ASSE/ANSI 1052-2023



Performance Requirements for

Hose Connection Backflow Preventers

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Approved American National Standard
ANSI

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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 standards are developed in the interest of consumer safety.

ASSE International considers product performance standards to be of great value in the development of improved plumbing systems.

The working group that developed this standard was set up within the framework of the Product Standards Committee of ASSE International.

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

This standard does not imply ASSE International's endorsement of a product which conforms to these requirements. Preventing the contamination of potable water in plumbing systems is a major objective of ASSE's Standards Program. ASSE addressed the need for backflow protection at hose threaded outlets, where attaching a common garden hose or utility hose may expose users to highly dangerous conditions. Hose threaded protective devices shall only be used on systems where the low-head backpressure does not exceed that generated by an elevated hose equal to or less than 10 feet (3.0 m) in height.

The ASSE 1011 for *Hose Connection Vacuum Breakers* covers devices containing a single check valve and an atmospheric vent valve. This standard, ASSE 1052, focuses on devices containing two check valves which are known as *Hose Connection Backflow Preventers*. Backsiphonage and backpressure protection are achieved by adding the safety factor of a second check valve to the protection already provided by ASSE 1011, the single check Hose Bibb Vacuum Breaker. The two check device:

- meets the ASSE definition of a backflow prevention device;
- provides protection against the high hazard conditions of backsiphonage and low-head backpressure; and
- allows a field test to be performed.

It is essential that regular inspection and maintenance of backflow prevention devices be conducted in order to assure that the devices are continuously in working condition to prevent backflow.

This standard is part of the Vacuum Breaker Group, which includes:

ASSE 1001 – Performance requirements for Atmospheric Type Vacuum Breakers;
ASSE 1004 – Backflow Prevention Requirements for Commercial Dishwashing Machines;
ASSE 1011 – Performance requirements for Hose Connection Vacuum Breakers;
ASSE 1052 – Performance requirements for Hose Connection Backflow Preventers.

Not all devices are appropriate in all cases. Below in Table A is a reference chart whereby the reader can find the most suitable standard for his or her needs.

Table A

ASSE Standard No.	Standard Name	Typical use	Highlights	Types Within the Standard
1001	Atmospheric Type Vacuum Breakers	Faucet with Hose thread spout Water Closet Fill Valve	Prevents Backsiphonage: - Have its outlet open to atmosphere; - Not be subjected to backpressure; - Not be subjected to more than twelve (12) hours of continuous water pressure	• Atmospheric type • Check valve member and an air vent that is normally closed when the device is pressurized
1004	Backflow Prevention for Commercial Dishwashers	Commercial Dishwashers	Prevent backsiphonage at high temperatures. No direct contact with washing fluid.	• Air gap per ASME A112.1.3 • Atmospheric vacuum breaker per ASSE 1001 • Hose connection vacuum breaker per ASSE 1011 • Hose connection backflow preventer per ASSE 1052
1011	Hose Connection Vacuum Breakers	Hose Connections such as Hose Bib, Wall Hydrant, Yard hydrant	Prevents Backflow by use of a SINGLE CHECK valve, Prevents Back Siphonage by use of AIR PORTS, Prevents Back Pressure by use of check valve and relief of Back pressure through air ports. I.e. relieves pressure in the hose. Device is non removable and non-testable.	Only one type
1052	Hose Connection Backflow Preventers	Hose Connections such as Hose Bib, Wall Hydrant, Yard hydrant	Same as a 1011 device except there are two check valves. One check valve holds the pressure in the hose. The Intermediate chamber between check vales becomes atmospheric. Device is non removable but is testable.	Only one type

Table B

ASSE Standard No.	Single Check	Dual Check	Air Ports	Back Flow	Back Siphonage	Back Pressure	Frost Free	Removable	Testable	High Hazard
1001	N	N	Y	N	Y	N	N	N	N	Y
1004	ASME A112.1.3 air gap, ASSE 1001, 1011, or 1052 device is installed as a sub-assembly for backflow protection.									
1011	Y	N	Y	Y	Y	Y	N	N	N	Y
1052	N	Y	Y	Y	Y	Y	N	N	Y	Y

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).

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Hose Connection Backflow Preventers

1.0 General

1.1 Application

This standard establishes design requirements, basic performance requirements and test procedures for hose connection backflow preventers (herein referred to as the "device"). This device is designed to be installed on the discharge side of a hose threaded outlet on a water system. This two-check device protects against backflow, due to backsiphonage or low-head backpressure, and is field testable to certify protection under the high hazard conditions present at a hose threaded outlet. This device shall only be used on systems where there is low-head backpressure which does not exceed that generated by an elevated hose equal to or less than 10 feet (3.0 m) in height.

1.2 Scope

1.2.1 Description

A hose connection backflow preventer consists of two independent checks, force loaded or biased to a closed position, with an atmospheric vent located between the two check valves, which is force loaded or biased to an open position, and a means for attaching a hose.

1.2.2 Size Range

The device has male hose threaded outlets sized 1/2 NH, 3/4 NH or 1 NH. Inlets with hose threads are to be provided with a non-removable feature.

1.2.3 Pressure

The devices shall be designed for a working pressure of at least 125.0 psi (861.9 kPa).

1.2.4 Temperature Range

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

1.2.5 This device may not be subjected to more than 12 hours of continuous water pressure.

1.2.6 Atmospheric Vent

Atmospheric vent(s) (air inlets) are to be provided with a non-standard plumbing connection.

1.3 Reference Standards

ASME B1.20.7-1991 (R2018), Hose Coupling Screw Threads (Inch)

2.0 Test Specimens and Test Laboratory

2.1 Sample Selection

Sample selection and scope of testing shall be as required by the laboratory or certification body. When a manufacturer evaluates a series of devices that are identical, except for the inlet sizes and length, the manufacturer shall furnish 3 production quality devices having the smallest inlet and longest length. For Section 3.12, details of the fouling procedure shall be provided by the manufacturer. It shall be permitted for the manufacturer to supply a wire separate for installation by the laboratory.

2.2 Samples Tested

The testing agency shall select one of each size and model for the full test. The tests shall be run in the order described in the standard on one device.

2.3 Documentation

Assembly drawings and other data which is necessary to enable a testing agency to determine compliance with this standard, together with installation drawings, shall accompany devices when submitted for examination and performance tests under this standard.

2.4 Rejection

Failure of 1 device shall be cause for rejection of that size and model.

3.0 Performance Requirements and Compliance Testing

3.1 Hydrostatic Test of Complete Device

3.1.1 Purpose

The purpose of this test is to determine if the device withstands a pressure of 250 psi (1724 kPa) or 2 times the manufacturer's maximum rated working pressure, whichever is greater.

3.1.2 Procedure

1. Install the device in the open position on the test system as shown in Figure 1 with the inlet connected to an ambient water supply and the throttling valve #2 open.
2. Purge the device of air,
3. Close throttling valve #2
4. Pressurize the device to 250 psi +0/-5 (1724 +0/-35 kPa) or 2 times the manufacturer's maximum rated working pressure, whichever is greater.
5. Hold the pressure for not less than 5 minutes.

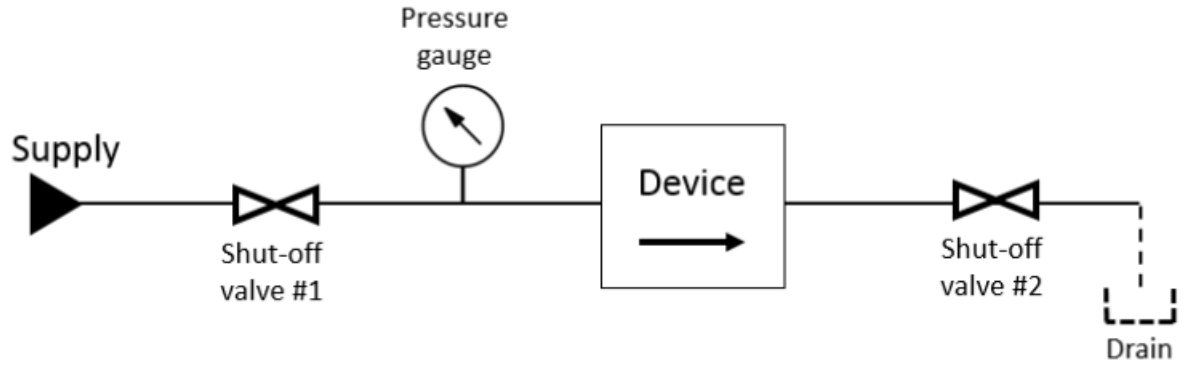

Figure 1

3.1.3 Criteria

Any indication of external leakage shall result in the rejection of the device.

3.2 Flow Rates and Pressure Loss

3.2.1 Purpose

The purpose of this test is to determine the device's flow at a pressure drop of 25 psi (172 kPa).

Table 1
Flow Rate and Pressure Loss

Outlet Size of Device	Minimum Flow Rate		Maximum Allowable Pressure Loss	
NH	GPM	L/s	psi	kPa
1/2	3.0	(0.20)	25	(172)
3/4	4.0	(0.30)	25	(172)
1	8.0	(0.50)	25	(172)

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