

American Society of Sanitary Engineering

Performance Requirements for

**Reduced Pressure
Principle Backflow
Preventers and
Reduced Pressure
Principle Fire
Protection Backflow
Preventers**

An American National Standard

This is a preview of "ASSE 1013-2011". [Click here to purchase the full version from the ANSI store.](#)

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Westlake, Ohio
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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 Product Standards are developed in the interest of consumer safety.

In potable water supply systems, there are many varied conditions which can develop and cause a reversal of the normal direction of flow (backflow) in the water supply lines. By this reversal of direction of flow, water from unintended sources can enter and contaminate the potable water in the supply lines and potable water source.

There are two basic types of backflow, identified by the two conditions that cause it:

- (1) Backpressure backflow is a reversal of the normal direction of flow in the pipe line due to a condition which causes the pressure in the system being supplied to become greater than that in the supply line; the system pressure being always above atmospheric.
- (2) Backsiphonage backflow is a reversal of the normal direction of flow in the pipe line due to a negative pressure (vacuum) being created in the supply line with the backflow source subject to atmospheric pressure.

The type of occupancy of the premises, the design and construction of the system, and the manner in which it is used are major influences on the possible incidence of backflow. Consequently, the degree of the hazard to which persons may be exposed varies from discomfort and minor illness, to fatal, if the backflow of contaminants into the potable water system is not completely prevented.

Due to the many variables in systems, devices of different performance characteristics are needed; each tailored to the system and its protection needs. This standard covers two (2) types of devices, which are identified as Reduced Pressure Principle Backflow Preventers (RP) and Reduced Pressure Principle Fire Protection Backflow Preventers (RPF). The RP and the RPF are identical in their backflow protection. The RPF, which was added to this standard in 1999, has specific performance requirements relating to its use on fire protection systems.

This standard is a composite of the most practical and effective behavioral characteristics for devices of this type, drawn on the experience of engineers, manufacturers, public health officials and others who are knowledgeable in this field and who have the responsibility of protecting our potable water supplies.

Although many of the material specifications are detailed within Section 4.1 of this standard, it is the responsibility of the manufacturer and the installer to comply with the relevant jurisdictional requirements.

The working group, which developed this standard revision, was set up within the framework of the Product Standards Committee of the American Society of Sanitary Engineering.

Recognition is made of the time volunteered by members of this working group and of the support of the manufacturers who participated in meetings for this standard.

This standard does not imply ASSE's endorsement of a product which conforms to these requirements.

Compliance with this standard does not imply acceptance by any code body.

It is recommended that these devices be installed consistent with local codes by qualified and trained professionals.

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

This edition was approved by the ASSE Board of Directors on August 9, 2011 as an ASSE standard.

2011 Product Standards Committee

Joseph Fugelo

*Product Standards Committee Chairman
Labov Co.
Philadelphia, Pennsylvania*

John F. Higdon P.E.

*Apollo Valves / Conbraco Industries Inc
Matthews, North Carolina*

Rand Ackroyd

*Rand Technical Consulting, LLC
Newburyport, Massachusetts*

Chuck Lott

*Precision Plumbing Products
Portland, Oregon*

William Briggs Jr.

*MGJ Associates
New York, New York*

Peter Marzec

*United Association of Plumbers and
Pipefitters
Pearl River, New York*

Maribel Campos

*ICC Evaluation Services
Whittier, California*

Hamid Naderi

*ICC – Texas
Austin, Texas*

Judson Collins

*Julyco Professionals
Mannford, Oklahoma*

Brad Noll

*Wilkins / A Division of Zurn
Paso Robles, California*

Ron George

*Plumb-Tech Design & Consulting
Services, LLC
Newport, Michigan*

Thomas Pitcherello

*State of New Jersey
Bordentown, New Jersey*

Steven Hazzard

*ASSE Staff Engineer
Westlake, Ohio*

Shabbir Rawalpindiwala

*Kohler Company
Kohler, Wisconsin*

Charles Hernandez

*Spears Manufacturing
Bolingbrook, Illinois*

Tsan-Liang Su, PhD

*Stevens Institute of Technology
Hoboken, New Jersey*

RP / DC Working Group

John F. Higdon, P.E.

*Working Group Chairman
Apollo Valves / Conbraco Industries, Inc.
Matthews, North Carolina*

Rand H. Ackroyd

*Rand Engineering
Newburyport, Massachusetts*

Stu Asay, P.E.

*Backflow Prevention Institute
Westminster, Colorado*

Paul Bladdick

*LPB Company, Inc.
White Lake, Michigan*

William Chapin

*Cash Acme / Reliance Worldwide
Cullman, Alabama*

Sean Cleary

*IAPMO
Scranton, Pennsylvania*

Steven Hazzard

*ASSE Staff Engineer
Westlake, Ohio*

Sara Marxen

*ASSE Compliance Coordinator
Westlake, Ohio*

Brad Noll

*Wilkins, a Division of Zurn Industries
Paso Robles, California*

Paul Schwartz, P.E.

*University of Southern California FCCCHR
Los Angeles, California*

Ken Van Wagnen

*ASSE Product Standards Coordinator
Westlake, Ohio*

Jeff Vlisides

*ABPA Michigan
Waterford, Michigan*

Stanley Ziobro

*Factory Mutual Approvals
Norwood, Massachusetts*

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Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers

Section I

1.0 General

1.1 Application

The purpose of a Reduced Pressure Principle Backflow Preventer (RP) and a Reduced Pressure Principle Fire Protection Backflow Preventer (RPF) (herein referred to as the "assembly") is to keep contaminated water from flowing back into a potable water distribution system when some abnormality in the system causes the pressure to be temporarily higher in the contaminated part of the system than in the potable water supply piping.

1.2 Scope

1.2.1 Description

This standard applies to two types of backflow prevention assemblies, identified as:

- (a) Reduced Pressure Principle Backflow Preventers (RP); and
- (b) Reduced Pressure Principle Fire Protection Backflow Preventers (RPF).

These assemblies consist of two (2) independently-acting check valves, internally force loaded to a normally closed position and separated by an intermediate chamber (or zone) in which there is a hydraulically operated relief means for venting to atmosphere, internally force loaded to a normally open position. These assemblies are designed to operate under continuous pressure conditions. The assembly shall include two (2) properly located, tightly closing shut-off valves, per Section 1.3.2.7, and properly located test cocks, per Section 1.3.2.5.

This standard also applies to Manifold Reduced Pressure Principle Backflow Assemblies consisting of two (2) or more complete Reduced Pressure Principle Backflow Preventers in parallel. The assemblies do not need to be of the same pipe size. The manifold size shall be identified by the single inlet and outlet of the Manifold Reduced Pressure Principle Backflow Assembly. Manifold Reduced Pressure Principle Backflow Assemblies shall include line-sized shut-off valves on each inlet and outlet of the assemblies making up the manifold.

1.2.2 Size Range

Connection pipe sizes shall be in accordance with Table 1.