Flow Meter Instruction of Selection, Installation and Maintenance

Model：WP、WPBC、RC、RTG、RTR、RTM Series

1. *Selection of Flow Meter*

a. For accurate measurement and operating durability, choosing a proper size of flow meter is very important. Not only pressure of media, flow range, installing position, but also the lengths of straight pipe in inlet and outlet of the flow meter are needed to be considered.

b. When choosing the size of flow meter, flow range is a top priority instead of pipe diameter. For example, if the diameter of pipe is 2”, but the flow range is over size 2”of flow meter, it should choose size 3” of flow meter when installing.

Flow Range V.S. Size of Flow Meter：

Size	Flow Range M^3/HR	Size	Flow Range M^3/HR
50 mm (2”)	5~16	250 mm (10”)	28~320
65 mm (2 $^1/_2$”)	6~30	300 mm (12”)	35~450
75 mm (3”)	6~40	350 mm (14”)	58~667
100 mm (4”)	8~80	400 mm (16”)	81~878
125 mm (5”)	17~150	450 mm (18”)	104~1040
150 mm (6”)	20~188	500 mm (20”)	125~1267
200 mm (8”)	23~240	600 mm (24”)	185~1832

Note：From the above sheets, we can find out that if the flow rate is 20M^3/Hr, size 3”of flow meter will be the correct choice even though the pipe diameter is 2”. It’s for protecting flow meter.

c. We had ever made an experiment on flow range of size 50mm(2”)、75mm(3”)、100mm(4”)、150mm(6”), and offered the inlet pressure：1kg/cm^2、2kg/cm^2、3kg/cm^2

The results as below：

Size	Model	Inlet Pressure 1KG/CM^2	Inlet Pressure 2 KG/CM^2	Inlet Pressure 3 KG/CM^2
		Flow Rate	Flow Rate	Flow Rate
50 mm (2”)	WP50	24.0 M^3/HR	37.8 M^3/HR	50.4 M^3/HR
75 mm (3”)	WP75	28.2 M^3/HR	42.0 M^3/HR	132.0 M^3/HR
100 mm (4”)	WP100	31.8 M^3/HR	46.8 M^3/HR	144.0 M^3/HR
150 mm (6”)	WP150	48.0 M^3/HR	48.0 M^3/HR	228.0 M^3/HR

Remark：in the above experiments, 50mm flow meter is disposed with 10 HP pump, 75mm and 100mm flow meter are disposed with 20HP pump, 150mm flow meter is disposed with 10HP and 20HP pumps at the same time.

d. From the above results, it can find out that even though using 50mm(2”) flow meter, the flow rates vary from low to high if the inlet pressures are different. Sometimes it may be over the regular flow range and results in damages of flow meter. Therefore, we can install a valve in the outlet to control the flow rate not to be over.

2. ***Installing position***

Flow meter can only be installed horizontally.

3. ***Maintenance of flow meter***

When the flow meter needs to fix up, it is not necessary to disassemble all meter from the pipe. It only needs to take off the upper parts of the meter and cover a plate on the flow meter to let the water keep flowing.

4. ***Pipe installation***

It is necessary to install the valves in the inlet and outlet of the flow meter for easily cleaning and maintenance. If it’s unable to stop the flow, bypass is a way to solve such problem.

Straight pipe in the inlet and outlet of the flow meter

Normally, the elbow, vent Tee, adapter or kinds of valve will have the effects on the steady of the flow. Oppositely, it will also effect on the accuracy of the flow meter. Hence, it is required to have the straight pipe in the inlet and outlet of the flow meter. Any parts

effecting the flow steady should move away from the flow meter and let the inlet valve whole open. The length of straight pipe are as below：

In the inlet of flow meter　L1：at least 10 x D (diameter of the flow meter)

In the outlet of flow meter　L2：at least 5 x D (diameter of the flow meter)

As Fig.1, Fig.2. shown.

5. *The outlet of Pipe should be higher than the flow meter*

For accurate measurement of the flow meter, one important factor is that the pipe should be full filled with the water. Therefore, the outlet of the pipe should be higher than the flow meter. As Fig.3 shown.

Flow meter should not be installed in the high position of the pipe due to that it is easy to stock with air and makes the flow meter running without water. It will result in the bearing parts wear and tear. As Fig.4. shown..

6. *Notice*

New pipeline should be cleaned before installing the flow meter. In case of any objects or rocks will damage the internal parts of the flow meter. It is recommended to install the strainer in front of the flow meter to protect and make sure of flow meter running normally. The straight pipe should be also preserved as instruction when installing.

7. *Maintenance of the flow meter*

Flow meter should be cleaned after using several years and change the abraded parts if necessary. And re-calibrating to make sure of the accuracy. Period of maintenance should depend on the quality of water and the flow rate.

8. *Calibration*

In principle, flow meter should be sent back to the maker for calibration every year.

9. *Pulse Output (Model：WPBC,RC/RD)*

Please refer to the below connection instruction if flow meter with pulse output：

Signal Type	Wire	Transmitted Distance	Connection
PULSE (NPN 譯碼器) (WPBC TYPE)	Three wires	60 meters	red：+12V white：Signal in black：0V(GND)
4-20mA (RTR TYPE)	Two wires	2000 meters	red：+ white：—
PULSE (REED RELAY) (WPBC,RC,RTG,RTM)	Two wires	2000 meters	white：Signal in black：0V(GND)

Remark：Lead wire should be shielded wire , connected well and covered properly.

LCD display operation manual (Model：RTG)

(1) press left bottom one time, shown as Dia. 1, means 8digits totalizer.

(2) press left bottom twice, shown as Dia. 2, means flow rate.

Dia. 1

Totalizer

Dia. 2

Flow Rate

10. *Example：Model - WP200 m/m*

(1) Installing a strainer before 2M in front of the inlet of flow meter to protect internal parts from damage by rocks or objects.

(2) As Fig.5 shown, it needs straight pipe 2M long before inlet and 1M long after outlet to make sure of accuracy of the flow meter.

(3) Flow meter should be installed firmly and stably, in case of vibration effecting the flow meter.

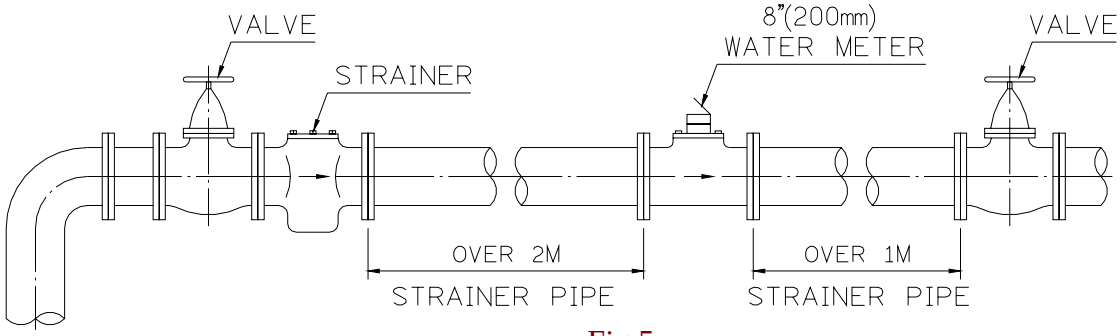

Fig.5

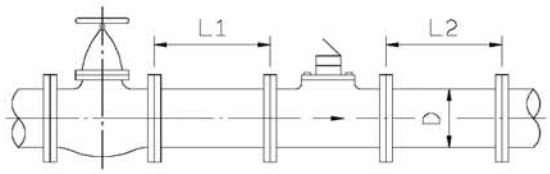

Fig.1

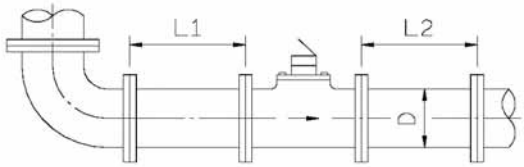

Fig.2

Correct

False

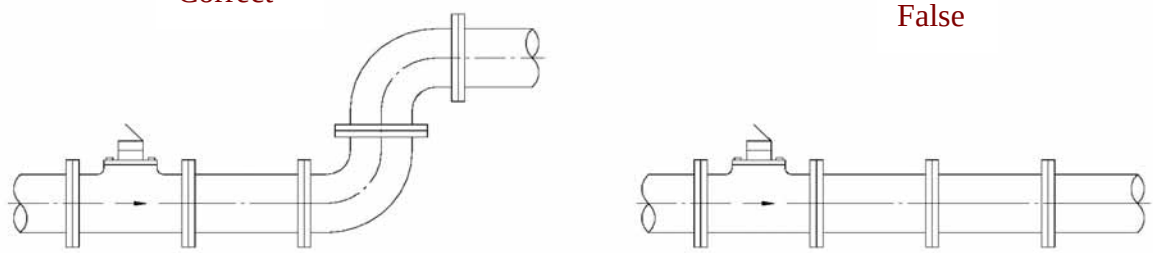

Fig.3

Correct

False

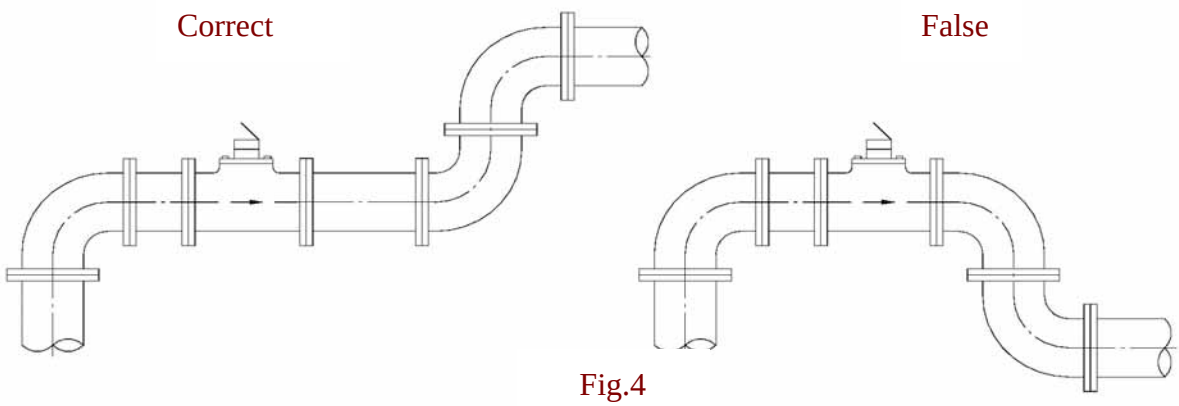

Fig.4