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An American National Standard

Standard Specification for Food Cutters (Electric)[1]

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1. Scope

1.1 This specification covers commercial electric food cutters with a rotating shallow bowl to carry food products through a set of rotating vertical knives that are on an axis perpendicular to the radii of the bowl. The food cutter can be for counter or table mounting, furnished with or without a table.

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 The following precautionary caveat pertains only to the test method portion, Section 10, of this specification: *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]

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 *NSF Standards:* [3]

NSF/ANSI 8 Commercial Powered Food Preparation Equipment

NSF/ANSI 2 Food Equipment

2.3 *Underwriters Laboratories Standards:* [4]

ANSI/UL 763 Motor-Operated Commercial Food Preparing Machines

ANSI/UL 969 Marking and Labeling Systems

2.4 *ANSI Standard:* [5]

ANSI Z1.4 Sampling Procedures and Tables for Inspection by Attributes

2.5 *Military Standards:* [6]

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

MIL-STD-167/1 Mechanical Vibration 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 *electric food cutter, n*—machine that uniformly reduces food products to a small particle size for salads, spreads, bread crumbs, and other food service recipes.

3.1.1.1 *Discussion*—Reduction of food product is accomplished by combining the rotation of the product bowl with the perpendicular high-speed rotation of a set of stainless steel cutlery knives. The food cutter shall consist of the following principal parts: base, legs (optional), product bowl, knives, bowl cover with interlock, motor, controls, and attachment power take-off hub (optional) for attachments listed in 6.5.1.

4. Classification

4.1 *General*—Food cutters shall be of the following types, sizes, and classes:

4.1.1 *Types:*

4.1.1.1 *Type I*—This machine shall have a rotating product bowl with rotating knives and power take-off hub to drive attachments.

4.1.1.2 *Type II*—This machine shall have a rotating product bowl with rotating knives without a power take-off hub.

4.1.2 *Sizes:*

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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] Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140, http://www.nsf.org.

[4] Available from comm2000, 1414 Brook Dr., Downers Grove, IL 60515.

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

[6] Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, http://www.dodssp.daps.mil.

4.1.2.1 *Size 1*—14-in. (355.6-mm) inside diameter, 2¾-in. (70-mm) deep bowl with a minimum capacity equal to 5 lb (2.27 kg) of fresh meat.

4.1.2.2 *Size 2*—18-in. (457.2-mm) inside diameter, 3⅝-in. (92.1-mm) deep bowl with a minimum capacity equal to 14 lb (6.36 kg) of fresh meat.

4.1.3 *Classes:*

4.1.3.1 *Class A*—Mounted on legs.

4.1.3.2 *Class B*—Without legs.

5. Ordering Information

5.1 Purchasers should select the desired options permitted in this specification and include the following information in the purchasing document:

5.1.1 Title, number, and date of this specification,

5.1.2 Type, size, and class of machine required (see 4.1),

5.1.3 Electrical power supply characteristics (current, voltage, phase, frequency) (see 6.9.4),

5.1.4 Quantity of food cutters to be furnished,

5.1.5 Stand (with or without casters), if required (see section 6.8),

5.1.6 Attachments required (see 6.5.1),

5.1.7 Labeling requirements (if different from 6.1.1, 6.1.2, and 13.1),

5.1.8 Accessory equipment, spare, and maintenance parts required.

5.1.9 When Federal/Military procurement is required, review and implement the applicable supplementary requirements (see S1 through S9).

5.1.10 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.

6. Physical Requirements

6.1 *Design and Manufacture*—The food cutter shall be complete so that when connected to the specified source of power the unit can be used for its intended function. Food cutters shall be rigid, and parts subject to wear shall be accessible for adjustment and replacement. The food cutter shall meet the then current applicable requirements of NSF/ANSI 8 and ANSI/UL 763.

6.1.1 *Compliance with NSF/ANSI 8*—Acceptable evidence of meeting the requirements of NSF/ANSI 8 shall be the NSF certification mark on the food cutter and listing in the manufacturer's product listings on the NSF website, nsf.org, 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.

6.1.2 *Compliance with ANSI/UL 763*—Acceptable evidence of meeting the requirements of ANSI/UL 763 shall be a UL Listing Mark on the food cutter, or a certified test report from a recognized independent testing laboratory acceptable to the user.

6.1.3 *Materials*—Materials used in the construction of food cutters shall comply with the applicable requirements of NSF/ANSI 8. Materials used shall be free from defects that would adversely affect the performance or maintainability of individual components of the overall assembly.

6.1.3.1 *Corrosion-Resistant Steel*—Corrosion-resistant steel shall conform to the requirements of any 300 series stainless steel having a minimum chromium content of 16 %, in accordance with NSF requirements, except knives, which shall conform to 6.3.

6.1.3.2 *Corrosion-Resisting Material*—Corrosion-resisting material is material other than corrosion-resistant steel that is equivalent in the food cutter application.

6.1.4 *Human Factors Criteria*—Human factors engineering criteria, principles and practices, as defined in Practice F1166, shall be used in the design of all food cutters.

6.2 *Bowl*—The bowl shall be made of a single piece of corrosion-resistant steel and be readily removable for easy cleaning.

6.3 *Knives*—The knives shall be cutlery grade stainless steel with a hardness between 50 and 56 on the Rockwell C scale. Each food cutter shall have a minimum of two cutting knives and have a knife speed of 1725 ± 100 rpm.

6.4 *Bowl Cover*—The bowl cover shall be made of a corrosion-resisting material and be of one-piece construction.

6.5 *Attachment Hub*—The powered attachment hub provided on the Type I food cutter shall be of corrosion-resisting material and shall be permanently lubricated. The power hub drive unit shall have a speed of 209 ± 25 rpm for Size 1 and 256 ± 25 rpm for Size 2.

6.5.1 *Attachments*—Type I food cutters shall be provided, when ordered, with any of the following attachments as specified (see 5.1.6):

6.5.1.1 Nine-inch vegetable slicer,

6.5.1.2 Meat chopper,

6.5.1.3 Dicer,

6.5.1.4 French-fry attachment, or

6.5.1.5 Speed drive attachment, or combination thereof.

6.6 *Base*—The supporting base for both Class A and Class B food cutters shall be of one-piece construction and of a corrosion-resisting material. The base shall be of rigid and sturdy design and the entire bottom shall be enclosed completely with a one-piece, corrosion-resisting material.

6.7 *Legs*—Class A food cutters shall be provided with four legs made of corrosion-resisting material. The legs shall each have a rubber foot to ensure stability and shall be of a height to meet NSF/ANSI 8 requirements.

6.8 *Accessory Stand*—When specified (see 5.1.5), a stand of rigid and stable design shall be provided. The stand shall be constructed of corrosion-resistant steel and the top shall be adjustable to a nominal 38 in. (965.2 mm) from the floor. The stand shall meet the requirements of NSF/ANSI 2 and, when specified, casters shall be equipped with brakes.

6.9 *Electrical Devices:*

6.9.1 *Power Supply*—The food cutter shall be furnished with a 5-ft (1.52-m) minimum length cord and plug with ground or be double-insulated. The cord and plug shall be sized and shall be the appropriate configuration for the specified electrical characteristics.

6.9.2 *Motor(s)*—Motor shall meet the requirements of ANSI/UL 763. The horsepower rating of the Size 1 food cutter shall be a minimum of ½ hp and for a Size 2, a minimum of 1 hp. The food cutter motor(s) shall be of the continuous duty type.

6.9.3 *Power Switch*—The food cutter shall be furnished with a switch, which shall open all motor leads (see 7.3).

6.9.4 *Electrical Specifications*—Nominal electrical specifications are: 120/60/1, 208/60/1, 240/60/1, 208/60/3, 240/60/3, 480/60/3.

7. Hazard Protection

7.1 The food cutter shall meet the requirements of ANSI/UL 763.

7.2 *Switch Guard*—The ON/OFF switch shall be guarded, or the operator shall be designed in such a manner to prevent unplanned activation.

7.3 *Bowl Cover Interlock*—The cover shall be designed to interlock, either with the switch that starts the machine so that the bowl cover cannot be raised with the switch in the ON position or with a switch that disconnects power to the knife motor when the bowl cover is raised.

8. Performance Requirements

8.1 *Significance*—The purpose of the test is to demonstrate the productivity of the food cutter and the chopper attachment.

8.1.1 *Food Cutter and Knife*—The processing of the meat as described in 9.2 shall be comparable to hamburger that has been run through a standard grinding plate with 3⁄16-in. (4.75-mm) diameter holes and shall not exceed 2-min processing time.

8.1.2 *Chopper Attachment with 1⁄8-in. (3.2-mm) Plate and Knife*—The grinding of the meat as described in 9.3 shall yield an average grind rate of 7 lb/min (3.2 kg/min) for a Size 1 food cutter and 8 lb/min (3.67 kg/min) for a Size 2 food cutter.

9. Test Methods

9.1 *Operation*—The food cutter shall function properly when operated in accordance with the manufacturer's instructions and shall be operated in accordance with these instructions to determine compliance with 8.1.

9.2 *Food Cutter Bowl and Knife*—Fresh, raw, fat-trimmed, boneless chuck at a temperature of 40 ± 5°F (4.4± 2.8°C), cut into 2-in. (50.8-mm) cubes for the Size 1 food cutter and 3-in. (76.2-mm) cubes for the Size 2 food cutter. The machine shall be started, and a quantity of meat equivalent to the minimum bowl capacity of the food cutter, shall be fed into the bowl (see 4.1.2). The time necessary for processing shall be checked for conformance to 8.1.1.

9.3 *Chopper Attachment with 1⁄8-in. (3.2-mm) Plate and Knife*—Fresh, raw, boneless chuck in 1-in. (25.4-mm) × 1-in. (25.4-mm) × 7-in. (178-mm) strips at a temperature of 40 ± 5°F (4.4 ± 2.8°C) shall be fed into the chopper as fast as the feed screw is able to convey the product. The time necessary for processing shall be checked for conformance to 8.1.2.

10. Sampling

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

11. Inspection

11.1 *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 9. 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.

11.2 *Quality Conformance Inspection*—The manufacturer shall have an effective quality audit inspection.

11.3 *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.

12. Rejection and Rehearing

12.1 *Rejection*—During inspection, any failure to perform in accordance with the requirements of this specification are cause for rejection of the lot.

12.2 *Rehearing*—The supplier will be given a rehearing on the remainder of the lot by inspection of additional food cutter(s). Acceptance of the food cutter that failed inspection is at the discretion of the purchaser.

13. Product Marking

13.1 *Identification*—Each food cutter shall be provided with an identification plate or adjacent plates securely affixed to the item. The plate(s) shall be molded, die-stamped, etched on metal, or an ANSI/UL 969 Recognized label material. The marking(s) shall be durable and shall be legible and readily visible after the item is installed in the intended manner. The identification plate(s) shall include the name, brand, or trademark of the manufacturer of such known character as to be readily traceable to the manufacturer and shall state the electrical characteristics (voltage, amperage, phase, and frequency) of the equipment. The plate(s) also shall 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 as required by UL and NSF as applicable shall appear on the identification plate(s). The plate(s) shall be located on an external surface.

14. Manuals

14.1 Unless otherwise specified, manuals shall be in accordance with Specification F760.

15. Packaging and Packing Material

15.1 Unless otherwise specified, the food cutter shall be packaged individually in accordance with the supplier's standard practice.

15.2 The package shall be prominently marked on at least one side showing the name of the product, model number, serial number, and manufacturer's name.

16. Keywords

16.1 cutter; food chopper; food cutter; food service equipment; grinder

SUPPLEMENTARY REQUIREMENTS

FEDERAL AND MILITARY PROCUREMENT

S1. The supplementary requirements shall apply only to federal and military procurements. Where provisions of this supplement conflict with the main body of this specification, this supplement will prevail.

S2. *Manual*—A manual complying with Specification F760 and its supplement shall be provided.

S3. *First Article Inspection*—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.

S4. *Label Plates*—Food cutters shall be provided with data nameplates, instruction plates, and, when required, high-voltage label.

S4.1 *Data Nameplates*—In addition to the identification plate, as outlined in the body of this specification, food cutters shall be provided with data-nameplates 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 sanitary requirements for this equipment. The plate shall contain the following information, which shall be stamped, engraved, or applied by photosensitive means:

National Stock Number

Government Approved Manual Number

S4.2 *Instruction Plate*—An instruction plate shall be made of corrosion resisting metal or an ANSI/UL 969 Recognized label material and shall be attached to the front of the food cutter. The instruction plate shall bear instructions for start-up, operation, and shutdown.

S4.3 *High-Voltage Labels*—On food cutters rated 440 Vac or higher, a "Danger High Voltage" label shall be affixed to the housing exterior, on or adjacent to each service access cover, and adjacent to one of the fasteners, which secures the cover. A voltage warning label with a permanency conforming to ANSI/UL 969 also shall be placed near the high-voltage components inside the equipment. The label shall include, but is not limited to, the following warnings:

S4.3.1 High voltage.

S4.3.2 Power supply must be disconnected before servicing.

S4.3.3 Access covers must be in place during use.

S4.3.4 Servicing should be done by authorized individuals.

S5. *Part Identifying Number*—The part identifying numbering procedure, as shown in Fig. S1, is for government purposes and does not constitute a requirement for the contractor. The PINs to be used for items acquired in accordance with this document are created as shown in Fig. S1. The following is an example for the PIN for an item in accordance with this specification, Type I, Size 1, Class B.

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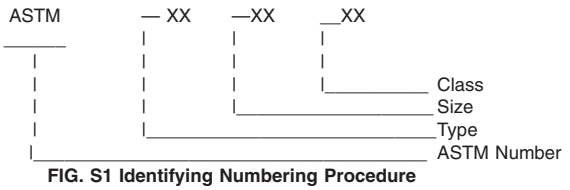

FIG. S1 Identifying Numbering Procedure

S6. *Preservation, Packaging, and Package Marking*—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*—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*—The following additional requirements apply when equipment is to be used for shipboard purposes.

S8.1 *Power Compatibility*—Unless otherwise specified, all types of food cutters shall operate on either nominal 115 Vac, 60 Hz, 1 phase, 3-wire or 440 Vac, 60 Hz, 3 phase, 3-wire, Type I ungrounded system as specified in MIL-STD-1399/300.

S8.2 *Access*—Food cutters for naval surface vessels shall pass through a 26-in. (660-mm) wide by 66-in. (1.67-m) high shipboard hatch without major disassembly. Food cutters for submarines shall pass through a 25-in. (635-mm) diameter circular hatch without major disassembly. When establishing accessibility requirements, both physical and visual access must be provided along with access for any tools, test equipment, or replacement parts needed.

S8.3 *Mounting*—Food cutters 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) min for dresser mounting. Food cutters shall be provided with four Type 300 series stainless steel round legs, each a min of 1 in. (25.4 mm) in diameter and 4 in. (101.6 mm) in length, for securing the food cutter to the dresser.

S8.4 *Environmental Stability*—Food cutters shall be capable of withstanding the ship's 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*—Food cutters 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, food cutters 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. Nonconformance with the requirements specified shall constitute failure of the test.

S8.6.2 *Inclined Operational Test*—The food cutter shall be bolted to a test platform similar to shipboard installation and inclined at an angle of 15° (30° for submarine food cutters). The food cutter shall be filled to 75 % capacity with product, then 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 food cutter under normal operating conditions, shall be tested in accordance with MIL-STD-167/1, Type I equipment. The food cutter 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 food cutters procured for naval shipboard use, whether performed by the supplier or an independent testing agency.