Designation: F2891 – 15

An American National Standard

Standard Specification for Commercial Bulk Milk Dispensers, Mechanically Refrigerated[1]

This standard is issued under the fixed designation F2891; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers commercial bulk milk dispensers which are for dispensing milk in the commercial and institutional food service establishments. These commercial bulk milk dispensers are self-contained, manually-operated, gravity-fed, mechanically refrigerated cabinet(s) with lift-up or push-type valves. These units are intended to dispense refrigerated milk and fluid milk products.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A36/A36M Specification for Carbon Structural Steel

A240/A240M Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

A176 Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip (Withdrawn 2015)[3]

A276 Specification for Stainless Steel Bars and Shapes

A366/A366M Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled (Withdrawn 2000)[3]

D3951 Practice for Commercial Packaging

F760 Specification for Food Service Equipment Manuals

F1166 Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities

2.2 *ANSI Standards:*

ANSI B1.1 Unified Inch Screw Threads (UN and UNR Thread Form)[4]

ANSI Z1.4 Sampling Procedures and Tables for Inspection and Attributes[4]

ANSI/UL 471 Commercial refrigerators and freezers[5]

ANSI/UL 969 Marking and Labeling Systems[5]

NSF/ANSI 20 Commercial bulk milk dispensing equipment[6]

2.3 *Military Standards:*[7]

MIL-STD-167/1 Mechanical Vibrations of Shipboard Equipment, Type I—Environmental and Type II—Internally Excited

MIL-STD-461 Military Standard for Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference

MIL-STD-1399/300 Interface Standards for Shipboard Systems Section 300A, Electric Power, Alternating Current

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.2 *bulk food, n*—food, available to the customer, which is not enclosed in a sealed package, wrapper, or similar container.

3.3 *bulk milk dispenser, n*—equipment that consists of mechanically refrigerated cabinet and a dispensing mechanism that stores and dispenses servings of milk at proper temperatures when operated manually or by machine actuation (other than coin).

[1] This specification is under the jurisdiction of ASTM Committee F26 on Food Service Equipment and is the direct responsibility of Subcommittee F26.03 on Storage and Dispensing Equipment.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

[4] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

[5] Available from UL LLC, 1655 Scott Blvd., Santa Clara, CA 95050; 333 Pfingsten Road, Northbrook, IL 60062; 1285 Walt Whitman Road, Melville, L.I., NY 11746; or 2602 Tampa East Blvd., Tampa, FL 33619.

[6] Available from National Sanitation Foundation, NSF Building, Ann Arbor, MI 48105.

[7] Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, Attn: NPODS OR Acquisition Streamlining and Standardization Information System (ASSIST) which is the official source of all documents listed in the DoD Index of Specifications and Standards. The ASSIST can be located at http://dodssp.daps.dla.mil.

3.4 *dispenser, n*—a unit for storage and proportioned transfer of material such as beverages, condiments, food, soaps, or wares.

4. Classification

4.1 Commercial bulk milk dispensers cover by this specification are classified by type, electrical class and size.

4.1.1 *Type:*

4.1.1.1 *Type 1*—Table top unit.

4.1.1.2 *Type 1A*—Standard mounted with adjustable legs.

4.1.1.3 *Type 2A*—With flange feet to allow the legs to be bolted to counter-top.

4.1.1.4 *Type 3A*—Sealed to counter top.

4.1.1.5 *Type 4A*—Wall mounted.

4.1.2 *Electrical Class:*

4.1.2.1 *Class 1*—120 V, 60 Hz, 1 phase.

4.1.2.2 *Class 2*—230 V, 50 Hz, 1 phase.

4.1.3 *Size (Capacity)*—Number of Bulk Milk containers ranging from 1 to 5 gal that can be dispensed from a single unit.

4.1.3.1 *Size 1*—1 milk container.

4.1.3.2 *Size 2*—2 milk container.

4.1.3.3 *Size 3*—3 milk container.

4.1.4 This standard does not purport to address all of the sizes that may be available but it provides an overview of the most common sizes used in the industry.

5. Ordering Information

5.1 Orders for commercial bulk milk dispensers in accordance with this specification shall include the following instructions:

5.1.1 ASTM specification number and date issued,

5.1.2 Quantity of units to be furnished,

5.1.3 Type,

5.1.4 Class,

5.1.5 Size (Capacity).

5.2 The following options should be reviewed, and if desired they should be also included in the order:

5.2.1 When federal/military procurement(s) is involved, refer to the supplemental pages.

5.2.2 When other than manufacturer's standard, commercial, and domestic packaging is required, specify packaging requirements.

5.2.3 When special or supplemental requirements, or both, such as inspections, options, accessories, modifications, changes for correctional facilities use, additional nameplate data, etc. are required.

5.2.4 When specified, a certification to ensure that samples representing each lot have been either tested or inspected as directed and the requirements have been met. When specified, a copy of the certification or test results, or both, shall be furnished to the purchaser.

5.2.5 When specified, a number of dispensing heads needs to be specified during the ordering of the unit.

5.2.6 When specified, the unit has a means to display or indicate cabinet temperature and able to set temperature.

6. Materials and Manufacture

6.1 *General*—Commercial bulk milk dispensers shall conform to the applicable documents listed in Section 2. Materials used shall be free of defects that would affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. The use of used or rebuilt products is not allowed under this specification unless otherwise specified.

6.2 *Hardware and Fittings*—Unless otherwise specified, all hardware and fittings shall be corrosion-resistant to Specifications A240/A240M or A176 or suitably processed to resist corrosion in accordance with the manufacturer's standard practice.

6.3 *Threaded Parts*—All threaded parts shall conform to ANSI B1.1.

7. Physical Properties

7.1 *Design and Manufacturer*—The commercial bulk milk dispenser shall consist of a refrigerated cabinet, area physically supporting the refrigerated cabinet, area below refrigerated cabinet for dispensing milk into a container, and provision to limit the condensate drippings on the counter top. The commercial bulk milk dispenser may include product monitoring system, product probe, and bulk milk container holders to accommodate various types of containers if specified.

7.1.1 *Cooling System*—The cabinet cooling system should be contained in the unit so no accidental contact can be made with moving parts.

7.1.2 *Controls:*

7.1.2.1 A temperature control must be provided for the cabinet.

7.1.2.2 If specified, control functions such as data/information transfer ports (RS232), product-monitoring capabilities, and water-resistant construction may be provided.

7.1.3 *Accessories*—If specified, accessories such as built-in trim and locks shall be provided.

7.2 *Standards and Compliance*—The commercial bulk milk dispenser shall conform to the requirements of ANSI/UL 471 and NSF/ANSI 20. Acceptable evidence of meeting those requirements shall be current listing mark, label, or symbol of recognized independent testing laboratory and a current listing in the testing laboratory's appropriate publication.

7.2.1 Certification of compliance with the standards cited in this specification shall be provided, if required, in the purchase document.

8. Sampling and Quality Assurance

8.1 When specified in the contact or purchase order, sampling, testing, and quality assurance of finished units shall be performed in accordance with the requirements specified in ANSI/UL 471 and NSF/ANSI 20.

9. Product Marking

9.1 Each commercial bulk milk dispenser shall be provided with an identification plate or plates.

10. Packaging and Package Marking

10.1 Each commercial bulk milk dispenser shall be packaged and packed in accordance with the manufacturer's standard commercial domestic packaging. The package shall be marked showing the name of the product, model number, serial number, and manufacturer's name. When specified, packaging shall be in accordance with the requirements of Practice D3951.

11. Instruction Materials and Manuals

11.1 Each commercial bulk milk dispenser shall be finished with an instruction manual and material, as may be required. Manuals shall comply with Specification F760.

12. Keywords

12.1 bulk milk dispenser; foodservice equipment; milk dispenser

SUPPLEMENTARY REQUIREMENTS

FEDERAL AND MILITARY PROCUREMENT

The supplemental requirements which follow apply to all Federal and Military procurements. Where provisions of this supplement conflict with the main body, this supplement shall prevail.

S1. Manual

S1.1 A manual complying with Specification F760 and Supplement shall be provided.

S2. First Article Inspection

S2.1 When required, the first article inspection shall be performed on one unit. The first article may be either a first production or a standard production item from the supplier's current inventory, provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract.

S3. Label Plates

S3.1 Bulk milk dispensers shall be provided with data-name plates and instruction plates.

S3.1.1 *Data-Name Plates*—In addition to the manufacturer data plate, bulk milk dispensers shall be provided with data-name plates readily visible to the operator during normal operating use and so as to not adversely affect the life and utility of the unit. Plates shall be attached to the front of the unit in such a manner as to meet the applicable National Sanitation Foundation sanitary requirements for this equipment. The plate shall contain the following information, which shall be stamped, engraved or applied by photosensitive means:

S3.1.1.1 National Stock Number

S3.1.1.2 Government Approved Manual Number

S3.1.2 *Instruction Plate*— An instruction plate shall be made of an ANSI/UL accepted label material and shall be attached to the front of the bulk milk dispenser. The instruction plate shall bear instructions for start-up, operation, and shutdown.

S4. Part Identifying Number

S4.1 The following part identifying numbering procedure is for government purposes and does not constitute a requirement for the contractor. These classes are the same as those in Section 4. The Pins' to be used for items acquired to this ASTM document are as follows:

S4.1.1 The above is an example of the PIN for an item in accordance with ASTM Standard F_____, type XX, class XX, and size XX.

S5. Preservation, Packaging and Package Marking

S5.1 When other than normal commercial practice or conformance to Practice D3951 is desired, the preservation, packaging and package marking requirements shall be stated in the purchase order or contract.

S6. Human Factors Criteria

S6.1 Human factors engineering criteria principles and practices, as defined in Practice F1166, shall be used in the design of all bulk milk dispenser.

S7. Manufacturer's Certification

S7.1 If the manufacturer has successfully furnished the same equipment on a previous contact within the past three years, further inspection will not be required. The manufacturer shall certify in writing that the equipment to be furnished is the same as that previously furnished and approved and that no major design changes have been made to the equipment.

S8. Naval Shipboard Requirements

S8.1 *Power Compatibility*—Unless otherwise specified, all types of bulk milk dispensers shall operate on nominal 115 Volt, single phase, 60 Hertz, 3-wire alternating current as specified in MIL-STD-1399/300.

S8.2 *Access*—Bulk milk dispensers for naval surface vessels shall be capable of passing through a 26 in. (660 mm) wide by 66-in. (1676-mm) shipboard hatch without major disassembly. Dispensers for submarines shall pass through a 25-in. (635-mm) diameter circular hatch. Major disassembly of a bulk milk dispenser intended for submarine use is permissible.

S8.2.1 *Service Access*—When establishing accessibility requirements, both physical and visual access must be provided along with access for any tools, test equipment or replacement parts needed. All serviceable components shall be accessible from the front of the unit.

S8.3 *Mounting*—If provided by the manufacturer, bulk milk dispensers shall be equipped with minimum 4 in. (102 mm) high stainless steel legs capable of mounting to a dresser. When legs are not provided as part of the unit, bulk milk dispensers shall be provided with holes for mounting. The frame shall be provided with four symmetrically spaced, drilled or threaded bosses or retaining nuts for this purpose. Mounting bolt size shall be ⅜ in. (9.5 mm) minimum for dresser mounting. Bulk milk dispensers shall be provided with four type 300 series stainless steel round legs, each a minimum 1 in. (25.4 mm) in diameter, 4 in. (102 mm) in length, for securing dispenser to dresser.

S8.4 *Environmental Suitability*—Bulk milk dispensers shall be capable of withstanding ships vibration and motion. Controls, switches, moving parts, and electrical circuits shall operate under shipboard conditions without malfunction, binding, excessive looseness, or damage. (See S8.6.3.)

S8.5 *Inclined Operation*—Bulk milk dispensers shall operate satisfactorily on surface ships when inclined at an angle of 15° each side of the vertical in each of two vertical planes at right angles to each other, with no spillage of fluid or product. For submarines the angle of inclination shall be 30°.

S8.6 *Quality Assurance Provisions:*

S8.6.1 *EMI Control Tests*—When specified, bulk milk dispensers shall be tested by the contractor in accordance with requirements of MIL-STD-461 for surface ships and submarines. The first article or the initial production unit, as applicable, shall be tested. The contractor shall furnish written certification that the equipment meets the requirements of MIL-STD-461. Nonconformance with the requirements specified shall constitute failure of the test.

S8.6.2 *Inclined Operational Test*—The bulk milk dispenser shall be bolted to a test platform similar to shipboard installation and inclined at an angle of 15°, (30° for submarine dispensers). The dispenser shall be filled with product, and then be operated for 60 s each at each side of the vertical in each of two vertical planes at right angles to each other. Any nonconformance with specified requirements of S8.5 shall constitute failure of this test.

S8.6.3 *Shipboard Environmental Test*—When specified, the bulk milk dispenser under normal operating conditions, shall be tested in accordance with MIL-STD-167/1, type I equipment. The dispenser shall be secured to the test machine in the same manner that it will be secured on shipboard. Failure of the machine to perform its function during or after testing, or meeting the requirements of S8.4, shall constitute failure of this test. The government reserves the right to witness all tests of beverage dispensers procured for naval shipboard use, whether performed by the supplier or an independent testing agency.

APPENDIX

(Nonmandatory Information)

X1. ADDED FEATURES

X1.1 Some manufacturers offer additional sizes and features that extend the versatility of the commercial bulk milk dispensers. The variety of sizes and options vary from manufacturer to manufacturer. A good source of general information can be found in the literature available from food service equipment manufacturers and dealers.

X1.2 Typically, these options are added to the basic models at an additional cost. Any additional options that are required can be written into the procurement contract as desired.