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JIS

JAPANESE INDUSTRIAL STANDARD

Electric washing machines

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Electric washing machines C 9606-1993

1. Scope This Japanese Industrial Standard specifies the electric washing machine for domestic use, consisting of electric motor and washing tank as one body (including water extracting device), with standard washing capacity not exceeding 10 kg (hereafter referred to as "washing machine").

Remarks 1. The following standards are cited in this Standard:

JIS C 0602	General rules of colour identification for protective conductor and neutral conductor and terminal marking for apparatus
JIS C 0702	General rules for insulation construction of class II electrical appliances
JIS C 1502	Sound level meters
JIS C 1505	Precision sound level meters
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 F 8832	Marine watertight type plugs
JIS K 1465	Sodium tripolyphosphate
JIS K 2240	Liquefied petroleum gases
JIS K 5400	Testing methods for paints
JIS K 7202	Method of Rockwell hardness test for plastics
JIS K 8150	Sodium chloride
JIS K 8218	Oleic acid
JIS K 8350	Cholesterol
JIS K 8625	Sodium carbonate
JIS K 8987	Sodium sulfate
JIS K 9003	Liquid paraffin
JIS S 6006	Pencils and coloured pencils
JIS Z 2371	Methods of neutral salt spray testing
JIS Z 8731	Methods of measurement and description of A-weighted sound pressure level

2. 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 shall apply:

(1) washing capacity The washing capacity means the mass (kg) of laundry in dry state washable at one time at each water level. The laundry in this case is the artificial laundry specified in Annex 1 (hereafter referred to as "laundry").

(2) standard washing capacity The standard washing capacity means the maximum mass (kg) of laundry in dry state washable at a time among the washing capacities.

(3) standard water-extracting capacity The standard water-extracting capacity means the maximum mass (kg) of laundry in dry state extractable at a time.

(4) standard water-extracting and rinsing capacity The standard water-extracting and rinsing capacity means the maximum mass (kg) of laundry in dry state which can be dehydrated and rinsed at a time.

(5) quantity of water The quantity of water means the approximate quantity of water in tank most suitable for washing the laundry of washing capacity, and shall be determined in accordance with Annex 2 and expressed in L.

(6) standard quantity of water The standard quantity of water means the quantity of water most suitable for washing the laundry of standard washing capacity.

(7) water level and water level line The water level and water level line mean the water level and water level line when dry laundry of the washing capacity and water of suitable quantity for it are put together into the tank.

(8) standard quantity of used water The standard quantity of used water means the quantity of water used for one whole process in automatic electric washing machine and full automatic electric washing machine, and shall be determined in accordance with Annex 3.

(9) manual electric washing machine The manual electric washing machine means the washing machine in which the processes of washing, rinsing and water-extraction are shifted manually.

(10) automatic electric washing machine The automatic electric washing machine means the washing machine in which any two processes among washing, rinsing and water-extraction are shifted automatically without manual operation.

(11) full automatic electric washing machine The full automatic electric washing machine means the washing machine in which each process of washing, rinsing and water-extraction is shifted automatically without manual operation.

(12) water-extracting system

(a) water-extracting device The water-extracting device means a device which performs water-extraction by means of pressure or centrifugal force.

(b) extractor The extractor means a machine which performs water-extraction by centrifugal force and is installed independently to the washing part.

(c) others Machines other than (a) and (b).

(13) washing system

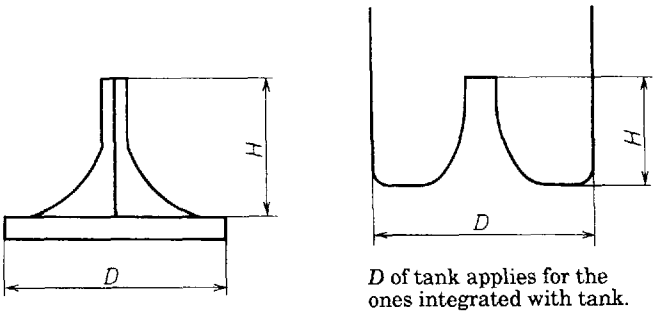
(a) jet system A system in which washing is performed by the rotation of one or more rotating impellers equipped on the side face of water tank.

(b) vortex system A system in which washing is performed by the rotation of a rotating impeller equipped on the bottom face of water tank.

(c) agitator system A system in which washing is performed by the motion of agitator blades equipped on the bottom face of water tank.

The agitator blades mean an assembly of blade which has a relation $H \geqq 0.75\ D$ as shown in Fig. 1.

Fig. 1. Agitator blade



(d) drum system A system in which washing is performed in such a way that a drum is placed in the water tank and the laundry falls down due to rotation of the drum.

3. Classification Washing machines are classified as follows:

(1) Manual electric washing machine

(2) Automatic electric washing machine

(3) Full automatic electric washing machine

4. Rated voltage and rated frequency The rated voltage of the washing machine shall be single-phase a.c. not exceeding 300 V and rated frequency shall be 50 Hz, 60 Hz, or 50 Hz/60 Hz.

5. Performances

5.1 Start When starting test is carried out as specified in 8.2, the motor shall start irrespective of the position of the rotor.

5.2 Voltage fluctuation When voltage fluctuation test is carried out as specified in 8.3, the machine shall continue its running without any trouble.

5.3 Power consumption The power consumption shall not exceed 115% of the rated power consumption when the test is carried out as specified in 8.4.

5.4 Temperature

5.4.1 Normal temperature When the normal temperature test is carried out by the method specified in 8.5.1, the temperature of each part of the washing machine shall be not more than the value shown in Table 1, and no abnormal heat shall be produced on other places.

5.4.2 Abnormal temperature When the abnormal temperature test of washing machine equipped with electric heating device is carried out by the method specified in 8.5.2, the washing machine under test (specimen) or the wooden base shall not burn and the insulation resistance between the live part and the surface of machine body measured with a d.c. 500 V insulation resistance tester shall be 0.1 MΩ or more.

5.5 Insulation performances

5.5.1 Insulation resistance The insulation resistance, when measured by the method specified in 8.6.1, shall be 1 MΩ or more.

5.5.2 Dielectric withstand voltage When the dielectric withstand voltage test is carried out by the method specified in 8.6.2, the washing machine shall withstand the voltage.

5.6 Noise When the noise test is carried out by the method specified in 8.7, the noise level shall be 65 dB or less.

5.7 Leakage current The leakage current, when measured by the method specified in 8.8, shall be 1 mA or less.

5.8 Insulation under damp When the insulation under damp test is carried out by the method specified in 8.9, the insulation resistance measured shall be 0.3 MΩ or more.

5.9 Insulation at water overflow When the insulation at water overflow test is carried out by the method specified in 8.10, the insulation resistance measured shall be 1 MΩ or more.

5.10 Insulation at water spray When the insulation at water spray test is carried out by the method specified in 8.11, the insulation resistance measured shall be 1 MΩ or more. The specimen shall withstand the dielectric withstand voltage test of 8.6.2.

Table 1. Temperatures of various parts

Unit: °C

Measurement position			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		of selenium	75
		of germanium	60
		of silicon	135
Contact of fuse clip			90
Knob or push button of switch or the like		of metal of ceramics of glass	60
		of others	75
Manually operated handle during service		of metal of ceramics of glass	55
		of others	70
Handle for transportation		of metal of ceramics of glass	65
		of others	80
Enclosure	In contact with a man during service	of metal of ceramics of glass	55
		of others	70
	Easily accessible by a man	of metal of ceramics of glass	85
		of others	100
	Not accessible by a man		100

Remarks 1. The values in parentheses shall apply to the winding of rotary machines.

2. The reference ambient temperature is 30°C.