MagneW Neo PLUS

Smart Two-wire Electromagnetic Flowmeter Integral type TIIS Explosion-protected Apparatus

OVERVIEW

The MagneW Neo PLUS is a high performance two wired electromagnetic flowmeter based on field proven Yamatake two-wire loop powered technologies.
The MagneW Neo PLUS offers the stable and accurate measurement with low power consumption.

Integral type

FEATURES

Two-wire operation

MagneW Neo PLUS improves its noise immunity performance by 700% maximum and 250% in average. For the spike noise, MagneW Neo PLUS improves its noise immunity performance in 250% in average.

High accuracy and stable output

MagneW Neo PLUS provides high accuracy (± 0.5% of rate) and its output is as stable as current four wired magnetic flowmeters.

Minimum measurable process fluid conductivity

The minimum measurable process fluid conductivity is 10 μS/cm. MagneW Neo PLUS maximizes two wired magflow meter applicability.

Wider range in size

MagneW Neo PLUS offers wider range in detector size.
Detector size: 2.5 to 200 mm (0.1 to 8 inches).

Electrode status diagnostic function

The MagneW Neo PLUS offers the diagnostic function for the electrode condition.
It diagnoses the empty pipe condition or scale on electrode condition.

APPLICATION

- Corrosive liquid measurement
- Chemical solution measurement
- Drainage/waste disposal fluid measurement
- Drinking water and waste water service
- Industrial/agricultural water measurement
- Seawater measurement

The above flow measurements are applicable.

FUNCTIONAL SPECIFICATIONS

Enclosure rating
JIS C 0920 watertight model
NEMA TYPE 4X, IEC IP67

Hazardous Areas certifications
TIIS Explosion-protected apparatus
Ex de [ia] II C T4

Certificate number

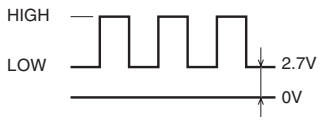
Line size (mm)	Flange (Pipe material: SCS14)	Flange (Pipe material: SUS304)	Wafer (Pipe material: SCS14)	Wafer (Pipe material: SUS304)
2.5	TC19022	-	-	-
5	TC19022	-	-	-
10	TC19022	-	-	-
15	TC19022	-	-	-
25	-	TC19028	TC19023	TC19028
40	-	TC19029	TC19024	TC19029
50	-	TC19031	TC19025	TC19031
65	-	TC19030	TC19026	TC19030
80	-	TC19032	TC19027	TC19032
100	-	TC19020	TC19021	TC19020
150	-	TC19033	-	-
200	-	TC19034	-	-

Output signal

Analog output
4 to 20mA DC

Digital output
DE
Analog or Digital output is selectable.

Pulse output
Open collector output (30 V DC, 100mA max.)
Pulse frequency: 0.0001 to 200 Hz
Pulse width: 1 ms to 1 s
LOW value: 2.7V (10mA) (Refer to the blow drawing.)

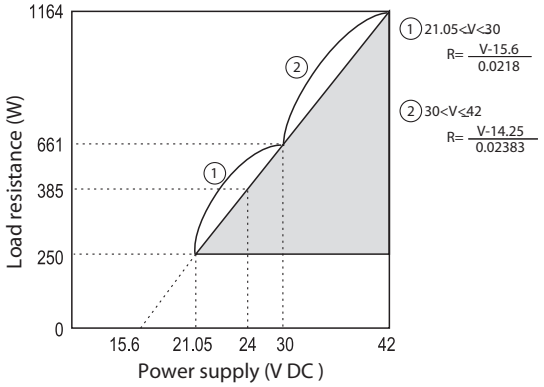


Contact output
Open collector output (30 V DC, 100mA max.)
Pulse or contact output is selectable

Communication protocol
SFC communication and HART® communication

HART® communication
- Multidrop mode: current fixed at 12mA.
  Optional Burst mode is not available.

Load resistance characteristic of communication
External power supply 21.05 to 42 V DC for communication.



Note) The load resistance of 250 Ω or more is necessary for communications of SFC and the HART® communicator.

Flow unit
Volume flow: m^3, L, cm^3, G (gallon), mG, kG,
B (barrel), IG (imperial gallon), mIG, kIG
Mass flow: t, kg, g, lb
Time: d, h, m, s

Display

Display: LCD
Main display: 7-segment, 8 digits
Sub display: 16 digits, 2 lines
Display contents:
Demonstrates three values simultaneously
Percentage flow rate, Actual flow rate, Totalized value

Data setting
Operation by four key switches

Damping
Adjustable between 0.5 and 199.9 seconds.

Low flow cutoff
Adjustable between 0 and 10% of setting range.
Below selected value, output is driven to the zero flow rate signal level.

Dropout
Adjustable between 0 and 10% of setting range.
Below selected value, pulse output is cut.

Electrode status diagnostic

Detect empty pipe condition or scale on electrode by monitoring flow rate signal. Once the flow rate signal fluctuates over a certain threshold, the device judges that the detector is empty or scale on electrode. The Electrode status diagnostic function makes the analog output and pulse output to the values as selected in the below "Electrode status output mode" table.
The display alternately shows the output values selected and "EMPTY OR SCALE ON ELECTRODE".
There are five threshold levels to meet an environment where the device is installed. Set an appropriate threshold level from below.

SENSITIVITY HIGH
SENSITIVITY MID
SENSITIVITY LOW
SENSITIVITY LL
SENSITIVITY LLL

Default setting: OFF
Operating condition:
The following conditions must be met when using the electrode status diagnostic function.

- Diameter: 10mm or larger
- Electric conductivity of fluid: 30 μS/cm or greater
- Grounding: Grounding resistance must be less than 100Ω
- The noise level must be over the set threshold when the pipe is empty.
- The noise level must be under the set threshold when the process fluid flows in the detector.

"Electrode status output mode" table"

Output/Display	Parameter selection in the "Electrode status output mode"		
	OFF	ZERO	HOLD
Analog 4-20mA output	Output values as the meter measures.	Analog output is fixed to 0% (4mA).	Analog output is held at its last good value.
Pulse output	Output values as the meter measures.	Pulse output is fixed to 0 (does not generate pulses).	Pulse output is held at its present state.
Display	Display the value as it measures.	Flashes the message 0% and "Empty or scale on electrode" alternately (when % flow rate is specified for the main display). Flashes the message 0.000 RATE and "Empty or scale on electrode" alternately (when actual flow rate is specified for the main display). Flashes the message XXXXXXXX (totalized value at setup) and "Empty or scale on electrode" alternately (when totalized value is specified for the main display).	Flashes the values at its last good values and a message of "Empty or scale on electrode" alternately.

Lightning protection

12 kV, 1000 A
Equipped with the lightning arrester in the power source and external output terminals.

Power failure

An EEPROM retains data record of totalized value when pulse output is used (retention period approximately 10 years).

Power supply

15.6 to 42 V DC (without communication)
21.05 to 42 V DC (with communication)
Current capacity: 24mA min

Size

Wafer style

25, 40, 50, 65, 80, 100 mm (1, 1½, 2, 2½, 3, 4 inches)

Flange style

2.5, 5, 10, 15, 25, 40, 50, 65, 80, 100, 150, 200 mm (0.1, 0.2, 3/8, 1/2, 1, 1½, 2, 2½, 3, 4, 6, 8 inches)

Flange rating

ANSI150, ANSI300, DIN PN10, DIN PN16, DIN PN25, JIS10K, JIS20K, JIS30K

Reference flange standard

JIS; JIS B2210 (1984)
ANSI; ANSI B16.5 (1988)

Ambient temperature limits

-20 to 60°C (-4 to 140°F)

Ambient humidity limits

10 to 90% RH

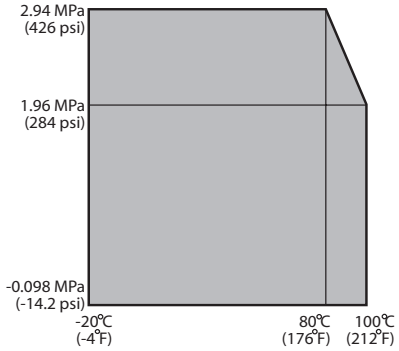
Vibration effect

Integral style: 4.9m/s^2(0.5G) max.

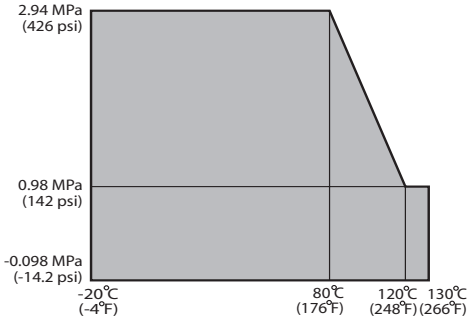
Temperature range and pressure range of process fluid

Refer to the following.

Size: 2.5 to 10 mm (0.1 to 3/8 inch)



Size: 15 to 200 mm (1/2 to 8 inches)



Measurable electrical conductivity

10 μS/cm or greater

Measurement flow range

Size		Maximum flow velocity range is 0 to 0.3 m/s (0 to 0.98 ft/s)		Maximum flow velocity range is 0 to 10 m/s (0 to 32.8 ft/s)		Conversion factor K
		Minimum range		Maximum range		
mm	inches	m^3/h	GPM	m^3/h	GPM	
2.5	0.1	0 to 0.00531	0 to 0.02335	0 to 0.1767	0 to 0.778	56.59
5	0.2	0 to 0.02121	0 to 0.09337	0 to 0.7068	0 to 3.112	14.15
10	3/8	0 to 0.08483	0 to 0.3735	0 to 2.827	0 to 12.44	3.537
15	1/2	0 to 0.1909	0 to 0.8404	0 to 6.361	0 to 28.00	1.572
25	1	0 to 0.5302	0 to 2.335	0 to 17.67	0 to 77.80	0.5659
40	1½	0 to 1.358	0 to 5.976	0 to 45.23	0 to 199.1	0.2210
50	2	0 to 2.121	0 to 9.337	0 to 70.68	0 to 311.2	0.1415
65	2½	0 to 3.584	0 to 15.78	0 to 119.4	0 to 525.9	0.08371
80	3	0 to 5.429	0 to 23.91	0 to 180.9	0 to 796.7	0.05526
100	4	0 to 8.483	0 to 37.35	0 to 282.7	0 to 1244	0.03537
150	6	0 to 19.09	0 to 84.04	0 to 636.1	0 to 2800	0.01572
200	8	0 to 33.93	0 to 149.4	0 to 1130	0 to 4979	0.008842

Velocity V (m/s) = K × Q

K = Conversion factor = $1/3600 \times 4/(\pi D^2) \times 1000^2$

D = Size (mm)

Q = Flow rate (m^3/h)

PERFORMANCE SPECIFICATIONS

Analog output accuracy

Size: 2.5, 5 mm (0.1, 0.2 inch)

Vs = velocity of setting range (m/s)

Vs (m/s)	Velocity during measurement ≥ Vs×50%	Velocity during measurement ≤ Vs×50%
$1.0 \leq Vs \leq 10$	±0.5% of rate	±0.5% of Vs
$0.3 \leq Vs \leq 1.0$	$\pm \frac{0.5}{Vs}$ % of rate	$\pm\ 0.5 + \left(\frac{0.5}{Vs}\right)$ % of Vs

Size: 10, 15 mm (3/8, 1/2 inch)

Vs = velocity of setting range (m/s)

Vs (m/s)	Velocity during measurement ≥ Vs×40%	Velocity during measurement ≤ Vs×40%
$1.0 \leq Vs \leq 10$	±0.5% of rate	±0.5% of Vs
$0.3 \leq Vs \leq 1.0$	$\pm \frac{0.5}{Vs}$ % of rate	$\pm 0.4 + \left(\frac{0.5}{Vs}\right)$ % of Vs

Size: 25 to 200 mm (1 to 8 inches)

Vs = velocity of setting range (m/s)

Vs (m/s)	Velocity during measurement ≥ Vs×30%	Velocity during measurement ≤ Vs×30%
$1.0 \leq Vs \leq 10$	±0.5% of rate	±0.5% of Vs
$0.3 \leq Vs \leq 1.0$	$\pm \frac{0.5}{Vs}$ % of rate	$\pm 0.3 + \left(\frac{0.5}{Vs}\right)$ % of Vs

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

PHYSICAL SPECIFICATIONS

Converter case finishing

Standard

Baked acrylic paint

Corrosion-proof

Baked epoxy paint

Converter case material

Aluminum alloy

Display cover material

Tempered glass

Detector main body materials

Case material

Size 2.5 to 15 mm (0.1 to 1/2 inch):
SCS13 stainless steel
Size 25 to 200 mm (1 to 8 inches):
SUS304 stainless steel

Measuring pipe material

SUS304 stainless steel

Flange

SUS304 stainless steel
(size 2.5 to 65 mm (0.1 to 2½ inches))
Carbon steel + corrosion-preventive painting
(size 80 to 200 mm (3 to 8 inches))

Process wetted materials

Lining: PFA

Electrodes

SUS316L, ASTM B574 (Hastelloy C-276 equivalent), Titanium, Tantalum, Nickel, Zirconium, Platinum-Iridium

Grounding rings

SUS316, ASTM B575 (Hastelloy C-276 equivalent), Titanium, Tantalum, Zirconium, Platinum

INSTALLATION

Electrical connection

1/2NPT internal thread (must be selected for FM approval)
CM20 internal thread
G1/2 internal thread

Remote converter mounting

Wall mounting, 2-inch pipe mounting

Grounding

Grounding resistance should be less than 10 Ω.

Pipe connection

Wafer style (Size: 25 to 100 mm (1 to 4 inches))
Flange style (Size: 2.5 to 200 mm (0.1 to 8 inches))

Length of straight pipe

Required straight pipe length clearance on the upstream side and the downstream side, while installing the detector.

Upstream side

A minimum 5D straight pipe length is required.
A minimum 10D straight pipe length is required if a diffuser/valve/pump is installed upstream side.

Downstream side

2D straight pipe length is recommended.
(Where D is the nominal bore diameter of the detector)

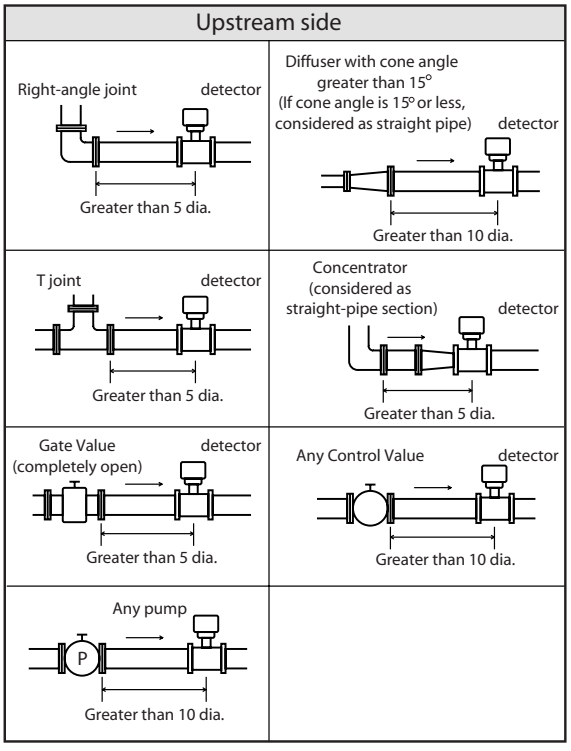


Figure 1

Notice for installation

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

Notice after installation

⚠ WARNING

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

⚠ CAUTION

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

Notice for environment

- Install the flowmeter in a location with an ambient temperature of -25°C to 60°C (-13°F to 140°F) and an ambient humidity of 5 to 100%RH to prevent equipment malfunction or output errors.
- Do not install the flowmeter in a location subject to severe vibration or in a highly corrosive atmosphere. The converter and detector can be damaged. * When install some electromagnetic flowmeters in closer location, keep minimum 500mm (20 inch) space from each flowmeter. Closer electromagnetic flowmeter installation may cause magnetic interference each other and results in output errors.
- Do not install the flowmeter in a location subject to severe vibration or in a highly corrosive atmosphere. The converter and detector can be damaged.
- When install some electromagnetic flowmeters in closer location, keep minimum 500mm (20 inch) space from each flowmeter. Closer electromagnetic flowmeter installation may cause magnetic interference each other and results in output errors.

Notice for application

- Electrolytic bath application, process fluid with higher voltage/current
  Process fluid of the electrolytic bath application is mostly with high voltage/current.
  It is not a suitable application for the two wire loop powered magnetic flowmeter.
  Example: Sodium hypochlorite with 200V and 30kA
  Four wire magnetic flowmeter is recommended.
- Application which pipe frequently becomes empty
  Both two wire magnetic flowmeter and four wire magnetic flowmeter have empty pipe detection function. The two wire magnetic flowmeter detects empty by monitoring signal fluctuation caused by empty pipe condition. Therefore the empty pipe detection function of the two wire magnetic flowmeter sometimes does not work properly if noise level is too low or too high. The four wire magnetic flowmeter detects empty by monitoring impedance between electrodes and grounding. So the four wire magnetic flowmeter directly monitors the empty pipe condition. If the application requires empty detection quickly and perfectly, the four wire magnetic flowmeter is recommended.
- Plastic piping or piping with liner
  If the customer piping is plastic or lined with insulation material, process fluid may not be properly grounded. In such case, it is recommended to connect earth wire between upstream side grounding ring and downstream side grounding ring for better grounding.
- Slurry application
  Process fluid with slurry exceeds 3% is not suitable for the two wire magnetic flowmeter. The four wire magnetic flowmeter is recommended for the fluid with slurry concentration more than 3%.
  If hard particles hit the electrode, output of the two wire magnetic flowmeter may fluctuate even though the slurry concentration is less than 3%. In this case, the four wire magnetic flowmeter is recommended.
- Electrochemically homogeneous fluid Install the device where the process fluid is electrochemically homogeneous. If two kind of process fluids are mixed at the upstream side, the process fluid must be uniformly mixed.
- The application which the electric conductivity changes or non-homogeneous fluid Do not use the device for the following fluid conditions even if the electric conductivity, temperature, and pressure are within the device specifications. Those fluid may cause of inaccurate flow measurement.

- Fluids that have sufficient conductivity at high temperature but do not meet the conductivity requirement at room temperature (about 20ºC (68ºF)).
  (e.g. fatty acids and soap)
- Some fluids contain surfactant
  (e.g. rinse, shampoo and CWM (coal water mixture))
- Insulating adhesive materials
  (e.g. kaolinite, kaolin, calcium stearate)

• The analog output may fluctuate due to flow noise, which is generated by the process fluid flow. In such a case, connect the upstream grounding ring to the downstream grounding ring by a wire. The output fluctuation may be reduced.

Caution On PLC Connection

• A circuit in some PLC may affect the flow measurement and the analog output may fluctuate.
  In this case, make sure that the both PLC and the MagneW Two-wire PLUS+ flowmeter are properly grounded. Proper grounding solves the fluctuation problem.

Notice for power supply

• Use the following power supply. If the power supply does not meet the following specifications, this device may not work.
  - Current capacity: 24mA min.

⚠ CAUTION

:In accordance with the safety standards of flameproof regulation, please comply with the following instructions.:

(1) The voltage of general equipment such as the power supply and the receiver should not exceed 250VAC, 50/60Hz, 250VDC at any time at normal or abnormal operation.

(2) The ambient temperature around the device is 50ºC (122ºF) maximum.

(3) The process fluid temperature is 125ºC (257ºF) max. for the size of 15mm (1/2 inch) or larger.

(4) The process fluid temperature is 100ºC (212ºF) max. for the size of 10mm (3/8 inch) or smaller.

(5) Use the specified flameproof cable glands.

(6) Wait for seven minutes after switching OFF the power supply, before opening the front cover or the terminal cover.

A specified explosion-proof performance is available only when this device is used under the conditions described above.

MODEL SELECTION

Smart two-wired magnetic flowmeter

TIIS Explosion-protected apparatus, Integral model (2.5 to 200 mm (0.1 to 8 inches))

MTG15A - I II III IV V VI VII VIII IX - X XI - Options (some options can be selected per each model)

Basic model no.		Selections										Optional selections		Options		
MTG15A	-															
I	Line size	2.5 mm (0.1 inch) (flange type only)	002													
		5 mm (0.2 inch) (flange type only)	005													
		10 mm (3/8 inch) (flange type only)	010													
		15 mm (0.5 inch) (flange type only)	015													
		25 mm (1 inch)	025													
		40 mm (1½ inches)	040													
		50 mm (2 inches)	050													
		65 mm (2½ inches)	065													
		80 mm (3 inches)	080													
		100 mm (4 inches)	100													
		150 mm (6 inches) (flange type only)	150													
		200 mm (8 inches) (flange type only)	200													
II	Lining	PFA		P												
III	Pipe connection	Wafer JIS10K			11											
		Wafer JIS16/20K			12											
		Wafer JIS30K			13											
		Wafer ANSI 150			21											
		Wafer ANSI 300			22											
		Wafer JPI 150			61											
		Wafer JPI 300			62											
		Flange JIS10K			J1											
		Flange JIS20K			J2											
		Flange JIS30K			J3											
		Flange JIS10K (for 10 mm) *1			J4											
		Flange JIS20K (for 10 mm) *1			J5											
		Flange ANSI 150			A1											
		Flange ANSI 300			A2											
		Flange JPI 150			P1											
		Flange JPI 300			P2											
IV	Electrode	SUS316L				L										
		ASTM B574 (Hastelloy C-276 equivalent)				C										
		Titanium				K										
		Zirconium				H										
		Tantalum				T										
		Nickel				N										
		Platinum				P										
V	Grounding ring	SUS316					S									
		ASTM B575 (Hastelloy C-276 equivalent)					C									
		Titanium					K									
		Zirconium					H									
		Tantalum					T									
		Platinum					P									
VI	Wiring connection	G1/2 right side terminal / with 1-piece flameproof cable gland						F								
		G1/2 left side terminal / with 1-piece flameproof cable gland						G								
		G1/2 with 2-piece flame proof cable gland						H								
VII	Face to face dimension	Standard							A							
		Replacement for SMT3000 (for wafer type 40 to 100 mm)							S							
VIII	Installation / Display direction	Horizontal piping / Display standard direction								A						
		Horizontal piping / Display reverse direction								B						
		Horizontal piping / Display downstream side direction								C						
		Horizontal piping / Display upstream side direction								D						
		Vertical piping / Display right side viewed from the front								E						
		Vertical piping / Display left side viewed from the front								F						
IX	Calibration	Standard									J					

X	Finish	Standard finish	X
2		Corrosion-proof finish	

X	Bolt and nut	None	XI
2		SUS304 (only for wafer type)	

X	No option	Options
B	Traceability certificate	
C	Material certificate (electrode / grounding ring)	
E	Water-free treatment	
F	Oil-free treatment	
G	w/gasket for plastic piping	
H	English units (must be selected)	
J	Tropicalization	
K	Tag on the terminal box *3	

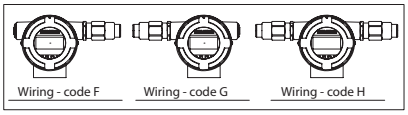
Note

**1) Only for diameter of 2.5 to 10 mm.*

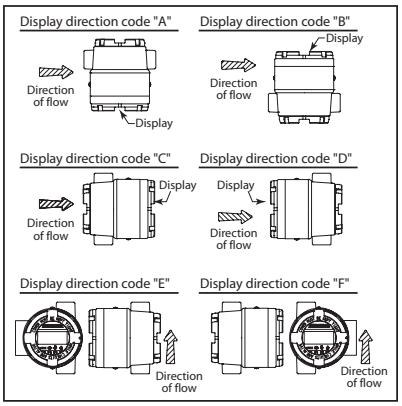
**2) Flange for diameter of 2.5 to 15 mm is 15 mm.*

**3) Must be selected if tagging is required*

<Wiring connection>

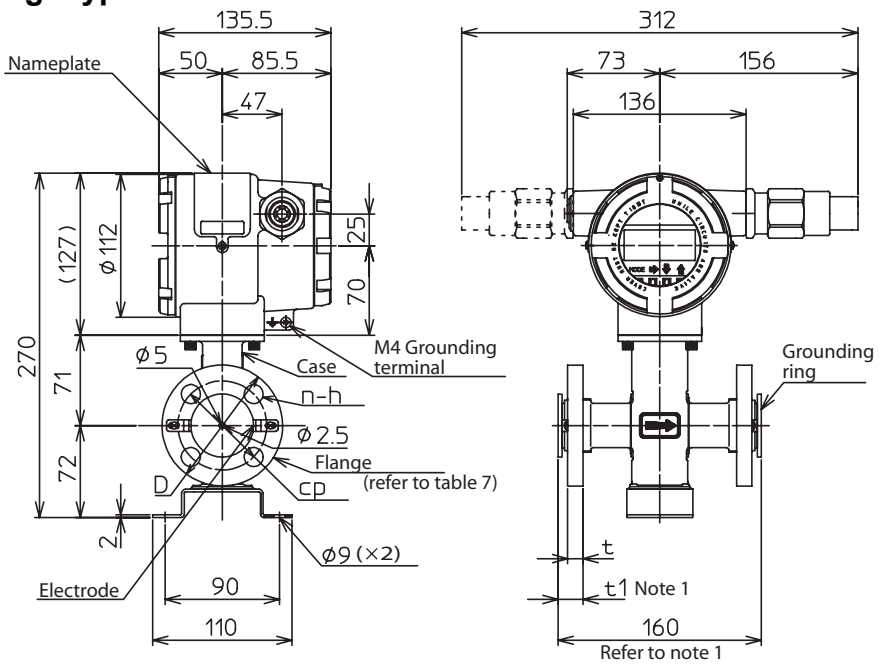


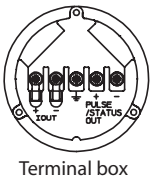
<Installation / display direction>



IDIMENSIONS

Flange type 2.5 mm



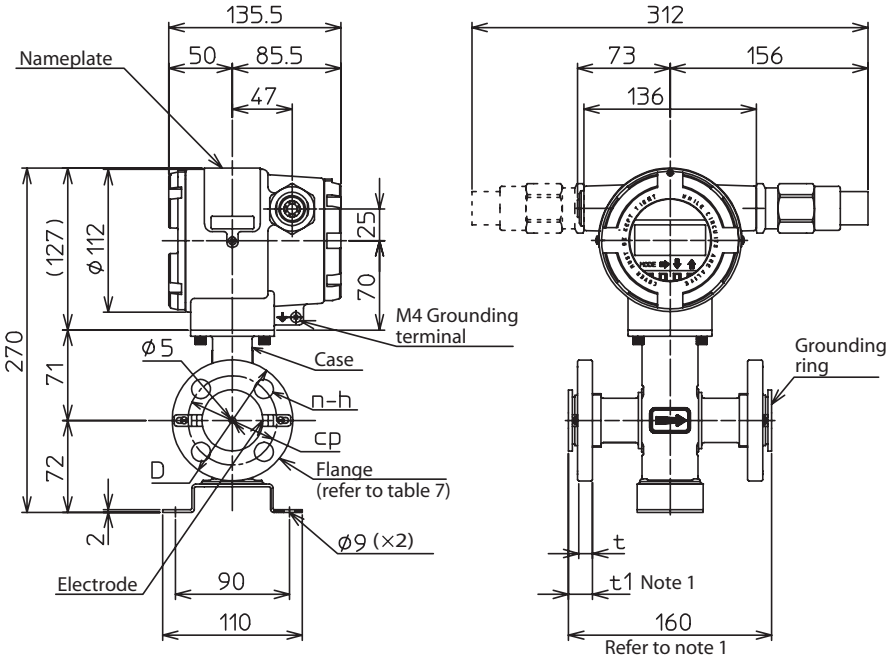


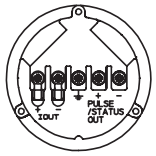
Terminal box

Terminal table

Symbol		Description
I.OUT	+	Flow rate signal
	−	
⏚		Grounding
PULSE/ STATUS OUT	+	Pulse output or contact output (selectable)
	−	

Flange type 5 mm





Terminal box

Terminal table

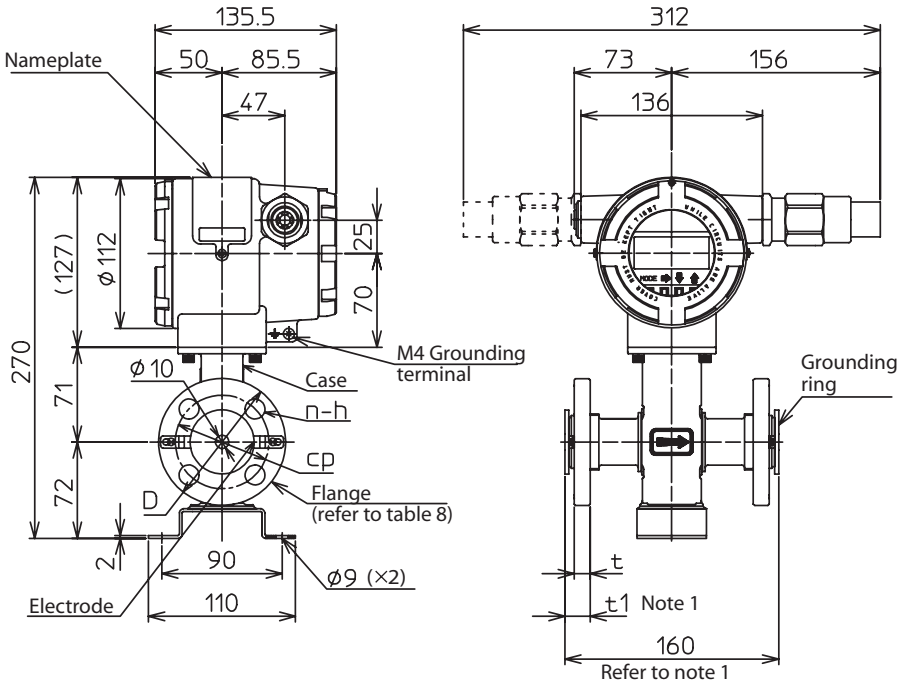
Symbol		Description
I.OUT	+	Flow rate signal
	−	
⏚		Grounding
PULSE/ STATUS OUT	+	Pulse output or contact output (selectable)
	−	

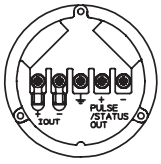
Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 1

Model no.		J1	J2	J3	J4	J5	A1	A2	P1	P2
Flange rating		JIS					ANSI		JPI	
		10K	20K	30K	10K 10 mm flange	20K 10 mm flange	150	300	150	300
Dimension size	D	95	95	115	90	90	89	95	89	95
	t	11	15	19	12	14	10	13	10	13
	t1	18.5	22.5	26.5	19.5	21.5	17.5	20.5	17.5	20.5
	Cp	70	70	80	65	65	60.5	66.5	60.3	66.7
	n	4	4	4	4	4	4	4	4	4
	h	15	15	19	15	15	16	16	16	16
	Bolt	M12	M12	M16	M12	M12	1/2	1/2	UNC1/2	UNC1/2
Weight (kg)		6.8	7	8	6.7	6.8	6.4	6.9	6.4	6.9

Flange type 10 mm



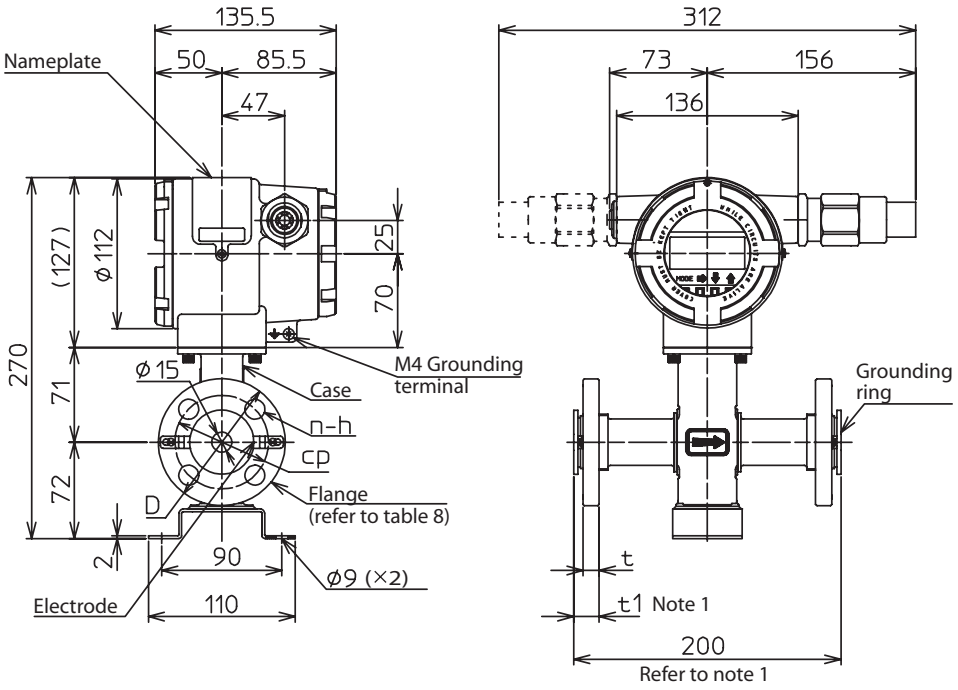


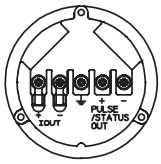
Terminal box

Terminal table

Symbol		Description
I.OUT	+	Flow rate signal
	−	
⏚		Grounding
PULSE/ STATUS OUT	+	Pulse output or contact output (selectable)
	−	

Flange type 15 mm





Terminal box

Terminal table

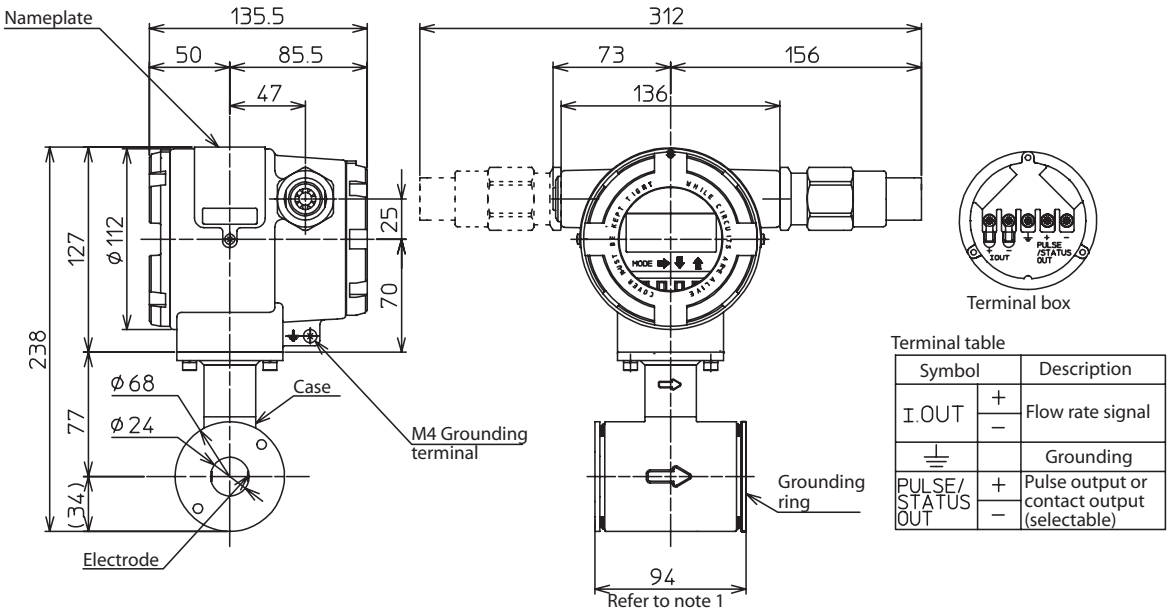
Symbol		Description
I.OUT	+	Flow rate signal
	−	
⏚		Grounding
PULSE/ STATUS OUT	+	Pulse output or contact output (selectable)
	−	

Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 2

Model no.		J1	J2	J3	A1	A2	P1	P2
Flange rating		JIS			ANSI		JPI	
		10K	20K	30K	150	300	150	300
Dimension size	D	95	95	115	89	95	89	95
	t	11	15	19	10	13	10	13
	t1	18.5	22.5	26.5	17.5	20.5	17.5	20.5
	Cp	70	70	80	60.5	66.5	60.3	66.7
	n	4	4	4	4	4	4	4
	h	15	15	19	16	16	16	16
	Bolt	M12	M12	M16	1/2	1/2	UNC1/2	UNC1/2
Weight (kg)		6.8	7	8	6.4	6.8	6.4	6.9

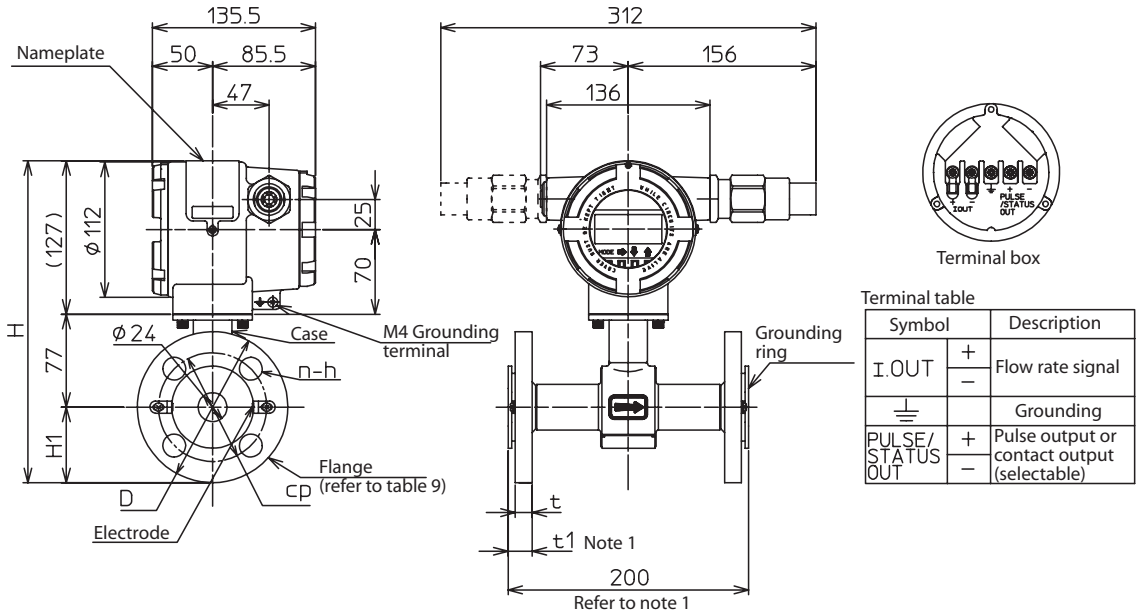
Wafer type 25 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
length	200	200	200	170	210	170	210
Bolt	M16	M16	M16	1/2 13UNC	5/8 11UNC	12 13UNC	5/8 11UNC

Flange type 25 mm

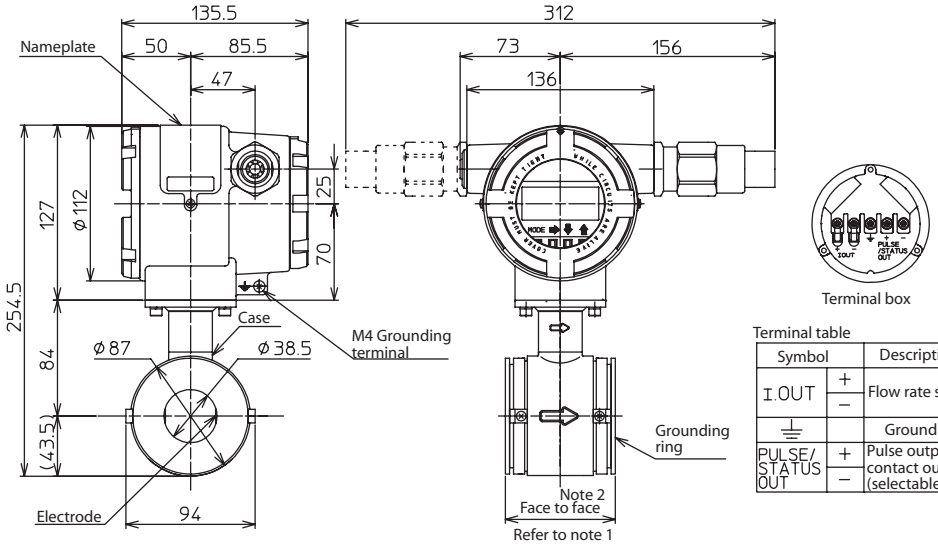


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 3

Model no.		J1	J2	J3	A1	A2	P1	P2
Flange rating		JIS			ANSI		JPI	
		10K	20K	30K	150	300	150	300
Dimension size	H	267	267	269	258	266	258	266
	H1	63	63	65	54	62	54	62
	D	125	125	130	108	124	108	124
	t	13	15	19	12.9	15.9	12.9	15.9
	t1	19	21	25	20.5	23.5	20.5	23.5
	Cp	90	90	95	79.2	88.9	79.4	88.9
	n	4	4	4	4	4	4	4
	h	19	19	19	16	20	16	20
	Bolt	M16	M16	M16	1/2	5/8	UNC1/2	UNC1/2
Weight (kg)		9.2	9.5	10.3	8.4	9.5	8.4	9.5

Wafer type 40 mm



Terminal table

Symbol		Description
I.OUT	+	Flow rate signal
	−	
⏚		Grounding
PULSE/STATUS OUT	+	Pulse output or contact output (selectable)
	−	

Note 1. When grounding ring material is SUS316, gasket is not required. When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Note) 2

Face-to-face dimension code.	Size
A	80
S	98

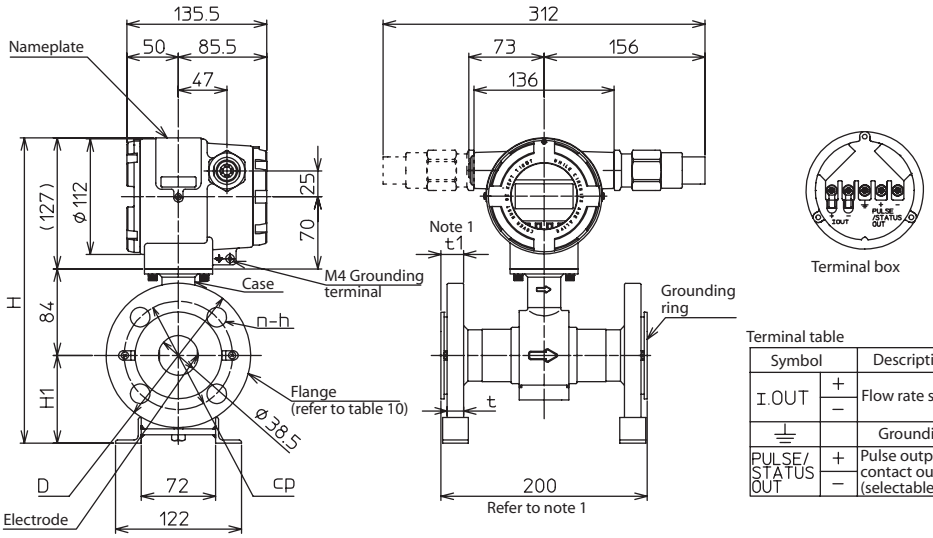
Face-to-face dimension code "A"

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	200	200	200	170	210	170	210
Bolt	M16	M16	M16	1/2 13UNC	5/8 11UNC	12 13UNC	5/8 11UNC

Face-to-face dimension code "S"

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	200	200	200	170	210	170	210
Bolt	M16	M16	M16	1/2 13UNC	5/8 11UNC	12 13UNC	5/8 11UNC

Flange type 40 mm



Terminal table

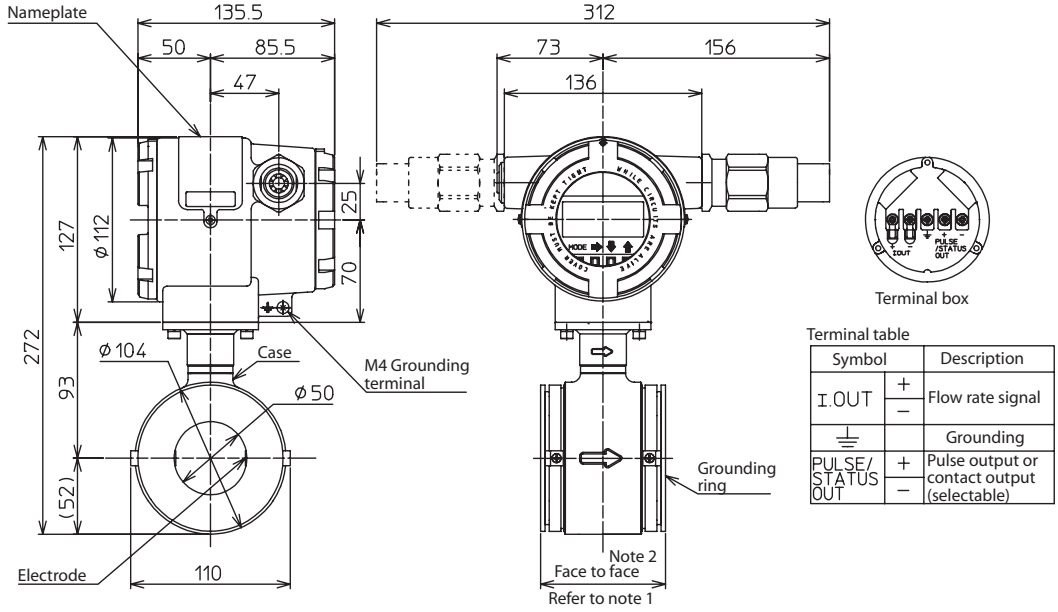
Symbol		Description
I.OUT	+	Flow rate signal
	−	
⏚		Grounding
PULSE/STATUS OUT	+	Pulse output or contact output (selectable)
	−	

Note 1. When grounding ring material is SUS316, gasket is not required. When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 4

Model no.		J1	J2	J3	A1	A2	P1	P2
Flange rating		JIS			ANSI		JPI	
		10K	20K	30K	150	300	150	300
Dimension size	H	296	296	307	288	305	288	305
	H1	85	85	96	77	94	77	94
	D	140	140	160	127	155	127	156
	t	14	16	20	15.9	19.4	15.9	19.4
	t1	20	22	26	21.9	25.4	21.9	25.4
	Cp	105	105	120	98.6	114.3	98.4	114.3
	n	4	4	4	4	4	4	4
	h	19	19	23	16	23	16	23
	Bolt	M16	M16	M20	1/2	1/2	UNC1/2	UNC3/4
Weight (kg)		8.3	8.6	11.0	7.8	10.1	7.8	10.1

Wafer type 50 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Note) 2

Face-to-face dimension code.	Size
A	80
S	98

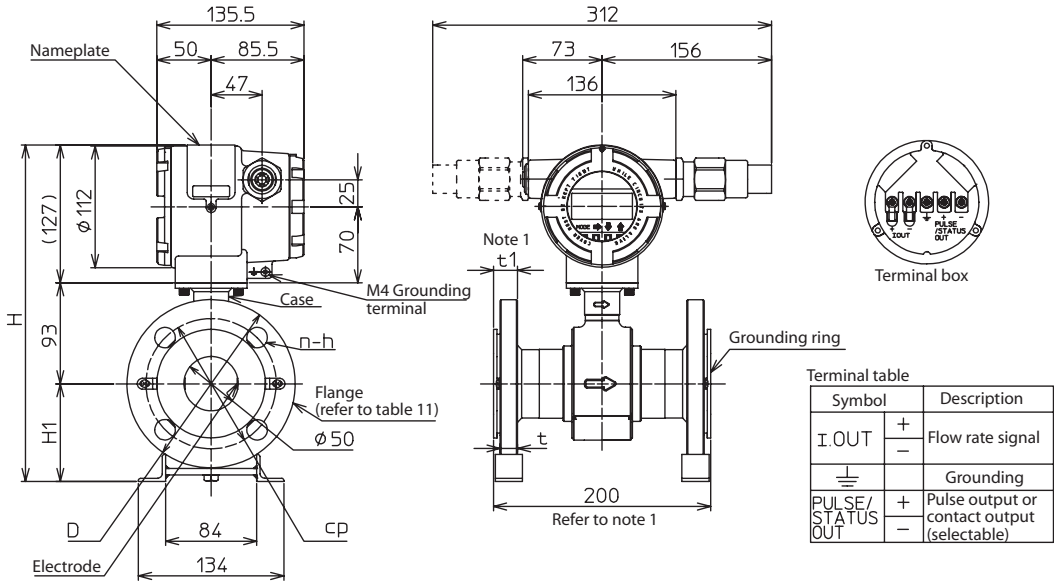
Face-to-face dimension code "A"

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	200	200	200	210	210	210	210
Bolt	M16	M16	M16	5/8 11UNC	5/8 11UNC	5/8 11UNC	5/8 11UNC

Face-to-face dimension code "S"

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	200	200	200	210	210	210	210
Bolt	M16	M16	M16	5/8 11UNC	5/8 11UNC	5/8 11UNC	5/8 11UNC

Flange type 50 mm

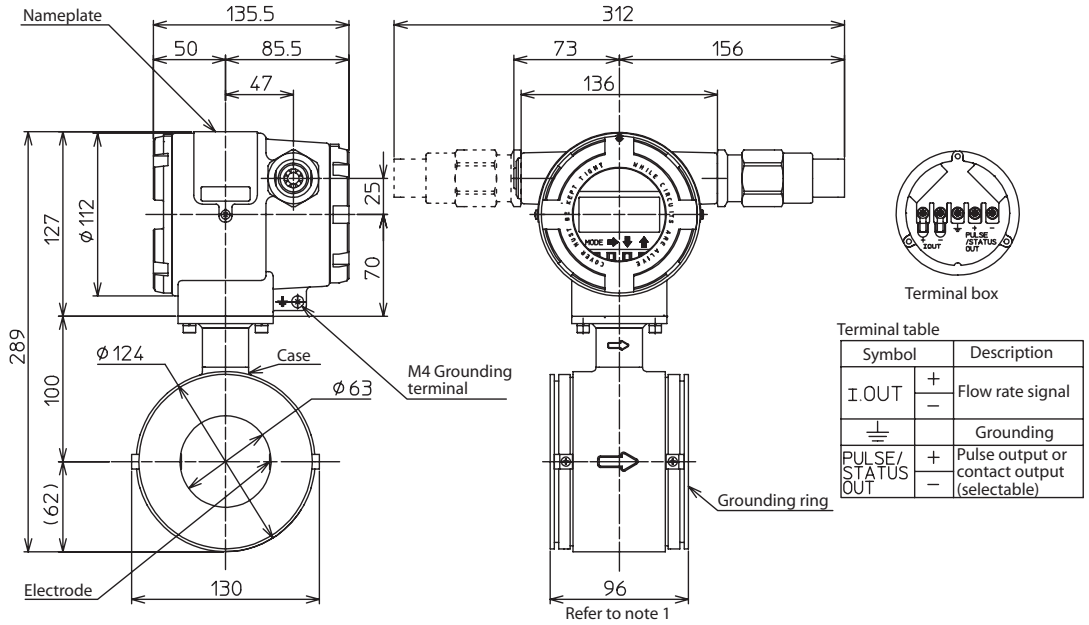


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 5

Model no.		J1	J2	J3	A1	A2	P1	P2
Flange rating		JIS			ANSI		JPI	
		10K	20K	30K	150	300	150	300
Dimension size	H	310	310	316	308	316	308	316
	H1	90	90	96	88	96	88	96
	D	155	155	165	152	165	152	165
	t	14	16	20	17.9	20.9	17.9	20.9
	t1	20	22	26	25.5	28.5	25.5	28.5
	Cp	120	120	130	120.7	127	120.6	127
	n	4	8	8	4	8	4	8
	h	19	19	19	20	20	20	20
	Bolt	M16	M16	M16	5/8	5/8	UNC5/8	UNC5/8
Weight (kg)		11.9	12.0	13.7	12.3	13.8	12.3	13.8

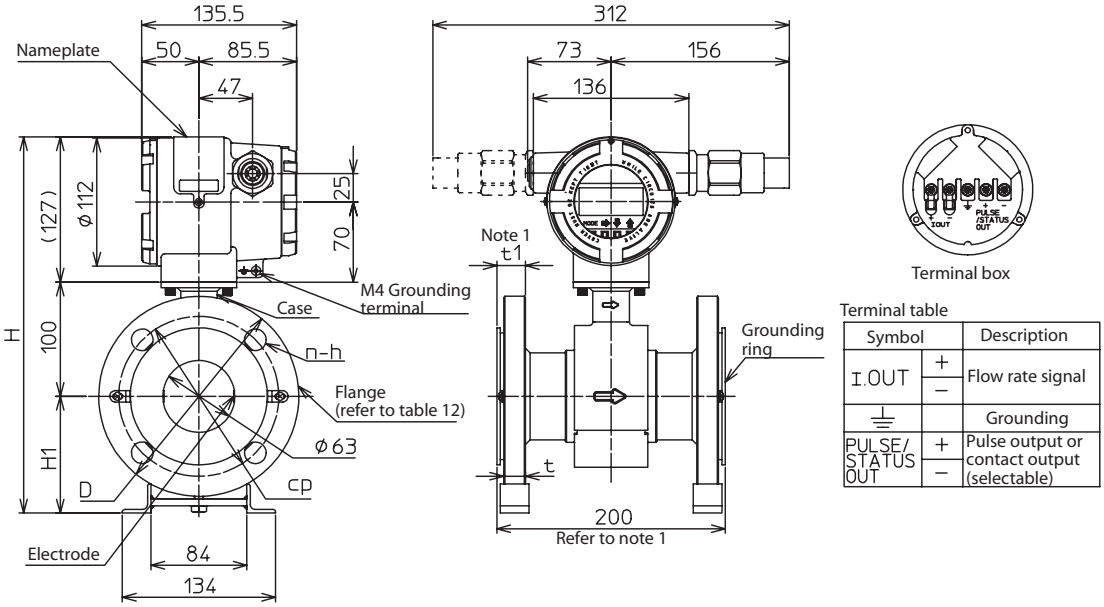
Wafer type 65 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	200	200	200	210	240	210	240
Screw size	M16	M16	M20	5/8 11UNC	3/4 10UNC	5/8 11UNC	3/4 10UNC

Flange type 65 mm

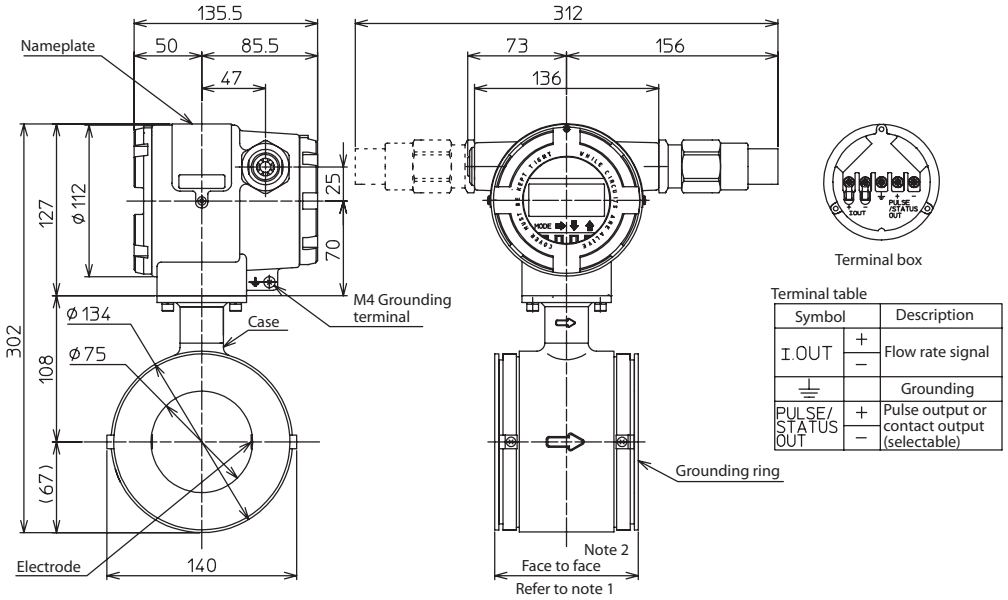


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 6

Model no.		J1	J2	J3	A1	A2	P1	P2
Flange rating		JIS			ANSI		JPI	
		10K	20K	30K	150	300	150	300
Dimension size	H	329	329	343	330	338	330	338
	H1	102	102	116	103	111	103	111
	D	175	175	200	178	191	178	191
	t	16	18	24	20.9	23.9	20.9	23.9
	t1	22	24	30	28.5	31.5	28.5	31.5
	Cp	140	140	160	139.7	149.2	139.7	149.2
	n	4	8	8	4	8	4	8
	h	19	19	23	20	23	20	23
	Bolt	M16	M16	M20	5/8	5/8	UNC5/8	UNC5/8
Weight (kg)		13.9	14.0	15.7	14.3	15.8	14.3	15.8

Wafer type 80 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Note) 2

Face-to-face dimension code.	Size
A	106
S	130

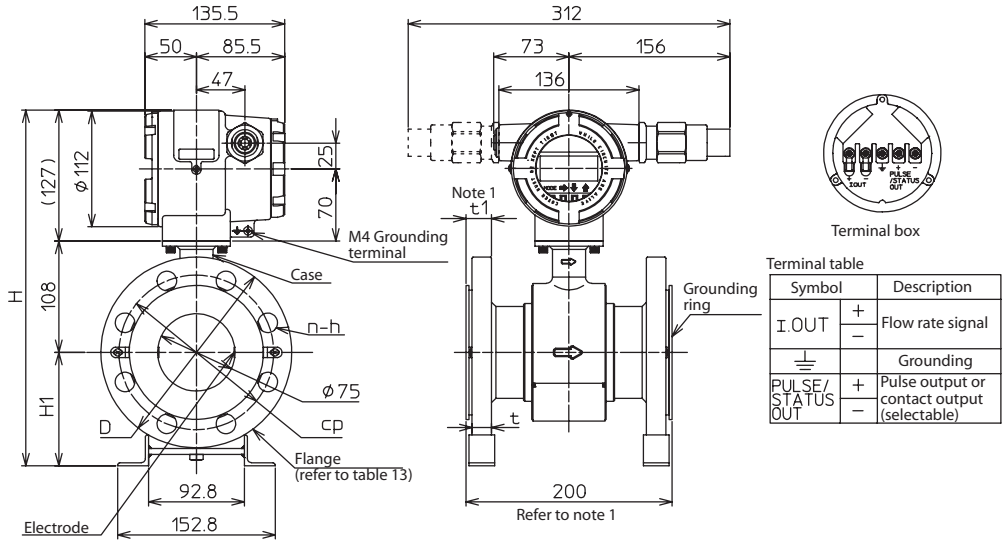
Face-to-face dimension code "A"

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	200	250	250	210	240	210	240
Bolt	M16	M20	M20	5/8 11UNC	3/4 10UNC	5/8 11UNC	3/4 10UNC

Face-to-face dimension code "S"

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	240	250	250	250	300	250	300
Bolt	M16	M16	M16	5/8 11UNC	3/4 10UNC	5/8 11UNC	3/4 10UNC

Flange type 80 mm

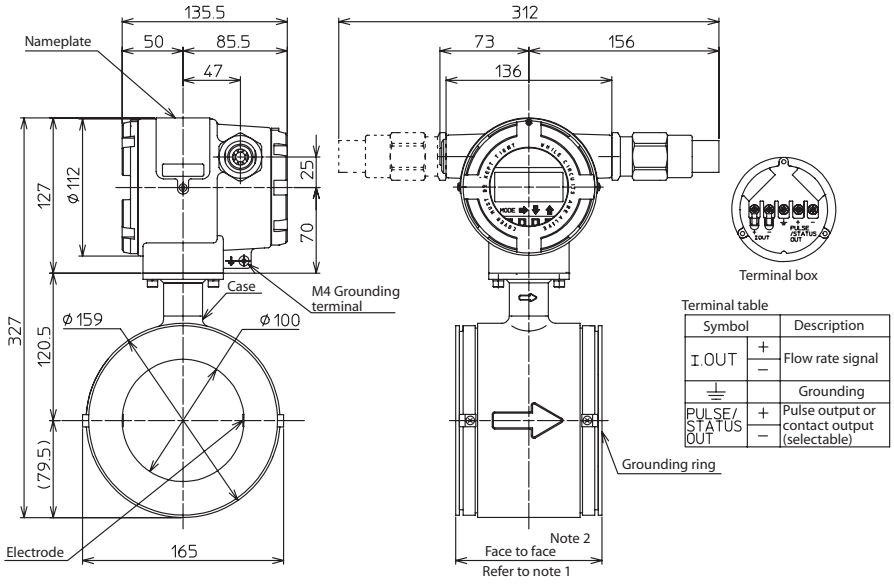


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 7

Model no.		J1	J2	J3	A1	A2	P1	P2
Flange rating		JIS			ANSI		JPI	
		10K	20K	30K	150	300	150	300
Dimension size	H	345	354	359	346	359	348	359
	H1	110	119	124	113	124	113	124
	D	185	200	210	191	210	191	210
	t	16	22	26	22.4	27.4	22.4	27.4
	t1	22	28	32	30	35	30	35
	Cp	150	160	170	152.4	168.3	152.4	168.3
	n	8	8	8	4	8	4	8
	h	19	23	23	20	23	20	23
	Bolt	M16	M20	M20	5/8	3/4	UNC5/8	UNC3/4
Weight (kg)		14.4	16.7	20.4	17.3	21.3	17.3	21.3

Wafer type 100 mm



Note 1. When grounding ring material is SUS316, gasket is not required. When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Note) 2

Face-to-face dimension code.	Size
A	120
S	150

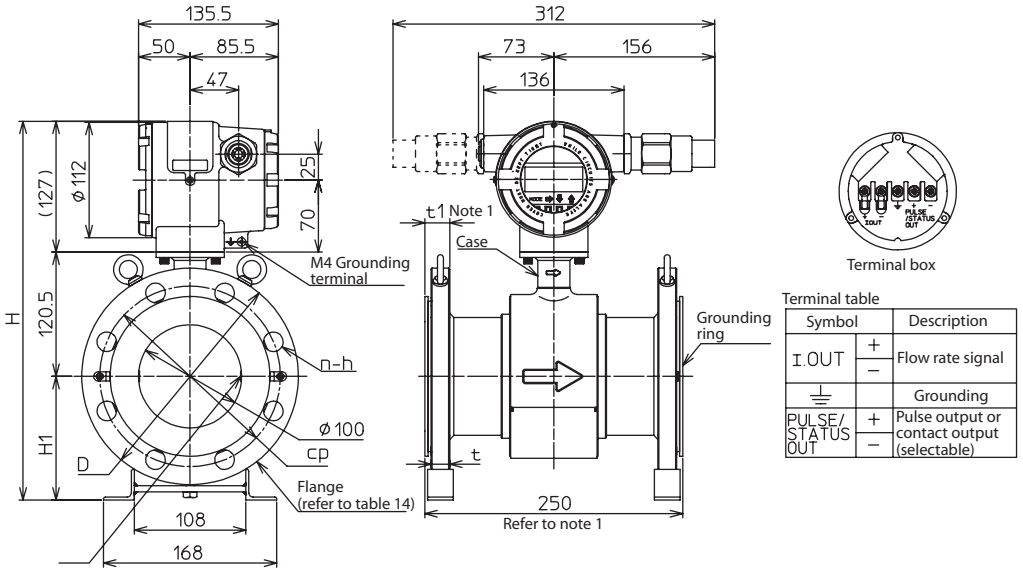
Face-to-face dimension code "A"

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	240	250	310	250	300	250	300
Bolt	M16	M20	M20	5/8 11UNC	3/4 10UNC	5/8 11UNC	3/4 10UNC

Face-to-face dimension code "S"

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	240	300	310	250	300	250	300
Bolt	M16	M20	M22	5/8 11UNC	3/4 10UNC	5/8 11UNC	3/4 10UNC

Flange type 100 mm

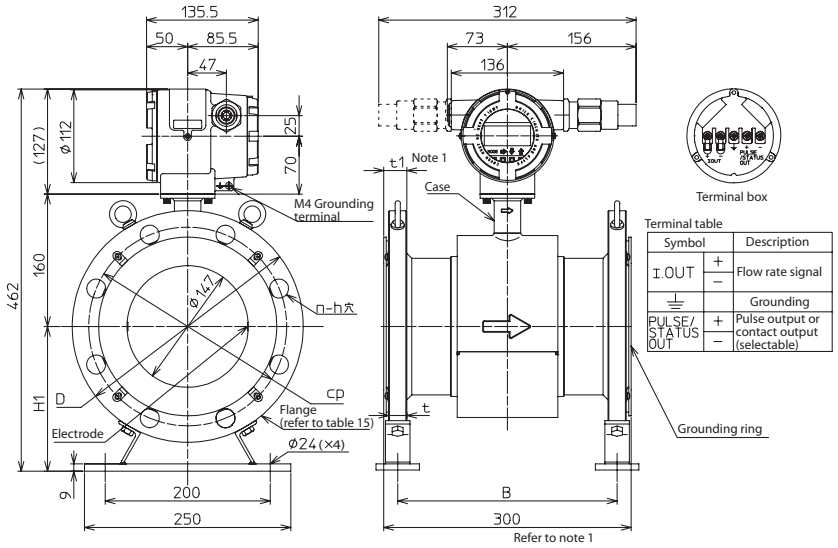


Note 1. When grounding ring material is SUS316, gasket is not required. When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 8

Model no.		J1	J2	J3	A1	A2	P1	P2
Flange rating		JIS			ANSI		JPI	
		10K	20K	30K	150	300	150	300
Dimension size	H	367.5	376.5	384.5	378.5	392.5	378.5	392.5
	H1	120	129	137	131	145	131	145
	D	210	225	240	229	254	229	254
	t	16	22	30	22.4	30.4	22.4	30.4
	t1	22	28	36	30	38	30	38
	Cp	175	185	195	190.5	200	190.5	200
	n	8	8	8	8	8	8	8
	h	19	23	25	20	23	20	23
	Bolt	M16	M20	M22	5/8	3/4	UNC5/8	UNC3/4
Weight (kg)		20.2	23.7	28.6	25.1	34.2	25.1	34.2

Flange type 150 mm

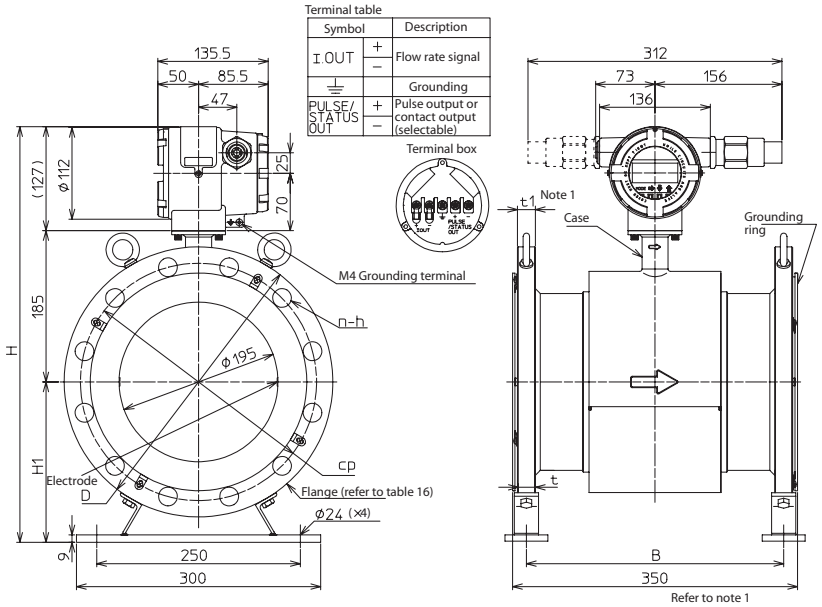


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 9

Model no.		J1	J2	J3	A1	A2	P1	P2
Flange rating		JIS			ANSI		JPI	
		10K	20K	30K	150	300	150	300
Dimension size	H	462	476	487	461	483	461	483
	H1	175	189	200	174	196	174	196
	D	280	305	325	279	318	279	318
	t	20	26	36	23.9	35.4	23.9	35.4
	t1	26	32	42	31.5	43	31.5	43
	Cp	240	260	275	241.3	269.9	241.3	269.9
	n	8	12	12	8	12	8	12
	h	23	25	27	23	23	23	23
	Bolt	M20	M22	M24	3/4	3/4	UNC3/4	UNC3/4
Weight (kg)		34.4	41.7	54.3	37.2	56.2	37.2	56.2

Flange type 200 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 10

Model no.		J1	J2	J3	A1	A2	P1	P2
Flange rating		JIS			ANSI		JPI	
		10K	20K	30K	150	300	150	300
Dimension size	H	508	515	531	516	537	516	537
	H1	196	203	219	204	225	204	225
	D	330	350	370	343	381	343	381
	t	20	28	40	27.4	39.9	27.4	39.9
	t1	26	34	46	35	47.5	35	47.5
	Cp	290	305	320	298.4	330.2	298.4	330.2
	n	12	12	12	8	12	8	12
	h	23	25	27	23	26	23	26
	Bolt	M20	M22	M24	3/4	7/8	UNC3/4	UNC7/8
	B	316	308	296	308	295	308	295
Weight (kg)		49.8	59.8	87.0	61.8	90.8	61.8	90.8

Note

Note

Specifications are subject to change without notice.

azbil

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