

NEW-FLOW

**ISO 9001
REGISTERED**

NEW-FLOW

Instruction Manual

ROOTS TYPE POSITIVE DISPLACEMENT FLOW METER



JA (Standard Type)



JAR (Zero Rest Type)



JAH (High Temperature Type)



JAT (Pulse Transmitter Type)

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INSTALLATION

Flow Meter Selection

- a. In order to ensure accurate measuring range and durability, it's very important to select a flowmeter with suitable connection size. We have to consider and confirm the service conditions, such as working pressure, flow range, installation position and pipe space.
- b. This flow meter is a mechanical type. Flow range takes priority over pipe line size when selecting a suitable flowmeter. Please select a flowmeter with suitable connection size according to the requested flow range. (Please refer to the Flow Rate Table as follows.) For instance: If your pipe line size is only 2", but the flow range is up to the scope of 3" pipe, you need to select a flowmeter with 3" connection size.

Flow Rate Table

			Water		Chemicals	Petrochemicals		
Type number	Diameter (mm)	viscosity terms	80°C less normal temp. water	80~120°C high temp. water	Concentrated sulfuric acid, nitric acid	Plasticizer 50cp	Tar 500cp	Polyester 2000cp
JA	25	Normal Intermittent	800~ 3,500	800~ 3,000	800~ 3,000	800~3,500	800~4,000	800~4,000
		Normal Continuous	800~ 2,500	800~ 2,000	800~ 2,500	800~3,000	800~3,000	800~3,000
		Maximum	5,500	4,000	4,000	4,000	4,500	4,500
JA	40	Normal Intermittent	1,000~ 5,000	1,000~ 4,000	1,000~ 6,000	1,000~ 6,000	1,000~ 6,000	1,000~ 5,000
		Normal Continuous	1,000~ 4,000	1,000~ 3,000	1,000~ 5,000	1,000~ 5,000	1,000~ 5,000	1,000~ 4,000
		Maximum	6,000	5,000	7,000	7,000	7,000	5,500
JA	50	Normal Intermittent	1,500~ 9,000	2,000~ 8,000	1,000~ 6,000	1,000~ 12,000	1,000~ 12,000	1,000~ 10,000
		Normal Continuous	1,500~ 7,000	2,000~ 6,000	1,000~ 5,000	1,000~ 10,000	1,000~ 10,000	1,000~ 7,500
		Maximum	10,000	9,000	7,500	15,000	15,000	120,000
JA	80	Normal Intermittent	3,500~ 25,000	5,000~ 21,000	3,500~ 21,000	3,000~ 22,000	3,000~ 22,000	3,000~ 20,000
		Normal Continuous	3,500~ 20,000	5,000~ 18,000	3,500~ 18,000	3,000~ 20,000	3,000~ 20,000	3,000~ 18,000
		Maximum	30,000	25,000	25,000	25,000	25,000	22,000

			Petroleum							
Name of applicable fluid (reference)			L.P.G	Gasoline	Kerosene	Light oil A-heavy oil (high temp)	A-heavy oil	C-heavy oil	C-heavy oil	High viscosity fluid
Type number	Diameter (mm)	viscosity terms	0.1 C P~	0.5~	2	5~	10~	150~	500~	2000~
JA	25	Normal Intermittent	1,000~ 3,500	600~ 5,000	500~ 5,000	500~ 6,000	500~ 6,000	500~ 6,000	500~ 5,000	500~ 4,500
		Normal Continuous	1,000~ 3,000	600~ 4,000	500~ 4,000	500~ 5,000	500~ 5,000	500~ 5,000	500~ 4,000	500~ 3,500
		Maximum	5,000	6,500	6,500	7,000	7,000	7,000	6,000	5,000
JA	40	Normal Intermittent	1,000~ 4,500	1,000~ 5,500	800~ 6,000	500~ 6,000	500~ 7,000	500~ 7,000	500~ 6,000	500~ 5,500
		Normal Continuous	1,000~ 3,500	1,000~ 4,000	800~ 5,000	500~ 5,000	500~ 6,000	500~ 6,000	500~ 5,000	500~ 4,500
		Maximum	6,000	6,000	7,000	7,000	8,000	8,000	7,000	6,000
JA	50	Normal Intermittent	2,000~ 10,000	2,000~ 10,000	1,500~ 12,000	800~ 12,000	800~ 12,000	1,000~ 12,000	1,000~ 12,000	1,000~ 10,000
		Normal Continuous	1,000~ 8,000	2,000~ 8,500	1,500~ 10,000	800~ 10,000	800~ 10,000	1,000~ 10,000	1,000~ 10,000	1,000~ 9,000
		Maximum	12,000	12,000	13,000	13,000	13,000	12,000	12,000	11,000
JA	80	Normal Intermittent	3,500~ 20,000	3,000~ 20,000	3,000~ 22,000	3,000~ 23,000	3,000~ 23,000	3,000~ 23,000	3,000~ 20,000	3,000~ 19,000
		Normal Continuous	3,500~ 17,000	3,000~ 17,000	3,000~ 19,000	3,000~ 20,000	3,000~ 20,000	3,000~ 20,000	3,000~ 19,000	3,000~ 17,000
		Maximum	22,000	22,000	25,000	27,000	27,000	27,000	25,000	22,000

INSTALLATION

- c. Referring to the Flow Rate Table we can know that, if the flow rate is over 10 M3/Hr and reaches to 12 M3/Hr, even though your pipe line is only 2”(50mm), you still have to use the connection size 3” to make sure the flowmeter won’t be damaged by excessive flow.
- d. When using an oversize pump, such as a 10HP pump, even if a 2”(50mm) flowmeter is installed, the flow rate variation is large and can sometimes go over the standard range. It could cause damage to the flowmeter. Therefore, we recommend installing a valve to reduce the flow rate variation and control the flow range.

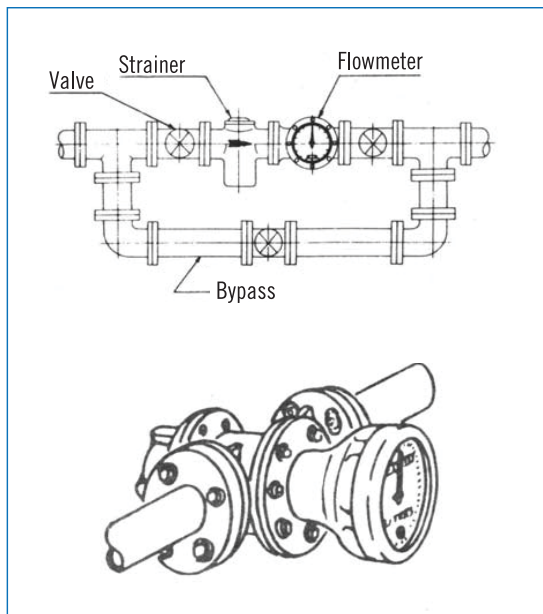
Flow Direction

Horizontal direction available and Vertical (bottom to up) available.

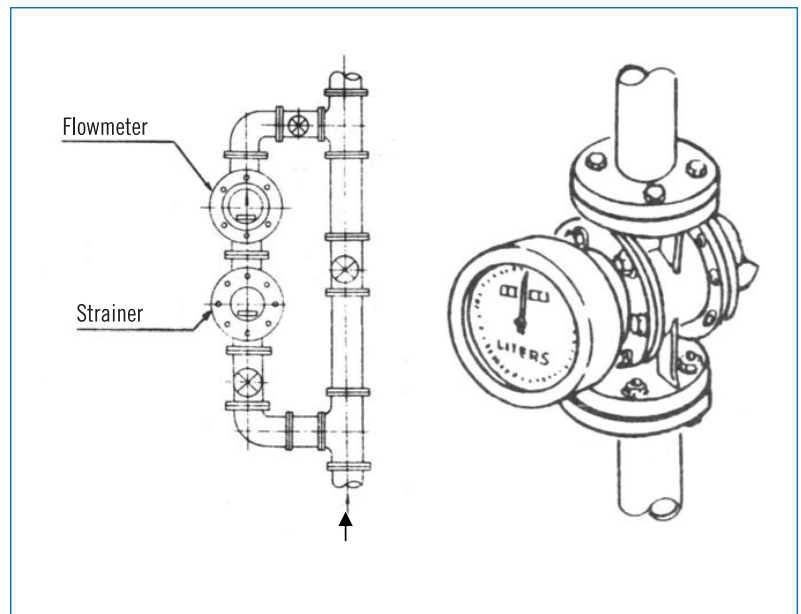
Pipe Installation

- e. Install two valves on either side of flow meter, one at the entrance of inlet and the other at the exit of outlet. It will enable to flush, repair and re-calibrate the flowmeter more easily.
- g. Install a strainer at the inlet of flowmeter and install a bypass pipe for easy repair and inspection of flowmeter.
(As shown in Figs 1~3)

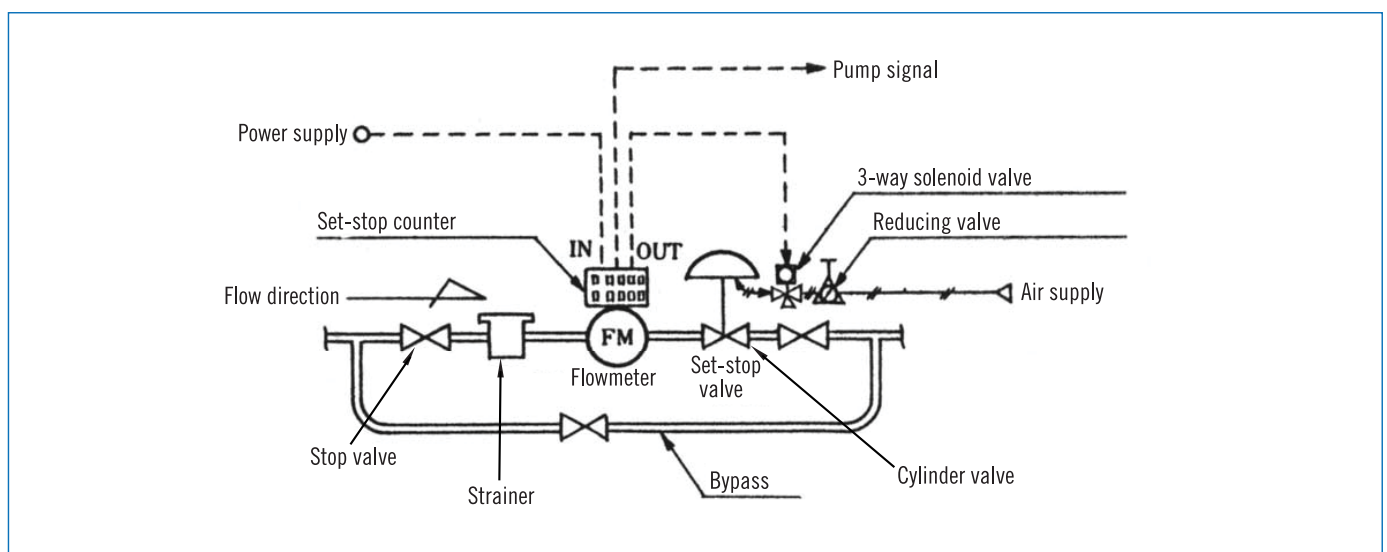
1. Horizontal Piping



2. Vertical Piping



3. Electric Type

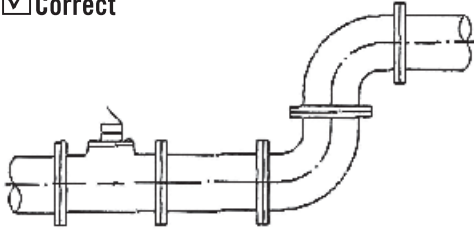


INSTALLATION

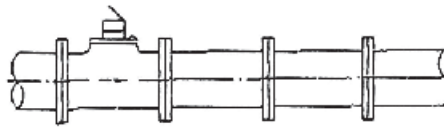
Installation Position of Flow Meter: Pipe Outlet Must Be Higher Than Inlet

1. Liquid filled pipe is a prerequisite for the flowmeter to measure accurately. When installed, the flowmeter outlet must be higher than inlet.

✓ Correct

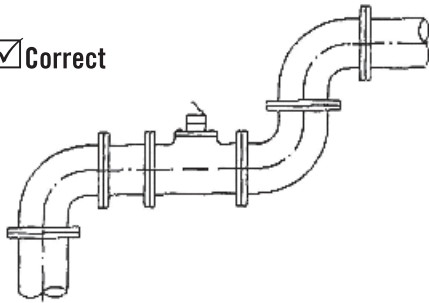


✗ Error

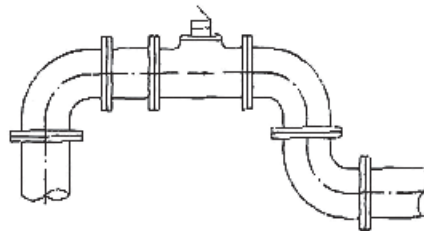


2. Do not install the flowmeter at the top of a pipe! The top of a pipe tends to accumulate air and causes the flowmeter to rotate randomly in the air. This could damage the flowmeter.

✓ Correct



✗ Error

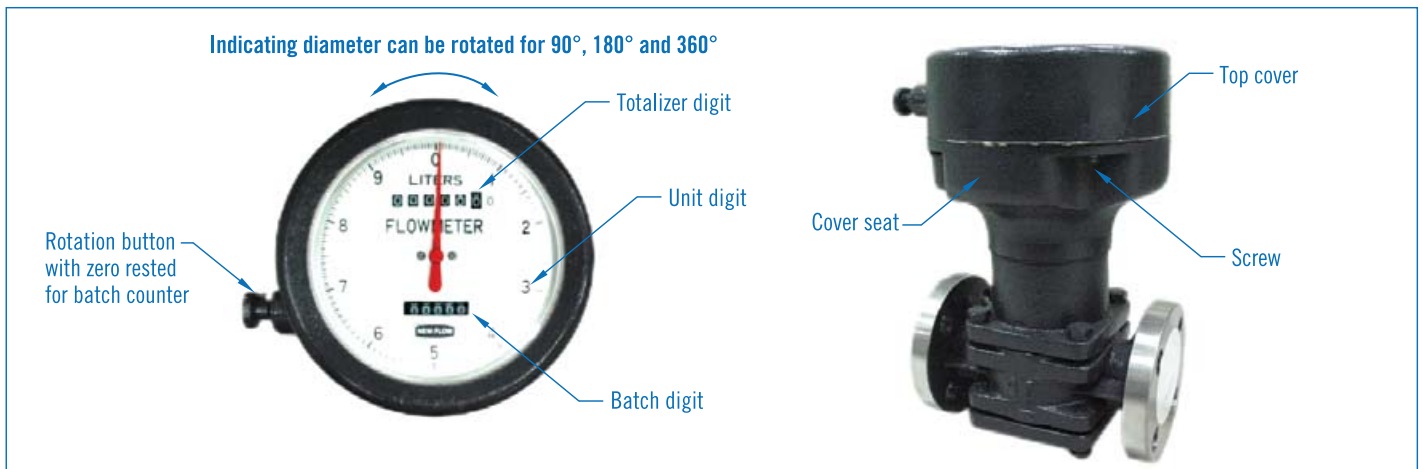


Signal Output

If you select JAT pulse transmitter type, please refer to the following table for connection instruction.

Signal	Cable Wire	Maximum Transfer Distance	Function / Color
Pulse NPN	3 Wires ø0.75mm x 3C	60M	+24/+12 VDC power input / Brown Out Signal / Black OV (GND) / Blue

Function



NOTE.

1. Totalizer digit cannot be reset to zero.
2. Batch digit can be reset to zero.
3. Unscrew the screws using a wrench and then you can rotate the top cover to adjust the indicating diameter to the position you want.
(Be careful not to remove the top cover away from the cover seat)

INSTALLATION

Notice

Before installing the flowmeter, please clean and ensure that the inside of the pipe is clean without sillage or any deposits that could damage the flowmeter. We recommend installing a strainer (the screen mesh of the strainer must be ≥ 80 mesh) at the inlet of flowmeter to filter out the impurities. It can ensure the flowmeter to operate properly. Make sure to reserve a space in the pipe line for installation of the strainer.

Maintenance and Periodical Calibration

1. To maintain accuracy of the flowmeter, after a few years of usage, the flowmeter needs to be cleaned and the worn parts need to be changed, if necessary.
2. How to decide when the flowmeter should to sent back to the factory for inspection? It depends on the liquid quality and the amount of flow.
3. In principle, please send the flowmeter back to the factory for calibration once a year.