Cold Water Meters Fire Service Turbine Meter Type

GENERAL

All meters furnished shall be produced in a manufacturing facility whose QMS is ISO 9001 certified. Acceptable meters shall have a minimum of fifteen (15) years of successful field use. All specifications shall meet or exceed the latest revision of AWWA C703.

LEAD FREE LEGISLATION

There have been federal changes to the acceptable amount of lead in the drinking water system. Knowing that water meters have a life expectancy of approximately twenty (20) years, the Utility wishes to ensure that meters purchased meet the Safe Drinking Water Act (SDWA) per NSF/ANSI 372:

> The Utility wishes to assure the safety of its drinking water.

> The Utility wishes to safeguard its investment in metering infrastructure.

- Meter inventory that does not meet the SDWA (NSF/ANSI 372) lead free requirements will have to be returned to the manufacturer or scrapped at a cost that the Utility is not willing to incur.
- Any meters not in compliance with these requirements that are physically removed from service for testing or repair, cannot be reinstalled and will have to be scrapped at a cost that the Utility is not willing to incur.

As a result, the Utility requires that all water meters submitted in this proposal be compliant with NSF/ANSI 61 and NSF/ANSI 372. Specifically,

> Meters shall be made of a “lead free” alloy as defined by NSF/ANSI 61 and NSF/ANSI 372.

> Manufacturer shall provide a copy of a letter from the NSF on NSF letterhead documenting compliance with NSF/ANSI 372 which allows a maximum weighted average lead content level of 0.25% of the wetted surface area.

> Manufacturer will provide documentation that its US-based foundry uses only lead free materials in the manufacture of its water meters. This documentation shall be signed by an authorized officer of the company.

TYPE

Meters shall be of the in-line horizontal-axis type per AWWA Class II. Meter and strainer assemblies shall be both Underwriters Laboratory (UL) listed and Factory Mutual (FM) approved. Meters shall be certified to NSF/ANSI 61 and NSF/ANSI 372 requirements.

CAPACITY

The capacity of the meters and strainers in terms of normal operating range, maximum continuous flow, maximum loss of head, and maximum intermittent flow shall be as shown below:

Size	Normal Operating Range (gpm)	Maximum Continuous Flow (gpm)	Max. Loss of Head @ Max. Cont. Flow (psi)	Maximum Intermittent Flow (gpm)
3”	5 - 450	450	8.2	560
4”	10 - 1200	1200	15	1500
6”	20 - 2500	2500	10	3100
8”	35 - 4000	4000	9	5000
10”	50 - 6500	6500	8	8000

SIZE

The size of meters shall be determined by the nominal size (in inches) of the opening in the inlet and outlet flanges. Overall lengths of the meters and fire service strainers combined shall be as follows:

Meter Size	Laying Length
3”	$26\frac{1}{8}$ ”
4”	35”
6”	$44\frac{7}{8}$”
8”	$51\frac{5}{16}$”
10”	56”

CASE AND COVER

The maincase and cover shall be of an NSF/ANSI 61 and NSF/ANSI 372 compliant, lead free, high-copper alloy containing a minimum of 85% copper. The size, model, and arrows indicating direction of flow shall be cast in raised characters on the maincase or cover. The maincase and cover shall have a rated working pressure of 175 psi. The cover shall contain a calibration vane for the purpose of calibrating the turbine measuring element while the meter is in-line and under pressure. The calibration vane shall be mounted under the register that is attached in a tamper-resistant manner.

STRAINER

Meters shall be supplied with a strainer designed and approved for fire service use by UL and FM and shall have a rated working pressure of 175 psi. The size, model, and NSF certification shall be marked on the strainer cover.

The strainer body shall be constructed of 300 series stainless steel. The strainer cover shall be constructed of 300 series stainless steel or epoxy- coated steel. The strainer basket shall be constructed of AISI Type 18-8 stainless steel. The strainer shall contain a flushing port located near its bottom to facilitate easy cleaning.

EXTERNAL BOLTS

Meter cover bolts shall be made of AISI Type 316 stainless steel. All other bolts shall be 300 series stainless steel.

CONNECTIONS

Maincases shall be flanged. 3” through 10” sizes shall be round flanged per AWWA C207, Class D.

REGISTERS

Registers shall be permanently roll-sealed, straight reading, indicating in cubic feet, gallons, or cubic metres. Registers shall allow for in-line serviceability.

REGISTER BOXES

Register boxes and covers shall be of bronze composition. The name of the manufacturer and the meter serial number shall be clearly identifiable and located on the register box cover.

REGISTER BOX SEALING

The register box shall be affixed to the top cover by means of a plastic tamperproof seal pin that must be destroyed in order to remove the register.

METER SERIAL NUMBER

The meter serial number shall be imprinted on the meter maincase or cover as well as the register box cover.

MEASURING CHAMBER

The turbine measuring chamber shall be a self-contained unit attached to the cover for easy removal. The turbine spindles shall be stainless steel.

UNITIZED MEASURING ELEMENT

A UME is a complete assembly, factory-calibrated to AWWA standards, that includes the cover, registers, and a turbine measuring element. It shall be easily field-removable from the meter body without the requirement of unbolting flanges.

INTERMEDIATE GEAR TRAIN

The intermediate gear train shall be coupled directly to the turbine rotor and magnetically coupled to the register through the meter cover. All moving parts of the gear train shall be made of a self-lubricating polymer or stainless steel for operation in water.

REGISTRATION ACCURACY

Registration accuracy over the normal operating range shall be 98.5% to 101.5%.

REMOTE CAPABILITY OPTIONS

All meters shall be equipped with encoder remote registers per AWWA C707 and meet all AWWA C703 performance standards.

Acceptable meters shall be Neptune® HP Fire Service Turbine S (Stainless Steel) or approved equal.

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