



Standard Specification for Hot Food Holding Tables¹

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1. Scope

1.1 This specification covers commercial hot food holding tables which utilize gas or electrical fuel sources, or both, for holding food in the commercial and institutional food service establishments.

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 *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- A167 Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip (Withdrawn 2014)³
- A176 Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip
- A276 Specification for Stainless Steel Bars and Shapes
- A366/A366M Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled (Withdrawn 2000)³
- D3951 Practice for Commercial Packaging
- F760 Specification for Food Service Equipment Manuals
- F1166 Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities

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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 The last approved version of this historical standard is referenced on www.astm.org.

2.2 ANSI Standards:

- ANSI B1.1 Unified Inch Screw Threads (UN and UNR Thread Form)⁴
- ANSI Z1.4 Sampling Procedures and Tables for Inspection and Attributes⁴
- ANSI Z83.11 Gas Food Service Equipment⁴
- ANSI/NFPA 54 National Fuel Gas Code⁴
- ANSI/NFPA 70 National Electric Code⁵
- ANSI/UL 197 Standard for Commercial Electric Cooking Appliances⁶
- NSF/ANSI 4 Commercial Cooking, Rethermalization, and Powered Hot Food Holding and Transport Equipment⁷

2.3 Military Standards:⁸

- MIL-STD-167/1 Mechanical Vibrations of Shipboard Equipment, Type I—Environmental and Type II—Internally Excited
- MIL-STD-461 Military Standard for Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference
- MIL-STD-1399/300 Interface Standards for Shipboard Systems Section 300A, Electric Power, Alternating Current

3. Terminology

3.1 Definitions:

3.2 *hold function, n*—operating mode for the hot food holding table and also the main function of the hot food holding table.

3.2.1 *Discussion*—The hold function allows holding a pre-cooked product above a safe holding temperature as defined by the NSF guidelines (NSF/ANSI 4).

3.3 *holding cavity, n*—portion or area of the table in which food products are held at an elevated temperature.

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

⁵ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, <http://www.nfpa.org>.

⁶ Available from Global Engineering Documents, 15 Inverness Way, East Englewood, CO 80112-5704, <http://www.global.ihs.com>.

⁷ Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140, <http://www.nsf.org>.

⁸ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS OR Acquisition Streamlining and Standardization Information System (ASSIST) which is the official source of all documents listed in the DoD Index of Specifications and Standards. The ASSIST can be located at <http://dsp.dla.mil>.

3.4 *hot food holding table (food warmer)*, *n*—as used in this specification a device that can hold precooked food products to preset product holding temperatures.

3.4.1 *Discussion*—This type of table is a single level design with or without covers for food pans. In general, hot food holding table is a device by itself and has a typical maximum operating temperature of 200°F.

4. Classification

4.1 Hot food holding tables covered by this specification are classified by type, style, electrical class, and size.

4.1.1 *Type*:

4.1.1.1 *Type 1*—Table top units.

4.1.1.2 *Type 2*—Stand mounted.

(1) *Type 2A*—With plain adjustable legs.

(2) *Type 2B*—With flanged feet that allows the stand to be bolted to the floor.

(3) *Type 2C*—With casters.

4.1.1.3 *Type 3*—Flush mount installation (drop-in type).

4.1.2 *Styles*:

4.1.2.1 *Style 1*—Dry hot food holding table.

4.1.2.2 *Style 2*—Wet hot food holding table.

4.1.2.3 *Style 3*—Dry/wet hot food holding table.

4.1.3 *Fuel Class*:

4.1.3.1 *Electrical Class*:

(1) *Class 1*—120 V, 60 Hz, 1 phase.

(2) *Class 2*—208 V, 60 Hz, 1 phase.

(3) *Class 3*—208 V, 60 Hz, 3 phase.

(4) *Class 4*—240 V, 60 Hz, 1 phase.

(5) *Class 5*—240 V, 60 Hz, 3 phase.

(6) *Class 6*—480 V, 60 Hz, 3 phase.

(7) *Class 7*—208 V, 50 Hz, 1 phase.

(8) *Class 8*—208 V, 50 Hz, 3 phase.

(9) *Class 9*—230 V, 50 Hz, 1 phase.

(10) *Class 10*—240 V, 50 Hz, 1 phase.

(11) *Class 11*—240 V, 50 Hz, 3 phase.

4.1.3.2 *Gas Class*:

(1) Natural gas.

(2) Propane gas.

(3) Other gas (specify gas composition, heating value, and specific gravity).

4.1.4 *Size (Capacity)*—Number of steam pans of open or individual well construction (inside dimensions of the steam pan are 19 7/8-in. length by 11 7/8-in. width by 6 1/8-in. depth) that the table is designed for holding.

4.1.4.1 *Size 1*—1 pan.

4.1.4.2 *Size 2*—2 pans.

4.1.4.3 *Size 3*—3 pans.

4.1.4.4 *Size 4*—4 pans.

4.1.4.5 *Size 5*—5 pans.

4.1.4.6 *Size 6*—6 pans.

4.2 This standard does not purport to address all of the sizes that may be available, but it provides an overview of the most common sizes used in the industry.

5. Ordering Information

5.1 Orders for hot food holding tables in accordance with this specification shall include the following information:

5.1.1 ASTM specification number and date of issue,

5.1.2 Quantity of units to be furnished,

5.1.3 Type,

5.1.4 Style,

5.1.5 Fuel class, and

5.1.6 Size (Capacity).

5.2 The following options should be reviewed, and if desired they should be also be included in the order:

5.2.1 When federal/military procurement(s) is involved, refer to the supplemental pages.

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

5.2.3 When special or supplemental requirements, or both, such as inspections, options, accessories, modifications, changes for correctional facilities use, additional nameplate data, etc. are required.

5.2.4 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.

5.2.5 When specified, a number of cavities which the food pans are contained in need to be specified during the ordering of the unit.

5.2.6 When specified, the unit has a means to display or indicate table cavity temperature and able to set holding interval-timer or an internal product probe.

6. Materials and Manufacture

6.1 *General*—Hot food holding tables shall conform to the applicable documents listed in Section 2. Materials used shall be free of defects that would affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. The use of used or rebuilt products is not allowed under this specification unless otherwise specified.

6.2 *Hardware and Fittings*—Unless otherwise specified, all hardware and fittings shall be corrosion-resistant to Specifications A167 or A176 or suitably processed to resist corrosion in accordance with the manufacturer's standard practice.

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

7. Physical Requirements

7.1 *Design and Manufacture*—The hot food holding tables shall consist of a table cavity, heating elements/heating coil or gas burner, area physically supporting the steam pans, and provision to limit condensate drippings on the floor or tabletop surface. The tables may include vents, product probe, and product monitoring system, if specified.

7.1.1 *Heating System*—The heaters should be attached in a recessed location so no accidental contact can be made. If open resistive coil type heaters are used, it should be electrically insulated from all metal contacts and should be protected from condensate/water dripping.

7.1.2 *Controls*:

7.1.2.1 The following control functions must be provided for the operation of the hot food holding cabinet:

(1) Able to set temperature for the hold function.

7.1.2.2 If specified, control functions such as data/information transfer ports (RS232), product-monitoring capabilities, and water-resistant construction may be provided.

7.1.3 *Accessories*—If specified, accessories such as built-in trims, and locks shall be provided.

7.2 *Standards and Compliance*—The hot food holding tables shall conform to the requirements of ANSI/UL 197 or ANSI Z83.11 as applicable and NSF/ANSI 4. Acceptable evidence of meeting these requirements shall be a current listing mark, label, or symbol of a recognized independent testing laboratory and a current listing in the testing laboratory’s appropriate publication.

7.2.1 Certification of compliance with the standards cited in this specification shall be provided, if required, in the purchase document.

8. Sampling and Quality Assurance

8.1 When specified in the contract or purchase order, sampling, testing, and quality assurance of finished units shall be performed in accordance with the requirements specified by ANSI Z1.4, ANSI/UL 197, ANSI Z83.11 (as applicable), and NSF/ANSI 4.

9. Product Marking

9.1 Each hot food holding table shall be provided with an identification plate or plates.

10. Packaging and Package Marking

10.1 Each hot food holding table 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 Practice **D3951**.

11. Instruction Materials and Manuals

11.1 Each hot food holding table shall be furnished with an instruction manual and material, as may be required. Manuals shall comply with Specification **F760**.

12. Keywords

12.1 foodservice equipment; hold table; hot food hold table; mobile food table

SUPPLEMENTARY REQUIREMENTS

FEDERAL AND MILITARY PROCUREMENT

The supplemental requirements which follow apply to all Federal and Military procurements. 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 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 When required by purchaser, a nameplate shall contain the following:

- (1) National Stock Number (NSN).
- (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	___	-	XX	-	XX	-	XX	-	XX	
										Size
										Class
										Style
				-	-					Type
				-	-					ASTM
				-	-					Number

S4.2 The above is an example of the PIN for an item in accordance with ASTM Standard F____, type XX, style XX, class XX, and size XX.

S5. Preservation, Packaging and Package Marking

S5.1 When other than normal 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.

S6. Human Factors Criteria

S6.1 Human factors engineering criteria principles and practices, as defined in Practice **F1166**, shall be used in the design of all hot food holding tables.

S7. Manufacturer's Certification

S7.1 If the manufacturer has successfully furnished the same equipment on a previous contact 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

S8.1 Type 3 hot food holding tables (hot food wells) are those most commonly found on ships. The following additional requirements are specific to Type 3 hot food holding tables that are to be used for shipboard purposes:

S8.1.1 *Design*—The hot food holding well shall be the drop-in type for counter or table installation. It shall consist of a seamless, drawn stainless steel pan.

S8.1.2 *Heating System*—Type 3 hot food holding wells shall be heated by uniform heat distribution methods or by heating elements which are capable of holding entire product at temperatures of 140 to 165°F (60 to 74°C).

S8.1.3 *Temperature Control Unit*—The temperature control unit shall be suitable for mounting in the counter front, adjacent to the hot food well pan. The temperature adjustment knob on the unit shall either be recessed or have a protective shield to prevent accidental breakage. An indicator light shall be provided on the control unit and shall illuminate when the heating element is energized.

S8.1.4 *Supporting Flange and Gasket*—The hot food holding well shall have a top perimeter supporting flange with means of attaching the well to the counter or table, and a gasket between the flange and mounting surface for positive moisture seal.

S8.1.5 *Thermal Insulation*—Thermal insulation shall be provided between all heating elements and the base and sides of the outer casing of the hot food holding well pan.

S8.1.6 *Drain*—When specified, a drain shall be provided in the base of the hot food holding well pan for draining water when wet operation is required. The drain shall be a stainless steel pipe welded to the well pan or a brass pipe brazed to the pan, and shall have standard ¾ NPT threads on the outlet end. The inlet end of the drainpipe shall be smooth and flush with the surface of the well pan. An integral stainless steel inlet strainer screen shall be provided. For hot food holding wells, which utilize dry operation techniques, no drains are required.

S8.1.7 *Environmental Suitability*—Type 3 hot food holding table shall be capable of withstanding ship's vibration and motion. Controls, switches, moving parts and electrical circuits shall operate under shipboard conditions without malfunction, binding, excessive looseness, or damage.

S8.1.8 *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 without major disassembly.

S8.1.9 *Service Access*—The unit shall be designed for access of all serviceable components from the front of the unit.

S8.1.10 *Power*—Unless otherwise specified, Type 3 hot food holding tables shall be supplied for 115/120 V, 60 Hz, 1 phase and conforming to MIL-STD-1399/300 standard.

S8.1.11 *Instructions*—Instructions for startup, operation, and shutdown shall be provided at a clearly visible location in front of the Type 3 hot food holding table.

S8.1.12 Quality Assurance Provisions:

S8.1.12.1 *EMI Control Tests*—When specified, hot food holding tables 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. Non-conformance with the requirements specified shall constitute failure of the test.

S8.1.12.2 *Shipboard Environmental Test*—When specified, the hot food holding table under normal operating conditions, shall be tested in accordance with MIL-STD-167/1, Type I equipment. The hot food holding table shall be secured to the test machine in the same manner that it will be secured on shipboard. Failure of the hot food holding table to perform its function during or after testing, or meeting the requirements of S8.8, shall constitute failure of this test. The government reserves the right to witness all tests of machines procured for Naval shipboard use, whether performed by the supplier or an independent testing agency.

APPENDIX

(Nonmandatory Information)

X1. ADDED FEATURES

X1.1 Some manufacturers offer additional sizes and features that extend the versatility of the hot food holding tables. The variety of sizes and options vary from manufacturer. A good source of general information can be found in the literature available from food service equipment manufacturers and dealers.

X1.2 Typically, these options are added to the basic models at an additional cost. Any additional options that are required can be written into the procurement contract as desired.

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