



Water Meter Standards

January 2020

**CENTRAL ARKANSAS WATER
DISPLACEMENT AND TURBO WATER METERS
SPECIFICATIONS AND STANDARDS**

This document contains specifications and standards for items that are not listed in the CAW Engineering Construction Specification Document. Items will be listed in the three separate forms. If an item is listed as **ONLY**, that is the only brand name that is acceptable. If an item is listed with a generic description, then any brand name is acceptable as long as it meets the applied description. If an item is listed with a manufacture number and the words **OR EQUAL**, then any brand name is acceptable as long as it meets the applied description; in the case CAW supplies a manufacturer's number as a point of reference only.

1. General

- 1.1 These specifications are intended to set a standard for the meters purchased or installed for **Central Arkansas Water**. Specifications for material not included in these specifications shall be included in other specifications or plans and will be furnished on request. These general and detail specifications are subject to revision from one project to another. The **CONTRACTOR** shall make himself familiar with the current revision.
- 1.2 **Central Arkansas Water** must approve all material prior to installation.
- 1.3 Any reference to specifications published by other agencies shall refer to the latest edition or revision of such specifications as of the date of advertising for bids.

2. Definitions

- 2.1 The term "as specified" shall mean as specified by the **Central Arkansas Water** in plans, proposals, other specifications, and written or oral instructions.
- 2.2 The term "or equal" shall mean that the proposed material or item shall perform adequately the duties imposed by the general design and is of the same or equal design, substance, and function to that specified by using the name of a product manufacturer, or vendor. **Central Arkansas Water** shall make final approval of such items or materials.

3. Approved Meter Details

- 3.0 Displacement Type Water Meters, 5/8" through 2"
- 3.1 Meter shall conform to AWWA Standard C700-77 and all supplemental provisions specified herein. Design or feature options covered by the above standard but not specified herein shall be at the Supplier's option. All meters must be in NSF/ANSI Standard 61, Annex G compliance. Effective January 2013 all meters must be in NSF/ANSI 372 compliance.

3.2 Meters acceptable under these specifications are:

Meter Size	N	B	S	
5/8"	T-10	M-25 or LP	SR OR SR-2	No meter will be accepted that does not meet the physical dimensions as specified
3/4"	T-10	M-35	SR OR SR-2	
1"	T-10	M-70 or M-55	SR OR SR-2	
1 1/2"	T-10	M-120	SR OR SR-2	
2"	T-10	M-170	SR OR SR-2	

2" Turbine or

Larger (with Strainer)

Neptune Only

N	Neptune T-10
B	Badger as Noted
S	Sensus SR-2

3.3 Features

3.3.1 Design - Frostproof

3.3.2 Materials

Main case - copper alloy

Bottom - bronze

Register lens - glass

External features - copper alloy or stainless steel

3.4 Magnetic coupling drive

3.5 Register lens - glass

3.5.1 Hermetically sealed (moisture proof)

3.5.2 Straight reading in cubic feet

3.5.3 Center-sweep test band

3.5.4 The numbers on odometer wheels which register 100 cubic feet or more shall be black on a white background. The numbers on odometer wheels which register less than 100 cubic feet shall be white on a black background.

3.5.5 Register lid shall be designed so that it opens and closes without binding. Lids shall be hinged on the inlet side of the meter

3.6 Serial Numbers:

3.6.1 The Manufacturer's serial number shall be imprinted on the outside of the main case or a serial number assigned by Central Arkansas Water.

3.6.2 The Purchaser's serial number as specified on the purchase order shall be permanently imprinted on both the inside and the outside of the register lid and also stamped on the main case of the meter. The numbers shall be at least 1/4-inch in height.

3.7 Connections:

3.7.1 Coupling nuts, tailpieces and companion flanges and accessories are not required.

3.7.2 Spud thread size

5/8-inch meter - 3/4-inch

3/4-inch meter - 1-inch

1-inch meter - 1 1/4-inch

Maincase connections for 1 1/2-inch and 2-inch meters shall be flanges

3.8 Physical Dimensions - 5/8" through 1"

Maximum Length	Maximum Width	Maximum Height	
5/8"	7 1/2"	6"	5 3/4"
3/4"	9"	6"	6"
1"	10 3/4"	8 1/8"	7 7/16"

3.9 Meters which are designed in such manner that the register may be removed without removal of the bottom of the case shall be equipped with a security seal affixed to the register, register box, or register retainer in such manner that removal of register requires breaking the seal. The seal shall be made of copper or stainless-steel wire with ends connected by a lead seal, a seal push pin, or torx screw.

Design Pressure - Meters shall withstand static pressure of at least 150 psi without any distortion which affects the accuracy of registration.

Acceptable Manufacturers - Meters conforming to these specifications and manufactured by the following manufacturers are acceptable:

- Badger Meter, Inc., - Milwaukee, Wisconsin
- Neptune Water Meter Company - Tallassee, Alabama
- Sensus - Uniontown, Pennsylvania

3.10 Guarantee:

Except in the case of damage by vandalism, negligence, improper handling or installation, exposures to operating conditions exceeding those specified in AWWA C700-77, foreign matter in water, or acts of God, the Manufacturer guarantees (1) the meter furnished hereunder to be free from defects in material and workmanship; (2) accuracy of registration within the limits specified in AWWA Standard C700-77 for a period of (1) year after installation; (3) accuracy of registration within the limits specified in AWWA Manual M6 (1981 Edition) for repaired meter standards for a period of fifteen (15) years from date of installation; and (4) register for a period of twenty-five (25) years after installation including a guarantee against the entry of moisture into the register.

3.10.1 The Manufacturer or Supplier shall promptly replace and repair to standards specified herein meters failing to conform to the above criteria at no cost to the Purchaser and shall pay all shipping costs in connection therewith. In the case of a defect in the meter register or measuring chamber detected after installation the Supplier or Manufacturer may furnish complete register assemblies (including boxes for certain designs) and complete register chambers for installation by the Purchaser.

3.10.2 Meters tested by the Purchaser and found to be in non-conformance with the accuracy specified herein shall promptly be replaced by the Manufacturer or Supplier without cost to the Purchaser. Further, the Manufacturer or Supplier shall pay Purchaser, as a handling charge, Seven Dollars (\$7.00) for each meter which, upon testing by the Purchaser prior to installation, is found to be in non-conformance with the accuracy specified herein.

3.11 Electronic Register:

- The register shall provide at least a nine-digit visual registration at the meter.
- The unit shall provide an eight-digit meter reading for transmission through the radio MIU.
- The dial shall have a high resolution nine-digit LCD display for meter testing.
- The register shall employ a visual LCD leak detection indicator as well as provide remote leak detection.
- The register shall provide reverse flow detection.
- Reverse flow detection shall be calculated based on 15-minute interval consumption.
- The manufacturer will guarantee that the reading obtained electronically matches the LCD odometer reading on the register and that the manufacturer will pay the difference at the current rate whenever a discrepancy appears.
- The register should accumulate and register consumption without connecting to a receptacle or MIU.
- The register shall display flow rate information.