

# WJ-Series

## Turbine Meter Instructions



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**WJ-Series** turbine meters are dry-register mechanical totalizers that offer accurate, economical reading of high flows with low pressure loss. The horizontal-axis turbine drives a vertical shaft, which is magnetically coupled to the sealed register.

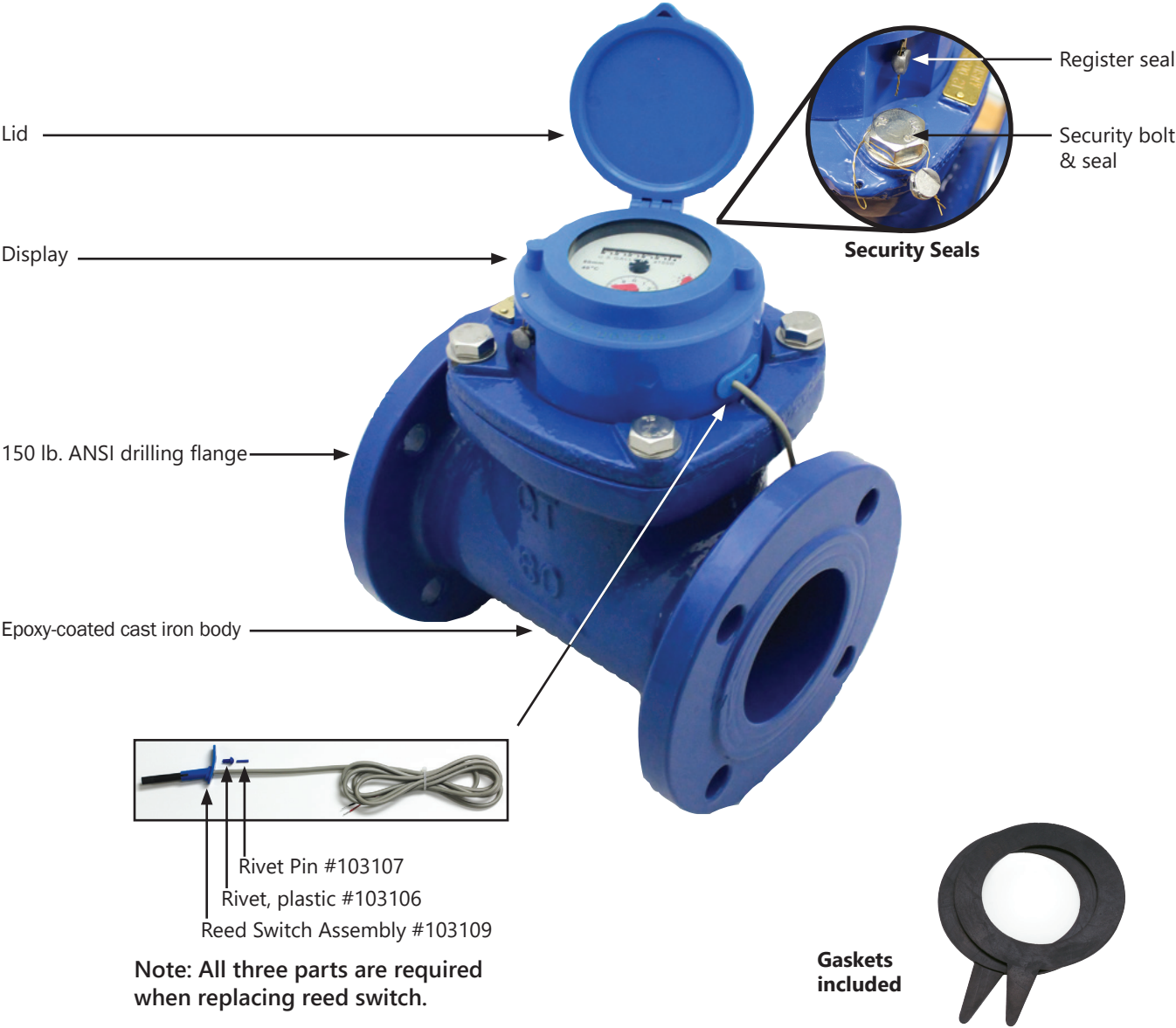
In addition to mechanical totalizing, registers can be equipped with a reed-switch sensor for pulse output well suited for remote totalizing, pacing of electronic metering pumps, and water treatment applications.

Bodies are manufactured of tough cast iron and epoxy-coated for protection. Tungsten steel shafts and jewel

bearings further enhance the durability of these meters. Simple removal of the top flange brings out all parts for inspection, repair, or replacement. The meter has a tamper-evident seal to call attention to unauthorized access.

Compatible Seametrics controls include the PT35 pulse timer and the PS40 pulse splitter for running multiple pulse-responsive devices (e.g. pumps, counter timers and remote totalizers) with a single WJ meter.

FEATURES



## Specifications\*

<b>Materials</b>	<b>Meter Body</b>	Cast iron, epoxy coating
	<b>Register Plate</b>	ABS plastic
	<b>Drive Magnet</b>	Alnico
	<b>Turbine</b>	Plastic
	<b>Turbine Shafts</b>	Tungsten steel
	<b>Bearings</b>	Jewel
<b>Flanges</b>		150 lb ANSI drilling
<b>Maximum Pressure</b>		150 psi (10 bar)
<b>Maximum Temperature</b>		105° F (40° C)
<b>Accuracy</b>	<b>Above Transition<sup>1</sup></b>	± 2% of reading
	<b>Below Transition<sup>1</sup></b>	± 5% of reading
<b>Reed Switch</b>		100 mA @ 24 Vac/dc

\* Specifications subject to change. Please consult our website for current data. ([seametrics.com](http://seametrics.com))

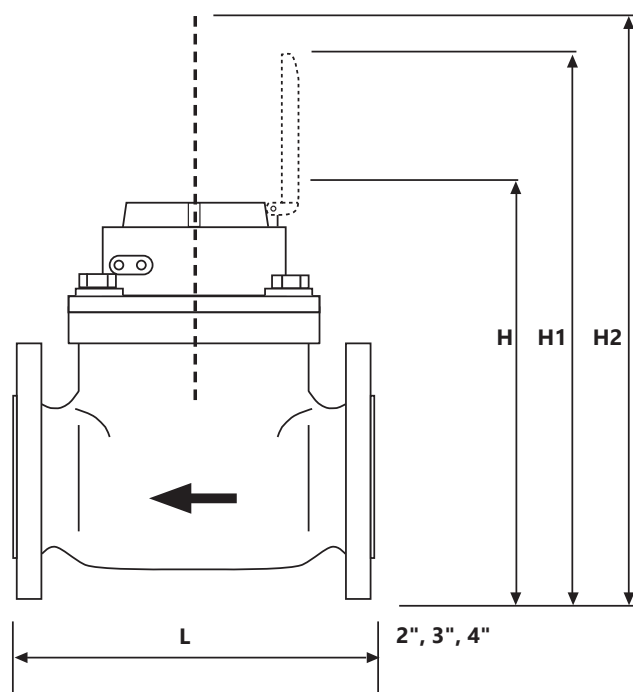
Note 1: See flow range table.

## Flow Range (GPM)

	2"	3"	4"	6"	8"
<b>Minimum</b>	2	5.3	8	20	33
<b>Max. Continuous</b>	132	352	528	1320	2200
<b>Transition<sup>2</sup></b>	13	35	53	132	220

Note 2: The flow rate at which accuracy changes from ± 2% of reading (above Transition) to ± 5% of reading (below Transition).

## Dimensions

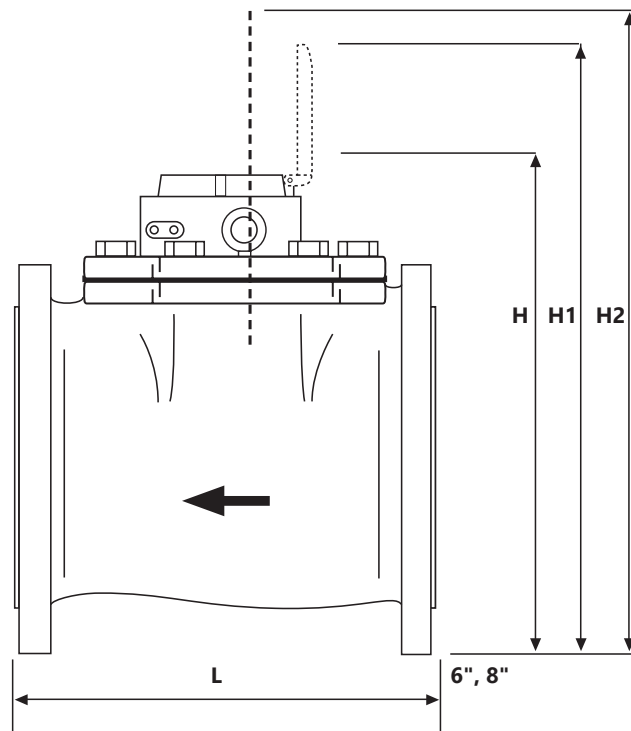


## 2", 3", 4" Dimensions

	2"	3"	4"
<b>L</b>	7.87" (19.99 cm)	8.86" (22.5 cm)	9.84" (24.99 cm)
<b>H</b>	10.08" (25.6 cm)	10.87" (27.61 cm)	11.26" (28.60 cm)
<b>H1</b>	12.91" (32.79 cm)	13.70" (34.8 cm)	14.09" (35.79 cm)
<b>H2</b>	15.75" (40.0 cm)	15.75" (40.0 cm)	15.75" (40.0 cm)
<b>Wt.</b>	26.5 lb (12.02 kg)	35.3 lb (16.01 kg)	39.7 lb (18.01 kg)

H1 = Lid clearance for reading display

H2 = Lid clearance for replacing turbine insert



## 6", 8" Dimensions

	6"	8"
<b>L</b>	11.81" (30.0 cm)	13.78" (35.0 cm)
<b>H</b>	13.60" (34.54 cm)	14.67" (37.26 cm)
<b>H1</b>	16.44" (41.76 cm)	17.50" (44.45 cm)
<b>H2</b>	19.69" (50.01 cm)	19.69" (50.01 cm)
<b>Wt.</b>	92.6 lb (42.0 kg)	141 lb (63.96 kg)

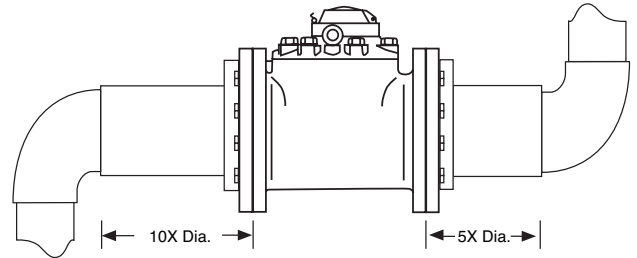
H1 = Lid clearance for reading display

H2 = Lid clearance for replacing turbine insert

The following installation recommendations are adapted from the American Water Works Manual M6, and will result in the best meter life and accuracy.

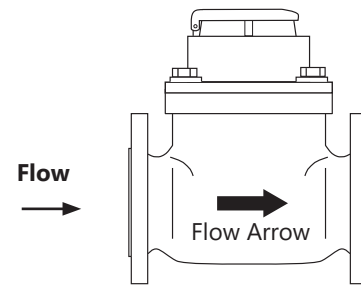
## Piping Conditions

It is recommended that the meter be installed with at least ten (10) diameters of straight pipe upstream and five (5) diameters downstream from elbows, tees, crosses, valves, and other fittings. If less straight pipe is available, or if debris are likely to go through the meter, installation of a standard plate-type strainer directly upstream is recommended. If a basket-type strainer is used, it should be located at least five diameters upstream. Avoid conditions of trapped air or partially-filled pipe. This can occur when there is low flow and open discharge near to the meter.



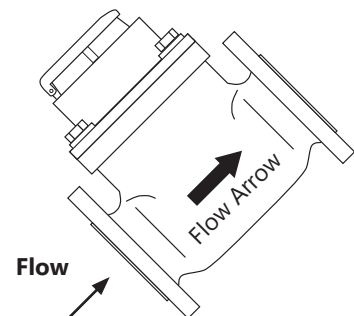
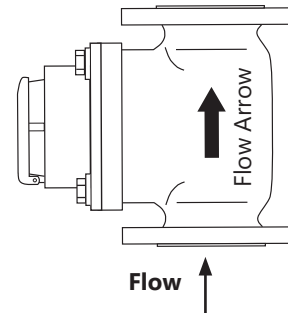
## Flanges

The WJ meter is compatible with any standard 150 lb. ANSI drilling, flat or raised face. Take care that gaskets (included) do not protrude into the meter due to misalignment. Adhering the gasket to the meter flange with gasket adhesive is a good practice that will aid installation.



## Orientation

WJ-Series are all-position meters, and can be installed horizontally or vertically. Horizontal with register facing up is recommended when possible.





**CAUTION:** Before breaking the tamper-evident seal on your meter, be sure that you are in compliance with any regulatory requirements (if applicable).

### Adding Reed Switch

For the contacting head option, WJ meters use a meter-mounted reed switch to provide a two-wire dry contact. To add a reed switch in the field, remove one of the rubber plugs from the side of the register housing and slide the reed switch assembly into the housing in the direction of the dial with the desired pulse rate. Lock in place with the rivet and pin (see page 3).

**Note:** If changing the pulse rate, you need to first remove the reed switch from the position it is in. In doing so, the small plastic rivet & pin will be damaged and should not be reused. Have a replacement plastic pin & rivet before beginning. If you do not have a spare, contact factory for a replacement (see page 3 for part reference).

### Changing the Pulse Rate

When changing the pulse rate, you must first remove the existing reed switch (see note above).

1. Choose desired pulse rate and switch position.

Setting the Pulse Rate			
Size (inches)	Size (mm)	Pulse Rate	Reed Switch Position
2"	50	100	x10
		1,000	x100
3"	80	100	x10
		1,000	x100
4"	100	100	x10
		1,000	x100
6"	150	1,000	x100
		10,000	x1,000
8"	200	1,000	x100
		10,000	x1,000

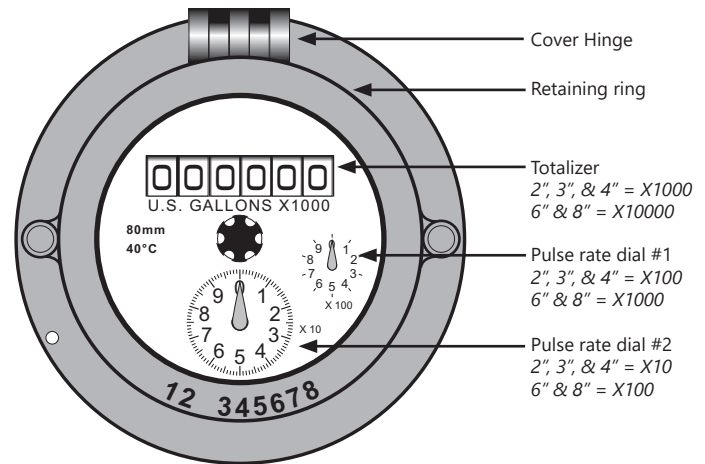
2. Remove the rubber plug from the other hole and move it to the position the reed switch was removed from.
3. Insert the reed switch assembly into the side of the register housing in the direction of the dial with desired pulse rate.
4. Lock in place with rivet and pin.

### Register Removal

Clip and remove the copper security wire from the security pin. Remove the security pin that holds the lid in place, twist the lid and lift it off. Lift the register free from the meter, noting orientation.

### Recalibration

For meters used for revenue-billing purposes, some states require periodic calibration checking. This type of turbine meter is most commonly checked every four years. Testing may be done by a local mobile meter service or in a private or municipal meter shop. Changes in calibration should be made at an authorized meter shop.



*The Register (2", 3", & 4" version shown)*

### Turbine Insert Replacement

The entire turbine insert comes out as a unit without removing the meter from the pipe. Carefully note position and retain parts for reassembly.

1. Remove the lid and register as described.
2. After relieving pressure inside the meter, remove the four flange hex-screws and washers.
3. Lift the flange and insert out in one piece, rocking gently to break the seal.
4. Remove the four retaining ring screws, and lift the retaining ring and flange off the turbine insert.
5. Remove and replace the large O-ring around the top opening of the meter body.
6. Reassemble the retaining ring and flange on top of the new insert. Be sure the alignment notch in the retaining ring is directly above the screw in the insert's top plate.
7. Replace the entire mechanism in the meter body with the drilled screw head in the same corner as the security pin.
8. Replace the lid with a twist of the wrist, insert the security pin in the tiny hole in the retaining ring, and thread the security wire through the screw head and the security pin. Affix lead seal and crimp.

The limited warranty set forth below is given by Seametrics, with respect to Seametrics brand products purchased in the United States of America.

Seametrics warrants that products manufactured by Seametrics, when delivered to you in new condition in their original containers and properly installed, shall be free from defects in material and workmanship. **Seametrics products are warranted against defects for a minimum period of two (2) years from date of installation, unless otherwise specified, with proof of install date. If no proof of install date can be provided, warranty period will be two (2) years from date of shipment from Seametrics, as defined on Seametrics' invoice.** Seametrics' obligation under this warranty shall be limited to replacing or repairing the part or parts, or, at Seametrics' option, the products, which prove defective in material or workmanship. The following are the terms of Seametrics' limited warranty:

- a. Buyer must give Seametrics prompt notice of any defect or failure and satisfactory proof thereof.
- b. Any defective part or parts must be returned to Seametrics' factory or to an authorized service center for inspection.
- c. Buyer will prepay all freight charges to return any products to Seametrics' factory, or another repair facility, as designated by Seametrics.
- d. Defective products, or parts thereof, which are returned to Seametrics and proved to be defective upon inspection, will be repaired to factory specifications.
- e. Seametrics will deliver repaired products or replacements for defective products to the buyer (ground freight prepaid) to the destination provided in the original order.
- f. Products returned to Seametrics for which Seametrics provides replacement under this warranty shall become the property of Seametrics.
- g. This limited warranty covers all defects encountered in normal use of Seametrics products, and does not apply to the following cases:
  - i. Loss of or damage to Seametrics product due to abuse, mishandling, or improper packaging by buyer
  - ii. Failure to follow operating, maintenance, or environmental instructions prescribed in Seametrics' instruction manual
  - iii. Products not used for their intended purpose
  - iv. Alterations to the product, purposeful or accidental
  - v. Electrical current fluctuations
  - vi. Corrosion due to aggressive materials not approved for your specific product
  - vii. Mishandling, or misapplication of Seametrics products
  - viii. Products or parts that are typically consumed during normal operation
  - ix. Use of parts or supplies (other than those sold by Seametrics) which cause damage to the products, or cause abnormally frequent service calls or service problems
- h. A new warranty period will be established for repaired products, or products replaced during the original warranty period.
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