TEST REPORT

Reference No.	:	WTA24F02028830J
Applicant	:	Handian Group Ningbo Washing Machine Co., Ltd.
Address	:	East Guanhaiwei Industrial Zone, Cixi City, Zhejiang Province, 315314, P. R. China
Manufacturer	:	Handian Group Ningbo Washing Machine Co., Ltd.
Address	:	East Guanhaiwei Industrial Zone, Cixi City, Zhejiang Province, 315314, P. R. China
Product Name	:	Fully Automatic Washing Machine(電気洗濯機)
Model No.	:	FW30-2039, FW30-U508, FW30-U528, FW30-1508, FW35-2039, FW35-U508, FW35-U528, FW35-1508, FW35-1939, FW35-19399, FW35-HU528
Test specification	:	Household and similar electrical appliances – Safety – Part 2-7: Particular requirements for washing machines IEC 60335-1:2010+A1:2013+A2:2016 IEC 60335-2-7:2019
Date of Receipt sample	:	2024-02-19
Date of Test	:	2024-02-21 to 2024-04-01
Date of Issue	:	2024-05-07
Test Report Form No.	:	WSH-6033527Q-01B
Test Result	:	Pass

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

Prepared By:

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Tested by:

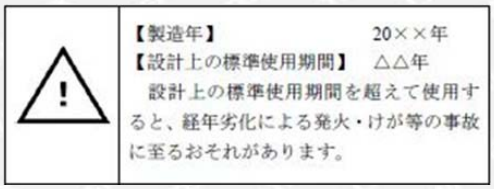
Ryan Wu

Approved by:

Jeffy Mu

Test item description .....:	Fully Automatic Washing Machine(電気洗濯機)
Trade Mark .....:	--
Model/Type reference .....:	FW30-2039, FW30-U508, FW30-U528, FW30-1508, FW35-2039, FW35-U508, FW35-U528, FW35-1508, FW35-1939, FW35-19399, FW35-HU528
Ratings .....:	100V~, 50/60Hz, Class 0I, IPX4 Rated power see below model list table on page 5

Copy of marking plate:



Remark: All models use the same label except model name rating different.
"XXXXX 株式会社" is the local reporting supplier.

National difference:

Japanese differences were considered according to below standard:

J60335-1(H27) , J60335-2-7(H30), J55014-1(H27)

Summary of testing:

1. These samples are tested and complied with the requirements of standards listed on this report.
2. Full tests were performed on model FW35-19399.
3. Tests of cl.10, 11, 13, 15, 16, 20, 22, 24, 29, 30 and construction check were also performed on model FW35-1508.

Test item particulars ..... :	
Classification of installation and use ..... :	Stationary appliance and indoor use
Supply Connection ..... :	Power cord with a non-detachable plug, Type Y

Possible test case verdicts:

- test case does not apply to the test object ..... : N
- test object does meet the requirement ..... : P(Pass)
- test object does not meet the requirement ..... : F(Fail)

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

General product information:

1. The appliances are for household and indoor use only.

2. All models have similar construction except rating and appearance.

Model	Rated power of washing (W)	Rated power of spinning (W)
FW30-2039	240	200
FW30-U508		
FW30-U528		
FW30-1508		
FW35-2039		
FW35-U508		
FW35-U528		
FW35-1508		
FW35-1939	260	220
FW35-19399		
FW35-HU528		

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict

5	**GENERAL CONDITIONS FOR THE TESTS**		--
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
5.2	The relevant tests of 21.101, 21.102 and 22.104 shall be carried out on the same appliance used for the test of clause 18 (IEC 60335-2-7)		P
5.3	Test of 15.101 carried out before test of 15.3 (IEC 60335-2-7)		P
	Relevant tests of 21.101 and 21.102 carried out before test of clause 18. test of 22.104 carried out after test of clause 18. (IEC 60335-2-7)		P
5.7	Doubt is considered to exist if the temperature of the water is within 6 K of the boiling point and the difference between the temperature rise of the relevant part and the limit specified does not exceed 25 K minus the room temperature. (IEC 60335-2-7)		N
6	**CLASSIFICATION**		--
6.1	Protection against electric shock: Class 0, 0I, I, II, III ....:	Class 0I	P
	Appliances shall be of class I, class II or class III. .....(IEC 60335-2-7)	Replaced by Japan deviation	N
6.2	Protection against harmful ingress of water	IPX4	P
	Appliances at least IPX4 (IEC 60335-2-7)		P
7	**MARKING AND INSTRUCTIONS**		--
7.1	Rated voltage or voltage range (V)..... .....:	100V	P
	Symbol for nature of supply, or ....:	~	P
	Rated frequency (Hz)..... .....:	50/60Hz	P
	Rated power input (W), or..... .....:	See marking plate	P
	Rated current (A) ....:		N
	Manufacturer's or responsible vendor's name, trademark or identification mark..... .....:	See marking plate	P
	Model or type reference ....:	See marking plate	P
	Symbol IEC 60417-5172, for class II appliances		N
	IP number, other than IPX0..... .....:	IPX4	P
	Maximum water level for appliances without automatic water level control (IEC 60335-2-7)		N
	Symbol IEC 60417-5180, for class III appliances, unless		N
	the appliance is operated by batteries only, or		N

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	for appliances powered by rechargeable batteries recharged in the appliance		N
	Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth		N
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage		N
	Appliances not intended for connection to the hot water supply and not provided with heating elements shall be marked with the substance of the following: “Do not connect to the hot water supply” (IEC 60335-2-7)		N
7.2	Warning for stationary appliances for multiple supply		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen		N
	Different rated values marked with the values separated by an oblique stroke		P
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram		N
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		N
	the power input is related to the arithmetic mean value of the rated voltage range		P
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N
7.6	Correct symbols used		P
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking		N
	Units of physical quantities and their symbols according to international standardized system		P

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N
	correct mode of connection is obvious		N
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		--
	- marking of terminals exclusively for the neutral conductor (letter N)		P
	- marking of protective earthing terminals (symbol IEC 60417-5019)		P
	- marking of functional earthing terminals (symbol IEC 60417-5018)		N
	- marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard		N
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means ....:	By figures and letters.	P
	This applies also to switches which are part of a control		P
	If figures are used, the off position indicated by the figure 0		N
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N
	If the off position is only indicated by letters, the word "off" is used. (IEC 60335-2-7)		N
7.11	Indication for direction of adjustment of controls		N
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	The instructions state that:		--
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	- children being supervised not to play with the appliance		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	it is a battery-operated appliance, the battery being charged outside the appliance		N
	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated :		N
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N
	Maximum mass of dry cloth in kilograms, specified (IEC 60335-2-7)		P
	This appliance is intended to be used in household and similar applications such as: (IEC 60335-2-7) – staff kitchen areas in shops, offices and other working environments; – farm houses; – by clients in hotels, motels and other residential type environments; – bed and breakfast type environments; – areas for communal use in blocks of flats or in launderettes.		P
	If the manufacturer wants to limit the use of the appliance to less than the above, this shall be clearly stated in the instructions. (IEC 60335-2-7)		N
7.12.1	Sufficient details for installation supplied		P
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N
	- carpet does not obstruct the openings for washing machines with ventilation openings in the base (IEC 60335-2-7)		N
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N
7.12.4	Instructions for built-in appliances:		--
	- dimensions of space		N
	- dimensions and position of supporting and fixing		N

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	- minimum distances between parts and surrounding structure		N
	- minimum dimensions of ventilating openings and arrangement		N
	- connection to supply mains and interconnection of separate components		N
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N
	a switch complying with 24.3		N
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N
	Replacement cord instructions, type Y attachment		P
	Replacement cord instructions, type Z attachment		N
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N
7.12.8	Instructions for appliances connected to the water mains:		--
	- max. inlet water pressure (Pa)..... .....:	Refer to manual	P
	- min. inlet water pressure, if necessary (Pa).....:	Refer to manual	P
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N
7.12.9	Instructions specified in 7.12 and from 7.12.1 to 7.12.8 appear together before any other instructions supplied with the appliance		P
	These instructions may be supplied with the appliance separately from any functional use booklet		P
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		P
	In addition, instructions are also available in an alternative format such as on a website or on request from the user in a format such as a DVD		P
	In addition, instructions are also available in an alternative format such as on a website or in a format such as a DVD:	Website	P
7.13	Instructions and other texts in an official language	In Japanese	P
7.14	Marking clearly legible and durable, rubbing test as specified		P

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified:		N
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm :		N
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N
	contrasting colours are used		N
	Markings checked by inspection, measurement and rubbing test as specified		P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		P
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		N
	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N
	The caution relating to connection to the hot water supply shall be on the appliance at its point of attachment to the water supply (IEC 60335-2-7)		N
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		--
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		P

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		P
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements		N
	For a single switching action obtained by a switching device, requirements as specified		N
	For appliances with a supply cord and without a switching device, the single switching action may be obtained by the withdrawal of the plug		N
8.1.4	Accessible part not considered live if:		--
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N
	- safety extra-low d.c. voltage: not exceeding 42.4 V		N
	- or separated from live parts by protective impedance		N
	If protective impedance: d.c. current not exceeding 2 mA, and		N
	a.c. peak value not exceeding 0.7 mA		N
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		--
	- built-in appliances		N
	- fixed appliances		N
	- appliances delivered in separate units		N
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		--
	Requirements and tests are specified in part 2 when necessary		N
10	**POWER INPUT AND CURRENT**		--
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1 .:	(see appended table)	P
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, the power input is the maximum value that is exceeded for more than 10 % of the representative period		N
	Otherwise the power input is the arithmetic mean value		N
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N
	the rated power input is related to the arithmetic mean value		N
	The selected representative period is the period, such as filling with water, washing, rinsing, water extraction, spinning or braking, during which the power input is the highest (IEC 60335-2-7)		P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2.....:	(see appended table)	N
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period		N
	Otherwise the current is the arithmetic mean value		N
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N
	the rated current is related to the arithmetic mean value of the range		N
	The selected representative period is the period, such as filling with water, washing, rinsing, water extraction, spinning or braking, during which the current is the highest (IEC 60335-2-7)		N
11	**HEATING**		--

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
11.1	No excessive temperatures in normal use		P
11.2	The appliance is held, placed or fixed in position as described.....:	placed on a horizontal place	P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		P
	the windings are non-uniform or it is difficult to make the necessary connections	Transformer	P
	Where the external accessible surfaces are suitably flat and access permits, then the test probe of Figure 101 may be used to measure the temperature rises of external accessible surfaces specified in Table 101. (IEC 60335-2-7)		P
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) .....:		N
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V).....:	(see appended table)	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V).....:		N
11.7	Appliances with a programmer (IEC 60335-2-7)		P
	-3 cycles with programme that results in highest temperature rises		P
	-rest period of 4 min between cycles		P
	Others appliances sequences of test as specified (IEC 60335-2-7)		N
	-for appliances without means for water extraction and for washing machines with a hand-operated wringer: washing		N
	-for appliances having a single drum for washing and water extraction: washing followed by water extraction		N
	-for appliances having separate drums for washing and water extraction, which can-not be used simultaneously: washing and water extraction separated by an additional 4 min rest period		N
	-for appliances having separate drums for washing and water extraction, which can be used simultaneously washing together with water extraction so that the operations terminate simultaneously		N

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	- for appliances having a single drum (dried=washed) washing followed by water extraction, followed by drying		N
	- for appliances having a single drum (dried<washed) washing followed by water extraction, followed by 2 drying periods, with an additional rest period 4 min before each drying period. In this case only 2 cycles of operation are carried out.		N
	For appliances with a timer, the washing period, the water extraction period and the drying are equal to the maximum period allowed by the timer (IEC 60335-2-7)		N
	For appliance without a timer (IEC 60335-2-7)		N
	Type of washing machine:		N
	Duration of washing (min)		N
	Duration of water extraction : 5min		N
	The rest period, including any braking time, has a duration of 4 min. (IEC 60335-2-7)		N
	After the specified sequence of operation, discharge pumps that are driven by a separate motor and switched on and off manually, are subjected to 3 operating periods separated by rest periods of 4 min. (IEC 60335-2-7)		N
	Duration of each operating period :		N
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 .....:	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N
	if there is doubt with regard to classification of insulation,		N
	tests of Annex C are carried out		N
	Sealing compound does not flow out		P
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N
	During the test, the temperature rises are monitored continuously for one cycle and shall not exceed the values shown in Table 101. (IEC 60335-2-7)		P
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		--

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times the rated power input (W).....:		N
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V).....:	(see appended table)	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	The leakage current is measured by means of the circuit described in Figure 4 of IEC 60990:1999		P
	For class 0I appliances and class I appliances, except parts of class II construction, C may be replaced by a low impedance ammeter		P
	Leakage current measurements .....:	(see appended table)	P
	For stationary class I appliances, the leakage current not exceeding 3,5 mA, or 1 mA/kW of rated power input with a limit of 5 mA, whichever is greater ..... (IEC 60335-2-7)		P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4 .....:	(see appended table)	P
	No breakdown during the tests		P
14	**TRANSIENT OVERVOLTAGES**		--
	Appliances withstand the transient over-voltages to which they may be subjected		N
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6.....:	(see appended table)	N
	No flashover during the test, unless		N
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N
15	**MOISTURE RESISTANCE**		--
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		P
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		P
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529 .....:	IPX4	P

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N
	Built-in appliances installed according to the instructions		N
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		P
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and		P
	for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		P
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and		N
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N
	Appliances with type X attachment fitted with a flexible cord as described		N
	Detachable parts subjected to the relevant treatment with the main part		N
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		P
15.2	Spillage of liquid does not affect the electrical insulation even if an inlet valve fails to close (IEC 60335-2-7)		P
	Appliances with type X attachment fitted with a flexible cord as described (IEC 60335-2-7)		N
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable (IEC 60335-2-7)		N

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances intended to be filled in by the user : Overfilling test with additional amount of water, over a period of 1 min (l) (IEC60335-2-7) ..:		N
	Other appliances are operated until maximum water level, detergent added, then inlet valve is held open..... (IEC 60335-2-7)		P
	For appliances loaded from the front, door is then opened manually without damaging door interlock system ..... (IEC 60335-2-7)		N
	For all appliances: 0,5l of water containing approximately 1% NaCl and 0,6% of rinsing agent, is poured over the top of the appliance, the controls being placed in the on position. The controls are operated through their working range, this operating being repeated after a period of 5mn ..... (IEC 60335-2-7)		P
	Any commercially available non-ionic rinsing agent may be used, but if there is any doubt with regards to the test results, the rinsing agent shall have the described properties and composition (IEC 60335-2-7)		P
	The appliance withstands the electric strength test of 16.3 (IEC 60335-2-7)		P
	No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29 (IEC 60335-2-7)		P
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		P
	Humidity test for 48 h in a humidity cabinet		P
	Reassembly of those parts that may have been removed		P
	The appliance withstands the tests of clause 16		P
15.101	Foaming does not affect electrical insulation – Electric strength test according subclause 16.3 (IEC 60335-2-7)		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		--
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V).....:	(see appended table)	P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by √3 (V) .....:		N
	Leakage current measurements .....:	(see appended table)	P
	Limit values doubled if:		--
	- all controls have an off position in all poles, or		N
	- the appliance has no control other than a thermal cut-out, or		N
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N
	- the appliance has radio interference filters		N
	With the radio interference filters disconnected, the leakage current do not exceed limits specified .....:	(see appended table)	N
16.3	Electric strength tests according to table 7 .....:	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified .....:	(see appended table)	P
	No breakdown during the tests		P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		--
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use.....:	(see appended table)	P
	Appliance supplied with 1.06 or 0.94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V).....:	(see appended table)	P
	Basic insulation is not short-circuited		P
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N
	Temperature of the winding not exceeding the value specified in table 8		P
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N
18	**ENDURANCE**		--
18.101	Appliances shall be constructed so that the lid or door interlock withstands the stresses to which it may be exposed in normal use. (IEC 60335-2-7)		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The lid or door is subjected to 10 000 cycles of opening and closing		P
	For appliances having a drying function, the number of cycles is 13 000		N
	After the test, compliance with 20.103 to 20.105 shall not be impaired		P
18.102	The braking mechanism of appliances having a lid that can be opened during the water extraction period shall withstand the stresses to which it may be exposed in normal use. (IEC 60335-2-7)		P
	Appliance supplied at 1.06 rated voltage		P
	Test carried out 1000 times, the textile material re-saturated with water at least every 250 times		P
	After the test, the appliance shall be fit for further use and compliance with this standard shall not be impaired.		P
19	**ABNORMAL OPERATION**		--
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe .....:	(see appended table)	P
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		N
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and		N
	if applicable, to the test of 19.5		N
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6		N
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		P
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		P
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		P
	until steady conditions are established		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		N
	For appliances incorporating a programmer or timer, the tests of 19.2 and 19.3 are replaced by the tests of 19.101 (IEC 60335-2-7)		P
	Test of 19.7 is not carried out on motor driving moving parts of oscillating agitator (IEC 60335-2-7)		N
	Appliances not intended for connection to the hot water supply and not provided with heating elements are also subjected to the test of 19.102. (IEC 60335-2-7)		N
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0.85 times rated power input (W) .....:		N
	Restricted heat dissipation is obtained without water, with just sufficient water to cover the heating elements ..... (IEC 60335-2-7)		N
19.3	Test of 19.2 repeated; test voltage (V), power input of 1.24 times rated power input (W) .....:		N
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		N
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures (V) .....:		N
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or		P
	locking moving parts of other appliances		P
	Locked rotor, capacitors open-circuited one at a time		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Test repeated with capacitors short-circuited one at a time, unless		N
	capacitor is of class S2 or S3 of IEC 60252-1		P
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed .....:	the maximum period allowed by the programmer	P
	An electronic timer or programmer that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, is a protective electronic circuit		N
	Other appliances supplied with rated voltage for a period as specified .....:		N
	Winding temperatures not exceeding values specified in table 8.....:	(see appended table)	P
	Appliances without a programmer or timer are operated for 5 min ..... (IEC 60335-2-7)		N
19.8	Multi-phase motors operated at rated voltage with one phase disconnected		N
19.9	The running overload test is carried out on appliances that have overload protective devices incorporating electronic circuits to protect the windings of the drum motor. However, the test is not carried out if the protective device senses the winding temperature directly. (IEC 60335-2-7)		N
19.10	Series motor operated at 1.3 times rated voltage for 1 min (V).....:		N
	During the test, parts not being ejected from the appliance		N
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		P
	they comply with the conditions specified in 19.11.1		N
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		P
	restarting does not result in a hazard		N
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4		P
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		P
	During and after each test the following is checked:		--

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Clause	Requirement + Test	Result - Remark	Verdict
	- the temperature of the windings do not exceed the values specified in table 8		P
	- the appliance complies with the conditions specified in 19.13		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		--
	- the base material of the printed circuit board withstands the test of Annex E		N
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		--
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of other parts of the appliance does not rely on the correct functioning of the electronic circuit		N
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		--
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		N
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless		P
	they comply with IEC 60384-14		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits		P
	This fault condition is not applied between the two circuits of an optocoupler		N
	e) failure of triacs in the diode mode		P
	f) failure of microprocessors and integrated circuits		P
	g) failure of an electronic power switching device		P
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		P

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Clause	Requirement + Test	Result - Remark	Verdict
19.11.3	If the appliance incorporates a protective electronic circuit that operates to ensure compliance with clause 19, the appliance is tested as specified		P
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		P
	a device that can be placed in the stand-by mode,		P
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		P
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, the tests being carried out after the protective electronic circuit has operated, except that		P
	Appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N
	Surge protective devices disconnected, unless		P
	They incorporate spark gaps		N
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		P
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		P
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		P
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		P
	An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode		P
	An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling		P
	Earthed heating elements in class I appliances disconnected		N
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		P
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		P
	Appliances having a rated current exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N

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Clause	Requirement + Test	Result - Remark	Verdict
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		P
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate		P
	The appliance continues to operate normally, or		N
	requires a manual operation to restart		P
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A) .....:	Rated current: 10A; Measured current : 30A	P
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9.....:	(see appended table)	P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		--
	- basic insulation (V).....:	1180V	P
	- supplementary insulation (V) .....:	1930V	P
	- reinforced insulation (V).....:	3350V	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		P
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		--
	- do not become operational, or		P
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N

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Clause	Requirement + Test	Result - Remark	Verdict
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		-
	- the lid or door does not move automatically to an open position when the interlock is released, and		P
	- the appliance does not start after the cycle in which the interlock was released		P
	The textile material shall not ignite and shall not show any charring or glowing (IEC 60335-2-7)		P
	During the tests of 19.101 and 19.102, the temperature of windings shall not exceed the values specified in table 8. (IEC 60335-2-7)		P
	The appliance shall comply with 20.103 to 20.105 if it can still be operated. (IEC 60335-2-7)		P
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		P
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		P
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		P
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N
19.101	Fault conditions applied, appliance supplied at rated voltage and operated under normal operation. (IEC 60335-2-7)		--
	-programmer stopping in any position		P
	-disconnection and reconnection of one or more phases of the supply		P
	-open-circuiting or short-circuiting of components		P
	-failure of magnetic valve		P
	-failure or blocking the mechanical parts of water-level switch, except if		P
	-the cross-sectional area of the tube supplying the air chamber is greater than 500mm² with a minimum dimension of 10mm, -the outlet of the chamber is at least 20mm above the highest water level, and -the tube connecting the air chamber to the water-level switch is fixed so that there is no likelihood of bending or pinching		N

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Clause	Requirement + Test	Result - Remark	Verdict
	-puncture of the capillary tube of a thermostat		N
	-the steam generator is operating without water.		N
	If operation without water in appliance is a more unfavourable condition for starting any programme, tests with that programme are carried out with water valve closed. This valve is not closed after programme stated to operate (IEC 60335-2-7)		P
19.102	Appliances not intended for connection to the hot water supply and not provided with heating elements are operated under the conditions of cl. 11 , except that they are supplied at rated voltage and filled with water at a temperature of 65 °C± 5°C (IEC 60335-2-7)		P
20	**STABILITY AND MECHANICAL HAZARDS**		--
20.1	Appliances having adequate stability		P
	The appliance is empty or filled as specified for normal operation, whichever is more unfavourable (IEC 60335-2-7)		P
	Doors and lids are closed and any castors turned to the most unfavourable position (IEC 60335-2-7)		P
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		P
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non-detachable, and		P
	have adequate mechanical strength		P
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		P
	Not possible to touch dangerous moving parts with the test probe described		P

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Clause	Requirement + Test	Result - Remark	Verdict
20.101	Drum washing machines that are loaded from the top through an opening with a hinged lid shall incorporate an interlock that de-energizes the motor before door or lid opening exceeds 50mm (IEC 60335-2-7)		P
	If a removable or sliding lid is provided, the motor shall be de-energized as soon as the lid is removed or displaced and not possible to start motor unless the lid is in the closed position (IEC 60335-2-7)		N
	Compliance checked by inspection, by measurement and by the following test: test probe B of IEC 61032 is applied in order to try and release any interlock that is needed to comply with the requirement. The interlock shall not release. (IEC 60335-2-7)		P
20.102	Appliances shall not be affected by an unbalanced load (IEC 60335-2-7)		P
20.103	Drum washing machines that are loaded from the front or from the top, the door or lid shall be interlocked so that the appliance can only be operated when the door or lid is in the closed position (IEC 60335-2-7)		P
	Compliance checked by inspection, by measurement and by the following test: test probe B of IEC 61032 is applied in order to try and release any interlock that is needed to comply with the requirement. The interlock shall not release. (IEC 60335-2-7)		P
20.104	It shall not be possible to open the lid or door of the appliance while the speed exceeds 60 r/min if the drum has a rotational kinetic energy exceeding 1 500J, or a maximum peripheral speed exceeding (IEC 60335-2-7)		N
	-20 m/s for drums that rotate about the horizontal axis,		N
	-40 m/s for drums that rotate about the vertical axis,		N
	If compliance relies on the operation of an electronic circuit, the test is repeated under the following conditions applied separately: (IEC 60335-2-7): - the fault conditions in a) to g) of 19.11.2 applied one at a time to the electronic circuit; - the electromagnetic phenomena tests of 19.11.4.2 to 19.11.4.5 applied to the appliance.		N
	If the electronic circuit is programmable, the software shall contain measures to control the fault/error conditions specified in Table R.1 and is evaluated in accordance with the relevant requirements of Annex R. (IEC 60335-2-7)		N

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
20.105	Appliances shall have an automatic means for switching off the motor, or for reducing the drum speed to 60 r/min, when the lid or door is opened if the drum has a rotational kinetic energy not exceeding 1 500J, and a peripheral speed not exceeding -20 m/s for drums that rotate about the horizontal axis, -40 m/s for drums that rotate about the vertical axis (IEC 60335-2-7)		P
	If compliance relies on the operation of an electronic circuit, the test is repeated under the following conditions applied separately: (IEC 60335-2-7): - the fault conditions in a) to g) of 19.11.2 applied one at a time to the electronic circuit; - the electromagnetic phenomena tests of 19.11.4.2 to 19.11.4.5 applied to the appliance		N
	If the electronic circuit is programmable, the software shall contain measures to control the fault/error conditions specified in Table R.1 and is evaluated in accordance with the relevant requirements of Annex R. (IEC 60335-2-7)		N
20.106	For appliances with a front opening door having an opening dimension exceeding 200 mm, and drum volume exceeding 60 dm3, it shall not be possible to start or recommence the washing cycle until a separate means which controls the movement of the drum is operated manually, even after the door has been opened and closed again. (IEC 60335-2-7)		N
	Compliance is checked by inspection, measurement ignoring any non-metallic seal fitted in the door opening, and by the test described		N
	If compliance relies on the operation of an electronic circuit, the test is repeated under the following conditions applied separately: - the fault conditions in a) to g) of 19.11.2 applied one at a time to the electronic circuit; - the electromagnetic phenomena tests of 19.11.4.2 to 19.11.4.5 applied to the appliance.		N
	The washing cycle shall not start or recommence.		N
20.107	For appliances with a front opening door having an opening dimension exceeding 200 mm, and drum volume exceeding 60 dm3, it shall be possible to open from the inside the closed door, when the appliance is not energized or in a standby mode, with a force not exceeding 70 N. (IEC 60335-2-7)		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Compliance is checked by measurement, ignoring any non-metallic seal fitted in the door opening, and by applying a force of 70 N perpendicular to the plane of the closed door at a point furthest from the hinges accessible from the inside of the door..		N
	If the appliance is supplied with an additional decorative door, the test is carried out with this door closed		N
21	**MECHANICAL STRENGTH**		--
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J		P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N
	If necessary, repetition of groups of three blows on a new sample		N
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		P
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N
21.101	Lids and doors shall have adequate mechanical strength (IEC 60335-2-7)		P
	Compliance is checked by 21.101.1 for lids, and 21.101.2 for doors		P
21.101.1	A rubber hemisphere –diameter 70 mm, hardness between 40 and 50 HIRD- is fixed to a cylinder –mass 20 kg- and dropped from a height of 100 mm onto the centre of the lid (IEC 60335-2-7)		P
	Test carried out 3 times, after which the lid shall not be damaged to such an extent that moving parts become accessible.		P

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Clause	Requirement + Test	Result - Remark	Verdict
21.101.2	A vertically downwards force of 150 N is applied I the most unfavourable position to the door while it is open at an angle of 90° ± 5°. The force is maintained for 1 mm. (IEC 60335-2-7)		N
	After the test, the appliance shall not be damaged or deformed to such an extent that compliance with 20.103 to 20.105 is impaired (IEC 60335-2-7)		N
21.102	Lids shall have adequate resistance to distortion (IEC 60335-2-7)		P
	A force of 50 N is applied to the open lid in the most unfavourable direction and position. Test carried out 3 times , after which the hinges shall not have worked loose and the appliance shall not be damaged or deformed to such an extent that compliance with 20.103 to 20.105 is impaired (IEC 60335-2-7)		P
22	**CONSTRUCTION**		--
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IPX4	P
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		--
	- a supply cord fitted with a plug, or		P
	- a switch complying with 24.3, or		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N
	- an appliance inlet		N
	Single-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N
22.3	Appliance provided with pins: no undue strain on socket-outlets		N
	Applied torque not exceeding 0.25 Nm		N
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		N
	rotating does not impair compliance with this standard		N

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Clause	Requirement + Test	Result - Remark	Verdict
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance equal to or greater than 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak		P
	Voltage not exceeding 34 V (V) .....:	8V	P
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied		N
	The discharge test is then repeated three times, voltage not exceeding 34 V (V).....:		N
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N
	Requirements relating to leakage from containers, hoses, coupling and similar parts of the appliance is not applicable to parts that withstand the ageing test specified in annex BB (IEC 60335-2-7)		N
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		N
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P
	the substance has adequate insulating properties		N
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N
	- a non-self-resetting thermal cut-out is required by the standard, and		N
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N
	they are voltage maintained		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N
	Tests as described		P
22.12	Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard		P
	Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard		N
	A choking hazard does not apply to appliances for commercial use		N
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		P
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		N
	Cord reel tested with 6000 operations, as specified		N
	Electric strength test of 16.3, voltage of 1000 V applied		N

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Clause	Requirement + Test	Result - Remark	Verdict
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N
22.18	Current-carrying parts and other metal parts resistant to corrosion		P
22.19	Driving belts not relied upon to provide the required level of insulation, unless		P
	constructed to prevent inappropriate replacement		N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		N
	material used is non-corrosive, non-hygroscopic and non-combustible		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		N
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported		N
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P

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Clause	Requirement + Test	Result - Remark	Verdict
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N
	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts,		P
	Electrodes not used for heating liquids		N
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		P
	the reinforced insulation consists of at least 3 layers		N
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N
	the reinforced insulation consists of at least 3 layers		N

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Clause	Requirement + Test	Result - Remark	Verdict
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		P
	the shaft is not accessible when the part is removed		N
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		P
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N
	This requirement does not apply to handles, levers and knobs on stationary appliances and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		N
	they are separated from live parts by double or reinforced insulation		N
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N
	the capacitors comply with 22.42		N
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders used only for the connection of lamps		N
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N

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Clause	Requirement + Test	Result - Remark	Verdict
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N
	Resistors checked by the test of 14.1 a) in IEC 60065		N
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		P
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		P
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		P
	No leakage from any part, including any inlet water hose		P
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		P
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N

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Clause	Requirement + Test	Result - Remark	Verdict
	the appliance switches off automatically or can operate continuously without hazard		N
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N
	There is a visual indication showing that the appliance is adjusted for remote operation		N
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		--
	- continuously, or		N
	- automatically, or		N
	- remotely		N
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts		N
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless		N
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously		N
22.55	Devices operated to stop the intended function of the appliance, if any, are be distinguished from other manual devices by means of shape, size, surface texture or position .....:	Position	P
	The requirement concerning position does not preclude use of a push on push off switch		P
	An indication when the device has been operated is given by:		--
	– tactile feedback from the actuator or from the appliance, or		N
	– reduction in heat output; or		N
	– audible and visible feedback		P
22.56	Detachable power supply part provided with the part of class III construction		N
22.57	The properties of non-metallic materials do not degrade from exposure to UV-C radiation, as specified in Annex T		N
	This requirement does not apply to glass, ceramics or similar materials		N

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Clause	Requirement + Test	Result - Remark	Verdict
22. 101	Appliances shall be constructed so that when the water level is above the lower edge of the door opening, it shall not be possible to open the door by a simple action while the appliance is operating. (IEC 60335-2-7)		N
	Requirement not applicable to appliance fitted with interlocked doors or doors that are opened by means of a key or by 2 separate actions, such as pushing and turning.		N
	If compliance relies on the operation of an electronic circuit and the appliance is capable of providing a wash water temperature of 60 °C or higher or is marked as having a wash water temperature of 60 °C or higher, the test is repeated under the following conditions applied: separately: - fault conditions 19.11.2 - electromagnetic phenomena test 19.11.4.2 and .5 It shall not be possible to open the lid or door by a simple action		N
	If the electronic circuit is programmable, the software shall contain measures to control the fault/error conditions specified in Table R.1 and is evaluated in accordance with the relevant requirements of Annex R.		N
22.102	Textile material cannot come in contact with heating element (IEC 60335-2-7)		N
22.103	Appliances shall be constructed so that, during normal use, filter compartments cannot be opened by a simple action. (IEC 60335-2-7)		N
	This requirement is not applicable to appliances intended for connection to the cold water supply only and without means to heat the water or to appliances fitted with filter compartment covers that are : (IEC 60335-2-7) – interlocked; – opened by means of a key; – opened by two separate actions such as pushing and turning; or – opened by rotating by more than 180 °.		P
22.104	Lid and door interlocks shall be constructed so that they are unlikely to be forced open in normal use (IEC 60335-2-7)		P
22.105	Any mechanical release mechanism intended to open the loading door after a failure shall only be accessible by using a tool. (IEC 60335-2-7)		P
22.106	Steam generators shall be vented to the atmosphere. The aperture shall be at least 5 mm in diameter or at least 20 mm2 in area with a minimum dimension of 3 mm. (IEC 60335-2-7)		N

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Clause	Requirement + Test	Result - Remark	Verdict
22.107	Appliances with steam generators shall be constructed in such a way that there is no spillage of water or sudden jets of steam or hot water likely to expose the user to a hazard when the appliance is used in accordance with the instructions. (IEC 60335-2-7)		N
	If jets of steam or liquids are emitted through protective devices, the electrical insulation shall not be affected or the user exposed to a hazard.		N
22.108	For appliances that are controlled by programmable electronic circuits that limit the number of heating elements and motors from being energised at the same time, simultaneous activation of any combination of heating elements and motors shall not render the appliance unsafe. (IEC 60335-2-7)		N
23	INTERNAL WIRING		--
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well-rounded or provided with bushings		P
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N
	Beads inside flexible metal conduits contained within an insulating sleeve		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N
	Flexible metallic tubes not causing damage to insulation of conductors		N
	Open-coil springs not used		N
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	No damage after 10 000 flexings for conductors flexed during normal use, or		N
	100 flexings for conductors flexed during user maintenance		N
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N
	Not more than 10% of the strands of any conductor broken, and		N

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Clause	Requirement + Test	Result - Remark	Verdict
	not more than 30% for wiring supplying circuits that consume no more than 15W		N
23.4	Bare internal wiring sufficiently rigid and fixed		N
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply,		P
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.		P
	A single layer of internal wiring insulation does not provide reinforced insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		P
	be such that it can only be removed by breaking or cutting		N
23.7	The colour combination green/yellow only used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N
23.101	Insulation and sheath of internal wiring for the supply of magnetic valves and similar components shall be at least equivalent to the electrical characteristics of light polyvinyl chloride sheathed flexible cord (code designation 60227 IEC 52) (IEC 60335-2-7)		N
24	**COMPONENTS**		--
24.1	Components comply with safety requirements in relevant IEC standards		P

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Clause	Requirement + Test	Result - Remark	Verdict
	List of components .....:	(see appended table)	P
	Motors not required to comply with IEC 60034-1, they are tested as part of the appliance		P
	Relays tested as part of the appliance, or		P
	alternatively acc. to IEC 60730-1, and meeting the additional requirements in IEC 60335-1		P
	The requirements of Clause 29 apply between live parts of components and accessible parts of the appliance		P
	Components can comply with the requirements for clearances and creepage distances for functional insulation in the relevant component standard		P
	30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections		P
	Components that have not been previously tested to comply with the IEC standard for the relevant component are tested according to the requirements of 30.2		P
	Components that have been previously tested to comply with the resistance to fire requirements in the IEC standard for the relevant component need not be retested provided the specified conditions are met		P
	If these conditions are not satisfied, the component is tested as part of the appliance.		P
	Power electronic converter circuits not required to comply with IEC 62477-1, they are tested as part of the appliance		N
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14	Approved	P
	If the capacitors have to be tested, they are tested according to Annex F		N
24.1.2	Transformers in associated switch mode power supplies comply with Annex BB of IEC 61558-2-16		N
	Safety isolating transformers complying with IEC 61558-2-6		N
	If they have to be tested, they are tested according to Annex G		N
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000	Approved	P
	If they have to be tested, they are tested according to Annex H		N
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N
	If the switch only operates a motor staring relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N
24.1.4	Automatic controls complying with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:		--
	- thermostats: 10 000		N
	- temperature limiters: 1 000		N
	- self-resetting thermal cut-outs: 300		N
	- voltage maintained non-self-resetting thermal cut-outs: 1 000		N
	- other non-self-resetting thermal cut-outs: 30		N
	- timers: 3 000		N
	- energy regulators: 10 000		N
	- programmers : (IEC 60335-2-7) 3 000		N

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Clause	Requirement + Test	Result - Remark	Verdict
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D		P
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		N
	Thermal cut-outs of the capillary type comply with the requirements for type 2.K controls in IEC 60730-2-9		N
	For lid or door interlocks, the number of cycles of operation declared for subclauses 6.10 and 6.11 of IEC 60730-2-12 shall not be less than (IEC 60335-2-7)		--
	-6 000		N
	-for washing machines including drying operation: 9 000		P
	-interlock operates more than once during normal operation, the minimum number of cycles is increased accordingly.		N
24.1.5	Appliance couplers complying with IEC 60320-1		N
	However, for appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N
	Interconnection couplers complying with IEC 60320-2-2		N
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N
24.1.8	The relevant standard for thermal links is IEC 60691		N
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19		N
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		P

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Clause	Requirement + Test	Result - Remark	Verdict
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance.....:	Approved	P
24.2	Appliances not fitted with:		--
	- switches, automatic controls or power supplies in flexible cords		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		P
	the solder has a melting point of at least 230 ˚C		N
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly	Limit: 250x1.1=275V Measured: 208V.	P
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N
	In addition, the motors comply with the requirements of Annex I		N
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770	Approved	P
	They are supplied with the appliance		P
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		P

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Clause	Requirement + Test	Result - Remark	Verdict
	One or more of the following conditions are to be met:		--
	- the capacitors are of class S2 or S3 according to IEC 60252-1		P
	- the capacitors are housed within a metallic or ceramic enclosure		N
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of Annex E		N
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N
24.101	Thermal cut-outs incorporated in washing machines for compliance with 19.4 shall be not self-resetting (IEC 60335-2-7)		N
	Compliance is checked by inspection		N
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		--
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		--
	- supply cord fitted with a plug, the current rating and voltage rating of the plug being not less than the corresponding ratings of its associated appliance		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N
	- pins for insertion into socket-outlets		N
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		--
	- a set of terminals allowing the connection of a flexible cord		N
	- a fitted supply cord		N
	- a set of supply leads accommodated in a suitable compartment		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm) .....:		N
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N
25.5	Method for assembling the supply cord to the appliance:		--
	- type X attachment		N
	- type Y attachment		P
	- type Z attachment, if allowed in relevant part 2		N
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N
25.6	Plugs fitted with only one flexible cord		P
25.7	Supply cords, other than for class III appliances, being one of the following types:		--
	- rubber sheathed (at least 60245 IEC 53)		N
	- polychloroprene sheathed (at least 60245 IEC 57)		N
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		--
	• light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		N
	• ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances	See table 24.1	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		--
	• heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N
	• heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N
	- halogen-free, low smoke, thermoplastic insulated and sheathed		--
	• light duty halogen-free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable		N
	• Ordinary duty halogen-free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f) for flat cable		N
	Supply cords for class III appliances adequately insulated		N
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm²) .....:	Rated current: 2.6A max. Cross-sectional area: 0.75mm^2	P
25.9	Supply cords not in contact with sharp points or edges		P
25.10	Supply cord of class I appliances have a green/yellow core for earthing		P
	In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue.		N
	Where additional neutral conductors are provided in the supply cord:		--
	– other colours may be used for these additional neutral conductors;		N
	– all of the neutral conductors and line conductors are identified by marking using the alpha numeric notation specified in IEC 60445		N
	– the supply cord is fitted to the appliance		N
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		P
25.13	Inlet openings so constructed as to prevent damage to the supply cord		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If it is not evident that the supply cord can be introduced without risk of damage,, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N
	class 0, or		N
	a class III appliance not containing live parts		N
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N
	Flexing test, as described:		--
	- applied force (N) .....:		N
	- number of flexings.....:		N
	The test does not result in:		--
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N
	- breakage of more than 10% of the strands of any conductor		N
	- separation of the conductor from its terminal		N
	- loosening of any cord guard		N
	- damage to the cord or the cord guard		N
	- broken strands piercing the insulation and becoming accessible		N
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of supply cord:		--
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm) :		N
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) :	100N, 0.35Nm	P
	Cord not damaged and max. 2 mm displacement of the cord	0.4mm	P
25.16	Cord anchorages for type X attachments constructed and located so that:		--

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Clause	Requirement + Test	Result - Remark	Verdict
	- replacement of the cord is easily possible		N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of supply cord		N
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N
	they are separated from accessible metal parts by supplementary insulation		N
	- the cord is not clamped by a metal screw which bears directly on the cord		N
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N
	it is part of a specially prepared cord		N
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N
	failure of the insulation of the cord does not make accessible metal parts live		N
	- for class II appliances they are of insulating material, or		N
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		P
25.18	Cord anchorages only accessible with the aid of a tool, or		P
	Constructed so that the cord can only be fitted with the aid of a tool		N
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N
	Tying the cord into a knot or tying the cord with string not used		N

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Clause	Requirement + Test	Result - Remark	Verdict
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		P
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		--
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		N
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N
25.22	Appliance inlets:		--
	- live parts not accessible during insertion or removal		N
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N
	- connector can be inserted without difficulty		N
	- the appliance is not supported by the connector		N
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N
	the supply cord is unlikely to touch such metal parts		N
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N
	- the thickness of the insulation may be reduced		N
	- for class I or class II appliance with class III construction, the cross sectional areas of the conductors need not comply with 25.8 if specified conditions are met		N
	If necessary, electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		--
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		N
	Terminals only accessible after removal of a non-detachable cover, except		N
	for class III appliances that do not contain live parts		N
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N
26.2	Appliances with type X attachment and appliances for the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		N
	the connections are soldered		N
	Screws and nuts not used to fix any other component, except		N
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N
	Terminals fixed so that when the clamping means is tightened or loosened:		--
	- the terminal does not become loose		N
	- internal wiring is not subjected to stress		N
	- neither clearances nor creepage distances are reduced below the values in clause 29		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm) .....:		N
	No deep or sharp indentations of the conductors		N
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		N
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N
	Stranded conductor test, 8 mm insulation removed		N
	No contact between live parts and accessible metal parts and,		N
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm²).....:		N
	If a specially prepared cord is used, terminals need only be suitable for that cord		N
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		N
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N
26.9	Terminals of the pillar type constructed and located as specified		N
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N
	conductors ends fitted with means suitable for screw terminals		N
	Pull test of 5 N to the connection		P
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		P

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Clause	Requirement + Test	Result - Remark	Verdict
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		N
27	**PROVISION FOR EARTHING**		--
27.1	Accessible metal parts of Class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		P
	Earthing terminals and earthing contacts not connected to the neutral terminal		P
	Class 0, II and III appliances have no provision for earthing		N
	Class II appliances and class III appliances can incorporate an earth for functional purposes		N
	Safety extra-low voltage circuits not earthed, unless		N
	protective extra-low voltage circuits		N
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		P
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm², and		N
	do not provide earthing continuity between different parts of the appliance, and		N
	conductors cannot be loosened without the aid of a tool		N
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		N
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N

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Clause	Requirement + Test	Result - Remark	Verdict
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		P
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		P
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		N
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		N
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N
	Resistance not exceeding 0,1 Ω at the specified low-resistance test (Ω) .....:	0.021Ω	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N
28	**SCREWS AND CONNECTIONS**		--
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Diameter of screws of insulating material min. 3 mm		N
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		N
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		N
	For screws and nuts; torque-test as specified in table 14.....:	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		P
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N
	This requirement does not apply to electrical connections in circuits of appliances for which:		--
	• 30.2.2 is applicable and that carry a current not exceeding 0,5 A		N
	• 30.2.3 is applicable and that carry a current not exceeding 0,2 A		N
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		--
	- in normal use,		N
	- during user maintenance,		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- when replacing a supply cord having a type X attachment, or		N
	- during installation		N
	At least two screws being used for each connection providing earthing continuity, unless		N
	the screw forms a thread having a length of at least half the diameter of the screw		N
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N
	if an alternative earthing circuit is provided		N
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N
29	**CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION**		--
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies.....:		N
	The microenvironment is pollution degree 1 under type 1 protection		N
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N
	These values apply to functional, basic, supplementary and reinforced insulation .....:		N
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless .....:	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		P

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Clause	Requirement + Test	Result - Remark	Verdict
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 is increased according to the relevant multiplier values in Table A.2 of IEC 60664-1		N
	Impulse voltage test is not applicable:		--
	- when the microenvironment is pollution degree 3, or		P
	- for basic insulation of class 0 and class 01 appliances		N
	- to appliances intended for use at altitudes exceeding 2 000 m		N
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable .....:	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N
	Lacquered conductors of windings considered to be bare conductors		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16 .....:	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage .....:	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		P
29.1.4	Clearances for functional insulation are the largest values determined from:		--
	- table 16 based on the rated impulse voltage.....:	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N

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Clause	Requirement + Test	Result - Remark	Verdict
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N
	the microenvironment is pollution degree 3, or		P
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		--
	- table 16 based on the rated impulse voltage.....:		P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or Clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N
	If clearances for basic insulation are selected from Clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N

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Clause	Requirement + Test	Result - Remark	Verdict
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree .....:	(see appended table)	P
	Pollution degree 2 applies, unless		N
	- precautions taken to protect the insulation; pollution degree 1		N
	- insulation subjected to conductive pollution; pollution degree 3		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		P
	Pollution degree 3, and the insulation with a CTI not less than 250, (IEC 60335-2-7)		P
	Unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance due to :		N
	- condensation produced by the appliance		N
	- chemicals, such as detergent or fabric conditioner		N
	Compliance is checked by inspection and measurements as specified		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17 .....:	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 .....:		N
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14 .....:		N
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or .....:	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable.....:		N
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or .....:	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable.....:		N

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Clause	Requirement + Test	Result - Remark	Verdict
29.2.4	Creepage distances of functional insulation not less than specified in table 18 .....:	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18 .....:		N
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		--
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, or		N
	- for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N
	- by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N
29.3.1	Supplementary insulation have a thickness of at least 1 mm		P
	Reinforced insulation have a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N
	Supplementary insulation consist of at least 2 layers		N
	Reinforced insulation consist of at least 3 layers		N
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N
	the electric strength test of 16.3		N

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Clause	Requirement + Test	Result - Remark	Verdict
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19 .....:		N
30	**RESISTANCE TO HEAT AND FIRE**		--
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C) .....:	(see appended table)	P
	Parts supporting live parts tested at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C) .....:	(see appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C).....:	(see appended table)	N
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		--
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		N
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		P
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		N
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N
	For base material of printed circuit boards, 30.2.4 applies		P

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Clause	Requirement + Test	Result - Remark	Verdict
	For appliances incorporating a programmer or a timer, 30.2.3 is applicable. (IEC 60335-2-7)		P
	For other appliances, 30.2.2 is applicable (IEC 60335-2-7)		N
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550 °C		P
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N
	the material is classified at least HB40 according to IEC 60695-11-10		N
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and		N
	parts of non-metallic material within a distance of 3mm of such connections,		N
	subjected to the glow-wire test of IEC 60695-2-11		N
	The test severity is:		--
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N
	- 650 °C, for other connections		N
	Glow-wire applied to an interposed shielding material, if relevant		N
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least:		--
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N
	- 650 °C, for other connections		N
	The glow-wire test is also not carried out on small parts. These parts are to:		--
	- comprise material having a glow-wire flammability index of at least 750 °C, or 650 °C as appropriate, or		N
	- comply with the needle-flame test of Annex E, or		N
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10 .....:		N
	Glow-wire test not applicable to conditions as specified .....:		N
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The tests are not applicable to conditions as specified .....:		N
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C		P
	Glow-wire applied to an interposed shielding material, if relevant		P
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		P
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to glow-wire test of IEC 60695-2-11		P
	The test severity is:		--
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		N
	Glow-wire applied to an interposed shielding material, if relevant		N
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		--
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		P
	• 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	• 675 °C, for other connections		N
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N
	- 650 °C, for other connections		N
	The glow-wire test is also not carried out on small parts. These parts are to:		--
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- comply with the needle-flame test of Annex E, or		N
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		--
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- small parts for which the needle-flame test of Annex E was applied, or		N
	- small parts for which a material classification of V-0 or V-1 was applied		N
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		--
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E		P
	Test not applicable to conditions as specified.....:		N
31	**RESISTANCE TO RUSTING**		--
	Relevant ferrous parts adequately protected against rusting		P
	Tests specified in part 2 when necessary		N
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		--

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		P
	Compliance is checked by the limits or tests specified in part 2, if relevant		N
A	**ANNEX A (INFORMATIVE)** **ROUTINE TESTS**		--
	Description of routine tests to be carried out by the manufacturer		N
B	**ANNEX B (NORMATIVE)** **APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		--
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N
	Three forms of construction covered:		--
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance		N
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery		N
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit		N
	This annex does not apply to battery chargers		N
3.1.9	Appliance operated under the following conditions:		--
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N
	Appliances intending to be supplied from a detachable supply unit marked with symbol IEC 60417-6181 and its type reference along with symbol ISO 7000-0790 (2004-01), or		N
	use only with <model designation> supply unit :		N
7.6	Symbols 60417-5005 and IEC 60417-5006		N
7.12	The instructions give information regarding charging		N
	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N
	Details about how to remove batteries containing materials hazardous to the environment given		N
	Instructions for appliances containing non-user-replaceable batteries state the substance of the following:		--
	This appliance contains batteries that are only replaceable by skilled persons		N
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		--
	This appliance contains batteries that are non-replaceable		N
	For appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery, the type reference of the detachable supply unit is stated along with the following:		--
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance		N
	If the symbol for detachable supply unit is used, its meaning is explained		N
7.15	Markings placed on the part of the appliance connected to the supply mains		N

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Clause	Requirement + Test	Result - Remark	Verdict
	The type reference of the detachable supply unit is placed in close proximity to the symbol		N
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N
	If the appliance can be operated without batteries, double or reinforced insulation required		N
11.7	The battery is charged for the period stated in the instructions or 24 h.....:		N
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K) .....:		N
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) .....:		N
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N
19.10	Not applicable		N
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N
19.13	The battery does not rupture or ignite		N
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		--
	- 100, if the mass of the part does not exceed 250 g (g).....:		N
	- 50, if the mass of the part exceeds 250 g.....:		N
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N

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Clause	Requirement + Test	Result - Remark	Verdict
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N
	For other parts, 30.2.2 applies		N
C	**ANNEX C (NORMATIVE) AGEING TEST ON MOTORS**		--
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N
	Test conditions as specified		N
D	**ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS**		--
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		P
	Test conditions as specified		P
E	**ANNEX E (NORMATIVE) NEEDLE-FLAME TEST**		--
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		--
7	Severities		--
	The duration of application of the test flame is 30 s ± 1 s		P
9	Test procedure		--
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1		P
9.2	The first paragraph does not apply		P
	If possible, the flame is applied at least 10 mm from a corner		P
9.3	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N
11	Evaluation of test results		--
	The duration of burning not exceeding 30 s		N
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P
F	**ANNEX F (NORMATIVE) CAPACITORS**		--
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		--

IEC 60335-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
1.5	Terms and definitions		--
1.5.3	Class X capacitors tested according to subclass X2		N
1.5.4	This subclause is applicable		N
1.6	Marking		--
	Items a) and b) are applicable		N
3.4	Approval testing		--
3.4.3.2	Table 3 is applicable as described		N
4.1	Visual examination and check of dimensions		--
	This subclause is applicable		N
4.2	Electrical tests		--
4.2.1	This subclause is applicable		N
4.2.5	This subclause is applicable		N
4.2.5.2	Only table 11 is applicable		N
	Values for test A apply		N
	However, for capacitors in heating appliances the values for test B or C apply		N
4.12	Damp heat, steady state		--
	This subclause is applicable		N
	Only insulation resistance and voltage proof are checked		N
4.13	Impulse voltage		--
	This subclause is applicable		N
4.14	Endurance		--
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 are applicable		N
4.14.7	Only insulation resistance and voltage proof are checked		N
	No visible damage		N
4.17	Passive flammability test		--
	This subclause is applicable		N
4.18	Active flammability test		--
	This subclause is applicable		N
G	**ANNEX G (NORMATIVE)** **SAFETY ISOLATING TRANSFORMERS**		--
	The following modifications to this standard are applicable for safety isolating transformers:		--
7	Marking and instructions		--

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Clause	Requirement + Test	Result - Remark	Verdict
7.1	Transformers for specific use marked with:		--
	-name, trademark or identification mark of the manufacturer or responsible vendor .....:		N
	-model or type reference .....:		N
17	Overload protection of transformers and associated circuits		--
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N
22	Construction		--
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		N
29	Clearances, creepage distances and solid insulation		--
29.1, 29.2, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		N
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		N
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		N
H	**ANNEX H (NORMATIVE)** **SWITCHES**		--
	Switches comply with the following clauses of IEC 61058-1, as modified below:		--
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N
	Before being tested, switches are operated 20 times without load		N
8	Marking and documentation		--
	Switches are not required to be marked		N
	However, a switch that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N
13	Mechanism		--
	The tests may be carried out on a separate sample		N
15	Insulation resistance and dielectric strength		--
15.1	Not applicable		N
15.2	Not applicable		N

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Clause	Requirement + Test	Result - Remark	Verdict
15.3	Applicable for full disconnection and micro-disconnection		N
17	Endurance		--
	Compliance is checked on three separate appliances or switches		N
	For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless		N
	otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335 .....:		N
	Switches for operation under no load and which can be operated only by a tool, and		N
	switches operated by hand that are interlocked so that they cannot be operated under load,		N
	are not subjected to the tests		N
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		N
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K).....:		N
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		--
	Clause 20 is applicable to clearances across full disconnection and micro-disconnection		N
	It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N
I	**ANNEX I (NORMATIVE)** **MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE**		--
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		--
8	Protection against access to live parts		--
8.1	Metal parts of the motor are considered to be bare live parts		N
11	Heating		--
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N

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Clause	Requirement + Test	Result - Remark	Verdict
11.8	The temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N
16	Leakage current and electric strength		--
16.3	Insulation between live parts of the motor and its other metal parts is not subjected to the test		N
19	Abnormal operation		--
19.1	The tests of 19.7 to 19.9 are not carried out		N
19.l.101	Appliance operated at rated voltage with each of the following fault conditions:		--
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- short circuit of each diode of the rectifier		N
	- open circuit of the supply to the motor		N
	- open circuit of any parallel resistor, the motor being in operation		N
	Only one fault simulated at a time, the tests carried out consecutively		N
22	Construction		--
22.l.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N
	Compliance checked by the tests specified for double and reinforced insulation		N
J	**ANNEX J (NORMATIVE)** **COATED PRINTED CIRCUIT BOARDS**		--
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		--
5.7	Conditioning of the test specimens		--
	When production samples are used, three samples of the printed circuit board are tested		N
5.7.1	Cold		--
	The test is carried out at -25 °C		N
5.7.3	Rapid change of temperature		--
	Severity 1 is specified		N
5.9	Additional tests		--
	This subclause is not applicable		N
K	**ANNEX K (NORMATIVE)** **OVERVOLTAGE CATEGORIES**		--

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Clause	Requirement + Test	Result - Remark	Verdict
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N
L	**ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES**		--
	Information for the determination of clearances and creepage distances		P
M	**ANNEX M (NORMATIVE) POLLUTION DEGREE**		--
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		--
	The microenvironment determines the effect of pollution on the insulation, taking into account the macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		--
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		--
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		N
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		P
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N
N	**ANNEX N (NORMATIVE)** **PROOF TRACKING TEST**		--
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		--
7	Test apparatus		--
7.3	Test solutions		--
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		--
10.1	Procedure		--
	The proof voltage is 100V, 175V, 400V or 600V...:	250V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N
10.2	Report		--
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N
O	**ANNEX O (INFORMATIVE)** **SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		--
	Description of tests for determination of resistance to heat and fire		P
P	**ANNEX P (INFORMATIVE)** **GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES**		--
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WDaE		--
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		--

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Clause	Requirement + Test	Result - Remark	Verdict
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		N
7.1	The appliance marked with symbol IEC 60417-6332		N
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA		N
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N
	If symbol IEC 60417-6332 is used, its meaning is explained		N
11.8	The values of Table 3 are reduced by 15 K		N
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N
15.3	The value of t is 37 °C		N
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		N
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N
Q	**ANNEX Q (INFORMATIVE)** **SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS**		--
	Description of tests for appliances incorporating electronic circuits		P
R	**ANNEX R (NORMATIVE)** **SOFTWARE EVALUATION**		--
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N
R.1	Programmable electronic circuits using software		--
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N
R.2	Requirements for the architecture		--
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		N

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Clause	Requirement + Test	Result - Remark	Verdict
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		--
	- single channel with periodic self-test and monitoring		N
	- dual channel (homogenous) with comparison		N
	- dual channel (diverse) with comparison		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		--
	- single channel with functional test		N
	- single channel with periodic self-test		N
	- dual channel without comparison		N
R.2.2	Measures to control faults/errors		--
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in Table R.1 or Table R.2, detection of a fault/error shall occur before compliance with Clauses 19, 20.104, 20.105 , 22.101 and 22.108 is impaired (IEC 60335-2-7)		N
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N

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Clause	Requirement + Test	Result - Remark	Verdict
R.2.2.7	Labels used for memory locations are unique		N
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N
R.2.2.9	The software and safety-related hardware under its control shall be initialized and shall terminate before compliance with Clauses 19, 20.104, 20.105 ,22.101 and 22.108 is impaired. (IEC 60335-2-7)		N
R.3	Measures to avoid errors		--
R.3.1	General		--
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		--
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N
R.3.2	Specification		--
R.3.2.1	Software safety requirements:		N
	The specification of the software safety requirements includes the descriptions listed		N
R.3.2.2	Software architecture		--
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data		N
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N
R.3.2.3	Module design and coding		--
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N

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Clause	Requirement + Test	Result - Remark	Verdict

	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N
R.3.2.3.2	Software code is structured		--
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N
	The module specification is validated against the architecture specification by static analysis		N
R.3.3.3	Software validation		--
	The software is validated with reference to the requirements of the software safety requirements specification		N
	Compliance is checked by simulation of:		--
	- input signals present during normal operation		N
	- anticipated occurrences		N
	- undesired conditions requiring system action		N

TABLE R.1 – GENERAL FAULT/ERROR CONDITIONS						
Component [1)]	Fault/error	Acceptable measures [2) 3)]	Definitions	Document reference for applied measure	Document reference for applied test	Ver-dict
1 CPU 1.1 Registers	Stuck at	Functional test, or periodic self-test using either: - static memory test, or - word protection with single bit redundancy	H.2.16.5 H.2.16.6 H.2.19.6 H.2.19.8.2			N
1.2 VOID						N
1.3 Programme counter	Stuck at	Functional test, or Periodic self-test, or Independent time-slot monitoring, or Logical monitoring of the programme sequence	H.2.16.5 H.2.16.6 H.2.18.10.4 H.2.18.10.2			N

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Clause	Requirement + Test		Result - Remark			Verdict
2 Interrupt handling and execution	No interrupt or too frequent interrupt	Functional test, or time-slot monitoring	H.2.16.5 H.2.18.10.4			N
3 Clock	Wrong frequency (for quartz synchronized clock: harmonics/ sub-harmonics only)	Frequency monitoring, or time slot monitoring	H.2.18.10.1 H.2.18.10.4			N
4. Memory 4.1 Invariable memory	All single bit faults	Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy	H.2.19.3.1 H.2.19.3.2 H.2.19.8.2			N
4.2 Variable memory	DC fault	Periodic static memory test, or word protection with single bit redundancy	H.2.19.6 H.2.19.8.2			N
4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N
5 Internal data path	Stuck at DC fault	Word protection with single bit redundancy Comparison of redundant CPUs by either: - reciprocal comparison - independent hardware comparator	H.2.19.8.2 H.2.18.15 H.2.18.3			N
5.1 VOID						N
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N

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Clause	Requirement + Test			Result - Remark		Verdict
6 External communication	Hamming distance 3	Word protection with multi-bit redundancy, or CRC – single work, or Transfer redundancy, or Protocol test	H.2.19.8.1 H.2.19.4.1 H.2.18.2.2 H.2.18.14			N
6.1 VOID						N
6.2 VOID						N
6.3 Timing	Wrong point in time	Time-slot monitoring, or scheduled transmission Time-slot and logical monitoring, or Comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator	H.2.18.10.4 H.2.18.18 H.2.18.10.3 H.2.18.15 H.2.18.3			N
	Wrong sequence	Logical monitoring, or time-slot monitoring, or Scheduled transmission (same options as for wrong point in time)	H.2.18.10.2 H.2.18.10.4 H.2.18.18			
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check Comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator	H.2.18.13 H.2.18.15 H.2.18.3			N
7.1 VOID						N
7.2 Analog I/O 7.2.1 A/D and D/A-converter	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N
7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N

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Clause	Requirement + Test	Result - Remark	Verdict

8 VOID						N
9 Custom chips [4] e.g. ASIC, GAL, Gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N
NOTE A Stuck-at fault model denotes a fault model representing an open circuit or a non-varying signal level. A DC fault model denotes a stuck-at fault model incorporating short circuit between signal lines.						
[1] For fault/error assessment, some components are divided into their sub-functions. [2] For each sub-function in the table, the Table R.2 measure will cover the software fault/error. [3] Where more than one measure is given for a sub-function, these are alternatives. [4] To be divided as necessary by the manufacturer into sub-functions.						

S	**ANNEX S (NORMATIVE)** **BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE**		--
	The following modifications to this standard are applicable for battery-operated appliances where the batteries are either non-rechargeable (primary batteries), or		N
	rechargeable batteries (secondary batteries) that are not recharged in the appliance		N
5.8.1	If the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity is applied		N
5.S.101	Appliances intended for use with a battery box are tested with the battery box supplied with the appliance or with the battery box recommended in the instructions		N
5.S.102	Appliances are tested as motor-operated appliances.		N
7.1	Appliances marked with the battery voltage (V) and the polarity of the terminals, unless :		N
	the polarity is irrelevant		N
	Appliances also marked with:		--
	– name, trade mark or identification mark of the manufacturer or responsible vendor :		N
	– model or type reference :		N
	– IP number according to degree of protection against ingress of water, other than IPX0 :		N
	– type reference of battery or batteries :		N
	If relevant, the positive terminal is indicated by the symbol IEC 60417-5005 and the negative terminal by the symbol IEC 60417-5006		N

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Clause	Requirement + Test	Result - Remark	Verdict
	If appliances use more than one battery, they are marked to indicate correct polarity connection of the batteries		N
7.6	Additional symbols		N
7.12	The instructions contain the following, as applicable:		--
	– the types of batteries that may be used :		N
	– how to remove and insert the batteries		N
	– non-rechargeable batteries are not to be recharged		N
	– rechargeable batteries are to be removed from the appliance before being charged		N
	– different types of batteries or new and used batteries are not to be mixed		N
	– batteries are to be inserted with the correct polarity		N
	– exhausted batteries are to be removed from the appliance and safely disposed of		N
	– if the appliance is to be stored unused for a long period, the batteries are removed		N
	– the supply terminals are not to be short-circuited		N
11.5	Appliances are supplied with the most unfavourable supply voltage between		--
	– 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries		N
	– 0,75 and 1,0 times battery voltage, if the appliance is designed for use with rechargeable batteries only		N
	The values specified in Table S.101 for the internal resistance per cell of the battery is taken into account		N
19.1	The tests are carried out with the battery fully charged unless otherwise specified		N
19.13	The battery does not rupture or ignite		N
19.S.101	Appliances are supplied with the voltage specified in 11.5. The supply terminals having an indication of polarity are connected to the opposite polarity, unless		N
	such a connection is unlikely to occur due to the construction of the appliance		N
19.S.102	For appliances with provision for multiple batteries, one or more of the batteries are reversed and the appliance is operated, if reversal of batteries is allowed by the construction		N
25.5	The flexible leads or flexible cord used to connect an external battery or battery box in is connected to the appliance by a type X attachment		N
25.13	This requirement is not applicable to the flexible leads or flexible cord connecting external batteries or a battery box with an appliance		N

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Clause	Requirement + Test	Result - Remark	Verdict
25.S.101	Appliances have suitable means for connection of the battery. If the type of battery is marked on the appliance, the means of connection is suitable for this type of battery		N
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or battery box are so located or shielded that there is no risk of accidental connection between supply terminals		N
30.2.3.2	There is no battery in the area of the vertical cylinder used for the consequential needle flame test, unless		N
	the battery is shielded by a barrier that meets the needle flame test of Annex E, or		N
	that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N
T	**ANNEX T (NORMATIVE)** **UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS**		--
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N
	Does not apply to glass, ceramic and similar materials		N
	Tested as specified in ISO 4892-1 and ISO 4892-2, with the following modifications:		--
	Modifications to ISO 4892-1:		N
5.1.6	The UV-C emitter is a low pressure mercury lamp with a quartz envelope having a continuous spectral irradiance of 10 W/m2 at 254 nm		N
	Subclause 5.1.6.1 and Table 1 are not applicable		N
5.2.4	The black-panel temperature shall be 63 °C +/- 3 °C		N
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N
9	This clause is not applicable		N
	Modifications to ISO 4892-2:		N
7.1	At least three test specimens are tested		N
	Ten samples of internal wiring is tested		N
7.2	The specimens are attached to the specimen holders such that they are not subject to any stress		N
7.3	Apparatus prepared as specified		N
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h		N
7.4	If used, a radiometer is mounted and calibrated such that it measures the irradiance at the exposed surface of the test specimen		N

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Clause	Requirement + Test	Result - Remark	Verdict
7.5	Material properties and test methods for parts providing mechanical support or impact resistance as specified in Table T.1		N
	Material properties and test method for electrical insulation of internal wiring as specified in Table T.2		N
8	This clause is not applicable		N
AA	**ANNEX AA (NORMATIVE)** **DETERGENT** **(IEC 60335-2-7)**		--
	Detergent: composition, reference		P
BB	**ANNEX BB (NORMATIVE)** **AGEING TEST FOR ELASTOMERIC PARTS** **(IEC 60335-2-7)**		--
	Test carried out by measuring hardness and mass before and after immersion in a solutions of detergent and rinsing agent at elevated temperature		N
	Test is carried out on at least three samples of each part as specified in ISO 1817, with the following modifications :		N
5	Test liquids		N
	Two test liquids are used: – one liquid is obtained by dissolving 5 g of the detergent specified in Annex AA per litre of distilled water; – the other liquid is composed of 0,6 ml of rinsing agent as specified in Annex AA per litre of distilled water.		N
	Care is to be taken to ensure that the total mass of the test pieces immersed does not exceed 100 g for each litre of solution, that the test pieces are completely immersed and that their entire surface is freely exposed to the solution. During the tests, the test pieces are not to be exposed to direct light. Test pieces of different compounds are not to be immersed at the same time in the same solution		N
6	Test Pieces		N
6.4	Conditioning		N
	Temperature : 23°C± 2°C		N
	Relative humidity : (50± 5)%		N
7	Immersion in the test liquid		N
7.1	Temperature		N
	Solution heated within 1h with test pieces immersed to 75^{+5}_{0} °C and maintained at this value		N
	Solution renewed every 24h		N

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Clause	Requirement + Test	Result - Remark	Verdict
7.2	duration		N
	Immersion during periods as specified		N
8	Procedure		N
8.2	Change in mass		N
	Increase in mass of the test pieces, not exceeding 10 % of the value determined before immersion		N
8.6	Change in hardness		N
	Micro-test for hardness applies		N
	Hardness of the test pieces has not been changed by more than 8 IRHD		N
	Surface not sticky and no crack visible to the naked eye or any other deterioration		N
CC	**ANNEX CC (NORMATIVE)** **DETERGENT FREE ELECTROLYSER WASHING MACHINES (IEC 60335-2-7)**		--
	Washing machines for household and similar use that incorporate an electrolyte process employing an electrolyte instead of detergent		N
CC.3	**Terms and definitions**		N
3.1.9	Electrolyte specified in the instructions, amount, reference		N
CC.7	**Marking and instructions**		N
7.12	Instructions for appliances intended to be filled with electrolyte by the user shall contain details of the electrolyte,		N
	And the substance of the following: In order to avoid hazards, use only the electrolyte specified		N
7.12.1	Installation instructions shall state that the appliance shall be installed so that there is a distance of at least 200 mm between the appliance enclosure and external heat sources, such as appliances containing heating elements.		N
CC.15	**Moisture resistance**		N
15.2	Appliances are operated under the clause of cl. 11 but without clothes load.		N
	When the maximum water level is reached, the inlet valve is held open and the filling is continued for 15 min after first evidence of overflow or until the inflow is automatically stopped by other means.		N
CC.19	**Abnormal operation**		N
CC.19.201	Appliances shall be constructed so that foaming does not affect electrical insulation.		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Test carried out immediately after 15.2		N
	Test carried out immediately after 15.2		N
	After the test the appliance shall withstand the electric strength test of 16.3		N
CC.22	**Construction**		N
22.6	A solution composed of 5 g of the detergent specified in Annex AA per litre of distilled water is used. is used instead of coloured water		N
22.17	Spacers intended to prevent the electrolyser aperture being blocked by walls shall be fixed so that it is not possible to remove them from the outside of the appliance by hand or by means of screwdriver or a spanner.		N
CC.22.201	Appliances fitted with an electrolyser, consisting of cathodic and anodic chambers separated by an electrolytic separator, shall be constructed so that the electrolyser is always open to the atmosphere through an aperture of at least 5 mm in diameter, or 20 mm² in area with a width of at least 3 mm.		N
	The aperture shall be located so that it is unlikely to be obstructed in normal use.		N
CC.22.202	During normal use of the appliance, the chemical reaction in the electrolyser shall not produce hydrogen gas that is released in hazardous amounts into areas		--
	-where electrical components that produce arcs and sparks during normal operation or abnormal operation are mounted, unless		N
	These components have been tested and found at least to comply with IEC 60079-15 for group IIC gases, or		N
	-that contain surfaces with a temperature exceeding 460°C during normal operation or abnormal operation and that may be exposed to the released hydrogen gas		N
	Compliance is checked by inspection, by measuring the temperature of the relevant surfaces during normal operation or abnormal operation, and by measuring the concentration of hydrogen gas (shall not exceed 50% of the LFL of hydrogen)		N
CC.22.203	During normal use of the appliance, the chemical reaction in the electrolyser shall not produce wash water that causes corrosion due to the PH value of the wash water.		N
	Compliance is checked by the salt mist test of IEC 60068-2-52, severity 2 being applicable.		N

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Clause	Requirement + Test	Result - Remark	Verdict
	After the test, the appliance shall not have deteriorated to such an extent that compliance with this standard, in particular with cl. 8 and 27 is impaired. The coating shall not be broken and shall not have loosened the surface.		N
CC.29	**Clearances, creepage distances and solid insulation**		N
29.2	Pollution degree 3, and the insulation with a CTI not less than 250,		N
	Unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance due to :		N
	- condensation produced by the appliance		N
	- chemicals, such as electrolyte or fabric conditioner		N
CC.32	Radiation, toxicity and similar hazards		N
32	The ozone concentration produced by the chemical reactions in the electrolyser not be excessive.		N
	Compliance is checked by test as described		N
	The percentage of ozone shall not exceed 5 x 10^{-6}		N
Annex BB	Instead of the solution containing detergent, a solution of the electrolysed portion of the wash water obtained under the conditions of cl. 11 is used.		N
DD	**WASHING MACHINES INCORPORATING A POWER DRIVEN WRINGER (IEC 60335-2-7)**		--
DD.7	**Radiation, toxicity and similar hazards**		N
7.1	The safety release mechanism of power-driven wringers shall be marked to indicate its method of operation, unless		N
	Its operating means to be continuously actuated by the user.		N
7.12	The instructions shall draw attention to the potential hazards involved when operating the wringer,		N
	And shall state that : -the wringer must be disengaged or switched off when not in use; -the appliance must not be operated by children		N
DD.11	**Heating**		N

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Clause	Requirement + Test	Result - Remark	Verdict
11.7	Appliance is operated for 3 cycles (washing following by wringing), with a rest period of 4 min between cycles. Duration of each wringing: 8 min. The wringer is loaded by passing a board through the rollers once a minute, the roller pressure being adjusted to the maximum value. The board is approximately 20 mm thick and 80 cm long, its width being at least equal to three-quarters of the effective length of the rollers. The board is uniformly tapered at each end down to a thickness of approximately 3 mm, over a distance of 20 cm.		N
DD.19	**Abnormal operation**		N
19.7	Moving parts of a wringer are locked even if a trip bar prevents rotation of the roller		N
DD.20	**Stability and mechanical hazards**		N
20.201	Power-driven wringers constructed so that the pressure between the rollers has to be maintained by the user, unless a readily accessible safety release or other means of protection is incorporated		N
	The release mechanism shall operate easily without violent ejection of any part and shall release pressure on the rollers immediately. The rollers shall separate either by at least 45 mm at both ends or by at least 25 mm at one end and 75 mm at the other		N
	The safety release shall be operable by a person standing in any normal working position relative to the wringer, even if the fingers of both hands are trapped between the rollers.		N
	Power-driven wringers shall be constructed to prevent fingers being squeezed between a roller and the frame		N
	Power-driven wringers shall be controlled by an easily accessible switch		N

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10.1	TABLE: Power input deviation				P
Input deviation of/at:	P rated (W)	P measured (W)	Δ P	Required Δ P	Remark
100V, Washing	260	289	+11.5%	+15%	Model FW35-19399
100V, Spinning	220	245	+11.4%	+15%	
100V, Washing	240	268	+11.7%	+15%	Model FW35-1508
100V, Spinning	200	219	+9.5%	+15%	
Supplementary information: The most unfavourable test data was recorded in this table.					

10.2	TABLE: Current deviation				N
Current deviation of/at:	I rated (A)	I measured (A)	Δ I	Required Δ I	Remark
Supplementary information:					

11.8	TABLE: Heating test		P
	Test voltage (V)..... .....:	106.0V	—
	Ambient (°C).....:	18.6/ 19.0	—

Thermocouple locations:	Max. temperature rise measured, Δ T (K)	Max. temperature rise limit, Δ T (K)
Power cord junction point	17.2	50
Motor lead wire	11.6	50
Motor running capacitor	8.0	T85-25=60
Washing motor winding(Main)	63.3	Class 130, 85
Washing motor winding(Aux.)	58.0	Class 130, 85
Drain control motor	11.4	Class 105, 65
Door switch	4.6	T105-25=80
Interlock switch	2.7	T105-25=80
Water inlet valve	10.9	Class 155, 115
PCB holder	13.6	Cl.30
PCB surface	16.7	Cl.30
Varistor	36.1	T85-25=60
X2 capacitor	37.2	T110-25=85
Relay	48.5	T85-25=60
Transformer winding	40.8	Class 130, 85
Plastic enclosure(inside, near motor)	4.7	Cl.30
Plastic enclosure(outside, near motor)	2.4	60
Door	0.9	55

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Switch knob	13.6	60
Test corner	3.6	65
Control panel(inside)	5.7	Cl.30
Control panel(outside)	2.7	60
Test corner	0.9	65
Supplementary information: The most unfavourable test data was recorded in this table.		

11.8	TABLE: Heating test, resistance method					P
	Test voltage (V).....:		106.0V			—
	Ambient, t1 (°C).....:		18.6			—
	Ambient, t2 (°C).....:		19.0			—
Temperature rise of winding:	R1 (Ω)	R2 (Ω)	Δ T (K)	Max. Δ T (K)	Insulation class	
Washing motor winding(Main)	7.7	9.9	71.9	95	Class 130	
Washing motor winding(Aux.)	7.6	9.6	66.2	95	Class 130	
Supplementary information: The most unfavourable test data was recorded in this table.						

13.2	TABLE: Leakage current		P
	Heating appliances: 1.15 x rated input (W) .....:	--	—
	Motor-operated and combined appliances: 1.06 x rated voltage (V).....:	Same as Cl.11.8	—
Leakage current between:		I (mA)	Max. allowed I (mA)
Live part and plastic enclosure/ knob/ handle		0.002	0.35 peak
Live part and earthing part		0.005	0.75
Supplementary information: The most unfavourable test data was recorded in this table.			

13.3	TABLE: Dielectric strength		P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)
Live part and plastic enclosure/ control panel/ handle		2500	No
Internal wire and plastic enclosure/ control panel/ handle		1750	No
Live part and earthing part		1000	No
Supplementary information: The most unfavourable test data was recorded in this table.			

14	TABLE: Transient overvoltages					N
Clearance between:	Cl (mm)	Required Cl (mm)	Rated impulse voltage (V)	Impulse test voltage (V)	Flashover (Yes/No)	

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Supplementary information:

16.2	TABLE: Leakage current		P
	Single phase appliances: 1.06 x rated voltage (V) .....:	106.0V	—
	Three phase appliances 1.06 x rated voltage divided by √3 (V) .....:	--	—

Leakage current between:	I (mA)	Max. allowed I (mA)
Live part and plastic enclosure/ knob/ handle	0.004	0.35 peak
Live part and earthing part	0.011	0.75
Supplementary information: The most unfavourable test data was recorded in this table.		

16.3	TABLE: Dielectric strength	P

Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Live part and plastic enclosure/ control panel/ handle	2500	No
Internal wire and plastic enclosure/ control panel/ handle	1750	No
Live part and earthing part	1250	No
Supplementary information: The most unfavourable test data was recorded in this table.		

17	TABLE: Overload protection	P

Thermocouple locations:	Max. temperature rise measured, Δ T (K)	Max. temperature rise limit, Δ T (K)
Primary winding of transformer	41.3	Class 130, 175-25=150
Secondary winding of transformer	41.9	Class 130, 175-25=150
Supplementary information: The most unfavourable test data was recorded in this table.		

17	TABLE: Overload protection, resistance method		N
	Test voltage (V).....:		—
	Ambient, t1 (°C).....:		—
	Ambient, t2 (°C).....:		—

Temperature of winding:	R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
Supplementary information:					

19.7	TABLE: Abnormal operation, locked rotor/moving parts		P
	Test voltage (V).....:	240V	—
	Ambient, t1 (°C).....:	17.9	—

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	Ambient, t2 (°C).....:		18.3		—
Temperature of winding:	R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
Main winding of washing motor	7.7	11.1	110.8	127.3	225
Aux. winding of washing motor	7.6	10.7	102.4	118.9	225
Supplementary information: The most unfavourable test data was recorded in this table.					

19.13	TABLE: Abnormal operation, temperature rises	P
Thermocouple locations:	Max. temperature rise measured, Δ T (K)	Max. temperature rise limit, Δ T (K)
Power cord junction point	12.8	150
Main winding of washing motor	104.4	Class 130, 225-25=200
Aux. winding of washing motor	95.2	Class 130, 225-25=200
Drain control motor	4.3	Class 105, 165-25=140
Plastic enclosure(inside, near fan motor)	5.0	Cl.30
Test corner	2.1	150
Supplementary information: The most unfavourable test data was recorded in this table.		

21.1	TABLE: Impact resistance		P
Impacts per surface	Surface tested	Impact energy (Nm)	Comments
3 times	Control panel	0.5J	No damaged
3 times	Plastic enclosure	0.5J	No damaged
3 times	Cover	0.5J	No damaged
Supplementary information: The most unfavourable test data was recorded in this table.			

24.1	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Power plug	Ningbo Qiaopu Electronic Co., Ltd.	QP5	7A, 125V~	Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5	JET 5011-43001-1006
Alternative	Zhejiang Heye Wire & Cable Co., Ltd.	HY-3211	125V, 7A	Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5	JET7849-43001-1001
Alternative	Zhejiang Jinting Nuclear Cable Co.,Ltd.	J2-7	125V, 7A	Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5	JET5812-43001-1002

Alternative	LIAN DUNG	LT-806	125V, 7A	Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5	JET7733-43001-1004
Alternative	Zhejiang Heye Wire & Cable Co., Ltd.	HY-3315	125V, 7A	Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5	JET7849-43001-1003
Alternative	Zhejiang Jinting Nuclear Cable Co.,Ltd.	J3-7B	125V, 7A	Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5	JET5812-43001-1009A
Alternative	Ningbo Qiaopu Electric Co.,ltd	QP6	125V, 7A	JIS C 8303 Appendix 4 Section1, Section 6 and Appendix 10 Chapter 5	JET5011-43001-1003
Power cord	Ningbo Qiaopu Electronic Co., Ltd.	VCTF VCTFK	3X0.75mm^2	Appendix 1 Section 1. (1). (6) and (9)	JET5011-12009-1001
Alternative	Zhejiang Jinting Nuclear Cable Co.,Ltd.	VCTF VCTFK	3X0.75mm^2	Appendix 1 Section 1. (1). (6) and (9)	JET5812-12009-1001
Alternative	I-Sheng Electric Wire & Cable Co. Ltd.	HVCTF HVCTFK	3X0.75mm^2	Appendix 1 Section 1. (1). (6) and (9)	JET2090-12009-1002
Alternative	Zhejiang Heye Wire & Cable Co., Ltd.	VCTF VCTFK	3X0.75mm^2	Appendix 1 Section 1. (1). (6) and (9)	JCT15-156
Alternative	Zhejiang Heye Wire & Cable Co., Ltd.	HVCTF HVCTFK	3X0.75mm^2	Appendix 1 Section 1. (1). (6) and (9)	JCT15-157
Alternative	Ningbo Qiaopu Electric Co.,ltd	HVCTF HVCTFK	3X0.75mm^2	Appendix 1 Section 1. (1). (6) and (9)	JET5011-12009-1002
Closed-end connector	Heavy Power Co.,Ltd.	CE2,CE2X CE5,CE5X	AC 300V, V-0	IEC 60335-1 IEC 60335-2-7	Tested with appliance
Alternative	Shenzhen Hongyu ElectricalCo., Ltd.	HY-CE2, HY-CE2X, HY-CE5, HY-CE5X	AC 300V, V-0	IEC 60335-1 IEC 60335-2-7	CQC11134059224 Tested with appliance
Alternative	Jiangxi Gaochao Industrial Co.,Ltd	CE2,CE2X CE5,CE5X	AC 300V, V-0	IEC 60335-1 IEC 60335-2-7	CQC18134206313 Tested with appliance
Current fuse	Zhenjiang Jianhao Electrical Appliance Co.,Ltd	F10AL	250V, 10A	GB/T 9364.1; GB/T 9364.7	CQC05012014562
Motor running capacitor	Cixi Riyi Capacitor Factory	CBB65A-7	AC 250V, T85, 38uF±5%, S2	IEC/ EN 60252-1	TUV R 50285952

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Alternative	Yuyao Anhong Electronic Co.,Ltd	CBB65	38μF±5% ,250V 50/60Hz, S2	IEC/ EN 60252-1	TUV SUD No. B 082392 0010
Alternative	Wuxi Hongguang Capacitor Co.,Ltd	CBB65	38μF±5%, 250V, 50/60Hz, S2	IEC/ EN 60252-1	TUV R 50198120
Alternative	Ningguo Darong Electronics Co., Ltd.	CBB65	38μF±5% 250V 50/60Hz, S2	IEC/ EN 60252-1	TUV R 50241888
Drain retractor	Hefei Rishang Electrical Co.,LTD.	PQD-70	AC 100-127V, 50/60Hz	IEC 60335 IEC 60335-2-7	Tested with appliance
Alternative	Zhejiang Yuhua Electronics Co.,Ltd	XPQ-6C2	AC 110-127V 50/60Hz	IEC 60335 IEC 60335-2-7	VDE 40020185
Alternative	Ningbo Zhenguan Electric Appliance Co.,Ltd	XPQ-B	AC 110-127V 50/60Hz	IEC 60335 IEC 60335-2-7	UL-US-L497308-61-82608102-1 LVD14-5589
Motor	Suzhou Yueqiu motor co.,ltd	YXQ-90	100V, 50/60Hz, 90W Class B	IEC 60335-1 IEC 60335-2-7	Tested with appliance
Alternative	Zhejiang Yongchang Electric Corporation	XD-90	100V, 50/60Hz, 90W Class B	IEC 60335-1 IEC 60335-2-7	Testing with appliance
Motor protector	Chang Zhou City Tong Li Electronic Co.,Ltd	KW-135℃	250V, Tf: 135℃	IEC/EN 60730-1 IEC/EN 60730-2-22	VDE 40004418
Alternative	Changzhou Xin Du Electronics Co.,Ltd	CW-II	250V, Tf: 135℃	IEC/EN 60730-1 IEC/EN 60730-2-2	VDE 40000497
Alternative	Jiangsu Changsheng Electric Appliance Co., Ltd	BR-A2D	250V, Tf: 135℃	IEC/EN 60730-1 IEC/EN 60730-2-2	VDE 40015893
Alternative	Changzhou Huakun Electronic Element Factory	HW	250V, Tf: 135℃	IEC/EN 60730-1 IEC/EN 60730-2-2	VDE 40019671
Alternative	Changzhou Desheng Henghui Electronics Co., Ltd	BW-A, BR-A2D	250V, Tf: 135℃	IEC/EN 60730-1 IEC/EN 60730-2-2	VDE 40032370
Stop switch	Yueqing Tongda Wire Electric Factory	HK-14	16(3)A, 250V, T125 5E4	IEC/EN 61058-1	VDE 40027032
Alternative	Zhejiang Hongxing Electronic Appliances Co.,Ltd.	KW11	16A , 250V, T105, 2E4	IEC/EN 61058-1	TUV R 50154728
Alternative	Yueqing Huixiong Electronic Technology Co.,Ltd	KW1	15A, AC 125/250V, T125, 5E4	IEC/EN 61058-1	TUV R 50378376
Alternative	Cixi Westinghouse Electric Appliance Co.,Ltd	KW1	16(3)A, AC250V, T125, 5E4	IEC/EN 61058-1	TUV R 50548768

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Water inlet valve	Wuhu Lejia Electrical Co., Ltd.	FCD270A, FCD180A, FCD90A	AC 110-127V, 50/60Hz	GB/T 14536.1; GB/T 14536.9	CQC 13002097713
Alternative	Zhejiang Yuhua Electronics Co.,Ltd	FCD270A, FCD180A, FCD90A	110-127V, 50/60Hz	IEC/EN 60730-1 IEC/EN 60730-2-8	TUV R 50516672
Alternative	Zhejiang Hongchang Electrical Technology Co.,Ltd	FCD270U2, FCD180G107, FCD90A0051, FCD90A0052	110V-127VAC 50/60Hz	GB/T 14536.1; GB/T 14536.9	CQC 05002013491
Alternative	Nanyang electronic components factory in Hefei	F1CD270A, F1CD180A, F1CD90A	110VAC-127VAC 50/60Hz	IEC/EN 60730-1 IEC/EN 60730-2-8	CQC 22002366405
Water level traction	Hefei Rishang Electrical Co.,LTD.	XQB45-95	DC 5V	IEC 60335-1 IEC 60335-2-7	CQC10002046318 Tested with appliance
Alternative	Cixi Huixin Electric Appliance Co.,Ltd.	HXWS-1	DC5V	IEC 60335-1 IEC 60335-2-7	Tested with appliance
Alternative	Wuhu Lejia Electrical Co.,Ltd	XQB45-95, XQB60-F101	DC5V	IEC 60335-1 IEC 60335-2-7	CQC11002062350 Tested with appliance
Alternative	Anhui Renzhi Electronics Technology Co.,Ltd	C56A, C44N	DC5V	IEC 60335-1 IEC 60335-2-7	CQC14002113130 Tested with appliance
Alternative	Hefei Rishang Electrical Co.,LTD.	XQB48-06	DC5V	IEC 60335-1 IEC 60335-2-7	CQC10002046318 Tested with appliance
PCB material	Dongguan Kai Mau Electronics Co., Ltd.	CEM-1 or FR-1	V-0 , T130	IEC 60335-1 IEC 60335-2-7	UL E237305 Tested with appliance
Alternative	KINGBOARD LAMINATES HOLDINGS LTD	KB-5152	V-0 , T130	IEC 60335-1 IEC 60335-2-7	UL E123995 Tested with appliance
Alternative	SHANDONG JINBAO TECH-INNOV CORPORATION	ZD-68(G)F1	V-0 , T130	IEC 60335-1 IEC 60335-2-7	UL E141940 Tested with appliance
Varistor	Centra Science Corp.	CNR 10D621K	620 V, T85	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE 40008220
Alternative	Xiamen SET ELECTRONICS CO., LTD	SFV 10D621K	620 V, T85	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	TUV J 50254627

Alternative	Shantou High-New Technology Dev.Zone Songtian Enterprise Co.,Ltd	STE10D621K	620 V, T125	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE 40023049
Alternative	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	10D561K	560V, T125	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE 40023049
Alternative	Dongguan City Dafu Electronics Co. Ltd.	10D561K	560V, T125	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE 40050909
Alternative	Shenzhen Weidy Industrial Development Co., Ltd.,	WZV10D561KT	560V, T125	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE 40052040
X2 capacitor	Shantou High-New Technology Dev.Zone Songtian Enterprise Co.,Ltd	MPX104K	AC 275V, 0.1uF, T110	IEC/EN 60384-14	VDE 40034679
Alternative	Wuxi Jiyang Electron Co., Ltd	MKP 104J	275/300V, 0.1uF, T110	IEC/EN 60384-14	VDE 40033053
Alternative	Shenzhen Weidy Industrial, Development Co., Ltd.	MKP	0.1uF, AC 310V, T110	IEC/EN 60384-14	VDE 40041066
Alternative	Shenzhen Weidy Industrial, Development Co., Ltd.	MKP	100nF, AC 310V, T110	IEC/EN 60384-14	VDE 40041066
Alternative	DongGuan Chengdong Electronic Technology Co., Ltd.	MPX	0.1uF, AC 310V, T110	IEC/EN 60384-14	VDE 40046845
Alternative	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	MPX	0.1uF, AC 275V, T110	IEC/EN 60384-14	VDE 40034679
Alternative	Shantou High-New Technology Dev.Zone Songtian Enterprise Co.,Ltd	MPX103K	AC 275V, 0.01uF, T110	IEC/EN 60384-14	VDE 40034679
Alternative	Wuxi Jiyang Electron Co., Ltd	MKP 103K	275/300V, 0.01uF, T110	IEC/EN 60384-14	VDE 40033053
Alternative	Shenzhen Weidy Industrial, Development Co., Ltd.	MKP	0.01uF, AC 310V, T110	IEC/EN 60384-14	VDE 40041066

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Alternative	Shenzhen Weidy Industrial, Development Co., Ltd.	MKP	10nF, AC 310V, T110	IEC/EN 60384-14	VDE 40041066
Alternative	DongGuan Chengdong Electronic Technology Co., Ltd.	MPX	0.01uF, AC 310V, T110	IEC/EN 60384-14	VDE 40046845
Alternative	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	MPX	0.01uF, AC 275V ,T110	IEC/EN 60384-14	VDE 40034679
Relay	Dongguan Churod Electronics Co., Ltd	A1-S-112IA	250V, 8A, T85, 1E5	IEC/EN 61810-1	TUV R 50174892
Alternative	Dongguan Churod Electronics Co., Ltd	A1-S-112HAF	250V 10A, T85, 1E5	IEC/EN 61810-1	TUV R 50174892
Alternative	Zhejiang Meishuo Electric Technology Co., Ltd.	MPD-S-112-A	250V, 10 A, T85/T105, 1E5	IEC/EN 61810-1	TUV R 50184948
Alternative	Zhejiang Fanhar Electronic Co. Ltd	W11-1A2STLE-H	250 V, 10 A, T85, 1E5	IEC/EN 61810-1	TUV R 50332879
Alternative	DONGGUAN YONGNENG ELECTRONICS CO., LTD	YX201H-S-112DMF	240V, 10 A, T85, 1E5	IEC/EN 61810-1	TUV R 50106730
Alternative	Dongguan Churod Electronics Co., Ltd	CHM-S-112DA3	250 V, 5 A, T90, 1E5	IEC/EN 61810-1	TUV R 50196152
Alternative	OMRON Corporation	G5NB-1A-E	250 V, 5 A, T85, 1E5	IEC/EN 61810-1	VDE 137575
Alternative	ZHEJIANG MEISHUO Electronic Technology Co., Ltd	MPR-S-112-A	250 V, 5A/10A, T85/T105, 1E5	IEC/EN 61810-1	TUV R 50217035
Alternative	Zhejiang Fanhar Electronics Co.,Ltd.	W18-1AST	250 V, 5 A, 1E5 T85	IEC/EN 61810-1	TUV R 50406753
Alternative	Ningbo Zettler Electronics Co Ltd	JT32F-G012-HST	10A, AC 250V, T85, 1E5	IEC/EN 61810-1	TUV R 50265552
Transformer	Zhejiang Zuoao Technology	T-0024-06	AC 100V, 50/60Hz	IEC 60335 IEC 60335-2-7	Tested with appliance
Alternative	Xiamen Zettler Magnetics Co. Ltd.	BV301S10020	AC 115V, 50/60Hz	IEC 60335 IEC 60335-2-7	Tested with appliance
Alternative	Xiamen Zettler MagneticsCo., Ltd	AM301S020008	AC 100V, 50/60Hz	IEC 60335 IEC 60335-2-7	Tested with appliance

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Alternative	WUXI XINCHANG ELECTRONIC CO LTD	BCY-432-30086A	AC 100V, 50/60Hz	IEC 60335 IEC 60335-2-7	Tested with appliance
Plastic enclosure of applinance (body)	Handian Group Ningbo Washing Machine Co.,Ltd	JM-370K	PP	IEC 60335-1 IEC 60335-2-7	Test with the appliance
Plastic enclosure of applinance (cover)	Handian Group Ningbo Washing Machine Co.,Ltd	HI-121H	ABS	IEC 60335-1 IEC 60335-2-7	Test with the appliance
Internal wire	Zhejiang Heye Wire & Cable Co., Ltd.	60227 IEC 08(RV-90)	0.5mm^2/0.75mm^2, 300/500V	--	CCC 20220101054 90062
Alternative	Zhejiang Heye Wire & Cable Co., Ltd.	H05V2-K	300/500V, 0.5mm^2/0.75mm^2	--	VDE 40055537
Alternative	Zhejiang Jinting Nuclear Cable Co.,Ltd.	H05V2-K	300/500V, 0.5mm^2/0.75mm^2	--	VDE 40033763
Alternative	Ningbo Kaifeng Electric Appliance Co., Ltd.	H05V2-K	300/500V, 0.5mm^2/ 0.75mm^2	--	VDE 40035429
Alternative	Cixi Hongxin Wire and Cable Factory	H05V2-K	300/500V, 0.5mm^2/ 0.75mm^2	--	VDE 40028426
Alternative	Zhejiang Jinting Nuclear Cable Co.,Ltd.	60227 IEC 08(RV-90)	300/500V, 0.5mm^2/0.75mm^2	--	CCC 20110101054 84550
Alternative	Cixi Hongxin Wire and Cable Factory	60227 IEC 08(RV-90)	300/500V 0.5mm^2 0.75mm^2	--	CCC 20030101050 44282
Alternative	Ningbo Kaifeng Electric Appliance Co., Ltd.	60227 IEC 08(RV-90)	300/500V 0.5mm^2/0.75mm^2	--	CCC 20090101053 62822
Alternative	Wenzhou Jingke Electronics Co., Ltd	60227 IEC 08(RV-90)	300/500V 0.5mm^2/0.75mm^2	--	CCC 20210101054 25579
Control board	Zhejiang Zuoao Technology Co., Ltd	ZAB-R1-0304-0001	110V~ 50/60Hz	IEC 60335-1 IEC 60335-2-7	Testing with appliance
Alternative	SHUNCHENG CONTROL ELECTRIC CO.LTD	SC-KB-6332-T-17	110V~ 50/60Hz	IEC 60335-1 IEC 60335-2-7	Testing with appliance
Alternative	Zhejiang Zuoao Technology Co., Ltd	ZAB-M1-0320-0001	110V~ 50/60Hz	IEC 60335-1 IEC 60335-2-7	Testing with appliance
Alternative	SHUNCHENG CONTROL ELECTRIC CO.LTD	SC-KB-7512-T-01	110V~ 50/60Hz	IEC 60335-1 IEC 60335-2-7	Testing with appliance

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28.1	TABLE: Threaded part torque test			P
Threaded part identification:		Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)
Screw for fixed enclosure		3.90	II	1.2
Screw for earthing terminal		4.80	II	2.0
Supplementary information: The most unfavourable test data was recorded in this table.				

29.1	TABLE: Clearances		P
	Overvoltage category..... ....:	II	—

		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark
330	0,2* / 0,5 / 0,8**	--	--	--	--	N
500	0,2* / 0,5 / 0,8**	--	--	--	--	N
800	0,2* / 0,5 / 0,8**	--	--	--	--	N
1 500	0,5 / 0,8** / **1,0***	>1.0	>1.0	--	>1.0	P
2 500	1,5 / **2,0***	--	--	>2.0	--	P
4 000	3,0 / 3,5***	--	--	--	--	N
6 000	5,5 / 6,0***	--	--	--	--	N
8 000	8,0 / 8,5***	--	--	--	--	N
10 000	11,0 / 11,5***	--	--	--	--	N

Supplementary information:

*) For tracks on printed circuit boards if pollution degree 1 and 2
**) For pollution degree 3
***) If the construction is affected by wear, distortion, movement of the parts or during assembly

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation									P
Working voltage (V):	Creepage distance (mm) Pollution degree									
	1	2			3			Type of insulation		
		Material group			Material group					
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	B**	S**	R**	Verdict
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9		—	—	N
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N

125	0,28	0,75	1,05	1,5	1,9	2,1	**2,4**	>2.4	—	—	P
125	0,28	0,75	1,05	1,5	1,9	2,1	**2,4**	—	>2.4	—	P
125	0,56	1,5	2,1	3,0	3,8	4,2	**4,8**	—	—	>2.4	P
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0		—	—	N
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	—		—	N
250	1,12	2,5	3,6	5,0	6,4	7,2	8,0	—	—		N
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		N
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	N
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	N
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		N
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	N
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	N
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		N
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	N
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	N
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		N
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	N
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	N
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		N
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	N
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	N
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		N
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	N
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	N

>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		N
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	N
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	N
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		N
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	N
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	N
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		N
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	N
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	N
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		N
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	N
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—		—	N
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—		N
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	N
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	N
>10000 and ≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		N
Supplementary information: *) Material group IIIb is allowed if the working voltage does not exceed 50 V **) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation											

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V):	Creepage distance (mm) Pollution degree							
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	Verdict / Remark
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	N
125	0,25	0,71	1,0	1,4	1,8	2,0	**2,2**	P
250	0,42	1,0	1,4	2,0	2,5	2,8	3,2	N
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N

>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N

Supplementary information:

*) Material group IIIb is allowed if the working voltage does not exceed 50 V

30.1	TABLE: Ball pressure			P
Part	Test temperature (°C)	Impression diameter (mm)	Allowed impression diameter (mm)	
Plastic enclosure	75	1.5	2.0	
PCB holder	75	1.4	2.0	
PCB	125	0.8	2.0	
Transformer bobbin	75	0.9	2.0	
Value bobbin	125	0.8	2.0	
Supplementary information: The most unfavourable test data was recorded in this table.				

30.2	TABLE: Glow wire test (GWT)°C and Needle- flame test (NFT)							P
Part	550	650		750		850	Needle-flame test (NFT)	verdict
		te(s)	ti(s)	te(s)	ti(s)			
Plastic enclosure	P	--	--	--	--	--	--	P
PCB holder	P	--	--	--	--	--	--	P
Drain control motor bobbin	--	0	0	--	--	--	--	P
Electric valve bobbin	--	0	0	--	--	--	--	P
X2 capacitor	--	0	0	--	--	--	--	P
PCB	--	--	--	0	0	P	P	P
Closed-end connector	--	--	--	0	0	P	--	P
Transformer bobbin	--	--	--	0	0	P	--	P

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Relay	--	--	--	0	0	P	--	P
Interlock switch	--	--	--	0	0	P	--	P
Supplementary information: The most unfavourable test data was recorded in this table.								

======End of Report ======

IEC 60335-2-7 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
NATIONAL DIFFERENCES - JAPAN			
2	**Addition:** In clause 2 of Part 2, add the following standard after the second paragraph. JIS C 9730-1:2010 Automatic electrical controls for use in, on, or in association with equipment for household and similar use - Part 1: General requirements		P
3.1.9	**Replacement:** In sub-clause 3.1.9 of Part 2, replace the second dash with the following. - Normal temperature for appliances without heating elements, not intended for connection to the warm water supply and intended for washing with warter.		P
6.1	**Replacement:** In sub-clause 6.1 of Part 2, replace the sentence with the following. Appliances shall be of class 0I, class I, class II or class III.		P
	Addition: At end of the last paragraph of sub-clause 6.1 of Part 2, add the following. Note 0A In consideration of the convenience of the standard, this sub-clause is stated as “Replacement” instead of “Modification” which is described in the referenced international standard.		P
7.1	**Addition:** At end of the last paragraph of sub-clause 7.1 of Part 2, add the following. Except for industrial use appliances, and appliances with drying function, the appliance shall be marked with the following: - Year of manufacture - Standard service period” on the design (the period set by design, as a standard period of which the product can be used without problem on safety when using under the typical use condition) - The purport of that there is a fear resulted in an accident like fire, injury etc. by aging, if using by exceeding the standard service period on design.		P
	Addition: At end of the last paragraph of sub-clause 7.1 of Part 2, add the following. Note 101A A part visible from the position of usage, such as the front of the appliance body and the top face of the lid is suitable for display.		P

IEC 60335-2-7 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	Addition: At end of the last paragraph of sub-clause 7.1 of Part 2, add the following. Note 101B When the marking is displayed on the back side of the lid, a positions that it is difficult to visualize due to folding or the lid are not suitable for display.		N
7.10	**Addition:** In sub-clause 7.10 of Part 2, replace the paragraph with the following. If the off position is only indicated by letters, the word “off” or “切” shall be used.		P
7.12	**Addition:** After the first paragraph of sub-clause 7.12 of Part 2, add the following. Except for industrial use appliances and appliances with drying function, it is advisable that the instruction manual of the washing machine describes the basis for calculating the standard usage period by design, including the standard usage conditions. Additionally, the instruction manual shall state that there is a risk of ignition, injury or the like due to aging deterioration in a period shorter than the standard usage period if the appliance is used beyond standard usage conditions.		P
7.15	**Addition:** At the end of the sub-clause 7.15 of Part 2, add the following. Or in the instruction manual.		P
	Addition: At end of the last paragraph of sub-clause 7.15 of Part 2, add the following. Note 101A The part visible from the position of usage such as the front of the appliance body and the top face of the lid is suitable for display.		P
	Addition: At end of the last paragraph of sub-clause 7.1 of Part 2, add the following. Note 101B When the marking is displayed on the back side of the lid, places where it is difficult to see due to folding or the like are not suitable for display.		N
8	**Addition:** At the end of the sentence of clause 8 of Part 2, add the following. Except the following 8.1.1 of this standard.		P

IEC 60335-2-7 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
8.1.1	**Addition:** After clause 8 of Part 2, add the following new sub-clause. 8.1.1 Addition: For stationary appliances having a mass exceeding 40 kg in the condition that the washing tub of the washing machine is filled with the designed maximum water volume, the test is carried out without tilting the appliance.		N
13.2	**Addition:** At the end of the last paragraph of sub-clause 13.2 of Part 2, add the following. Note 101A In consideration of the convenience of the standard, this sub-clause is stated as “Replacement” instead of “Modification” which is described in the referenced international standard.		P
15.2	**Replacement:** In the fifth paragraph of sub-clause 15.2 of Part 2, replace the first sentence with the following. Other appliances are operated until the maximum water level is reached, and 5 g of the detergent specified in Annex AA or the quantity specified in the instructions of the detergent is added for each litre of water in the appliance.		P
20.1	**Addition:** At end of the last paragraph of sub-clause 20.1 of Part 2, add the following. Note 101A Refer to the Note 101A of sub-clause 13.2		P
20.102	**Addition:** After the sixth paragraph of sub-clause 20.102, add the following. Note 0A Examination of the appliance and its circuit diagram will reveal the fault conditions which have to be simulated, so that testing can be limited to those cases that may be expected to give the most unfavourable results.		P
20.104	**Addition:** After the third dash of sub-clause 20.104, add the following. Note 0A Refer to the Note 0A of sub-clause 20.102.		N
20.105	**Addition:** After the third dash of sub-clause 20.105, add the following. Note 0A Refer to the Note 0A of sub-clause 20.102.		P

IEC 60335-2-7 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
22.6	**Replacement:** Except for the second paragraph, replace the paragraph of sub-clause 22.6 of Part 2 with the following. Instead of coloured water, a solution composed of any of the following agents per litre of distilled water is used: - 5 g of the detergent specified in Annex AA; or - the quantity specified in the instructions of the detergent.		P
	Addition: At the end of sub-clause 22.6 of Part 2, add the following. Note 101A Refer to the Note 101A of sub-clause 13.2.		P
Annex R R.2.2.9	**Replacement:** Replace the sub-clause R 2.2.9 of Part 2 with the following. The software and safety-related hardware under its control shall cease operation and terminate before compliance with clauses 19, 20.104, 20.105 and 22.101 is impaired.		N

IEC 60335-2-7 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
Annex AA AA.1	**Addition:** In the sub-clause AA.1, add the following. The detergent specified in the instructions may be used. **Ingredient** / **%** Linear sodium alkyl benzene sulfonate — 8.8 Ethoxylated fatty alcohol — 4.7 Sodium soap — 3.2 Sodium carbonate — 11.6 Sodium silicate (SiO2:Na2O = 3,3:1) — 3.0 Sodium sulfate — 6.5 Phosphonate (DEQUEST 2066, 25 % active acid) — 2.8 Sodium aluminium silicate zeolite 4 A (80 % active substance) — 28.3 Sodium salt of a copolymer from acrylic and maleic acid (granulate) — 2.4 Carboxymethylcellulose — 1.2 Foam inhibitor concentrate (12 % silicon on inorganic carrier) — 3.9 stilbene type — 0.2 Protease (Savinase 8.0) — 0.4 Sodium perborate tetrahydrate (active oxygen 10,00 % – 10,40 %) — 20.0 Tetra-acetylethylenediamine — 3.0		P
Annex AA AA.2	**Addition:** In the sub-clause AA.2, add the following. The rinsing agent (fabric softner) specified in the instructions may be used.		P
	Replacement: In the sentence of the Note [a)], replace “by IEC” with “by IEC and JIS”.		P

====== End of Attachment ======

Photo Documentation

Model: FW35-19399

Photo 1

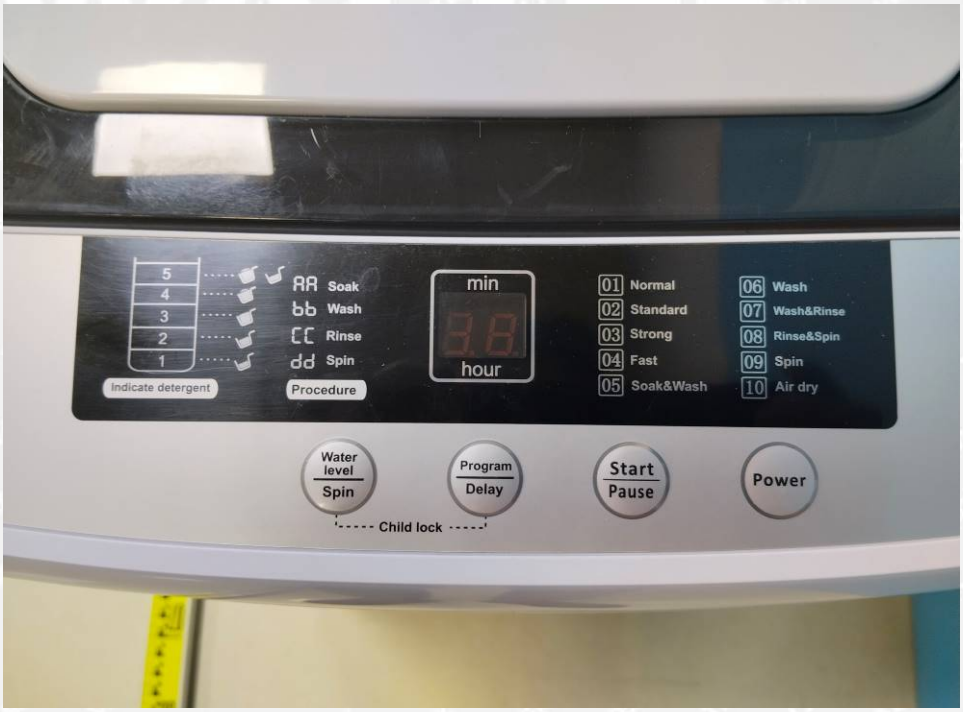


Photo 2

Photo Documentation

Photo 3

Photo 4

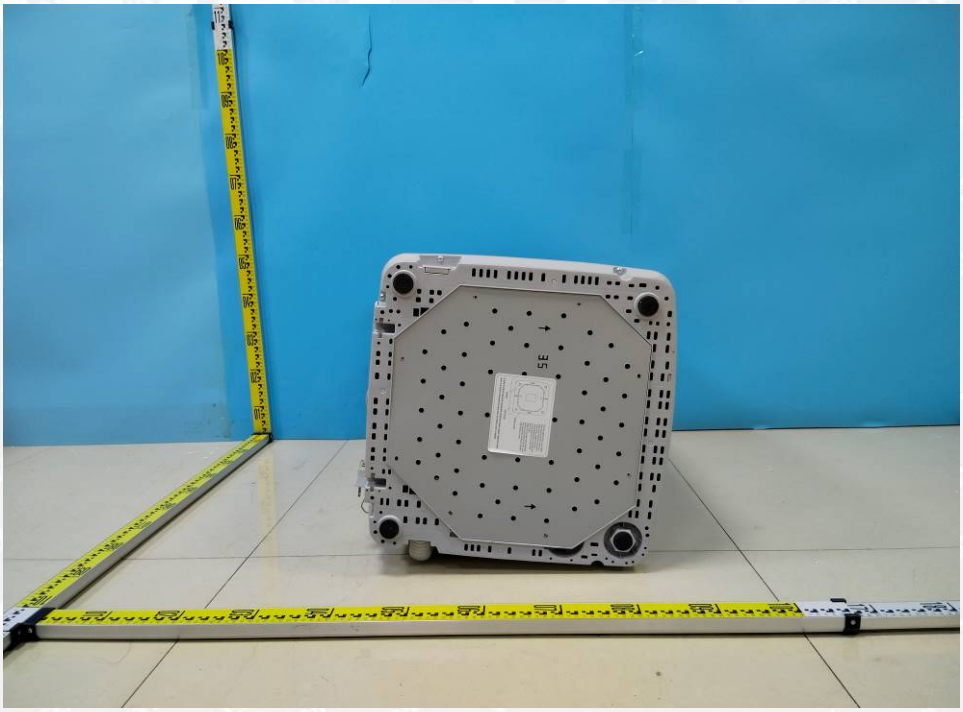
Photo Documentation

Photo 5

Photo 6

Photo Documentation

Photo 7



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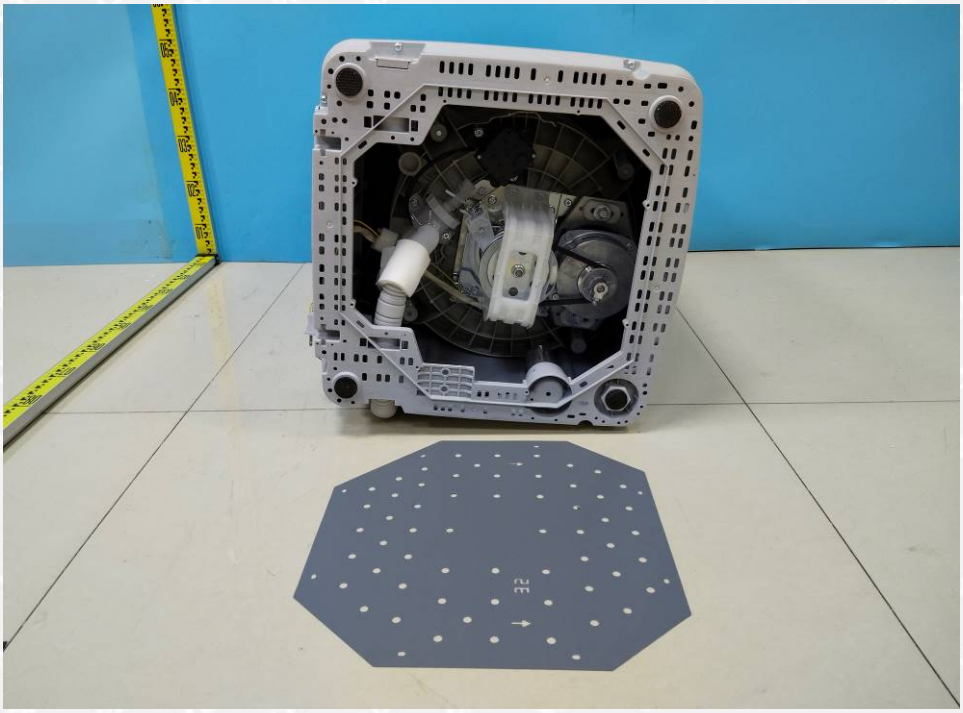

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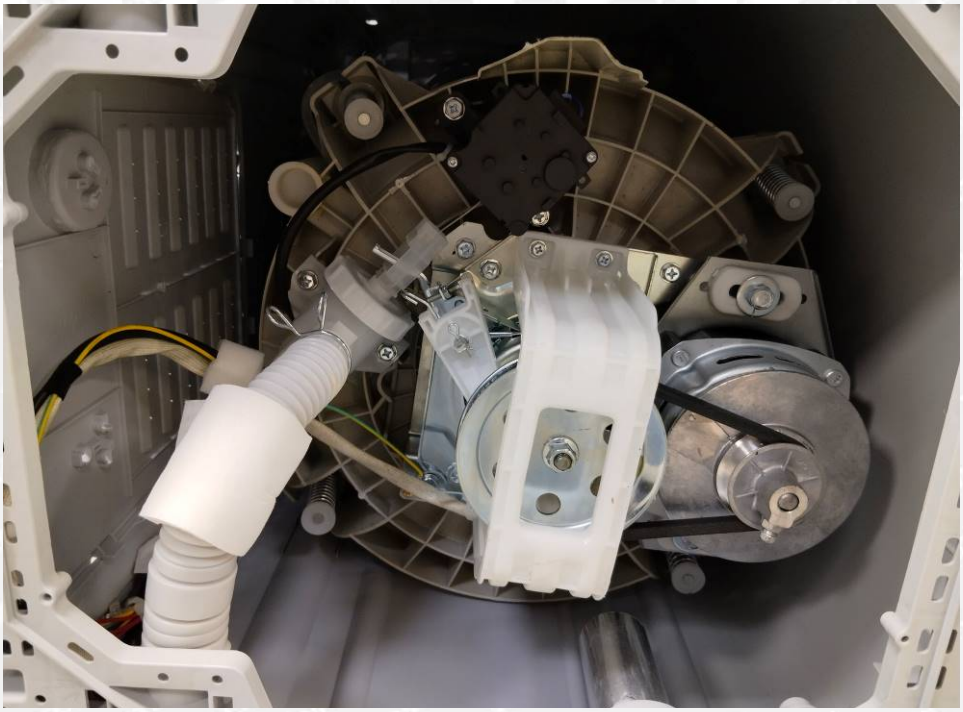


Photo 10

Photo Documentation

Photo 11

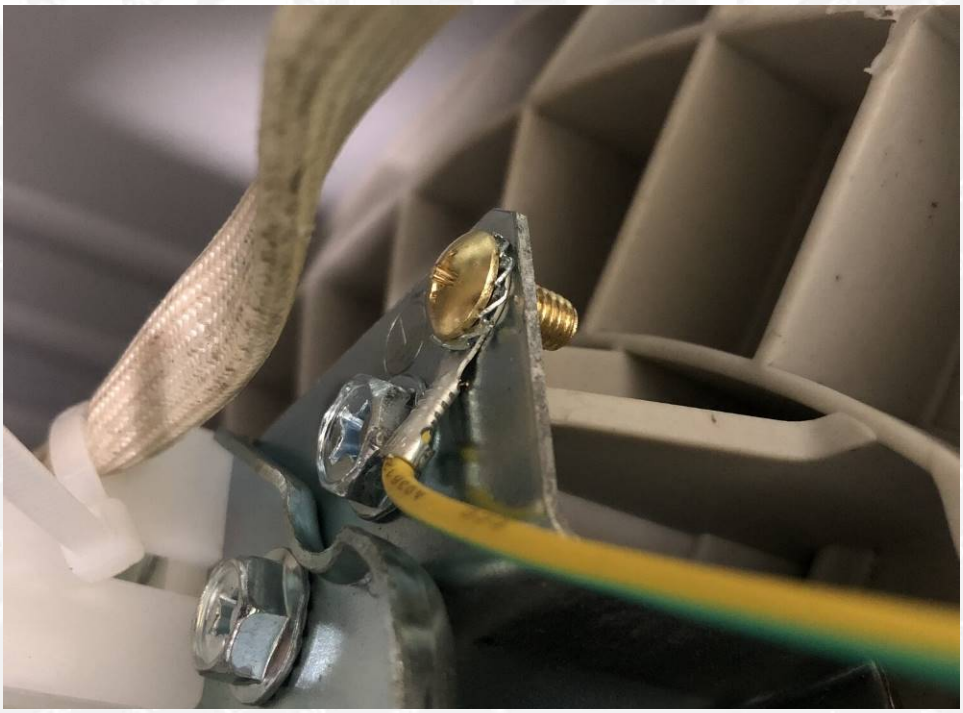


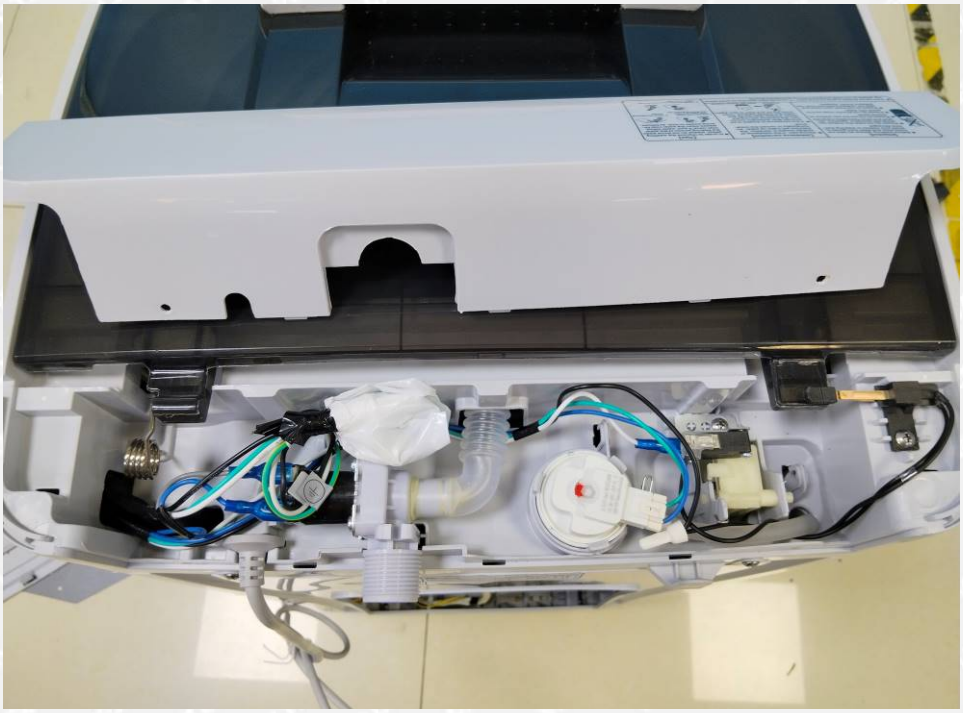
Photo 12

Photo Documentation

Photo 13

Photo 14

Photo Documentation



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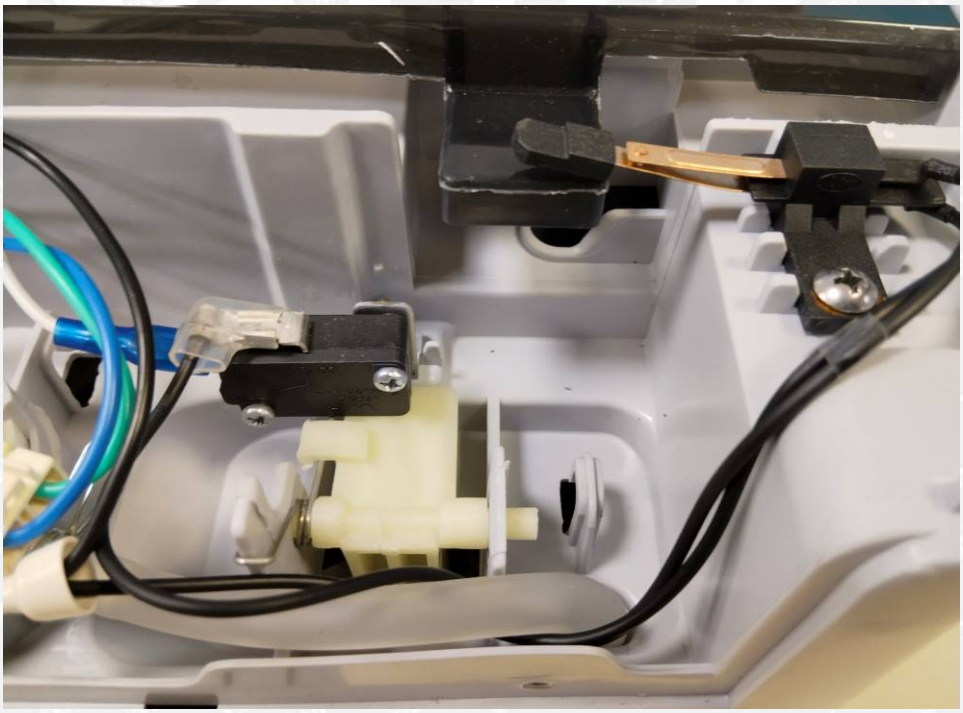

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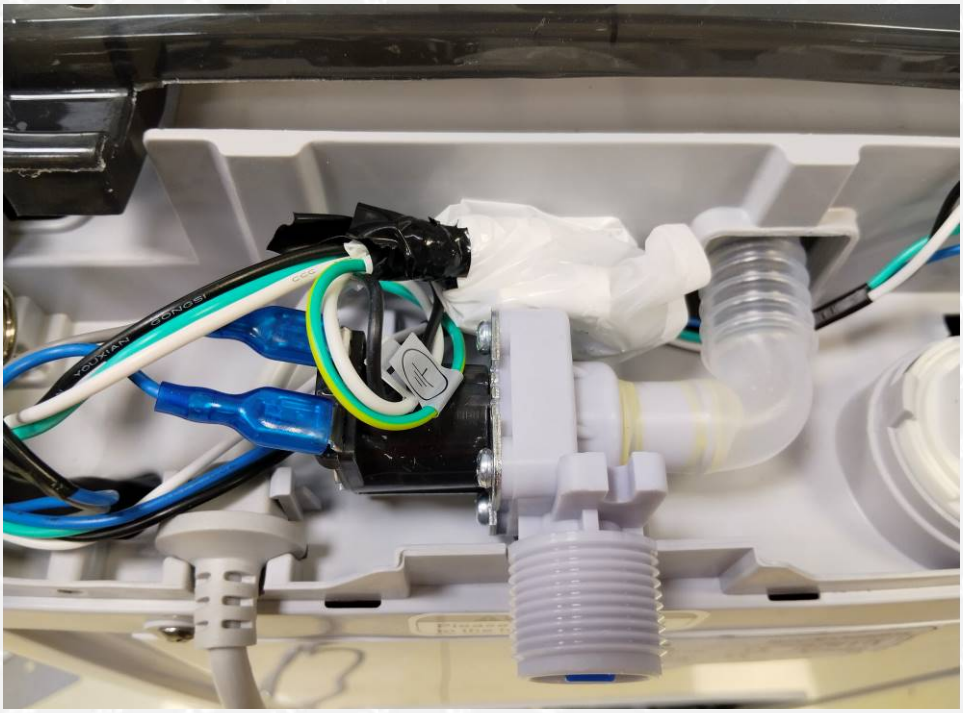

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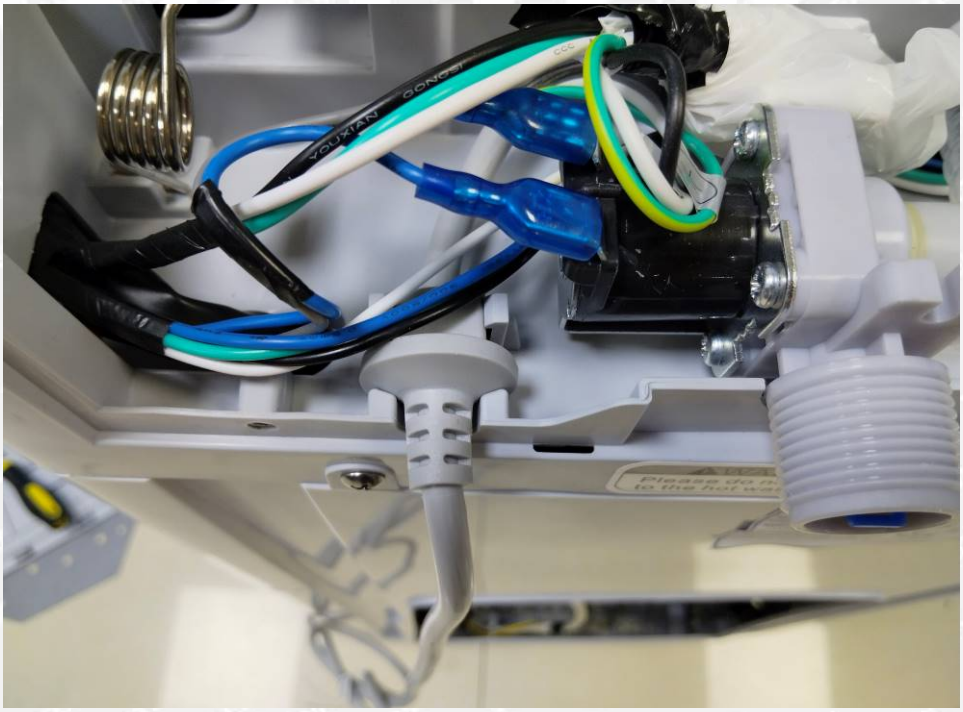

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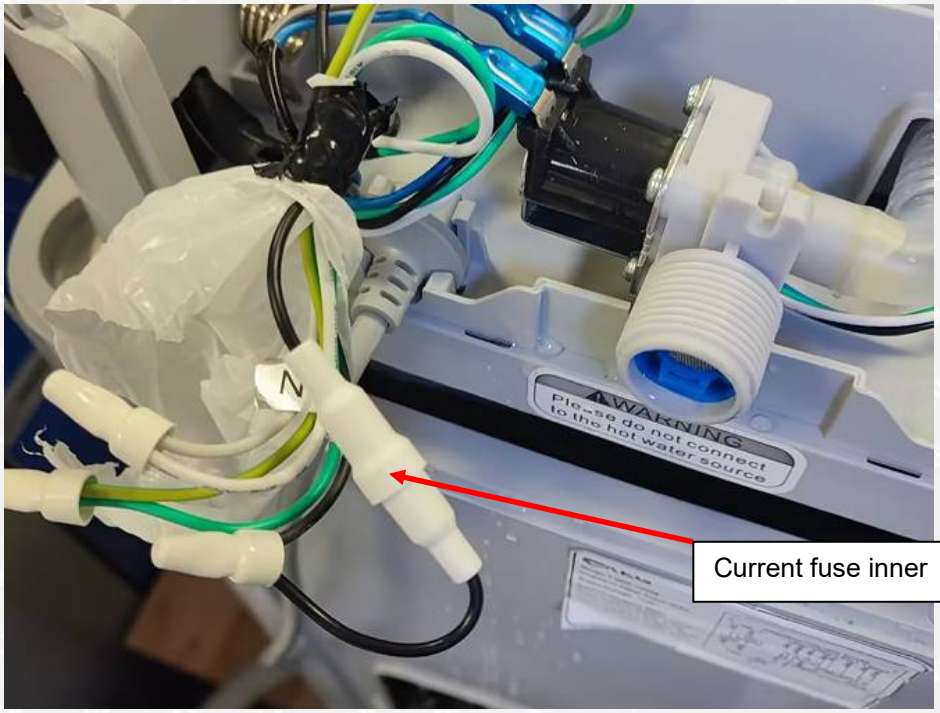

Photo 19

Photo 20

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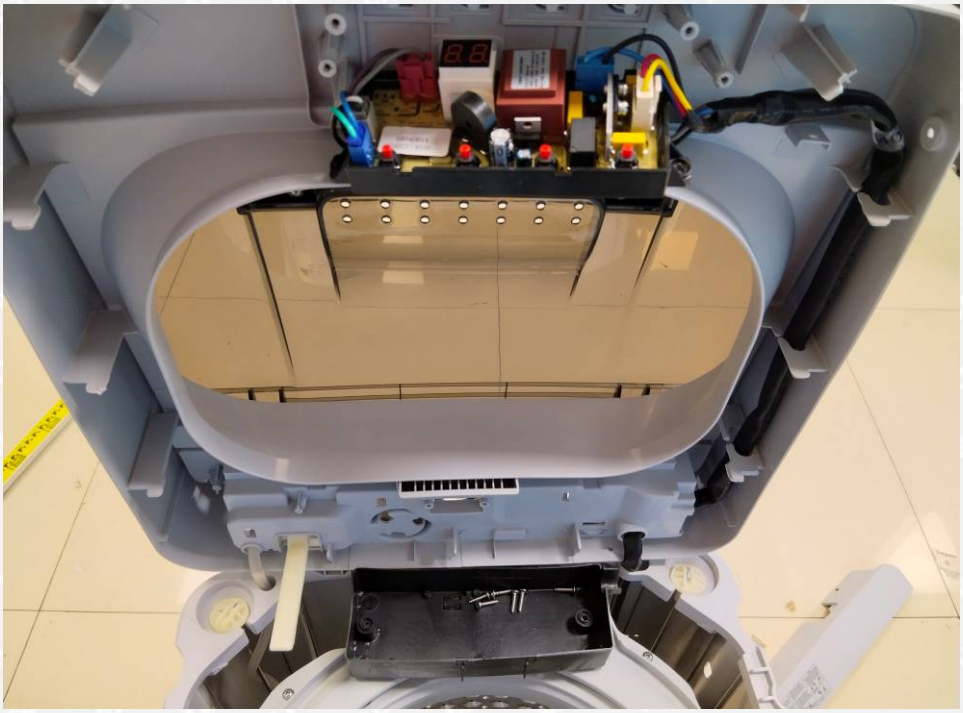

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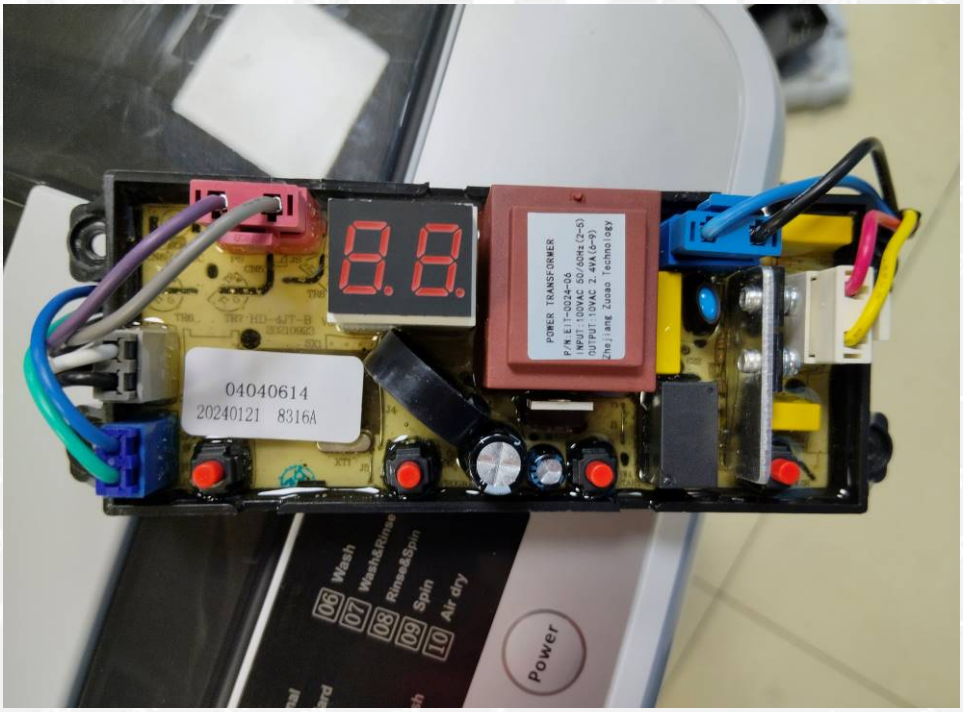

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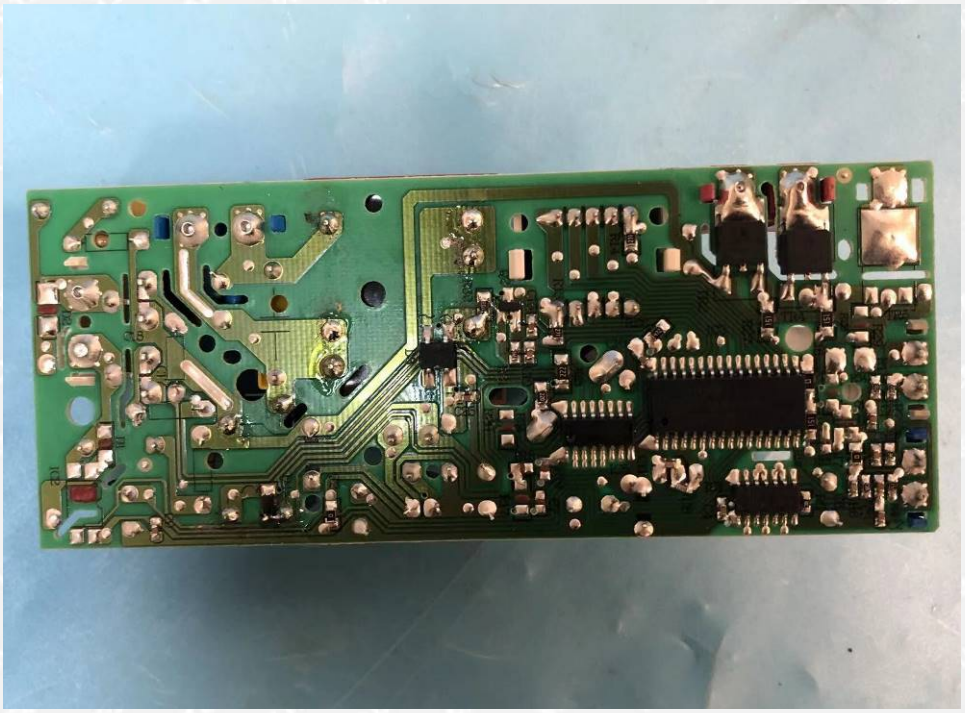

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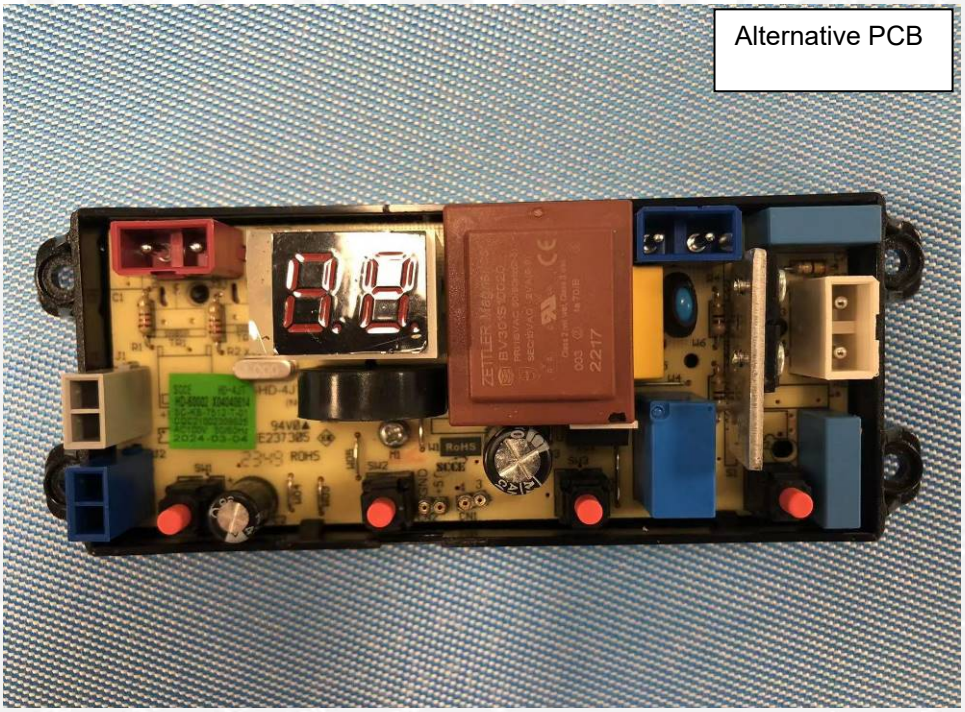

Photo 24

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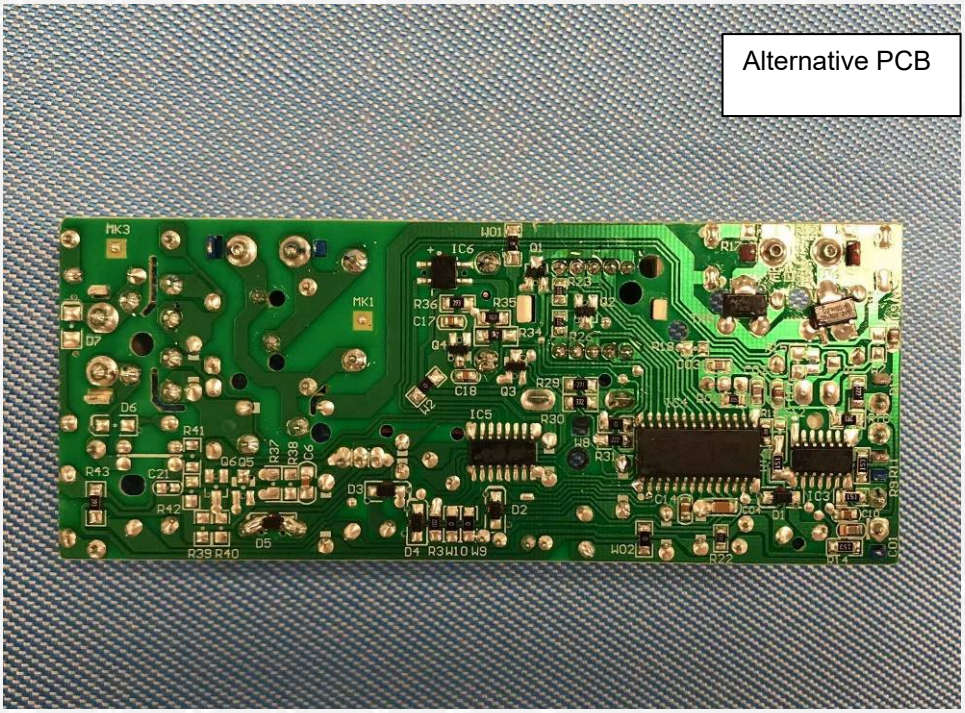


Photo 25

Model: FW35-1508

Photo 26

Photo Documentation

Photo 27

Photo 28

Photo Documentation

Photo 29

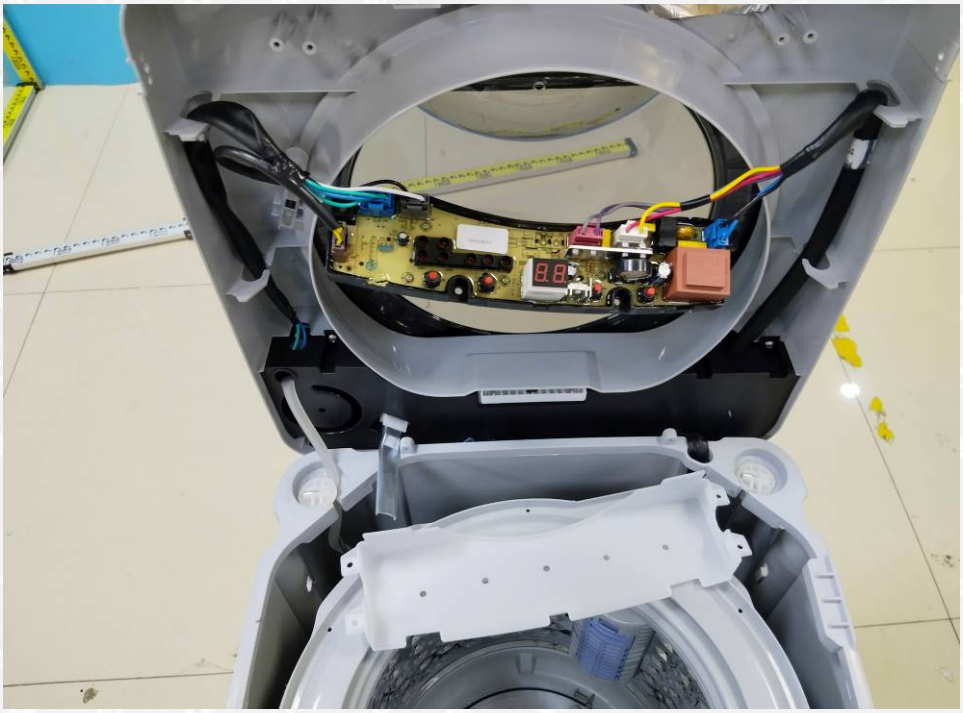
Photo 30

Photo Documentation

Photo 31

Photo 32

Photo Documentation



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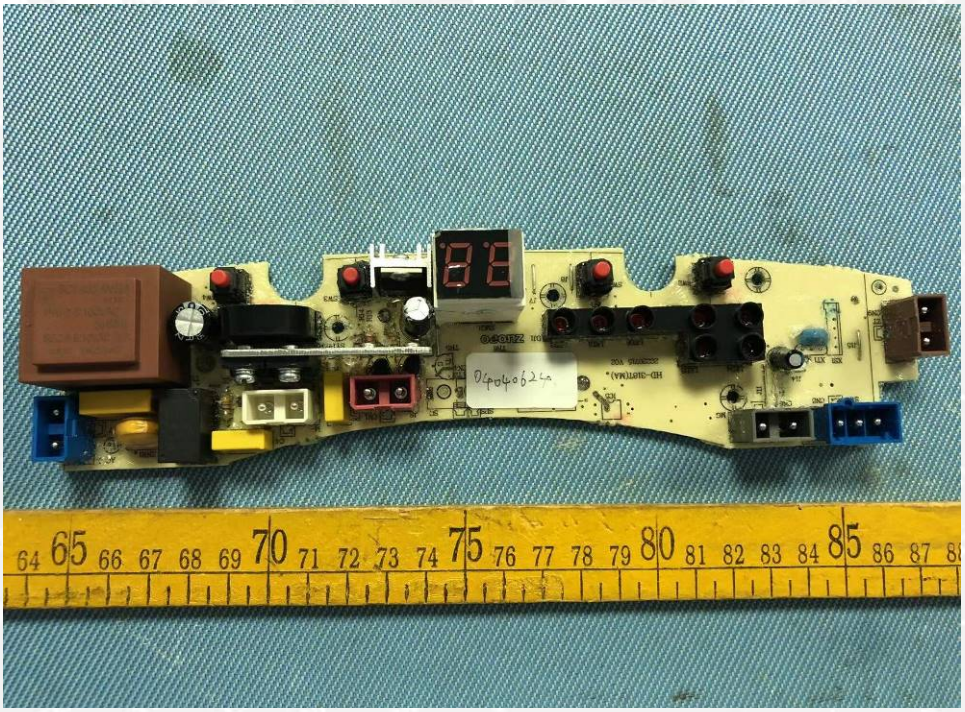

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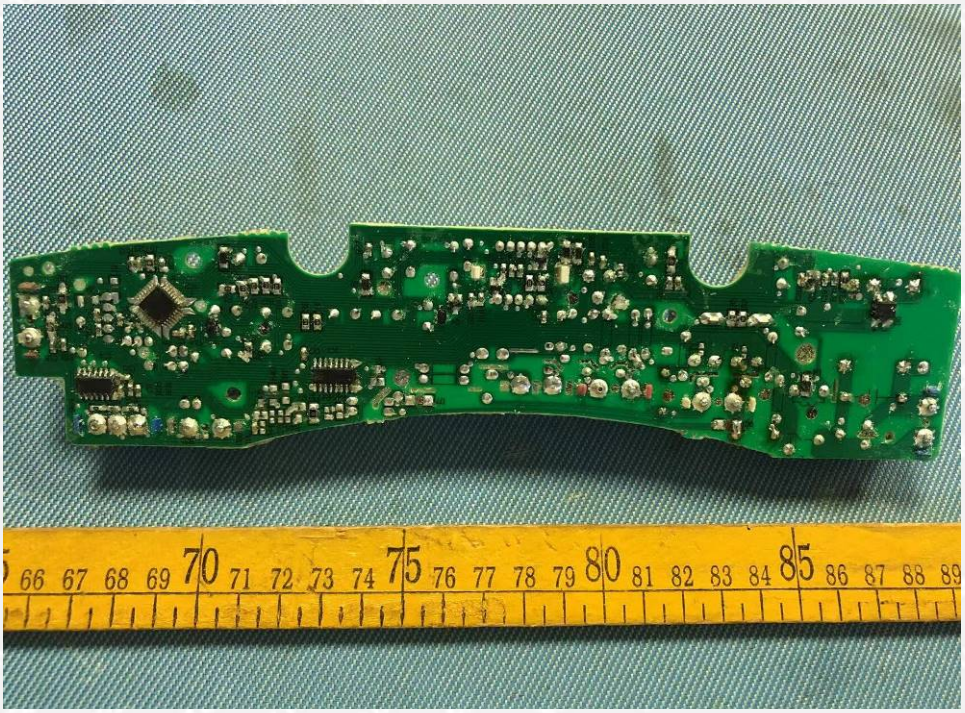

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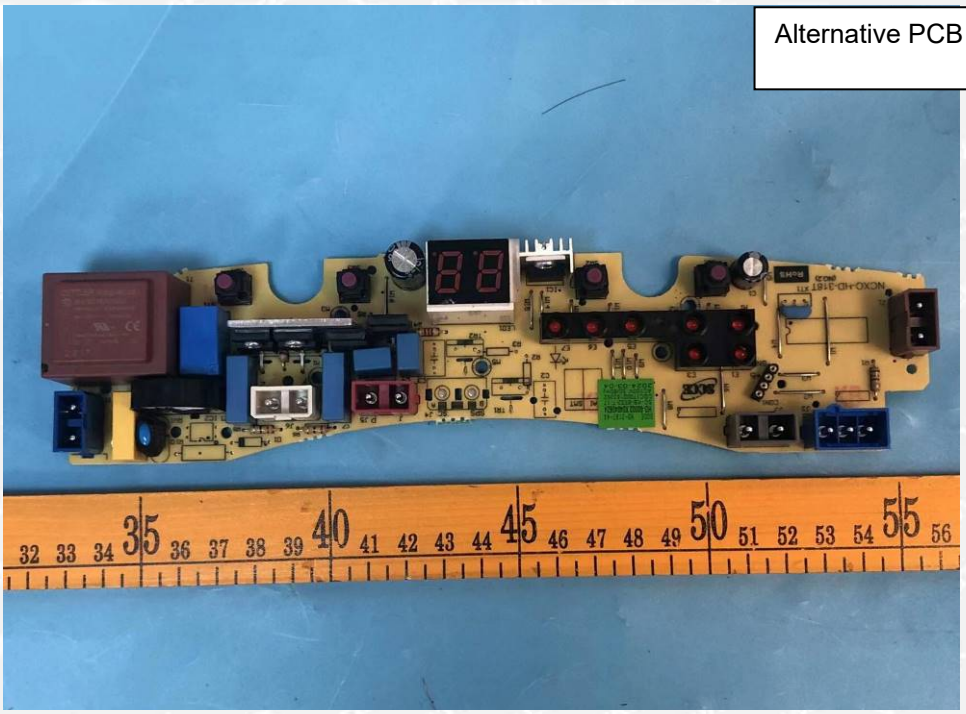

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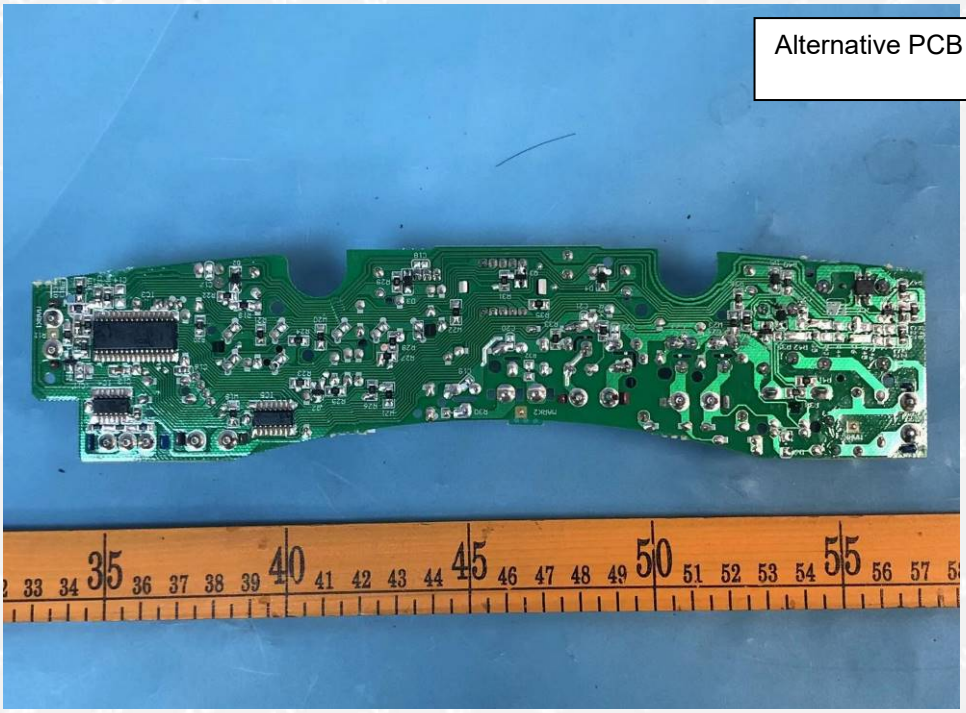

Photo 37

====== End of Photo ======