User's
Manual

FH350G
Flow Type Holder

IM 19H1C2-01E

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YOKOGAWA
Yokogawa Electric Corporation

IM 19H1C2-01E
1st Edition

INTRODUCTION

The FH350G Flow Type Holder is used to measure MLSS (or SS) of solution flowing in processing pipes or sampling pipes by incorporating the SS300G MLSS detector. Two types of material comprise the FH350G: polypropylene resin and stainless steel. Some FH350Gs are equipped with jet cleaner (to remove contamination elements that remain stuck to the MLSS detector after measurement).

To fully exploit the capabilities of this product, thoroughly read through the instruction manual before use. Throughout this instruction manual, important handling measures are indicated by a Warning or Caution designation, depending upon the degree of importance. For safety reasons and to prevent possible product damage the user should strictly observe these notations. Corresponding to a Warning on the product, the alarm symbol shown below is indicated in the manual.

Example of notation for a warning indicated on the product

 **WARNING**

Note: For notation concerning safety, the following  mark is also included.

1. Specification Check

Upon taking receipt of the product, unpack carefully, checking that no damage has occurred during transport. Each FH350G product is manufactured to user specifications. Check to ensure that the received product was manufactured to specification and that no accessories are missing. Verification of specifications can be made by confirming the model code indicated on the nameplate affixed to the FH350G. For a description of the model codes, see Section 1.1.2.

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2. Contents

This manual covers all of the information for handling the FH350G Flow Type Holder, including installation, piping, inspection and maintenance.

For the SS400G MLSS converter or SS300G MLSS detector used in combination with the FH350G, refer to their respective instruction manuals.

The Instruction Manuals for the EXAss series SS400 MLSS metering system-related equipment are as follows.

Manuals for associated equipment used with the EXA ss series SS400 MLSS metering system

Model	Title of Manual	Publication No.
SS400G	Converter	IM 12E6B1-02E
SS300G	Detector	IM 12E6C1-01E
SS350G	Wiper Cleaning Controller	IM 12E6E1-01E
SS380G	Calibration Kit	IM 12E6D1-01E
PH8HG	Guide Holder	IM 12B7M2-01E
HH350G	Well Bucket Type Holder	IM 19H1B1-01E
FH350G	Flow Type Holder	IM 19H1C2-01E
DOX8HS	Submersion Type Holder	IM 19H1D2-01E
PB350G	Float Type Holder	IM 19H1E1-01E
PB360G	Vertical Float Type Holder	IM 19H1E2-01E
WTB10-SS1	Relay Terminal Box (for MLSS metering)	IM 12E6W1-01E
WTB10-SS2	Relay Terminal Box (for wiper cleaning)	IM 12E6W2-01E

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1. OVERVIEW

This chapter describes the specifications, model code and external drawing of the FH350G Flow Type Holder.

1.1 Standard Specifications

Installation: Stanchion(nominal 50A pipe), Mounting bracket (option) required
Note: If connected pipe is made of a rigid metal, the pipe can support the holder.

Material: Holder body: Polypropylene resin (FH350G-PP)
SCS14 stainless steel (FH350G-F3)
O-ring: Fluoric rubber
Jet cleaning device (option): Polypropylene resin

Weight: Polypropylene resin main body: Approx. 0.4 to 1.6 kg
Stainless steel main unit: Approx. 3 to 6 kg
Mounting bracket (option): Approx. 0.5 kg

Detectors that can be incorporated:
SS300G MLSS detector (measurement temperature: 1000 g/l or less)

Temperature of measured fluid: 0 to 80°C
Note: This temperature is restricted by the sensor (detector) incorporated.

Amount of fluid: 61/min or more

Pressure of fluid: Atmospheric pressure (0 kPa G) to 2300 kPa G
Note: Holder pressure rating is 500 kPa G.

Jet cleaning function (option):
Utility type: Water or air
Utility pressure: Measured fluid pressure + (100 to 200) kPa
Utility fluid amount: Water: 5 to 20 l/min
Air: 10 to 20 1/min N

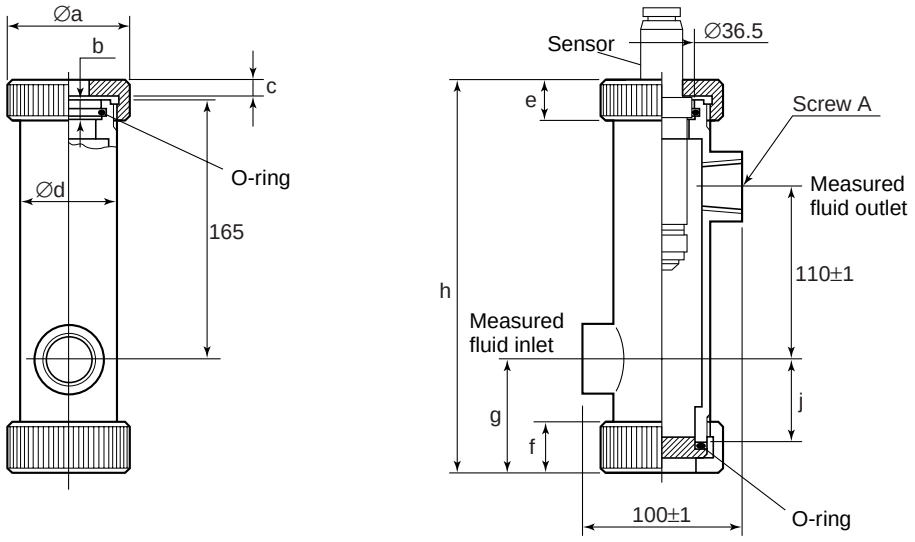
1.2 Model Name and Code

Model	Suffix Code	Option Code	Specifications
FH350G	·····	·····	Flow type holder
Material	**-PP**	·····	Polypropylene resin
	-S3	·····	Stainless steel
Processing connection port	**-JPT1**	·····	Rc 1
	-NPT1	·····	1 NPT female screw
	-J10F	·····	JIS 10K-25-FF flange
	-A15F	·····	ANSI CLASS150-1-FF flange equivalent(In case of -PP)
	-A15R	·····	ANSI CLASS150-1-RF flange equivalent with serration (in case of -S3)
Measuring system	**-S**	·····	Always -S
Cleaning equipment	**-NN**	·····	None
	-JT	·····	Jet cleaner
Cleaning water connection port	**-NN**	·····	None
	-JP	·····	Rc 1/2
	-NP	·····	1/2 NPT female screw
Optional specification	Mounting bracket	**/MF5**	With mounting bracket (stainless steel)
	Stainless tag plate	**/SCT**	With stainless tag plate

1.3 External Drawing

● **FH350G-PP-□PT1-S-NN-NN, FH350G-S3-□PT1-S-NN-NN**

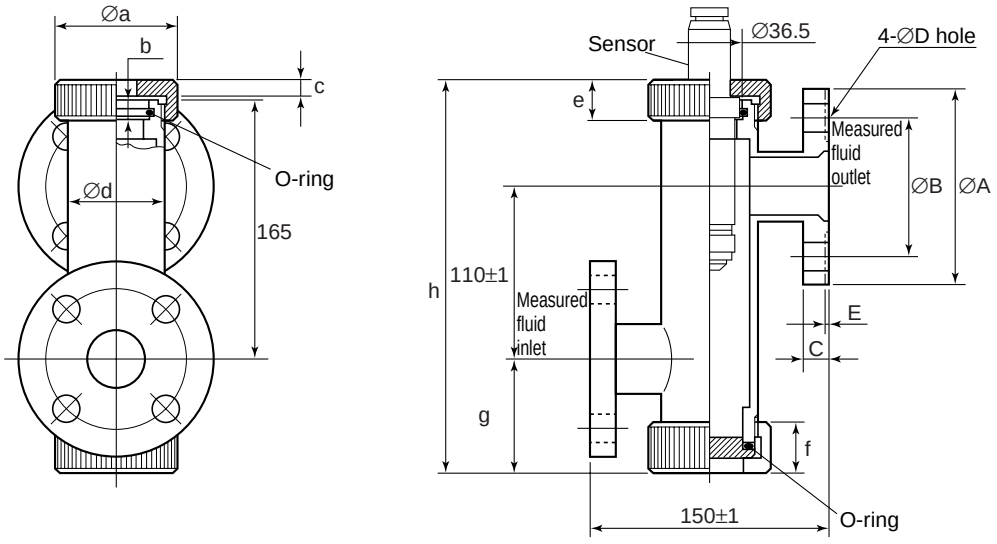
Unit: mm



	Model Code	Screw A	a	b	c	d	e	f	g	h	j	Weight
	FH350G-PP-JPT1-S-NN-NN	Rc 1	80	9	11	60	25	30	70	Approx. 250	54	Approx. 0.4 kg
	FH350G-PP-NPT1-S-NN-NN	1 NPT	80	9	11	60	25	30	70	Approx. 250	54	Approx. 0.4 kg
	FH350G-S3-JPT1-S-NN-NN	Rc 1	70	8	6	60.5	26	26	69	Approx. 245	55	Approx. 3 kg
	FH350G-S3-NPT1-S-NN-NN	1 NPT	70	8	6	60.5	26	26	69	Approx. 245	55	Approx. 3 kg

● **FH350G-PP-□1□F-S-NN-NN, FH350G-S3-□1□□-S-NN-NN**

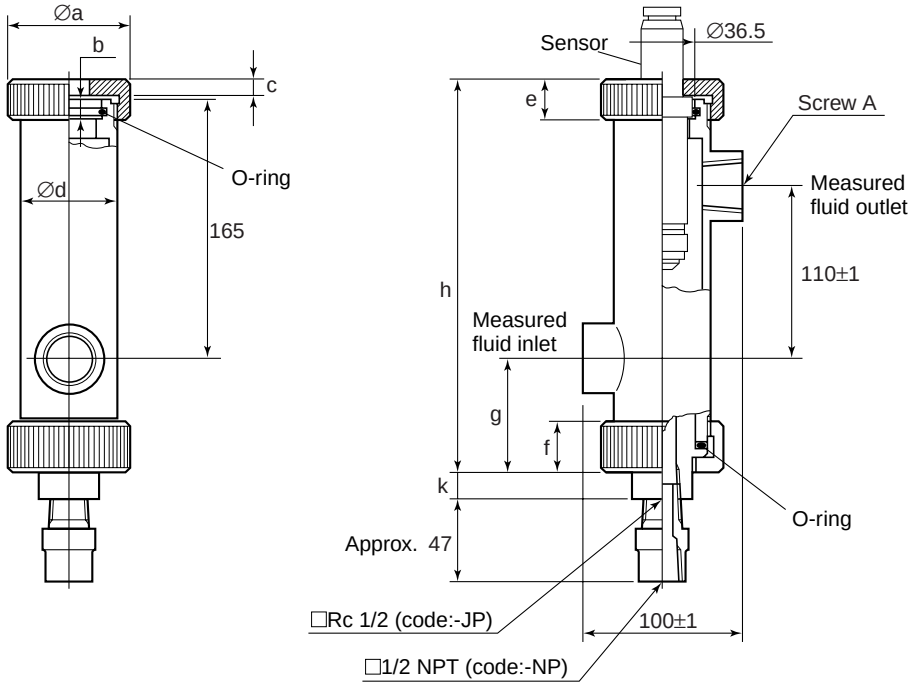
Unit: mm



	Model Code	A	B	C	D	E	a	b	c	d	e	f	g	h	Weight
	FH350G-PP-J10F-S-NN-NN	125	90	14	19	—	80	9	11	60	25	30	70	Approx. 250	Approx. 0.6 kg
	FH350G-PP-A15F-S-NN-NN	108	79.2	14.2	15.7	—	80	9	11	60	25	30	70	Approx. 250	Approx. 0.6 kg
	FH350G-S3-J10F-S-NN-NN	125	90	14	19	—	70	8	6	60.5	26	26	69	Approx. 245	Approx. 5 kg
	FH350G-S3-A15R-S-NN-NN	108	79.2	14.2	15.7	2	70	8	6	60.5	26	26	69	Approx. 245	Approx. 5 kg

● FH350G-PP-□PT1-S-JT-□P, FH350G-S3-□PT1-S-JT-□P

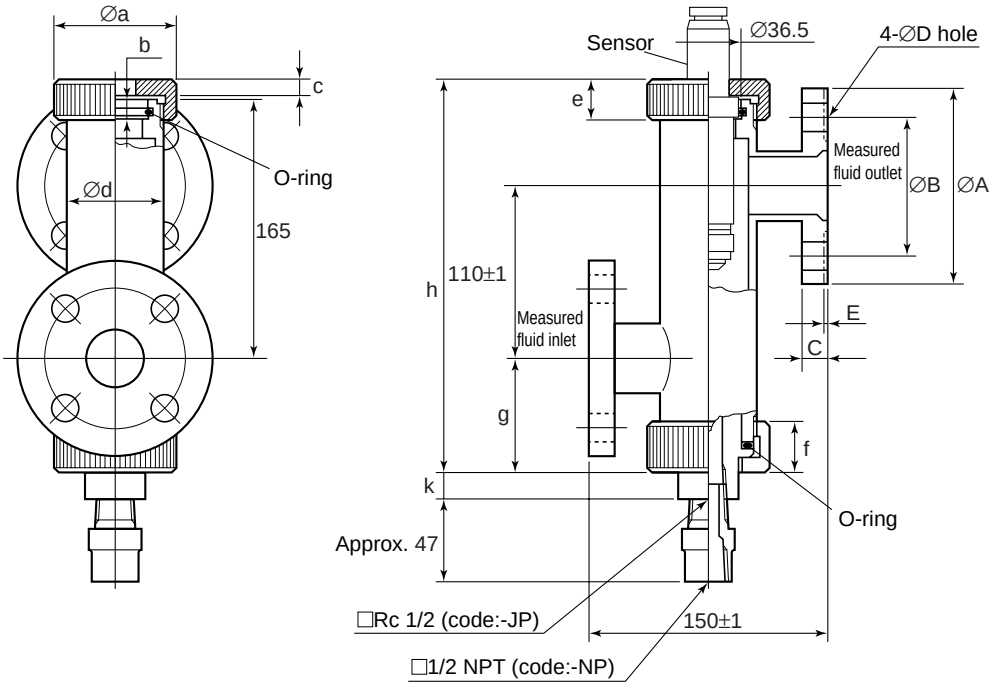
Unit: mm



	Model Code	Screw A	a	b	c	d	e	f	g	h	k	Weight
	FH350G-PP-JPT1-S-JT-□P	Rc 1	80	9	11	60	25	30	70	Approx. 250	15	Approx. 1.4 kg
	FH350G-PP-NPT1-S-JT-□P	1 NPT	80	9	11	60	25	30	70	Approx. 250	15	Approx. 1.4 kg
	FH350G-S3-JPT1-S-JT-□P	Rc 1	70	8	6	60.5	26	26	69	Approx. 245	17	Approx. 4 kg
	FH350G-S3-NPT1-S-JT-□P	1 NPT	70	8	6	60.5	26	26	69	Approx. 245	17	Approx. 4 kg

● **FH350G-PP-□1□F-S-JT-□P, FH350G-S3-□1□□-S-JT-□P**

Unit: mm

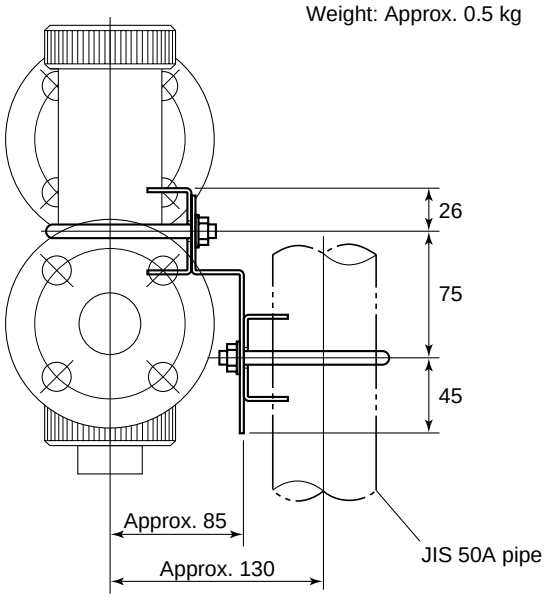


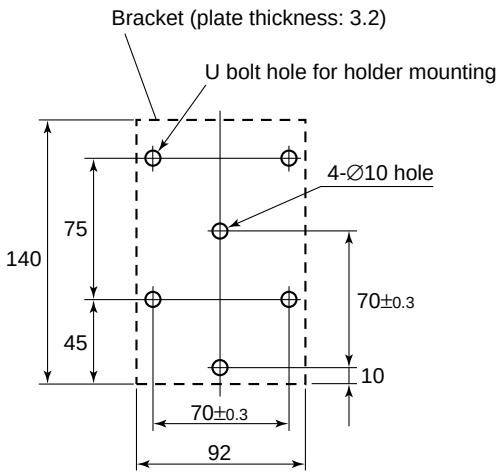
	Model Code	A	B	C	D	E	a	b	c	d	e	f	g	h	k	Weight
	FH350G-PP-J10F-S-JT-□P	125	90	14	19	—	80	9	11	60	25	30	70	Approx. 250	15	Approx. 1.6 kg
	FH350G-PP-A15F-S-JT-□P	108	79.2	14.2	15.7	—	80	9	11	60	25	30	70	Approx. 250	15	Approx. 1.6 kg
	FH350G-S3-J10F-S-JT-□P	125	90	14	19	—	70	8	6	60.5	26	26	69	Approx. 245	17	Approx. 6 kg
	FH350G-S3-A15R-S-JT-□P	108	79.2	14.2	15.7	2	70	8	6	60.5	26	26	69	Approx. 245	17	Approx. 6 kg

● **Option Code (/MF5) Specified Mounting Bracket**

Unit: mm

Weight: Approx. 0.5 kg





Size of wall mounting hole

2. INSTALLATION AND PIPING

This chapter describes the how to install the FH350G Flow Type Holder and connect pipes to pass measured fluid. If you use the flow type holder with jet cleaner, cleaning utility piping is required.

2.1 Installation

- **Location**
- **Mounting facility**
- **Mounting the flow type holder**

2.1.1 Selection of Location

The FH350G Flow Type Holder should be installed in a location where the sensor cable of the MLSS detector used in combination with the holder can be connected to the MLSS converter (or relay terminal box) with sufficient slack. Also, install the holder so that maintenance can be performed easily.

2.1.2 Preparation for Installation

The FH350G Flow Type Holder is basically secured in a stanchion (nominal 50A pipe: OD 60.5 mm) or bracket. Taking into consideration the status of the installation locations, provide a stanchion (vertical or horizontal) or bracket for the flow type holder mounting. (See Figure 2.2 of Section 2.1.3 for processing of mounting holes provided to the bracket.)

If the pipe for the measured fluid connected to the holder has sufficient strength, the pipe can be used to hold the holder without using a mounting bracket.

2.1.3 Mounting the Flow Type Holder

- **Attachment to pipe**
  This method is only used when a rigid pipe with sufficient strength is used. Connect the pipes at the measured fluid inflow side and outflow side as shown in Figure 2.1. If the polypropylene resin holder is used, secure the pipe with some structure as close as possible to the holder so that excess pressure is not applied to the holder.

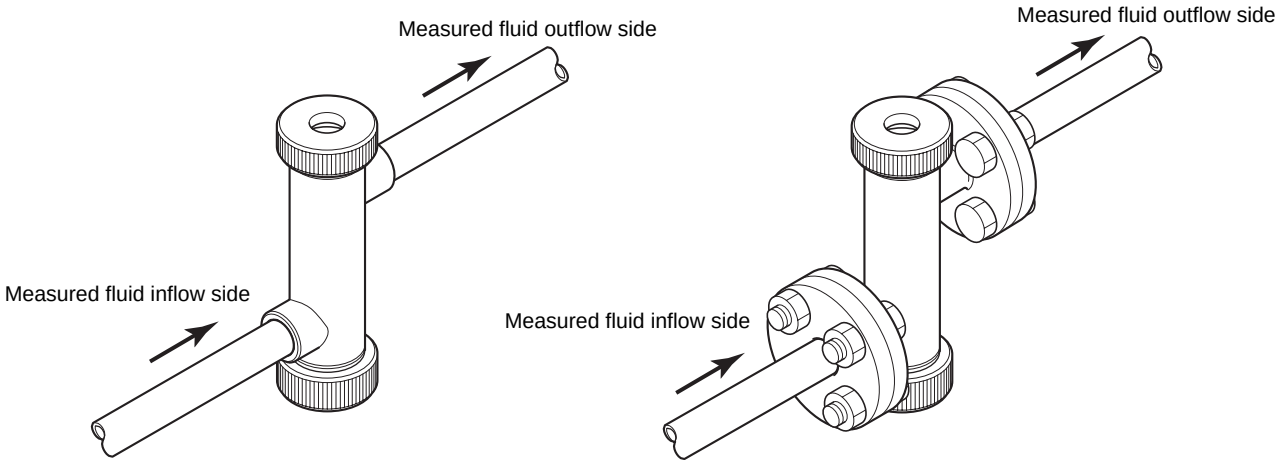


Figure 2.1 Holding the Flow Type Holder (connection held by the pipe)

● **Mounting to stanchion or bracket**

Use a U bolt to secure to the stanchion of the mounting bracket as shown in Figure 2.2. When securing to the bracket, remove the U bolt from the mounting bracket and use a M8 size bolt (not provided) as shown in Figure 2.3.

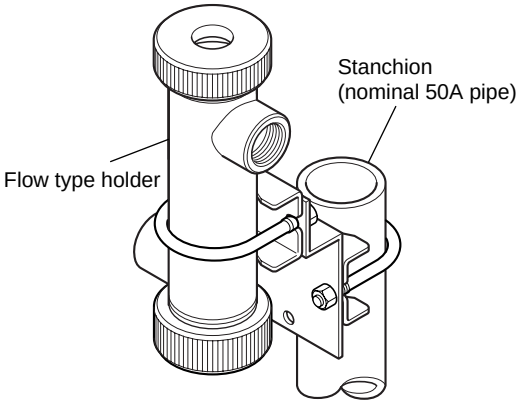


Figure 2.2 Holding the Flow Type Holder (Mounting to the stanchion)

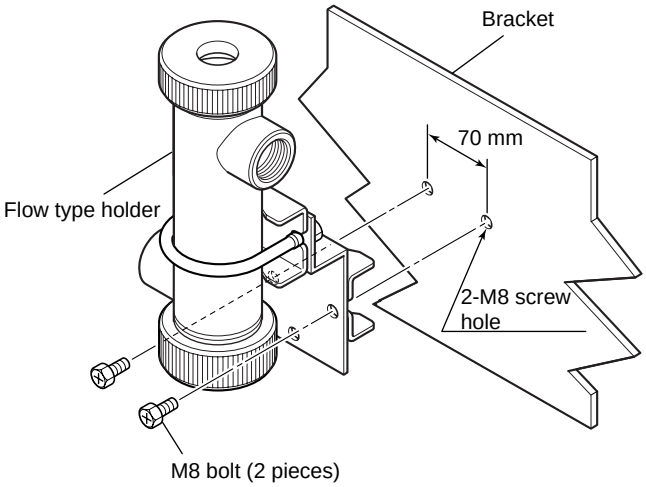


Figure 2.3 Holding the Flow Type Holder (Mounting to the bracket)

2.2 Processing Pipe

This pipe is used to pass the measured fluid through the holder. Pay attention to the temperature, pressure and amount of fluid so that they match the specifications of the sensor and holder. If the holder is equipped with a jet cleaner, take the conditions during cleaning into consideration.

Note: When performing water jet cleaning, the cleaning water outflow during cleaning operation is about 8 l/min at the maximum allowable pressure condition. In case of the air jet cleaning, air outflow is about 20 l/min.

2.2.1 Major Concerns During Pipe Installation

- For measurement, 6 l/min or more outflow is required. Make sure that sufficient flow is obtained.
- Make sure air (bubbles) does not get into the measured fluid.
- If a polypropylene resin flow type holder is used, the pressure of the fluid should be within the limit pressure range against the fluid temperature in terms of the strength of the holder. (Figure 2.4)

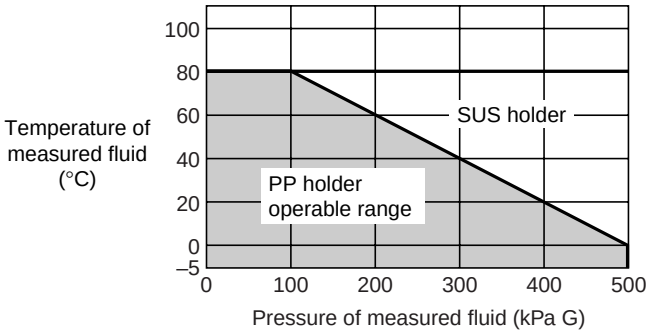


Figure 2.4 Pressure Restrictions as Measured Against Fluid Temperature

The pressure range indicated in Figure 2.4 is the available range for continuous use of the polypropylene resin flow type holder alone. The operable pressure of the MLSS detector used in combination with the holder is 200 kPa G or less; be sure that the measured fluid pressure does not exceed this value.

Note: If water jet cleaning is performed, 5 to 8 l/min of cleaning water outflow is generated during cleaning. Therefore, generally speaking there is no need to consider an increase in cleaning water pressure except for those cases where flow is restricted at the measured fluid outflow side pipe system.

- When jet cleaning is performed, if you want to prevent the cleaning utility getting into the measured fluid inflow side pipe, provide the check valves shown in Figure 2.5 as required.

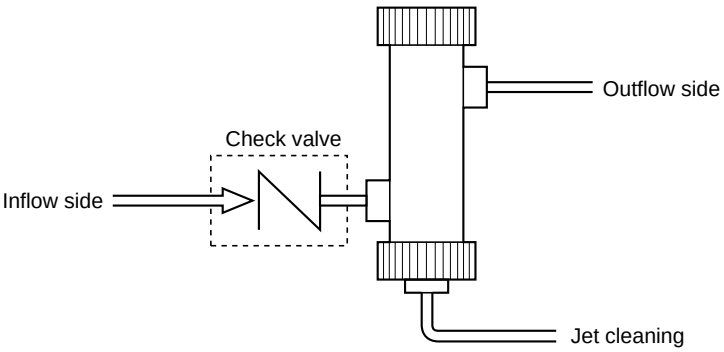


Figure 2.5 Measures to Prevent Cleaning Utility from Getting into the Upper Stream Side Pipe

2.2.2 Installing the Processing Pipe

The pipe materials and piping installation are explained below.

● **Pipe Materials**

Use the following items for the processing pipe adjacent to the flow type holder.

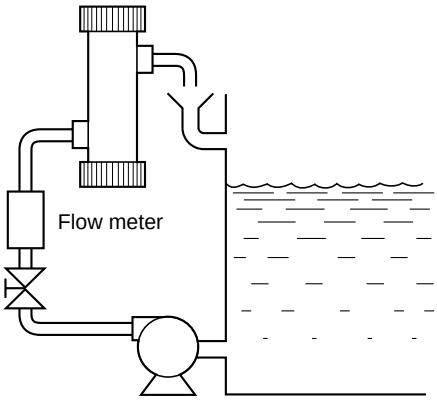
- **Rigid PVC pipe**: Nominal size ϕ25
- **Polypropylene resin pipe**: Nominal size ϕ25
- **Wire flexible PVC resin tube**: Nominal size ϕ25
- **Stainless steel pipe for piping (JIS G3459)**: SUS316 or SUS304, Nominal size ϕ25

● **Piping Installation Example**

In order to obtain accurate measurements, install the piping so that 6 l/min or more flow can be obtained.

Figure 2.6 is a example of piping wherein the pressure inside the holder is about equivalent to the atmospheric pressure. This piping method uses a polypropylene resin holder to measure fluid that is near 80°C.

1. Shorten the length of the outflow side pipe as much as possible to release pressure to the air.



2. If the horizontal section of the outflow side pipe is long, make the length of H long as well.

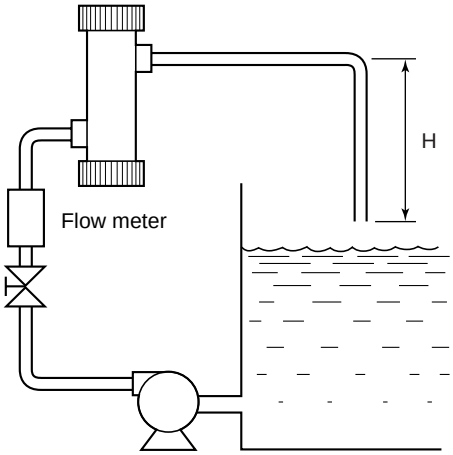


Figure 2.6 Measurement Performed with Pressure Equivalent to the Atmospheric Pressure

Figure 2.7 is a example of measuring fluid under pressure. The upper limit of the fluid pressure should be 200 kPa G.

1. Provide a stop valve for maintenance purposes.

2. Provide a check valve should you find that the pressure of the cleaning utility is sufficiently high to demand it.

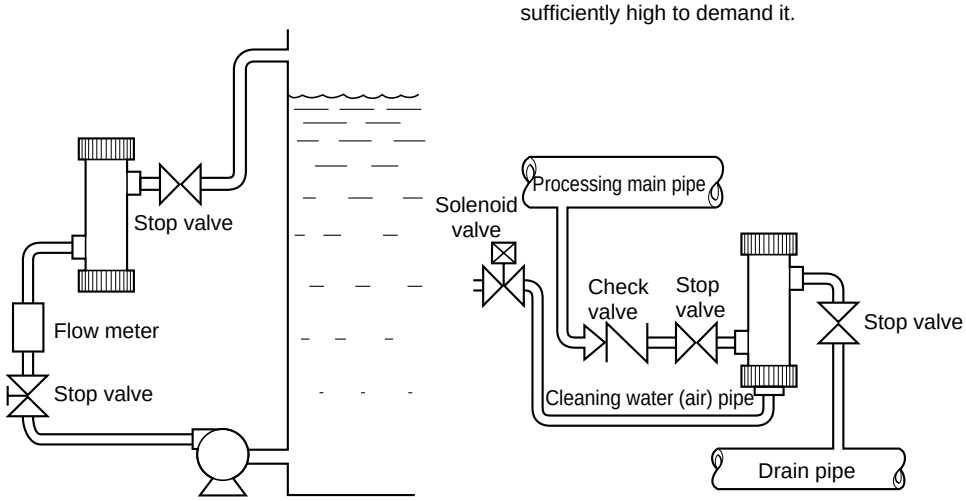


Figure 2.7 Measures Performed on Fluid Under Pressure

If there is a significant amount of staining, it may be necessary to clean inside the flow type holder. As necessary, provide a waste fluid receptacle as shown in Figure 2.8.

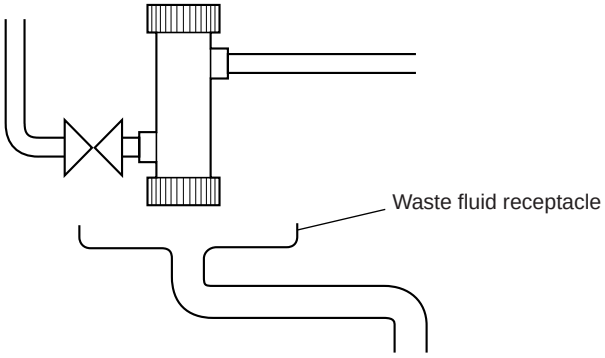


Figure 2.8 Facility for Cleaning Waste Fluid

2.3 Piping When Using the Jet Cleaning Utility

This piping is only provided when the flow type holder equipped with jet cleaner is used. Jet cleaning is executed by a “cleaning” contact output signal from the converter (SS400G).

This section describes items to note with regard to piping installation and the piping method. For “cleaning” signal wiring, refer to SS400G MLSS Converter (IM 12E6B1-02E) Instruction Manual.

2.3.1 Items to Note with Regard to Piping Installation

- Consider the ability to perform maintenance on the jet cleaning device (nozzle). Basically, use a flexible hose for piping adjacent to the holder. If the temperature of the measured fluid is high, take heat-resistance into consideration.
- Pay attention to the size and length of piping so that the pressure and flow rate sufficient for cleaning can be obtained.

Note: Flow from the nozzle under 300 kPa G water pressure is about 8 l/min. The cleaning device (nozzle) used for the air jet cleaning is the same as that used for water jet cleaning.

When performing water jet cleaning in winter, take heat insulation measures to keep the cleaning water from freezing.

- With respect to the solenoid valve used in the cleaning utility pipe line, use one having a 13A or 15A aperture (connection port) that “opens” when electrified (excited).

YOKOGAWA provides the following solenoid valves.

● **Non-explosion-proof Solenoid Valve (YOKOGAWA model name: PH8MV)**

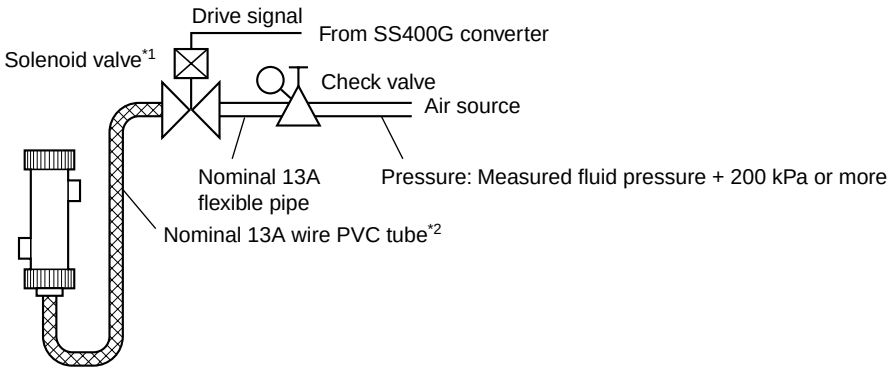
Type:	Pilot kick operation method 2-port solenoid valve. N.C. (opens when electrified) operation
Available fluid:	Clean water, industrial water, or air
Operation pressure:	0 to 1 MPa (primary/secondary side pressure difference)
Pressure:	2 MPa G or less
Cv value:	4.5
Pipe connection port:	Rs 1/2
Power supply:	One of the following is specified 100V AC, 50/60 Hz 110V AC, 60 Hz 200V AC, 50/60 Hz 220V AC, 60 Hz
Power consumption:	10 W
Cable intake port:	G 1/2
Structure:	Outdoor type
Mounting position:	No restriction
Material:	Body: Bronze Seal: Nitrile rubber Coil case, terminal box: Aluminum alloy
Ambient temperature:	50°C
Weight:	Approx. 1 kg

2.3.2 Installing Cleaning Utility Piping

Piping examples are shown in the figures for each type of cleaning utility: air, industrial water, and city water, respectively.

● **Air Piping Example**

Install piping as depicted in Figure 2.9.



*1: If corrosive gas is generated from the measured fluid, take countermeasures such as use of an anti-corrosive solenoid valve.
*2: If the temperature of the measured fluid is high, use a heat-resistant material that is resistant to temperatures in excess of the temperature of the measured fluid.

Figure 2.9 Piping for Air

● **Water (industrial water) Piping Example**

Install piping as depicted in Figure 2.10.

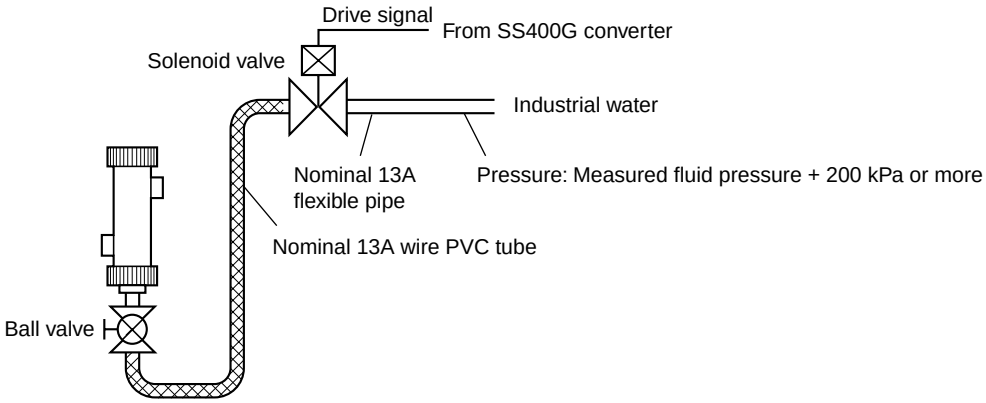


Figure 2.10 Piping for Industrial Water

● **City Water (clean water) Piping Example**
Install piping as depicted in Figure 2.11.

NOTE

PH8PU1 piping, which uses the YOKOGAWA PH8PU1 cleaning water pump/tank, has the functions up to the check valve in Figure 2.11. Therefore, it is not necessary to provide a solenoid valve to prevent contamination of the measured fluid.
If the pump is operated with the eject side pipe closed, the pressure will increase, causing damage to the piping system materials, therefore, to prevent accidents do not incorporate a solenoid valve.

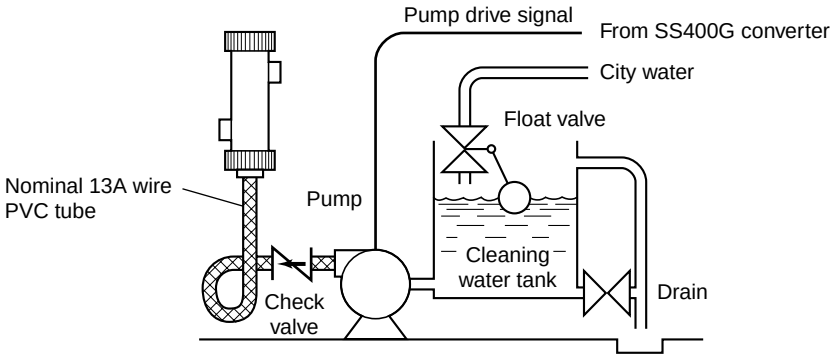


Figure 2.11 Piping for City Water

3. INSPECTION AND MAINTENANCE

This chapter describes the following matters.

- **Cleaning inside the holder**
- **Inspection of O-ring for sealing**
- **Cleaning the jet cleaning device (nozzle)**

For inspection and maintenance of sensors used in combination with the flow type holder, refer to each instruction manual.

3.1 Cleaning Inside the Holder

Staining on the inside wall of the holder does not always affect measuring performance; however, if there is excessive accumulation of substances in the measured fluid or there is substantial staining on the inside wall of the holder, perform periodic cleaning. Determine the cleaning interval based on the conditions in your specific location.

Remove the plug (or jet cleaner) at the bottom of the holder to perform cleaning. (See Figure 3.1)

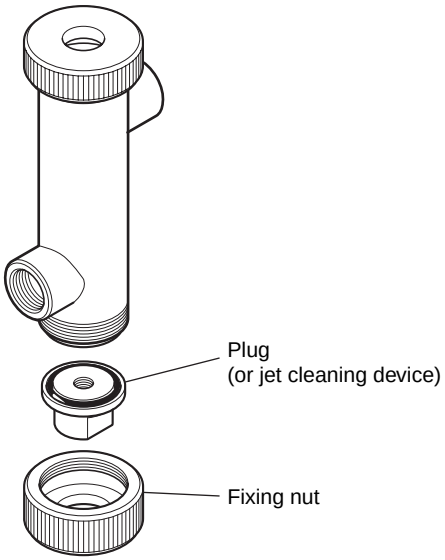


Figure 3.1 Flow Type Holder Plug (or jet cleaner)

3.2 Inspection and Replacement of O-ring for Sealing

The flow type holder has an O-ring for sealing at the sensor insertion section at the top and plug (or jet cleaner) section at the bottom. These O-rings are made of fluorine rubber that demonstrates excellent chemical resistance and shows satisfactory corrosion resistance against most measured fluids. Therefore, if it is used under general conditions, it is not necessary to perform inspection so frequently.

Check for fluid leakage when cleaning inside the holder is completed.

If the O-ring has suffered extreme deterioration (permanent deformation) due to long term use, replace it.

(The part number for replacement O-rings is listed in the CMPL (Customer Maintenance Parts List) at the end of this manual.)

3.3 Cleaning Jet Cleaning Device (Nozzle)

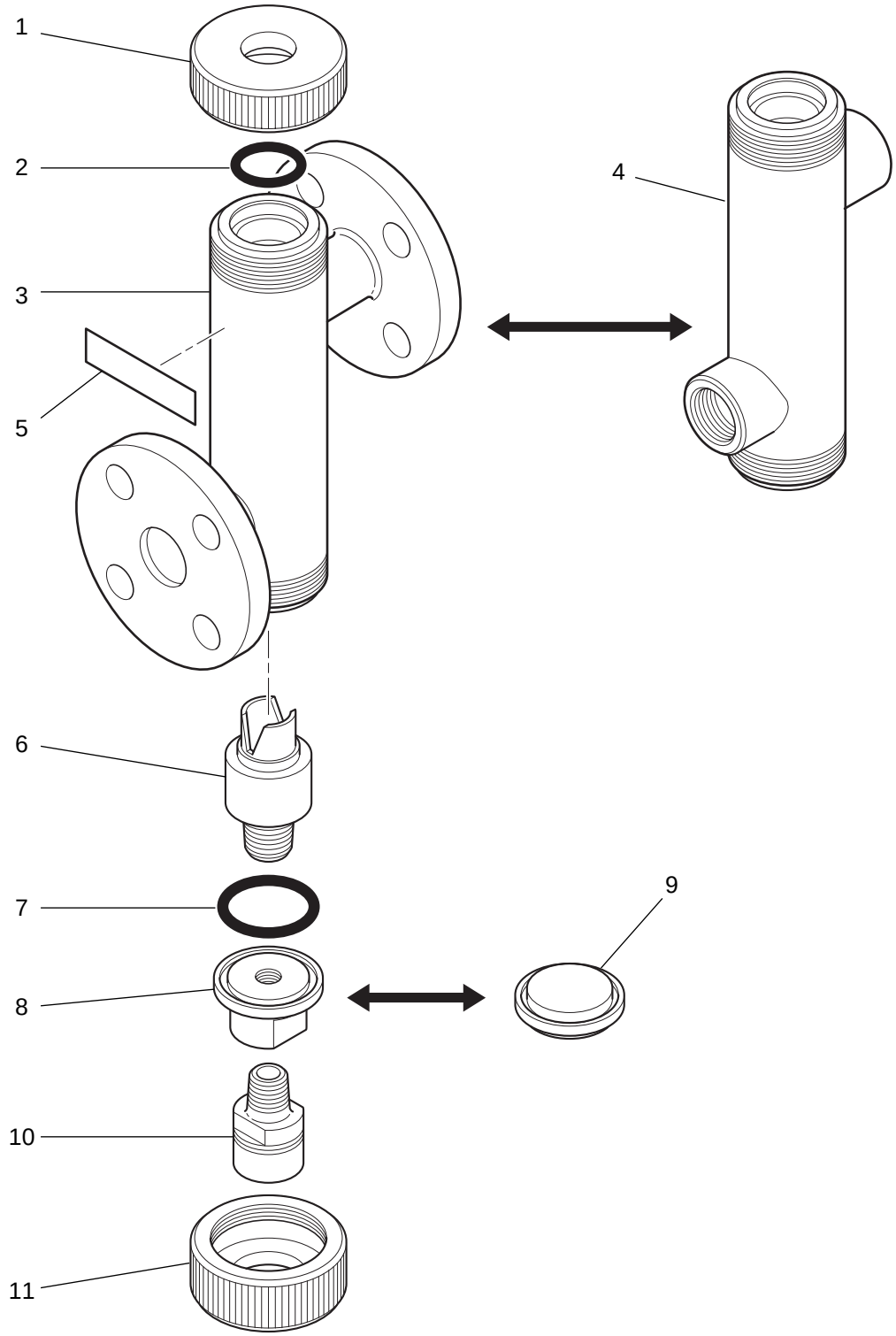
This section applies only when a flow type holder equipped with the jet cleaner is used.

When cleaning inside the holder, check for clogs in nozzle hole of the jet cleaner. If found, remove the cleaning device (nozzle) screwed in the cleaner body part and clean it.

After cleaning of the nozzle hole, if ejection of cleaning water (or air) still does not improve (less effective cleaning), replace the jet cleaning device (nozzle).

Customer Maintenance Parts List

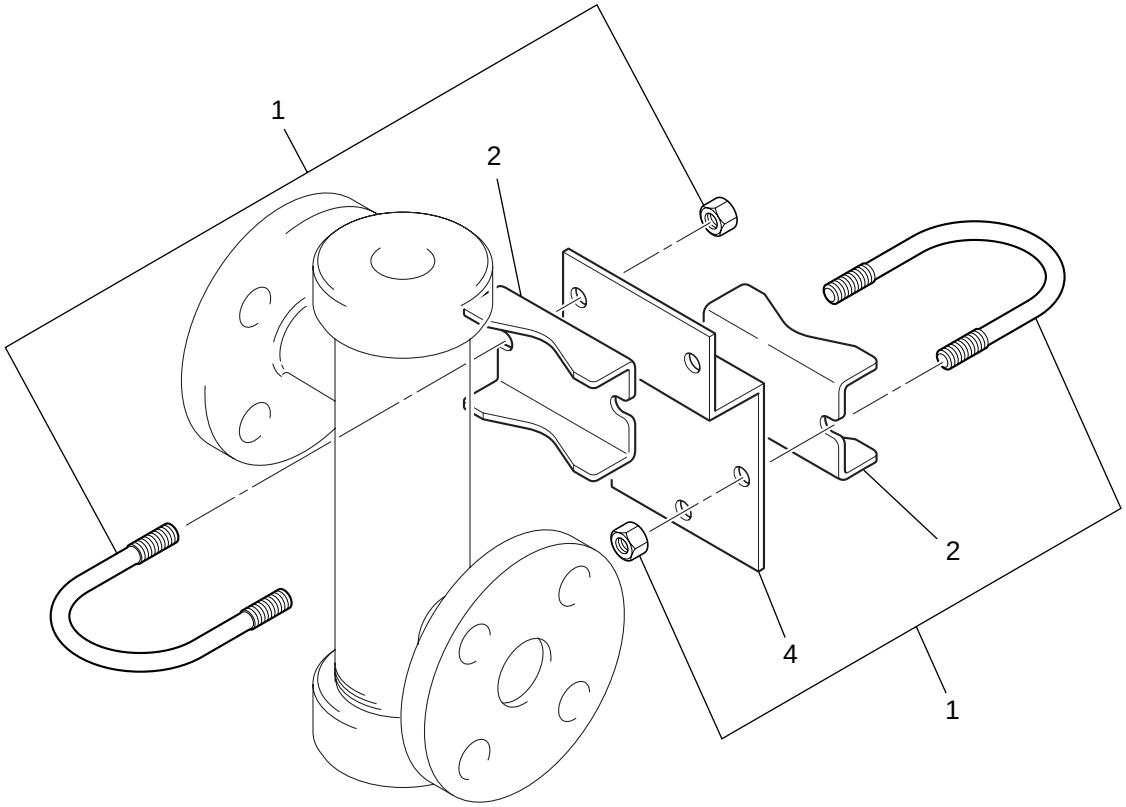
Model FH350G
Flow-Through Type Holder



YOKOGAWA
Yokogawa Electric Corporation

CMPL 19H01C02-01E
1st Edition : Jan. 1999 (YK)
3rd Edition : Aug. 2001 (YK)

Item	Part No.	Qty Model FH350G-PP	Qty Model FH350G-S3	Description
1	K9145EA	1		Cap (Material: PP)
	K9145EB		1	Cap (Material: SCS14)
2	K9142QW	1	1	O-Ring
3	K9433SH	1		Chamber Assembly (Process Connection: JIS 10K-25-FF)
	K9433SM	1		Chamber Assembly (Process Connection: ANSI CLASS150-1-FF)
	K9433TH		1	Chamber Assembly (Process Connection: JIS 10K-25-FF)
	K9433TM		1	Chamber Assembly (Process Connection: ANSI CLASS150-1-RF)
4	K9433SA	1		Chamber Assembly (Process Connection: Rc 1(JIS) Female Thread)
	K9433SB	1		Chamber Assembly (Process Connection: 1 NPT Female Thread)
	K9433TA		1	Chamber Assembly (Process Connection: Rc 1(JIS) Female Thread)
	K9433TB		1	Chamber Assembly (Process Connection: 1 NPT Female Thread)
5	K9433SG	1	1	Name Plate
6	K9432RJ	1	1	Nozzule
7	K9415QX	1	1	O-Ring
8	K9432SW	1		Cleaner Body (Material: PP)
	K9433TW		1	Cleaner Body (Material: SCS14)
9	K9145DG	1		Plug (Material: PP)
	K9145DH		1	Plug (Material: SCS14)
10	K9115RS	1		Adaptor: for 1/2 NPT Piping (Material: PP)
	L9832AT		1	Adaptor: for 1/2 NPT Piping (Material: SCS14)
11	K9145EJ	1		Cap (Material: PP)
	K9145EK		1	Cap (Material: SCS14)



Item	Part No.	Qty	Description
—	K9145LD	1	Mounting Kit
1	D0117XL-A	2	U-Bolt & Nut
2	L9826AL	2	Bracket
4	K9145LE	1	Bracket

User's Manual

FH350G
Flow Type Holder

Supplement
(Manual contents revision)

Thank you for selecting Model FH350G Flow Type Holder.
The User's Manual IM 19H1C2-01E 1st edition supplied with this product has been revised as follows.
Please make a note in your copy.

Page ii Some of IM No. to be refered are modified.
Page 1 Specifications are equalized to GS.
Page 10 Specifications of PH8MV solenoid valve is changed for style D.
Some P/N changed for CMPL 19H01C02-01E 3rd edition (item 2, item 7 of page 2).

YOKOGAWA
Yokogawa Electric Corporation

IM 19H1C2-01E
1st Edition

2. Contents

This manual covers all of the information for handling the FH350G Flow Type Holder, including installation, piping, inspection and maintenance.

For the SS400G MLSS converter or SS300G MLSS detector used in combination with the FH350G, refer to their respective instruction manuals.

The Instruction Manuals for the EXAss series SS400 MLSS metering system-related equipment are as follows.

Manuals for associated equipment used with the EXA ss series SS400 MLSS metering system

Model	Title of Manual	IM No.
SS400G	MLSS Converter	IM 12E6B1-02E
SS300G	MLSS Detector	IM 12E6C1-01E
SS380G	MLSS Calibration Kit	IM 12E6D1-01E
WTB10-SS□	Terminal Box (for MLSS metering)	IM 12E06W03-01E
PH8PU1	Cleaning Pump/ Tank	IM 19C1E1-01E

1. OVERVIEW

This chapter describes the specifications, model code and external drawing of the FH350G Flow Type Holder.

1.1 Standard Specifications

Applicable sensors:

SS300G MLSS sensors (measurement range: 1000 mg/l or less)

(Note) Not applicable high range (greater than 0 to1000mg/l) of MLSS sensor and DO sensor.

Mounting: Stanchion (2-inch pipe), Mounting bracket (option) required

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 SUS316)

O-ring: Fluoric rubber (Viton)

Mounting bracket: Stainless steel (equivalent to SUS304)

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 electrode.

Pressure: Atmospheric pressure (0 kPa) to 200 kPa

Note: Holder pressure rating is 500 kPa.

Utility required for cleaning unit:

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.

1.2 Model and Code

Model	Suffix Code	Option Code	Description
FH350G	.....	.....	Flow-through type holder
Material	**-PP**	.....	Polypropylene
	-S3	.....	Stainless steel
Processing Connection	**-JPT1**	.....	Rc 1
	-NPT1	.....	1 NPT female thread
	-J10F	.....	JIS 10K 25 FF flange
	-A15F	.....	ANSI Class150 1 FF flange equivalent (for polypropylene holder -PP)
	-A15R	.....	ANSI Class150 1 RF flange equivalent 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**	With mounting bracket (stainless steel)
	Stainless Steel Tag Plate	**/SCT**	With stainless tag plate

2.3 Piping When Using the Jet Cleaning Utility

This piping is only provided when the flow type holder equipped with jet cleaner is used. Jet cleaning is executed by a “cleaning” contact output signal from the converter (SS400G).

This section describes items to note with regard to piping installation and the piping method. For “cleaning” signal wiring, refer to SS400G MLSS Converter (IM 12E6B1-02E) User's Manual.

2.3.1 Items to Note with Regard to Piping Installation

- Consider the ability to perform maintenance on the jet cleaning device (nozzle). Basically, use a flexible hose for piping adjacent to the holder. If the temperature of the measured fluid is high, take heat-resistance into consideration.
- Pay attention to the size and length of piping so that the pressure and flow rate sufficient for cleaning can be obtained.

Note: Flow from the nozzle under 300 kPa G water pressure is about 8 l/min. The cleaning device (nozzle) used for the air jet cleaning is the same as that used for water jet cleaning.

When performing water jet cleaning in winter, take heat insulation measures to keep the cleaning water from freezing.

- With respect to the solenoid valve used in the cleaning utility pipe line, use one having a 13A or 15A aperture (connection port) that “opens” when electrified (excited).

YOKOGAWA provides the following solenoid valve.

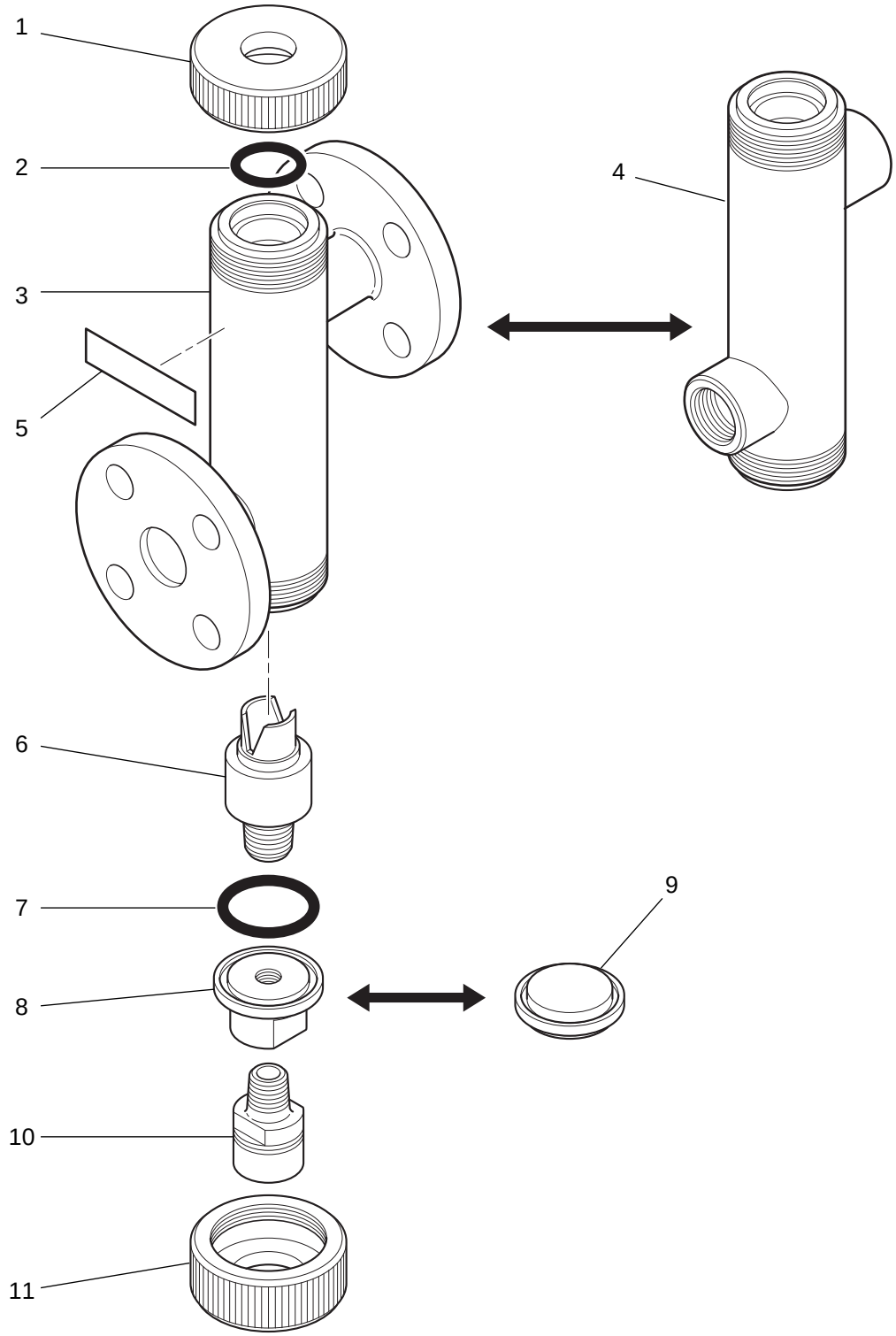
● **Non-explosion-proof Solenoid Valve (Model PH8MV)**

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℃, Air; -10 to 60℃
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

Customer Maintenance Parts List

Model FH350G
Flow-Through Type Holder



YOKOGAWA
Yokogawa Electric Corporation

CMPL 19H01C02-01E
1st Edition : Jan. 1999 (YK)
3rd Edition : Aug. 2001 (YK)

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	K9145EB		1	Cap (Material: SCS14)
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	K9433SM	1		Chamber Assembly (Process Connection: ANSI Class150 1 FF)
	K9433TH		1	Chamber Assembly (Process Connection: JIS 10K 25 FF)
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	K9433SB	1		Chamber Assembly (Process Connection: 1 NPT Female Thread)
	K9433TA		1	Chamber Assembly (Process Connection: Rc 1(JIS) Female Thread)
	K9433TB		1	Chamber Assembly (Process Connection: 1 NPT Female Thread)
5	K9433SG	1	1	Name Plate
6	K9432RJ	1	1	Nozzle
7	K9142QX	1	1	O-Ring
8	K9432SW	1		Cleaner Body (Material: PP)
	K9433TW		1	Cleaner Body (Material: SCS14)
9	K9145DG	1		Plug (Material: PP)
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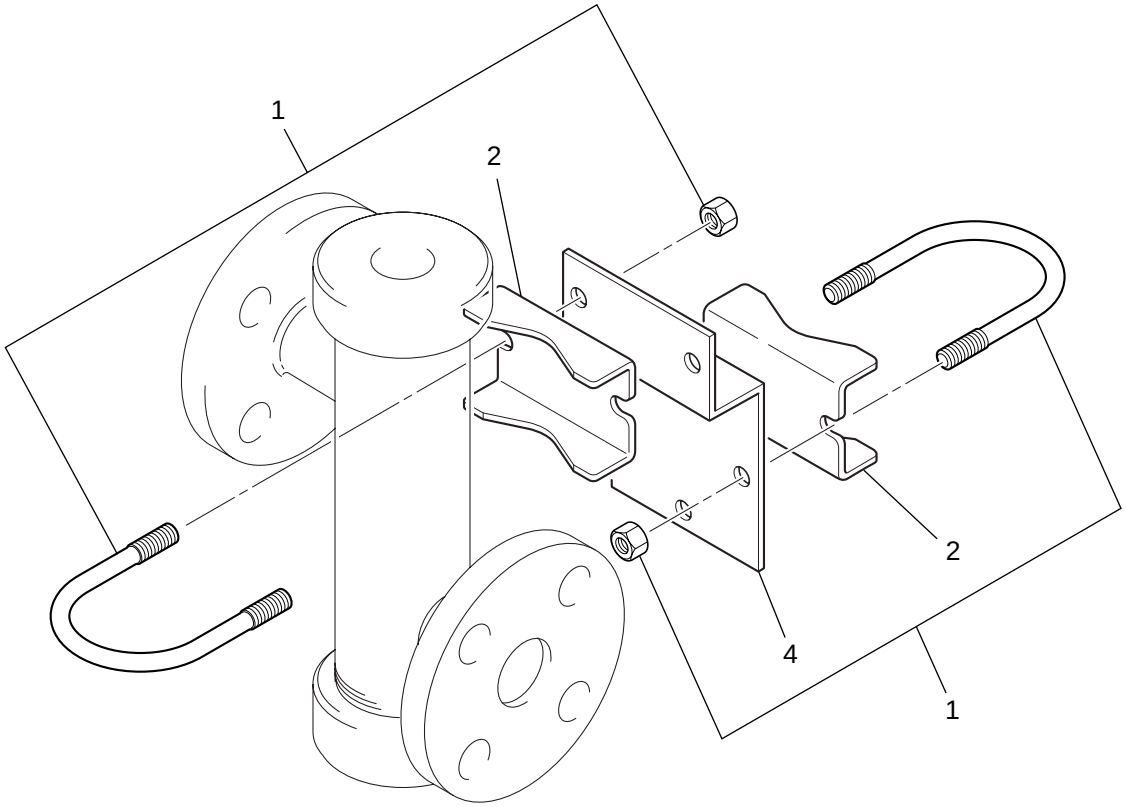

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1	D0117XL-A	2	U-Bolt & Nut
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