Performance Requirements for
Trap Seal Primer Devices - Drainage Types and Electronic Design Types
General Information

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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.

For many years, the method of priming traps has been with the use of a water supply trap primer device which is activated with flow in the water supply piping. This method of priming utilizes primers which comply with ASSE 1018. This standard addresses alternate methods to ASSE 1018 Trap Primers, for this standard addresses trap primers utilizing electronic design and drainage-type trap primer devices.

Recognition is made of the time volunteered by members of the 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).
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*Trap Seal Primer Devices - Drainage Types and Electronic Design Types*  
ASSE #1044 • Revised: 2001
Performance Requirements for Trap Seal Primer Devices - Drainage Types and Electronic Design Types

Section I

1.0 General

1.1 Application

Devices covered by this performance standard are designed primarily to supply water to floor drain traps which have infrequent use and in which water evaporation would allow sewer gas to enter the premises.

The type of device covered by this standard is designed to supply water to a drain trap to provide and maintain its water seal using a supply from a fixture drainline, ballcock, or flushometer valve tailpiece or an electronic primer device. The rate of water flow to the trap shall be permitted to be fixed or adjustable.

1.2 Scope

1.2.1 Description

The devices are of four (4) types:

a) Those which are installed on waste line tail pieces from fixtures, such as lavatories, sinks and similar fixtures where grease is not normally generated;

b) Those which are used in conjunction with ballcock assemblies;

c) Those which receive flow from flushometer valves; and

d) Those electronics devices which discharge water automatically and which are upstream of the air gap or vacuum breaker.

1.2.2 Fixture Connected Devices

Tubing size shall be not less than 32 DN (1-1/4 NPT) nominal size. Makeup water supply connection shall be minimum of 10 DN (3/8 NPT) nominal size.

1.2.3 Ballcock Connected Devices

Makeup water supply connections to the refill tube shall not be less than 6 DN (1/4 NPT) nominal size.

1.2.4 Flushometer Connected Devices

Makeup type water supply connections shall be a minimum of 10 DN (3/8 NPT) nominal size.

1.2.5 Electronic Devices

The minimum inlet size shall be 15 DN (1/2 NPT). The minimum outlet size shall be 10 DN (3/8 NPT).
1.2.6 **Working Pressure**
Devices shall be designed for water working pressure of 172 kPa (25 psi) for ballcock, flushometer valve or fixture tailpiece devices and 862 kPa (125 psi) for electronic units.

1.2.7 **Connections**
Pipe threads and other connections shall conform to applicable standards.

1.2.7.1 Tapered pipe threads shall comply with ANSI/ASME B1.20.1.

1.2.7.2 Dry seal pipe threads shall comply with ANSI/ASME B1.20.3.

1.2.7.3 Compression assemblies shall comply with ANSI/SAE J 512.

1.2.7.4 **Soldered Joints**
Soldered joints on assemblies which connect to potable water piping shall be made with solder and fluxes not to exceed 0.2% lead.

1.2.7.5 Other type connections shall conform to appropriate standards.

1.2.8 **Fixture Tailpiece Trap Primer Devices**
Fixture trap or tailpiece trap primer devices shall consist of a 30 mm (1-1/4 inch) or larger tailpiece or trap assembly which is designed with a connection to connect to a small diameter supply tube which drains to the floor drain trap inlet.

1.2.9 **Ballcock Trap Primer Devices**
Ballcock trap primer devices shall consist of a refill tube diversion mechanism, a close coupled tank bolt/drain assembly, and related fittings for connection to the closet tank and ballcock. The device shall be constructed of materials which are corrosion resistant equal to yellow brass (60% copper). The diversion refill tube assembly shall be fitted with clear vinyl tubing not less than 8 mm (1/4”) ID from the point of connection to the check member, a 8 mm (1/4”) tee fitting, a check valve and a flow restrictor. Connections from the outlet of the close coupled tank connector tube shall not be less than 10 mm (3/8”) OD in diameter.

1.2.10 **Flushometer Tailpiece/Trap Primer Devices**
Flushometer tailpiece/trap primer devices shall consist of chrome-plated supply tube of not less than 17 gauge complying with ANSI/ASME A112.18.1M, and fitted with minimum 3/8” OD compression-type chrome plated brass fitting brazed to the tailpiece. Compression fittings shall comply with ANSI/SAE J512.

1.2.11 **Electronic Devices**

1.2.11.1 **Tubing**
Tubing shall comply with ASTM B88 and shall be minimum of Type “L”.

1.2.11.2 **Electric Trap Priming Assembly**
Electric trap priming assemblies shall comply with one or more of the following standards:
   a) Standard for Motor Operated Appliances, UL 73,
   b) Standard for Motor Operated Appliances, CAN/CSA-C22.2 No. 68.

1.2.11.3 **Backflow Protection**
Backflow devices shall comply with ASSE/ANSI 1001 and/or ASME/ANSI A112.1.2.
1.3 Reference Standards

The following standards are referenced in this standard and shall be used to evaluate such assemblies. The latest editions shall apply.

(a) ASME/ANSI B1.20.1 Pipe Threads
(b) ASME/ANSI A112.1.2 Air Gaps for Plumbing Systems
(c) ASME/ANSI A112.18.1 Plumbing Fixture Fittings
(d) ANSI/SAE J512- Automotive Tube Fittings
(e) ANSI/ASSE 1001- Pipe Applied Vacuum Breakers
(f) ASTM B88- Seamless Copper Tube
(g) UL 73 Standard for Motor Operated Appliances
(h) CAN/CSA-C22.2 #68 Standard for Motor Operated Appliances
Section II

2.0 Test Specimens

2.1 Samples Submitted

Three (3) devices of each size and model shall be submitted by the manufacturer. Tests shall be performed in the order listed on one (1) device of each size submitted.

2.2 Samples Tested

The testing agency shall select one (1) of each type or model and size for the full test.

2.3 Drawings

Assembly drawings and other data which are needed 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 one (1) device shall result in a rejection of that type or model and size until the manufacturer has corrected the fault and submitted new devices for testing.
Section III

3.0 Performance Requirements and Compliance Testing

3.1 Hydrostatic Test for Ballcock, Flushometer and Fixture Tailpiece Devices

3.1.1 Purpose
The purpose of this test is to evaluate low pressure devices for hydrostatic integrity.

3.1.2 Procedures
A test pressure of 172 kPa (25 psi) or two (2) times the working pressure, whichever is greater, shall be applied to all parts of the device exposed to the drainline pressure. Pressure shall be held for five (5) minutes and observations made for leaks and other indication of damage.

3.1.3 Criteria
Any indication of external leaks or other damage shall result in a rejection of the device.

3.2 Electronic Devices

3.2.1 Purpose
The purpose of this test is to evaluate high-pressure devices for hydrostatic integrity.

3.2.2 Procedure
The device shall be connected to a water source which is capable of achieving 862 kPa (125 psi), or two (2) times the working pressure, whichever is greater. The device shall be pressurized to 862 kPa (125 psi), or two (2) times the working pressure, whichever is greater, for a period of five (5) minutes. All outlets from the device shall be sealed. (The manufacturer shall be permitted to provide components to facilitate sealing of the outlets.)

3.2.3 Criteria
Any indication of external leaks or other damage shall result in a rejection of the device.

3.3 Verification of Manufacturer’s Performance Rating

3.3.1 Purpose
The purpose of this test is to verify the flow rates as provided by the manufacturer.

3.3.2 Procedure
The manufacturer shall furnish the performance rating for the device, minimum rates of flow through the supply line and rates of flow to the trap seal.

3.3.2.1 Procedure for Fixture Drain Devices
The manufacturer shall specify the discharge rates through the primer line for faucet flow rates of 1.9 L/m (0.5 GPM) and 9.5 L/m (2.5 GPM) faucets at 137.9 kPa (20 psi) pressure. Tests shall be run using faucets with flow rates of 1.9 L/m (0.5 GPM) to 9.5 L/m (2.5 GPM) at a pressure of 137.9 kPa (20 psi). A grid strainer shall be installed upstream of the primer device. The ratings obtained by test shall be recorded on test data sheets for the record.

3.3.2.2 Criteria
Failure to meet manufacturer’s specified ratings shall result in a rejection of the device.
3.3.2.3 Procedure for Ballcock Primer Devices
The device shall be installed in the tank of a 6 liter (1.6 gallon) per flush close coupled water
closet combination in accordance with the manufacturer’s instructions. Water shall be added
to the bowl and the water level shall then be marked with non-water soluble ink or marker. The
tank shall be filled and the ballcock shall be operated at a static pressure of 276 kPa (40 psi)
for a series of twenty (20) flushes. Repeat the test at a flowing pressure of 55.2 kPa (8 psi) for
a series of twenty (20) flushes.

3.3.2.4 Criteria
Any leakage from the tank bolt connection shall result in a rejection of the device. Failure of
the device to demonstrate the minimum rated flow per Section 3.3.2 through the primer tube at
either pressure shall result in a rejection of the device. Failure of the water closet to reseal to
full trap seal depth after each flush shall result in a rejection of the device.

3.3.2.5 Procedure for Flushometer Valve Tailpiece Devices
The device shall be installed between a flushometer valve and a water closet bowl in accordance
with manufacturer’s instructions. The assembly shall be operated at 345 kPa (50 psi) flowing
for a series of twenty (20) flushes.

3.3.2.6 Criteria
Any indication of leakage from any connection shall result in a rejection of the device. Failure to
achieve the minimum rated flow per Section 3.3.2 through the primer drain tube or 20 ml (0.67
ounces) per flush, whichever is greater, shall result in a rejection of the device.

3.3.2.7 Procedure for Electronic Devices
The device shall be installed per the manufacturer’s instructions. A water supply shall be con-
ected to the inlet of the device and the device shall be pressurized to the manufacturer’s rated
working pressure. The device shall be activated for a period of five (5) cycles. A calibrated
device shall used to measure the discharge from any outlet. The device shall be activated and
the discharge from a single outlet shall be measured.

3.3.2.8 Criteria
Failure to achieve a minimum of 60 ml (2 ounces) per outlet during any test shall result in a
rejection of the device.

3.4 Cycle Test for Electronic Devices

3.4.1 Purpose
The purpose of this test is to determine the performance of the device with the application of
performance tested.

3.4.2 Procedure
The device shall be installed per manufacturer’s instructions. A water supply shall be connected
to the inlet of the device and shall be pressurized to 345 kPa (50 psi). A method shall be employed
to activate the device for a period of five thousand (5,000) cycles. Each cycle shall consist of
six (6) seconds on and five (5) seconds off.

3.4.3 Criteria
Any indications of failure or leakage during the cycle test shall result in a rejection of the device.
Section IV

4.0 Detailed Requirements

4.1 Materials

4.1.1 Materials
Materials used in the device shall meet the performance requirements of the standard.

4.1.2 General Requirement
Materials shall be durable and capable of withstanding stresses and wear during installation and operation.

4.1.2.1 Compliance and Certification
All elastomers and polymers in contact with the water shall have characteristics that comply with the United States Code of Federal Regulations (CFR), title 21, 177.2600, or shall be certified as non-toxic by an independent approved laboratory.

4.1.3 Corrosion of Interior Parts
All metal parts (except springs) in contact with the water shall have a corrosion resistance at least equal to a copper alloy of not less than fifty-eight percent (58%) copper.

4.1.4 Springs
Springs in contact with the water shall have a corrosion resistance at least equal to stainless steel, Series 300.

4.1.5 Elastomeric Parts
Diaphragms, valve discs, seating facings or other flexible non-metallic parts shall be designed for continuous exposure to water at the maximum rated operating temperature of the device without change in physical characteristics which prevent full compliance with all requirements of this standard.

4.2 Documentation

4.2.1 Installation and Maintenance
Full instructions for the proper installation and maintenance of the device shall be packaged with it. The instructions shall include such data to guide the installer in the selection of the fixture and drain line in which to locate the primer device which shall satisfy the water needs of the trap it is to serve. The instructions shall include language to inform the installer that installation of electronic devices that conform to this standard are to be installed with backflow protection that meets all local and state codes.

4.3 Markings
Markings shall be a permanently affixed label, or shall be stamped or cast on the body of the device with the following information:

a) Manufacturer’s or marketer’s name or trademark; and
b) Model number or other identification mark.
Section V

5.0 Definitions

Definitions not found in this Section are located in the latest edition of the Plumbing Dictionary published by the ASSE.