Designation: F2645 – 16

An American National Standard

Standard Specification for Bun Slicing Machines[1]

This standard is issued under the fixed designation F2645; 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, electrically operated, bun slicing machines.

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]

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

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:*[3]

Z1.4 Sampling Procedures and Tables for Inspection by Attributes

2.3 *BISSC Standards:*[4]

ANSI/BISSC/Z50.2-2003 Sanitation Standard for the Design of Bakery Equipment

2.4 *NEMA Standards:*[5]

MG 1 Motors and Generators

2.5 *NSF/ANSI Standards:*[6]

NSF/ANSI No. 8 Commercial Powered Food Preparation Equipment

2.6 *ANSI/UL Standards:*[7]

ANSI/UL 763 Motor-Operated Commercial Food Preparing Machines

ANSI/UL 969 Marking and Labeling Systems

2.7 *Federal and Military Documents:*[8]

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

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

MIL-STD-461 Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment

3. Terminology

3.1 *Definitions:*

3.1.1 *bun slicing machine, n*—machine with a motor-driven knife for slicing buns and having a chute to position and feed the whole bun by gravity for slicing; it may have a discharge table for holding the buns awaiting manual removal from the machine.

3.1.2 *recovered materials, n*—materials that have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials.

4. Classification

4.1 *General*—Bun slicing machines covered by this specification are classified by type, class, size and style.

4.2 *Type:*

4.2.1 *Type I*—Bun slicing machine, electrically operated, single knife.

4.2.2 *Type II*—Bun slicing machine, electrically operated, dual knife.

[1] This specification is under the jurisdiction of ASTM Committee F26 on Food Service Equipment and is the direct responsibility of Subcommittee F26.04 on Mechanical Preparation Equipment.

Current edition approved Dec. 1, 2016. Published January 2017. Originally approved in 2007. Last previous edition approved in 2011 as F2645 – 07 (2011). DOI: 10.1520/F2645-16.

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

[4] Available from Baking Industry Sanitation Standards Committee (BISSC), P.O. Box 3999, Manhattan, KS 66505-3999.

[5] National Electrical Manufacturers Association (NEMA), 1300 North 17th St., Suite 1752, Rosslyn, VA 22209.

[6] Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140.

[7] Available from COMM 2000, 1414 Brook Drive, Downers Grove, IL 60515.

[8] Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

4.2.3 *Type III*—Cluster-bun slicing machine, electrically operated, dual knife.

4.3 *Class:*

4.3.1 *Class I*—Fixed chute.

4.3.2 *Class II*—Adjustable chute.

4.3.3 *Class III*—Automatic/conveyor feed.

4.4 *Size:*

4.4.1 *Size 1*—Small; bun size up to 3-in. (76-mm) high by 4-in. (102-mm) wide.

4.4.2 *Size II*—Medium; bun size up to 3-in. (76-mm) high by 6-in. (152-mm) wide.

4.4.3 *Size III*—Large; bun size up to 3-in. (76-mm) high by 9¾-in. (229-mm) wide.

4.4.4 This specification does not purport to address all of the sizes that may be available, but it does provide an overview of the most common sizes used in the industry today.

4.5 *Style:*

4.5.1 *Style I*—Counter top or bench–mounted.

4.5.2 *Style II*—Floor–mounted.

4.5.3 *Style III*—Portable.

5. Ordering Information

5.1 *Ordering Data*—Purchasers shall select the bun slicing machine and any preferred options and include the following information in the purchasing document:

5.1.1 Title, number, and date of this specification.

5.1.2 Type, class, size and style of machine required.

5.1.3 Quantity to be furnished.

5.1.4 *Electrical Power Supply Characteristics*—Voltage, phase, frequency (see 7.2.1).

5.1.5 Accessory equipment, options, spare parts, and maintenance parts required,

5.1.6 When Federal/Military procurement is required, review and implement the applicable supplementary requirements (see Supplementary Requirements S1–S8).

5.1.7 When specified, the purchaser shall be furnished certification that samples representing each lot have been either tested or inspected as directed in this specification and the requirements have been met. When specified, a copy of the test results shall be furnished.

5.1.8 Level of preservation and packing required if other than as stated in Practice D3951 (see Section 18).

5.1.9 Labeling requirements (if different than Section 16).

5.1.10 Whether the equipment meets the requirements of NSF/ANSI, ANSI/UL, or BISSC standards, or a combination thereof.

6. Material

6.1 *General*—Materials used in the construction of bun slicing machines shall comply with the applicable requirements of NSF/ANSI No. 8 or ANSI/BISSC/Z50.2-2003, Parts 1 and 4.13, or both. Materials used shall be free from 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. None of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this specification unless otherwise specified.

7. Design and Construction

7.1 *General*—Bun slicing machines shall be delivered assembled, ready for mounting, connection to electricity, and use as applicable. The bun slicing machine shall be simple to disassemble and reassemble without special tools or equipment. It shall meet the then current requirements of NSF/ANSI No. 8, ANSI/BISSC/Z50.2-2003, Parts 4.13 and 4.28, or ANSI/UL 763, or a combination thereof.

7.1.1 The bun slicing machine shall consist of a feeding chute tilted at a 20 to 35° vertical angle with the machine base and a circular cutting knife or knives rotated by an electric motor or motors. The feed chute may have adjustments for bun width and height, and thickness and depth of cut. If so, the chute interior width shall be infinitely adjustable from a lower limit of no more than 1¼ in. (31.8 mm) to an upper limit of no less than 4½ in. (114 mm). The cutting knife height shall be infinitely adjustable from a lower limit of no more than ½ in. (12.7 mm) above the base of the chute to an upper limit of no less than 15⁄16 in. (24 mm) above the base of the chute. Class I and III bun slicing machines shall be provided with 4 non-skid feet, and shall have envelope dimensions no greater than 24 in. (610 mm) wide, 34 in. (864 mm) deep, and 31 in. (787 mm) high. No tools or excessive force shall be required to make adjustments on the bun slicing, and during adjustment, there shall be no binding or jamming of moving parts. The bun slicing machine shall be capable of slicing both soft and hard buns and rolls without jamming or stalling, and without tearing or crushing the buns or rolls. When the machine is operating, the cutting knife shall rotate such that, within the chute, the cutting edge travels away from the bun inlet. The cutting teeth or serrations, as applicable, shall have cutting edges facing the same direction as the blade travel.

7.1.2 *Compliance with NSF/ANSI No. 8*—Acceptable evidence of meeting the requirements of NSF/ANSI No. 8 shall be the NSF certification mark on the bun slicing machine and listing in the current edition of the NSF Official Listing of Food Service Equipment, a certified test report from a recognized independent testing laboratory acceptable to the user, or a certificate issued by NSF under its special one time contract evaluation/certification service.

7.1.3 *Compliance with ANSI/BISSC/Z50.2-2003, Parts 4.13 and 4.28*—Acceptable evidence of meeting the requirements of ANSI/BISSC/Z50.2-2003, Parts 4.13 and 4.28 shall be a photocopy of the current BISSC certificate of authorization for the bun slicing machine or a certified test report from a recognized, independent testing laboratory acceptable to the user.

7.1.4 *Compliance with ANSI/UL 763*—Acceptable evidence of meeting the requirements of ANSI/UL 763 shall be a UL Listing mark on the bun slicing machine, or a certified test report from a recognized, independent testing laboratory acceptable to the user.

7.2 *Electrical Requirements:*

7.2.1 *Power Supply*—The bun slicing machine shall be furnished with a 6-ft (1.83-m) minimum length cord and plug with ground or shall be double-insulated. The cord and plug shall be sized for and be the appropriate configuration for the specified electrical characteristics.

7.2.2 *Motor*—Electric motors used on the bun slicing machines be of the continuous duty type and shall conform to NEMA MG 1 and ANSI/BISSC/Z50.2-2003, Part 4.29. The motor shall be of sufficient horsepower and speed to meet the production capacity.

7.3 *Motor Controller*—The motor shall be controlled by an ON-OFF switch accessible to the operator. The switch shall either be provided with a guard or located to help prevent accidental actuation.

7.4 *Cutting Knife*—The cutting knife shall either be hardened, carbon steel or stainless steel. Stainless steel knives shall conform to Specification A240/A240M and heat treated so that the hardness of the cutting blade, measured within ¼ in. (6.4 mm) of the cutting edge, shall be not less than 50 nor more than 60 on the Rockwell C scale.

8. Performance Requirements

8.1 When tested in accordance with Section 11, the bun slicing machine shall operate without failure of the major functional components.

9. Workmanship, Finish, and Appearance

9.1 All components and assemblies of the dough divider and rounder shall be free from dirt and other extraneous materials, burrs, slivers, tool and grind marks, dents, and cracks. Castings, molded parts and stampings shall be free of voids, sand pits, blow holes, and sprues. External surfaces shall be free from kinks, dents, and other deformities. Forming and welding shall not cause damage to the metal and shall be done neatly and accurately.

10. Sampling

10.1 A representative production model shall be selected for performance testing.

10.2 When specified in the contract or purchase order, sampling for inspection shall be performed in accordance with ANSI Z1.4.

11. Test Methods

11.1 *Operational Test*—The bun slicing machine shall be operated, without a load, and meet the following requirements as applicable. Inability of the machine to operate as specified herein shall constitute failure of the test.

11.1.1 Proper operation of motor starting and stopping devices.

11.1.2 Proper operation of adjusting and operating devices within the limits specified in 7.1.1 without binding, excessive friction, or excessive play.

11.1.3 Proper operation of parts.

11.1.4 No overheating of bearings.

11.1.5 Rotation and cutting edge orientation of the slicing knife shall be observed for conformance with 7.1.1.

11.2 *Performance Test*—One dozen soft buns and one dozen hard rolls, each measuring between 1½ in. (38.1 mm) and 4 in. (102 mm) in width, and between 1¾ in. (44.5 mm) and 2¾ in. (70 mm) height shall be required for this test. Noncompliance with the requirements of 7.1 shall constitute failure of this test.

11.2.1 *Hard Rolls*—The bun slicing machine chute shall be adjusted to allow the hard rolls to be sliced completely in half approximately ¾ in. (19 mm) above the bottom of the roll. All adjustments made during this test shall be liberal to adjust for irregular baking uniformity. With the machine switched on, six hard rolls shall be fed in and sliced. The chute shall be adjusted to allow the hard rolls to be sliced approximately half of the way through at a height approximately ⅝ in. (16 mm) above the bottom of the roll, and the remaining six hard rolls shall be fed into the operating bun slicing machine and sliced.

11.2.2 *Soft Rolls*—The chute shall be adjusted to allow the soft buns to be sliced completely in half approximately ¾ in. (19 mm) above the bottom of the bun, and six buns shall be fed into the operating bun slicing machine and sliced. The chute shall then be adjusted to allow the soft buns to be sliced approximately half of the way through at a height approximately ½ in. (12.7 mm) above the bottom of the bun, and the remaining six buns fed into the operating bun slicing machine and sliced.

12. Sampling and Quality

12.1 When specified in the contract or purchase order, sampling for inspection shall be performed in accordance with ANSI Z1.4, which shall supersede implied sampling requirements stated elsewhere in this specification.

13. Inspection

13.1 *End Item Testing*—When specified in the contract or purchase order, one production item, selected at random from each lot, shall be tested by the manufacturer in accordance with the applicable paragraphs of Section 11. Performance results shall be recorded in a permanent file, and the information shall be available to the customer upon demand. Any subsequent change in design that would relate to performance shall require a new test record.

13.2 *Component and Material Inspection*—Incoming components and materials shall be inspected by the manufacturer to the design parameters as specified on drawings or purchase documents, or both.

14. Rejection and Rehearing

14.1 Material that fails to conform to the requirements of this specification may be rejected. Rejection should be reported to the producer or supplier promptly and in writing. In case of dissatisfaction with the results of the test, the producer or supplier may make claim for a rehearing.

15. Certification

15.1 When specified in the purchase order or contract, the purchaser shall be furnished certification that samples representing each lot have been either tested or inspected as directed in this specification and the requirements have been met. When specified in the purchase order or contract, a report of the test results shall be furnished (see 5.1.7).

16. Product Marking

16.1 Each bun slicing machine shall be provided with an identification plate securely affixed to the item. The plate shall

be molded, die-stamped, etched on metal, indelibly stamped on labels secured by pressure-sensitive adhesive, or other means as specified in the purchase document. If pressure-sensitive labels are used, the requirements of ANSI/UL 969 or equivalent shall be met. The marking shall be durable and shall be legible and readily visible after the item is installed in the intended manner. The identification plate shall include the name, brand, or trademark of the manufacturer of such known character to be readily traceable to the manufacturer and shall state the electrical characteristics (voltage, amperage, and frequency) of the equipment. The plate shall also bear a distinctive number, letter or number, and letter code that will identify an individual item or production lot of a limited group of items. In addition, such information required by UL and NSF or BISSC as applicable, shall appear on the identification plate. The plate shall be located on an external surface on a permanent part of the unit.

17. Manuals

17.1 Format and content of applicable manuals shall be as indicated in Specification F760.

18. Packaging and Package Marking

18.1 Unless otherwise specified (see 5.1.8), the complete bun slicing machine shall be packaged and marked in accordance with Practice D3951. In addition, the package shall be marked showing the model number, serial number, and manufacturer's name.

19. Keywords

19.1 appliance; bakery equipment; bun slicer; bun slicing; food service equipment

SUPPLEMENTARY REQUIREMENTS

FOR FEDERAL AND MILITARY PROCUREMENT

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

S1. Manual

S1.1 A manual complying with Specification F760 and its 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 item or a standard production item from the supplier's current inventory, provided the item meets the requirements of the standard 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 Bun slicing machines shall be provided with data-name plates and instruction plates.

S3.2 *Data-Name Plates*—In addition to the manufacturer data plate, machines 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 NSF International or BISSC sanitation requirements for this equipment. The plate shall contain the following information, which shall be stamped, engraved or applied by photosensitive means:

S3.2.1 National Stock Number.

S3.2.2 Government Approved Manual Number.

S3.3 *Instruction Plate*—An instruction plate shall be made of an ANSI/UL 969 recognized label material and shall be attached to the front of the bun slicing machine. The instruction plate shall bear instructions for start-up, operation, and shutdown.

S4 Part Identifying Number

S4.1 The part identifying numbering (PIN) procedure is for government purposes and does not constitute a requirement for the contractor. The PINs to be used for items acquired to this standard are created as follows:

ASTM Number	Type	Grade	Class	Size	Style
ASTM F2645	–XX	–XX	–XX	–XX	–XX

S5. Human Factors Criteria

S5.1 Human factors engineering criteria, principles, and practices, as defined in Practice F1166, shall be used in the design of all bread slicing machines.

S6. Preservation, Packaging and Package Marking

S6.1 When other than 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.

S7. Manufacturer's Certification

S7.1 If the manufacturer has successfully furnished the same equipment on a previous contract 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 The following additional requirements apply when equipment is to be used for shipboard purposes.

S8.2 *Power Compatibility*—Unless otherwise specified (see 5.1), bun slicing machines shall be compatible with 115 Vac, 60 Hz, single phase, alternating current for shipboard as specified in MIL-STD-1399/300.

S8.3 *Access*—Bun slicing machines shall pass through a 26 in. (660 mm) wide by 66 in. (1676 mm) shipboard hatch without major disassembly. Machines for submarines, shall pass through a 25 in. (635 mm) diameter circular hatch, without major disassembly, whenever possible. Access must be provided from the front of unit for replacement of components or parts and to accomplish any maintenance related work.

S8.4 *Mounting*—Bun slicing machines 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.

S8.5 *Inclined Operation*—Bun slicing machines shall operate satisfactorily, with no spillage of product, 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. For submarines the angle of inclination shall be 30°.

S8.6 *Environmental Suitability*—Bun slicing machines 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 S8.7.3).

S8.7 *Quality Assurance Provisions*:

S8.7.1 *EMI Control Tests*—When specified, bun slicing machines shall be tested by the contractor in accordance with test methods 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. Non-conformance with the requirements specified shall constitute failure of the test.

S8.7.2 *Inclined Operational Test*—The bun slicing machine shall be bolted to a test platform similar to shipboard installation and inclined at an angle of 150 (300 for submarines). The machine shall be operated with bun product for 60 s at each side of the vertical, in each of two vertical planes at right angles to each other. Any non-conformance with specified requirements of S8.5 shall constitute failure of this test.

S8.7.3 *Shipboard Environmental Test*—When specified, the bun slicing machine under normal operating conditions, shall be tested in accordance with MIL-STD-167/1, Type I equipment. The machine 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 to meet the requirements of S8.6, shall constitute failure of this test.

S8.8 The government reserves the right to witness all tests performed by the supplier or an independent testing agency on equipment procured for Naval shipboard use.