

Serial No.:	H-AS005-E-2
-------------	-------------

Impeller Flowmeter

ASIP80 Series

User's Manual

Contents

1. General Operating Instructions·····	1
2. General Instructions for Transportation, Unpacking and Storage···	1
3. Specifications·····	2
4. Name of Parts·····	3
5. Installation Procedure·····	4
6. Inspection Items·····	5
7. Troubleshooting·····	6
8. Handling of residual and waste materials····	6



ASAHI YUKIZAI CORPORATION

1. General Operating Instructions

- Operate the Flowmeter within the pressure Vs temperature range.
(The Flowmeter can be damaged by operating beyond the allowable range.)
- **Fluid that can be used**
 - Select a Flowmeter material that is compatible with the media, refer to “CHEMICAL RESISTANCE ON ASAHI AV VALVE”. (Some chemicals may damage incompatible Flowmeter materials.)
 - It is possible to measure it more effectively by setting up a “Strainer” on the upstream side according to the kind of the fluid.
 - This Flowmeter is unsuitable for the fluid shown as follows.

1. Fluid with high density of slurry	There can be damage, wear-out of Impeller, and a possibility of blocking.
2. Particle diameters of impurities are large	There can be damage, wear-out of Impeller, and a possibility of blocking.
3. Liquid of high viscosity	Accuracy is lost.
4. Liquid including bubble	When the bubble passes, you get a margin of error.

- Do not step on the valve or apply excessive weight on the Flowmeter. (It can be damaged.)
- Do not exert excessive force in closing the Flowmeter.
- Make sure to consult a waste treatment dealer to dispose of the Flowmeter.
(Poisonous gas is generated when the Flowmeter is burned improperly.)
- Allow sufficient space for maintenance and inspection.
- Keep the Flowmeter away from excessive heat or fire. (It can be deformed, or destroyed.)
- Keep the valve away from places of direct sunlight, water and dust. Use cover to shield the Flowmeter.
(The Flowmeter will not operate properly.)

2. General Instructions for Transportation, Unpacking and Storage

- Keep the Flowmeter packed in the carton or box as delivered until installation.
- Keep the valve away from any coal tar, creosote (antiseptic for wood), termite insecticide, vermicides, and paint.
(This could cause swelling and damage the Flowmeter.)
- Do not impact or drop the Flowmeter. (It can be damaged.)
- Avoid scratching the valve with any sharp object.

3. Specifications

[Basic Specifications]

Item			ASIP81 (P/Y/K)	ASIP82 (P/Y/K)
Diameter			15mm(1/2’)-80mm(3’)	100mm(4’)-150mm(6’)
Type of Connection			Socket, Flange	
Materials	Body	Working Temperature℃ (° F)	HI-PVC : 50℃(120F) PP : 60℃(140F) PVDF : 90℃(194F)	
		Max. Working Pressure(at r.t.) MPa{kgf/cm2}[PSI]	1.0MPa (10.2kgf/cm ²)[150]	
	Impeller		PVDF	
	Shaft		Ruby	
	O-ring		FKM (EPDM)	
	Special Fitting		PVC, HI-PVC	
	Measurement Fluid			Fluid (High viscosity fluid and slurry is excluded.)
Max. Working temperature			0 - 90℃ (32 – 194° F)	
Flow rate			0.2 - 9.0 m/s	
Rangeability			1 : 45	
Measurement Accuracy			± 1.5% (FS)	
Power Source			DC6V – 24V (Current Consumption: 8mA)	
Output Signal			Current Sinking Pulse (NPN) 20mA maximum	
Cable			3-con (3.6m)	
Fitting Installation			Straight pipe of at least 10 times the diameter upstream of the meter, and 5 diameters downstream are strongly recommended.	

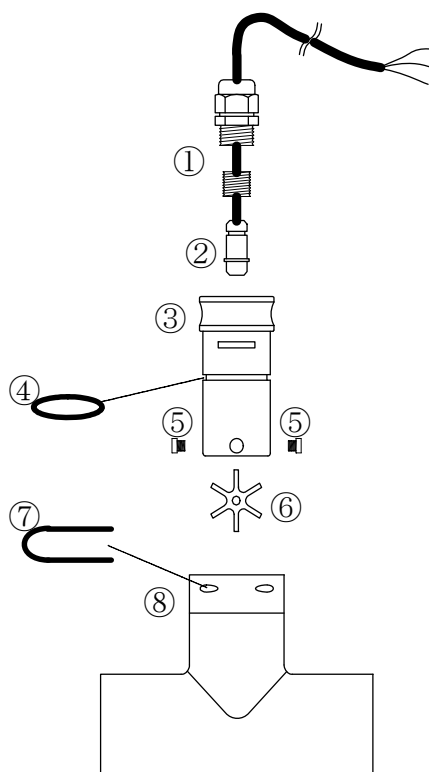
Fig.1 Max Working Pressure and Working Temperature of Special Fitting.

Temperature	Pressure (MPa)		
	U-PVC HI-PVC	C-PVC	
	15~150mm	15~50mm	65~150mm
20°C	1.0	1.0	1.0
30°C	0.9	1.0	0.8
40°C	0.7	1.0	0.8
50°C	0.3	0.6	0.6
60°C	—	0.6	0.6
70°C	—	0.4	0.4
80°C	—	0.2	0.2
90°C	—	0.2	0.2

Fig.2 Flow Rate and K-Factor

Nominal Size	Flow Rate (m ³ /h)	K-Factor (cc/Pulse)
	Min - Max	
15mm(1/2")	0.14 - 6.51	7.1
20mm(3/4")	0.23 - 10.18	10.9
25mm(1")	0.35 - 15.89	16.1
30mm(1 1/4")	0.54 - 24.44	26.8
40mm(1 1/2")	0.90 - 40.69	47.2
50mm(2")	1.47 - 66.16	66.2
65mm(2 1/2")	2.54 - 114.17	102.2
80mm(3")	3.35 - 150.80	139.7
100mm(4")	5.65 - 254.34	213.0
125mm(5")	8.83 - 397.40	355.4
150mm(6")	12.05 - 542.15	465.0

4. Name of Parts



No.	Name	No.	Name	No.	Name
[1]	Sensor connector	[4]	O-ring	[7]	Pin
[2]	Pickup Sensor	[5]	Bearings	[8]	Fitting
[3]	Body	[6]	Impeller		

5. Installation Procedure

5.1 Location

- Locate the flowmeter with the following points taken into consideration to ease the work of making daily checks on it and operating it and to use it with unfailing accuracy over an extended period of time:
 - (1) The flowmeter can be mounted in any position: horizontal, vertical or upside down. In any position, however, the tube must be kept full of water.
 - (2) In vertical tubing, mount the flowmeter to allow fluids to flow from bottom so that they can fill the conduit.
 - (3) Avoid installing the flowmeter in places subjected to marked temperature gradients or temperature changes.
 - (4) Install the flowmeter to allow enough clearance for servicing.
 - (5) Install the flowmeter in a place that can afford ready access for wiring and tubing.
 - (6) Ensure that the fluid in the conduit is not frozen. (Frozen fluid could damage the flowmeter body.)



CAUTION

Gas-liquid two-phase fluids or fluids with bubbles mixed with them might not be measured correctly. Minimize the inflow of bubble-contained fluids. Bubbles deposited in the flowmeter could impair correct measurement. Ensure that bubbles do not deposit in the flowrate. (Have safeguards, such as air vents, implemented in position.)

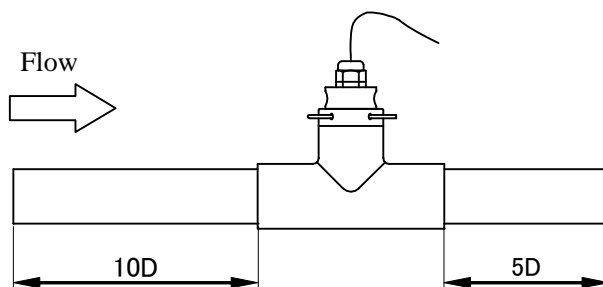


CAUTION

Do not splash the flowmeter directly with water. Flowmeter or power supply failures could result.

5.2 Piping and Mounting

- Tube and mount the flowmeter with the following points taken into consideration to use it with unfailing accuracy over an extended period of time:
 - (1) Install a straight pipe at least 10 times the diameter upstream from the upstream end face of the flowmeter and one at least 5 times the diameter downstream from the downstream end face of the flowmeter, because certain flows, such as drift and spiral flows, could affect its accuracy. If there is any equipment installed upstream that could significantly disturb fluid flows, please consult us.



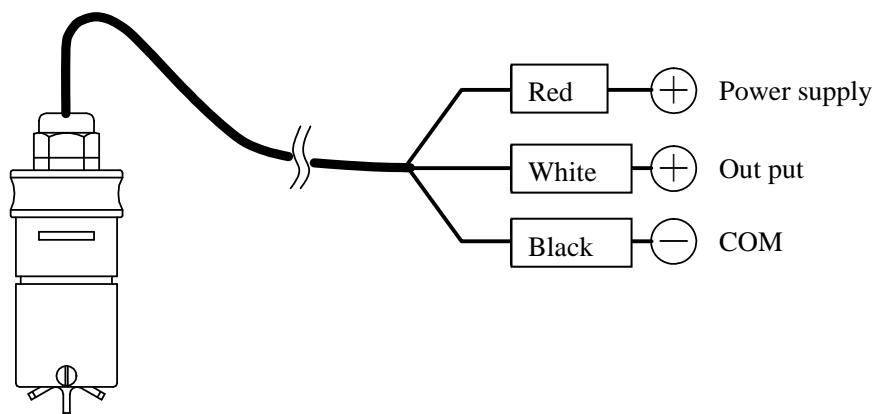
- (2) When it is necessary to install a heat exchanger or any other device involving sharp fluid temperature variations, install it downstream of the flowmeter, or upstream but with an adequate separation from the flowmeter.
- (3) It is possible to measure it more effectively by setting up a “Strainer” on the upstream side according

to the kind of the fluid.

5.3 Wiring

Connect the external cable of the Flowmeter, power supply and external equipment as shown in Fig. 5-3.

Fig. 5-3



6. Inspection Items

○Periodically inspect and maintain the AV valve in accordance with the decided schedule.

No.	Inspection item
1	Existence of rust, peeling of paint, and dirt of inspection hole.
2	Existence of leakage from the Flowmeter to the outside.
3	Do not let foreign bodies adhere in the Flowmeter?
4	Does Impeller Rotate smoothly?
5	Has not the shaft of Impeller broken?
6	Is the bearing worn out?
7	Has the cable been disconnected?

7. Troubleshooting

Cause		Treatment
Body	Trouble with the Pickup Sensor.	Replace the Pickup Sensor.
	Have foreign bodies adhered in the Flowmeter.	Clean out or replace Impeller.
	Worn-out Impella.	Clean the body, replace Impeller.
	Damage of Impella.	Replace the Impeller.
	Damage of Bearings.	Replace the Bearings.
	Leakage from the Flowmeter to the outside.	Replace the O-ring.
Fitting	Adhesion of foreign body.	Clean the Fitting.
	Cracks and distortion. (thermal deformation)	Replace the Fitting.

8. Handling of Residual and Waste Materials



Caution

In discarding remaining or waste materials, be sure to ask waste service company.
(Poisonous gas is generated.)

Impeller Flowmeter ASIP80 Series

[Asahi AV Sensor]

ASAHI YUKIZAI CORPORATION**Distributor**

<http://www.asahi-yukizai.co.jp/en/>

Information in this manual is subject to change without notice.

2016.4