General Specifications

EXA PH

Sensor Holders

GS 12J05C02-00E

■ GENERAL

Various types of analyzers are used to control quality and wastewater in a wide variety of production processes. Holders are used to set up analyzers at sites of measurement. Yokogawa provides several types of holders, for which cleaners can be added, allowing customers to build reliable and easy-to-maintain measuring systems by selecting the right holders and cleaners for the conditions of applications.

The submersion type holders PH8HS, PH8HSF and DOX8HS are widely used with process analyzers and can be directly immersed in reaction tanks or measuring baths for measurement. The DOX8HS for dissolved-oxygen meters or MLSS meters has a skew-cut tip to prevent air bubbles from accumulating on the tip of a sensor.

The flow-through holders PH8HF, PH8HFF and FH350G can be set up at a point along pipelines to measure solvent in production lines or wastewater pipelines.

Unlike with submersion type holders that require the entire holder assembly to be pulled up, the suspension holder HH350G has a guide pipe along which just a fittingmounted sensor can be separately pulled up with a chain, thus increasing the ease of maintenance.

The inclined float holder, PB350G is equipped with a float that moves up and down in accordance with the fluctuating water surface level. Since the float has been designed to accommodate an sensor without extreme projections and depressions, the amount of foreign matter building up around the float or sensor decreases, and it becomes harder for dirt to accumulate, thus enabling continuous stable measurement over a long period. We have provided the vertical float holder, PB360G, for cases when the installation space for a float holder is limited or the measuring bath is covered. If however, there is no flow, neither float holder is recommended.

■ FEATURES

Submersion Type Holders: PH8HS, PH8HSF and DOX8HS

- Available in stainless steel or polypropylene.
- Optional jet- or ultrasonic-cleaning device (unavailable for DOX8HS).
- Optional flange fitting for PH8HS, PH8HSF.
- Skewed mounting for DOX8HS to prevent influence from bubbles.

Flow-Through Holders: PH8HF, PH8HFF and FH350G

- Available in stainless steel or polypropylene.
- Optional jet- or ultrasonic-cleaning device (unavailable for FH350G).
- Allows direct mounting to the pipeline.

Suspension Holder: HH350G

- Allows the sensor to be pulled up separately.
- Easy maintenance.
- Optional jet-cleaning device.

Float Holder: PB350G and PB360G

- Continuous stable measurement without effect from fluctuations in fluid level.
- Reduces maintenance frequency.
- Easy-to-maintain.
- Vertical type is also available for limited installation space.

YOKOGAWA

Yokogawa Electric Corporation
2-9-32, Nakacho, Musashino-shi, Tokyo, 180-8750 Japan
Tel.: 81-422-52-5617 Fax.: 81-422-52-6792

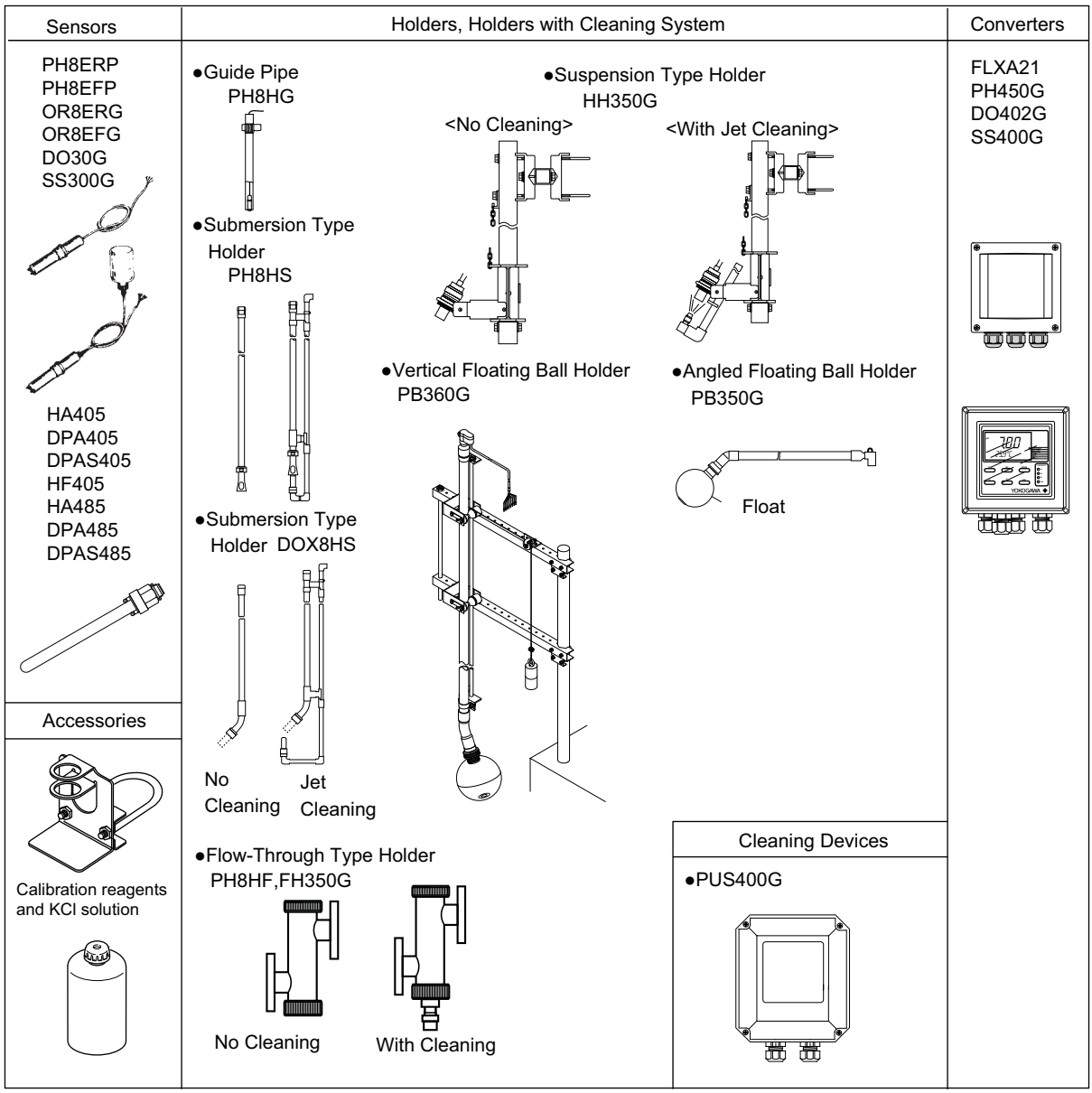
GS 112J05C02-00E

7th Edition Feb.,2014

■ SYSTEM CONFIGURATION

For the pH/ORP converter and sensors, see GS 12B07C05-01E and GS 12B07D02-E, GS 12B07B02-E.
For the FLXA21, see GS 12A01A02-01E. For the dissolved oxygen converter and sensor, see GS 12J05D02-00E.
For the MLSS converter and sensors, see GS 12E6A1-E.

Fig. 1 System Configuration (General Purpose, Non-Explosionproof Types)



CAUTION

Select the material of wetted parts with careful consideration of process characteristics. Inappropriate selection may cause leakage of process fluids, which greatly affects facilities. Considerable care must be taken particularly in the case of strongly corrosive process fluid such as hydrochloric acid, sulfuric acid, hydrogen sulfide, and sodium hypochlorite. If you have any questions about the wetted part construction of the product, be sure to contact Yokogawa.

CAUTION

Installation Location of Holders (Guide Pipe, Submersion Type, etc)
The holder should be used in a place that is as vibration free as possible.
Using the holder in a place where it is affected by vibration, may result in damage to the holder.

■ SPECIFICATIONS

1. Guide Pipe PH8HG

Applicable sensors:
General pH Sensor PH8ERP, PH8EFP
General ORP Sensor OR8ERG, OR8EFG
Dissolved Oxygen Sensor DO30G
MLSS Sensor SS300G
(Note) When using a KCl filling type sensor, a stanchion or mounting bracket is required separately.

Mounting: 2-inch pipe mounting vertical or horizontal.
(Note) Make sure the mounting pipe is rigid and firmly installed.

Pipe length: 2 m

Material:
Holder; Polypropylene or PVC
Mounting bracket; Galvanized iron or stainless steel (equivalent to SS304)

Weight:
Holder; "-PP"; approx. 1 kg,
"-PV"; approx. 1.6 kg
Mounting bracket; Approx. 1 kg/set

Measuring temperature: -5 to 50°C (PVC)
-5 to 80°C (Polypropylene)

2A. Submersion Type Holder PH8HS

Applicable sensors:
General pH Sensor PH8ERP, PH8EFP,
Special pH Sensor HA405, DPA405, HF405
General ORP Sensor OR8ERG, OR8EFG
Special ORP Sensor HA485, DPA485
(Note) An adapter is required when using special pH/ORP sensors.
When using with special pH/ ORP sensors, this holder cannot be used outdoors due to exposure to rain or due to condensation at a high humid place.

Mounting: 2-inch pipe mounting vertical or horizontal with 1 or 2 set of mounting bracket
(Note) Make sure the mounting pipe is firmly installed.

Cleaning method: Jet cleaning, brush cleaning or ultrasonic cleaning
(Note) Brush cleaning and ultrasonic cleaning cannot be used when using special pH/ORP sensor.

Material:
Holder; Polypropylene or stainless steel (equivalent to SS316)
Flange; Polypropylene (refer to dimensions) or stainless steel (equivalent to SS316)
O-ring; Fluoro-rubber (Viton) or Daielperfrow
Mounting bracket: Galvanized iron or stainless steel (equivalent to SS304)
Cleaning unit (wetted parts):
Ultrasonic; Stainless steel (equivalent to SS316), titanium or Hastelloy C
Jet; Polypropylene
Brush; Polypropylene, titanium(shaft), Rulon W (bearings)

Weight:
Holder; Approx. 0.5 to 5 kg (polypropylene)
Approx. 1.5 to 11.5 kg (stainless steel)
Mounting bracket; Approx. 1 kg/set
Flange; Approx. 0.5 to 1.8 kg (polypropylene)
Approx. 2.9 to 15.6 kg (stainless steel)

Temperature range:
No Cleaning; -5 to 100°C
With Cleaning; -5 to 80°C
(Note) The temperature range may be limited by the specifications of the sensor.

Flow rate: 2 m/s or less
(Note) The flow speed may be limited by the specifications of the sensor.

Measuring pressure: Submersion depth 3m max.
(Note) The pressure may be limited by the specifications of the sensor.

Utility required for cleaning unit:

Type	Pressure(kPa)	Flow Rate
Water jet	200 to 400 + Liquid pressure	5 to 20 l/min
Water brush	100 to 250 + Liquid pressure	20 to 30 l/min
Air jet	200 to 400 + Liquid pressure	100 to 300 Nl/min
Air brush	150 to 250 + Liquid pressure	300 to 600 Nl/min

(Note 1) Pressure and flow rate must be simultaneously satisfied at the holder inlet port.
(Note 2) A large braid-reinforced tube of Ø22 x Ø15 is recommended for supply due to the flow rate.

2B. Submersion Type Holder (Explosionproof Type) PH8HSF

The holder is used only when using ultrasonic cleaning system in the explosionproof area.

Use PH8HS when using no cleaning, jet cleaning or brush cleaning.

Applicable sensors:
General pH Sensor PH8ERP, PH8EFP
General ORP Sensor OR8ERG, OR8EFG

Mounting: 2-inch pipe mounting vertical or horizontal with 1 or 2 set of mounting bracket.
(Note) Make sure the mounting pipe is firmly installed.

Cleaning method: Ultrasonic cleaning

Material:
Holder; Polypropylene or stainless steel(equivalent to SS316)
Flange; Polypropylene or stainless steel (equivalent to SS304)
O-ring; Fluor-rubber (Viton) or Daielperfrow
Mounting bracket; Galvanized iron or stainless steel (equivalent to SS304)
Cleaning unit (wetted parts):
Ultrasonic; Stainless steel (equivalent to SS316), titanium or Hastelloy C

Construction: TIIS flameproof type (for d2G4 gas)
Cable entrance port of terminal box; G 3/4

Weight:
Holder; Approx. 2.2 to 3.2 kg (polypropylene)
Approx. 3.3 to 5.7 kg (stainless steel)
Mounting bracket; Approx. 1 kg/set
Flange; Approx. 1.5 kg (polypropylene)
Approx. 15 kg (stainless steel)

Temperature range: -5 to 80°C
(Note) The temperature may be limited by the specifications of the sensor.

Fflow rate: 2 m/s or less
(Note) The flow speed may be limited by the specifications of the sensor.

Pressure: Submersion depth 3 m max.
(Note) The pressure may be limited by the specifications of the sensor.

2C.Submersion Type Holder DOX8HS

Applicable sensors:
Dissolved Oxygen Sensor DO30G, DO70G
MLSS Sensor SS300G

Mounting: 2-inch pipe mounting vertical or horizontal, with 1 or 2 set of mounting bracket.
(Note) Make sure the mounting pipe is firmly installed.

Cleaning method: Water or air jet cleaning
(The wiper cleaning of MLSS meter should be specified on the sensor.)

Material:
Holder; Polypropylene or stainless steel equivalent to SS316)
O-ring; Fluoro-rubber (Viton)
Mounting bracket; Stainless steel (equivalent to SS316) or galvanized iron
Cleaning unit (wetted parts); Polypropylene

Weight:
Holder; Approx. 0.5 to 3.6 kg (polypropylene)
Approx. 1.5 to 11.5 kg (stainless steel)
Mounting bracket; Approx. 1 kg/set

Temperature range: 0 to 80°C
(Note) The temperature may be limited by the specifications of the sensor.

Flow rate: 2 m/s or less.
(Note) The flow rate may be limited by the specifications of the sensor.

Utility required for cleaning unit:
Pressure, Water jet; 100 to 200 kPa
Air jet; 100 to 200 kPa
Flow rate. Water jet; 5 to 20 l/min
Air jet; 10 to 20 Nl/min
(Note 1) Pressure and flow rate must be simultaneously satisfied at the holder inlet port.
(Note 2) A large braid-reinforced tube of Ø22 x Ø15 is recommended for supply due to the flow rate.

3A.Flow-Through Type Holder PH8HF

Applicable sensors:
General pH Sensor PH8ERP, PH8EFP
Special pH Sensor HA405, DPA405, HF405
General ORP Sensor OR8ERG, OR8EFG
Special ORP Sensor HA485, DPA485
(Note) An adapter is required when using special pH/ORP sensor.
When using with special pH/ ORP sensors, this holder cannot be used outdoors due to exposure to rain or due to condensation at a high humid place.

Mounting: 2-inch pipe mounting vertical or horizontal, with 1 set of mounting hard bracket.
(Note) Make sure the mounting pipe is firmly installed.

Cleaning method: Jet cleaning, brush cleaning or ultrasonic cleaning
(Note) Brush cleaning and ultrasonic cleaning cannot be used when using special pH/ORP sensor.

Material:
Holder; Polypropylene or stainless steel(equivalent to SS316)
O-ring; Fluoro-rubber (Viton) or Daielperfrow
Mounting bracket: Stainless steel (equivalent to SS304)
Cleaning unit (wetted parts);
Ultrasonic; Stainless steel (equivalent to SS316), titanium or Hastelloy C
Jet; Polypropylene
Brush; Polypropylene, titanium(shaft), Rulon W (bearings)

Weight:
Holder; Approx. 0.4 to 1.7 kg (polypropylene)
Approx. 3 to 6.1 kg (stainless steel)
Mounting bracket; Approx. 0.5 kg

Temperature range:
No Cleaning: -5 to 80 °C (polypropylene)
-5 to 105°C (stainless steel)
With Cleaning: -5 to 80°C
(Note) The temperature may be limited by the specifications of the sensor.

Flow rate: 3 to 11 l/min
(Note) The flow rate may be limited by the specifications of the sensor.

Pressure: Atmospheric pressure to 500kPa
(Note) The pressure may be limited by the specifications of the sensor.

Utility required for cleaning unit:

Type	Pressure(kPa)	Flow Rate
Water jet	200 to 400 + Liquid pressure	5 to 20 l/min
Water brush	100 to 250 + Liquid pressure	20 to 30 l/min
Air jet	200 to 400 + Liquid pressure	100 to 300 Nl/min
Air brush	150 to 250 + Liquid pressure	300 to 600 Nl/min

(Note 1) Pressure and flow rate must be simultaneously satisfied at the holder inlet port.
(Note 2) A large braid-reinforced tube of Ø22 x Ø15 is recommended for supply due to the flow rate.

3B.Flow-Through Type Holder (Explosionproof Type) PH8HFF

The holder is used only when using Ultrasonic cleaning system in the explosionproof area.

Use PH8HF when using no cleaning, jet cleaning or brush cleaning.

Applicable sensors:
General pH Sensor PH8ERP, PH8EFP
General ORP Sensor OR8ERG, OR8EFG

Mounting: 2-inch pipe mounting vertical or horizontal, with 1 set of mounting bracket.
(Note) Make sure the mounting pipe is firmly installed.

Cleaning method: Ultrasonic cleaning

Material:
Holder; Polypropylene or stainless steel (equivalent to SS316)
O-ring; Fluoro-rubber (Viton) or Daielperfrow
Mounting bracket; Stainless steel (equivalent to SS304)
Cleaning unit (wetted parts):
Ultrasonic; Stainless steel (equivalent to SS316), titanium or Hastelloy C

Construction: TIIS flameproof type (for d2G4 gas)
Cable entrance port of terminal box; G 3/4

Weight:
Holder; Approx. 3 to 3.2 kg (polypropylene)
Approx. 5.6 to 7.6 kg (stainless steel)
Mounting bracket; Approx. 0.5 kg

Temperature range: -5 to 80°C
(Note) The temperature may be limited by the specifications of the sensor.

Flow rate: 3 to 11 l/min
(Note) The flow rate may be limited by the specifications of the sensor.

Pressure: Atmospheric pressure to 500 kPa
(Note) The pressure may be limited by the specifications of the sensor.

3C. Flow-Through Type Holder FH350G

Applicable sensors: MLSS Sensor SS300G
(Measuring range: 0-1000 mg/l or less)
(Note) Not applicable high range (greater than 0 to1000mg/l) of MLSS sensor and DO sensor.
Mounting: 2-inch pipe mounting vertical or horizontal
(Note) Make sure the mounting pipe is firmly installed.
Cleaning method:
Water or air jet cleaning (The wiper cleaning of MLSS cannot be used.)
Material:
Holder; Polypropylene or stainless steel (equivalent to SS316)
O-ring; Fluoro-rubber (Viton)
Mounting bracket; Stainless steel (equivalent to SS304)
Cleaning unit (wetted parts); Polypropylene
Weight:
Holder; Approx. 0.4 to 5 kg
Mounting bracket; Approx. 0.5 kg
Temperature range: 0 to 80°C
(Note) The temperature may be limited by the specifications of the sensor.
Flow rate: 6 to 11 l/min
(Note) Keep the specified flow rate to prevent substances from standing in the holder and bubbles from sticking onto the sensor.
Pressure: 0 to 200 kPa (Holder pressure rating is 500 kPa)
Utility required for cleaning unit:
Pressure:
Water jet; process pressure +100 to 200 kPa
Air jet; process pressure +100 to 200 kPa
Flow Rate:
Water jet; 5 to 20 l/min
Air jet; 10 to 20 Nl/min
(Note 1) Pressure and flow rate must be simultaneously satisfied at the holder inlet port.
(Note 2) A large braid-reinforced tube of Ø22 x Ø15 is recommended for supply due to the flow rate.

4. Suspension Holder HH350G

Applicable sensor:
General pH Sensor PH8ERP, PH8EFP
General ORP Sensor OR8ERG, OR8EFG
Dissolved Oxygen Sensor DO30G
MLSS Sensor SS300G
(Note1) When using a KCl filling type sensor, a stanchion or mounting bracket for the KCl tank is required separately.
(Note2) Not applicable for special pH/ORP sensors.
Mounting: 2-inch pipe mounting vertical.
(Note) Make sure the mounting pipe firmly installed.
Cleaning method: Water or air jet cleaning
Material:
Holder; Polypropylene and stainless steel (equivalent to SS304)
Guide-pipe; Stainless steel (equivalent to SS304)
Mounting bracket: Stainless steel (equivalent to SS304)
Cleaning unit; Stainless steel (equivalent to SS304), PVC, and polypropylene
Weight: 6.4 to 13.8 kg
Temperature range: 0 to 80°C
(Note) The temperature may be limited by the specifications of the sensor.
Flow rate: 1 m/s or less
(Note) The flow speed may be limited by the specifications of the sensor.
Utility required for cleaning device:
Pressure; Water jet; 100 to 200 kPa
Air jet; 100 to 200 kPa
Flow rate; Water jet; 5 to 20 l/min
Air jet; 10 to 20 Nl/min
(Note 1) Pressure and flow rate must be simultaneously satisfied at the holder inlet port.
(Note 2) A large braid-reinforced tube of Ø22 x Ø15 is recommended for supply due to the flow rate.

5. Angled Floating Ball Holder PB350G

Applicable sensors:
General pH Sensor PH8ERP, PH8EFP
General ORP Sensor OR8ERG, OR8EFG
Dissolved Oxygen Sensor DO30G, DO70G
MLSS Sensor SS300G
(Note1) When using a KCl filling type sensor, a stanchion or mounting bracket for the KCl tank is required separately.
(Note2) Not applicable for special pH and ORP sensor (HA405, HA485, DPA405, DPA485 etc.) .
Pipe length: 2.5m
Mounting: 2-inch pipe horizontal mounting or horizontal plane mounting
(Note) Make sure the mounting pipe firmly installed. Use anchor bolts(4xM8) or relevant fixtures for mounting on horizontal planes.
Material:
Holder; ABS resin, Nitrile rubber (NBR), brass, and PVC
Arm; PVC or stainless steel (equivalent to SS304)
Mounting bracket; Stainless steel (equivalent to SS304)
Weight:
Holder (including.arm);
Approx. 5 kg (model PB350G-PV-25)
Approx. 6 kg (model PB350G-S3-25)
Mounting bracket; Approx. 5 kg
Temperature range: 0 to 50°C
(Note) The temperature may be limited by the specifications of the sensor.
Flow rate: 20 to 100 cm/s (The arm must not be distorted significantly.)
(Note) The flow speed may be limited depending on the specifications of the sensor.

6. Vertical Floating Ball PB360G

Applicable sensors:
General pH Sensor PH8ERP, PH8EFP
General ORP Sensor OR8ERG, OR8EFG
Dissolved Oxygen Sensor DO30G, DO70G
MLSS Sensor SS300G
(Note 1) When using a KCl filling type sensor, a stanchion or mounting bracket for the KCl tank is required separately.
(Note 2) Not applicable for special pH and ORP sensor (HA405, HA485, DPA405, DPA485 etc.) .

Mounting: 2-inch pipe vertical mounting
(Note) Make sure the mounting pipe firmly installed.

Material:
Holder; ABS resin, brass, and rigid PVC
O-ring; Nitrile rubber (NBR)
Arm; rigid PVC or stainless steel (equivalent to SS304)
Guide-pipe; Stainless steel (equivalent to SS304)
Mounting bracket; Stainless steel (equivalent to SS304),
Roller, Pulley; Polypropylene
Balance Weight; Stainless steel (equivalent to SS304)
Rope; Vinyl Covered Stainless steel (equivalent to SS304)
Connection Supporter; Stainless steel (equivalent to SS304)

Weight:
Holder, guide-pipe, and arm;
Approx. 7.4 kg (model PB360G-PV-25-NN)
Approx. 8.8 kg (model PB360G-PV-35-NN)
Approx. 8.0 kg (model PB360G-S3-25-NN)
Approx. 9.6 kg (model PB360G-S3-35-NN)
Mounting bracket (including assist bracket and U-bolt assembly); Approx. 5 kg x 2 sets
Roller assembly (including mounting bolt assembly); Approx. 3.3 kg x 2 sets
Pulley assembly (including mounting bolt assembly); Approx. 0.5 kg
Connection supporter; Approx. 0.5 kg
Balance weight;
Approx. 3 kg (model PB360G-uu-25-NN)
Approx. 4.5 kg (model PB360G-uu-35-NN)
Rope (including bolt clip);
Approx. 85 g (model PB360G-uu-25-NN)
Approx. 97 g (model PB360G-uu-35-NN)

Temperature range: 0 to 50°C
(Note) The temperature may be limited by the specifications of the sensor.

Flow rate: 20 to 100 cm/s (The arm must not be distorted significantly.)
(Note) The flow speed may be limited depending on the specifications of the sensor.

7A. Solenoid Valve for Jet/Brush Cleaning PH8MV

Pilot kick operated, 2-port valve. Open when energized.

Fluid: Normal tap water, industrial water, or air
Operating pressure: 0 to 1 MPa
Forward (reverse) pressure resistance: 2 MPa
Fluid temperature
Water; 5 to 60°C, Air; -10 to 60°C
Cv 4.5
Process connection: Rc 1/2
Power supply: 100/110/200/220 V AC, 50/60 Hz
Power consumption: 10 W
Construction: IP53
Material:
Body: Bronze
Sealing: Nitrile rubber
Ambient temperature: Maximum 50°C
Cable inlet connection: G 1/2
Weight: Approx. 0.9 kg

7B. Explosionproof Type Solenoid Valve for Jet/ Brush Cleaning PH8MVF

Pilot kick operated, 2-port valve. Open when energized.

Fluid: Normal tap water, industrial water, or air
Operating pressure: 0.05 to 1 MPa
Forward (reverse) pressure resistance: 1.5 MPa
Fluid temperature:
Water; 5 to 60°C, Air; -10 to 60°C
Cv: 4.5
Process connection: Rc 1/2
Power supply: 100 V AC, 50/60 Hz
110 V AC, 60 Hz
200 V AC, 50/60 Hz
220 V AC, 60 Hz
Power consumption: 10 W
Construction: TIIS flameproof type (for d2G4 gas)
Material:
Body: Bronze
Sealing: Nitrile rubber
Ambient temperature: Maximum 50°C
Leak at valve seat: 300 Nml/min (air pressure: 50 to 700 kPa)
Cable inlet connection: Frameproof packin adaptor (G1/2)
Mounting position: Vertical mounting with coil in top
Weight: Approx. 1.9 kg

8A. Ultrasonic Oscillator (Non-Explosionproof Type) PUS400G

Combination device:
Holder with ultrasonic cleaner (PH8HS, PH8HF)
Connection cables are provided with holders.
Cleaning method: Continuous ultrasonic emission (Frequency sweep method)
Oscillation frequency: Approx. 61 to 81 kHz
Output voltage: Approx. 70 V
Power supply: 100/110/115/200/220/240 V AC±10% 50/60 Hz
Power consumption: Approx. 15 VA
Ambient Temperature: -10 to 50°C (hood may be fitting as option)
Storage Temperature: -25 to 70°C
Construction: JIS C0920 Watertight (NEMA 4 equivalent waterproof construction)
Material: Case; Aluminum alloy casting
Window; Polycarbonate
Mounting bracket; Stainless steel
Finish: Baked polyurethane resin (Standard)
Baked epoxy resin (Option)

Color: Case; Frosty white (Munsell 2.5Y8.4/1.2 or equivalent)
Cover; Deep sea-moss green (Munsell 0.6GY3.1/2.0 equivalent)
Mounting: (2-inch) pipe mounting, wall or rack mounting or panel mounting
Cable inlet:Ø22.7 x 2 Pg16 watertight plastic gland
Cable/Terminal: For 7 to 12 mm, M4
Conduit adapter: Power Supply side only (Option)
Connection; G 1/2 or 1/2 NPT
Weight: Body; Approx. 2.0 kg
Pipe mounting bracket; Approx. 0.7 kg
Wall mounting bracket; Approx. 0.4 kg
(Note) Output of ultrasonic oscillator changes with power supply voltage or connected cable length.
Noise filter assembly: (only for PUS400G-NN-KC)
Ambient temperature: -10 to 50°C
(no dew condensation allowed)
Strage temperature: -25 to 70°C
Construction: JIS C 0920 Watertight (IP53)

Regulatory Compliance (for PUS400G-NN-KC)
Korea Electromagnetic Conformity Standard Class A
한국 전자파적합성 기준

8B1. Ultrasonic Oscillator (Explosionproof Type) PH8USF

Combination device:
Holder with ultrasonic cleaner (PH8HSF, PH8HFF)
(Note) This oscillator must be used with the the Alarm Box PH8AL to provide power circuit interruption and failure alarm contact outputs.
Cleaning method: Continuous ultrasonic emission (Frequency sweep method)
Oscillation frequency: Approx. 65 to 80 kHz
Output voltage: Maximum 150 V
Power supply: 100,110 to 115 (specify voltage), 200, 220 to 240 (specify voltage) V AC±10%, 50/60 Hz
Power consumption: Approx. 15 VA
Construction: TIIS flameproof construction (d2G4)
Material: Case; Aluminum alloy
Finish: Baked polyurethane resin casting (optional)
Color: Case; Munsell 7.5BG4/1.5 equivalent
Weight: Approx. 9.5 kg
Mounting: 2-inch pipe mounting
Ambient temperature: -10 to 50°C
Cable inlet:G 3/4
Cable/Terminal:
Oscillator to Vibrator: 4-conductor shielded cable, OD 10 to 12 mm, Maximum length 10 m, Selectable by option code /C□□
Oscillator to Alarm box: 2-conductor shielded cable, OD 10 to 12 mm, Maximum length 1000 m
(Note) Total resistance of two leadwires should be 10 Ω or less.Complete grounding for explosionproof areas must be conducted
(Note) Output of ultrasonic oscillator changes with power supply voltage or connected cable length.

8B2. Alarm Box PH8AL

Combination device:
One to one combination with ultrasonic Oscillator Explosionproof Type PH8USF
Case: Square shape, panel-back side mounting, dustproof steel plate construction, universal mounting position.
Coating color: Gray (Munsell N7.0)
Finish: Baked melamine resin
Power supply: 100, 110 to 115 , 200, 220 to 240 V AC ±10%, 50/60 Hz
(Note) Maximum voltage is 125 V AC when power supply of 110 to 115 V AC is specified, maximum voltage is 250 V AC when power supply of 220 to 240 V AC is specified.
Ambient temperature: -10 to 50°C
Weight: Approx. 2.0 kg

■ MODEL AND SUFFIX CODES

1. Guide Pipe PH8HG

Model	Suffix Code	Option Code	Description
PH8HG	.....	.....	Guide Pipe (*1)
Material	**-PV**	.....	Polyvinylchloride (fluid temperature 50°C or less)
	-PP	.....	Polypropylene (fluid temperature 80°C or less)
Style Code	***A**	.....	Style A
Option Mounting Bracket (*2)		**/MS5**	Stainless steel mounting bracket (1 set)

*1: Pipe length: 2 m
*2: A set of 2-inch pipe mounting bracket is provided as standard.

2A. Submersion Type Holder PH8HS

Model	Suffix Code	Option Code	Description
PH8HS	.....	.....	Submersion type holder
Material	**-PP**	.....	Polypropylene
	-S3	.....	Stainless steel
Pipe length	**-10**	.....	1.0m
	-15	.....	1.5m
	-20	.....	2.0m
	-25	.....	2.5m
	-30	.....	3.0m
pH Measuring System	**-T**	.....	Always -T
Cleaning System	**-NN**	.....	None
	-S3	.....	For ultrasonic cleaning (Transducer: SS316) (*1)
	-TN	.....	For ultrasonic cleaning (Transducer: Titanium) (*2)
	-HC	.....	For ultrasonic cleaning (Transducer: Hastelloy C) (*3)
	-JT	.....	For jet cleaning. The solenoid valve must be specified separately.
	-BR	.....	For brush cleaning. The solenoid valve must be specified separately.
Cable Length for Ultrasonic Cleaning	**-NN**	.....	None
	-C3	.....	3m
	-C5	.....	5m
	-C6	.....	7m
	-C7	.....	10m
	-C8	.....	15m
	-C9	.....	20m
Connector for Jet or Brush Cleaning	**-JP**	.....	Rc1/2
	-NP	.....	1/2 NPT
Style Code	***A**	.....	Style A
Option Mounting Bracket (*5)		**/MS1**	Mounting bracket : 1 set
		/MS2	Mounting bracket : 2 sets
		/MS3	Stainless steel mounting bracket : 1 set
		/MS4	Stainless steel mounting bracket : 2 sets
Special Mounting		**/F1**	With flange (Without Cleaning System)
		/F2	With flange (With Cleaning System)
O-ring		**/PF**	Daielper (*4)

*1: General purpose (Normal pH3 to 14)
*2: For salt water
*3: For acid (Normal pH0 to 4)
*4: Choose Daielperfrow when this holder is used in organic solvent, high alkali or high temperature alkali.
*5: The required number of mounting bracket sets depends on the installation location and flow rate. In general, one set is sufficient for pipe lengths of 1 meter, and otherwise two sets are required.

2B.Submersion Type Holder (Explosionproof Type) PH8HSF

Model	Suffix Code	Option Code	Description
PH8HSF	.....	.....	Submersion type holder
Material	**-PP**	.....	Polypropylene
	-S3	.....	Stainless steel
Pipe length	**-10**	.....	1.0m
	-15	.....	1.5m
	-20	.....	2.0m
pH Measuring System	**-T**	.....	Always -T
Cleaning System (*4) (Ultrasonic cleaning only)	**-S3**	.....	SS316 Transducer (*1)
	-TN	.....	Titanium Transducer (*2)
	-HC	.....	Hastelloy C Transducer (*3)
Explosion Protection	**-JS**	.....	TIIS Flameproof (d2G4)
Style Code	***A**	.....	Style A
Option Mounting Bracket		**/MS1**	Mounting bracket : 1 set (*6)
		/MS2	Mounting bracket : 2 sets (*6)
		/MS3	Stainless steel mounting bracket : 1 set (*6)
		/MS4	Stainless steel mounting bracket : 2 sets (*6)
Special Mounting		**/F**	With flange (JIS 10K 200 FF)
Flameproof Packing		**/PG2**	Adaptor 3/4 inch
Tag Plate		**/SCT**	Stainless steel tag plate
O-ring		**/PF**	Daielperfrow (*5)

*1: General purpose (Normal pH3 to 14)
*2: For salt water
*3: For acid (Normal pH0 to 4)
*4: Use PH8HS for no cleaning, Jet cleaning or brush cleaning.
*5: Choose Daielperfrow when this holder is used in organic solvent, high alkali or high temperature alkali.
*6: The required number of mounting bracket sets depends on the installation location and flow rate. In general, one set is sufficient for pipe lengths of 1 meter, and otherwise two sets are required.

2C.Submersion Type Holder DOX8HS

Model	Suffix Code	Option Code	Description
DOX8HS	.....	.....	Submersion type holder
Material	**-PP**	.....	Polypropylene
	-S3	.....	Stainless steel
Pipe length	**-10**	.....	1.0m
	-15	.....	1.5m
	-20	.....	2.0m
	-25	.....	2.5m
	-30	.....	3.0m
	-35	.....	3.5m (stainless steel -S3) only
	-40	.....	4.0m (stainless steel -S3) only
Type	**-C**	.....	For DO30G and SS300G
	-L	.....	For DO70G
Cleaning System (*1)	**-NN**	.....	None
	-JT	.....	For jet cleaning (The solenoid valve must be specified separately)
Connector for Cleaning	**-NN**	.....	None
	-JP	.....	Rc1/2
	-NP	.....	1/2NPT
Style Code	***B**	.....	Style B
Option Mounting Bracket (*2)		**/MS1**	Mounting bracket : 1 set
		/MS2	Mounting bracket : 2 sets
		/MS5	Mounting bracket (stainless steel) : 1 set
		/MS6	Mounting bracket (stainless steel) : 2 sets

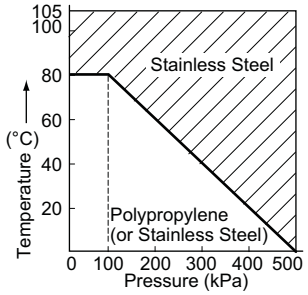
*1: When using the wiper cleaning of MLSS meter, choose a proper cleaning system under the MS code of the MLSS sensor.
*2: The required number of mounting bracket sets depends on the installation location and flow rate. In general, one set is sufficient for pipe lengths of 1 meter, and otherwise two sets are required.

3A.Flow-Through Type Holder PH8HF

[Style: S2]

Model	Suffix Code	Option Code	Description
PH8HF	.....	.....	Flow-through type holder
Material (*7)	**-PP**	.....	Polypropylene
	-S3	.....	Stainless steel
Process Connection	**-JPT**	.....	Rc1
	-NPT	.....	1 NPT female thread
	-J10	.....	JIS 10K 25 FF (*6)
	-A15	.....	ANSI Class 150 1 FF flange (for polypropylene holder -PP) (*6) ANSI Class 150 1 RF flange with serration (for SS316 holder -S3)
pH Measuring System	**-T**	.....	Always -T
Cleaning System	**-NN**	.....	None
	-S3	.....	For ultrasonic cleaning (Transducer: SS316) (*1)
	-TN	.....	For ultrasonic cleaning (Transducer: Titanium) (*2)
	-HC	.....	For ultrasonic cleaning (Transducer: Hastelloy C) (*3)
	-JT	.....	For jet cleaning. The solenoid valve must be specified separately
	-BR	.....	For brush cleaning. The solenoid valve must be specified separately
Cable Length for Ultrasonic Cleaning	**-NN**	.....	None
	-C1	.....	1m
	-C3	.....	3m
	-C6	.....	7m
	-C7	.....	10m
	-C8	.....	15m
	-C9	.....	20m
Connector for Jet or Brush Cleaning	**-JP**	.....	Rc1/2
	-NP	.....	1/2 NPT
Style Code	***A**	.....	Style A
Option	Mounting Bracket **/MF1**		Mounting bracket (stainless steel) (*5)
	O-ring **/PF**		Daielperfrow (*4)

*1: General purpose (Normal pH 3 to 14)
*2: For salt water
*3: For acid (Normal pH 0 to 4)
*4: Choose Daielperfrow when this holder is used in organic solvent, high alkali or high temperature alkali.
*5: Mounting bracket is generally not required when the stainless steel holder is installed in-line in a pipe
It is required where the holder is installed in a sampling rack (in which case the U-bolt included in /MF1 in not used).
*6: Only mating dimensioms are according to flange standard.
*7: Criteria for material selection (-PP or -S3)
In general, polypropylene is recommended from the viewpoint of chemical resistance.
However stainless steel is recommend in any of the following cases:
• The liquid contains organic reagent, oxidizing agents, etc., which can attack polypropylene.
• The temperature/pressure correlation of the process condition falls within the hatched area of the diagram shown right.
• The use of polypropylene is not reasonable from a viewpoint of strength or past experience.
For stainless steel, normally a 3 to 14 pH value is recommended.

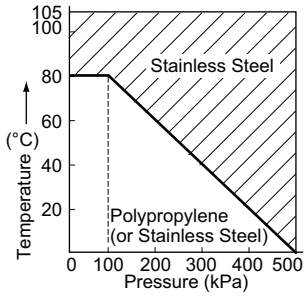


3B.Flow-Through Type Holder (Explosionproof Type) PH8HFF

[Style: S2]

Model	Suffix Code	Option Code	Description
PH8HFF	.....	.....	Flow-through type holder
Material (*7)	**-PP**	.....	Polypropylene (Refer to note below for selection)
	-S3	.....	Stainless steel
Process Connection	**-JPT**	.....	Rc1
	-NPT	.....	1 NPT female thread
	-J10	.....	JIS 10K 25 FF flange
	-A15	.....	ANSI Class 150 1 FF flange equivalent (for polypropylene holder -PP) ANSI Class 150 1 RF Flange with serration (for SS316 holder -S3)
pH Measuring System	**-T**	.....	Always -T
Cleaning System (*4) (Ultrasonic cleaning only)	**-S3**	.....	(SS316 transducer) (*1)
	-TN	.....	(Titanium transducer) (*2)
	-HC	.....	(Hastelloy C transducer) (*3)
Explosion Protection	**-JS**	.....	TIIS Flameproof (d2G4)
Style Code	***A**	.....	Style A
Option	Special Mounting	**/MF1**	Mounting bracket (stainless steel) (*6)
	Flameproof Packing	**/PG2**	JIS flameproof packing adapter 3/4 inch
	Tag Plate	**/SCT**	Stainless steel tag plate
	O-ring	**/PF**	Daielperfrow (*5)

*1: General purpose (Normal pH 3 to 14)
*2: For salt water
*3: For acid (Normal pH 0 to 4)
*4: Use PH8HS for no cleaning, Jet cleaning or Brush cleaning.
*5: Choose Daielperfrow when this holder is used in organic solvent, high alkali or high temperature alkali.
*6: Mounting bracket is generally not required when the stainless steel holder is installed in-line in a pipe
It is required where the holder is installed in a sampling rack (in which case the U-bolt included in /MF1 in not used).
*7: Criteria for material selection (-PP or -S3)
In general, polypropylene is recommended from the viewpoint of chemical resistance.
However stainless steel is recommend in any of the following cases:
• The liquid contains organic reagent, oxidizing agents, etc., which can attack polypropylene.
• The temperature/pressure correlation of the process condition falls within the hatched area of the diagram shown right.
• The use of polypropylene is not reasonable from a viewpoint of strength or past experience.
For stainless steel, normally a 3 to 14 pH value is recommended.



3C.Flow-Through Type Holder FH350G (For MLSS Meter)

Model	Suffix Code	Option Code	Description
FH350G	.....	.....	Flow-through type holder
Material	**-PP**	.....	Polypropylene
	-S3	.....	Stainless steel
Process Connection	**-JPT1**	.....	Rc1
	-NPT1	.....	1 NPT female thread
	-J10F	.....	JIS 10K 25 FF flange
	-A15F	.....	ANSI Class 150 1 FF flange equivalent (for polypropylene holder -PP)
	-A15R	.....	ANSI Class 150 1 RF flange with serration (for stainless steel holder -S3)
Cleaning System	**-NN**	.....	None
	-JT	.....	For Jet Cleaning (the solenoid valve must be specified separately)
Connector for Cleaning water	**-NN**	.....	None
	-JP	.....	Rc 1/2
	-NP	.....	1/2 NPT female thread
Option	Mounting Bracket	**/MF5**	Mounting bracket (stainless steel)
	Tag Plate	**/SCT**	Stainless steel tag plate

(Notes) Required flow rate is 6 l/min or greater.
Maximum measuring range of MLSS sensor is 0 to 1000 mg/l.

4. Suspension Holder HH350G

Model	Suffix Code	Option Code	Description
HH350G	.....	.....	Suspension holder
—	**-NN**	.....	Always -NN
Guide-Pipe Length	**-00**	.....	No guide-pipe
	-10	.....	1m
	-20	.....	2m
	-30	.....	3m
	-40	.....	4m
Cleaning System	**-NN**	.....	None
	-JT	.....	Jet cleaning (The solenoid valve must be specified separately.)
Connection for Cleaning	**-NN**	.....	None
	-JP	.....	Rc 1/2
	-NP	.....	1/2 NPT female thread

5. Angled Floating Ball Holder PB350G

Model	Suffix Code	Option Code	Description
PB350G	.....	.....	Angled floating ball holder
Arm Material	**-PV**	.....	PVC
	-S3	.....	Stainless steel
Pipe Length	**-00**	.....	No guide-pipe (*)
	-25	.....	2.5m
—	**-NN**	.....	Always -NN

* When pipe (JIS K6741 VP40) is prepared by user.

6. Vertical Floating Ball Holder PB360G

Model	Suffix Code	Option Code	Description
PB360G	.....	.....	Vertical floating ball holder
Arm Material	**-PV**	.....	PVC
	-S3	.....	Stainless steel
Pipe Length	**-25**	.....	2.5m
	-35	.....	3.5m
—	**-NN**	.....	Always -NN

7A. Solenoid Valve for Jet/Brush Cleaning PH8MV

Model	Suffix Code	Option Code	Description
PH8MV	.....	.....	Solenoid Valve for Jet/Brush Cleaning
Fluid	**-A**	.....	Air
	-W	.....	Water
Power Supply Voltage	**-100**	.....	100V AC
	-110	.....	110V AC
	-200	.....	200V AC
	-220	.....	220V AC
Power Supply Frequency	**-50**	.....	50Hz
	-60	.....	60Hz
Style Code	***D**	.....	Style D

7B.Solenoid Valve (Explosionproof Type) for Jet/Brush Cleaning PH8MVF

Model	Suffix Code	Option Code	Description
PH8MVF	.....	.....	Flameproof type Solenoid Valve
Fluid	**-A**	.....	Air
	-W	.....	Water
Power Supply Voltage	**-100**	.....	100V AC 50/60Hz
	-110	.....	110V AC 60Hz only
	-200	.....	200V AC 50/60Hz
	-220	.....	220V AC 60Hz only
Power Supply Frequency	**-50**	.....	50Hz
	-60	.....	60Hz
Explosion Protection	**-JS**	.....	TIIS Flameproof (d2G4)
Style Code	***B**	.....	Style B
Option Tag Plate		**/SCT**	Stainless steel tag plate

8A.Ultrasonic Oscillator PUS400G

Model	Suffix Code	Option Code	Description
PUS400G	.....	.....	Ultrasonic oscillator for pH meter
—	**-NN**	.....	Always -NN
Application	**-NN**	.....	General purpose
	-KC	.....	For Korea
Power Supply	**-1**	.....	100V AC 50/60Hz
	-2	.....	110V AC 50/60Hz
	-3	.....	115V AC 50/60Hz
	-4	.....	200V AC 50/60Hz
	-5	.....	220V AC 50/60Hz
	-6	.....	240V AC 50/60Hz
Language	**-E**	.....	English
	-J	.....	Japanese
Option Mounting Bracket		**/PS**	Pipe mounting bracket (stainless steel)
		/W	Wall mounting bracket (stainless steel)
		/PA	Panel mounting bracket (stainless steel)
Hood		**/H**	Awning hood (carbon steel)
		/H2	Awning hood (stainless steel)
Special Finish		**/X1**	Baked epoxy resin
Tag Plate		**/SCT**	Stainless steel tag plate
Conduit Adaptor		**/AFTG**	G1/2
		/ANSI	1/2 NPT
		/SPS	Teflon coated SUS steel screws

8B1. Ultrasonic Oscillator (Explosionproof Type) PH8USF

Model	Suffix Code	Option Code	Description
PH8USF	.....	.....	Explosionproof type ultrasonic oscillator
Power Supply	**-3**	.....	200 V AC 50/60 Hz
	-4	.....	220 to 240 V AC 50/60 Hz specify voltage
	-5	.....	100 V AC 50/60Hz
	-7	.....	110 to 115V AC 50/60 Hz specify voltage
Explosion Protection	**-JS**	.....	TIIS Flameproof (d2G4)
Style Code	***A**	.....	Style A
Option Mounting Bracket		**/PM**	Pipe mounting bracket
Connection Cable (Between Oscillator and Holder)		**/C□□**	Specify the length in meter □□. No termination e.g. /C03 refers to the cable length of 3 m. Standard cable lengths: 3, 7, 10 m, 10 m max.
Flameproof Packing adapter		**/PG2**	TIIS flameproof packing adaptor 3/4 inch : 2 pcs
Tag Plate		**/SCT**	Stainless steel tag plate

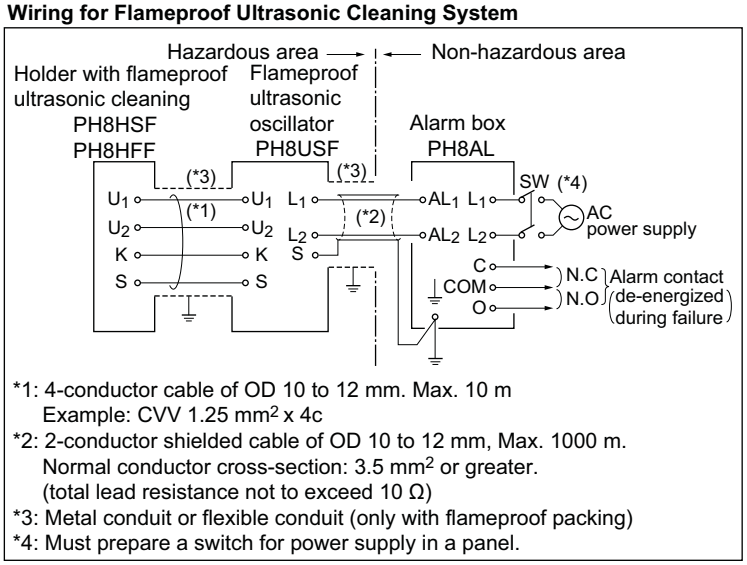
(Note) PH8USF must be used with Alarm Box PH8AL.
For 110 to 115 V AC or 220 to 240 V AC power supplies, specify the voltage when ordering.
Tolerance is ±10 % of the voltage specified.
Example: Power supply voltage 110 V AC

8B2. Alarm Box PH8AL

Model	Suffix Code	Option Code	Description
PH8AL	.....	.....	Alarm box
Power Supply	**-3**	.....	200V AC 50/60Hz
	-4	.....	220 to 240V AC 50 to 60Hz
	-5	.....	100V AC 50/60Hz
	-7	.....	110 to 115V AC 50 to 60Hz
Style Code	***A**	.....	Style A
Option		**/APC**	Air purge connector Rc1/4

■ WIRING DIAGRAM

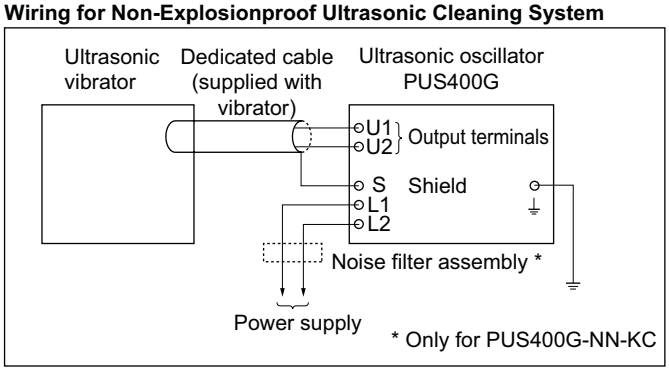
Wiring for Flameproof Ultrasonic Cleaning System



*1: 4-conductor cable of OD 10 to 12 mm. Max. 10 m
Example: CVV 1.25 mm^2 x 4c
*2: 2-conductor shielded cable of OD 10 to 12 mm, Max. 1000 m.
Normal conductor cross-section: 3.5 mm^2 or greater.
(total lead resistance not to exceed 10 Ω)
*3: Metal conduit or flexible conduit (only with flameproof packing)
*4: Must prepare a switch for power supply in a panel.

F001.ai

Wiring for Non-Explosionproof Ultrasonic Cleaning System

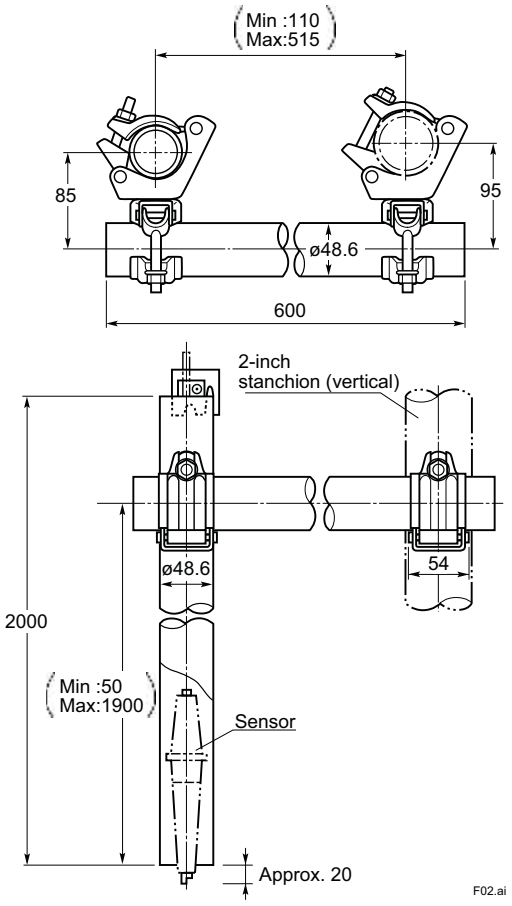


F002.ai

■ DIMENSIONS

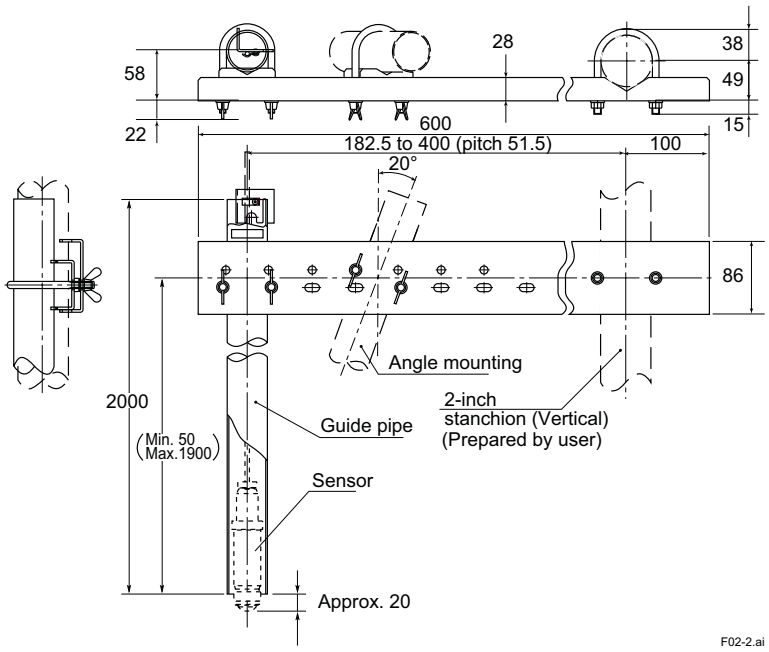
Guide Pipe (with Mounting Bracket)
PH8HG

UNIT : mm



- **Mounting Bracket, Stainless Steel**
  /MS5 (1 set), /MS6 (2 set)

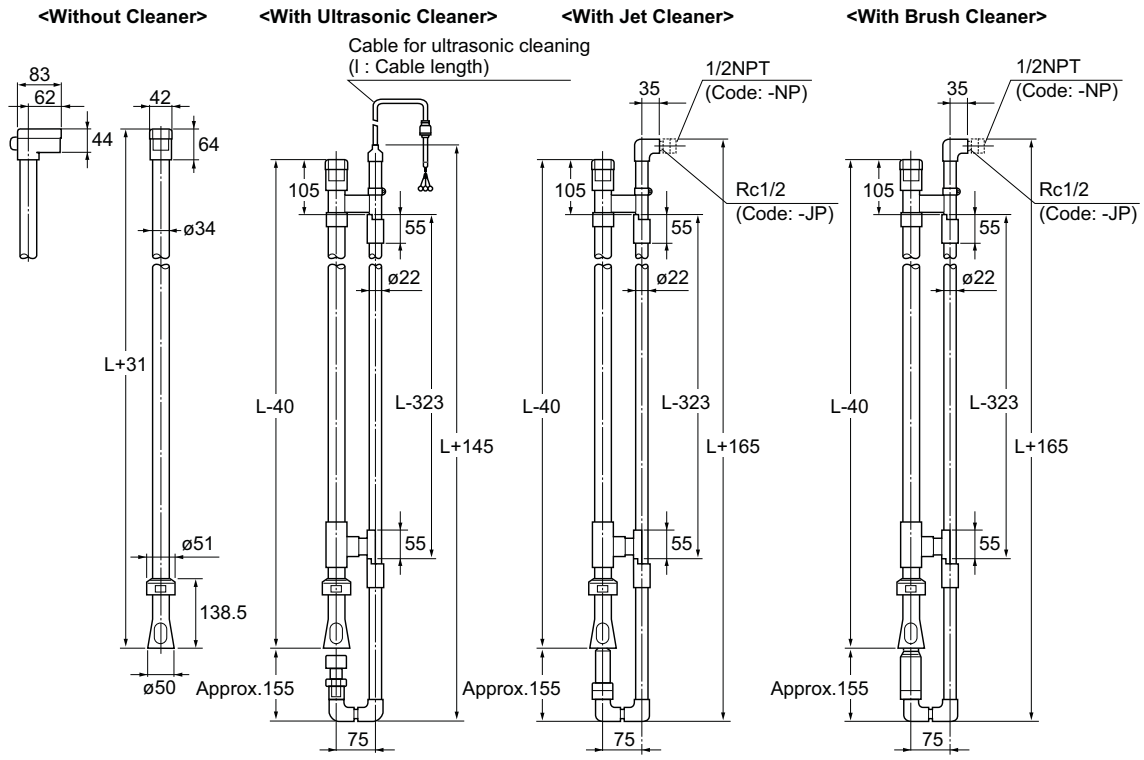
UNIT : mm



Submersion Type Holder, Polypropylene

PH8HS-PP

UNIT : mm



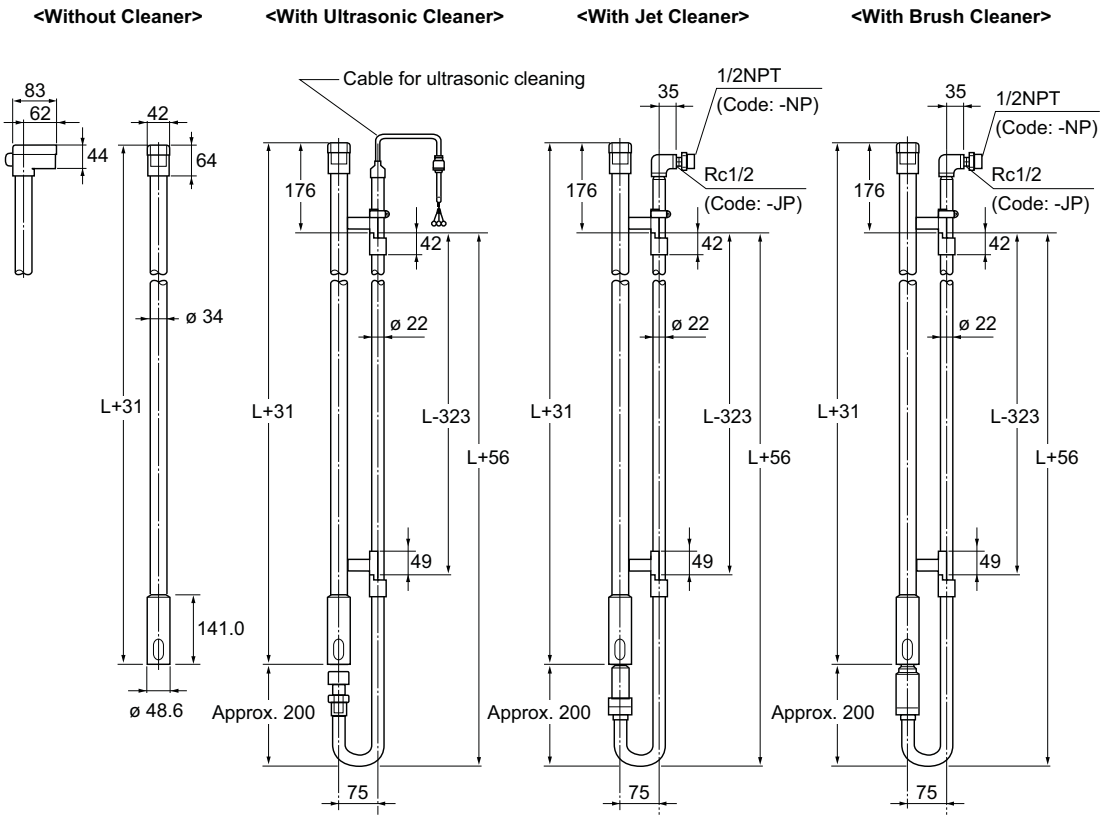
Specification of Holder (Model and Code)	Cable Length (l) (Code : C☐)	Weight (Approx.) Nominal Holder Length (L) 1000mm [Code : -10]	1500mm [Code : -15]	2000mm [Code : -20]	2500mm [Code : -25]	3000mm [Code : -30]
Without Cleaner PH8HS-PP-☐☐-☐-NN-NN		0.5 kg	0.65 kg	0.8 kg	1.0 kg	1.1 k g
With Ultrasonic Cleaner PH8HS-PP-☐☐-☐-S3-C PH8HS-PP-☐☐-☐-TN-C PH8HS-PP-☐☐-☐-HC-C	3m (C3) 5m (C5) 7m (C6) 10m (C7) 15m (C8) 20m (C9)	1.7 kg 1.8 kg 1.9 kg 2.1 kg 2.5 kg 2.9 kg	2.2 kg 2.3 kg 2.4 kg 2.6 kg 3.0 kg 3.4 kg	2.7 kg 2.8 kg 2.9 kg 3.1 kg 3.5 kg 3.9 kg	3.2 kg 3.3 kg 3.4 kg 3.6 kg 4.0 kg 4.4 kg	3.7 kg 3.8 kg 3.9 kg 4.1 kg 4.5 kg 4.9 kg
With Jet Cleaner PH8HS-PP-☐☐-☐-JT-P		1.6 kg	2.1 kg	2.6 kg	3.1 kg	3.6 kg
With Brush Cleaner PH8HS-PP-☐☐-☐-BR-P		1.6 kg	2.1 kg	2.6 kg	3.1 kg	3.6 kg

F03.ai

Submersion Type Holder, Stainless Steel

PH8HS-S3

UNIT : mm

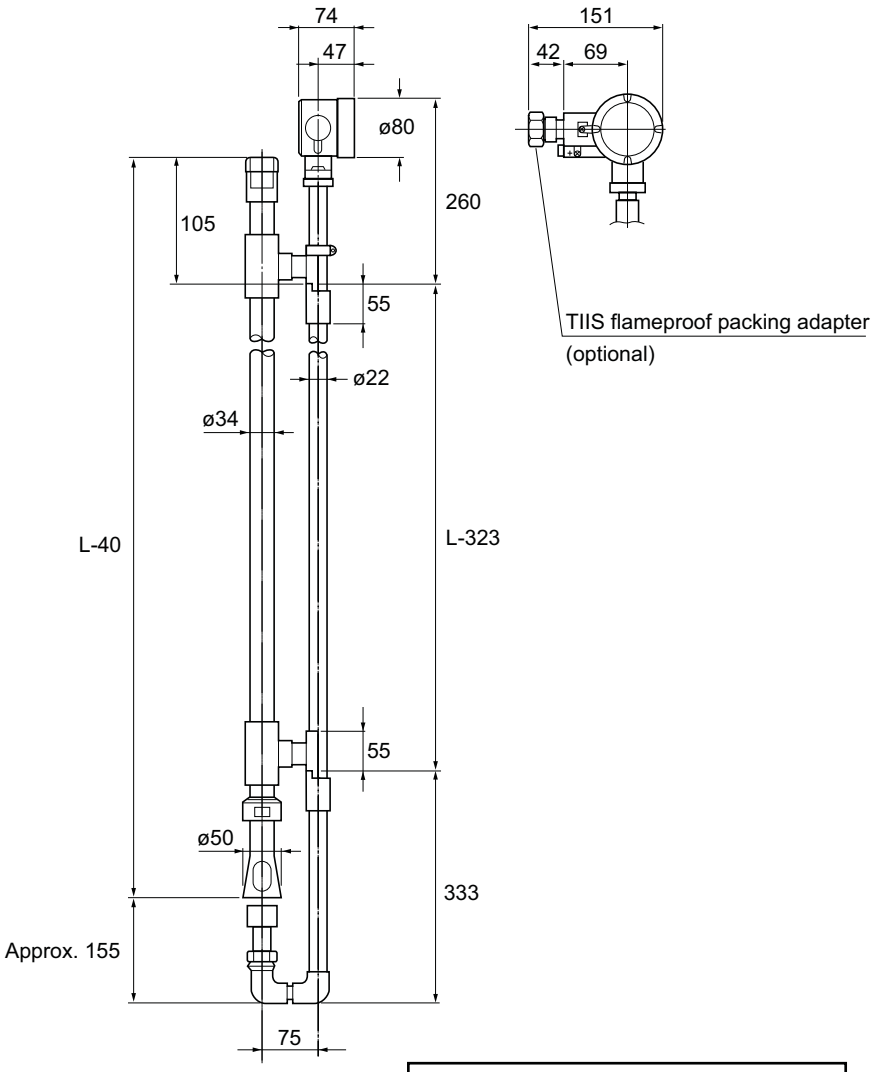


Specification of Holder (Model and Code)	Weight (Approx.)				
	Nominal Holder Length (L)				
	1000mm [Code : -10]	1500mm [Code : -15]	2000mm [Code : -20]	2500mm [Code : -25]	3000mm [Code : -30]
Without Cleaner PH8HS-S3-□□-□-NN	1.5 kg	2.3 kg	3.1 kg	3.9 kg	4.7 kg
With Non-Explosionproof Ultrasonic Cleaner PH8HS-S3-□□-□-S3, TN, HC	2.7 kg	3.9 kg	5.1 kg	6.3 kg	7.5 kg
With Jet Cleaner PH8HS-S3-□□-□-JT	2.5 kg	3.6 kg	4.7 kg	5.8 kg	6.9 kg
With Brush Cleaner PH8HS-S3-□□-□-BR	2.5 kg	3.6 kg	4.7 kg	5.8 kg	6.9 kg

F07.ai

Submersion Type Holder (Explosionproof Type), Polypropylene
PH8HSF-PP

UNIT : mm



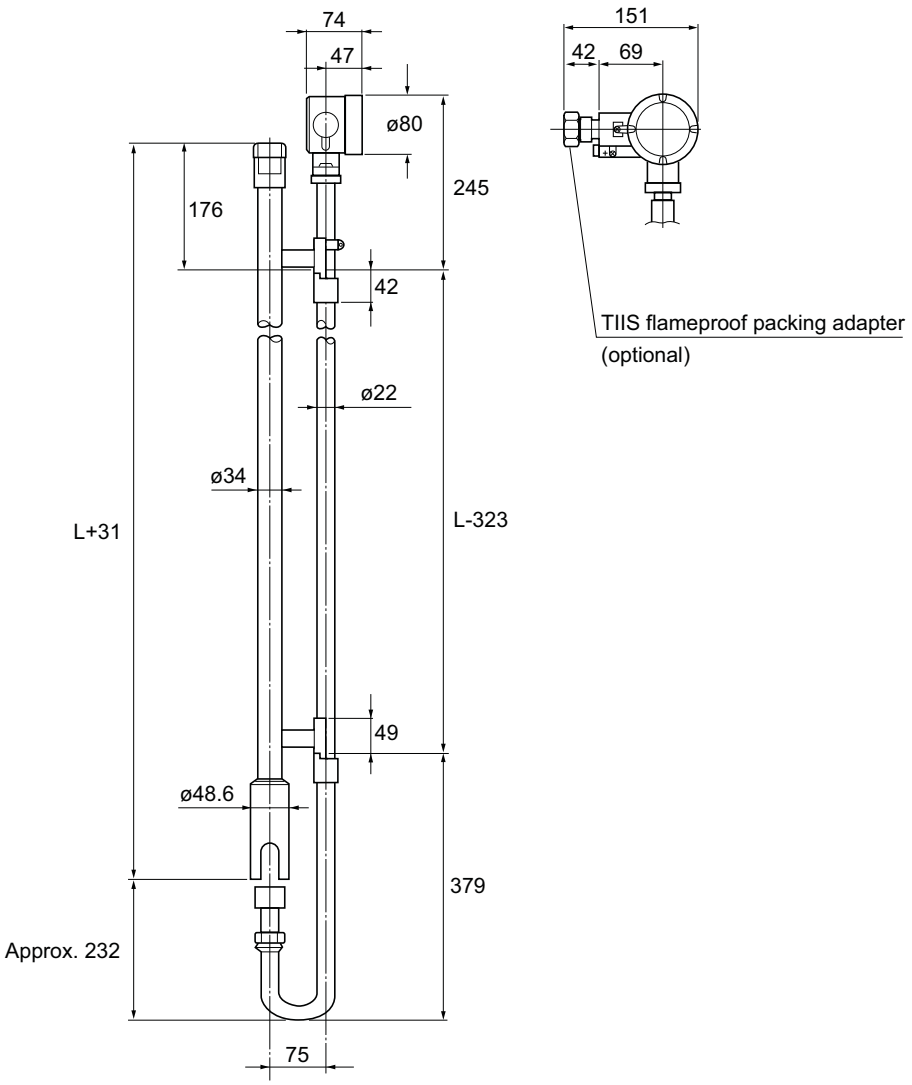
Specification of Holder (Model and Code)	Weight (Approx.)		
	Nominal Holder Length (L)		
	1000mm [Code: -10]	1500mm [Code: -15]	2000mm [Code: -20]
With Ultrasonic Cleaner PH8HSF-PP-□□-T-S3, TN, HC	2.2 kg	2.7 kg	3.2 kg

F11.ai

Submersion Type Holder (Explosionproof Type), Stainless Steel

PH8HSF-S3

UNIT : mm



L = Normal holder length (Standard: 1000 mm, 1500 mm, 2000 mm)

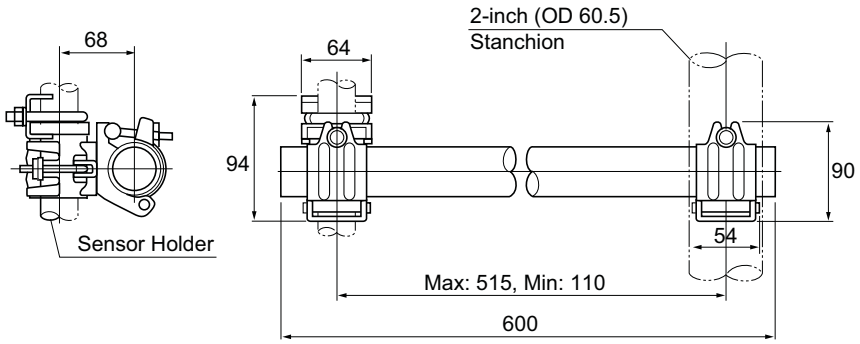
Specification of Holder (Model and Code)	Weight (Approx.)		
	Nominal Holder Length (L)		
	1000mm [Code : -10]	1500mm [Code : -15]	2000mm [Code : -20]
With Flameproof Ultrasonic Cleaner PH8HSF-S3-□□-T-S3, TN, HC	3.3 kg	4.5 kg	5.7 kg

F15.ai

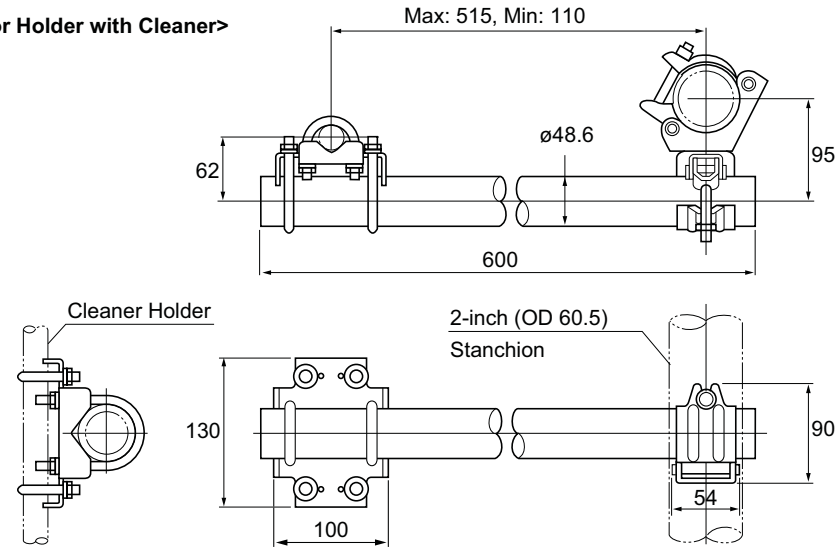
- **Mounting Bracket for Submersion Type Holder**
  /MS1: 1 set, /MS2: 2 set

<For Holder without cleaner>

UNIT: mm



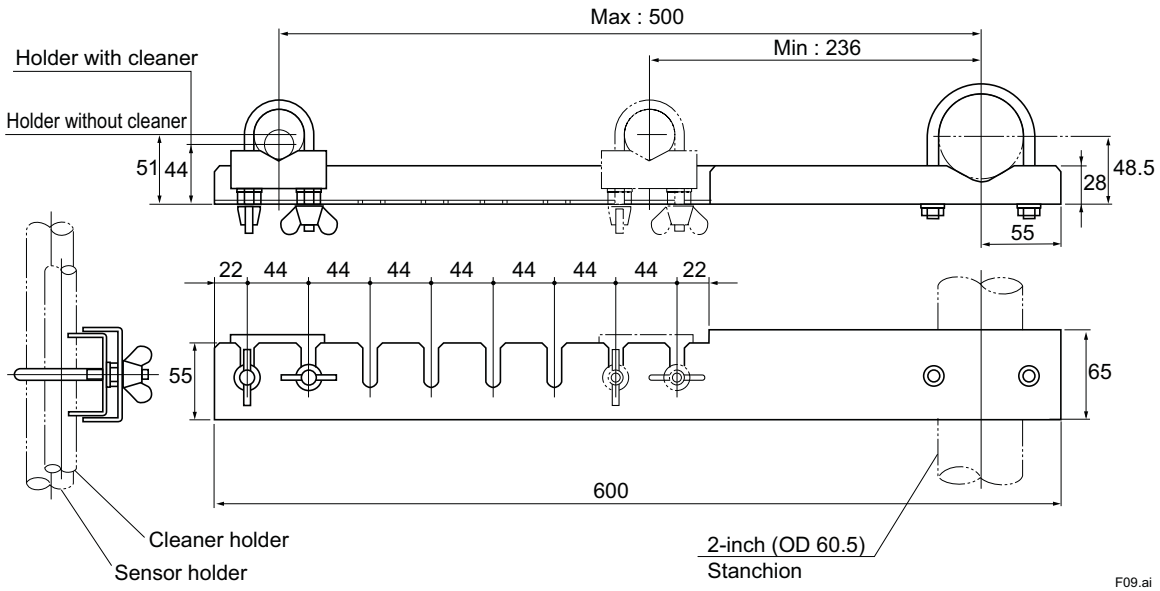
<For Holder with Cleaner>



Weight: Approx. 1kg

- **Stainless Steel Mounting Bracket for Submersion Type Holder**
  /MS3: 1 set, /MS4: 2 sets

UNIT : mm

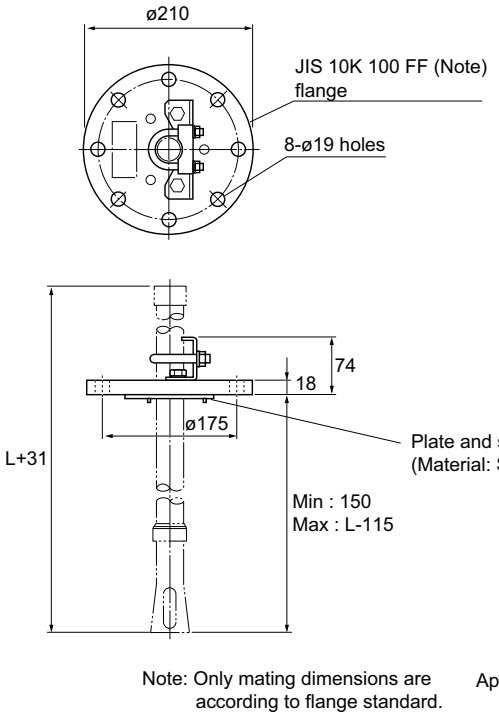


Weight: Approx. 1kg

- **/F□ Flange Mounting**

UNIT : mm

/F1: Flange of holder without cleaner
- Material: Polypropylene -

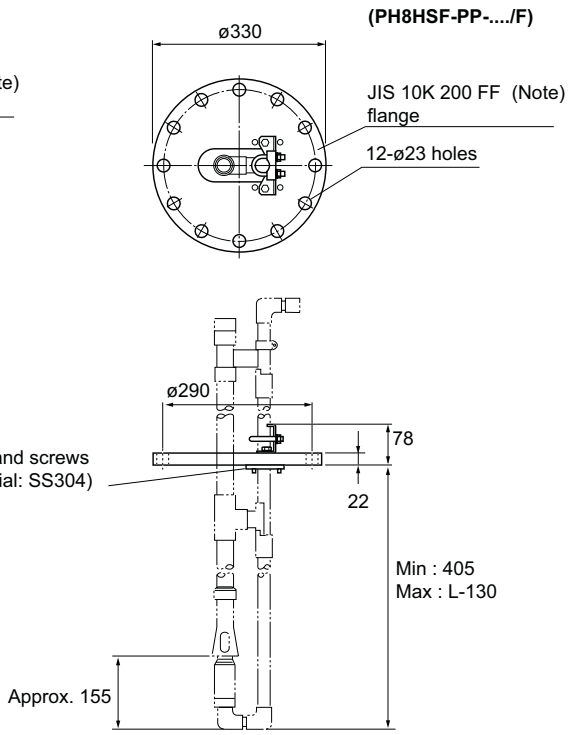


Note: Only mating dimensions are according to flange standard.

Flange weight: Approx. 1 kg

/F2: Flange of holder with cleaner
- Material: Polypropylene -

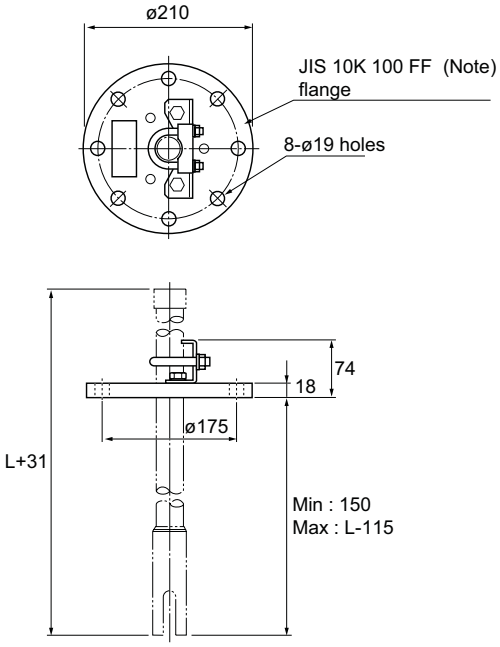
(PH8HSF-PP-..../F)



Flange weight: Approx. 1.5 kg

F06.ai

/F1: Flange of holder without cleaner
- Material: SS316 Stainless steel -

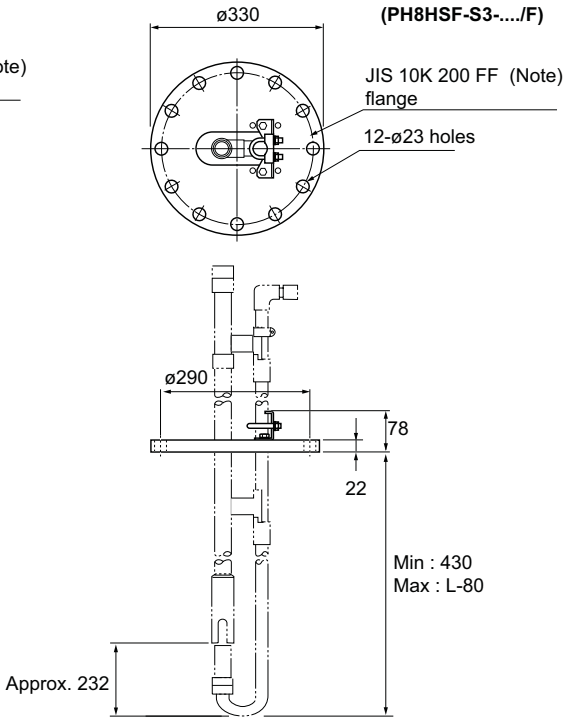


Note: Only mating dimensions are according to flange standard.

Flange weight: Approx. 5 kg

/F2: Flange of holder with cleaner
- Material: SS316 Stainless steel -

(PH8HSF-S3-..../F)

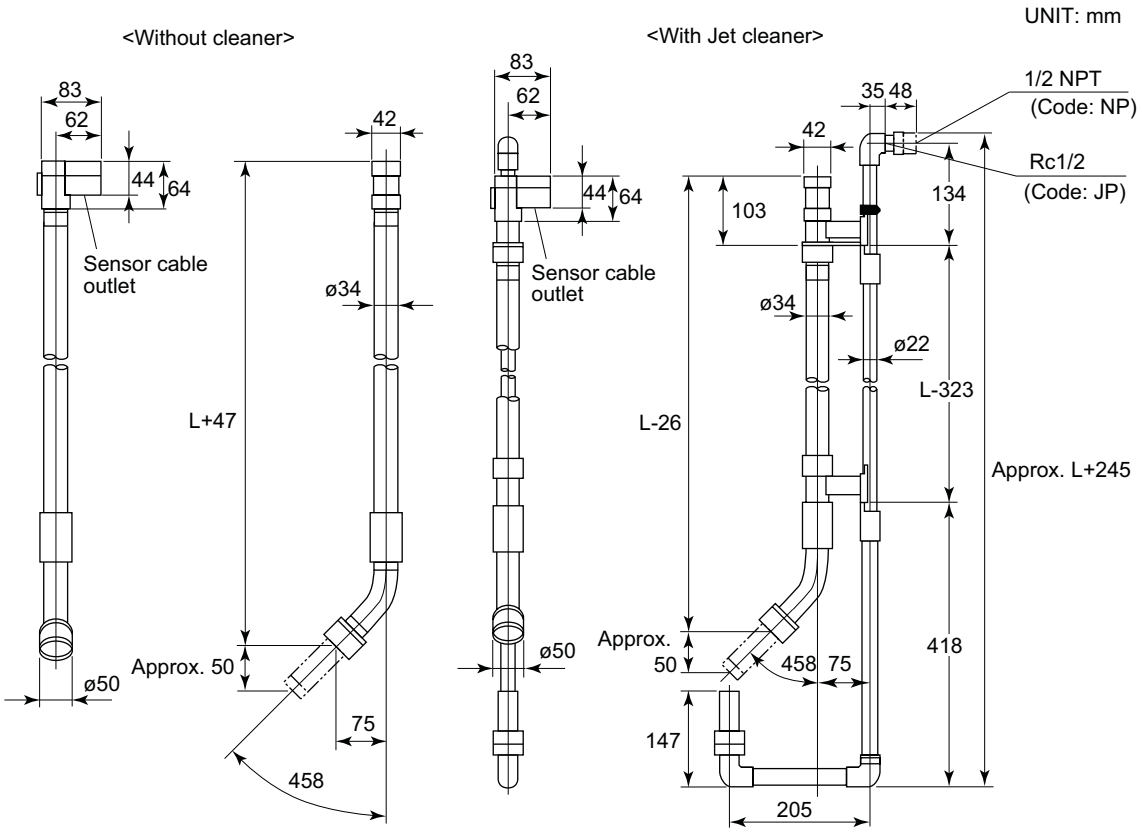


Flange weight: Approx. 15 kg

F10.ai

Submersion Type Holder, Polypropylene (See separate drawing for mounting bracket)
DOX8HS-PP (For DO30G and SS300G)

UNIT: mm

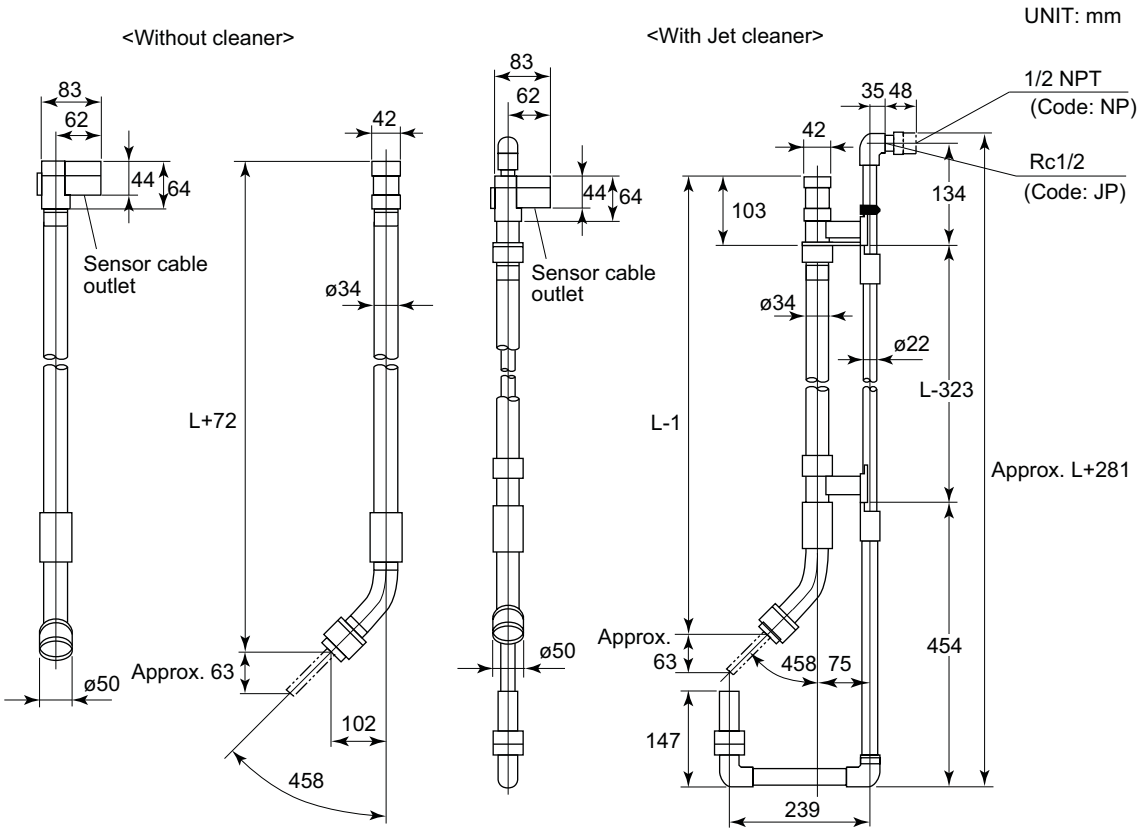


Specification of Holder (Model and Code)	Weight (Approx.) Nominal Holder Length (L) 1000 mm [Code: -10]	1500 mm [Code: -15]	2000 mm [Code: -20]	2500 mm [Code: -25]	3000 mm [Code: -30]
Without Cleaner DOX8HS-PP-□□-C-NN-NN*B/□□	Approx. 0.5 kg	Approx. 0.65 kg	Approx. 0.8 kg	Approx. 0.95 kg	Approx. 1.1 kg
With Jet cleaner DOX8HS-PP-□□-C-JT-□P*B/□□	Approx. 1.6 kg	Approx. 2.1 kg	Approx. 2.6 kg	Approx. 3.1 kg	Approx. 3.6 kg

F19.ai

Submersion Type Holder, Polypropylene (See separate drawing for mounting bracket)
DOX8HS-PP (For DO70G)

UNIT: mm

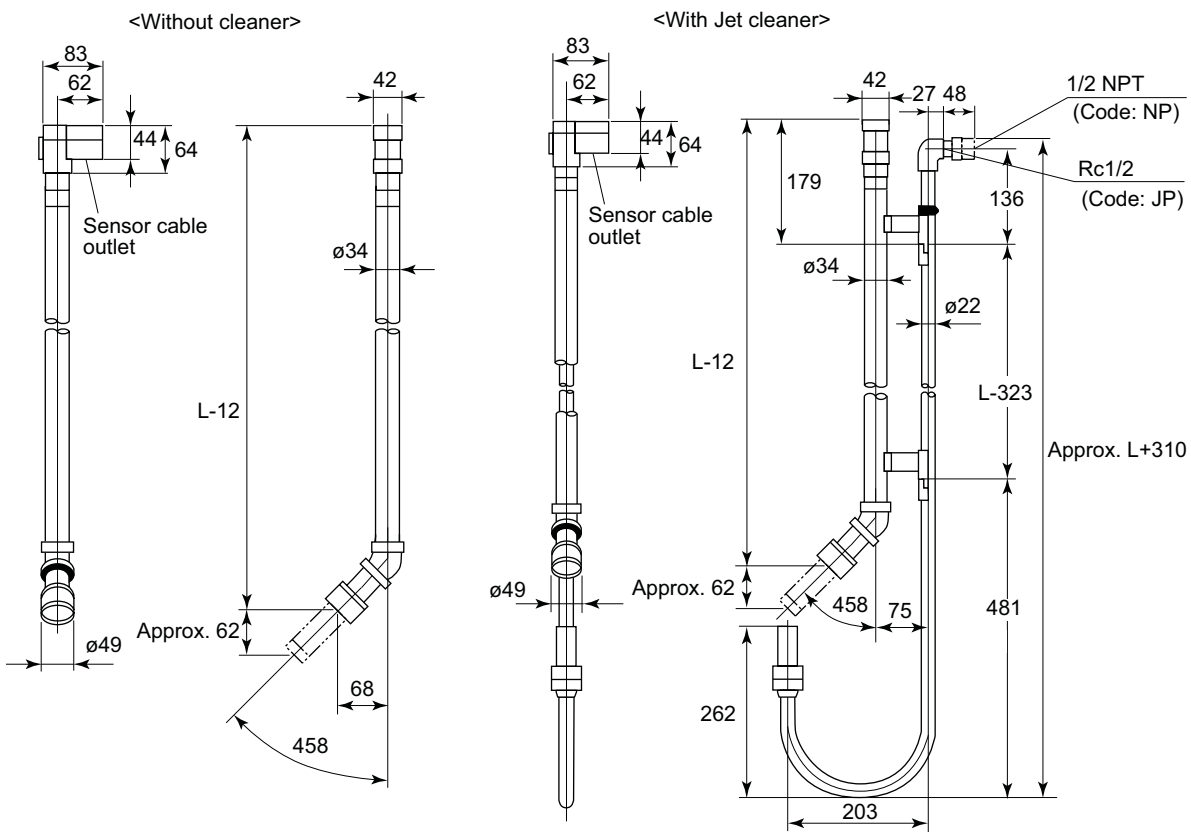


Specification of Holder (Model and Code)	Weight (Approx.) Nominal Holder Length (L) 1000 mm [Code: -10]	1500 mm [Code: -15]	2000 mm [Code: -20]	2500 mm [Code: -25]	3000 mm [Code: -30]
Without Cleaner DOX8HS-PP-□□-L-NN-NN*B/□□	Approx. 0.5 kg	Approx. 0.65 kg	Approx. 0.8 kg	Approx. 0.95 kg	Approx. 1.1 kg
With Jet cleaner DOX8HS-PP-□□-L-JT-□P*B/□□	Approx. 1.7 kg	Approx. 2.2 kg	Approx. 2.7 kg	Approx. 3.2 kg	Approx. 3.7 kg

F19-1.ai

Submersion Type Holder, Stainless Steel (See separate drawing for mounting bracket)
DOX8HS-S3 (For DO30G and SS300G)

UNIT: mm



Specification of Holder (Model and Code)	Weight (Approx.) Nominal Holder Length (L)				
	1000 mm [Code:-10]	1500 mm [Code:-15]	2000 mm [Code:-20]	2500 mm [Code:-25]	3000 mm [Code:-30]
Without Cleaner DOX8HS-S3-□□-C-NN-NN*B/□□	1.9 kg	3.1 kg	4.3 kg	5.5 kg	6.7 kg
With Jet cleaner DOX8HS-S3-□□-C-JT-□P*B/□□	4.1 kg	5.6 kg	7.1 kg	8.6 kg	10.1 kg

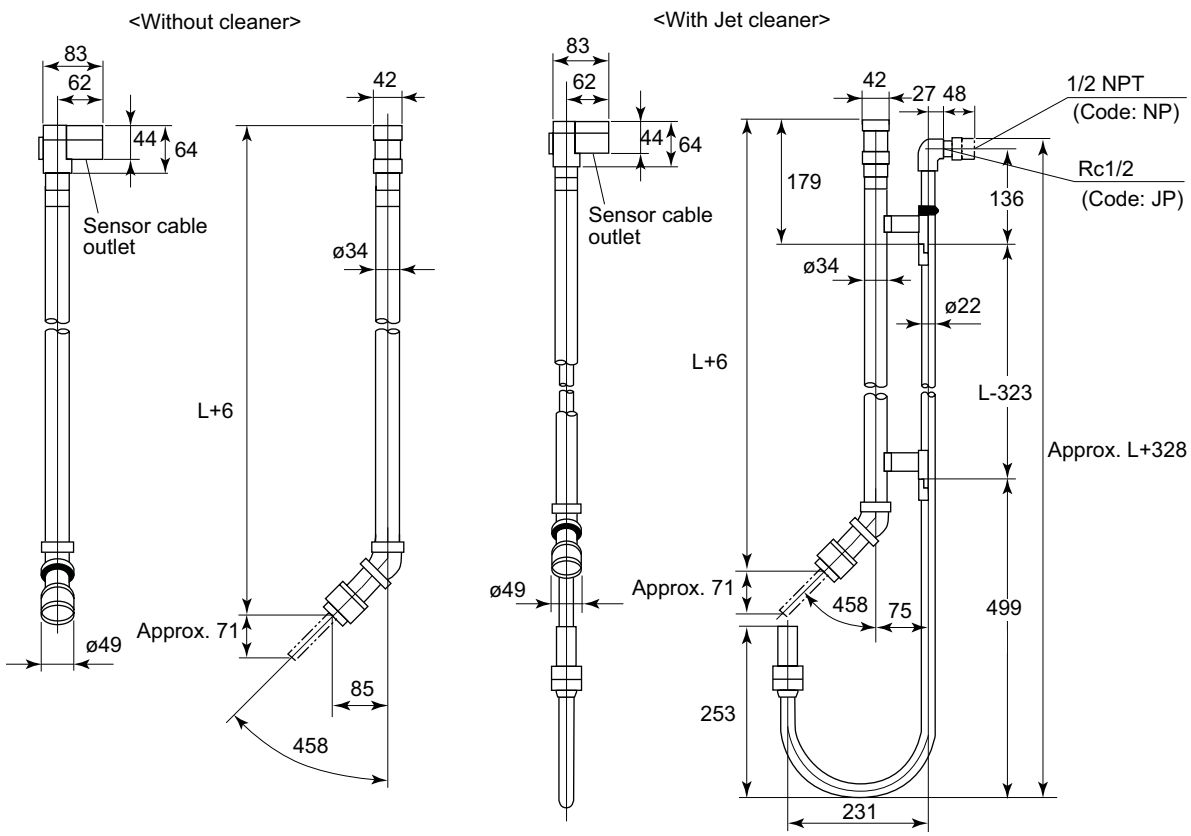
Specification of Holder (Model and Code)	Weight (Approx.) Nominal Holder Length (L)	
	3500 mm [Code:-35]	4000 mm [Code:-40]
Without Cleaner DOX8HS-S3-□□-C-NN-NN*B/□□	7.9 kg	9.1 kg
With Jet cleaner DOX8HS-S3-□□C-JT-□P*B/□□	11.6 kg	13.1 kg

F20.ai

For the “/MS1”, “/MS2” Mounting Bracket, see page 20, for the “/MS5”, “/MS6”, see page 15.

Submersion Type Holder, Stainless Steel (See separate drawing for mounting bracket)
DOX8HS-S3 (For DO70G)

UNIT: mm



Specification of Holder (Model and Code)	Weight (Approx.) Nominal Holder Length (L) 1000 mm [Code:-10]	1500 mm [Code:-15]	2000 mm [Code:-20]	2500 mm [Code:-25]	3000 mm [Code:-30]
Without Cleaner DOX8HS-S3-□□-L-NN-NN*B/□□	2.0 kg	3.2 kg	4.4 kg	5.6 kg	6.8 kg
With Jet cleaner DOX8HS-S3-□□-L-JT-□P*B/□□	4.2 kg	5.7 kg	7.2 kg	8.7 kg	10.2 kg

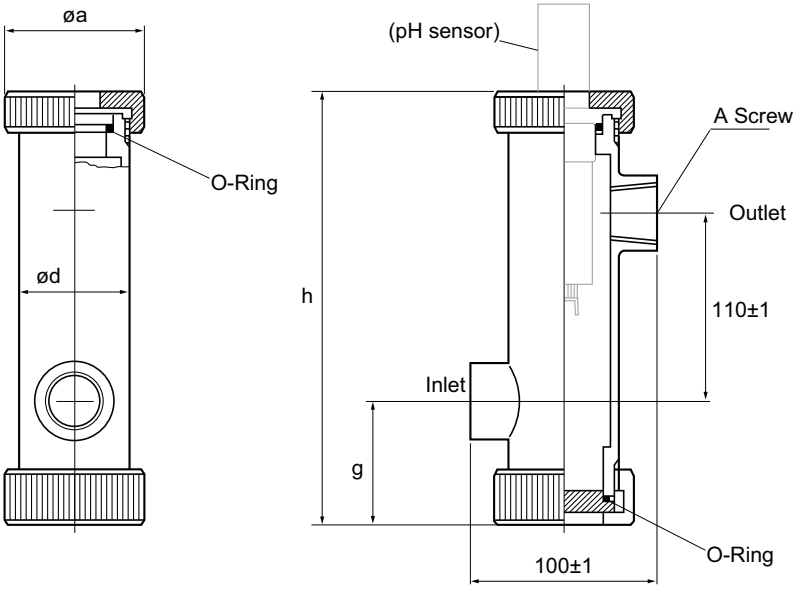
Specification of Holder (Model and Code)	Weight (Approx.) Nominal Holder Length (L) 3500 mm [Code:-35]	4000 mm [Code:-40]
Without Cleaner DOX8HS-S3-□□-L-NN-NN*B/□□	8.0 kg	9.2 kg
With Jet cleaner DOX8HS-S3-□□-L-JT-□P*B/□□	11.7 kg	13.2 kg

F20-1.ai

For the “/MS1”, “/MS2” Mounting Bracket, see page 20, for the “/MS5”, “/MS6”, see page 15.

Flow-Through Type Holder
PH8HF-PP-□PT-T-NN-NN
PH8HF-S3-□PT-T-NN-NN

UNIT : mm

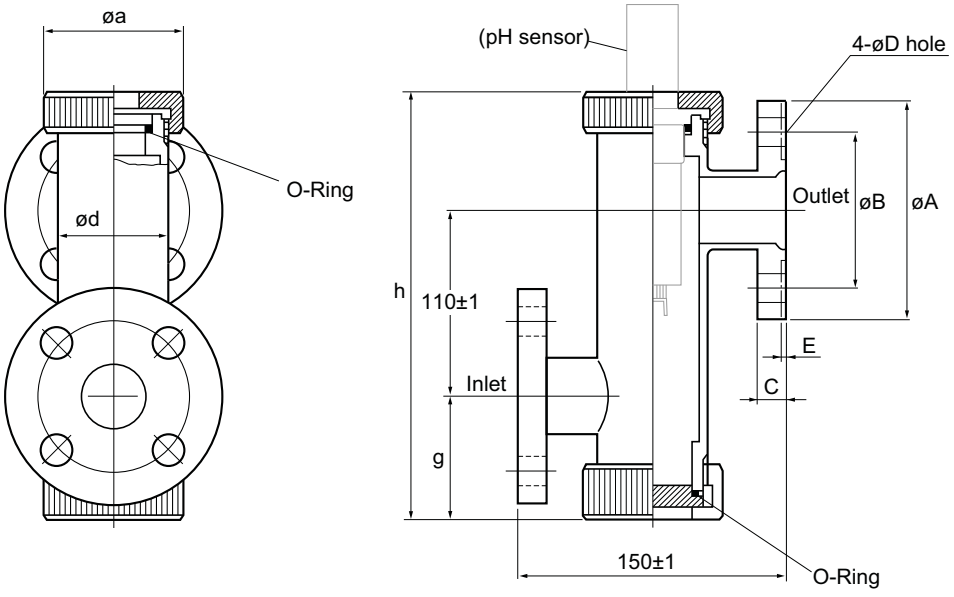


Model and Code	A Screw	a	d	g	h	Weight
PH8HF-PP-JPT-T-NN-NN	Rc1	80	Approx. 60	Approx. 70	Approx. 250	Approx. 0.4kg
PH8HF-PP-NPT-T-NN-NN	1NPT	80	Approx. 60	Approx. 70	Approx. 250	Approx. 0.4kg
PH8HF-S3-JPT-T-NN-NN	Rc1	70	Approx. 60	Approx. 70	Approx. 243	Approx. 3kg
PH8HF-S3-NPT-T-NN-NN	1NPT	70	Approx. 60	Approx. 70	Approx. 243	Approx. 3kg

F23.ai

Flow-Through Type Holder
PH8HF-PP-□1□-T-NN-NN
PH8HF-S3-□1□-T-NN-NN

UNIT : mm

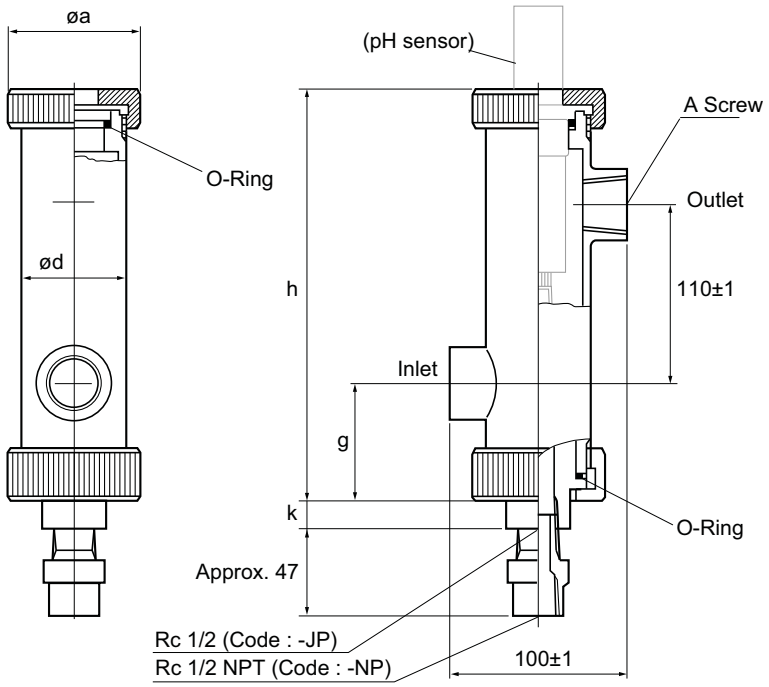


Model and Code	A	B	C	D	E	a	d	g	h	Weight
PH8HF-PP-J10-T-NN-NN	125	90	14	19	-	80	Approx. 60	Approx. 70	Approx. 250	Approx. 0.6kg
PH8HF-PP-A15-T-NN-NN	108	79.4	14.2	15.7	-	80	Approx. 60	Approx. 70	Approx. 250	Approx. 0.6kg
PH8HF-S3-J10-T-NN-NN	125	90	14	19	-	70	Approx. 60	Approx. 70	Approx. 243	Approx. 5kg
PH8HF-S3-A15-T-NN-NN	108	79.2	14.2	15.7	2	70	Approx. 60	Approx. 70	Approx. 243	Approx. 5kg

F24.ai

Flow-Through Type Holder, Screw Connection, With Jet Cleaner / Brush Cleaner
PH8HF-□□-□PT-T-□□-□P

UNIT : mm

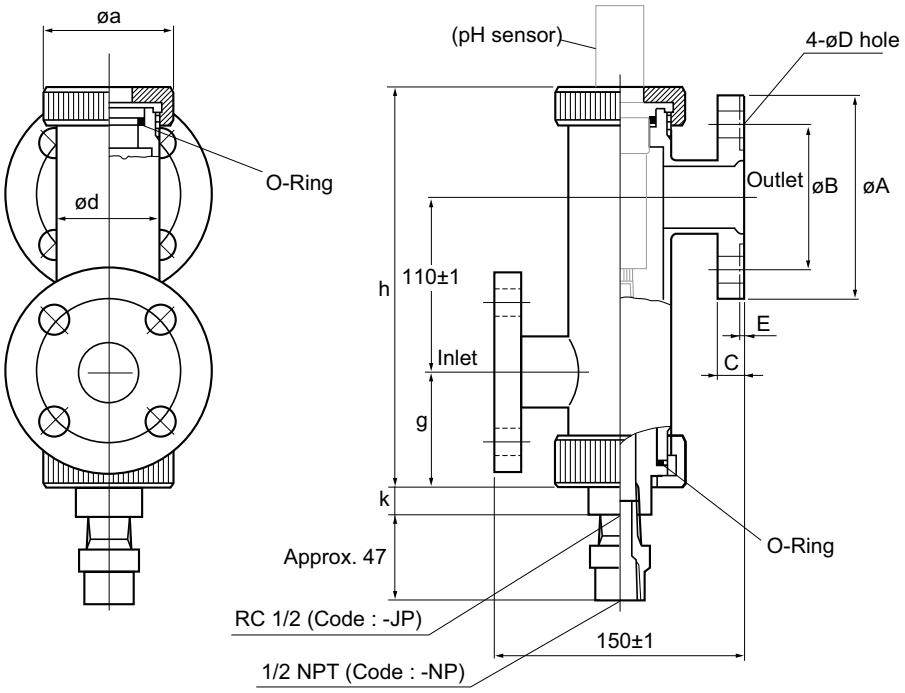


Model and Code	A Screw	a	d	g	h	k	Weight
PH8HF-PP-JPT-T-□□-□P	Rc1	80	Approx. 60	Approx. 70	Approx. 250	15	Approx. 1.4kg
PH8HF-S3-JPT-T-□□-□P	Rc1	70	Approx. 60	Approx. 70	Approx. 245	17	Approx. 4kg
PH8HF-PP-NPT-T-□□-□P	1NPT	80	Approx. 60	Approx. 70	Approx. 250	15	Approx. 1.4kg
PH8HF-S3-NPT-T-□□-□P	1NPT	70	Approx. 60	Approx. 70	Approx. 245	17	Approx. 4kg

F25.ai

Flow-Through Type Holder, Flange Connector With Jet Cleaner / Brush Cleaner
PH8HF-□□-□1□-T-□□-□P

UNIT : mm

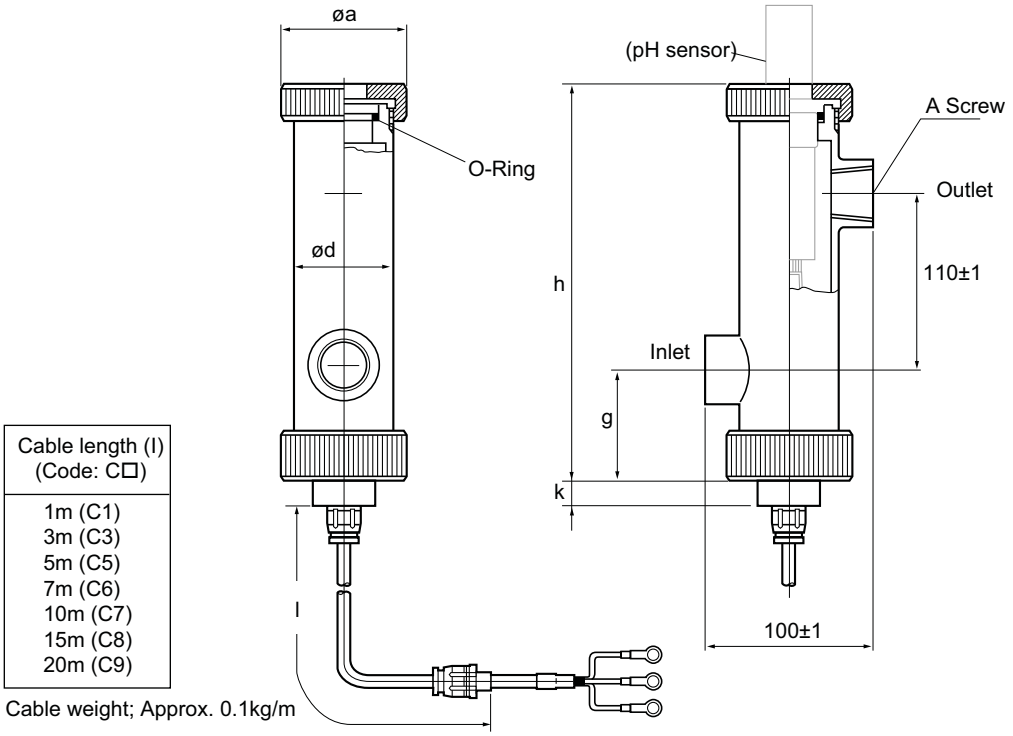


Model and Code	A	B	C	D	E	a	d	g	h	k	Weight
PH8HF-PP-J10-T-□□-□P	125	90	14	19	-	80	Approx. 60	Approx. 70	Approx. 250	15	Approx. 1.6kg
PH8HF-S3-J10-T-□□-□P	125	90	14	19	-	70	Approx. 60	Approx. 70	Approx. 245	17	Approx. 6kg
PH8HF-PP-A15-T-□□-□P	108	79.4	14.2	15.7	-	80	Approx. 60	Approx. 70	Approx. 250	15	Approx. 1.6kg
PH8HF-S3-A15-T-□□-□P	108	79.2	14.2	15.7	2	70	Approx. 60	Approx. 70	Approx. 245	17	Approx. 6kg

F26.ai

Flow-Through Type Holder, Screw Connection, With Ultrasonic Cleaner
PH8HF-□□-□PT-T-□□-C□

UNIT : mm



Cable length (l) (Code: C□)
1m (C1)
3m (C3)
5m (C5)
7m (C6)
10m (C7)
15m (C8)
20m (C9)

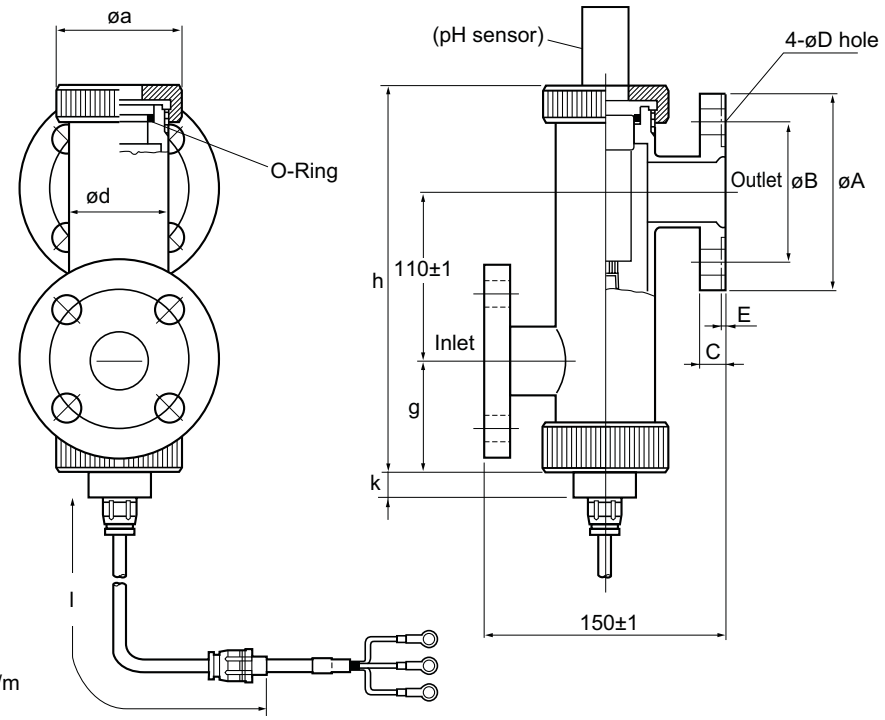
Cable weight; Approx. 0.1kg/m

Mode and Code	A Screw	a	d	g	h	k	Weight
PH8HF-PP-JPT-T-□□-C□	Rc1	80	Approx. 60	Approx. 70	Approx. 250	15	Approx. 1.5kg
PH8HF-S3-JPT-T-□□-C□	Rc1	70	Approx. 60	Approx. 70	Approx. 245	17	Approx. 4.1kg
PH8HF-PP-NPT-T-□□-C□	1NPT	80	Approx. 60	Approx. 70	Approx. 250	15	Approx. 1.5kg
PH8HF-S3-NPT-T-□□-C□	1NPT	70	Approx. 60	Approx. 70	Approx. 245	17	Approx. 4.1kg

F27.ai

Flow-Through Type Holder, Flange Connection, With Ultrasonic Cleaner
PH8HF-□□-□1□-T-□□-C□

UNIT : mm



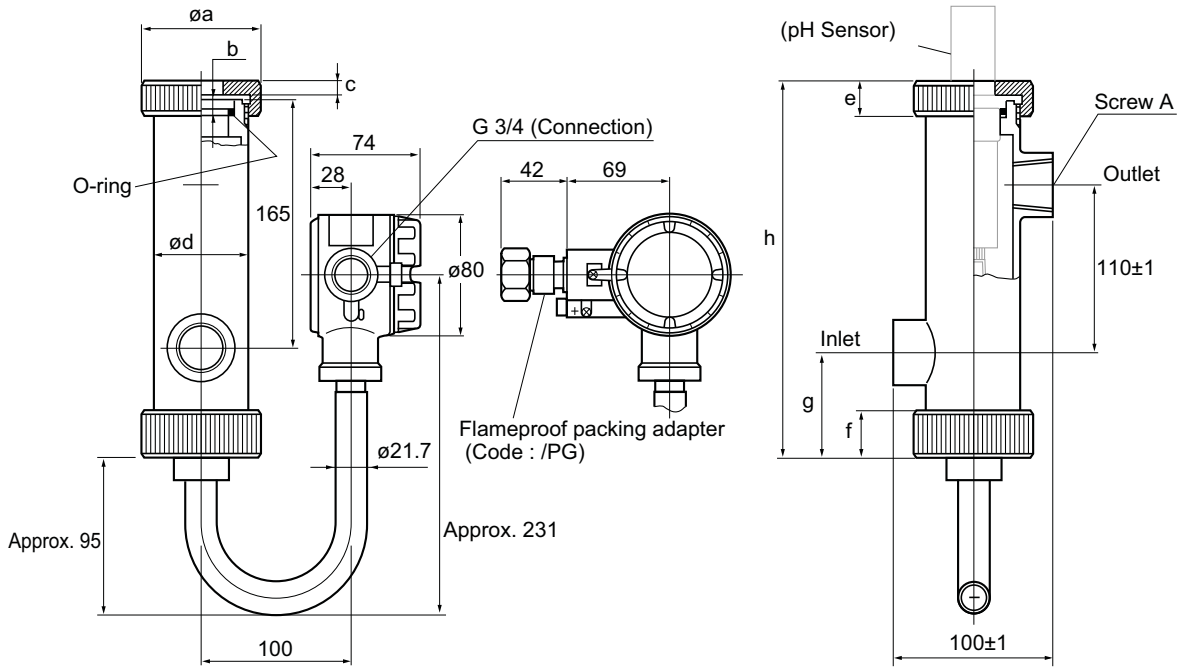
Cable length (l) (Code: C□)
1m (C1)
3m (C3)
5m (C5)
7m (C6)
10m (C7)
15m (C8)
20m (C9)

Cable weight; Approx. 0.1kg/m

Model and Code	A	B	C	D	E	a	d	g	h	k	Weight
PH8HF-PP-J10-T-□□-C□	125	90	14	19	-	80	Approx. 60	Approx. 70	Approx. 250	15	Approx. 1.7kg
PH8HF-S3-J10-T-□□-C□	125	90	14	19	-	70	Approx. 60	Approx. 70	Approx. 245	17	Approx. 6.1kg
PH8HF-PP-A15-T-□□-C□	108	79.4	14.2	15.7	-	80	Approx. 60	Approx. 70	Approx. 250	15	Approx. 1.7kg
PH8HF-S3-A15-T-□□-C□	108	79.2	14.2	15.7	2	70	Approx. 60	Approx. 70	Approx. 245	17	Approx. 6.1kg

F28.ai

Flow-Through Type Holder (Explosionproof), Screw Connection, With Type Ultrasonic Cleaner)
PH8HFF-□□-□PT-T-□□-JS UNIT : mm

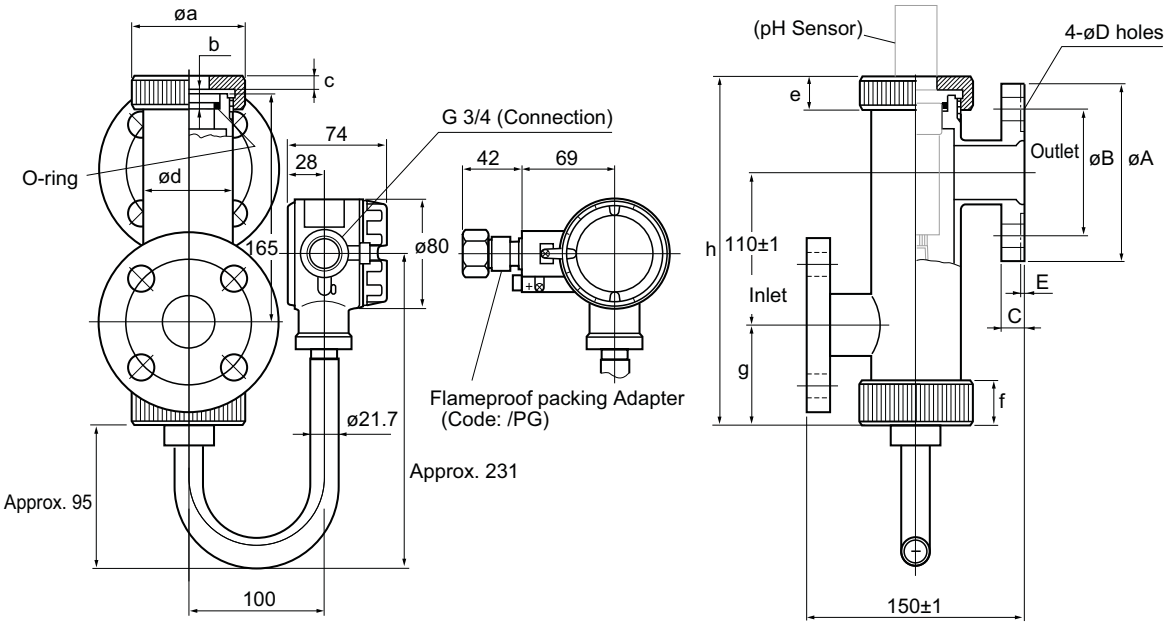


Model and Code	Screw A	a	b	c	d	e	f	g	h (Approx.)	Weight (Approx.)
PH8HFF-PP-JPT-T-□□-JS	Rc1	80	9	11	60	25	30	70	250	3kg
PH8HFF-S3-JPT-T-□□-JS	Rc1	70	10	6	60.5	26	26	69	245	5.6kg
PH8HFF-PP-NPT-T-□□-JS	1NPT	80	9	11	60	25	30	70	250	3kg
PH8HFF-S3-NPT-T-□□-JS	1NPT	70	10	6	60.5	26	26	69	245	5.6kg

F29.ai

Flow-Through Type Holder (Explosionproof Type), Flange Connection, With Ultrasonic Cleaner

PH8HFF-□□-□1□-T-□□-JS UNIT : mm

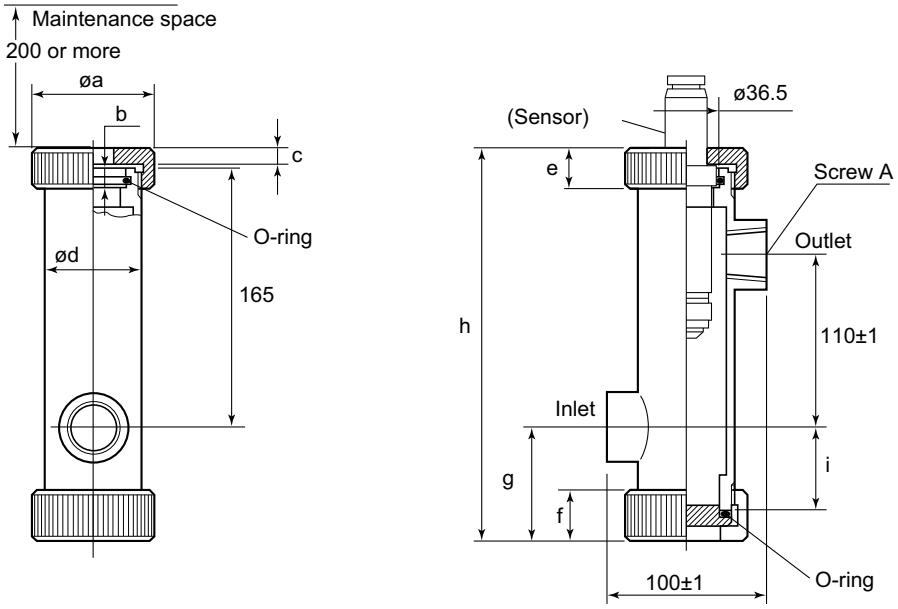


Model and Code	A	B	C	D	E	a	b	c	d	e	f	g	h (Approx.)	Weight (Approx.)
PH8HFF-PP-J10-T-□□-JS	125	90	14	19	-	80	9	11	60	25	30	70	250	3.2kg
PH8HFF-S3-J10-T-□□-JS	125	90	14	19	-	70	10	6	60.5	26	26	69	245	7.6kg
PH8HFF-PP-A15-T-□□-JS	108	79.4	14.2	15.7	-	80	9	11	60	25	30	70	250	3.2kg
PH8HFF-S3-A15-T-□□-JS	108	79.2	14.2	15.7	2	70	10	6	60.5	26	26	69	245	7.6kg

F30.ai

Flow-Through Type Holder (For MLSS Meter), Screw Connection, Without Cleaning, (See separate drawing for mounting bracket)

FH350G UNIT : mm

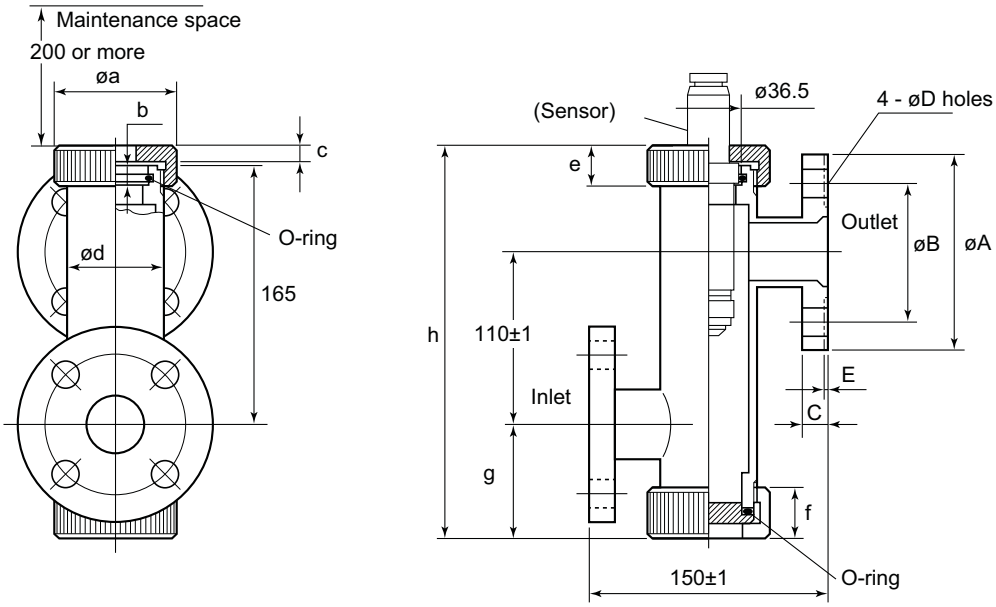


Model and Code	Screw A	a	b	c	d	e	f	g	h (Approx.)	i	Weight (Approx.)
FH350G-PP-JPT1-NN-NN	Rc1	80	8.9	12	60	25	30	70	250	54	0.4kg
FH350G-PP-NPT1-NN-NN	1NPT	80	8.9	12	60	25	30	70	250	54	0.4kg
FH350G-S3-JPT1-NN-NN	Rc1	70	8.7	6	60.5	26	26	69	245	55	3kg
FH350G-S3-JPT1-NN-NN	1NPT	70	8.7	6	60.5	26	26	69	245	55	3kg

F31.ai

Flow-Through Type Holder (For MLSS Meter), Flange Connection, Without Cleaning
(See separate drawing for mounting bracket)
FH350G

UNIT : mm

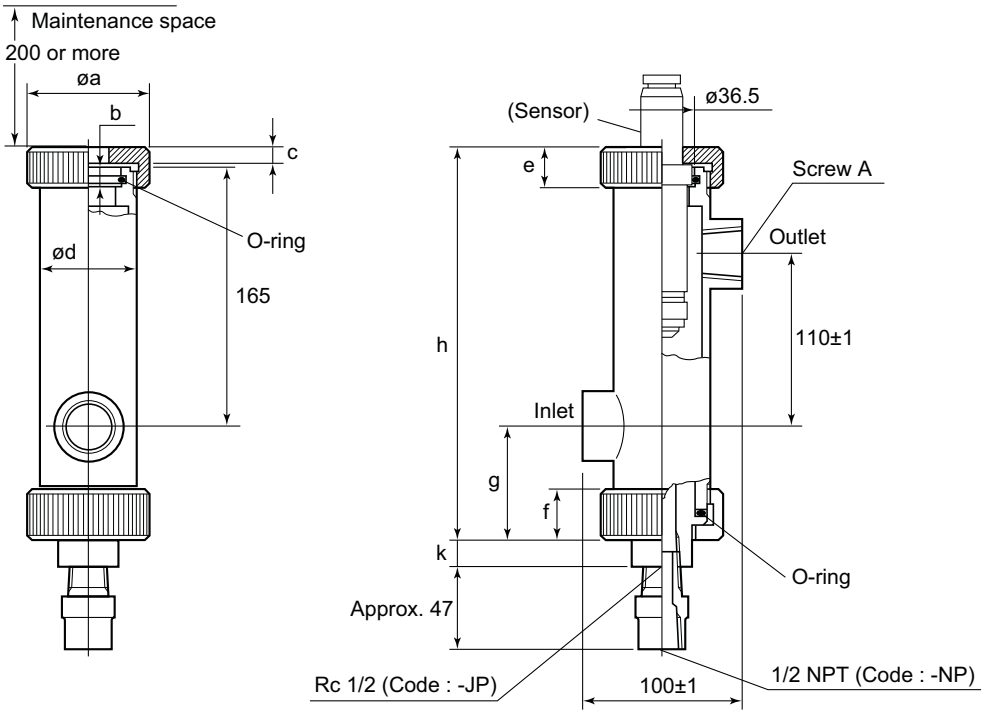


Model and Code	A	B	C	D	E	a	b	c	d	e	f	g	h (Approx.)	Weight (Approx.)
FH350G-PP-J10F-NN-NN	125	90	14	19	–	80	8.9	12	60	25	30	70	250	0.6kg
FH350G-PP-A15F-NN-NN	108	79.4	14.2	15.7	–	80	8.9	12	60	25	30	70	250	0.6kg
FH350G-S3-J10F-NN-NN	125	90	14	19	–	70	8.7	6	60.5	26	26	69	245	5kg
FH350G-S3-A15R-NN-NN	108	79.2	14.2	15.7	6	70	8.7	6	60.5	26	26	69	245	5kg

F32.ai

Flow-Through Type Holder (For MLSS Meter), Screw Connection, With Jet Cleaner
(See separate drawing for mounting bracket)
FH350G

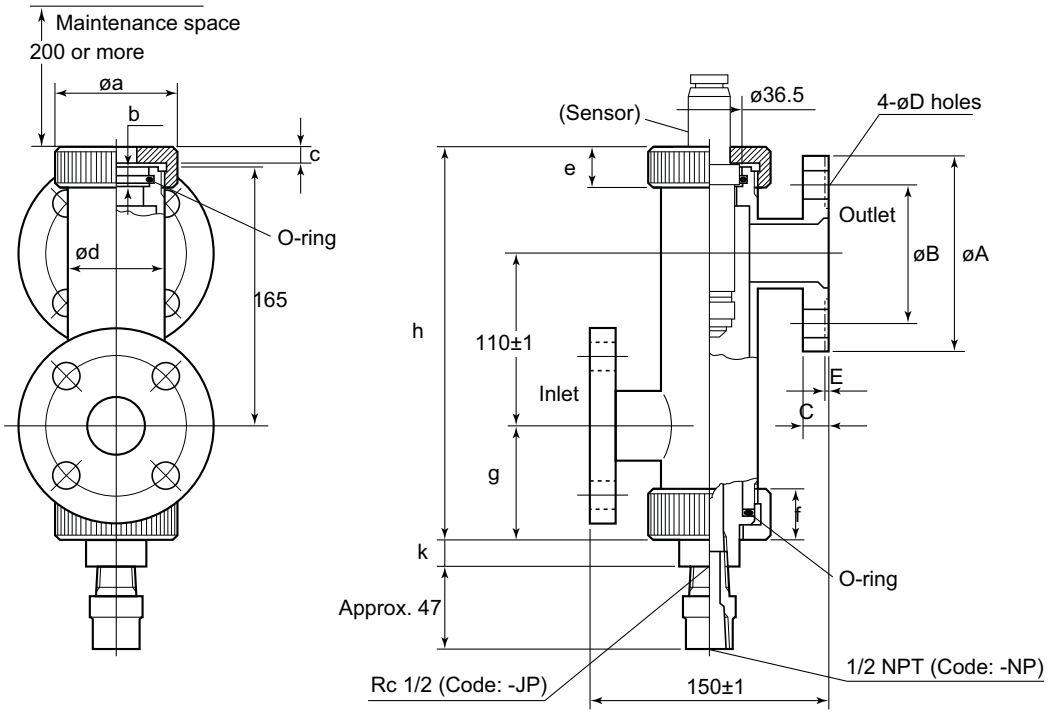
UNIT : mm



Model and Code	Screw A	A	B	C	D	E	a	b	c	d	e	f	g	h (Approx.)	k	Weight (Approx.)
FH350G-PP-JPT1-□□-□P	Rc 1	125	90	14	19	–	80	8.9	12	60	25	30	70	250	15	1.4 kg
FH350G-S3-JPT1-□□-□P	Rc 1	108	79.2	14.2	15.7	–	70	8.7	6	60.5	26	26	69	250	17	4 kg
FH350G-PP-NPT1-□□-□P	1NPT	125	90	14	19	–	80	8.9	12	60	25	30	70	250	15	1.4 kg
FH350G-S3-NPT1-□□-□P	1 NPT	108	79.2	14.2	15.7	6	70	8.7	6	60.5	26	26	69	250	17	4 kg

F33-2.ai

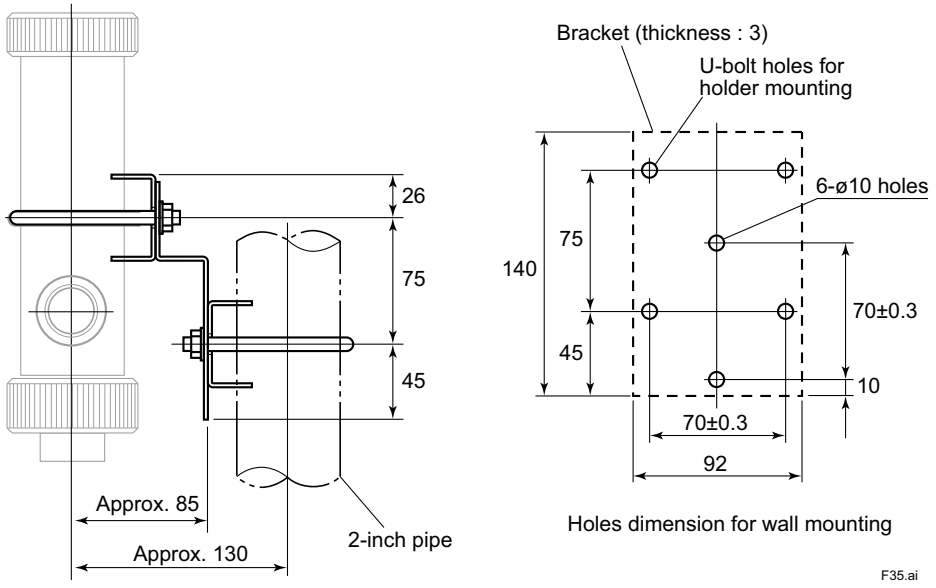
Flow-Through Type Holder (For MLSS Meter), With Jet Cleaner (See separate drawing for mounting bracket)
FH350G UNIT : mm



Model and Code	A	B	C	D	E	a	b	c	d	e	f	g	h (Approx.)	k	Weight (Approx.)
FH350G-PP-J10F-JT-□P	125	90	14	19	2	80	9	11	60	25	30	70	250	15	1.6 kg
FH350G-PP-A15F-JT-□P	108	79.4	14.2	15.7	2	80	9	11	60	25	30	70	250	15	1.6 kg
FH350G-S3-J10F-JT-□P	125	90	14	19	2	70	8	6	60.5	26	26	69	245	17	6 kg
FH350G-S3-A15R-JT-□P	108	79.4	14.2	15.7	2	70	8	6	60.5	26	26	69	245	17	6 kg

F33.2a.ai

Mounting Bracket for Flow-Through Type Holder
(PH8HF- - -)/MF1, (PH8HFF- - -)/MF1, (FH350G- - -)/MF5 UNIT : mm



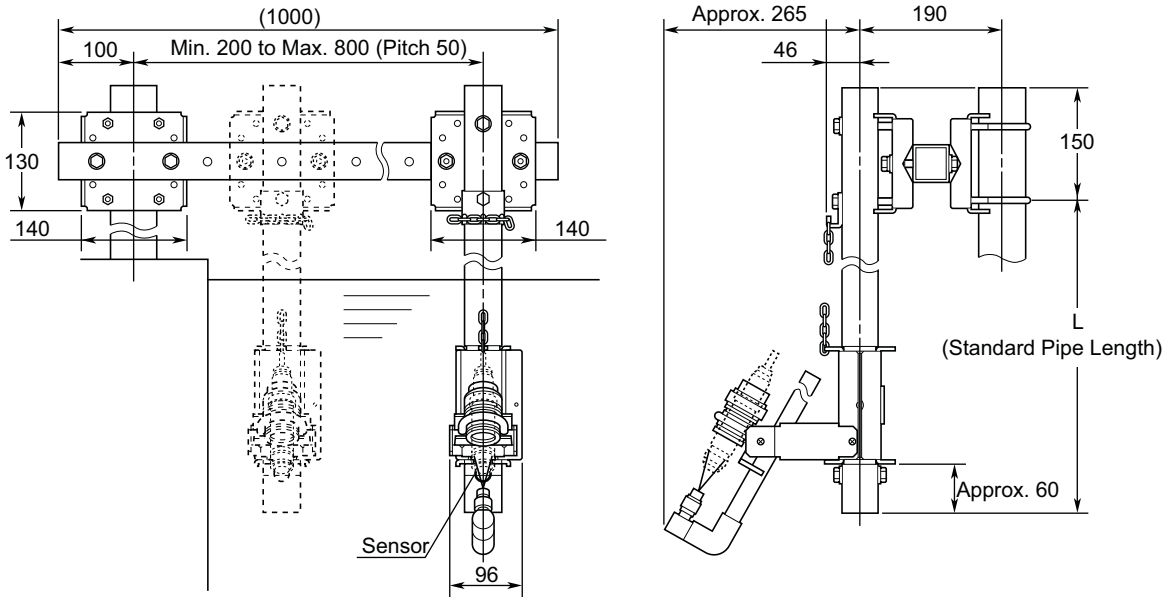
F35.ai

Weight: Approx. 0.5kg

Suspension Type Holder

HH350G

UNIT : mm



Specification of Holder (Model and Code)	Weight			
	Nominal Holder Length (L)			
	1000mm [Code : -10]	2000mm [Code : -20]	3000mm [Code : -30]	4000mm [Code : -40]
Without Cleaner HH350G-NN-□□-NN-NN	6.4 kg	8.7 kg	11 kg	13.3 kg
With Jet Cleaner HH350G-NN-□□-JT-□P	6.9 kg	9.2 kg	11.5 kg	13.8 kg

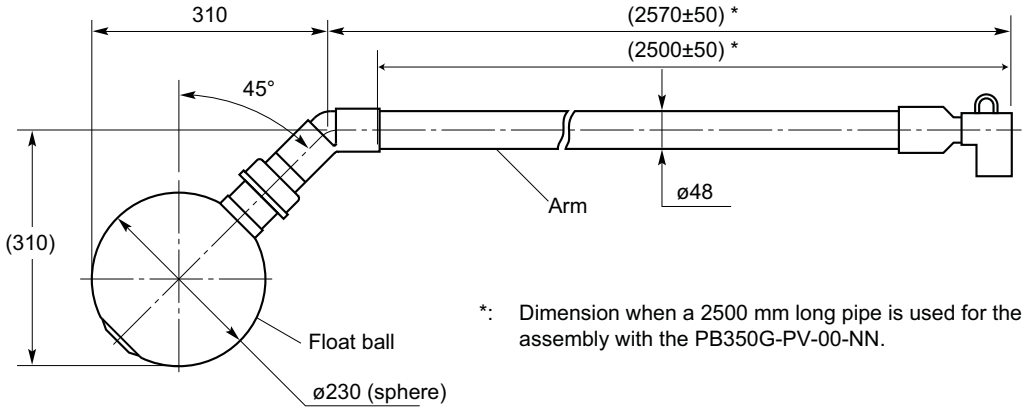
F36.ai

Angled Floating Ball Holder

PB350G-PV, Arm Material: PVC

UNIT : mm

● **Holder**

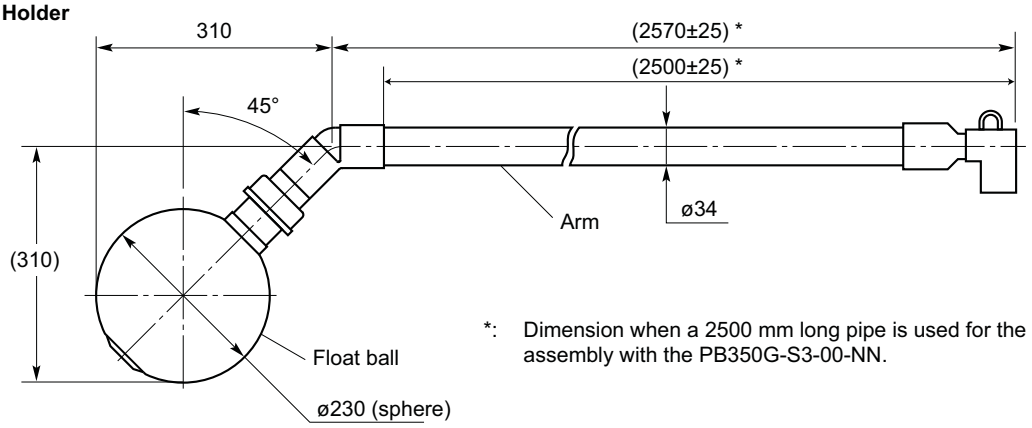


*: Dimension when a 2500 mm long pipe is used for the arm assembly with the PB350G-PV-00-NN.

F37.ai

PB350G-S3, Arm Material: Stainless Steel UNIT : mm

● **Holder**

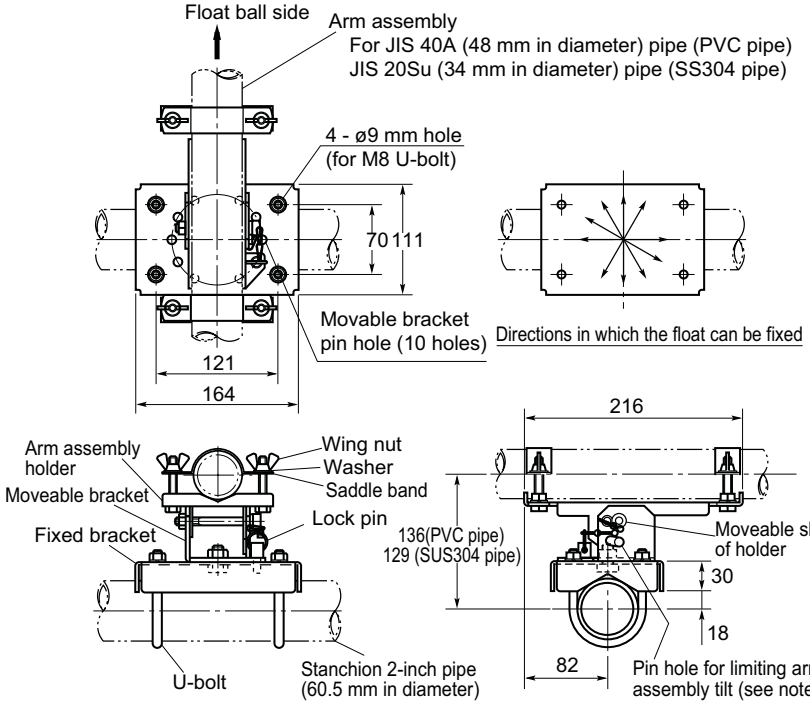


*: Dimension when a 2500 mm long pipe is used for the arm assembly with the PB350G-S3-00-NN.

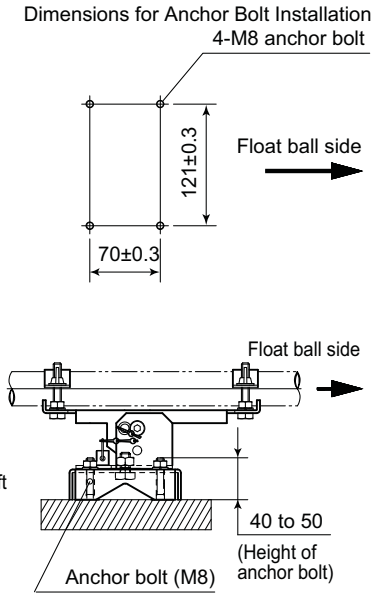
F38.ai

● **Mounting Bracket**

Pipe Mounting with U-bolts



Installation with Anchor Bolt



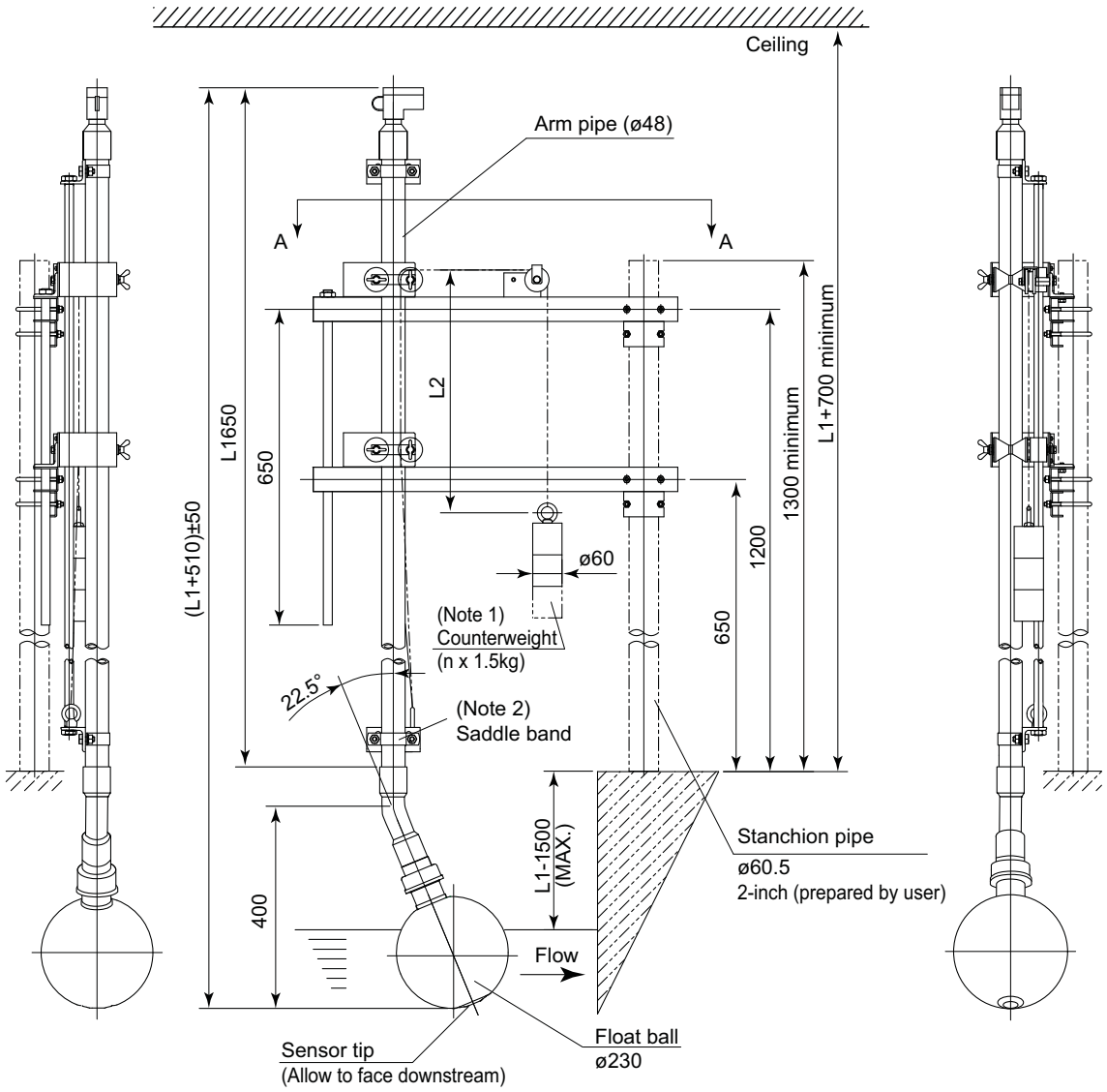
Note: When the lock pin is inserted in the pin hole for limiting arm assembly tilt, the arm assembly holder is tilted at about 30° (in float rising direction).

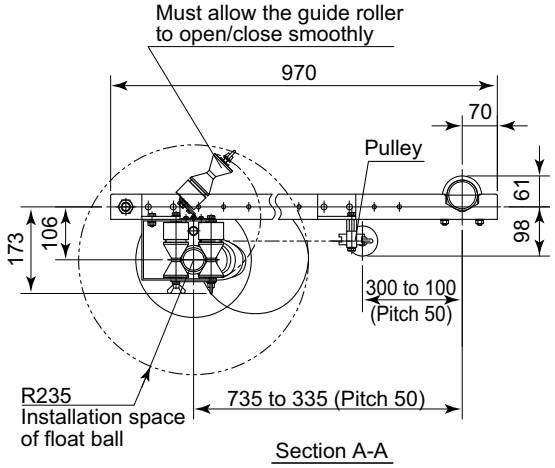
F39.ai

Vertical Floating Ball Holder

PB360G-PV, Arm Material: PVC

UNIT : mm





Note 1: Adjust the weight so that the fluid surface level is equal to or above the center of the float ball.
(Two weights when L1=2.5 m; three weights when L1=3.5 m)

Note 2: Before fixing the saddle band, adjust the orientation of the holder so that the sensor tip faces downstream.

L1= Holder length specified

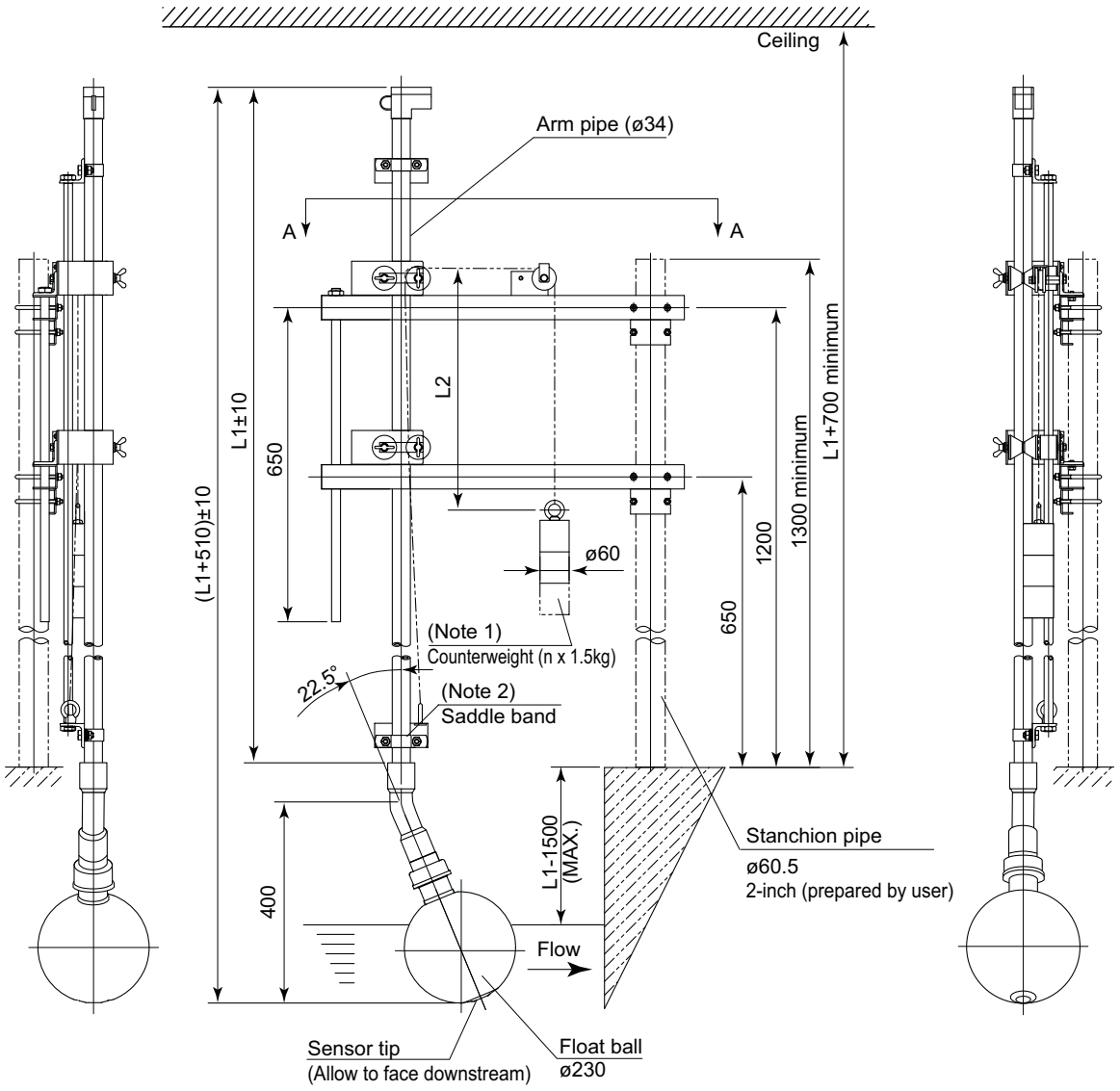
L2= Half the maximum span +150 mm. However, if the counterweight touches the stanchion pipe installed, adjust the position of the pulley so that the counterweight can freely move up and down inside the tank.

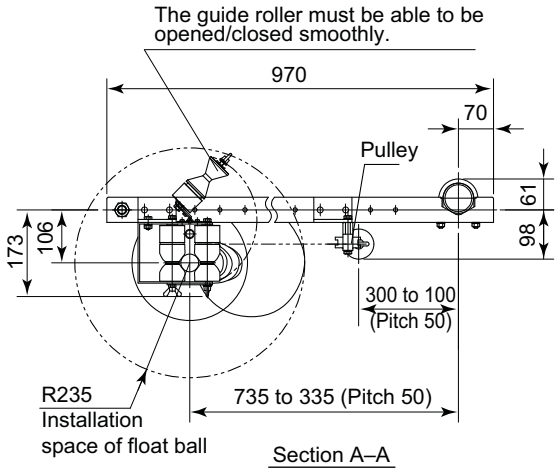
F40.ai

Vertical Floating Ball Holder

PB360G-S3, Arm Material: Stainless Steel

UNIT : mm





Note 1: Adjust the weight so that the fluid surface level is equal to or above the center of the float ball.
(Two weights when L1=2.5 m; three weights when L1=3.5 m)

Note 2: Before fixing the saddle band, adjust the orientation of the holder so that the sensor tip faces downstream.

L1= Holder length specified

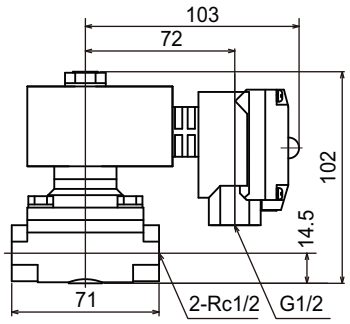
L2= Half the maximum span +150 mm. However, if the counterweight touches the stanchion pipe installed, adjust the position of the pulley so that the counterweight can freely move up and down inside the tank.

F41.ai

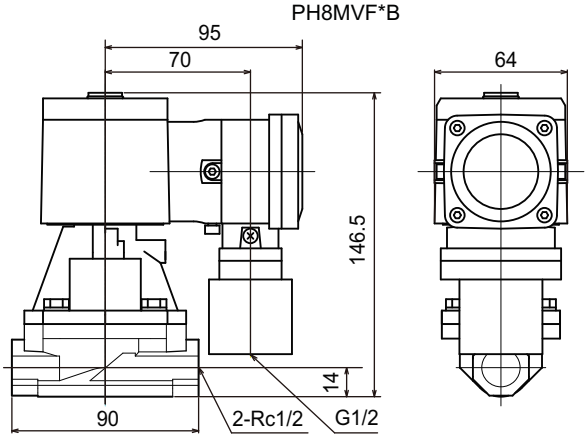
Solenoid valve

UNIT : mm

General Purpose Solenoid Valve
PH8MV*D



Explosionproof Solenoid Valve
PH8MVF*B



Cautions on Installation of Solenoid Valve for Jet / Brush Cleaning

1. Do not allow a sample solution to flow backward into the solenoid valve or to be replaced with the driving fluid. For this take relevant measures; e.g. install a check valve to prevent inverse pressure between the inlet and outlet of the solenoid valve, or install the solenoid valve higher than the holder, especially when using the air jet/brush cleaning system.
2. Make sure to avoid the risk of corrosion of the solenoid body (bronze) and seal (nitrile rubber) by vapor or gaseous components generated from a sample solution, especially when using the air jet/brush cleaning system.

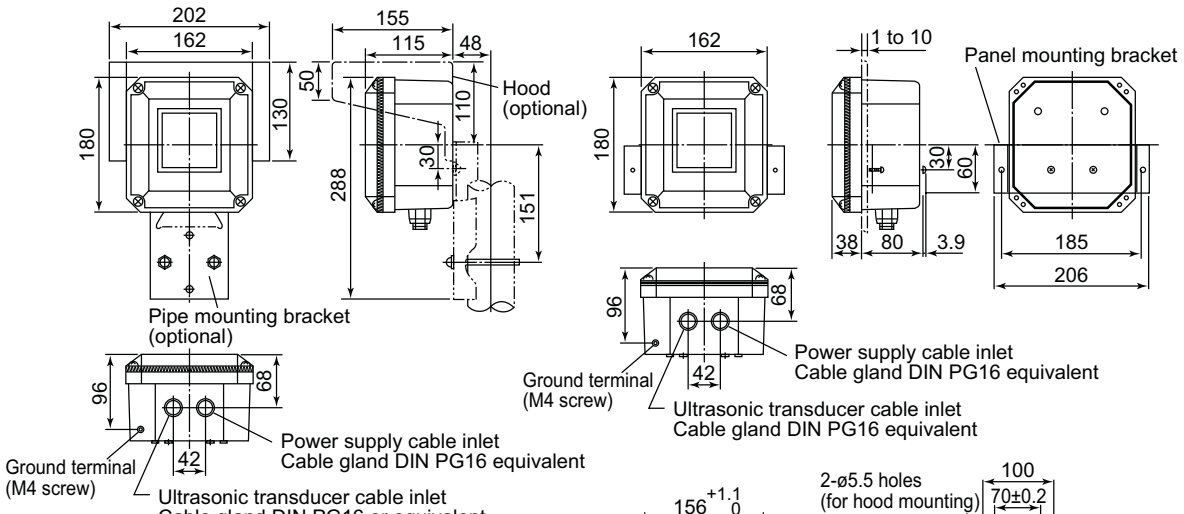
F43.ai

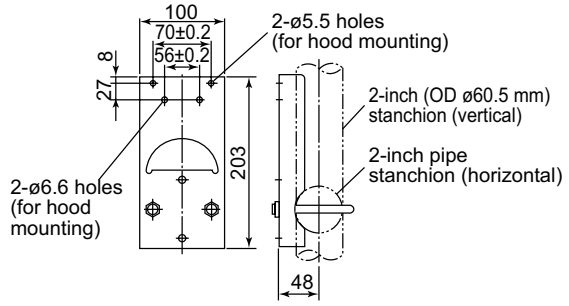
Ultrasonic Oscillator (Non-Explosionproof Type)
PUS400G

Pipe mounting

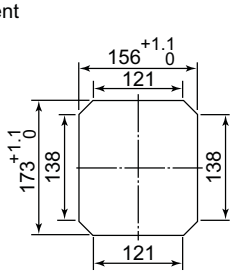
Panel, Wall mounting

UNIT : mm

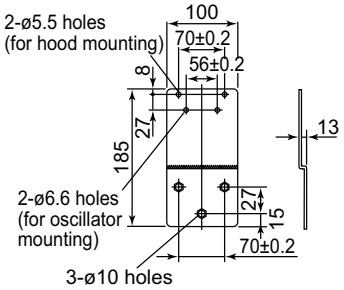




<Pipe mounting bracket>



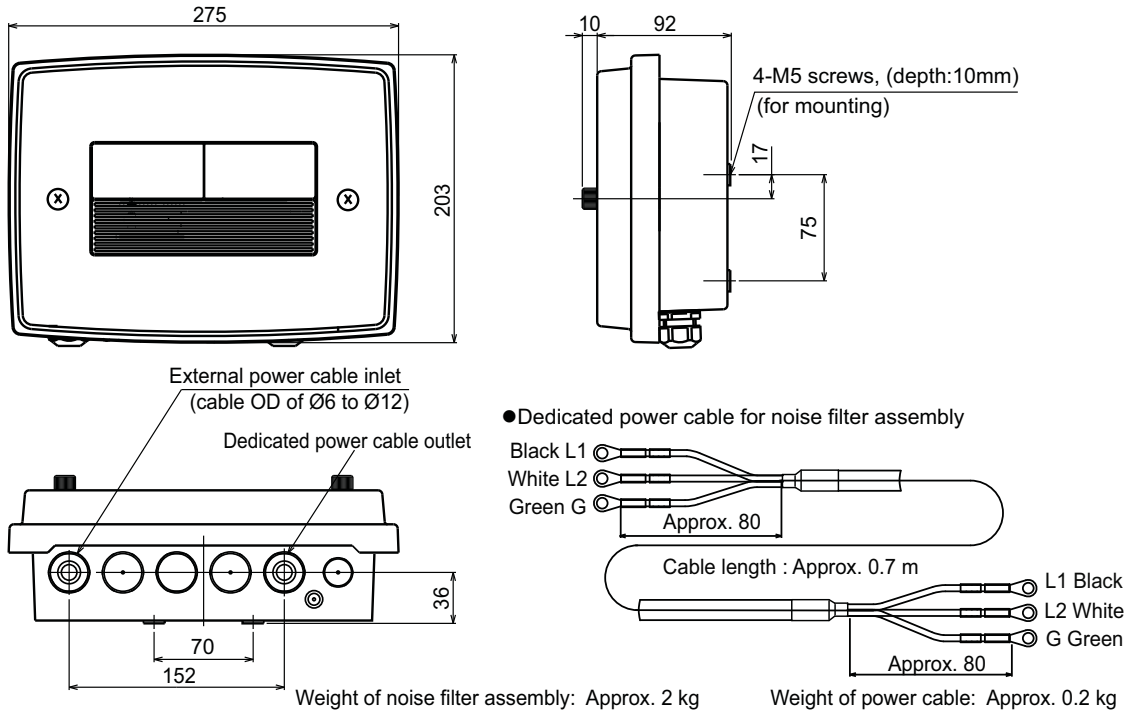
<Panel cutout>



<Wall mounting bracket>

F44.ai

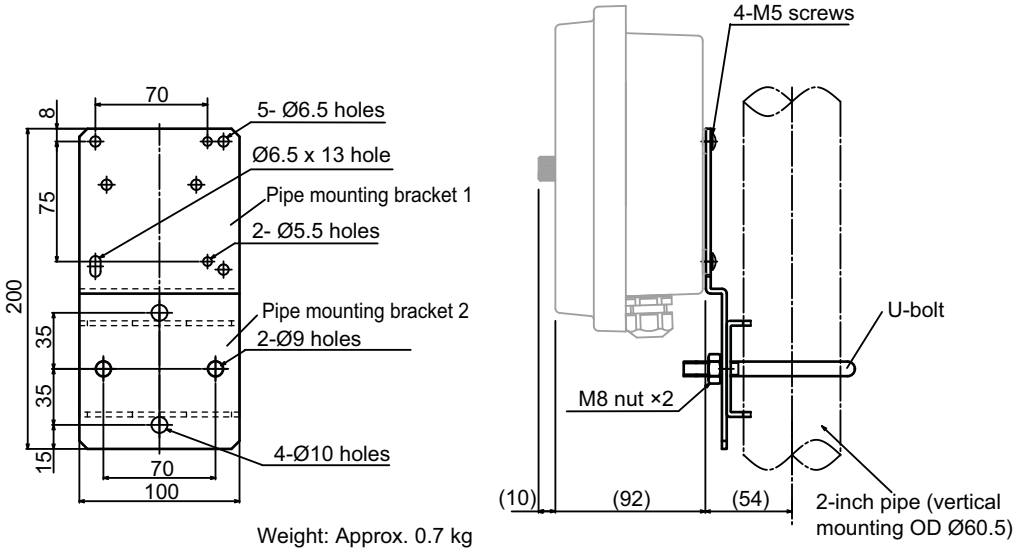
- **External dimensions of additional noise filter assembly when PUS400G-NN-KC** UNIT : mm



Weight of noise filter assembly: Approx. 2 kg

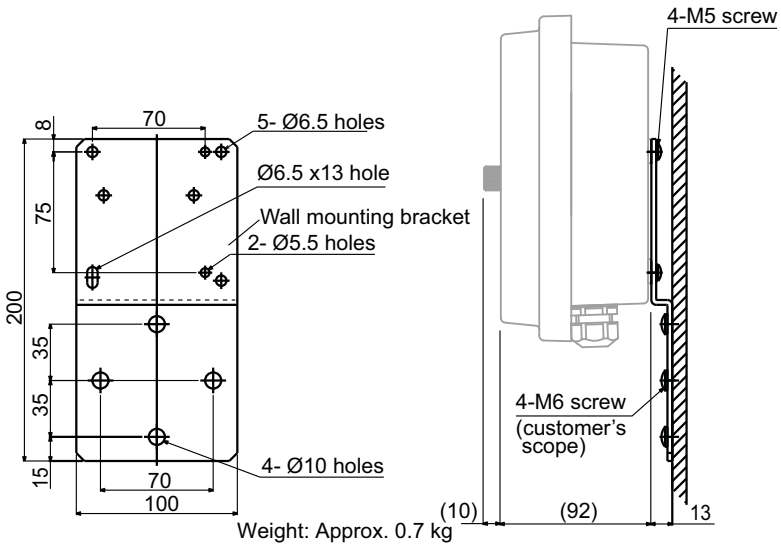
Weight of power cable: Approx. 0.2 kg

- **Pipe mounting bracket for additional noise filter assembly (option code: /PS)** UNIT : mm



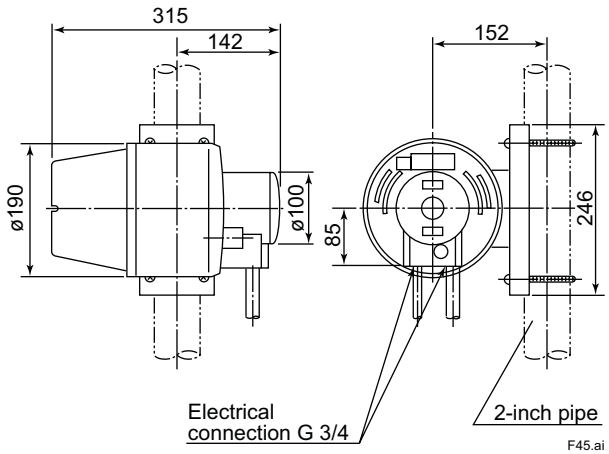
Weight: Approx. 0.7 kg

- **Wall or Panel mounting bracket for additional noise filter assembly (option code: /W, /PA)** UNIT : mm



Weight: Approx. 0.7 kg

Ultrasonic Oscillator (Explosionproof Type))
PH8USF UNIT : mm



Alarm Box
PH8AL UNIT : mm