16.06)	459 (18.07)	509 (20.04)	560 (22.05)	611 (24.06)	662 (26.06)
Height Hr		815 (32.09)	926 (36.46)	1018 (40.08)	1144 (45.04)	1253 (49.33)	1344 (52.91)
Inner Diameter of Eye Bolt		35 (1.38)	35 (1.38)	35 (1.38)	40 (1.57)	50 (1.97)	50 (1.97)
Approx. Weight, Unit: kg (lb)		184 (406)	288 (635)	354 (780)	508 (1120)	703 (1550)	832 (1834)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(8) AS4087 PN16 Flange Type

Unit: mm (approx. in.)

Process Connection Code		CT1					
Flange Type		AS4087 PN16					
Size Code		500	600	700	800	900	10L
Size		500 (20)	600 (24)	700 (28)	800 (32)	900 (36)	1000 (40)
Lining Code		H, F, U, D					
Lay Length L		600 (23.62)	720 (28.35)	840 (33.07)	960 (37.80)	1080 (42.52)	1200 (47.24)
Flange Outer Diameter ϕ D		705 (27.76)	825 (32.48)	910 (35.83)	1060 (41.73)	1175 (46.26)	1255 (49.41)
Bolt Circle Diameter ϕ C		641 (25.24)	756 (29.76)	845 (33.27)	984 (38.74)	1092 (42.99)	1175 (45.67)
Inner Diameter ϕ d	Lining H, F, D	477 (18.78)	578 (22.76)	675 (26.57)	777 (30.59)	878 (34.57)	976 (38.43)
	Lining U	469 (18.46)	570 (22.44)	667 (26.26)	769 (30.28)	870 (34.25)	968 (38.11)
Bolt Hole Pitch Half Angle θ		11.3°	11.3°	9°	9°	7.5°	7.5°
Bolt Hole Diameter ϕ h		26 (1.02)	30 (1.18)	30 (1.18)	36 (1.42)	36 (1.42)	36 (1.42)
Number of Bolt Holes N		16	16	20	20	24	24
Height H1		765 (30.12)	885 (34.84)	970 (38.19)	1131 (44.53)	1265 (49.80)	1345 (52.95)
Height H2		408 (16.06)	459 (18.07)	509 (20.04)	560 (22.05)	611 (24.06)	662 (26.06)
Height Hr		815 (32.09)	926 (36.46)	1018 (40.08)	1144 (45.04)	1253 (49.33)	1344 (52.91)
Inner Diameter of Eye Bolt		35 (1.38)	35 (1.38)	35 (1.38)	40 (1.57)	50 (1.97)	50 (1.97)
Approx. Weight, Unit: kg (lb)		184 (406)	288 (635)	374 (825)	520 (1146)	716 (1579)	826 (1821)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

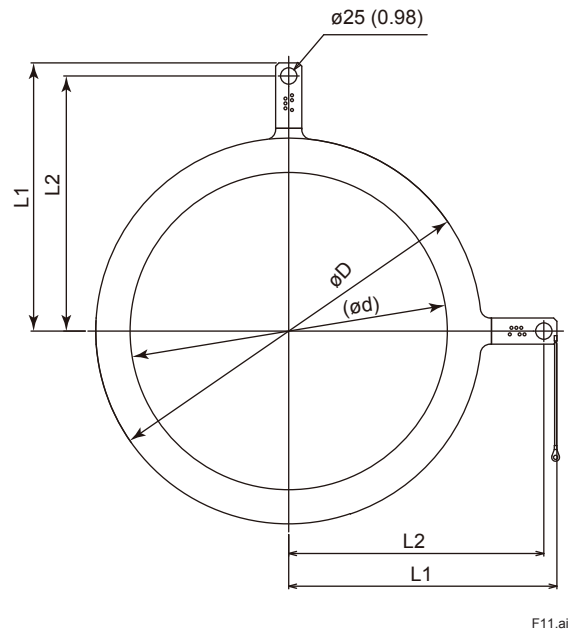
(9) JIS F12 (JIS 75M) Flange Type

Unit: mm (approx. in.)

Process Connection Code		CG1					
Flange Type		JIS G3443-2 F12					
Size Code		500	600	700	800	900	10L
Size		500 (20)	600 (24)	700 (28)	800 (32)	900 (36)	1000 (40)
Lining Code		U					
Lay Length L		600 (23.62)	720 (28.35)	840 (33.07)	960 (37.80)	1080 (42.52)	1200 (47.24)
Flange Outer Diameter ϕ D		706 (27.80)	810 (31.89)	928 (36.54)	1034 (40.71)	1156 (45.51)	1262 (49.69)
Bolt Circle Diameter ϕ C		639 (25.16)	743 (29.25)	854 (33.62)	960 (37.80)	1073 (42.24)	1179 (46.42)
Inner Diameter ϕ d	Lining U	469 (18.46)	570 (22.44)	667 (26.26)	769 (30.28)	870 (34.25)	968 (38.11)
Bolt Hole Pitch Half Angle θ		15°	11.3°	11.3°	9°	9°	7.5°
Bolt Hole Diameter ϕ h		27 (1.06)	27 (1.06)	33 (1.30)	33 (1.30)	33 (1.30)	33 (1.30)
Number of Bolt Holes N		12	16	16	20	20	24
Height H1		766 (30.16)	870 (34.25)	988 (38.90)	1105 (43.50)	1227 (48.31)	1352 (53.23)
Height H2		408 (16.06)	459 (18.07)	509 (20.04)	560 (22.05)	611 (24.06)	662 (26.06)
Height Hr		816 (32.13)	919 (36.18)	1028 (40.47)	1132 (44.57)	1245 (49.02)	1349 (53.11)
Inner Diameter of Eye Bolt		35 (1.38)	35 (1.38)	35 (1.38)	40 (1.57)	40 (1.57)	50 (1.97)
Approx. Weight, Unit: kg (lb)		168 (370)	228 (503)	319 (703)	404 (891)	540 (1190)	703 (1550)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

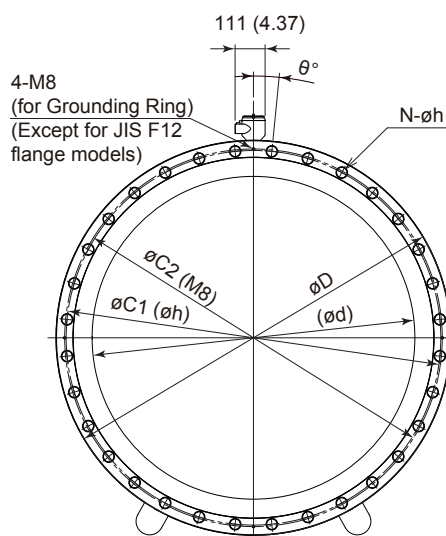
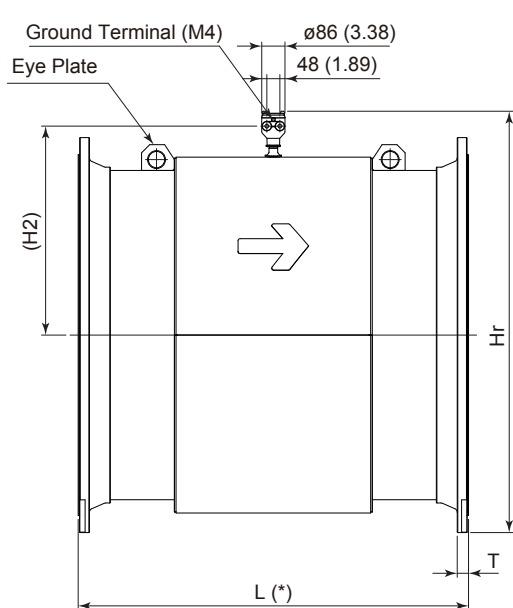
● Optional Grounding Rings (GR1) for sizes 500 mm (20 in.) to 1000 mm (40 in.)



Unit: mm (approx. in.)

Process Connection Code	CA1, CB1, CE1, CE2, CJ1, CS1, CS2, CT1, CG1					
Size Code	500	600	700	800	900	10L
Size	500 (20)	600 (24)	700 (28)	800 (32)	900 (36)	1000 (40)
Lining Code	H, F, U, D					
Ring Outer Diameter øD	590 (23.23)	690 (27.17)	799 (31.46)	906 (35.67)	1006 (39.61)	1116 (43.94)
Ring Inner Diameter ød	485 (19.09)	586 (23.07)	683 (26.89)	787 (30.98)	888 (34.96)	986 (38.82)
Length L1	410 (16.14)	477.5 (18.80)	517.5 (20.37)	586 (23.07)	640 (25.20)	697.5 (27.46)
Length L2	390 (15.35)	457.5 (18.01)	497.5 (19.59)	566 (22.28)	620 (24.41)	677.5 (26.67)
Thickness	4 (0.16)					
Approx. Weight, Unit: kg (lb)	3.1 (6.8)	3.7 (8.1)	4.6 (10.2)	5.4 (12.0)	6.0 (13.3)	7.3 (16.1)

● AXW11L to AXW18L, Sizes 1100 mm (44 in.) to 1800 mm (72 in.)



*: The thickness of optional grounding rings (5 mm for GR1 and 25 mm for GR2 per one) and customer supplied gaskets are not included in "L" here.

F12.ai

(1) AWWA Flange Type

Unit: mm (approx. in.)

Process Connection Code	CB1	
Flange Type	AWWA C207 Class D	
Size Code	12L	
Size	1200 (48)	
Lining Code	H	
Lay Length L	1440 (56.69)	
Flange Outer Diameter ϕD	1511.3 (59.50)	
Flange Bolt Circle Diameter $\phi C1$	1422.4 (56.00)	
Ring Bolt Circle Diameter $\phi C2$	1426 (56.14)	
Inner Diameter ϕd	Lining H	1189 (46.81)
Bolt Hole Pitch Half Angle θ	4.1°	
Bolt Hole Diameter ϕh	41.3 (1.625)	
Number of Bolt Holes N	44	
Height H2	770 (30.31)	
Height Hr	1580 (62.20)	
Inner Diameter of Eye Plate	60 (2.36)	
Approx. Weight, Unit: kg (lb)	930 (2050)	

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(2) EN PN6 Flange Type

Unit: mm (approx. in.)

Process Connection Code		CEJ			
Flange Type		EN1092-1 PN6			
Size Code		12L	14L	16L	18L
Size		1200 (48)	1400 (56)	1600 (64)	1800 (72)
Lining Code		H			
Lay Length L		1440 (56.69)	1680 (66.14)	1920 (75.59)	2160 (85.04)
Flange Outer Diameter ϕ D		1405 (55.31)	1630 (64.17)	1830 (72.05)	2045 (80.51)
Flange Bolt Circle Diameter ϕ C1		1340 (52.76)	1560 (61.42)	1760 (69.29)	1970 (77.56)
Ring Bolt Circle Diameter ϕ C2		1356 (53.39)	1572 (61.89)	1772 (69.76)	1981 (77.99)
Inner Diameter ϕ d	Lining H	1195 (47.05)	1398 (55.04)	1586 (62.44)	1784 (70.24)
Bolt Hole Pitch Half Angle θ		5.6°	5°	4.5°	4.1°
Bolt Hole Diameter ϕ h		33 (1.30)	36 (1.42)	36 (1.42)	39 (1.54)
Number of Bolt Holes N		32	36	40	44
Height H2		770 (30.31)	873 (34.37)	969 (38.15)	1068 (42.05)
Height Hr		1527 (60.12)	1742 (69.49)	1938 (76.30)	2145 (84.45)
Inner Diameter of Eye Plate		60 (2.36)	70 (2.76)	70 (2.76)	80 (3.15)
Approx. Weight, Unit: kg (lb)		620 (1367)	920 (2028)	1310 (2888)	1670 (3682)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(3) EN PN10 Flange Type (fluid pressure up to 0.6 MPa)

Unit: mm (approx. in.)

Process Connection Code		CEK			
Flange Type		EN1092-1 PN10			
Size Code		12L	14L	16L	18L
Size		1200 (48)	1400 (56)	1600 (64)	1800 (72)
Lining Code		H			
Lay Length L		1440 (56.69)	1680 (66.14)	1920 (75.59)	2160 (85.04)
Flange Outer Diameter ϕ D		1455 (57.28)	1675 (65.94)	1915 (75.39)	2115 (83.27)
Flange Bolt Circle Diameter ϕ C1		1380 (54.33)	1590 (62.60)	1820 (71.65)	2020 (79.53)
Ring Bolt Circle Diameter ϕ C2		1391 (54.76)	1596 (62.83)	1822 (71.73)	2022 (79.61)
Inner Diameter ϕ d	Lining H	1195 (47.05)	1398 (55.04)	1586 (62.44)	1784 (70.24)
Bolt Hole Pitch Half Angle θ		5.6°	5°	4.5°	4.1°
Bolt Hole Diameter ϕ h		39 (1.54)	42 (1.65)	48 (1.89)	48 (1.89)
Number of Bolt Holes N		32	36	40	44
Height H2		770 (30.31)	873 (34.37)	969 (38.15)	1068 (42.05)
Height Hr		1552 (61.10)	1765 (69.49)	1981 (77.99)	2180 (85.83)
Inner Diameter of Eye Plate		60 (2.36)	70 (2.76)	70 (2.76)	80 (3.15)
Approx. Weight, Unit: kg (lb)		790 (1742)	1120 (2469)	1720 (3792)	2130 (4696)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(4) EN PN10 Flange Type

Unit: mm (approx. in.)

Process Connection Code		CE1			
Flange Type		EN1092-1 PN10			
Size Code		12L	14L	16L	18L
Size		1200 (48)	1400 (56)	1600 (64)	1800 (72)
Lining Code		H			
Lay Length L		1440 (56.69)	1680 (66.14)	1920 (75.59)	2160 (85.04)
Flange Outer Diameter ϕ D		1455 (57.28)	1675 (65.94)	1915 (75.39)	2115 (83.27)
Flange Bolt Circle Diameter ϕ C1		1380 (54.33)	1590 (62.60)	1820 (71.65)	2020 (79.53)
Ring Bolt Circle Diameter ϕ C2		1391 (54.76)	1596 (62.83)	1822 (71.73)	2022 (79.61)
Inner Diameter ϕ d	Lining H	1189 (16.81)	1390 (54.72)	1582 (62.28)	1776 (69.92)
Bolt Hole Pitch Half Angle θ		5.6°	5°	4.5°	4.1°
Bolt Hole Diameter ϕ h		39 (1.54)	42 (1.65)	48 (1.89)	48 (1.89)
Number of Bolt Holes N		32	36	40	44
Height H2		770 (30.31)	873 (34.37)	969 (38.15)	1068 (42.05)
Height Hr		1552 (61.10)	1765 (69.49)	1981 (77.99)	2180 (85.83)
Inner Diameter of Eye Plate		60 (2.36)	70 (2.76)	70 (2.76)	80 (3.15)
Approx. Weight, Unit: kg (lb)		920 (2028)	1340 (2954)	1860 (4101)	2510 (5534)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

(5) AS2129 Table D, AS2129 Table E, AS4087 PN16 Flange Type

Unit: mm (approx. in.)

Process Connection Code		CS1	CS2	CT1
Flange Type		AS2129 Table D	AS2129 Table E	AS4087 PN16
Size Code		12L		
Size		1200 (48)		
Lining Code		H		
Lay Length L		1440 (56.69)	1440 (56.69)	1440 (56.69)
Flange Outer Diameter ϕ D		1490 (58.66)	1490 (58.66)	1490 (58.66)
Flange Bolt Circle Diameter ϕ C1		1410 (55.51)	1410 (55.51)	1410 (55.51)
Ring Bolt Circle Diameter ϕ C2		1426 (56.14)	1426 (56.14)	1426 (56.14)
Inner Diameter ϕ d	Lining H	1189 (46.81)	1189 (46.81)	1189 (46.81)
Bolt Hole Pitch Half Angle θ		5.6°	5.6°	5.6°
Bolt Hole Diameter ϕ h		36 (1.42)	39 (1.54)	36 (1.42)
Number of Bolt Holes N		32	32	32
Height H2		770 (30.31)	770 (30.31)	770 (30.31)
Height Hr		1570 (61.81)	1570 (61.81)	1570 (61.81)
Inner Diameter of Eye Plate		60 (2.36)	60 (2.36)	60 (2.36)
Approx. Weight, Unit: kg (lb)		1050 (2315)	1210 (2668)	1180 (2601)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

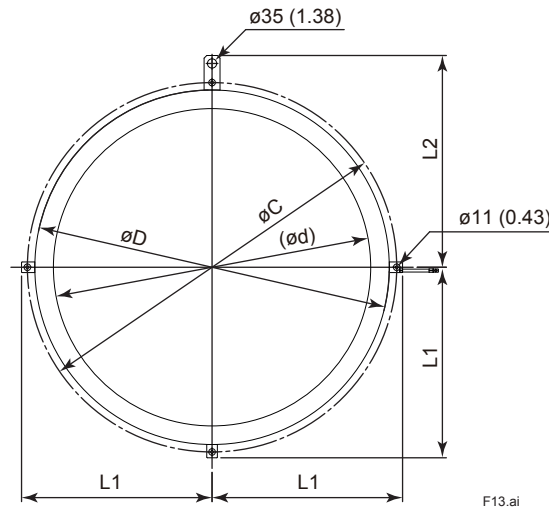
(6) JIS F12 (JIS 75M) Flange Type

Unit: mm (approx. in.)

Process Connection Code		CG1					
Flange Type		JIS G3443-2 F12					
Size Code		11L	12L	13L	15L	16L	18L
Size		1100 (44)	1200 (48)	1350 (54)	1500 (60)	1600 (64)	1800 (72)
Lining Code		U					
Lay Length L		1320 (51.97)	1440 (56.69)	1620 (63.78)	1800 (70.87)	1920 (75.59)	2160 (85.04)
Flange Outer Diameter ϕ D		1366 (53.78)	1470 (57.87)	1642 (64.65)	1800 (70.87)	1915 (75.39)	2115 (83.27)
Bolt Circle Diameter ϕ C		1283 (50.51)	1387 (54.61)	1552 (61.10)	1710 (67.32)	1820 (71.65)	2020 (79.53)
Grounding Ring Inner Diameter ϕ d	Lining U	1071 (42.17)	1172 (46.14)	1322 (52.05)	1469 (57.83)	1565 (61.61)	1759 (69.25)
Bolt Hole Pitch Half Angle θ		7.5°	6.4°	6.4°	5.6°	5°	4.1°
Bolt Hole Diameter ϕ h		33 (1.30)	33 (1.30)	39 (1.54)	39 (1.54)	39 (1.54)	39 (1.54)
Number of Bolt Holes N		24	28	28	32	36	44
Height H2		720 (28.35)	770 (30.31)	873 (34.37)	921 (36.26)	969 (38.15)	1068 (42.05)
Height Hr		1457 (57.36)	1560 (61.42)	1723 (67.83)	1875 (73.82)	1981 (77.99)	2180 (85.83)
Inner Diameter of Eye Plate		60 (2.36)	60 (2.36)	70 (2.76)	70 (2.76)	70 (2.76)	80 (3.15)
Approx. Weight, Unit: kg (lb)		910 (2006)	1060 (2337)	1430 (3153)	1770 (3902)	2090 (4608)	2890 (6371)

Note: When submersible type or option code DHC is selected, waterproof glands and a 30-meter length cable are attached. Add 9.5 kg (20.9 lb) to the weight in the table.

● **Optional Grounding Rings (GR1) for sizes 1200 mm (48 in.) to 1800 mm (72 in.)**



Unit: mm (approx. in.)

Process Connection Code	CB1, CS1, CS2, CT1	CEJ				CEK, CE1			
Flange Type	AWWA C207-D AS2129-D,E AS4087 PN16	EN1092-1 PN6				EN1092-1 PN10			
Size Code	12L	12L	14L	16L	18L	12L	14L	16L	18L
Size	1200 (48)	1200 (48)	1400 (56)	1600 (64)	1800 (72)	1200 (48)	1400 (56)	1600 (64)	1800 (72)
Lining Code	H								
Ring Outer Diameter øD	1370 (53.94)	1300 (51.18)	1516 (59.69)	1716 (67.56)	1925 (75.79)	1335 (52.56)	1540 (60.63)	1766 (69.53)	1966 (77.40)
Ring Inner Diameter ød	1195 (47.05)	1201 (47.28)	1404 (55.28)	1592 (62.68)	1790 (70.47)	1195 (47.05)	1396 (54.96)	1588 (62.52)	1782 (70.16)
Bolt Circle Diameter øC	1426 (56.14)	1356 (53.39)	1572 (61.89)	1772 (69.76)	1981 (77.99)	1391 (54.76)	1596 (62.83)	1822 (71.73)	2022 (79.61)
Length L1	735 (28.94)	700 (27.56)	808 (31.81)	908 (35.75)	1012.5 (39.86)	717.5 (28.25)	820 (32.28)	933 (36.73)	1033 (40.67)
Length L2	815 (32.09)	780 (30.71)	888 (34.96)	988 (38.90)	1092.5 (43.01)	797.5 (31.40)	900 (35.43)	1013 (39.88)	1113 (43.82)
Thickness	5 (0.20)								
Approx. Weight, Unit: kg (lb)	14.6 (32.2)	8.2 (18.1)	10.7 (23.6)	13.3 (29.3)	16.2 (35.7)	11.6 (25.6)	13.7 (30.2)	19.2 (42.3)	22.1 (48.7)

● **Optional Grounding Rings (GR2) for sizes 1100 mm (44 in.) to 1800 mm (72 in.)**

Unit: mm (approx. in.)

Process Connection Code	CG1					
Flange Type	JIS G3443-2 F12					
Size Code	11L	12L	13L	15L	16L	18L
Size	1100 (44)	1200 (48)	1350 (54)	1500 (60)	1600 (64)	1800 (72)
Lining Code	U					
Thickness	25 (0.98)					
Approx. Weight, Unit: kg (lb)	59.3 (131)	65.7 (145)	75.8 (167)	88.3 (195)	92.4 (204)	114.2 (252)

*: Optional grounding rings (GR2) have no protruding brackets and are installed and locked onto the flowtube with gaskets B when shipped from factory. Refer to "CAUTIONS FOR INSTALLATION".

Note: Unless otherwise specified, refer to the following table for tolerance in the dimensions.

General tolerance in the dimensional outline drawing.

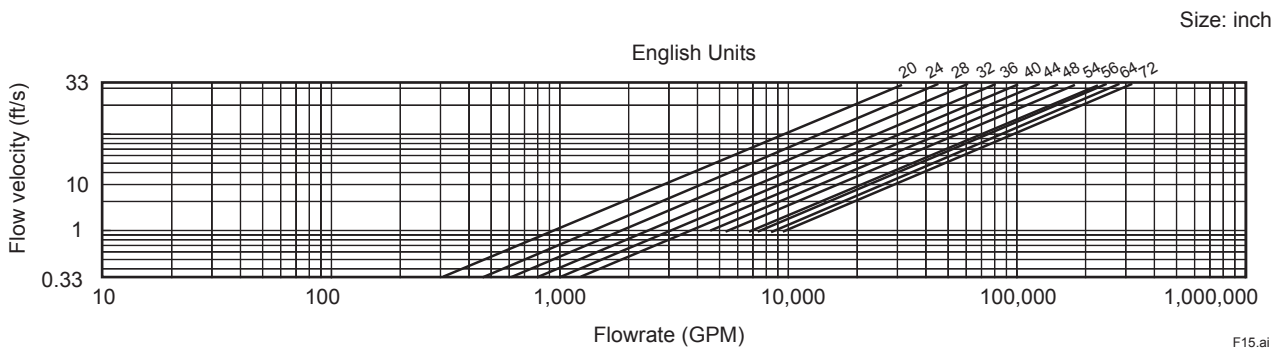
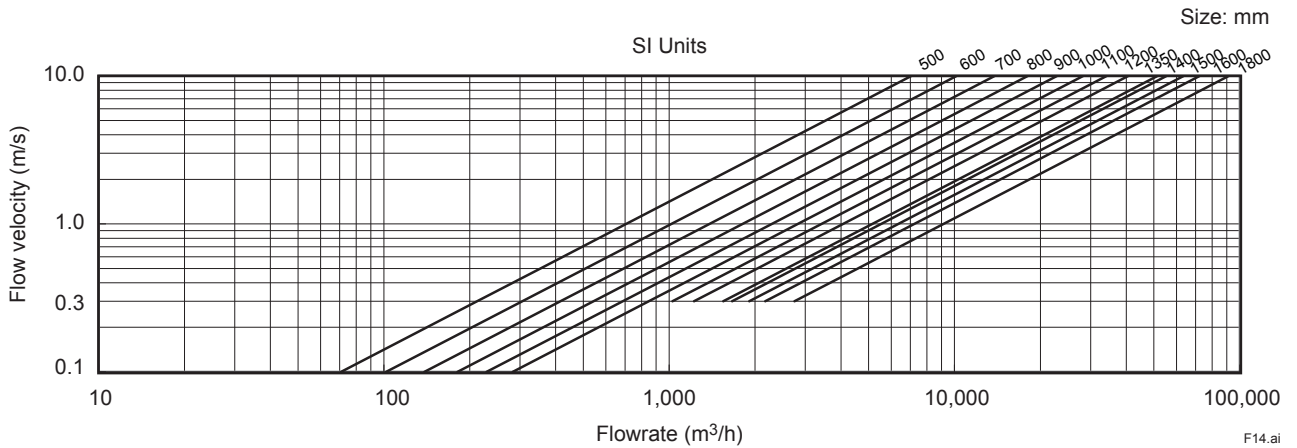
Unit: mm (approx. in.)

Category of basic dimension		Tolerance	Category of basic dimension		Tolerance
Above	Equal or below		Above	Equal or below	
	3 (0.12)	±0.7 (±0.03)	500 (19.69)	630 (24.80)	±5.5 (±2.17)
3 (0.12)	6 (0.24)	±0.9 (±0.04)	630 (24.80)	800 (31.50)	±6.25 (±0.25)
6 (0.24)	10 (0.39)	±1.1 (±0.04)	800 (31.50)	1000 (39.37)	±7.0 (±0.28)
10 (0.39)	18 (0.71)	±1.35 (±0.05)	1000 (39.37)	1250 (49.21)	±8.25 (±0.32)
18 (0.71)	30 (1.18)	±1.65 (±0.06)	1250 (49.21)	1600 (62.99)	±9.75 (±0.38)
30 (1.18)	50 (1.97)	±1.95 (±0.08)	1600 (62.99)	2000 (78.74)	±11.5 (±0.45)
50 (1.97)	80 (3.15)	±2.3 (±0.09)	2000 (78.74)	2500 (98.43)	±14.0 (±0.55)
80 (3.15)	120 (4.72)	±2.7 (±0.11)	2500 (98.43)	3150 (124.02)	±16.5 (±0.65)
120 (4.72)	180 (7.09)	±3.15 (±0.12)			
180 (7.09)	250 (9.84)	±3.6 (±0.14)			
250 (9.84)	315 (12.40)	±4.05 (±0.16)			
315 (12.40)	400 (15.75)	±4.45 (±0.18)			
400 (15.75)	500 (19.69)	±4.85 (±0.19)			

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

■ SIZING DATA

Note: 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.

Please specify combination information of flow-tube and converter. These parameters will be set in the combined converter. When ordering of a flowtube alone or a converter 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.

1. Model, specification and option codes.
2. Combined use
Model, suffix code, optional code, and tag number (if specified) of a converter for combined use. Refer to GS 01E20C01-01E.
3. Tag number
Each tag number can be specified in up to 16 characters in a combination of letters (capital or small letters), numbers, “-” and “.”.
If specified, the tag number is inscribed on the product’s name plate and tag plate (if optional code SCT is selected).
Refer to GS 01E20C01-01E for tag number of converter.
4. Flow rate spans and units
Flow span can be specified the numeric within the value of 0.0001 to 32000.
And it can be up to five digits, to a maximum of 32000 ignoring the decimal point.
And a fraction is limited to the fourth decimal place.
Remote flowtube are set to the first range in the forward direction of the converter (AXFA11) with which they are to be combined.
A span flow rate and its unit must be specified when the Mass Unit Setting (optional code MU) or Five-point Calibration in User-specified Span (optional code SC) is specified.
If a flow rate span and its unit are not specified, the relevant product is delivered with the setting at 1 m/s (3.3 ft/s).
5. Output pulse weight
If specified, a span flow rate must be set first, and then volume per pulse must be set.
It can be specified numerically within the value from 0.0001 to 32000, and its unit must be specified 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.)
Unless specified, the relevant product is delivered with the setting at 0 pulse/second.

6. Totalizer display pulse weight
If specified, a span flow rate must be set first, and then volume per totalization pulse count must be set.
It can be specified numerically within the value from 0.0001 to 32000, and its unit must be specified 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.)
Unless specified, the relevant product is delivered with the setting at 0 pulse/second.
7. Fluid name

■ RELATED INSTRUMENTS

Calibrator for Magnetic Flowmeter (AM012):

GS 01E06K02-00E

BT200 Brain Terminal:

GS 1C0A11-E

AXFA11G Magnetic Flowmeter Remote Converter:

GS 01E20C01-01E

FieldMate:

GS 01R01A01-01E

■ TRADEMARKS

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