

ASSE International

Performance Requirements for

Pressure Vacuum Breaker Assembly

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Foreword

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

This standard was approved by the Product Standards Committee to extend the ASSE portfolio of standards for back pressure and back-siphonage 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 the 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 Standard #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.

The draft of this Standard was presented to the ASSE Product Standards Committee during their regular meeting in 1989. The Committee acted to recommend adoption of this standard to the ASSE Board of Directors, and the Board approved the standard to become effective January 1990. The standard was revised in 1994, and again in 2003.

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.

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Pressure Vacuum Breaker Assembly

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.

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.

Vacuum breakers, other than air gaps, shall be classified into three general types:

- a. Atmospheric Type (See ASSE Standard #1001);
- b. Pressure Type (ASSE #1020, as described in this standard); and
- c. Back Siphonage (See ASSE Standard #1056).

1.2.2 Size Range

The device shall be designed to accommodate nominal pipe sizes 1/2 NPS to 2 NPS (15 DN to 50 DN).

1.2.3 Working Pressure Range

The minimum rated working pressure of the device shall not be less than 150.0 psi (1034.3 kPa).

1.2.4 Temperature Range

- a. Cold water service shall range from 33.0 °F to 110.0 °F (0.6 °C to 43.3 °C).
- b. Hot water service shall range from 33.0 °F to not less than 180.0 °F (0.6 °C to 82.2 °C).