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## Standard Specification for Food Cutters (Electric)<sup>1</sup>

This standard is issued under the fixed designation F 1126; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

### 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 the standard. The values given in parentheses are for information only.~~

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:~~<sup>2</sup>

D 3951 Practice for Commercial Packaging

F 760 Specification for Food Service Equipment Manuals

F 1166 Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities

#### 2.2 ~~NSF Standards:~~ NSF Standards:<sup>3</sup>

NSF/ANSI 8 Commercial Powered Food Preparation Equipment

NSF/ANSI 2 Food Equipment

NSF Food Service Equipment Listing (current year)

#### 2.3 ~~Underwriters Laboratories Standards:~~ Underwriters Laboratories Standards:<sup>4</sup>

ANSI/UL 763 Motor-Operated Commercial Food Preparing Machines

ANSI/UL 969 Marking and Labeling Systems

#### 2.4 ~~ANSI Standard:~~ ANSI Standard:<sup>5</sup>

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

#### 2.5 ~~Military Standards:~~ Military Standards:<sup>6</sup>

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.

<sup>1</sup> 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.

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

<sup>3</sup> Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140, <http://www.nsf.org>.

<sup>4</sup> Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.

<sup>5</sup> Available from comm2000, 1414 Brook Dr., Downers Grove, IL 60515.

<sup>6</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

<sup>6</sup> Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS:19111-5098, <http://www.dodssp.daps.mil>.

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*:

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 Standard 763~~ NSF/ANSI 8 and ~~UL Standard 763~~ ANSI/UL 763.

6.1.1 ~~Compliance with NSF Standard 8~~—~~Acceptable evidence of meeting the requirements of NSF Standard Number 8~~ 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 current edition of the NSF listing book for food equipment and related products, components and materials, 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 Standard 763~~ 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 F 1166, 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  $1725 \pm 100$  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  $209 \pm 25$  rpm for Size 1 and  $256 \pm 25$  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 Standard No.~~ 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 Standard No.~~ 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 6-ft (1.83-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  $\frac{1}{2}$  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 ~~UL Standard 763~~ 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  $\frac{3}{16}$ -in. (4.75-mm) diameter holes and shall not exceed 2-min processing time.

8.1.2 *Chopper Attachment with  $\frac{1}{8}$ -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  $40 \pm 5^\circ\text{F}$  ( $4.4 \pm 2.8^\circ\text{C}$ ), 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  $\frac{1}{8}$ -in. (3.2-mm) Plate and Knife*—Fresh, raw, boneless chuck in 1-in. (25.4-mm)  $\times$  1-in. (25.4-mm)  $\times$  7-in. (178-mm) strips at a temperature of  $40 \pm 5^\circ\text{F}$  ( $4.4 \pm 2.8^\circ\text{C}$ ) 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.