

JIS

JAPANESE INDUSTRIAL STANDARD

Electric blenders and electric juicers for household use

Ⓒ JIS C 9609—1990

Translated and Published

by

Japanese Standards Association

Printed in Japan

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



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Electric Blenders and Electric Juicers
for Household Use

C 9609-1990

1. Scope

This Japanese Industrial Standard specifies electric blenders (hereafter referred to as "blenders"), electric juicers (hereafter referred to as "juicers") and electric juicer - blenders (hereafter referred to as "juicer - blenders") for household use which are employing electric motors and having a rated power consumption not exceeding 500 W.

Blenders having a rated capacity under 1500 ml are dealt with:

Remarks 1. For juicer - blenders, the provisions for blenders are applied to the blender parts, and the provisions for juicers are applied to the juicer parts.

2. This Standard is not applicable for food blenders, coffee mills and the like.

3. Applicable Standards are listed below.

JIS A 9511-Thermal Insulation Material Made of Polystyrene Foam

JIS C 1502-Sound Level Meters

JIS C 3306-Polyvinyl Chloride Insulated Flexible Cords

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 Paints

JIS K 7202-Method of Rockwell Hardness Test for Plastics

JIS S 6006-Pencils and Coloured Pencils

JIS Z 8731-Methods of Measurement and Description of A-weighted Sound Pressure Level

JIS Z 8801-Test Sieves

2. Definitions

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

- (1) blender An appliance in which the cutter (blades) is located in the container, and which has such functions that the rotating cutter breaks mainly fruits or the like together with water and stirs and mixes them.
- (2) juicer An appliance in which the cutter and centrifugal separation basket are located in the container, and which has such functions that the rotating cutter grinds mainly fruits or the like including lots of water and the juice is separated by means of the centrifugal separation basket.
- (3) juicer - blender An appliance which has functions of juicer and blender.

Remark: In this Standard, the part which has the function of blender is called "blender" and the part which has the function of juicer is called "juicer" hereafter.

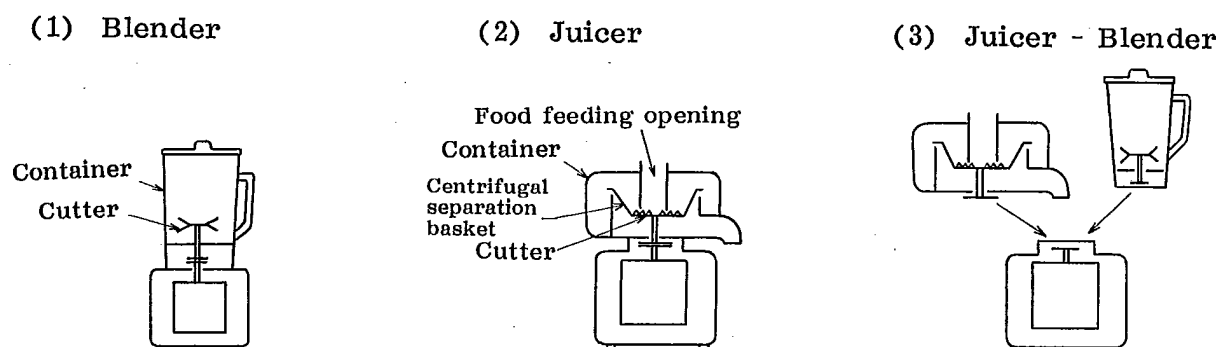
- (4) juice extraction rate The ratio of extruded amount of juice to the amount of water contained in the materials thrown into a juicer.
- (5) rated capacity The volume of container in a blender which is marked by the manufacturer on the appliance.

3. Classification

These appliances are classified into the following three classes.
The classification is exemplified in Fig. 1.

- (1) Blender
- (2) Juicer
- (3) Juicer - Blender

Fig. 1. Classification



4. Rated Voltage and Rated Frequency

The rated voltage shall be single phase a.c. 100 V and the rated frequency shall be 50 Hz, 60 Hz or 50/60 Hz in common.

5. Rated Power Consumption

The rated power consumption means the power consumption when the rated voltage at the rated frequency is applied to an appliance under the standard measuring conditions, and it shall be as marked by the manufacturer on the appliance.

6. Standard Measuring Conditions

The standard measuring conditions shall be as follows:

- (1) The standard measuring conditions for blenders mean such conditions that the water of the marked rated capacity (ml) at about 20°C is only put into the container, the lid is placed and the appliance is operated.

Blenders equipped with a speed control shall be operated with the speed control adjusted to the highest setting.

- (2) The standard measuring conditions for juicers mean such conditions that the thermal insulating board of class A number 3 specified in JIS A 9511 with a thickness of 25 mm, width of 30 mm and a length of 200 mm is soaked in water for 2 h, taken out of water, put into the food feeding opening, pressurized by a load of 8 N, and then the appliance operated.

Juicers equipped with a speed control shall be operated with the speed control adjusted to the highest setting.

7. Performances

7.1 Starting When the starting test is carried out as specified in 10.2, the specimen shall start regardless of the position of the motor rotor.

7.2 Voltage Fluctuation When the voltage fluctuation test is carried out as specified in 10.3, the specimen shall continue the running without any trouble.

7.3 Power Consumption When the power consumption test is carried out as specified in 10.4, the deviation of the measured power consumption from the rated power consumption shall fall within the tolerances specified in Table 1.

The deviation shall fall within $\pm 20 \%$ in the case of a juicer.

Table 1. Tolerance on Power Consumption

Rated power consumption W	Tolerances %
Over 10 up to and including 30	± 25
Over 30 up to and including 100	± 20
Over 100 up to and including 500	± 15

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7.4 Temperature When the temperature test is carried out as specified in 10.5, the temperature at each part shall not exceed the appropriate value given in Table 2.

Table 2. Temperature

Position of measurement		Unit: °C
		Temperature
Winding	Of class A insulation	100
	Of class E insulation	115
	Of class B insulation	125 (120)
	Of class F insulation	150 (140)
	Of class H insulation	170 (165)
Rectifier (only that used in a.c. side power supply circuit)	Of selenium	75
	Of germanium	60
	Of silicon	135
Handle for transportation (excluding the one operated by a man during service)	Of metal, ceramics or glass	65
	Of others	80
Handle operated by a man during service	Of metal, ceramics or glass	55
	Of others	70
Knob and push button of switch	Of metal, ceramics or glass	60
	Of others	75
Enclosure		65
Surface of each layer of insulated wire inside cord reel mechanism	Natural rubber mixture, polyurethane rubber mixture, vinyl chloride mixture	60
	Chloroplene rubber mixture, styrene-butadiene rubber mixture, heat resistant vinyl chloride mixture, polyethylene mixture	75
	Butyl rubber mixture, ethylene-propylene rubber mixture	80
	Chlorosulfonized polyethylene rubber mixture, cross-linked polyethylene mixture, silicone rubber mixture, tetrafluoroethylene resin mixture	90

Remarks 1. The numerical values in parentheses are applicable for windings of motors.

2. The reference ambient temperature is 30°C.

7.5 Insulation

7.5.1 Insulation Resistance When the insulation resistance test is carried out as specified in 10.6.(1) the insulation resistance shall be not less than 1 MΩ.

7.5.2 Dielectric withstand Voltage When the dielectric withstand voltage test is carried out as specified in 10.6 (2), the specimen shall withstand the test voltage.

7.5.3 Insulation at Water Overflow When the test for insulation at water overflow is carried out as specified in 10.6 (3) on a blender whose container is not removable, the insulation resistance shall be not less than 1 MΩ.

7.6 Resistance to Overspeed When the overspeed test is carried out as specified in 10.7, the specimen shall not show any abnormality at each part.

7.7 Switch The switch shall comply with the following requirements:

- (1) When the Make-break test is carried out as specified in 10.8.1, there shall be no abnormalities at any part.
- (2) When the temperature test is carried out as specified in 10.8.2, on an appliance whose maximum load current is 1 A or more, the temperature of the contact piece shall not exceed the value specified in Table 3.

Table 3. Temperature of Contact Piece

Unit: °C	
Material of contact piece	Temperature
Copper or copper alloys	70
Silver or silver alloys	95

Remark: The reference ambient temperature is 30°C.

7.8 Bending of Cord When the cord bending test is carried out as specified in 10.9.1 and 10.9.2 on an appliance whose cord is directly attached to the appliance body, or as specified in 10.9.2 on another appliance, the specimen shall not cause short circuit of cord or other hazards.

The rate of broken component wires shall not exceed 20 %.

7.9 Reeling of Cord When the cord reeling test is carried out as specified in 10.10, on an appliance equipped with cord reel mechanism, the specimen shall not cause short circuit of cord or other hazards. The rate of broken component wires shall not exceed 20 % and there shall be no practical trouble on the cord reeling mechanism.

7.10 Mechanical Robustness When the mechanical robustness test is carried out as specified in 10.11, the specimen shall comply with the following requirements:

- (1) The live parts shall not be exposed. However, when the test finger shown in Attached Fig. 1 is inserted into the opening with a force of 10 N applied, after the test, if the finger does not come in contact with the live parts such a case is an exception.
- (2) There shall be no risk of fire or electric shock when the specimen is connected to the power supply.
- (3) The insulation resistance between live parts and dead metal parts liable to be grounded measured by a d.c. 500 V insulation resistance tester shall be not less than 0.1 M Ω .

7.11 Cutting Performance When the cutting performance test is carried out as specified in 10.12, on a blender, no fruit of apple shall remain on the sieve.

7.12 Capacity When the capacity test is carried out as specified in 10.13, the capacity of the container of blender shall be such that the difference between the measured quantity of water and the rated capacity shall fall within $\pm 10\%$ of the rated capacity.

7.13 Juice Extracting Performance When the juice extracting performance test is carried out as specified in 10.14, on a juicer, the juice extraction rate shall be not less than 80 %.

7.14 Endurance The endurance shall comply with the following requirements:

- (1) When a blender, juicer or juicer - blender is tested in accordance with 10.15 (1), 10.15 (2) or 10.15 (3) respectively, the specimen shall be free from trouble with respect to practical service and safety such as loosening of various parts.
- (2) When the test of 10.15 (4) is carried out, the specimen shall withstand the voltage application.

7.15 Noise When the noise test is carried out as specified in 10.16, the average of the measured values at two points shall not exceed 78 dB for blenders, and 75 dB for juicers.

7.16 Stability When the stability test is carried out as specified in 10.17, the specimen shall not overturn.

8. Construction

8.1 Construction in General The construction shall comply with the following requirements:

- (1) The appliance shall be so constructed that no hazard will take place under normal service conditions, the shape is correct, the assembling is good, and the operation is smooth.

- (2) The appliance shall be so constructed that the finishing of every part is good and corrosion or rust will not appear easily.
- (3) The part which comes in contact with food shall be so constructed that the part can be cleaned.
- (4) The appliance shall be so constructed that the live parts are not splashed by water under normal service conditions.
- (5) Each part shall be so constructed that mechanical or electrical trouble will not occur easily and no hazard will take place.
- (6) The appliance which may cause risk of electric shock or fire when subjected to the tests given below shall be equipped with an overload protective device (including a thermal fuse). The overload protective device shall not operate under normal service conditions.

If there is no risk of hazards such a case is an exception.

Remark: "If there is no risk of hazards" means such conditions that the insulation resistance between live parts and surface of the appliance body measured by a d.c. 500 V insulation resistance tester is not less than $0.1\text{ M}\Omega$, the wooden base will not burn, no abnormality such as burning of appliance and remarkable generation of smoke, no exposure of live part which allows the test finger of Attached Fig. 1 to come in contact, and the temperature of enclosure of the appliance measured after the test by thermo-electric thermometer method is not more than 150°C .

- (6.1) The appliance to be tested (specimen) shall be placed on a flat wooden board not less than 10 mm in thickness, and the rated voltage at the rated frequency shall be applied continuously for 30 s with the rotor of motor locked.
- (6.2) For appliances of short time rating, the specimen shall be placed on a flat wooden board of at least 10 mm in thickness, and the rated voltage at the rated frequency shall be applied continuously, under the conditions stated in the temperature test of 10.5, until the temperatures of various parts almost stabilize (the instant when the thermal fuse or automatic switch used as the temperature limiter operates), irrespective of the rated time. However, appliances stated below are exceptions.
 - (a) Appliances of hand-held type
 - (b) Appliances in which it is necessary to keep the switch manually at "ON" position.
 - (c) Appliances which are continuously loaded by the hand.
 - (d) Appliances equipped with time switch.