Designation: F1568 – 12

An American National Standard

Standard Specification for Food Processors, Electric[1]

This standard is issued under the fixed designation F1568; 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 food processors intended for bench, table, or floor mounting.

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 safety hazards caveat pertains only to the test methods portion, Section 9, 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 *ANSI Standards:* [3]

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

ANSI S1.13 Methods for Measurement of Sound Pressure Levels

2.3 *NSF International Standard:* [4]

NSF/ANSI 8 Commercial Powered Food Preparation Equipment

2.4 *UL Standards:* [5]

ANSI/UL 763 Motor-Operated Commercial Food Preparing Machines

ANSI/UL 969 Marking and Labeling Systems

2.5 *Military Standards:* [6]

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

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

3. Terminology

3.1 *Definitions:*

3.1.1 *bowl, n*—the container, with interlocked cover, used to hold a fixed quantity of food product.

3.1.2 *discharge chute, n*—the part of the housing, generally located at the front of the unit, that directs the cut product downward for collection into a pan and also helps prevent operator contact with the backside of the slicer or shredder plate.

3.1.3 *feed head, n*—the device for holding food product and directing it into the slicer or shredder plate. The feed head incorporates a food pusher that is interlocked to prevent motor operation whenever the pusher is not in the closed position over the slicer or shredder plate.

3.1.4 *food processor, n*—machine that reduces food product to a small particle size and uniform geometric shape. Reduction of food product is accomplished by the continuous, manual feeding of uncut food product into contact with a rotating plate or slicing/shredding a quantity of food product in a closed bowl. The food processor shall consist of the following principal parts: motor with housing, product hopper or bowl, hopper/bowl cover with interlock, plates and grids, and controls.

[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 Nov. 1, 2012. Published December 2012. Originally approved in 1994. Last previous edition approved in 2008 as F1568 – 08. DOI: 10.1520/F1568-12.

[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.

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

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

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

3.1.5 *food pusher, n*—the hand-operated device used to maintain the uncut food product in contact with the slicer or shredder plate.

3.1.6 *shredder and slicer plates, n*—these devices attach to the food processor drive shaft and convert the rotary motion of the plate into the desired action on the foodstuffs within the feed head.

4. Classification

4.1 Food processors covered in this specification are of the following types, sizes, and classes:

4.2 *Types:*

4.2.1 *Type I*—This machine shall have a hopper of the continuous, manual-feed type.

4.2.1.1 *Size 1*—Slicer/shredder plates less than 8 in. in diameter.

4.2.1.2 *Size 2*—Slicer/shredder plates 8 in. or greater in diameter.

(1) Class 1—Table- or bench-mounted food processor.

(2) Class 2—Floor-mounted food processor.

4.2.2 *Type II*—This machine shall have a closed-bowl type of hopper.

4.2.2.1 *Size 1*—Bowl volume less than 4 qt (3.8 L). The machine shall be table- or bench-mounted.

4.2.2.2 *Size 2*—Bowl volume between 4 and 8 qt (3.8 and 7.6 L). The machine shall be table- or bench-mounted.

4.2.2.3 *Size 3*—Bowl volume shall be 30 qt (28.4 L). The machine shall be floor-mounted.

4.2.2.4 *Size 4*—Bowl volume shall be 45 qt (42.6 L). The machine shall be floor-mounted.

5. Ordering Information

5.1 Purchasers should select the food processor 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, size, and class of the food processor required (see Section 4),

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

5.1.4 Accessory equipment, options (slicer, dicer, grater, julienne, and shredder plates), spare parts, and maintenance parts required,

5.1.5 Labeling requirements (if different from Section 13),

5.1.6 Quantity of food processors to be furnished, and

5.1.7 Any special requirements or deviations from this specification.

5.1.8 When specified, the purchaser shall be furnished certification that samples representing each lot have been 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.

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

6. Physical Requirements

6.1 *Design and Manufacture*—The food processor shall be complete so that when connected to the specified source of power, the unit can be used for its intended function. The food processor shall be simple to disassemble and reassemble without special tools or equipment. The food processor 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 processor 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 processor, 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 processors shall comply with the applicable requirements of NSF/ANSI 8.

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 processors.

6.2 *Electrical Devices:*

6.2.1 *Power Supply*—The food processor shall be furnished with a 5-ft (1.52-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.

6.2.2 *Motor*—The food processor motor shall be of the continuous duty type.

6.3 *Discharge Chute (Type I Machines)*—The discharge chute shall be designed to direct sliced or shredded food product into a tray or pan at the front of the unit. When tested in accordance with Section 9, processed food shall be directed from the discharge chute in a manner to permit collection in a container placed below the chute, and the processed food shall not be expelled out of the area of the pan or tray used for collection of the processed food.

6.4 *Interchangeability of Items*—All food processors of the same model number and bill of material furnished with similar options under a specific purchase order shall be identical to the extent necessary to ensure interchangeability of component parts, assemblies, and spare parts.

6.5 *Plates*—Manual feed food processors meeting the requirements of this specification must be available with a variety of sizes of slicer plates and shredder and grater plates. These plates may be offered as options to the basic food processor and shall be included with the ordering information detailed in 5.1.4.

6.6 *Lubrication*—All wearing parts of the food processor shall be provided with a means for lubrication or be permanently lubricated or sealed. Oil seals shall contain the lubricant.

Lubricants used in the construction of the food processor shall comply with the applicable requirements of NSF/ANSI 8.

7. Hazard Protection

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

7.2 *Switch Guard*—The on/off control shall be guarded or fabricated in such a manner as to prevent unplanned activation.

7.3 *Controls Location*—The controls for the food processor shall be located such that they are visible and easily manipulated by the operator when standing in a comfortable position.

7.4 *Plate Brake*—The food processor shall be provided with a brake or other reliable means to stop the moving parts within 4 s after the unit has been turned off.

8. Performance Requirements

8.1 *Food Processing Quality and Uniformity:*

8.1.1 Type I food processors, with the various plates offered, shall cleanly and uniformly slice, dice, and grate the product without mushing.

8.1.2 Type II food processors shall chop meat, cheese, and vegetables and prepare well-developed bread dough. The Type II food processor shall also prepare meat and vegetable puree to yield a smooth product based upon the length of time the food is processed.

8.2 *Sound Level*—When tested in accordance with Section 9, the food processor, running under load, shall not exceed a sound level of 85 dBA.

9. Test Methods

9.1 *Operational Tests*—Install and electrically connect the food processor in an operating position in accordance with the manufacturer's instructions. After gaining familiarity with the unit, perform the following tests:

9.1.1 *Interlock Integrity*—Without food product in the unit, make attempts to operate the food processor with the pusher plate open or the feed head open, or both, (Type I machines) or bowl cover removed (Type II machines), such that the slicer or shredder plate or S-blade knife is exposed. Under no condition shall the food processor operate with slicer and shredder plates or S-blade knife exposed to the user.

9.1.2 *Plate Stopping Time*—Operate the food processor without food product. Measure the time needed for the slicer or shredder plate or S-blade knife to stop rotating when the unit is turned off. The plate must stop rotating in no more than 4 s following stop switch activation.

9.1.3 *Purpose*—The tests in 9.1.1 and 9.1.2 help ensure safe operation of the food processor.

9.1.4 *Type I Food Processor Operation Tests*—Type I food processors, when operated in accordance with the manufacturer's operating instructions, shall uniformly process the following items:

9.1.4.1 Use representative slicer plates to slice firm and ripe vegetables such as potatoes and cucumbers.

9.1.4.2 Products of moderate resistance such as cheddar cheese.

9.1.4.3 Hard products such as chocolate and Parmesan cheese.

9.1.4.4 Dice potatoes with the dicer plate/plates.

9.1.4.5 Use a representative shredder plate to grate cheddar cheese.

9.1.5 *Type II Food Processor Operation Tests*—Type II food processors, when operated in accordance with the manufacturer's operating instructions, shall uniformly chop or puree, or both, meat, cheese, and vegetables and process ingredients into a well-developed bread dough.

9.1.6 *Purpose*—The tests in 9.1.4 and 9.1.5 determine the ability of the food processor to perform its intended function.

9.1.7 *Motor Performance*—The food processor, when operated in accordance with 9.1.4 and 9.1.5, shall operate without stalling or causing the motor overload protective device to open.

9.1.8 *Power Transmission Test:*

9.1.8.1 *Procedure*—Turn the motor switch to "ON" and observe the unit to ensure that the plate or S-blade knife rotates smoothly and does not contact any part of the food processor housing, feed head, or bowl.

9.1.8.2 *Purpose*—The purpose of this test method is to ensure that power is reliably transmitted from the motor to the plates or S-blade knives.

9.1.9 *Power Consumption*—Measure and record power consumption values taken during tests performed in 9.1.4 and 9.1.5, and, if requested, make this information available to the purchaser.

9.1.10 *Sound Level*—Fit the food processor with a representative slicer plate (Type I machines) or S-blade knife (Type II machines) and run-in without load for a period of 15 min. After the 15-min run-in time period, measure the food processor sound level in accordance with ANSI S1.13. Repeat the test while processing the food products described in 9.1.4 and 9.1.5. A dBA level greater than 85 shall be cause for lot rejection.

9.1.10.1 *Purpose*—This test measures sound level performance under load.

10. Sampling and Quality

10.1 When specified in the contract or purchase order, sampling for inspection shall be performed in accordance with ANSI Z1.4, which will supersede 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 the initial 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 processor(s). Acceptance of the food processor that failed inspection is at the discretion of the purchaser.

13. Product Marking

13.1 *Identification*—Each food processor 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 shall be durable and shall be legible and readily visible after the item is installed in the intended manner. The identification plate(s) should 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(s) shall also bear a distinctive number, letter, or number and letter code that will identify an individual item or production lot to a limited group of items. In addition, such information required by UL and NSF as applicable, shall appear on the identification plate(s). The plate(s) shall be located on an external surface on a permanent part of the unit.

13.2 *Warning Markings*—Each food processor shall prominently display a permanently attached marking that warns the user against rotating knives inside the feed head or bowl.

14. Manuals

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

15. Packaging and Packing Marking

15.1 Unless otherwise specified, food processors shall be packaged and packed individually in accordance with Practice D3951.

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 bowl-type food processor; commercial food processor; continuous feed food processor; food service equipment

SUPPLEMENTARY REQUIREMENTS

FEDERAL AND MILITARY PROCUREMENT

S1. The supplementary requirements which follow apply to all Federal and Military procurements. Where provisions of this supplement conflict with the main body of this standard, this supplement shall 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 this standard and is representative of the design, construction, and manufacturing techniques applicable to the remaining items to be furnished under the contract.

S4. *Label Plates*—Food processors shall be provided with data-name plates and instruction plates.

S4.1 *Data-name Plates*—In addition to the manufacturer's 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 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 and government approved manual number.

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

S4.3 *High-Voltage Labels*—On food processors rated 440 V ac 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 secure 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:

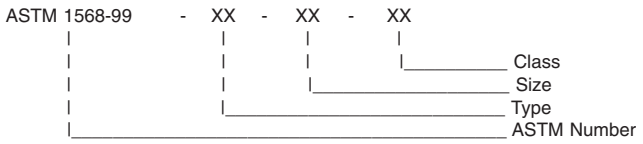
S4.3.1 High voltage.

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 following part identifying numbering procedure is for government purposes and does not constitute a requirement for the contactor. The PINs to be used for items acquired to this specification are created as follows:



The preceding is an example of the PIN for an item in accordance with Specification F1568-03, Type XX, Size XX, Class XX.

S6. *Human Factors Criteria*—Human factors engineering criteria, principles, and practices, as defined in Practice F1166, shall be used in the design of all food processors.

S7. *Preservation, Packaging, and Package Marking*—When other 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.

S8. *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.

S9. *Naval Shipboard Requirements*—The following additional requirements apply when equipment is to be used for shipboard purposes.

S9.1 *Power Compatibility*—Unless otherwise specified (see 5.1), all types of food processors shall be compatible with 440 V, 60 Hz, 3 phase, 3-wire, ungrounded or 115-V, 60-Hz, single phase, power sources for shipboard as specified in MIL-STD-1399/300.

S9.2 *Access*—Food processors for naval surface vessels 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. When establishing accessibility requirements, both physical and visual access must be provided along with access for any tools, test equipment, or replacement parts needed.

S9.3 *Mounting*—Where required, provisions shall be made to mount the food processor on a horizontal surface. The frame shall be provided with four drilled or threaded bosses or retaining nuts for this purpose. Four symmetrically spaced holes shall be provided, each having a ⅜-in. (9.5-mm) minimum bolt mounting size. Counter- or dresser-mounted food processors 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 height, for securing the unit to the dresser.

S9.4 *Environmental Suitability*—Food processors shall be capable of withstanding ship vibration and motion. Controls, switches, moving parts, and electrical circuits shall operate under shipboard conditions without malfunction, binding, excessive looseness, or damage (see S9.6.3).

S9.5 *Inclined Operation*—Food processors 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°.

S9.6 *Quality Assurance Provisions:*

S9.6.1 *EMI Control Tests*—When specified, food processors shall be tested by the contractor for surface ships and submarines. The first article or 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.

S9.6.2 *Inclined Operational Test*—The food processor shall be bolted to a test platform similar to shipboard installation and inclined at an angle of 15° (30° for submarines). The machine 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 S9.5 shall constitute failure of this test.

S9.6.3 *Shipboard Environmental Test*—When specified, the food processor, 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 meeting the requirements of S9.4, shall constitute failure of this test. The Government reserves the right to witness all tests of food processors procured for Naval shipboard use, whether performed by the supplier or by an independent testing agency.