

JIS

JAPANESE INDUSTRIAL STANDARD

Electric Pots

JIS C 9213-1988

Translation without guarantee
In the event of any doubt arising, the original
standard in Japanese is to be evidence

Translated

by

Japanese Standards Association

This English translation is prepared at the expense of Japan
External Trade Organization (JETRO)

1. Scope

This Japanese Industrial Standard specifies electric pots intended mainly for household use having a rated power consumption not exceeding 1.5 kW and consisting of a container and an integrated heating element, hereinafter referred to as the "pots". However, exposed electric heating wire type and electrode type ones are excluded.

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 generic name of the main body and the lid of appliance.
- (2) main body A portion of the appliance body not including the lid.
- (3) container A portion of the main body which contains water.
- (4) lid (upper lid) A portion of a pot which belongs the main body and functions as a means to open and close a part of the enclosure.
- (5) intermediate plug A portion of a pot the function of which is to close the opening of the container.
- (6) water pouring mechanism A portion of a pot which has such a function that the hot or cold water in the container can be poured by means of air pressure or the like without lifting or inclining the main body.

Applicable Standards:

JIS C 2520-Wires and Rolled Wires for Electrical Heating
 JIS C 3301-Rubber Insulated Flexible Cords
 JIS C 3306-Polyvinyl Chloride Insulated Flexible Cords
 JIS C 3312-600 V Grade Polyvinyl Chloride Insulated and Sheathed Portable Power Cables
 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 C 8358-Appliance Couplers for Domestic and Similar Use
 JIS G 3555-Woven Wire Cloth
 JIS K 2240-Liquefied Petroleum Gases
 JIS K 5400-Testing Methods for Organic Coatings
 JIS K 7202-Method of Rockwell Hardness Test for Plastics
 JIS S 6006 -Pencils and Coloured Pencils

Corresponding International Standards:

IEC 335-2-15 Safety of household and similar electrical appliances. Part 2 : Particular requirements for appliances for heating liquids
 IEC 530 Methods for measuring the performance of electric kettles and jugs for household and similar use

3. Classification

Pots are classified as given in Table 1.

Table 1. Classification

Class	Type		Water pouring system	Remark
Normal pot	General type		Water is poured in such a way that the handle equipped on the pot is gripped and then the pot is inclined.	Appliances which can not continuously maintain the water temperature at a constant temperature (below the boiling temperature).
	Drip type		Water is poured in such a way that a cock is provided in the bottom of container and water is naturally dripped by opening the cock.	
Auto- matic pot	General type		Water is poured in such a way that the handle equipped on the pot is gripped and then the pot is inclined.	1 Appliances which can continuously maintain the water temperature at a constant temperature (below the boiling temperature). 2 There are two kinds of temperature setting, one is fixed and the other is variable.
	Drip type		Water is poured in such a way that a cock is provided in the bottom of container and water is naturally dripped by opening the cock.	
	Pump type	by air pressure (manual) ⁽¹⁾	Water is poured by means of a manually operated water pouring mechanism.	
		by air pressure (motor operated) ⁽²⁾	Water is poured by means of a motor driven water pouring mechanism.	
		by pumping up (motor operated) ⁽³⁾	Water is poured by means of a motor driven suction pump.	

Notes ⁽¹⁾ This is a pot having a water pouring mechanism which utilizes air pressure, for pouring water, in such a way that water surface is pressed by the compressed air in the bellows produced by operation of the push plate or lever.

⁽²⁾ This is a pot having a water pouring mechanism which utilizes air pressure, for pouring water, in such a way that water surface is pressed by the compressed air in the bellows produced by telescopic motion of the bellows driven by the motor which is started by pushing of the push-button switch.

⁽³⁾ This is a pot which utilizes a motor driven suction pump, for pouring water, in such a way that water is pumped up by a suction pump driven by a motor which is started by pushing of the push-button switch.

4. Rated Voltage

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

5. Performances

5.1 Voltage Fluctuation Characteristic There shall be no trouble detrimental to practical service when the test is carried out in accordance with the method 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 values given in Table 2. The measurement specified in 8.3 shall be carried out with the motor operated, for a specimen which is equipped with a motor and running of the motor is possible during the test of 8.3.

Table 2. Tolerances on Power Consumption
Unit: %

Rated power consumption	Tolerances
Up to and including 1 kW	± 10
Over 1 kW	± 5

5.3 Insulation Performances

5.3.1 Insulation Resistance The insulation resistance shall be 1 M Ω or more when the test is carried out as specified in 8.4.1.

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

5.3.3 Insulation Resistance at Water Overflow The insulation resistance at water overflow shall comply with the following requirements:

- (1) The insulation resistance shall be not less than 0.3 M Ω when measured in accordance with the method of 8.4.3 (1).
- (2) The insulation resistance shall be not less than 1 M Ω when measured in accordance with the method of 8.4.3 (2).

5.4 Temperature

5.4.1 Normal Temperature When the normal temperature is measured in accordance with the method of 8.5.1, the temperature of any part shall not exceed the appropriate value given in Table 3.

Table 3. Temperature Limits

Measurement position		Unit: °C
		Temperature
Handle for transport	Made of metals, ceramics or glass	65
	Made of others	80
Knob and push button of switch	Made of metals, ceramics or glass	60
	Made of others	75
Handle operated by a man during service	Made of metals, ceramics or glass	55
	Made of others	70
Surface of wooden base on which specimen is placed		95
Rectifier	Made of silicon	135
Winding	Of Class A insulation	100
	Of Class E insulation	115
	Of Class B insulation	125
	Of Class F insulation	150
Cord	Of Class H insulation	170
	Of p.v.c. mixture (excluding heat resistant ones) and of natural rubber mixture	60
	Of p.v.c. mixture (heat resistant ones only), of styrene-butadiene rubber mixture and of chloroprene rubber mixture	75
	Of silicon rubber mixture, of ethylene-propylene rubber mixture and of chlorosulfonized polyethylene rubber mixture	90

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 pot or the wooden base shall not burn, and the insulation resistance between live parts and dead metal parts liable to be earthed measured with a d.c. 500 V insulation resistance tester shall be not less than 0.1 MΩ.

5.5 Automatic Switch When the test is carried out as specified in 8.6, the specimen shall show no abnormality at any part, the average value of the temperatures at which the circuit opens in the test of 8.6 (2) carried out before the test of 8.6 (1) shall fall within $\pm 10^{\circ}\text{C}$ from the set temperature, and the average value of the temperatures 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 for appliances with a temperature setting less than 100°C , or fall within $\pm 5\%$ for appliances with a setting 100°C or more.

5.6 Performances of Thermostat and Self-resetting Temperature Limiter When the test is carried out as specified in 8.7, the following requirements shall be complied with:

- (1) **Make-Break Property** No abnormality shall appear at any part.
- (2) **Operating Temperature** The operating temperature shall comply with Table 4.

Table 4. Permissible Range of Operating Temperature

Classification		Permissible range
Before make-break test	Thermostat	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 appliances with a temperature setting of less than 100°C , within $\pm 5\%$ for the ones with setting of 100°C to 200°C incl., and within $\pm 10^{\circ}\text{C}$ for the ones with a setting of over 200°C .
	Self-resetting temperature limiter	The average value of temperatures at which the circuit opens shall fall within $\pm 15^{\circ}\text{C}$ from the set temperature.
After make-break test	Thermostat	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 make-break test for appliances with a temperature setting of less than 100°C and within $\pm 5\%$ from the value before test, for the ones with a setting of 100°C or more.
	Self-resetting temperature limiter	The average value of temperatures at which the circuit opens shall fall within $\pm 5^{\circ}\text{C}$ from the value measured before the make-break test for appliances with a temperature setting of less than 100°C , and within $\pm 5\%$ from the value before test for the ones with a setting of 100°C or more.

5.7 Performance of Non-self-resetting Temperature Limiter When the test is carried out as specified in 8.8, the following requirements shall be complied with:

- (1) **Make-Break Property** No abnormality shall appear at any part.
- (2) **Operating-Temperature** The operating temperature shall comply with Table 5.

Table 5. Permissible Range of Operating Temperature

Classification	Permissible range
Before make-break test	The average value of temperatures at which the circuit opens shall fall $\pm 15^{\circ}\text{C}$ from the set temperature.
After make-break test	The average value of temperatures at which the circuit opens shall fall within $\pm 5^{\circ}\text{C}$ from the temperature set before the make-break test for appliances with a temperature setting less than 100°C , and within $\pm 5\%$ for the ones with a setting of 100°C or more.

5.8 Thermal Fuse When the test is carried out as specified in 8.9, the measured temperature shall fall within $\pm 7^{\circ}\text{C}$ from the rated operating temperature for the ones with rated operating temperature less than 200°C and with $\pm 10^{\circ}\text{C}$ for the ones with a rating of 200°C or more.

5.9 Guarantee of Water Temperature When the test is carried out as specified in 8.10, the measured value shall be not less than 85°C , and the minimum value, if there is, shall be not less than 80°C .

5.10 Efficiency When the test is carried out as specified in 8.11, the measured efficiency shall be not less than 75 %.

5.11 Water Flow at Tumble When an automatic pots of pump type is subjected to the test of 8.12, the volume of water flows out shall not exceed 50 ml in each of lateral direction and rear direction.

5.12 Endurance of Heating Wire for Boiling When the test is carried out as specified in 8.13, the heating wire shall not break.

5.13 Endurance of Container When the test is carried out as specified in 8.14, there shall be no holes through which water leaks.

5.14 Flexure of Cord Joint

- (1) When the joint between appliance body and cord is test as specified in 8.15 (1), an appliances without cord reel mechanism, the rate of broken component wires shall not exceed 20 % and no short circuit shall appear.
- (2) When the joint of cord and non-rewirable plug is tested as specified in 8.15 (2), the rate of broken component wires shall not exceed 20 % and no short circuit shall appear.

5.15 Resistance to Falling Shock The pot shall comply with the requirements given below immediately after subjected to the falling test specified in 8.16. However, this test is not carried out on a pot of 4 kg or more in mass of appliance body.

- (1) The live parts shall not be exposed. However, exposure of such degree that the live parts do not come in contact with the test finger when tested by the test finger illustrated in Attached Figure is an exception.
- (2) No short circuit shall occur when the appliance is connected to the power source.
- (3) The insulation resistance between the live parts and dead metal parts liable to be earthed measured by a d.c. 500 V insulation resistance tester shall be not less than $0.1\text{ M}\Omega$.

5.16 Flame Retardance of Heat Reserving and Heat Insulating Materials When heat reserving and heat insulating materials to be stuffed near the electrical parts are tested in accordance with the method of 8.17, they shall not burn out after removal of test flame and the time until extinction of flame shall not exceed 10 sec. However, if there is no risks of electric shock, fire, etc. even when the heat reserving or the heat insulating material burn, such a case is an exception.

6. Construction

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

- (1) The appliance body shall have no possibility of causing any hazard under normal service conditions, enough endurance and correct shape, shall be assembled well, and shall operate smoothly.
- (2) The part of metal cover or box to which arc may reach when the switch is opened or closed shall be lined with arc resistant insulating materials.
- (3) Moisture proof treatment shall be applied to the part moisture absorption of which may result in risks of burning of component, exposure of live parts, etc.
- (4) A pot which may cause any hazard due to temperature rise shall be equipped with a temperature limiter and the limiter shall not operate under normal service conditions.
- (5) If a connector is used for connection of appliance body and cord, the connecting operation can be done easily, surely and safely.