

JIS

JAPANESE INDUSTRIAL STANDARD

Electric Shavers

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In the event of any doubt arising,
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Electric Shavers

C 9614-1988

1. Scope

This Japanese Industrial Standard specifies the electric shavers of a.c. type, charging type, dry cell type and combination thereof driven by a motor or electromagnetic vibrator.

Remark: The units and numerical values given in { } in this Standard are based on the traditional unit system and are currently the criteria in force.

2. Classification

The shavers are classified, according to existence or non-existence of submargible construction and the power supply system, into the following 10 classes.

- (1) Dry Type Electric Shavers Electric shavers which have no submersion proof construction.
 - (a) A.C. Type Electric Shaver An electric shaver which serves directly under an a.c. power supply at a frequency of 50 Hz or 60 Hz.
 - (b) Charging Type Electric Shaver An electric shaver which utilizes a storage battery and has a charger as an integrated component or an accessory.
 - (c) Dry Cell Type Electric Shaver An electric shaver driven by dry cell(s) which is replaced as needed.
 - (d) A.C. and Charging Type Electric Shaver An electric shaver consisting of the combination of (a) and (b).
 - (e) A.C. and Dry Cell Type Electric Shaver An electric shaver consisting of the combination of (a) and (c).
 - (f) A.C., Charging and Dry Cell Type Electric Shaver An electric shaver consisting of the combination of (a), (b) and (c).
 - (g) Charging and Dry Cell Type Electric Shaver An electric shaver consisting of the combination of (b) and (c).
- (2) Wet Type Electric Savers Electric shavers which have submersion proof construction.
 - (a) Charging Type Electric Shaver (Wet Type) An (wet type) electric shaver which utilizes a storage battery and has a charger as an integrated component or an accessory.

Applicable Standards: See page 26.

- (b) Dry Cell Type Electric Shaver (Wet Type) An (wet type) electric shaver driven by dry cell(s) which is replaced as needed.
- (c) Charging and Dry Cell Type Shaver (Wet Type) An (wet type) electric shaver consisting of the combination of (a) and (b).

3. Rated Voltage and Rated Frequency

The rated voltages and rated frequencies shall be as follows:

- (1) A.C. System Electric Shaver⁽¹⁾ The rated voltage of the parts related with a.c. type shall be single-phase a.c. 100 V or 100 to 120 V, and the rated frequency shall be 50 Hz, 60 Hz or 50/60 Hz.
- (2) Charging System Electric Shaver⁽²⁾ The rated voltage of the parts related with charging type at charging shall be single-phase a.c. 100 V or 100 to 120 V, and the rated frequency shall be 50 Hz, 60 Hz or 50/60 Hz. The rated voltage at discharge means the nominal voltage of the storage battery, and if many cells are connected in series this nominal voltage means the nominal voltage of a cell multiplied by the number of cells in series.
- (3) Dry Cell System Electric Shaver⁽³⁾ The rated voltage of the parts related with dry cell type means the nominal voltage of the dry cell(s), and if many cells are connected in series this nominal voltage means the nominal voltage of a cell multiplied by the number of cells in series.

Notes (1) This means the parts related with a.c. type in electric shavers of a.c. type and a.c. type combined with other power supply type.

(2) This means the parts related with charging type in electric shavers of charging type and charging type combined with other power supply type.

(3) This means the parts related with dry cell type in electric shavers of dry cell type and dry cell type combined with other power supply type.

4. Performances

4.1 Starting The electric shaver shall start without any abnormality when subjected to the test of 7.2.

4.2 Operation under Voltage Fluctuation The a.c. system electric shaver shall continue its operation without any trouble when subjected to the test of 7.3.

4.3 Power Consumption When the power consumption of electric shavers of a.c. system and charging system (charging type electric shaver having the charger as its accessory is excluded) is tested in accordance with 7.4, the power consumption shall be not more than 125 % of the rated power consumption for shavers with a rated power consumption not exceeding 10 W, and shall be 100 ± 25 % of the rated power consumption for shavers with a rated power consumption exceeding 10 W but not exceeding 30 W. The input capacity of a charging type shaver having its charger as its accessory, tested as specified in 7.4 (3), shall be not more than 125 % of the rated input capacity for shavers with a rated input capacity not exceeding 20 VA, and shall be 100 ± 20 % of the rated input capacity for shavers with a rated input capacity exceeding 20 VA but not exceeding 30 VA.

4.4 Temperature Rise The temperature rise shall satisfy the following requirements:

- (1) When an a.c. system electric shaver is tested in accordance with 7.5 (1), the temperature rise shall not exceed the appropriate value in Table 1.
- (2) When a charging system electric shaver is tested in accordance with 7.5 (2), the temperature rise shall not exceed the appropriate value in Table 1.
- (3) When a dry cell system electric shaver is tested in accordance with 7.5 (3), the temperature rise of blade shall not exceed the value in Table 1.

Table 1. Temperature Rise

Unit: °C

Measurement position		Temperature rise
Rectifier element	Germanium	30
	Selenium	45
	Silicon	105
Winding	Class A insulation	70
	Class E insulation	85
Enclosure	Made of metal, ceramics or glass	25
	Others	40
Blade part		25

Remark: The limit of ambient temperature is 30°C.

4.5 Insulation Resistance The insulation resistance of electric shavers of a.c. system and charging system tested as specified in 7.6 shall be not less than 3 MΩ.

4.6 Dielectric Withstand Voltage Electric shavers of a.c. system and charging system shall withstand the test voltage when subjected to the test of 7.7.

4.7 Insulation Ability against Moisture The insulation resistance of electric shavers of a.c. system and charging system tested as specified in 7.8 shall be not less than $1M\Omega$.

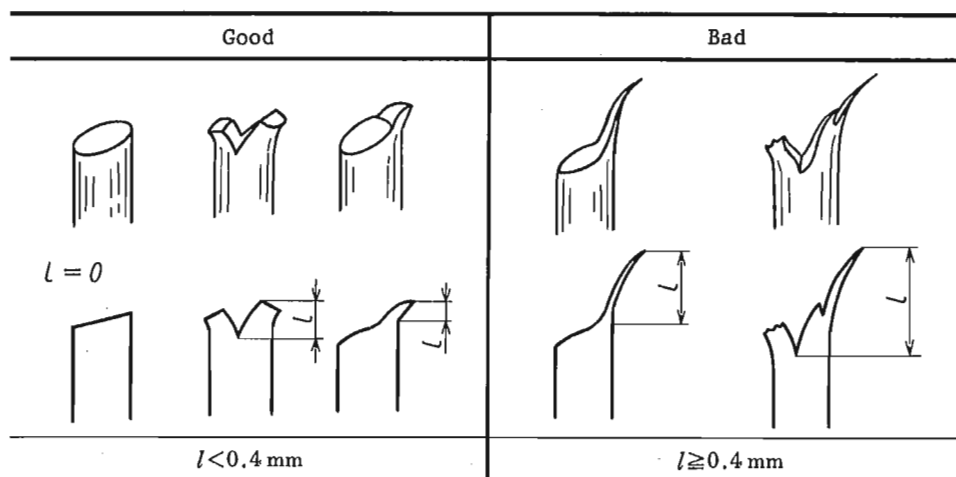
4.8 Charged Capacity The charged capacity of a charging system electric shaver shall comply with the following requirements:

- (1) The charged capacity, tested as specified in 7.9 (1), shall be not less than 80 % of the nominal capacity of the storage battery.
- (2) The charged capacity after subjected to charge and discharge cycles, shall be not less than 50 % of the nominal capacity of the storage battery and there shall be no abnormalities at various parts, when the specimen is subjected to the test of 7.9 (2).

4.9 Overcharge Charging system electric shavers shall satisfy the provision of 4.8 (1) and shall be capable of serving without practical troubles, when tested in accordance with 7.10.

4.10 Sharpness When such a state in the sectional view of artificial hair shown in Fig. 1 that the l is less than 0.4 mm is assumed as "good", the sharpness of electric shaver tested as specified in 7.11 shall show a rate of good cut hairs not less than 70 %.

Fig. 1. Sectional View of Artificial Hair



4.11 Noise The noise of an electric shaver tested as specified in 7.12 shall be not more than 63 dB for reciprocating blade ones, and 60 dB for rotating blade ones. A shaver in which a reciprocating blade and a rotating blade are driven simultaneously is considered as reciprocating blade type.

4.12 Mechanical Strength The mechanical strength of electric shavers of a.c. system and charging system shall comply with the requirements below. However, dry cell system electric shavers shall comply with the requirement of (1) (b).

- (1) Robustness against Fall The robustness against fall tested as specified in 7.13 (1) shall comply with the following requirements:
- (a) No live parts shall be exposed. However, if the exposed live parts can not be touched by the test finger when tested with the test finger shown in Attached Figure, such a case is an exception.
 - (b) No short circuit shall occur when the specimen is connected to the power supply or the switch is opened or closed.
 - (c) The insulation resistance between the live parts and the dead metal parts accessible by hand measured by a d.c. 500 V insulation resistance tester shall be not less than 1 MΩ.
- (2) Robustness against Polyamide Sphere Blow The robustness against polyamide sphere blow tested as specified in 7.13 (2) shall be such that no flaws, cracks or other abnormalities which may result in a risk of electric shock or fire shall appear.

4.13 Endurance of Driving Part The endurance of driving parts of electric shavers tested as specified in 7.14 shall be such that there is neither constructional abnormality nor breakage of outer blade which may injure human skin, and the provision of 4.1 shall be satisfied.

4.14 Switch The switches of electric shavers shall not cause failure when tested in accordance with 7.15.

4.15 Flexure of Cord When electric shavers employing a cord are tested in accordance with 7.16, the cord shall not short circuit and the rate of broken component wires of the cord shall not exceed 20 %.

4.16 Appliance Plug When electric shavers employing appliance plug are tested in accordance with 7.17, the holding force of the plug shall fall within a range of 4.9 to 58.8 N {0.5 to 6 kgf}, the insulating material and/or the current carrying metal fittings shall show no trouble, and the electrical connection shall be sure.

4.17 Blade for Connection with Power Supply The charging system electric shaver which has the blades for connection with power supply on the shaver body or its charger shall comply with the following requirements:

- (1) Robustness of Blade for Connection with Power Supply against Pushing When the robustness is tested as specified in 7.18 (1), the power supply connecting blades shall not retract and shall show no other abnormalities.
- (2) Draw and Push of Power Supply Connecting Blade from and into Appliance Body When this operation is tested as specified in 7.18 (2), there shall be no abnormalities and the electrical connection shall be sure.

4.18 Flame Retardance of Enclosure The enclosures of electric shavers of a.c. system and charging system shall not burn when subjected to the test of 7.19.

4.19 Submersion Proof The wet type electric shavers shall satisfy the following items:

- (1) When the electric shaver is subjected to the test of 7.20 (1), no water shall enter into the inside of submersion proof construction.
- (2) When the charging system electric shaver is subjected to the test of 7.20, the shaver shall satisfy the provisions of 4.5 and 4.6.

5. Construction

5.1 Construction in General The construction of electric shavers shall comply with the following requirements:

- (1) Electric shavers shall not cause any hazard under normal service conditions, remarkable vibration and shall operate smoothly.
- (2) Electric shavers shall be well assembled to have correct style, and shall have no defects on their components.
- (3) Charging system electric shavers shall employ the rechargeable cells specified in JIS C 8705 or those which satisfy the performances specified in the same Standard. For dry cell system electric shavers, the primary cells specified in JIS C 8501 or JIS C 8511 can be used without trouble.
- (4) The cleaning after use shall be easy, and hair and so on will not enter into the appliance body easily.
- (5) Dry cell system electric shavers shall be so constructed that the cells can be attached and detached easily and will not come out easily due to vibration or the like.
- (6) The blade of electric shaver shall have good touch under normal service conditions, and shall cut hairs safely.
- (7) The electric shaver shall be provided with a cap or case to protect the blade or shall be so constructed that the blade is retractable to prevent the blade from damage, during storage period.
- (8) In an electric shaver which is used by attaching or detaching a part of appliance body or accessories, such operations can be done easily, surely and safely.
- (9) The insulating material shall comply with the requirements below. However, dry cell system electric shavers are exempted from the requirements.
 - (a) If the material of appliance enclosure also serves as the insulation, the insulating material shall have a thickness not less than 0.8 mm, and shall be free from pinholes.

- (b) The insulating material used for the parts where no external injury is expected shall have a thickness not less than 0.3 mm and shall be free from pinholes. However, the material complying with the provision of 5.2 is excepted.
- (c) In the portion of shaver like the insulation of motor winding (only the parts not externally injured) where it is impossible to make the thickness of insulating material not less than the value specified in (b), the insulation shall withstand continuous one-minute application of the a.c. voltage given in the right column of Table 2 in relation with the classification of the voltage under which the insulating material serves given in the left column of Table 2. However, the material complying with the provision of 5.2 is excepted.

Table 2. Dielectric Withstand Voltage

Unit: V

Classification of voltage under which insulating material serves	A.C. voltage
30 and under	500
Over 30 to 150 incl.	1000

- (10) The fixed parts between live parts or live parts and dead parts shall not work loose under normal service conditions.
- (11) The live parts, except of the parts given below, shall not be touched by the test finger of Attached Figure, with easily detachable portions without use of tools removed. However, dry cell type electric shavers are excluded.

The force to be applied to the test finger shall be 29.4 N {3 kgf} on the outer surfaces and at the openings.

- (a) The live parts on the mounting surface of an appliance which is not accessible by a man when the appliance is mounted.
- (b) Such an exposed live part that the exposure during service is unavoidable due to the construction, the part is connected to the secondary side of an insulating transformer where both of the voltage to earth and the line voltage are not exceeding 30 V in a.c. or 45 V in d.c., or where the current flows through each of the 1 k Ω resistances connected between the part and the earth and between the lines does not exceed 1 mA, unless the current will not result in a risk of electric shock at frequencies not less than the power frequency.