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An American National Standard

Standard Specification for Griddles, Single-Sided and Double-Sided, Gas and Electric[1]

This standard is issued under the fixed designation F1919; 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 single-sided and double-sided griddles which utilize gas or electrical heat sources, or both, for cooking food in the commercial and institutional food service establishments.

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 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

F1275 Test Method for Performance of Griddles

F1605 Test Method for Performance of Double-Sided Griddles

2.2 *ANSI Standards:*

NSF/ANSI 4 Commercial Cooking, Rethermalization and Powered Hot Food Holding and Transport Equipment[3]

ANSI Z223/NFPA 70 National Electrical Code[4]

ANSI/UL 197 Commercial Electrical Cooking Appliances[5]

ANSI B1.1 Unified Inch Screw Threads (UN and UNR Thread Form)[6,7]

ANSI Z1.4 Sampling Procedures and Tables for Inspection by Attributes[6]

ANSI Z21.41 Quick-Disconnect Devices for Use With[6]

ANSI Z21.69 Connectors for Moveable Gas Appliances[6]

ANSI Z83.11 Gas Food Service Equipment[6]

ANSI/NFPA 54 National Fuel Gas Code[4]

2.3 *Canadian Standard:*[8]

CAN/CSA-B339 Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods

2.4 *Military Standards:*[5]

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 Electromagnet 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 *active cooking area, n*—the cooking areas, designed for cooking contact with food, excluding features like non-heated drip edges, grease troughs, side splashes and back splash.

3.1.2 *cooking device, n*—equipment that transfers heat to food products.

3.1.3 *counter top mounted, n*—equipment that is installed on top of a counter or table surfaces, designed for smaller operations or those with limited floor space.

3.1.4 *drop-in type, n*—equipment that is installed into a hole or cut-out in the top of a counter or table.

3.1.5 *food service equipment, n*—equipment that transfers heat or cold to food products.

[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.

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

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

[5] Available from Underwriters Laboratories (UL), 333 Pfingsten Rd., Northbrook, IL 60062-2096, http://www.ul.com.

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

[7] Available from the Standardization Documents Order Desk, DOCUMENTS, 700 Robbins Ave., Building No. 4 – Section D, Philadelphia, PA 19222–5094.

[8] Available from Canadian Standards Association (CSA), 5060 Spectrum Way, Mississauga, ON L4W 5N6, Canada, http://www.csa.ca.

3.1.6 *griddle, n*—equipment for cooking food in its own juices or oil by direct contact with a hot surface.

3.1.7 *stand mounted, n*—equipment that is secured to a stand for operational height or mobile convenience as well as installation security.

4. Classification

4.1 *Type:*
4.1.1 *Type 01,* single-sided.
4.1.2 *Type 02,* double-sided.
4.1.3 *Type 03,* partially double-sided.

4.2 *Style:*
4.2.1 *Style A*—counter top flush.
4.2.2 *Style B*—counter top with legs.
4.2.3 *Style C*—stand-mounted.
4.2.4 *Style D*—free-standing.
4.2.5 *Style E*—drop-in.

4.3 *Group:*
4.3.1 *Group 01,* manual (non-thermostat) control.
4.3.2 *Group 02,* thermostat control.

4.4 *Mode:*
4.4.1 *Electric:*
4.4.1.1 *Mode 01*—208 V, 60 Hz, 1 phase.
4.4.1.2 *Mode 02*—208 V, 60 Hz, 3 phase.
4.4.1.3 *Mode 03*—220 V, 60 Hz, 3 phase.
4.4.1.4 *Mode 04*—240 V, 60 Hz, 1 phase.
4.4.1.5 *Mode 05*—240 V, 60 Hz, 3 phase.
4.4.1.6 *Mode 06*—400 V, 60 Hz, 3 phase.
4.4.1.7 *Mode 07*—480 V, 60 Hz, 3 phase.
4.4.1.8 *Mode 08*—120 V, 60 Hz, 1 phase.
4.4.1.9 *Mode 09*—230 V, 50 Hz, 1 phase.
4.4.1.10 *Mode 10*—400 V, 50 Hz, 3 phase.
4.4.1.11 *Mode 11*—440 V, 60 Hz, 3 phase (shipboard use).
4.4.2 *Gas:*
4.4.2.1 *Mode 12*—Natural gas.
(1) Mode 13—Fixed propane fuel applications.
(2) Mode 14—Self-contained propane fuel applications.
4.4.2.2 *Mode 15*—Other gases (specify gas composition, heating value, and specific gravity).
4.4.3 *Combination:*
4.4.3.1 *Mode 16*—Combination electric/gas-fired griddle.

4.5 *Size:*
4.5.1 *Size 01*—Nominal width less than 24 in. (610 mm) and nominal depth less than 22 in. (559 mm).
4.5.2 *Size 02*—Nominal width less than 24 in. (610 mm) and nominal depth range of 22 in. (559 mm) deep to 26 in. (660 mm) deep.
4.5.3 *Size 03*—Nominal width less than 24 in. (610 mm) and nominal depth greater than 26 in. (660 mm) deep.
4.5.4 *Size 04*—Nominal width of 24 in. (610 mm) and nominal depth less than 22 in. (559 mm).
4.5.5 *Size 05*—Nominal width of 24 in. (610 mm) and nominal depth range of 22 in. (559 mm) deep to 26 in. (660 mm) deep.
4.5.6 *Size 06*—Nominal width of 24 in. (610 mm) and nominal depth greater than 26 in. (660 mm) deep.
4.5.7 *Size 07*—Nominal width of 36 in. (914 mm) and nominal depth less than 22 in. (559 mm).
4.5.8 *Size 08*—Nominal width of 36 in. (914 mm) and nominal depth range of 22 in. (559 mm) deep to 26 in. (660 mm) deep.
4.5.9 *Size 09*—Nominal width of 36 in. (914 mm) and nominal depth greater than 26 in. (660 mm) deep.
4.5.10 *Size 10*—Nominal width of 48 in. (1219 mm) and nominal depth less than 22 in. (559 mm).
4.5.11 *Size 11*—Nominal width of 48 in. (1219 mm) and nominal depth range of 22 in. (559 mm) deep to 26 in. (660 mm) deep.
4.5.12 *Size 12*—Nominal width of 48 in. (1219 mm) and nominal depth greater than 26 in. (660 mm) deep.
4.5.13 *Size 13*—Nominal width of 60 in. (1524 mm) and nominal depth less than 22 in. (559 mm).
4.5.14 *Size 14*—Nominal width of 60 in. (1524 mm) and nominal depth range of 22 in. (559 mm) deep to 26 in. (660 mm) deep.
4.5.15 *Size 15*—Nominal width of 60 in. (1524 mm) and nominal depth greater than 26 in. (660 mm) deep.
4.5.16 *Size 16*—Nominal width of 72 in. (1829 mm) and nominal depth less than 22 in. (559 mm).
4.5.17 *Size 17*—Nominal width of 72 in. (1829 mm) and nominal depth range of 22 in. (559 mm) deep to 26 in. (660 mm) deep.
4.5.18 *Size 18*—Nominal width of 72 in. (1829 mm) and nominal depth greater than 26 in. (660 mm) deep.
4.5.19 This specification does not purport to address all of the widths and depths, which may be available, but it is an overview of the most common depths used in the industry today.

5. Ordering Information

5.1 An order for a griddle(s) under this specification shall specify the following:
5.1.1 ASTM specification number and date of issue.
5.1.2 Quantity to be furnished.
5.1.3 Type.
5.1.4 Style.
5.1.5 Group.
5.1.6 Class.
5.1.7 Size.

5.2 The following options should be reviewed, and if any are desired, they also should be included in the order.
5.2.1 When Federal/military procurement(s) is involved, refer to the Supplementary Requirements section at the end of this specification.
5.2.2 Type of gas, if applicable, that is, natural, propane, or other (specify gas composition, heating value and specific gravity).
5.2.3 Electrical power supply characteristics, including controls if applicable, such as voltage, frequency, phase, kW input, or amp load, as applicable.
5.2.4 When other than manufacturer's standard, commercial, domestic packaging is required, specify packaging requirements (see 12.1).

5.2.5 When special or supplement requirements, such as inspections, accessories, mounting patterns, utility connections, etc., or combination thereof, are required.

5.2.6 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.

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

5.2.8 When connected to a self-contained gas fuel source, cylinder configuration (size, orientation, and number) should be specified along with the type of cylinder connection device.

5.2.9 For a product for outdoor use only and if the purchase is for a propane self-contained appliance, the specifications should state: The griddle must be listed under ANSI Z83.11 for use with a self-contained propane system and the griddle shall be furnished with all necessary propane connection components in accordance with ANSI Z83.11, Part I Construction subsection titled "Self Contained LP-Gas Supply Systems." These components shall be those recognized for use on the griddle under the griddle's listing to ANSI Z83.11.

5.2.10 As a part of a propane self-contained system, if quoted that the self-contained propane tank shall be provided with the griddle, the specifications shall state:

5.2.10.1 The propane tank shall be constructed and marked in accordance with the specifications for propane cylinders of the U.S. Department of Transportation (DOT) or the specification for propane cylinders of the National Standard of Canada, CAN/CSA-B339, or both.

5.2.10.2 The propane tank connection shall be compatible with connection system components provided with griddle.

5.2.11 The grease trough configuration (front, rear, side, various combinations) must be specified.

6. Materials and Manufacture

6.1 *General:*

6.1.1 Griddles shall conform to the applicable documents listed in Section 2.

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 *Hardware and Fittings*—Unless otherwise specified (see Section 5), all hardware and fittings shall be corrosion-resistant 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. Design and Construction

7.1 *General*—Griddles and accessories shall conform to ANSI/UL 197 or ANSI Z83.11, as applicable, and NSF/ANSI 4, ANSI/NFPA 54, and ANSI Z223/NFPA 70, as applicable. Griddles shall be delivered assembled, ready for connection to electricity or gas piping, or both, as applicable.

7.2 *Service Connections*—Provisions for service shall be provided in the back or bottom of the griddle. Styles 1 and 2 shall be capable of being banked side by side.

7.3 *Electrical Characteristics*—All electric griddles shall be designed for operation on nominal voltage ratings, Hz, and phases as specified by electrical class.

7.4 *Cooking Surface*—The cooking surface shall not be porous, pitted, cracked, or distorted.

7.4.1 The cooking surface may be flat or grooved (which will have a specified groove spacing and width).

7.5 *Controls*—When thermostatic controls are used, the temperature of each griddle section shall be controlled by a temperature regulating device or thermostat. If switches and thermostats are located on the front panel, they shall be recessed or otherwise protected from inadvertent changes or damage. The temperature controlling device or thermostat (when electronic) shall be calibrated to maintain the surface temperature tolerance on each section not more than 25°F (13.9°C) except for those areas adjacent to the splash guards, the surface temperature tolerance shall not vary more than 30°F (16.7°C).

7.6 *Heating Methods:*

7.6.1 *Electric Griddles*—Electric griddles may have heating elements arranged so that different areas of the griddle may be controlled independently. A minimum of one heating element may be furnished for each linear foot (305 mm) of the griddle plate. The elements may be the enclosed coil type and may be attached securely to the bottom of the griddle plate. The bottom of the heating elements may be enclosed by a heat insulating pad. Both methods shall be designed to isolate the heating elements by reducing the amount of heat radiated downwards. When an insulating pad is used, it shall be fire resistant and suitable for the temperatures generated in this area. Heating elements may be accessible readily for repair or replacement. The terminals of the heating elements shall project a sufficient distance to permit easy access to the connections. Alternate methods of heating the cooking surface may employ steam or induction heating. All internal wiring shall be free of stress or tension and, where required, shall be coated with high-heat resistant insulation to resist water or grease.

7.6.2 *Gas Griddles*—Gas griddles may have burners arranged so that different areas of the griddle may be controlled independently. A minimum of one burner may be furnished for each linear foot (305 mm) of the griddle plate. The bottom of the combustion chamber may be enclosed by a heat insulating pad. Both methods shall be designed to isolate the burner by reducing the amount of heat radiated downwards. When an insulating pad is used, it shall be fire resistant and suitable for the temperatures generated in this area. Burners may be accessible readily for repair or replacement. The orifices of the burners shall have easy access for cleaning. Alternate methods of heating the cooking surface may employ steam heating. All internal wiring shall be free of stress or tension and, where

required, shall be coated with high-heat resistant insulation to resist water or grease.

7.7 *Fuel System for Gas Griddles*—The gas griddles shall be designed to operate on natural gas or propane. When specified (see 5.2.2) a separately furnished conversion kit shall be supplied.

7.8 *Griddle Stand-Design and Construction*—Griddle stands for Style 2 griddles shall be of open type design, so constructed that they can be banked together in battery alignment without space between the tops or means shall be provided for covering the space. Means that are included to secure the griddle to the stand, shall allow removal of the griddle from the stand. Stands shall be as specified in 4.5.2, with plain legs and adjustable feet, casters or bolt-down legs. Type 2B griddle stands shall be provided with four casters, two rear casters shall be rigid type and two front casters shall be swivel or rigid type. or both. The front casters shall be provided with brakes.

7.9 *Proof of Compliance*—Evidence of complying with ANSI/UL 197 or ANSI Z83.11, and NSF/ANSI 4 shall be a listing in a third party certification agency listing book, or a certified test report from a nationally recognized testing laboratory acceptable to the purchaser or appropriate labels attached.

8. Performance Requirements

8.1 *Performance Testing*—When specified in the contract or purchase order, performance testing shall be performed in accordance with Test Methods F1275 or Test Method F1605, or both.

9. Sampling and Quality Assurance

9.1 *Sampling*—When specified in the contract or purchase order, sampling for the inspection and tests contained in the main body of this specification shall be performed in accordance with ANSI Z1.4.

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

10. Product Marking

10.1 Each griddle shall be provided with an identification plate in compliance with ANSI Z83.11 or ANSI/UL 197.

11. Manuals

11.1 Format and content of applicable manuals shall be as indicated in Specification F760.

12. Packing and Package Marking

12.1 The complete griddle 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. Keywords

13.1 cooking surface; double-sided; drop-in; grease trough; griddle; single-sided

SUPPLEMENTARY REQUIREMENTS

S1 Where provisions of this supplement conflict with the main body, this supplement shall prevail.

S2 *Manual*—A manual complying with Specification F760 and these Supplementary Requirements shall be provided.

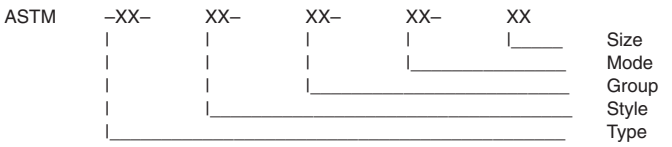
S3 *First Article Inspection*—When required, the first article inspection shall be performed on one unit. The first article may be either a first production item or a standard production item from the supplier's current inventory, provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract.

S3.1 *Data Nameplate*—A nameplate shall contain the following information:

S3.1.1 National Stock Number (NSN).

S3.1.2 Government approved manual number.

S4 *Part Identifying Number*—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 specification are as follows:



The above is an example of the PIN for an item in accordance with ASTM Standard F_____, type XX, style XX, group XX, mode XX, size XX.

S5 *Naval Shipboard Requirements:*

S5.1 *Electromagnetic Compatibility*—When specified, electric griddles shall be designed and equipped for electromagnetic compatibility. 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.

S5.2 *Inclined Operation*—When specified, the units shall operate satisfactorily, along with no spillage of grease or product, when the griddle is inclined for 30 s at an angle of 15° 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.

S5.3 *Environmental Suitability* —Griddles 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 1 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.

S5.4 *Access*—Unless otherwise specified, units for naval surface vessels shall pass through a 26-in. (66-cm) wide shipboard hatch without major disassembly. Equipment for submarines shall pass through a 25-in. (64-cm) diameter circular hatch without major disassembly.

S5.5 *Power*—Unless otherwise specified, equipment shall be supplied in 440 V, 60 Hz, 3 phase, 3 wire ungrounded system in accordance with MIL-STD-1399/300.

S5.6 *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 also shall be placed near the high voltage components inside the equipment. The label shall include, but is not limited to, the following warnings:

S5.6.1 A warning of high voltage.

S5.6.2 The power supply must be disconnected before servicing.

S5.6.3 Access covers must be in place during use.

S5.6.4 Service should be done by authorized personnel.

S5.7 *Human Factors Criteria*—Human factors engineering criteria principles, and practices, as defined in Specification F1166, shall be used in the design.

S5.8 *Instruction Plate*—An instruction plate shall include instruction for startup, operation and shutdown.

S5.9 *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.

S5.10 *Wiring*—Suitable shields or baffles shall be installed to prevent wiring from hanging into any areas where personnel or removable parts, such as grease drawers, can contact them.

S5.11 *Mounting*—Griddles to be used in shipboard applications should be provided with means to securely mount to deck or dresser top. Type 3, drop-in griddles, shall be equipped with mounting flange, top support frame with securing clamps, and sealing gaskets. Means shall be provided to prevent grease penetration to the underside.

S5.12 *Grease Trough, Chutes, and Receptacle Drawers*—Shipboard griddles shall have grease chutes that lead only from the front grease trough to the spillage receptacle drawer so grease and debris collect in the front of the receptacle drawer first. Grease receptacle drawers shall be provided with a positive latch to prevent opening and spillage.