

ASSE Standard #1003-2009

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*American Society of Sanitary Engineering*

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Performance Requirements for

# **Water Pressure Reducing Valves for Domestic Water Distribution Systems**

*An American National Standard*



# General Information

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Neither this Standard, nor any portion thereof, may be reproduced without the written consent of the American Society of Sanitary Engineering.

Although this Standard may be used as a benchmark for in-house evaluation, no product may be said to be ASSE approved unless the manufacturer has applied to ASSE, has had the product tested by an official ASSE recognized independent laboratory, according to the applicable ASSE Standard, and when the product has passed the test, displays the ASSE Seal on the product. Instructions for receiving the authorization to display the Seal are available from the ASSE International Office.

It is recommended that all devices designed for plumbing systems, especially those which pertain to public health and safety, should be installed consistent with local codes by qualified and trained professionals.

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Westlake, Ohio  
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# Foreword

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

ASSE Standards are developed in the interest of consumer safety.

The American Society of Sanitary Engineering is dedicated to the preservation of public health and safety through its guiding principle “Prevention Rather Than Cure”.

The ASSE’s Standards Program systematically evaluates new technologies through a formal request, and addresses the development and promulgation of performance standards designed to safeguard public health and safety.

Standards for the performance of components of systems of plumbing are considered by the American Society of Sanitary Engineering to be of great value in the development of improved plumbing systems for the increased protection of public health and safety.

To accomplish this, ASSE, through its Product Standards Committee, encourages manufacturers to develop performance standards and testing procedures for their products. These standards have the consensus of the manufacturers and others who have pertinent interests in plumbing systems, and are acceptable to this Society.

This standard for water pressure reducing valves is one for which the need was expressed. It was developed by a sub-committee of the ASSE Standards Committee using as a base the standard of the City of Los Angeles, which was originally created by a group which included the major manufacturers of this class of product.

Testing procedures and test equipment diagrams have been added to this basic standard to enable uniform testing by testing agencies with adequate facilities and qualified personnel.

At the October 1964 Annual Meeting of the Society, this standard was accepted as an ASSE Standard and assigned the identifying number 1003.

Performance standards for systems and devices must be reviewed periodically and upgraded as research, field conditions and experience suggest. The policy of the American Society of Sanitary Engineering is to review each standard on a five year cycle for revisions or reaffirmation. Between such reviews, the Product Standards Committee works with interested groups in obtaining information for study and evaluation for acceptance in upgrading a standard.

Although many of the material specifications are detailed within Section IV of this Standards,

it is the responsibility of the manufacturer to comply with the requirements of the Safe Drinking Water Act, United States Public Law 93-523.

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 also participated in the 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 of the standard was approved by the ASSE Board of Directors on September 28, 2009, as an ASSE standard.

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# Water Pressure Reducing Valves for Domestic Water Distribution Systems

## Section I

### 1.0 General

#### 1.1 Application

The purpose of a water pressure reducing valve for domestic water distribution systems (herein referred to as the “device”) is to reduce static and flowing pressures in water distribution systems.

#### 1.2 Scope

##### 1.2.1 Description

Devices covered by this standard are self-contained, direct acting, single diaphragm types. Devices shall be permitted to have an integral strainer, separate strainer connected to the valve inlet, or be without strainer. Devices shall be permitted to be with or without an integral by-pass relief valve.

##### 1.2.2 Size Range

Connection pipe sizes shall be ½ NPS, ¾ NPS, 1 NPS, 1¼ NPS, 1½ NPS, 2 NPS, 2½ NPS and 3 NPS (12.7 mm, 19.1 mm, 25.4 mm, 31.8 mm, 38.1 mm, 50.8 mm, 63.5 mm and 76.2 mm).

##### 1.2.3 Minimum Working Pressure

Devices shall be designed for a minimum working pressure of 250.0 psi (1723.8 kPa).

##### 1.2.4 Temperature Range

The devices shall be designed for temperatures of 33.0 °F (0.6 °C) to 140.0 °F (60.0 °C) minimum.

#### 1.3 Limitations on Design

All parts of the device shall be designed to withstand, without permanent distortion, the stresses developed by the specified hydrostatic test pressure, as well as the stresses resulting from a specified water working pressure coincident with operation under a specified unbalanced pressure condition.

##### 1.3.1 Repairability

- (a) The internal parts of the devices or strainers (if provided) shall be accessible for inspection, cleaning, repair or replacement. The design shall permit this servicing without removing the device from the pipeline.
- (b) All replacement parts shall be interchangeable with the original parts.