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ASSE International

Performance Requirements for

Dual Check Backflow Preventers

An American National Standard

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Foreword

This foreword shall not be considered a part of the standard; however, it is offered to provide background information.

ASSE International is dedicated to the preservation of public health and safety through its guiding principle, "Prevention Rather Than Cure." Preventing the contamination of potable water in plumbing systems is a major objective of ASSE's Standards Program.

The recognition of probable sources or causes of contamination or pollution of a potable water system whereby it becomes unfit or undesirable for human consumption is vital to the maintenance of its continued potability.

There are two basic and practiced methods for the protection of potable water supplies:

- a) Protection by containment is the isolation, by a suitable means, of the system within the premises supplied, which could be a source of contamination or pollution, from the vendor's or public water supply system.
- b) Protection of each individual outlet within the premises, which could be a source of contamination or pollution, by a suitable device or means.

Protection by containment protects the vendor's or public water supply only. It does not provide protection within the premises supplied.

In modern plumbing systems, there are many situations where backflow could occur due to backpressure conditions. In some cases, the backflow of pollutants into the potable water system could cause serious health hazards, while in other cases the backflow of pollutants into the potable water system would make it undesirable, yet not a health hazard, to the persons consuming it (low hazard).

This standard focuses on devices known as dual check valves, which will fulfill "low hazard" protective needs.

The devices described are suitable for either protection by containment at residential supply service lines, or protection of individual outlets where pollutants, which could be caused to enter the potable water, are of low hazard.

These devices are generally suitable for cold water service under continuous or intermittent pressure conditions. Usage with hot water is limited to the temperature specified by the manufacturer, and when certified under this standard. This standard was first adopted in 1979 and was the latest addition to ASSE's backflow prevention standards. Each standard covers a different type of backflow protection device, each tailored to the protective requirements essential to the specific system conditions in which it is installed, and the degree of hazard involved.

This standard was promulgated in accordance with procedures developed by the American National Standards Institute (ANSI).

Compliance with this standard does not imply acceptance by any code group unless the standard has been adopted by the code.

2017 Product Standards Committee

Ed Lyczko, Chairperson
*Cleveland Clinic – Retiree
Cleveland, OH*

William Briggs Jr.
*MGJ Associates
New York, NY*

Terry Burger
*NSF International
Ypsilanti, MI*

William Chapin
*Professional Code Consulting, LLC
Cullman, AL*

Mark E. Fish
*Zurn Industries, LLC
Cary, NC*

Ron George
*Plumb-Tech Design & Consulting
Services, LLC
Newport, MI*

Daniel Gleiberman
*Sloan
Los Angeles, CA*

Chris Haldiman
*Watts Water Technologies
Springfield, MO*

John F. Higdon, P.E.
*Apollo Valves / Conbraco Industries, Inc.
Matthews, NC*

Conrad Jahrling (non-voting)
*ASSE International
Chicago, IL*

Peter Marzec
*United Association of Plumbers and
Pipefitters
Pearl River, NY*

Thomas Pitcherello
*State of New Jersey
Bordentown, NJ*

Daniel Rademacher
*Plumbing Code and Design Consulting
Butte, MT*

Shabbir Rawalpindiwala
*Kohler Company
Kohler, WI*

Billy Smith
*ASPE
Montgomery, AL*

Tsan-Liang Su, PhD
*Stevens Institute of Technology
Hoboken, NJ*

1024 Working Group

Bill Chapin, Chairperson

*Professional Code Consulting, LLC
Cullman, AL*

Doug Franklin

*Reliance Worldwide Corporation
Cullman, AL*

Chris Corral

*Zurn-Wilkins
Paso Robles, CA*

Conrad L. Jahrling (non-voting)

*ASSE Staff Engineer
Chicago, IL*

Stephen Crawford

*Mueller Co.
Decatur, IL*

Duncan Liang

*CSA Group
Guangzhou, China*

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Performance Requirements for Dual Check Backflow Preventers

Section I

1.0 General

1.1 Application

This standard applies to devices classified as dual check backflow preventers (herein referred to as "device"). The purpose of this device is to keep polluted water from flowing back into the potable water system when pressure is temporarily higher in the polluted part of the system than in the potable water piping. The devices covered by this standard are intended to protect the potable water supply from low hazard pollution at residential service lines and individual outlets. These devices are intended for continuous or intermittent pressure conditions with cold water service. Usage with hot water is limited to the temperature specified by the manufacturer.

1.2 Scope

1.2.1 Description

This device consists of two (2) independently acting check valves, internally force loaded to a normally closed position, designed and constructed to operate under intermittent or continuous pressure conditions.

1.2.2 Size Range

The device shall be designed to accommodate the following nominal pipe sizes: ¼ NPS, ⅜ NPS, ½ NPS, ⅝ NPSM, ⅝ NPS, ¾ NPS, 1 NPSM, 1 NPS, 1-¼ NPSM, 1-¼ NPS, 1-½ NPS, and 2 NPS (8 DN, 10 DN, 15 DN, 18 DN, 20 DN, 25 DN, 32 DN, 40 DN, and 50 DN).

1.2.3 Pressure Range

The device shall be designed for a working pressure of up to a minimum of 160 psi (1103 kPa).

1.2.4 Temperature Range

- a) Cold water service ranges from 40.0 °F to 110.0 °F (4.4 °C to 43.3 °C), or the manufacturer's maximum rated temperature, whichever is greater.
- b) Hot water service ranges from 40.0 °F to 180.0 °F (4.4 °C to 82.2 °C), or the manufacturer's maximum rated temperature, whichever is greater.

1.2.5 Flow Capacity

The device shall meet the minimum water flow capacities at or below the maximum pressure loss specified in Section 3.4.

1.3 Reference Standards

References to industry standards shall mean the edition referenced below.

- ASME B1.20.1- 2013, *Pipe Threads, General Purpose, Inch*
- ASME B1.20.3-1976 (R2013), *Dryseal Pipe Threads, Inch*
- AWWA C700-15, *Cold Water Meters – Displacement Type, Metal Alloy Main Case*
- UL 969-2017, *Marking and Labelling Systems*