AMERICAN NATIONAL STANDARD

STANDARD FOR PERFORMANCE TESTING OF SECONDARY PRESSURE DRAINERS

Fluid Controls Institute, Inc.

Sponsor:

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Cleveland, Ohio 44115-2851

AMERICAN NATIONAL STANDARD

Standard for Performance Testing of Secondary Pressure Drainers

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Suggestions for improvement of this standard will be welcome. They should be sent to the Fluid Controls Institute, Inc.

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Foreword

The following voluntary standard has been developed as a cooperative effort by the Secondary Pressure Drainer Section of the Fluid Controls Institute, Inc. to provide manufacturers, users and specifiers of the products with uniform methods and requirements to conduct performance testing of secondary pressure drainers.

The standard was developed by a technical subcommittee of the Secondary Pressure Drainer Section. The subcommittee completed its work in late 1999 and the standard was submitted to the section for approval as an FCI standard and was approved May 22, 2000. The standard was approved as an American National Standard in 2014. The standard was revised in 2018 and approved as an ANSI standard in 2020.

FCI recognizes the need to periodically review and update this standard. Suggestions for improvement should be forwarded to the Fluid Controls Institute, Inc., 1300 Sumner Avenue, Cleveland, Ohio, 44115-2851. All constructive suggestions for expansion and revision of this standard are welcome.

The existence of a Fluid Controls Institute (FCI) standard does not in any respect preclude any member or non-member from manufacturing or selling products not conforming to this standard nor is the FCI responsible for its use.

While the recommendations for performance testing and evaluation herein are technically sound, it is not intended that they be considered the only method for testing and evaluation. These recommendations should not be interpreted as superior to or a standard that would necessarily be preferred in lieu of an engineer's design for a particular system.

These recommendations for performance testing and evaluation originate from the collective experience of leading personnel in the fluid controls industry, but must, due to the nature of the responsibilities involved, be presented only as a guide for the use of a qualified designer or engineer. Thus, the Fluid Controls Institute, Inc. expressly disclaims any responsibility for damages arising from the use, application or reliance on the recommendations and information contained herein by designers or by engineers.

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ANSI/FCI 99-1-2020

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Standard for Performance Testing of Secondary Pressure Drainers

1.0 SCOPE

1.1 This standard specifies performance tests that are considered to be applicable to secondary pressure drainers.

1.2 These tests may be conducted to evaluate the performance of a particular design, either currently in production or under consideration for production.

2.0 DEFINITIONS

2.1 Secondary Pressure Drainer (SPD) - A vessel which collects and discharges liquid by alternately pressurizing and depressurizing through a given valve arrangement, utilizing a secondary, compatible vapor or gas pressure as the motive source.

2.2 Operating Mechanism - Sensing and valving arrangement of the SPD that alternately provides and relieves pressure from a secondary motive source in accordance with predetermined fluid levels within the SPD.

2.3 Performance Characteristics Tests - Tests that are carried out to determine the operational and performance characteristics of secondary pressure drainers.

3.0 TECHNICAL TERMS

3.1 Maximum Allowable Pressure (PMA) - Maximum pressure to which the SPD can safely be subjected without failure of the pressure boundary members.

3.2 Maximum Operating Pressure (PMO) - Maximum rated motive pressure at which the operating unit will function correctly.

3.3 Motive Pressure (PM) - Compatible gas or vapor pressure from a secondary source used to discharge the liquid medium from the SPD.

3.3.1 Steam Motive Source - Saturated steam (at the temperature that corresponds to the boiling temperature of water at an existing pressure) used as compatible vapor to discharge liquid from SPD.

3.3.2 Air or Inert Gas Motive Source - Compressed compatible vapor to discharge liquid from SPD.

3.4 Static Fill Head Pressure - Pressure created in the vertical column of liquid, at a defined point and before the SPD, providing the force to fill the SPD during its filling stage.

3.4.1 Static Fill Height from Top of SPD (FHT) - The distance from the top of the SPD to the liquid level that provides the static fill head pressure.

3.4.2 Static Fill Height from Bottom of SPD (FHB) - The distance from the bottom of the SPD to the liquid level that provides the static fill head pressure.