Sample Specification

Water Meters: 5/8" X 1/2" and 5/8" X ¾" Low Lead Positive Displacement Meters with Integral Remote Disconnect Valve

Scope:

This Specification covers low lead body, cold-water, positive displacement meters that employ an integral remote disconnect valve which is compatible with open architecture radio read equipment, in 5/8" size and the materials employed in their fabrication. These meters shall offer a low lead alternative that encourages conservation, recycling, water purity and green lifestyles. The integral pilot valve and transceiver shall allow the utility to remotely turn on/turn off water supply to a residence as required through a multipath network without a site visit.

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 Main Case.
- All Meters equipped with encoder registers shall meet or exceed the American Water Works Association Standard C707 for Encoder-Type Remote-Registration systems for Cold Water Meters equipped with an open architecture radio MIU or similar device.

NSF-61 Standards:

- All Meters shall comply with the latest NSF-61 requirements including Annex G, F, 372 and all EPA requirements.

State No Lead and Low Lead Initiatives Standards:

- All Meters shall comply with the latest state low lead initiatives due to their unique design, which incorporates low lead bronze for all wetted surfaces in the meter.

Main Case:

- Main cases shall be composed of low lead bronze that meet the latest NSF requirements and EPA requirements.
- 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 main case must incorporate the measuring element and a remote disconnect valve inside the standard 7-1/2" laying length specified by the AWWA C-700 standard.
- The meter design must incorporate a pilot valve as the means of turning on/turning off the water.
- Pilot valves are more efficient in design than ball valves and consume less energy during activation and as such are preferable.
- Pilot valves have been utilized extensively in irrigation systems and have a proven track record in domestic water systems for reliability. As aresult this design is the preferred solution.
- The manufacturer shall warranty the main case for a period of 25 years from the date of shipment.
- The meter serial number shall be stamped on the main case of the meter.

Bottom Plate:

- Bottom plates shall be made of engineered plastic only.
- The bottom plate shall utilize a gasket seal.
- The bottom plate shall utilize stainless steel bolts as a means of securing the bottom plate to the main case.

Measuring Chamber:

- Measuring chambers shall be made of a suitable engineered polymer as described in AWWA C-700.
- Chamber shall be of the Nutating Disc style.
- 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 single unit strainer/chamber retainer.
- The chamber shall be designed for long life, to reduce wear and must not exceed the following nutations per gallon.

Size	5/8 "

Nutations Per Gallon 58

Valve Assembly:

- The valve assembly must be of a pilot valve design.
- A replacement valve kit shall be offered for the ongoing maintenance of the valve.
- A dual strainer shall be utilized in the valve diaphragm.

Headloss:

- Meters shall not exceed the C-700 pressure loss specification 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 latest AWWA C-700 accuracy requirements as specified in the standard for a period of five years 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
5/8"	15	1.75

Meter 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 then 1/4" in height and should be legible at a 45-degree angle.
- Electromechanical registers shall incorporate a center sweep test hand and a low flow indicator.
- Electromechanical registers shall be secured to the meter main case by a tamper resistant bayonet-style locking mechanism protecting against unauthorized removal of the register.
- The option of a solid state register shall be available that utilizes a factory programmable liquid crystal display, up to 10 digits of visual registration, up to 9 digits of electronic resolution, and additional tamper and performance notifications.
- Solid state registers shall be secured to the meter main case by a tamper resistant locking ring mechanism protecting against unauthorized removal of the register.
- No special tools shall be required to remove the register.

Electromechanical Encoder Register Technology:

- The register shall be a true absolute encoder register that provides direct electronic transfer of meter reading information to the attached Mi.Node AMI device.

- 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 used to identify the encoder register.

- 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 AMI 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 all installations, the encoder register shall be permanently factory sealed with an

epoxy coating of all terminal connections. Encoder registers 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 not permitted.

Solid State Encoder Register Technology:

- The register shall be a true absolute encoder register that provides the exact reading of the meter utilizing solid state design with no moving parts.

- The register shall be a true absolute encoder register that provides direct electronic transfer of meter reading information to the attached AMI device.

- The encoder register shall send data in ASCII format (American Standard code for Information Interchange) to the interrogation device.

- The factory programmable encoder register shall display the complete LCD digit reading up to 10 digits. The electronic resolution of the register shall be up to 9 digits. A 10-digit register identification number that has been factory set and never duplicated shall be used to identify the encoder register.

- For all installations, the encoder register shall be permanently factory sealed with an epoxy coating of all terminal connections. Encoder registers requiring field sealing of the wire connection or that are oil-filled will not be allowed.
- All wiring for radio MIU's shall be installed and potted by the manufacturer.
- Factory installed in line waterproof connections are permitted.