

American National Standard
ASSE 1020-2020



Performance Requirements for
Pressure Vacuum Breaker Assemblies

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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 standards are developed in the interest of consumer safety. ASSE 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 ASSE International Product Standards.

This standard was approved by the Product Standards Committee to extend the ASSE portfolio of standards for backpressure and backsiphonage backflow prevention devices for pipe applied vacuum breakers.

For pipe applied service conditions in water supply lines, there are two recognized basic conditions for which vacuum breakers, anti-siphon type, are needed. These two classifications are atmospheric and pressure type. In one instance, the device is under pressure only when there is a demand for water in the equipment being served. The atmospheric type of device is recommended when the service line is under pressure only for short periods of time.

For service conditions where the pressure in the service line must be continuous, a vacuum breaker must be constructed with built-in means to mechanically force the atmospheric air inlet valve to open should a negative pressure (vacuum) be created in the supply line. For this class of service, a "pressure type" device is recommended for use.

ASSE 1020 was originally titled *Vacuum Breakers, Anti-Siphon, Pressure Type* and was approved by the ASSE Product Standards Committee, received the concurrence of the ASSE Board of Directors, and was issued as an official ASSE standard in November 1974. During its revision in 1989, the title was changed to *Pressure Vacuum Breaker Assembly*. This change also included a recommendation for outdoor usage of the assembly.

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 that 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 the ASSE Procedures for Standards Development as approved by the American National Standards Institute (ANSI).

ASSE Vacuum Breaker Standards

ASSE Standard Number	Standard Name	Typical Use	Highlights
1001	Atmospheric Type Vacuum Breakers	<ul style="list-style-type: none"> Faucet with hose thread spout Water closet fill valve 	Prevents Backsiphonage: <ul style="list-style-type: none"> Outlet is open to atmosphere Not subjected to backpressure Not be subjected to more than twelve (12) hours of continuous water pressure
1011	Hose Connection Vacuum Breakers	<ul style="list-style-type: none"> Hose connections, such as hose bib, wall hydrant, yard hydrant 	<ul style="list-style-type: none"> Prevents backflow by use of a SINGLE CHECK valve Prevents backsiphonage by use of AIR PORTS Prevents backpressure by use of check valve and relief of backpressure through air ports. i.e. relieves pressure in the hose. Non-removable and non-testable
1020	Pressure Vacuum Breakers	<ul style="list-style-type: none"> Irrigation systems Industrial processes 	Prevents Backsiphonage: <ul style="list-style-type: none"> Uses a SINGLE CHECK Not subjected to backpressure Can be subjected to continuous water pressure in excess of twelve (12) hours
1052	Hose Connection Backflow Preventers	<ul style="list-style-type: none"> 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.
1056	Spill Resistant Vacuum Breakers	<ul style="list-style-type: none"> Indoor plumbing assemblies Medical equipment 	Same as 1020 but does not spill water when pressurized.

Standard No.	Dual Check	Air Ports	Backflow	Backsiphonage	Backpressure	Frost Free	Removable	Testable	High Hazard
1001	N	Y	N	Y	N	N	Y	N	Y
1011	N	Y	Y	Y	Y	N	N	N	Y
1020	N	Y	N	Y	N	N	Y	Y	Y
1052	Y	Y	Y	Y	Y	N	N	Y	Y
1056	N	Y	N	Y	N	N	Y	Y	Y

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Performance Requirements for Pressure Vacuum Breaker Assemblies

Section I

1.0 General

1.1 Application

Pressure Vacuum Breaker Assemblies (herein referred to as "device") are for installation in water supply lines to prevent the entrance of non-potable material into the potable water supply by backsiphonage only. It is not for use in any system where backpressure can be applied to the device. It is intended for use in both high and low hazard applications.

When a supply pressure is between 1.0 psi to 2.0 psi (6.9 kPa to 13.8 kPa), the air inlet valve is open and the device will continuously discharge. Due to this probability of water discharge from the atmospheric air inlet valve, the device shall be installed where water discharge does not cause damage.

1.2 Scope

1.2.1 Description

The assembly shall contain an independently acting check valve force loaded to the closed position, and an independently acting air inlet valve located downstream of the check valve that is force loaded to the open position. The assembly shall also include two tightly closing shutoffs, one at the inlet of the assembly and one at the outlet of the assembly, and two tightly closing test cocks, one immediately upstream and one immediately downstream of the check valve.