



Standard Specification for Cooker, Steam¹

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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 and are for use in commercial and institutional food service establishments. This specification can be used for zero-pressure steam cookers, pressure steamers, and combination pressure/pressureless 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.

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:

- A 36/A 36M Specification for Carbon Structural Steel²
- A 167 Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip³
- A 176 Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip³
- A 240 Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels³
- A 268/A 268M Specification for Seamless and Welded Ferritic and Martensitic Stainless Steel Tubing for General Service⁴
- A 269 Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service⁴
- A 276 Specification for Stainless Steel Bars and Shapes³
- A 366 Specification for Steel, Sheet, Carbon, Cold-Rolled,

Commercial Quality³

- A 478 Specification for Chromium-Nickel Stainless and Heat-Resisting Steel Weaving and Knitting Wire³
- A 569/A 569M Specification for Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Commercial Quality Sheet and Strip³
- B 108 Specification for Aluminum-Alloy Permanent Mold Castings⁵
- B 209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate⁵
- D 3951 Practice for Commercial Packaging⁶
- F 760 Specification for Food Service Equipment Manuals⁷

2.2 Other Publications:

- ANSI/UL Standard No. 197 Commercial Electric Cooking Appliances⁸
- ANSI Z1.4 Sampling Procedures and Tables for Inspection by Attributes
- ANSI Z83.15 Gas Food Service Equipment—Kettles, Steam Cookers and Steam Generators⁹
- ANSI Z223.1 National Fuel Gas Code⁹
- ANSI/NFPA 70 National Electrical Code¹⁰
- NSF Standard No. 4 Commercial Cooking and Hot Food Storage Equipment¹¹
- ASME Boiler and Pressure Vessel Code, Section IV—Heating Boilers¹²
- ASME Boiler and Pressure Vessel Code, Section VIII—Division 1 Pressure Vessels¹²

3. Terminology

3.1 Definitions:

3.1.1 *steam cooker*—as used in this specification, is a device with one or more food steaming compartments in which

⁵ Annual Book of ASTM Standards, Vol 02.02.

⁶ Annual Book of ASTM Standards, Vol 15.09.

⁷ Annual Book of ASTM Standards, Vol 15.07.

⁸ Available from Underwriters Laboratories, Inc., 333 Pfingsten Rd., Northbrook, IL 60062.

⁹ Available from American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.

¹⁰ Available from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

¹¹ Available from National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48106.

¹² Available from American Society of Mechanical Engineers, 345 East 47th St., New York, NY 10017.

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² Annual Book of ASTM Standards, Vol 01.04.

³ Annual Book of ASTM Standards, Vol 01.03.

⁴ Annual Book of ASTM Standards, Vol 01.01.



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 zero gage psi pressure to 15 psig.

4. Classification

4.1 Steam cookers covered by this specification are classified by food compartment pressure (type) capacity, style, and steam source as follows:

4.1.1 Type:

4.1.1.1 *Type I*—Zero to 2.9 psig compartment pressure.

4.1.1.2 *Type II*—Three to 9.9 psig compartment pressure.

4.1.1.3 *Type III*—Ten to 15 psig compartment pressure.

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

4.1.2 Size and Capacity:

4.1.2.1 *Size 1-3*—One compartment, three full size pans, maximum.

4.1.2.2 *Size 1-6*—One compartment, six full size pans, maximum.

4.1.2.3 *Size 2-6*—Two compartment, six full size pans, maximum.

4.1.2.4 *Size 2-12*—Two compartment, 12 full size pans, maximum.

4.1.2.5 *Size 2-16*—Two compartment, 16 full size pans, maximum.

4.1.2.6 *Size 3-18*—Three compartment, 18 full size pans, maximum.

4.1.2.7 *Size 3-24*—Three compartment, 24 full size pans, maximum.

NOTE 2—A full size pan is a 12³/₄ by 20³/₄ by 2¹/₂ in. high stainless steel steam table pan.

4.1.3 Style:

4.1.3.1 *Style A*—Counter mounted.

4.1.3.2 *Style B*—Floor mounted on an open stand.

4.1.3.3 *Style C*—Floor mounted on a cabinet base.

4.1.3.4 *Style D*—Wall mounted.

4.1.4 Class:

4.1.4.1 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.

4.1.4.2 *Class A*—Directly connected to an external steam source.

4.1.4.3 *Class B*—Self-contained steam coil steam generator.

4.1.4.4 *Class C*—Self-contained gas-fired steam generator.

4.1.4.5 *Class D*—Self-contained electric steam generator.

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 of steam cookers to be furnished.

5.1.3 Steam cooker type.

5.1.4 Steam cooker size and capacity.

5.1.5 Steam cooker style and maximum allowable width, if applicable.

5.1.6 Steam cooker class.

5.1.7 Type of gas, if applicable: natural, propane, other (specify Btu per cubic feet).

5.1.8 Electrical power supply characteristics such as voltage, frequency, single or three-phase, kilowatt input, or amp load, if applicable.

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

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

5.1.11 Specify special requirements, such as inspections, accessories, additional nameplate data, anchorable feet, etc.

5.1.12 Specify when an in-wall carrier and floor support is required for Style D mounted cookers.

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

5.1.14 If required, specify timer operated steam supply.

5.1.15 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.

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

6. Materials and Manufacture

6.1 *General*—Steam cookers shall conform to Specifications A 36/A 36M, A 176, A 268/A 268M, A 269, A 366, and A 569, as applicable.

6.2 *Door*—The door shall be constructed of Types 302 or 304 corrosion-resistant steel conforming to Specifications A 167, or A 240. Aluminum alloy Types 356 or 319 conforming to Specification B 108 or Type 6061 aluminum alloy conforming to Specification B 209 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, or 316 corrosion-resistant steel conforming to Specifications A 167 or A 240, or aluminum alloy Type 3003-0 conforming to Specification B 209. Pan racks shall be fabricated from Types 302, 304, or 316 corrosion-resistant steel conforming to Specifications A 276 or A 478.

6.4 *Exterior*—Unless otherwise specified, material shall be Types 302, 304, 316, or 430 corrosion-resistant steel conforming to Specification A 240 or to Specifications A 167 or A 176 as applicable, and thickness shall be 20 gage min. (0.0375 in. U.S. revised standard gage).

7. Design and Construction

7.1 *General*—Steam cookers shall conform to ANSI/UL No. 197, ANSI Z83.15, NSF No. 4, ANSI Z223.1, ANSI/NFPA70, as applicable. The steam cooker shall be delivered assembled ready for connection to steam, water, or gas piping, and electrical supply, as applicable. The cookers are to be equipped with a suitable drain and steam exhaust termination. All supply and drain connections shall be designed so that the appliance may be connected while maintaining a flush rear or side surface. Cooking shall be accomplished by direct action of