

IAPMO IS 32-2020



PUBLIC REVIEW DRAFT

Installation Standard for

**Chemical Dispensing Equipment with
Backflow Protection**



IAPMO Standard

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Preface

This is the first edition of IAPMO IS 32, Chemical Dispensing Equipment with Backflow Protection.

This Standard was developed by the IAPMO Standards Review Committee (SRC) in accordance with the policies and procedures regulating IAPMO industry standards development, Policy S-001, Standards Development Process. This Standard was approved as an IAPMO Industry Standard on Month DD, YYYY.

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 - (b) *relevant section, table, or figure number, as applicable;*
 - (c) *wording of the proposed change, tracking the changes between the original and the proposed wording; and*
 - (d) *rationale for the change.*
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 - (a) *the edition of the standard for which the interpretation is being requested;*
 - (b) *the definition of the problem, making reference to the specific section and, when appropriate, an illustrative sketch explaining the question;*
 - (c) *an explanation of circumstances surrounding the actual field conditions; and*
 - (d) *the request for interpretation phrased in such a way that a "yes" or "no" answer will address the issue.*
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IAPMO IS 32-2020

Installation Standard for Chemical Dispensing Equipment with Backflow Protection

1 Scope

1.1 General

1.1.1 This Standard specifies requirements for the installation of chemical dispensing equipment including connections with hot- and cold-water supply and distribution systems within buildings.

1.1.2 This Standards applies specifically to chemical dispensing equipment complying with ASSE 1055.

1.2 Terminology

In this Standard,

- (a) “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy to comply with the Standard;
- (b) “should” is used to express a recommendation, but not a requirement;
- (c) “may” is used to express an option or something permissible within the scope of the Standard; and
- (d) “can” is used to express a possibility or a capability.

Notes accompanying sections of the Standard do not specify requirements or alternative requirements; their purpose is to separate explanatory or informative material from the text. Notes to tables and figures are considered part of the table or figure and can be written as requirements.

1.4 Units of Measurement

SI units are the primary units of record in global commerce. In this Standard, the inch/pound units are shown in parentheses. The values stated in each measurement system are equivalent in application, but each unit system is to be used independently. All references to gallons are to U.S. gallons.

2 Reference Publications

This Standard refers to the following publications, and where such reference is made, it shall be to the current edition of those publications, including all amendments published thereto.

ASME International (The American Society of Mechanical Engineers)

ASME A112.1.3

Air Gap Fittings for Use with Plumbing Fixtures, Appliances and Appurtenances

ASSE International

ASSE 1001

Performance Requirements for Atmospheric Type Vacuum Breakers

ASSE 1055

Performance Requirements for Chemical Dispensing Systems with Integral Backflow Protection

IAPMO (International Association of Plumbing and Mechanical Officials)

PS 104

Pressure Relief Connection for Dispensing Equipment

IAPMO/ANSI UPC

Uniform Plumbing Code

3 Definitions and Abbreviations

3.1 Definitions

The following definitions shall apply in this standard:

Chemical dispensing system — Method of dispensing and diluting concentrated chemical solutions.

Mop sink — A faucet with a hose connect on spout and sink that can be on the floor used for cleaning purposes.

Dedicated Water Supply Line — Service to an individual fixture, fitting, or device and capable of being isolated from the rest of the water distribution system through a shut-off valve immediately upstream of the single fixture, fitting or device control valve. This could be taken off of a supply line for a faucet with an additional supply valve, as long as fixture count is correct.

Atmospheric Vacuum Breaker — Prevents back siphonage through alleviation of backpressure in the system through a connection with the outlet to atmosphere.

AirGap – As defined by ASME A112.1.3 Airgap fittings used in plumbing fixtures which include chemical dispensing equipment. An engineered gap that breaks the flow of liquid and prevents liquid from flowing back into the potable water system which would be a cross connection without the airgap.

Elastomer Gap – A backflow prevention device using elastomer material in the shape of a tube over an internal section where the elastomer material expands from the pressure of water and flows past the material. When water flow stops, the material contracts to original size and seals the outlet.

Spill Resistant Vacuum Breaker – Prevents backsiphonage through the use of a single check valve.

Pressure Bleed Device – A connection device installed to ensure a constant water flow (bleed) so that any upstream backflow protection device, not rated for continuous supply pressure, will not be damaged.

3.2 Abbreviations

The following abbreviations apply in this Standard:

AVB — atmospheric vacuum breaker

AHJ — authority having jurisdiction

4 General

4.1 Backflow Prevention

Chemical dispensers with integral backflow prevention shall

(a) be certified in accordance with ASSE 1055.

(b) use an airgap certified to ASME 112.1.3 or an E. Other methods may be used to meet requirements within the ASSE 1055 Standard.

4.2 Connection

In some jurisdictions, the plumbing code may require a shut off valve on the supply line to a chemical dispenser.

4.2.1 Prohibited Connections

Self-piercing and needle-type saddle valves shall be prohibited.

4.3 Preparation Prior to Installation

Prior to installation of chemical dispensing equipment, the installer shall review the

- (a) manufacturers' installation guidelines;
- (b) plumbing and health codes to ensure a proper installation; and
- (c) have water pressure and flow verified prior to installation to ensure proper equipment selection.

4.4 Surveying Installation location to determine connection type

Determine type of connection and follow section of Installation Standard for that type. The importance of this step provides guidance on how to proceed with installation. Determine if installation is of either a

- (a) Commercial Kitchen installation;
- (b) Mop sink or Utility sink installation;
 - (i) Used by janitorial staff for cleaning of buildings;
 - (ii) Any sink connection that has threaded connection on faucet.
- (c) Once review of installation and determination of type of installation
 - (ii) Follow manufacturers recommended installation guidelines; and
 - (iii) Follow Authority Having Jurisdiction plumbing and health codes.

5 Location Specific Installation Requirements

5.1 Commercial kitchen sink installation

5.1.1 When connected to a dedicated water supply chemical dispensing equipment compliant with ASSE 1055:

- (a) Requires no additional backflow protection;
- (b) May be connected to the dedicated supply line downstream of a shut-off valve;
 - i. May require extensive redesign of an existing plumbing system to provide a dedicated water supply line;
 - ii. Including installation design during new construction plans could reduce cost.

5.1.2 When connected to a faucet or rinse arm with an integral backflow device

- (a) The installation can generally be done by connecting a water line between the rinse arm and the faucet, if this faucet is designed and certified to have a removable rinse arm
Note: a faucet adapter kit can often be used for this purpose
- (b) Chemical dispensing equipment may be connected to a faucet with an AVB as part of the faucet;
 - i. The atmospheric vacuum breaker must be a minimum of 152.4 mm (6 in) above the installed chemical dispensing equipment and not subject to continuous pressure;
 - ii. One method to ensure an open outlet to atmosphere is to utilize a pressure bleed device that is certified to the pressure bleed device standard, IAPMO PS 104; and
 - iii. Not be subjected to backpressure.

5.1.3 Faucet without integral backflow device

Chemical dispensing equipment compliant with ASSE 1055 may be connected to a faucet without an integral backflow device in accordance with the following:

- (a) may be connected to faucets manufactured with check valves to that prevent hot/cold migration;
- (b) may be connected to faucets with continuous pressure vacuum breakers (also known as a spill resistant vacuum breaker)
 - (i) Spill resistant vacuum breakers are high hazard, testable backflow preventers that can be installed upstream of the chemical dispensing equipment in cases where a pressure bleed device is not allowed by the AHJ; and
 - (ii) The Spill resistant vacuum breaker must be installed a minimum of 304.8 mm (12 in) above the chemical dispensing equipment.

5.2 Mop and Service Sink Installations

5.2.1 Faucet with Integral Backflow Device:

Chemical dispensing equipment compliant with ASSE 1055 may be connected to a faucet with an integral backflow device. The customary integral backflow device is an atmospheric vacuum breaker or an ASSE 1001 device and shall be in accordance with the following:

- (a) Chemical dispenser and all product supply must be a minimum of 152 mm (6 in) below the atmospheric vacuum breaker
 - (i) Measurement is based on critical level of the atmospheric vacuum breaker contained in faucet.
 - (ii) If critical level is not marked on atmospheric vacuum breaker or faucet, measure from lowest part of faucet.
- (b) Must have an outlet open to atmosphere. On method to ensure an open outlet to atmosphere is to utilize a pressure bleed device that is certified to the pressure bleed device standard, IAPMO PS 104; and
- (c) Not be subjected to backpressure.

5.2.2 Faucet without Check Valves

Some faucets may not contain check valves to prevent hot/cold migration. If both the hot and cold valves are opened, and the faucet is connected to a chemical dispensing system, a potential path can be created to allow hot water to migrate to the cold-water line. This could result in hot water going to a location where it is not desired such as a drinking fountain. The use of a certified pressure bleed device, IAPMO PS 104, will provide a path to atmosphere for water to mitigate hot/cold water migration, or vice versa.

6 Marking and Installation

6.1 Installed systems should be marked in accordance with the requirements of ASSE 1055.

6.2 The markings should be visible after installation.