

JIS

JAPANESE INDUSTRIAL STANDARD

Electric Griddles

JIS C 9215—1988

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Electric Griddles

C 9215-1988

1. Scope

This Japanese Industrial Standard specifies household electric griddles of power consumption not exceeding 1.5 kW, hereinafter referred to as the "griddles".

Remark: The units and numerical values given in { } in this Standard are based on the traditional unit system and are appended for informative reference.

2. Definitions

For the purpose of this Standard the following principal definitions apply:

- (1) appliance body The appliance excluding the lid and removable controller.
- (2) removable controller A component which can be attached to and removed from the appliance body, accommodates a thermostat and is equipped with a connector and cord.
- (3) plate A component with almost flat bottom and a rim at the periphery on which foods are roasted or fried.

Applicable Standards:

JIS C 2520-Wires and Rolled Wires for Electrical Heating

JIS C 3301-Rubber Insulated Flexible Cords

JIS C 3327-600 V Rubber Insulated Flexible Cables

JIS C 8303-Plugs and Receptacles for Domestic and Similar General Use

JIS C 8304-Small Switches for Indoor Use

JIS K 2240-Liquefied Petroleum Gases

JIS K 5400-Testing Methods for Organic Coatings

JIS K 6894-Polytetrafluoroethylene Coated Dry Film

JIS K 7202-Method of Rockwell Hardness Test for Plastics

JIS S 6006-Pencils and Coloured Pencils

Corresponding International Standard:

IEC 335-2-13 Safety of household and similar electrical appliances.
Part 2: Particular requirements for frying pans, deep fat fryers and similar appliances

3. Classification

Griddles are classified into the following two classes according to the configuration of plate.

- (1) Fixed Type Griddles whose plate and heating element are integrated by casting, welding, etc.
- (2) Separate Type Griddles whose plate and heating element are separable.

4. Rated Voltage

The rated voltage shall be single phase a.c. 100 V.

5. Performance

5.1 Voltage Fluctuation Characteristics Griddles shall be capable of being used without practical trouble when subjected to the test of 8.2.

5.2 Power Consumption When the test is carried out as specified in 8.3, the difference between the measured power consumption and the rated power consumption shall fall within the appropriate value given in Table 1.

Table 1. Tolerances on Power Consumption

Unit: %	
Rated power consumption	Tolerances
1 kW and under	± 10
Over 1 kW	± 5

5.3 Insulation Performances

5.3.1 Insulation Resistance The insulation resistance shall be not less than 1 M Ω when tested as specified in 8.4.1.

5.3.2 Dielectric Withstand Voltage When the test is carried out as specified in 8.4.2, the specimen shall withstand the test voltage.

5.4 Temperature

5.4.1 Normal Temperature When the test is carried out as specified in 8.5.1, the temperature at each part shall not exceed the appropriate value given in Table 2.

Table 2. Temperature Limit

Unit: °C

Measurement position		Temperature
Handle for transfer (excluding ones operated by a man during on-current state)	Made of metals, ceramics and glasses	65
	Made of others	80
Knob of switch and push button	Made of metals, ceramics and glasses	60
	Made of others	75
Handle operated by a man during service	Made of metals, ceramics and glasses	55
	Made of others	70
Surface of wooden board on which specimen is placed		95
Rectifier	Made of silicon	135
Cord	Natural rubber mixture	60
	Styrene-butadiene rubber mixture and chloroprene rubber mixture	75
	Ethylene-propylene rubber mixture, silicone rubber mixture and chlorosulfonic polyethylene rubber mixture	90
Winding	Class A insulation	100
	Class E insulation	115
	Class B insulation	125
	Class F insulation	150
	Class H insulation	170

Remark: The reference ambient temperature is 30°C.

5.4.2 Abnormal Temperature When the test is carried out as specified in 8.5.2, the appliance body, removable controller or wooden board shall not burn.

Further the insulation resistance between live parts and dead parts liable to cause earth fault shall be not less than 0.1 MΩ.

5.5 Thermostat When the test is carried out as specified in 8.6, the specimen shall show no abnormality at any part and comply with the following requirements:

- (1) In the test of 8.6 (2) carried out before the test of 8.6 (1), the average value of the average temperature at which the circuit opens and the average temperature at which the circuit closes shall fall within $\pm 5^{\circ}\text{C}$ from the set temperature for the ones with a temperature setting of less than 100°C , within $\pm 5\%$ for the ones with a setting of 100°C to 200°C , and within $\pm 10^{\circ}\text{C}$ for the ones with a setting of over 200°C .
- (2) In the test of 8.6 (2) carried out after the test of 8.6 (1), the average value of the average temperature at which the circuit opens and the average temperature at which the circuit closes shall fall within $\pm 5^{\circ}\text{C}$ from the value measured before the test of 8.6 (1) for the ones with a temperature setting of less than 100°C , and within $\pm 5\%$ for the ones with a setting of 100°C or over.

Remark: The temperature setting means the highest operating temperature of thermostat itself (the average value of the temperature at which the circuit opens and the temperature at which the circuit closes).

5.6 Temperature Limiting Device

5.6.1 Temperature Limiter When the test is carried out as specified in 8.6, the temperature limiter shall show no abnormalities at any part; the average temperature at which the circuit opens in the test of 8.6 (2) carried out before the test of 8.6 (1) shall fall within $\pm 15^{\circ}\text{C}$ from the set temperature, and the average temperature at which the circuit opens in the test of 8.6 (2) carried out after the test of 8.6 (1) shall fall within $\pm 5^{\circ}\text{C}$ from the measured value before the test of 8.6 (1) for the ones with a temperature setting of less than 100°C , and within $\pm 5\%$ for the ones with a setting of 100°C or over.

5.6.2 Thermal Fuse When the thermal fuse is subjected to the test of 8.7, the measured operating temperature shall fall within $\pm 7^{\circ}\text{C}$ from the rated operating temperature, if it is less than 200°C , or within $\pm 10^{\circ}\text{C}$ if the rating is 200°C or over.

5.7 Temperature Distribution When the test is carried out as specified in 8.8, the difference of temperature shall not exceed 55°C .

5.8 Temperature Guarantee When the test is carried out as specified in 8.8, the temperature at the center (point A) of the plate shall fall within $\pm 10\%$ from the temperature at the highest temperature scale.

5.9 Rate of Temperature Rise When the test is carried out as specified in 8.9, the time shall be not more than 10 min.

5.10 Endurance of Heating Element When the test is carried out as specified in 8.10, the heating wire shall not break.

5.11 Resistance to Abrasion of Fluoroplastics When the test is carried out as specified in 8.11, the fluoroplastics shall not peel off.

5.12 Endurance of Cord Reel Mechanism When the test is carried out as specified in 8.12, the rate of broken component wires shall not exceed 20% , and no short circuit shall occur.

5.13 Flexure of Cord Joint

- (1) When the joint of cord and appliance body is tested on a griddle without cord reel mechanism as specified in 8.13 (1), the rate of broken component wires shall not exceed 20 %, and no short circuit shall occur.
- (2) When the joint of cord in a non-rewirable attachment plug with cord is tested as specified in 8.13 (2), the rate of broken component wires shall not exceed 20 %, and no short circuit shall occur.

5.14 Resistance to Impact by Fall The appliance body and removable controller shall comply with the requirements prescribed below immediately after subjected to the tests of 8.14.1 and 8.14.2, respectively. However, griddles having an appliance body exceeding 4 kg in mass are exempted from the above requirement.

- (1) No live part shall be exposed. However, exposure of live parts in such a degree that the live parts are not touched by the test finger when tested by the test finger shown in Attached Figure is an exception.
- (2) No short circuit shall appear when the appliance is connected with the power supply.
- (3) The insulation resistance between the live parts and dead metal parts liable to cause earth fault measured with a d.c. 500 V insulation resistance tester shall be not less than 0.1 M Ω .

6. Construction

6.1 Construction in General The construction of appliance shall comply with the following requirements:

- (1) The appliance shall not cause any hazard under normal service conditions, shall have enough endurance and correct shape, and shall be good in assembly and smooth in operation.
- (2) The griddle shall not tumble when it is inclined from the horizontal plane through an angle of 10 degrees under normal service conditions.

A griddle having a mechanism for vertical storage or a storage stand shall not tumble when it is inclined from the horizontal plane through an angle of 10 degrees under the state ready for storage.

- (3) The parts of metallic cover or box to which the arc may reach due to opening and closing of the switch shall be lined with an arc resistant insulating material.
- (4) The parts which might cause such-risks as burning of the components and exposure of the live parts due to moisture absorption shall be treated moisture proof.
- (5) An appliance which might cause hazards due to temperature rise shall be equipped with a temperature limiter (including a thermal fuse) which does not operate under normal service conditions.

- (6) Appliances with synthetic resin enclosure (excluding the one requiring translucency, transparency, flexibility or mechanical strength for its functions) shall not burn when tested in such a way that a square plane of 9 cm² or more of the outside surface of enclosure (a specimen cut into a square with one side length of 3 cm leaving the original thickness as it is, if there is no square plane of 9 cm² or more on the enclosure) is inclined by about 45 degrees to the horizontal, the tip of flame about 20 mm long produced by burning LP gas of class 1 and No. 1 specified in JIS K 2240 using a gas burner having a nozzle of inside diameter 0.5 mm with the air inlet closed is applied to the central part of the above surface from the bottom vertically for 5 s and then removed.
- (7) The insulating materials used as the enclosure, and the pilot lamps, fuse holders, similar components together with their protective covers exposed on the outside surface of appliance body shall not cause cracks, splits or other abnormalities which may result in risks of electric shock, fire, etc., when a weight of 250 g in mass having a hemispherical polyamide-processed surface of 10 mm radius with a Rockwell hardness HRR 100 specified in JIS K 7202, is dropped thereon from a height of 20 cm, or the equivalent impact force is applied by means of a device having the same hemispherical surface. However, pilot lamps, fuse holders, similar components and their protective covers which are not exceeding 4 cm² in surface area and not projecting 10 mm or more from the surface of enclosure of the appliance body are exempted from the above requirements.
- (8) The operation or state of open and close of the switch, if provided, shall be marked by letters, symbols or colors on an easily visible place. However, if the marking is difficult or if there is no danger such a case is an exception.
- (9) An appliance which controls the temperature by use of semiconductor elements shall not cause burning of the components connected to the control circuit, when the semiconductor elements lose their control ability.
- (10) Appliances shall be so constructed that water drops produced from steam under normal service conditions will not fall on the switch, connector, cord, etc. attached to the appliance body. However if the above components have waterproof construction or do not cause hazards of electric shock, fire, etc. such a case is an exception.
- (11) If some parts of appliance body or removable controller are attached and/or detached, such operation can be done easily surely and safely.
- (12) The strength of noise generated shall comply with the following requirements:
 - (12.1) The noise power shall be not more than 55 dB in a frequency range of 30 MHz to 300 MHz when measured with absorbing clamp. In this case, the dB means the value calculated based on 1 pW is 0 dB.
 - (12.2) The noise terminal voltage, measured between one line and the earth, shall comply with the following requirements:

- (a) The continuous noise terminal voltage shall not exceed the value given in the right column of Table 3 in correlation with the frequency range given in the left column of the same table. In this case the dB means the value calculated based on 1 μ V is 0 dB [same in (b) below].

Table 3. Continuous Noise Terminal Voltage

Unit: dB	
Frequency range	Continuous noise terminal voltage
526.5 kHz to 5 MHz incl.	56
Over 5 MHz to 30 MHz incl.	60

- (b) The discontinuous noise terminal voltage shall not exceed the sum of the appropriate value in Table 3 and the appropriate correction value in Table 4.

Table 4. Correction Value

Unit: dB	
Click factor	Correction value
Under 0.2	44
0.2 to 30 incl.	$20 \log_{10} \frac{30}{n}$

Remark: n = click factor

6.2 Live Part Live parts shall comply with the following requirements:

- (1) The live parts shall not touch the test finger shown in Attached Figure with the easily removable parts removed. The force to be applied to the test finger in this examination shall be 10 N {1 kgf} for the bottom face and 30 N {3 kgf} for outside face and opening.
- (2) The insulation distances (clearance and creepage distance are included) between live parts of different polarity and between live parts and dead metal parts liable to cause earth fault or accessible surface of non-metallic parts shall be as given in Table 5. However, the insulation distances which comply with the following requirements as the test results are excluded.
 - (a) When live parts of different polarity are short-circuited, components connected to the shorted circuits shall not burn. However, if the burning of the said components does not result in burning of other parts such a case is allowed.