



# Standard Specification for Griddles, Single and Double Sided, Self-heating, Counter or Stand Mounted Gas and Electric Fired<sup>1</sup>

This standard is issued under the fixed designation F 1919; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This specification covers 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:

- D 3951 Practice for Commercial Packaging<sup>2</sup>
- F 760 Specification for Food Service Equipment Manuals<sup>3</sup>
- F 1166 Practice for Human Engineering Design for Marine Systems, Equipment and Facilities<sup>4</sup>
- F 1275 Test Method for Performance of Griddles<sup>3</sup>

### 2.2 ANSI Standards:

- ANSI/NSF 4 Commercial Cooking, Rethermalization and Powered Hot Food Holding and Transport Equipment<sup>5</sup>
- ANSI Z223/NFPA 70 National Electrical Code<sup>6</sup>
- ANSI/UL 197 Commercial Electrical Cooking Appliances<sup>7</sup>

ANSI B1.1 Unified Inch Screw Threads (UN and UNR Thread Form)<sup>8,9</sup>

ANSI Z1.4 Sampling Procedures and Tables for Inspection by Attributes<sup>8</sup>

ANSI Z21.41 Quick-Disconnect Devices for Use With<sup>8</sup>

ANSI Z21.45 Flexible Connector of Other Than All-Metal Construction for Gas Appliances<sup>8</sup>

ANSI Z83.11 Gas Food Service Equipment<sup>8</sup>

ANSI/NFPA 54 National Fuel Gas Code<sup>6</sup>

### 2.3 Military Standards:

MIL-STD-167/1 Mechanical Vibration of Shipboard Equipment (Type 1—Environmental and Type 2—Internally Excited)<sup>7</sup>

MIL-STD-461 Requirements for the Control of Electromagnet Interference Characteristics of Subsystems and Equipment<sup>7</sup>

MIL-STD-1399/300 Interface Standard for Shipboard Systems Section 300A Electric Power, Alternating Current<sup>7</sup>

## 3. Terminology

### 3.1 Definitions of Terms Specific to This Standard:

3.1.1 *griddle, n*—as used in this specification, is a device for cooking food by direct contact with a hot surface.

## 4. Classification

4.1 Griddles covered by this specification are classified by type, size, style, and electrical class.

### 4.1.1 Type:

4.1.1.1 *Type 1*, for counter top use.

4.1.1.2 *Type 2*, stand mounted, including, stand with plain legs, stand with casters, or stand with bolt-down legs.

4.1.1.3 *Type 3*, for flush installation (drop-in type).

### 4.1.2 Size (Cooking Surface):

4.1.2.1 Nominal 24-in. (610-mm) wide by 18-in. (457-mm) deep.

4.1.2.2 Nominal 24-in. (610-mm) wide by 24-in. (610-mm) deep.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 15.09.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 15.08.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 01.07.

<sup>5</sup> Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48113-0140.

<sup>6</sup> Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101.

<sup>7</sup> Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.

<sup>8</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

<sup>9</sup> Available from the Standardization Documents Order Desk, DOCUMENTS, 700 Robbins Ave., Building No. 4 – Section D, Philadelphia, PA 19222-5094.

4.1.2.3 Nominal 36-in. (914-mm) wide by 18-in. (457-mm) deep.

4.1.2.4 Nominal 36-in. (914-mm) wide by 24-in. (610-mm) deep.

4.1.2.5 Nominal 72-in. (1829-mm) wide by 24-in. (610-mm) deep.

4.1.2.6 Nominal 48-in. (1219-mm) wide by 24-in. (610-mm) deep.

4.1.2.7 This specification does not purport to address all of the sizes, which may be available, but it is an overview of the most common sizes used in the industry today.

4.1.3 *Styles:*

4.1.3.1 *Style 1*—Gas-fired griddle.

4.1.3.2 *Style 2*—Electric griddle.

4.1.3.3 *Style 3*—Combination gas-fired/electric griddle.

4.1.4 *Electrical Classes:*

4.1.4.1 *Class 1*—208 V, 60 Hz, 1 phase.

4.1.4.2 *Class 2*—208 V, 60 Hz, 3 phase.

4.1.4.3 *Class 3*—240 V, 60 Hz, 1 phase.

4.1.4.4 *Class 4*—240 V, 60 Hz, 3 phase.

4.1.4.5 *Class 5*—480 V, 60 Hz, 3 phase.

## 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 Size.

5.1.5 Style.

5.1.6 Electrical Class.

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 BTU/ft<sup>3</sup>).

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 13.1).

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. When specified an approved quick disconnect (socket and plug) conforming to ANSI Z21.41, and a flexible metal connector conforming to ANSI Z21.45 and consisting of a male pipe thread fitting on one end and a union with female thread on the opposite end shall be provided with the griddle.

5.2.8 Specify the location of the grease trough(s), type of drainage and splash guards.

## 6. Materials

6.1 *General*—Griddles shall conform to the applicable documents listed in Section 2. Materials used shall be free from defects, which 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. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new or fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. None of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this specification unless otherwise specified.

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 No. 197 or ANSI Z83.11, as applicable, and ANSI/NSF 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. Types 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 *Griddle Surface*—The griddle surface shall not be porous, pitted, cracked, or distorted.

7.5 *Controls*—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 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 Elements*—The electric griddles shall have heating elements arranged so that different areas of the griddle may be controlled independently. A minimum of one heating element shall be furnished for each linear foot (305 mm) of the griddle plate. The elements shall be the enclosed coil type and shall be attached securely to the bottom of the griddle plate. The bottom of the heating elements shall be enclosed by a heat insulating pad or by a system of heat-reflecting baffles. 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 shall

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. 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 Type 2 griddles shall be of open type design, so constructed that they can be banked together in battery alignment without space between the tops. Means shall be included to secure the griddle to the stand to allow removal of the griddle. Stands shall be as specified in 4.1.1.2, with plain legs, 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 type; or, when specified (see 5.2), four rigid or swivel casters. The swivel type front casters shall be provided with brakes.

7.9 *Proof of Compliance*—Evidence of complying with ANSI/UL 197 or ANSI Z83.11, and ANSI/NSF 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 F 1275.

## 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. Testing Methods

### 10.1 *Thermostat Test:*

10.1.1 *Significance and Use*—This test method determines compliance with 7.5 and 8.1 surface temperature variances from the thermostat setting requirements.

10.1.2 The griddle shall be connected to the specified power source. The thermostat shall be set at 300°F (149°C) and the griddle allowed to operate until the temperature control has cycled “on” and “off” through at least three cycles at this setting. The griddle surface then shall have five temperature readings taken per heating section. The readings shall be taken 4 in. (102 mm) in from each corner and at the center of the heating section, that is, at the intersection of the diagonals from corner to corner of each heating section. The heating section surface temperature shall be measured at each of the five points. The high temperature at each point and the low temperature at each point shall be calculated. These temperatures shall conform to the tolerances specified in 7.5. This procedure shall be repeated at 325°F (163°C) and 350°F (177°C).

## 11. Product Marking

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

## 12. Manuals

12.1 Format and content of applicable manuals shall be as indicated in Specification F 760.

## 13. Packing and Package Marking

13.1 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 D 3951.

## 14. Keywords

14.1 cooking device; counter top mounted; drop-in type; food service equipment; griddle; stand mounted



S7.1.8 *Instruction Plate*—An instruction plate shall include instruction for startup, operation and shutdown.

S7.1.9 *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.

S7.1.10 *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.

S7.1.11 *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.

S7.1.12 *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.

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