

PRM *Filteration*

Water Meter Manual





The PRM Multi-Jet Water Meter is ideal for commercial and industrial applications. PRM water meters are based on a vertical axis turbine. The water enters the meter body and is directed to a chamber around the measuring insert. The water then flows to the turbine via multiple passages spaced at intervals around the circumference of the insert. These passages form the “multiple” jets of water that act to rotate the turbine. This rotation is transferred to the counter dials via the counter gearing. The multi-jet design allows for simplicity and accuracy with wide flow ranges, even in low flow applications. The hermetically sealed register will not leak or fog and is completely separated from the water. These water meters are designed for long service life and maintenance-free operation. Brass water meters not for potable water use.

Specifications:

Brass Cold Water Meters: (Blue)

Wetted Materials: Body: Brass, polyethylene; Couplings: Brass; Measuring Chamber: Polyethylene.

O-Rings: FKM (Viton)

Accuracy: Transitional Flow: $\pm 5\%$; Nominal Flow: $\pm 2\%$.

Temperature Limit: 104°F (40°C).

Pressure Limit: 150 psi (10 bar).

Output Signal (pulse output units only): Pulse output with frequency proportional to flow rate.

Pulse: 1/2" and 3/4" 1 pulse per gallon; 1" to 2" 1 pulse per 10 gallons

Mounting Orientation: Horizontal with register facing up.

Stainless Steel Cold Water Meters: (Silver)

Wetted Materials: Body: 304 Stainless Steel, polyethylene; Couplings: 304 Stainless Steel;

Measuring Chamber: Polyethylene; O-Rings: FKM (Viton)

Accuracy: Transitional Flow: $\pm 5\%$; Nominal Flow: $\pm 2\%$.

Temperature Limit: 104°F (40°C).

Pressure Limit: 150 psi (10 bar).

Output Signal (pulse output units only): Pulse output with frequency proportional to flow rate.

Pulse: 1/2" and 3/4" 1 pulse per gallon; 1" to 2" 1 pulse per 10 gallons

Mounting Orientation: Horizontal with register facing up.

Brass Hot Water Meters: (Red)

Wetted Materials: Body: Brass, heat resistant polymer; Couplings: Brass;

Measuring Chamber: Heat resistant polymer; O-Rings: FKM (Viton)

Accuracy: Transitional Flow: $\pm 5\%$; Nominal Flow: $\pm 2\%$.

Temperature Limit: 194°F (90°C).

Pressure Limit: 150 psi (10 bar).

Output Signal: Pulse output with frequency proportional to flow rate.

Pulse: 1/2" and 3/4" 1 pulse per gallon

Mounting Orientation: Horizontal with register facing up.

Nylon Cold Water Meters: (Black)

Wetted Materials: Body: Nylon 66; Couplings: Nylon 66; Measuring Chamber: ABS Plastic.

Accuracy: Transitional Flow: $\pm 5\%$; Nominal Flow: $\pm 2\%$.

Temperature Limit: 104°F (40°C).

Pressure Limit: 150 psi (10 bar).

Mounting Orientation: Horizontal with register facing up.

Water Meter Classification and Accuracy

Water meters are primarily classified by size, or the nominal diameter of the water meter is matched to the size of the pipe to which it is being connected. However, it should always be confirmed that the expected flow rates through the meter fall within the accurate flow range of the meter. The meters flow range is defined as follows:

Nominal flow rate Q_p The designation flow rate of the meter. This is the ideal amount of water flow through the meter.

Maximum flow rate Q_{max} The highest flow rate at which the meter accuracy will be within the Maximum permitted error

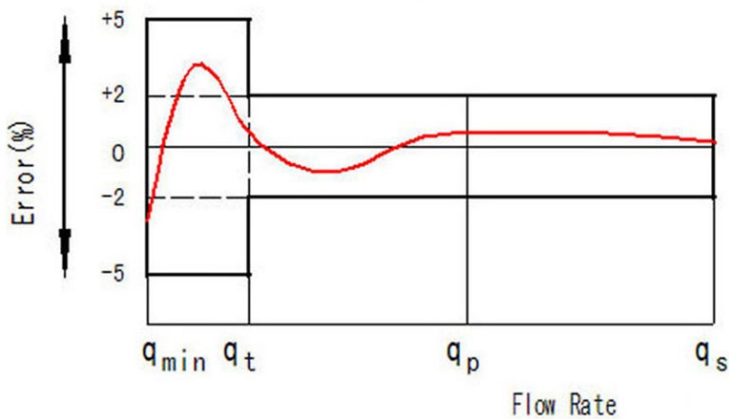
Minimum flow rate Q_{min} The lowest flow at which the meter accuracy will be within the maximum permitted error.

Transitional flow Rate Q_t The flow rate at which the maximum permitted error of the meter changes from +/-5% to +/-2%.

Max. permitted error from Q_{min} to Q_t : +/-5%

Max. permitted error from Q_t to Q_{max} : +/-2%

Flow Error Curve



PRM Meters are Class B meters and conform to AWWA Standards.

Nominal Diameter	Q_{min} (GPM)	Q_t (GPM)	Q_p (GPM)	Q_{max} (GPM)
0.5 Inch	0.25	1	5	10
0.75 Inch	0.5	2	10	20
1 Inch	0.75	3	15	30
1.25 Inch	0.75	3	25	50
1.5 Inch	1.5	5	40	75
2 Inch	2	8	65	130

PRM Woltmann Style Flanged Meters

Nominal Diameter	Q_{min} (GPM)	Q_t (GPM)	Q_p (GPM)	Q_{max} (GPM)
3 Inch	5	35	176	352
4 Inch	8	53	264	528
6 Inch	20	132	660	1320

Water Meter Reading

Turbine type meters use a combination of inline digits and clock dials to show the volume of water that has been measured. The inline digits are in black and show the whole gallons. The clock dials have pointers that indicate the fractions of the gallons. On the larger meters this may change as often there is a x100 multiplier on the counter so the dial will show the whole gallons to give you an accurate reading.

Maintenance/Repair

Preventative maintenance consists of periodic inspections and cleaning procedures.

The procedures should be performed at regular intervals, and any defects discovered should be corrected before further operation of the meter.

All water meters with registers should be protected from weather and not be exposed to direct sunlight.

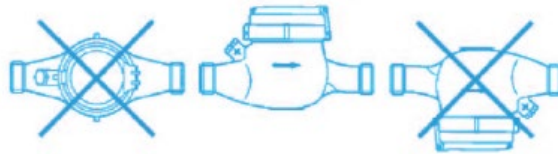
Visually inspect the meter for missing hardware, broken resistor glass, or other signs of wear or deterioration. Verify proper flow rate and pressure for meter. A loss in pressure, with the resulting flow rate decrease, may indicate the meter screen is clogged and requires cleaning.

Clean the strainer yearly, or as required, depending on water condition. Pull out the strainer or back flush the meter to loosen trapped particulates.

Installation Instructions

1. Thoroughly flush the service line upstream of the meter to remove dirt and debris.
2. Remove meter thread protectors. Note: To protect meter spud threads, store the meter with thread protectors in place. Attach included NPT adapters for easy connection to piping.
3. Set the meter in the line. Install in a horizontal plane, with the register upright, in a location accessible for reading, service and inspection. Arrows on the side of the meter and above the outlet indicate the direction of flow.

INSTALLATION



4. For accurate measurement, the tap height should be higher than the meter.
5. Do not over-tighten connections; tighten only as required to seal.
6. With upstream shut-off valve only: Open shut-off valve slowly to remove air from meter and service line. Open a valve slowly to allow entrapped air to escape. Close the valve.
7. With both upstream and downstream shut-off valves installed, test the installation for leaks: Close the outlet (downstream) shutoff valve. Open the inlet (upstream) shut-off slowly until meter is full of water. Open the outlet (downstream) valve slowly until air is out of the meter and service line. Open valve slowly to allow entrapped air to escape. Close the valve.

Wiring Diagram (Pulse Units)

METERS WITH (1) PULSE OUTPUT (2 WIRE)

METERS WITH (2) PULSE OUTPUTS (3 WIRE)

***NOTE**
x0,1 = 1 PULSE PER 1 GALLON
x1 = 1 PULSE PER 10 GALLONS
x10 = 1 PULSE PER 100 GALLONS

***NOTE**
SELECT METERS COME WITH (2) PULSE OUTPUTS. BOTH ARE BASED ON THE SAME FLOW RATE. IF ONLY ONE PULSE IS NEEDED, CAP OFF UNUSED WIRE.

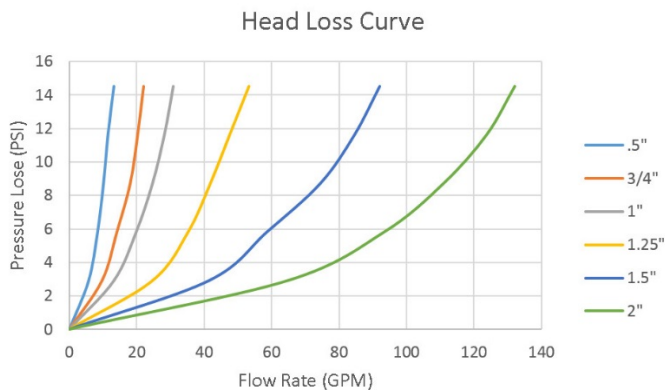
***NOTE**
PULSE SENSOR MAY BE MOVED, BASED ON REQUIRED PULSE RATE.

- 1) REMOVE BRASS CAP BY UNSCREWING COUNTER-CLOCKWISE.
- 2) 3 POSITIONS ARE INDICATED AS NOTCHES THAT CORRESPOND TO THE DESIRED DIAL.
- 3) WITH A SMALL FLATHEAD SCREWDRIVER, GENTLY PRY UP FROM THE CURRENTLY SELECTED NOTCH.
- 4) ONCE THE PLASTIC COVER IS REMOVED, THE CURRENT DIAL WILL HAVE A RED ARROW WITH A MAGNET ATTACHED. GENTLY, PULL STRAIGHT UP ON THE ARROW AND INSTALL GENTLY ON THE DESIRED DIAL.
- 5) PLACE THE PLASTIC COVER INTO THE NOTCH CORRESPONDING TO THE DESIRED DIAL.
- 6) REINSTALL BRASS CAP.

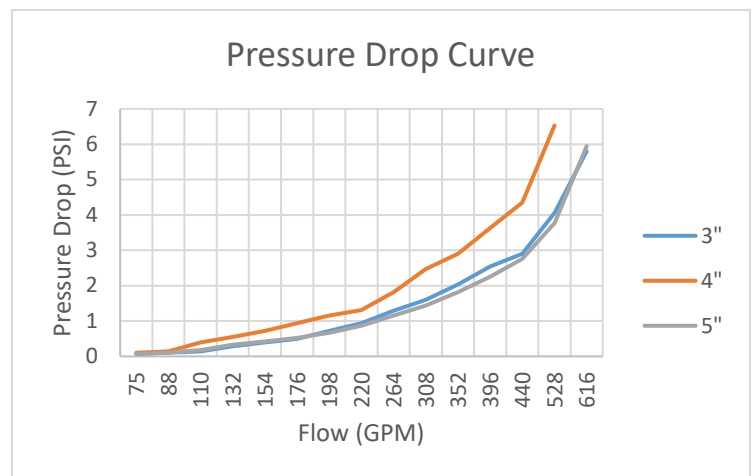
Product Recovery Management Inc.
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PRM MULTI-JET WATERMETERS - TOTALIZING AND RATE INDICATION

Head Loss Curves



½ Inch to 2 Inch Multi Jet Meters



3, 4, and 6 inch Flanged Meters