

May 13, 2011

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SUBJECT 327B

OUTLINE OF INVESTIGATION

FOR

ULTRASONIC AND MAGNETIC TYPE WATER FLOW METERS

Issue Number 3

May 13, 2011

Summary of Topics

This is the third issue of the Outline of Investigation for Ultrasonic and Magnetic Type Water Flow Meters, Subject 327B, including revisions to Section 15.

This issue becomes effective May 13, 2011, except for the Installation and Design Instructions, Section 23, which becomes effective March 25, 2012. See the First Issue for the current requirements for the Installation and Design Instructions, Section 23 until the effective date is met.

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INTRODUCTION

See the First Issue for the current requirements for the Installation and Design Instructions, Section 23, until the effective date is met.

1 Scope

1.1 These requirements cover the construction and performance of inferential ultrasonic and magnetic type water flowmeters intended for use in dry, indoor atmospheres, and for cold water supplies to water based fire suppression systems in a completely wetted pipe section when:

- a) Connected to combined domestic plumbing and residential sprinkler fire protection service (multipurpose fire protection system) when installed as specified in the Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, NFPA 13D, or
- b) Connected directly to a fire suppression system such as the following:
 - 1) Standard for Low-, Medium, and High- Expansion Foam, NFPA 11,
 - 2) Standard for Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height, NFPA 13R,
 - 3) Standard for Installation of Sprinkler Systems, NFPA 13,
 - 4) Standard for Installation of Standpipe and Hose Systems, NFPA 14,
 - 5) Standard for Installation of Water Spray Fixed Systems for Fire Protection, NFPA 15, and
 - 6) Standard for Installation of Foam-Water Sprinkler Systems and Foam-Water Spray Systems, NFPA 16.

2 Components

2.1 Except as indicated in 2.2, a component of a product covered by this Outline of Investigation shall comply with the requirements for that component.

2.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this Outline of Investigation; or
- b) Is superseded by a requirement in this Outline of Investigation.

2.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

4 Undated References

4.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

5 Glossary

5.1 For the purpose of these requirements, the following definitions apply.

5.2 **MAGNETIC FLOW METER** – A water volume measuring device where the flow volume is based on measurement of induction of magnetic waves through the water medium.

5.3 **NPS (NOMINAL PIPE SIZE)** – A dimensionless designator for pipe sizes defined in standards including the Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, ASTM A53/A53M, the Standard Specification for Electric-Resistance-Welded Steel Pipe, ASTM A135/A135M, and the Standard Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Fire Protection Use, ASTM A795/A795M. ASTM used to replace terms such as “Nominal Diameter” and “Nominal Size”.

5.4 **ULTRASONIC FLOW METER** – A water volume measuring device where the flow volume is based on acoustic energy pulses through a water medium, using technology and methods such as measurement of the difference of the transit time of propagating in and against flow direction or measurement of the change in frequency of a sound wave (Doppler shift).

CONSTRUCTION

6 General

6.1 Meters with moving parts in the waterway or parts that are susceptible to damage from debris in the waterway, shall be equipped with integral strainers or shall be provided with strainers as part of the meter assembly. Integral strainer assemblies shall comply with the requirements for Strainers, Section 10 and strainers equipped as part of the meter assembly shall be certified for Fire Protection Service.

6.2 Electronic portions of meter assemblies shall be evaluated for compliance with the applicable construction requirements of the Standard for General-Purpose Signaling Devices and Systems, UL 2017.