

Sample Specification

Water Meters: 1" Positive Displacement Meters

Scope:

This Specification covers bronze body cold-water positive displacement meters compatible with open architecture radio read equipment, in 1" size and the materials employed in their fabrication.

AWWA Standards:

- All Meters shall meet or exceed the latest version of the American Water Works Association Standard C700 for Cold Water Meters - Displacement Type - Bronze Body.
- All Meters shall meet or exceed the American Water Works Association Standard C707-R92 for Encoder-Type Remote-Registration systems for Cold Water Meters when equipped with an open architecture radio MIU.

Main Case:

- Main cases shall be composed of no lead bronze that meet the latest EPA and NSF certifications.
- All materials used in the construction of the main cases shall have sufficient dimensional stability to retain operating clearances at working temperature up to 105 degrees F.
- The manufacturer shall warranty the main case for a period of 25 years from the date of shipment.
- The meter serial shall be stamped on the main case of the meter.

Bottom Plate:

- Bottom plates shall be made of cast iron or bronze.

Measuring Chamber:

- Measuring chambers shall be made of a suitable engineered plastic as described in AWWA C-700.

- Chamber shall be of the Nutating Disc style.
- The chamber magnet shall be driven by a stainless steel drive shaft.
- The chamber magnet shall incorporate a protective plastic shroud around the magnet.
- The measuring chamber shall incorporate a locating device that aligns to the main case of the meter to ensure proper chamber orientation and alignment.
- The measuring chamber shall be locked into place with a chamber retainer.
- The chamber shall be a large capacity chamber to reduce wear and must not exceed the following Nutations per gallon.

Size	1"
Nutations Per Gallon	12

Headloss:

- Meters shall not exceed seven-PSI pressure loss at AWWA safe maximum operating capacity.

Accuracy:

- Meters shall be 100% factory tested for accuracy and have the factory test results provided with each meter.
- Meters shall be pressure tested to ensure against leakage.
- Meters shall comply with the AWWA C700 accuracy requirements as specified in of the standard for a period of one year from the date of installation.
- Additionally, the manufacturer shall warranty the meter to meet or exceed AWWA repaired meter accuracy standards per the following:

Size of Meter	Years of Warranty or	Millions of Gallons Registered
1"	15	3.0

Strainers:

- All meters shall be provided with strainer screens installed in the meter.
- Strainers shall be rigid, fit snugly, be easy to remove, and have an effective straining area at least twice that of the inlet opening.

Register Assembly:

- Registers shall be magnetic driven, straight reading, and permanently sealed by the manufacturer.
- The register shall provide for visual registration at the meter.

Register Assembly:

- The numerals on the number wheels of the register shall not be less than 1/4" in height and should be legible at a 45-degree angle.
- Registers shall incorporate a center sweep test hand and a low flow indicator.
- The register shall be secured to the meter main case by a tamper resistant bayonet-style locking mechanism protecting against unauthorized removal of the register.
- No special tools shall be required to remove the register.

Register Technology:

- The register shall be a true absolute encoder register that provides direct electronic transfer of meter reading information to any number of AMR device options. Minimally, a Touch Pad or Radio MIU device shall read the encoder register.
- The encoder register shall send data in ASCII format (American Standard code for Information Interchange) to the interrogation device.
- The encoder register shall transmit the complete odometer wheel reading, 6 digits and all 10 positions. An 8-digit register identification number that has been factory set and never duplicated shall be sent to the reading device.
- A Locating Clip shall be affixed to each of the odometer wheels in close proximity to the Segment Pads located on the encoders printed circuit board. When an AMR device interrogates the encoder register, the microprocessor shall determine the true position of each number wheel, encode the reading and send it to the AMR device. The Locating Clip shall not make physical contact with the Segment Pad in order to prevent wear of the clip and pads.
- For installations where moisture is not a concern, the encoder register shall be field installed to the touch pad or other AMR interrogation device. The register shall employ color-coded screws for ease of wire assembly and a dust cover equipped with seal wire holes for security.
- For pit set installations, the encoder register shall be permanently factory sealed with an epoxy coating of all terminal connections. Encoder register requiring field sealing

of the wire connection or oil-filled will not be allowed.

- All wiring for radio MIU's shall be installed and potted by the manufacturer.
- In line waterproof connections are permitted during installation for pit set encoder registers with Radio MIU's to facilitate installation.