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Document Name: ASSE 1023: Hot Water Dispensers, Household Storage Type, Electrical

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APPROVED

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Performance Requirements for

Hot Water Dispensers Household Storage Type - Electrical

General Information

No product may be said to meet or to be in compliance with an A.S.S.E. Standard unless the manufacturer has applied to the A.S.S.E., has had his product tested according to the applicable A.S.S.E. Standard, and when the product has passed the test, displays the A.S.S.E. Seal on the product. Instructions for receiving the authorization to display the Seal are available from A.S.S.E. Central Office, P. O. Box 40362, Bay Village, OH 44140.

Organizations wishing to adopt or list any A.S.S.E. standard should print the A.S.S.E. Standard Number on the cover page first and in equal or larger type to that of the adopting or listing organization.

American Society of Sanitary Engineering
Bay Village, Ohio

Foreword

Responding to a request by some administrative authorities and with the cooperation of the manufacturers of these products, the A.S.S.E. Standards Committee authorized this project for the development of an A.S.S.E. Standard.

Its objective was to construct a sound and reasonable set of performance guide lines for the plumbing requirements of these hot water dispensers when installed in a system of plumbing.

The work of constructing these requirements was assigned to a subcommittee under the direction of the Standards Committee.

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Hot Water Dispensers, Household Storage Type Electrical

To be acceptable for test under this Standard, Dispensers of the types covered shall have electrical components and characteristics listed and approved by a nationally recognized, independent testing laboratory.

Section I

1.0 Scope, Purpose, General - Construction, Instructions

1.1 Scope and Purpose

1.1.1 Scope

1.1.1.1 The hot water dispensers covered by this standard are those which are designed for household use and which are installed at the sink and supplied with water from the kitchen sink water supply. They are storage types, continuously vented to atmosphere and heated electrically.

1.1.1.2 Water Temperature
Tank service water temperature to be maintained below atmospheric water boiling point.

1.1.2 Purpose
This standard has been developed to advise designers, manufacturers, plumbing administrative authorities and others of what are considered reasonable plumbing criteria when installed in a system of potable water supply, and the methods of testing for determining compliance with the requirements of the standard.

1.2 General - Construction

1.2.1 Assembly drawings and other data which are needed to enable a testing agency to determine compliance with this standard, and installation instructions, including essential drawings shall accompany the devices when submitted for examination and performance tests under this standard.

1.2.2 Design and construction shall be such that in normal handling in transit and during installation, the device will not be damaged in any way which will prevent it from functioning as required and intended. It is essential that devices be as trouble free as sound engineering can achieve.

1.2.3 Water Supply Connection

1.2.3.1 Connections to the potable water supply shall not be smaller than 1/4" 0.D. tubing.

1.2.3.2 Tubing connectors shall comply with appropriate standards.

1.2.3.3 Pipe threads, male and female, shall conform to the following standards:
(a) Taper - ANSI B2.1-1968
(b) Dryseal - ANSI B2.2-1968

1.2.4 Storage Tank Vent
The storage tank shall be continuously vented to the atmosphere.

1.2.5 Dispensing Nozzle or Tip
The dispensing nozzle, or tip, must not be threaded or serrated to accept a tube or pipe to convey hot water to any location other than that intended.

1.2.6 Hot Water Nozzle and Control Valve
The hot water outlet nozzle and control valve shall be of construction and dimensions for mounting through a 1-5/8" (41.3mm) diameter hole in the sink or counter top.

1.3 Material - General

1.3.1 All materials of the unit shall be suitable for the environmental conditions to which they will be exposed.

1.3.2 Springs
Springs in contact with water shall be of series 300 stainless steel, or at least equal.

1.4 Instructions

1.4.1 Complete instructions for installing shall accompany each unit and state that the hot water outlet opening, nozzle, shall terminate at least 1" (25.4mm) above the overflow rim of the sink.

1.4.2 Instructions shall state that the dispenser shall be installed in compliance with the appropriate local codes including both plumbing and electrical.

1.5 Marking

1.5.1 Each hot water dispenser shall legibly display the following information;
(a) Manufacturer's name and address
NOTE: Where this is not that of the actual manufacturer's there must be means provided for its identification.
(b) Trade name
(c) Model number
(d) Other markings which are the manufacturer's standard practice.

1.6 Performance and Testing

Dispensers shall comply with all of the requirements of Section II.

1.7 Electrical

1.7.1 Hot water dispensers shall have been tested for electrical compliance under appropriate Underwriter's Laboratories Safety Standards where applicable and for compliance with 1.7.2.

1.7.2 The dispenser shall be so constructed as to prevent the creation of hazardous conditions in the event that the heater is energized when the tank is dry.

1.8 Useful Hot Water

To obtain uniformity of comparative ratings of useful hot water, all dispensers should be rated by the following formula disregarding ambient heat loss:

$$R_h = 0.00368 \times W$$

Where: R_h = Recovery, gallons per hour
W = Watts shown on the name plate, or amps shown on name plate times name plate voltage.

This formula is based on a water temperature rise of 100°F (56°C).

Section II

2.0 Performance and Method of Test

2.1 Number of Dispensers Required for Test

2.1.1 One dispenser of each size and model shall be submitted for test. The dispenser shall be taken from the manufacturer's shelf stock.

2.2 Maximum Allowable Water Temperature

The thermostat shall be set or adjusted to limit the tank water temperature to lower than the atmospheric water boiling point. See also 1.1.1.2

Method of Test
This test is combined with that of 2.3.

2.3 Leakage and Drippage

There shall be no leakage from the unit during a dispensing cycle nor a continuous drippage from the dispensing nozzle following a dispensing cycle or during any standby period. This latter requirement is waived during the heating of the tank from a cold start.

Method of Test
The test unit shall be set up according to the manufacturer's instructions and be connected to an adequate water and electric supply. A thermocouple shall be installed just inside the dispensing nozzle within the water stream. The electric supply must be capable of maintaining the voltage and amperage, or wattage, shown on the name plate. Previous to energizing the heater, open the supply valve and hold the dispensing valve open until water runs freely from the dispensing nozzle. Energize the heater. When the thermostat opens at the tank service water temperature, open the dispensing valve and check the maximum temperature of the discharging water. Allow the water to flow until the thermostat closes and immediately close the dispensing valve. Allow the tank to heat until the thermostat again opens. Observe for any drippage from the nozzle. Repeat the above test. Following this, run 10 dispensing cycles drawing 6 oz. of water for each cycle allowing a period of two minutes between the draws. Observe for any drippage from the nozzle.

2.4 Product Rejection

Failure to comply with any requirement of this standard shall be cause for the rejection of the model of the device tested.