Designation: F1217 – 11

An American National Standard

Standard Specification for Cooker, Steam[1]

This standard is issued under the fixed designation F1217; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers food cookers and food reheaters which use steam as the heat source. These units are also known as steamers, steam ovens, and steam cookers which utilize steam generated by gas, electric heat, or steam coil sources, or a combination thereof, in commercial and institutional food service establishments. This specification can be used for sub-zero-pressure steamers, pressure steamers, combination pressure/pressureless steamers, boilerless steamers, and connectionless steamers, and does not cover steam cooking equipment used by food processors who normally package the food that they cook.

1.2 The values stated in inch-pound units are to be regarded as the standard. The SI values given in parentheses are provided for information only.

1.3 *This standard may involve hazardous materials, operations, and equipment. 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

A167 Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

A176 Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip

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

A268/A268M Specification for Seamless and Welded Ferritic and Martensitic Stainless Steel Tubing for General Service

A269 Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service

A276 Specification for Stainless Steel Bars and Shapes

A478 Specification for Chromium-Nickel Stainless Steel Weaving and Knitting Wire

A568/A568M Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for

A635/A635M Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Alloy, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability, General Requirements for

A1011/A1011M Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength

B108 Specification for Aluminum-Alloy Permanent Mold Castings

B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate

D3951 Practice for Commercial Packaging

F760 Specification for Food Service Equipment Manuals

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

F1484 Test Methods for Performance of Steam Cookers

2.2 *Underwriters Laboratories Standard:*[3]

UL/ANSI 197 Commercial Electric Cooking Appliances

2.3 *ANSI Standards:*[4]

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

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

ANSI Z21.41 Quick-Disconnect Devices for Use With Gas Fuel Appliances

[1] This specification is under the jurisdiction of ASTM Committee F26 on Food Service Equipment and is the direct responsibility of Subcommittee F26.02 on Cooking and Warming Equipment.

Current edition approved July 1, 2011. Published August 2011. Originally approved in 1989. Last previous edition approved in 2010 as F1217 – 10. DOI: 10.1520/F1217-11.

[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 Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.

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

ANSI Z21.69 Connectors for Moveable Gas Appliances
ANSI Z83.11 Gas Food Service Equipment
ANSI/NFPA 54 National Fuel Gas Code
ANSI Z223/NFPA 70 National Electrical Code[5]

2.4 *NSF Standards:*[6]
NSF/ANSI Standard No. 4 Commercial Cooking, Rethermalization, and Powered Hot Food Holding and Transportation Equipment

2.5 *ASME Documents:*[7]
ASME Boiler and Pressure Vessel Code Section IV—Heating Boilers
ASME Boiler and Pressure Vessel Code Section VIII—Division 1

2.6 *Military Standards:*[8]
MIL-STD-167/1 Mechanical Vibration of Shipboard Equipment (Type 1—Environmental and Type 2—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 of Terms Specific to This Standard:*

3.1.1 *boilerless steam cooker—as used in this specification*, is a device with one or more food steaming compartments in which the steam is generated within the food compartment without a separate steam generator.

3.1.2 *capacity*—the capacity of a steam cooker is determined by the number of steam table pans that it is designed to hold during cooking.

3.1.3 *connectionless steam cooker or steamer—as used in this specification*, is a steam cooker without permanent water fill and drain connection and is typically intended for batch cooking. Such a steam cooker may be optionally fitted with a water fill connection or a drain connection, or both.

3.1.4 *pans*—containers used to hold the food product in the steamer cavity. A full size steam table pan is nominally 12¾ by 20¾ by 2½ in. (324 by 527 by 64 mm).

3.1.5 *pressure/pressureless steamer—as used in this specification*, is a device with one or more food steaming compartments in which the energy in steam is transferred to the food by direct contact. The pressure occurring in the food compartment of these steamers during cooking ranges from 0 to 15 psig (0 to 103.42 KPa).

3.1.6 *steam cooker with heating boiler—as used in this specification*, is a separate heating boiler that supplies steam to cooking compartment at a pressure range from 0 to 15 psig (0 to 103.42 KPa) and both the generator and cooking chamber are housed in a single unit.

3.1.7 *steam cooker with steam generator—as used in this specification*, is a separate steam generator that supplies steam to cooking compartment at a pressure of less than 0.5 psig (3.45 KPa) and both the generator and cooking chamber are housed in a single unit.

3.1.8 *sub-zero pressure steamer—as used in this specification*, is a device with one or more food steaming compartments in which the energy in steam is transferred to the food by direct contact. The food compartment of these steamers during cooking is at a vacuum of 1 in. of mercury (minimum) or greater.

4. Classification

4.1 Steam cookers covered by this specification are classified by type (more than one type may be specified for the same equipment), grade, class, size, style, and capacity:

4.2 *Type:*
4.2.1 *Type IA*—Table or countertop units with permanent water inlet and drain connection.
4.2.2 *Type IB*—Table or countertop units without permanent water inlet and drain connection (connectionless steamer).
4.2.3 *Type II*—Floor mounted on an open stand.
4.2.4 *Type III*—Floor mounted on a cabinet base.
4.2.5 *Type IV*—Unit with a pressure or pressure-less separate steam generator.
4.2.6 *Type V*—Unit without a separate steam generator (boilerless steamer).

4.3 *Grade:*
4.3.1 *Grade A*—0 to 2.9 psig (0 to 19.99 KPa) compartment pressure.
4.3.2 *Grade B*—3.0 to 9.9 psig (20 to 68.90 KPa) compartment pressure.
4.3.3 *Grade C*—10.0 to 15 psig (68.95 to 103.42 KPa) compartment pressure.
4.3.4 *Grade D*—Vacuum of 1 to 29.8 in. (25.4 to 755 mm) of mercury.

NOTE 1—These pressure values refer to the continuous pressure or the maximum pressure reached during a cooking cycle.

4.4 *Class:*
4.4.1 *Class 1*—208 V, 60 Hz, 1 phase.
4.4.2 *Class 2*—208 V, 60 Hz, 3 phase.
4.4.3 *Class 3*—240 V, 60 Hz, 1 phase.
4.4.4 *Class 4*—240 V, 60 Hz, 3 phase.
4.4.5 *Class 5*—480 V, 60 Hz, 1 phase.
4.4.6 *Class 6*—480 V, 60 Hz, 3 phase.
4.4.7 *Class 7*—120 V, 60 Hz, 1 phase.
4.4.8 *Class 8*—220 V, 60 Hz, 3 phase.
4.4.9 *Class 9*—230 (±5 %) V, 50 Hz, 1 phase.
4.4.10 *Class 10*—400 (±5 %) V, 50 Hz, 3 phase.
4.4.11 *Class 11*—440 V, 60 Hz, 3 phase (shipboard use).

4.5 *Size:*
4.5.1 *Size a*—One-compartment steamer.
4.5.2 *Size b*—Two-compartment steamer.
4.5.3 *Size c*—Three-compartment steamer.

[5] Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101.
[6] Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140.
[7] Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Three Park Ave., New York, NY 10016-5990.
[8] Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, http://dodssp.daps.dla.mil.

4.6 *Style:*

4.6.1 The steam used in the food compartments must be made from potable water and can be supplied from a self-contained electric, gas-fired, or steam coil steam generator, or from an external potable steam source.

4.6.2 *Style i*—Directly connected to an external steam source.

4.6.3 *Style ii*—Self-contained steam coil steam generator.

4.6.4 *Style iii*—Self-contained gas-fired steam generator.

4.6.5 *Style iv*—Self-contained electric steam generator.

4.7 *Capacity:*

4.7.1 Maximum three full size pans.

4.7.2 Maximum five full size pans.

4.7.3 Maximum six full size pans.

4.7.4 Maximum ten full size pans.

4.7.5 Maximum 12 full size pans

4.7.6 Maximum 16 full size pans.

4.7.7 Maximum 18 full size pans.

4.7.8 Maximum 20 full size pans.

4.7.9 Maximum 24 full size pans.

5. Ordering Information

5.1 An order for a steam cooker under this specification shall include the following information:

5.1.1 ASTM specification number and year of issue,

5.1.2 Quantity to be furnished,

5.1.3 Type (include more than one type as applicable),

5.1.4 Grade,

5.1.5 Class,

5.1.6 Size,

5.1.7 Style, and

5.1.8 Capacity (for capacity 4.7.3 through 4.7.9, specify size a, b, or c).

5.2 The following options should be reviewed and if any are desired they should be included in the order.

5.2.1 When Federal/Military procurement(s) is involved, refer to the supplement pages.

5.2.2 Type of gas, if applicable: natural, propane, other (specify high heating value of gas in Btu per cubic feet, specific gravity, and composition of gas for other gases).

5.2.3 Electrical power supply connection if applicable; power cord with plug or conduit connection and size.

5.2.4 If required, the ability to cook frozen food without thawing it first.

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

5.2.6 Specify special requirements, such as inspections, accessories, additional nameplate data, anchorable feet, stacking of different capacities for size b or size c, etc.

5.2.7 If required, specify an automatic cold water steam condenser on the steam cooker's drain line.

5.2.8 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.

5.2.9 If Type 430 corrosion-resistant steel is not desired in 6.4.

5.2.10 *Type of Controls*—Electro-mechanical, solid state, or programmable/computer controlled.

5.2.11 When specified, a fan and baffle shall be provided in a steam cooking compartment:

5.2.11.1 Fan shall be operated by a single speed or two-speed motor.

5.2.11.2 Air baffle or fan guard may be provided to maintain uniformity of temperature within the cooking cavity.

5.2.11.3 When provided, the baffle or fan guard shall be removable for cleaning of fan or blower.

5.2.12 *Water Resistance:*

5.2.12.1 When specified, control components and electrical wiring shall be resistant to moisture and condensation due to steam from "blow-down" of boiler or accidental leakage.

5.2.12.2 When specified, all control components and exposed electrical wiring shall be resistant to cleaning by a water spray hose connected to domestic city water supply.

5.2.13 When specified, the steam cooker shall be provided with "Hold" or "Cook and Hold" feature.

5.2.14 When specified, a quick-disconnect gas supply, an approved quick disconnect (socket and plug) conforming to ANSI Z21.41, and a flexible metal connector conforming to ANSI Z21.69 shall be provided with the steam cooker.

5.2.15 When specified, additional accessories such as: wire shelves, casters, steamer stand, legs, spray hose assembly, and faucets shall be provided.

6. Materials

6.1 *General:*

6.1.1 Steam cookers shall conform to the documents listed in 2.1 and 2.3.

6.1.2 Materials used shall be free from defects, which would affect the performance or maintainability of individual components, or of the overall assembly.

6.1.3 Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice.

6.1.4 Use of used or rebuilt products is not allowed under this specification.

6.2 *Door*—The door shall be constructed of Types 302 or 304 corrosion-resistant steel conforming to Specifications A167, or A240/A240M. Aluminum alloy Types 356 or 319 conforming to Specification B108 or Type 6061 aluminum alloy conforming to Specification B209 may also be used alone or in combination with the corrosion-resisting steels described.

6.3 *Food Cooking Compartment*—Compartment shall be constructed of Types 302, 304, 304L, 316, or 316L corrosion-resistant steel conforming to Specifications A167 or A240/A240M, or aluminum alloy Type 3003-0 conforming to Specification B209. Pan racks shall be fabricated from Types 302, 304, or 316 corrosion-resistant steel conforming to Specifications A276 or A478.

6.4 *Exterior*—Unless otherwise specified, material shall be Types 201, 302, 304, 304L, 316, 316L, or 430 corrosion-resistant stainless steel conforming to Specification A240/

A240M or to Specifications A167 or A176 as applicable, and thickness shall be 0.030 in. (0.762 mm) or 22 U.S. gauge minimum.

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

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

7. Design and Construction

7.1 *General:*

7.1.1 Steam cookers shall conform to UL/ANSI 197, ANSI Z83.11, NSF/ANSI Standard No. 4, and ANSI Z223/NFPA 70, as applicable.

7.1.2 Steam cooker shall be delivered assembled and ready for connection to steam, water, or gas piping, and electrical supply, as applicable.

7.1.3 Steam cookers are to be equipped with a suitable drain and steam exhaust termination.

7.1.4 All supply and drain connections (when provided) shall be designed so that the steamer may be connected while maintaining a flush rear or side surface.

7.1.5 Cooking shall be accomplished by direct action of steam at the pressure specified under grade designation.

7.1.6 Steamers shall be vented to remove substantially all the air from the steam chamber prior to the cooking process.

7.1.7 *Door*—Steamers with a pressurized cooking compartment shall have the door and the door latch designed to prevent opening until the steam supply is shut off and the remaining pressure in the compartment is released.

7.1.8 *Food Cooking Compartment:*

7.1.8.1 Each compartment shall have removable pan racks for supporting the appropriate number of steam table pans.

7.1.8.2 Pan racks shall be capable of supporting, without permanent deformation, a load of 15 lb/ft^2 (0.718 KPa) in each pan.

7.1.8.3 Pan rack design shall permit easy loading and unloading of the pans (empty or loaded, hot or cold) by sliding (see 8.1).

7.1.8.4 When specified, the pan support racks in the compartment shall be suitable for supporting the maximum number of 1 in. (25.4 mm) or 4 in. (101.6 mm) high 12¾- by 20¾-in. (324- by 527-mm) stainless steel pans.

7.1.8.5 When applicable, the cooking compartment shall be designed, manufactured, inspected, and tested per the ASME Boiler and Pressure Vessel Code, Section VIII—Division 1.

7.1.9 *Controls and Indicators:*

7.1.9.1 Each steamer shall have an indicator which shows that the device is operating or in heating mode.

7.1.9.2 When the cooking compartment pressure is 1 psig or greater, a compartment pressure indicator shall be provided.

7.1.9.3 When the cooking compartment is a vacuum of 1 in. of mercury or less, a compartment vacuum indicator shall be provided.

7.1.9.4 Each cooking compartment shall be provided with a 60-min (minimum) timer which will give an audible signal at the end of a cooking cycle.

7.2 *Design and Construction of the Steam Source:*

7.2.1 *Style i Steam Cooker*—This type of steam cooker is supplied with steam that is used for cooking food in the steam compartment.

7.2.1.1 The incoming steam line shall be equipped with a steam line strainer, a steam pressure-reducing valve, a pressure gage or indicator, and when applicable, an ASME Code stamped pressure relief valve.

7.2.1.2 The pressure-reducing valve shall be of adequate steam flow capacity.

7.2.1.3 The pressure reducing valve shall be factory set to reduce the incoming steam line pressure to the steamer operating pressure.

7.2.1.4 The pressure indicator and safety relief valve shall be downstream of the pressure-reducing valve.

7.2.1.5 Steam pressure to the inlet of the pressure-reducing valve shall not exceed 50 psig (344.7 KPa) operating pressure.

7.2.2 *Style ii Steam Cooker:*

7.2.2.1 The unit shall be equipped with a steam-to-water heat exchanger called a steam-coil steam generator which uses steam to produce clean, nontoxic steam at the pressure and flow rate required by the steam cooking compartment.

7.2.2.2 The steam generator shall be designed, manufactured, inspected, and inlet pressure limited per the applicable ASME Code, if required or if specified.

7.2.2.3 The entire assembly (steam cooker with the steam coil steam generator) shall comply with UL/ANSI 197.

7.2.3 *Style iii Steam Cooker:*

7.2.3.1 Each unit shall be equipped with a gas-fired steam generator.

7.2.3.2 The steam generator shall be designed, manufactured, inspected and tested per the applicable ASME Code, if required or if specified.

7.2.3.3 The entire assembly (steam cooker with the gas-fired steam generator) shall comply with ANSI Z83.11.

7.2.3.4 The steam output of the steam generator shall be at the pressure and flow rate required by the steam cooking compartment.

7.2.4 *Style iv Steam Cooker:*

7.2.4.1 Each unit shall be equipped with an electrically fired steam generator.

7.2.4.2 The steam generator shall be designed, manufactured, inspected and tested per the applicable ASME Code, if required or if specified.

7.2.4.3 The entire assembly (steam cooker with the electric fired steam generator) shall comply with UL/ANSI 197.

7.2.4.4 The steam output of the steam generator shall be at the pressure and flow rate required by the steam cooking compartment.

7.3 Acceptable evidence of meeting the requirements of NSF/ANSI Standard No. 4, UL/ANSI 197, or ANSI Z83.11 shall be one of the following:

7.3.1 Display of the NSF listing mark and UL or CSA listing mark adjacent to the ANSI standard to which the product has been certified, on the steam cooker.

7.3.2 A certified test report from an ANSI-certified testing laboratory that the product has been tested and conforms to the appropriate ANSI Standard.

8. Performance Requirements

8.1 *Pull-out Shelf*—When provided, pull-out shelf shall not become dislodged and shall lie flat without binding against its supports, either before or after heating. When withdrawn 50 % of its length (and loaded per 7.1.8.2), the rack will not deflect more than 0.5 in. (12.7 mm).

8.2 When specified in the contract or purchase order, performance testing shall be performed and reported in accordance with Test Method F1484.

9. Sampling and Quality Assurance

9.1 *Sampling*—When specified in the contract or purchase order, sampling for inspection should be performed in accordance with ANSI Z1.4.

9.2 The steam cookers prepared for shipment shall be measured and inspected by the manufacturer for compliance with this specification.

10. Product Marking

10.1 Each steam cooker shall be provided with an identification plate in compliance with ANSI Z83.11 or UL/ANSI 197, and NSF/ANSI Standard No. 4.

11. Manuals

11.1 Each steam cooker shall be furnished with an installation and operating instructions manual. Manual shall comply with Specification F760.

12. Packaging and Package Marking

12.1 The steam cooker 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 Specification D3951.

13. Added Features

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

14. Keywords

14.1 boilerless steamer; connectionless steamer; food service equipment; heating boiler; pressure cooker; pressureless steamer; steam cooker; steam cooking chamber; steam cooking device; steam generator; steamer; steaming pans

SUPPLEMENTARY REQUIREMENTS

FOR FEDERAL/MILITARY PROCUREMENT

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 item 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. Data Nameplate

S3.1 A nameplate shall contain the following:
S3.1.1 A. National Stock Number (NSN), and
S3.1.2 Government approved manual number.

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:

ASTM FXXXX	_____	I	A	2	a	i	4
	Type	__I					
	Grade		__I				
	Class			__I			
	Size				__I		
	Style					__I	
	Capacity						__I

S5. Preservation, Packaging and Package Marking

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

S6. Mounting

S6.1 Steamers shall be provided with four (4) removable legs suitable for bolting to the dresser, countertop, or stands mounted to the ship deck.

S6.2 Legs of the stands shall be fabricated from 300 series stainless steel tubing.

S6.3 *Minimum Leg/Stands Lengths:*

S6.3.1 Legs for Type I Steamers shall be 6 in. (152 mm) long, stainless steel solid round stock having a minimum diameter of 1 in. (25 mm) and shall have tapped holes or integral studs for mounting to the steamer and to the stainless steel counter or dresser top.

S6.3.2 Stand for Type II and III Steamers shall be fabricated tubing with a minimum thickness of 0.071 in. (1.80 mm) and not less than 27 in. (686 mm) and not more than 39 in. (991 mm) high.

S6.3.3 Other leg lengths may be specified when ordering.

S7. Interior Finish

S7.1 The interior finish of the steamer shall be stainless steel or removable liners fabricated from stainless steel.

S8. Naval Shipboard Requirements

S8.1 *Electromagnetic Compatibility*—When specified, steam cookers shall be designed and equipped for electromagnetic compatibility in accordance with MIL-STD-461 for surface ship and submarines. The contractor shall furnish written certification that the equipment meets the emission and susceptibility requirements when tested in accordance with test methods of MIL-STD-461.

S8.2 *Inclined Operation*— When specified, the units shall operate satisfactorily, along with no spillage of product, when the steam cooker is inclined for 30 seconds at an angle of 15° (30° for submarines) on each side of the vertical in each of two vertical planes at right angles to each other. This test shall be run for 30 complete cycles in each of the two vertical planes.

S8.3 *Environmental Suitability*—Steam cookers shall be capable of withstanding ship's vibration and motion. When specified, the unit, under normal operating conditions, shall be tested in accordance with MIL-STD-167/1, Type I equipment. The unit shall be secured to the test machine in the same manner that it will be secured on board ship. The unit shall operate without malfunction.

S8.4 *Access*—Unless otherwise specified, units for naval surface vessels shall pass through a 26 in. (66 cm) wide and 66 in. (168 cm) high shipboard hatch without major disassembly. Equipment for submarines shall pass through a 25 in. (64 cm) diameter circular hatch. Major disassembly of a steam cooker intended for submarine installation is permissible.

S8.5 *Service Access*—This unit shall be designed for access of all utility connections and major serviceable components from the front of the unit.

S8.6 *Power*—Unless otherwise specified, equipment shall be supplied in 440 volts, 60 hertz, 3 phase, 3 wire ungrounded system in accordance with MIL-STD-1399/300.

S8.7 *High Voltage Label*—On equipment rated 440 VAC or higher, a "Danger High Voltage" label shall be affixed to the equipment outer case assembly, on or adjacent to each service access cover adjacent to one of the fasteners which secure the cover. The warning label shall also be placed near the high voltage components inside the equipment. The label shall include, but is not limited to:

S8.7.1 A warning of high voltage.

S8.7.2 The power supply must be disconnected before servicing.

S8.7.3 Access covers must be in place during use.

S8.7.4 Service should be done by authorized personnel.

S8.8 *Human Factors Criteria*—Human factors engineering criteria principles, and practices, as defined in Specification F1166, shall be used in the design.

S8.9 *Instruction Plate:*

S8.9.1 An instruction plate shall include instruction for startup, operation and shutdown.

S8.9.2 The instruction plate shall be located at a clearly visible location in front of the steam cooker.

S8.9.3 The instruction plate material shall comply with the same requirements as nameplate material per UL/ANSI 197.

S8.10 *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.