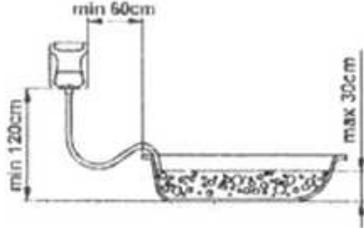


IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
<p>Summary of testing: The tested appliance complies with the mentioned requirements</p> <p>The tested appliance complies with the mentioned requirements, ANNEX 4 from page 80 to page 81 of test report contains the requirements of IEC 60335-2-23:2003 + A1:2005 + A2:2012</p>			
<p>Tests performed (name of test and test clause):</p> <p>All tests have been carried out as far as applicable with positive results</p>		<p>Testing location:</p> <p>TÜV RHEINLAND ITALIA s.r.l. Via E. Mattei, 3 20010 Pogliano Milanese (MI), Italy</p>	
<p>Summary of compliance with National Differences</p> <p>Present tests report considering KC Deviation according to CB Bulletin IEC 60335-1, 4th edition (2001) + Amendment 1 (2004) + Amendment 2 (2006) (See Annex 1 – page 68).</p>			

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

Copy of marking plate	
<p>The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBS that own these marks.</p>	
 <p>XXXXXXXXXXXXXXXXXX</p> <p>제품명: 목조기포발생기(오존발생수압마사지 기계)</p> <p>모델명: JOLLY SPA</p> <p>정격: 220 V 50/60 Hz 550 W</p> <p>제조연월: 12/05/2014</p> <p>서비스 센터 전화 : 031 904 26348</p> <p>제조원: RO.SA. Micro s.r.l.</p> <p>MADE IN ITALY</p>  	 <p>S/N:519860000003</p>  <p>SNI: 519840000003</p>  <p>OZONOMATIC SYSTEM s.r.l. Via F.P. BONIFACIO 52/54 00156 ROMA ITALY WWW.OZONOMATIC.COM</p>

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

Test item particulars:

Classification of installation and use: Blower for whirlpool bath with hair dryer function
Supply Connection.....: Type Y attachment
Class of protection.....: Class II
Degree of protection.....: IPX0
Whirlpool bath.....: Yes
Whirlpool spa.....: No
Whirlpool spa located outdoor.....: No
Provided with blower.....: No
Provided with pump.....: Yes
Provided with chlorinator.....: No
Thermal cut-out.....: Yes
Heating element.....: Yes
External supplied hot water.....: No
Automatically drained after each use.....: No
Level switch.....: No
Appliance with luminaries.....: Yes
Replaceable lamp.....: No

Possible test case verdicts:

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

Testing.....:

Date of receipt of test item.....: April 2014
Date (s) of performance of tests.....: May 2014

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(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 comma / point is used as the decimal separator.

See ANNEX 1 for KC Deviation according to CB Bulletin on page 68

See ANNEX 2 for pictures of the appliance from page 69 to page 74

See ANNEX 3 for electric scheme from page 76 to page 79

See ANNEX 4 for additional requirements to standards IEC 60335-2-23:2003 + A1:2005 + A2:2012 from page 80 to page 81

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

Manufacturer's Declaration per Sub-clause 6.2.5 of IEC 60335-2-60:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided : Not applicable

When differences exist; they shall be identified in the General Product Information section.

Name and address of factory (ies).....: RO.SA. Micro S.r.l.,
Via Po 134,
30020 Ceggia (VE)

General product information:

Model: Jolly Spa

The tested appliance is a unit provided with a fan motor, a heating element and an ozonator to blow treated air at a determined temperature, with the following accessories:

- 1) Bath mat
- 2) Footbath
- 3) Hair drier nozzle
- 4) Cup breast

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		
	Tests performed according to cl. 5, e.g. nature of supply, sequence of testing, etc.		P
5.7	If the tests are influenced by the temperature of the water, it is maintained at 40 °C (IEC 60335-2-60)	Tests not influenced by the temperature of the water	N/A
	Or at the maximum value allowed by the control (IEC 60335-2-60)		N/A

6	CLASSIFICATION		
6.1	Protection against electric shock: Class 0, 0I, I, II, III	Class II	P
6.1	Portable appliances: protection against electric shock: Class II, III		N/A
	(IEC 60335-2-60)		
	Stationary appliances: protection against electric shock: Class I, II, III	Class II	P
	(IEC 60335-2-60)		
6.2	Protection against harmful ingress of water	Appliance intended for mounting outside the bathroom	N/A
	Whirlpool bath and whirlpool spa appliances at least IPX5 (IEC 60335-2-60)		N/A
	Other appliances at least IPX4 (IEC 60335-2-60)		N/A

7	MARKING AND INSTRUCTIONS		
7.1	Rated voltage or voltage range (V).....	220 V	P
	Nature of supply		N/A
	Rated frequency (Hz).....	50/60 Hz	P
	Rated power input (W):.....	550 W	P
	Rated current (A)		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark	OZONOMATIC	P
	Model or type reference	Jolly Spa	P
	Symbol 5172 of IEC 60417, for Class II appliances		P
	IP number, other than IPX0		N/A
	The enclosure of electrically-operated water valves incorporated in external hose-sets for connection of an appliance to the water mains marked with symbol IEC 60417-5036 (DB:2002-10) if their working voltage exceeds extra-low voltage. (IEC 60335-1/A1)		N/A
7.2	Warning for stationary appliances for multiple supply		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	Warning placed in vicinity of terminal cover		N/A
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen		N/A
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible		N/A
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/A
	the power input is related to the arithmetic mean value of the rated voltage range (IEC 60335-1/A2)		N/A
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply		N/A
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 (N)		N/A
	- marking of protective earthing terminals (symbol 5019 of IEC 60417)		N/A
	- marking not placed on removable parts		N/A
7.9	Marking or placing of switches which may cause a hazard		N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means..... :		N/A
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N/A
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided		P
	The instructions state that:		
	- the appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction (IEC 60335-1/A2)		P
	- children being supervised not to play with the appliance (IEC 60335-1/A2)		P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructions providing cleaning details and other maintenance (IEC 60335-2-60)		P
	Instructions for portable appliances states that no part of the appliance is to be located above the bath during use (IEC 60335-2-60)		N/A
	Instructions for whirlpool spas providing information concerning: (IEC 60335-2-60)		
	- Maintenance of water purity, especially pH values and chlorine concentrations.		N/A
	- Cleaning and disinfection.		N/A
	- Use and installation of a cover.		N/A
	- Disposal of water.		N/A
	- Precaution to avoid damage due to water freezing.		N/A
	- Precaution to avoid damage when the appliance is left empty for an extended period.		N/A
7.12.1	Sufficient details for installation supplied		P
	Instructions for installation: (IEC 60335-2-60)		
	- parts containing live parts, except parts supplied with safety extra-low voltage not exceeding 12 V, must be inaccessible to a person in the bath (IEC 60335-2-60)		P
	- earthed appliances must be permanently connected to fixed wiring (IEC 60335-2-60)		N/A
	- parts incorporating electrical components, except remote control devices, must be located or fixed so that they cannot fall into the bath. (IEC 60335-2-60)		P
	- the appliance should be supplied through a residual current device (RCD) with a rated tripping current not exceeding 30 mA (IEC 60335-2-60)		P
	Instruction giving details an how to follow the wiring rules. (IEC 60335-2-60)		P
	Instructions ensuring that the installation is in the correct zone and that equipotential bonding is carried out. (IEC 60335-2-60)	See drawing	P
	Instructions for installation how to fix the appliance (IEC 60335-2-60)		P
	Installation instructions for whirlpool spas stating that: (IEC 60335-2-60)		
	- the floor has to be capable of supporting the expected load (IEC 60335-2-60)		N/A
	- an adequate drainage system has to be provided to deal with overflow water. (IEC 60335-2-60)		N/A
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/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions stating that the fixed wiring must be protected		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
7.12.4	Instructions for built-in appliances:		
	- dimensions of space		N/A
	- dimensions and position of supporting means		N/A
	- distances between parts and surrounding structure		N/A
	- dimensions of ventilation openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- necessity to allow disconnection of the appliance from the supply after installation by means of: (IEC 60335-1/A1)		N/A
	plug accessible after installation, or		N/A
	a switch in the fixed wiring in accordance with the wiring rules, unless		N/A
	a switch complying with 24.3 incorporated in the appliance		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		P
	Replacement cord instructions, type Z attachment		N/A
7.12.6	Instructions for heating appliances incorporating a non-self-resetting thermal cut-out reset by disconnection of the supply mains contain the substance of the following: CAUTION: In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility. (IEC 60335-1/A1)		N/A
7.12.7	Instructions for fixed appliances state how the appliance is to be fixed to its support. (IEC 60335-1/A1)		P
7.12.8	Instructions for appliances connected to the water mains contain: (IEC 60335-1/A1)		
	- the maximum inlet water pressure, in pascals;		N/A
	- the minimum inlet water pressure, in pascals, if this is necessary for the correct operation of the appliance.		N/A
	Instructions for appliances connected to the water mains by detachable hose-sets state that the new hose-sets supplied with the appliance are to be used and that old hose-sets should not be reused. (IEC 60335-1/A1)		N/A
7.13	Instructions and other texts in an official language	Korean, English	P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
7.14	Marking clearly legible and durable		P
7.15	Marking 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/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions	Name and trademark	P
	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		P
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A

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
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032 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		N/A
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032: no contact with live parts of visible glowing heating elements		N/A
8.1.4	Energized parts regarded as live parts (IEC 60335-2-60)		P
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		
	- built-in appliances		N/A
	- fixed appliances		P
	- appliances delivered in separate units		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
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
9	STARTING OF MOTOR-OPERATED APPLIANCES		
	Requirements and tests are specified in part 2 when necessary		N/A
	This clause of Part 1 is not applicable (IEC 60335-2-60)		
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
	Test for an appliance with one or more rated voltage ranges (IEC 60335-1/A2)		N/A
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/A
	Test for an appliance with one or more rated voltage ranges (IEC 60335-1/A2)		N/A
11	HEATING		
11.1	No excessive temperatures in normal use		P
11.2	Placing and mounting of appliance as described	See instructions	P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		N/A
	the windings makes it difficult to make the necessary connections		P
11.4	Heating appliances operated under normal operation at 1,15 times rated power input		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage		N/A
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage		P
11.7	Operation duration corresponding to the most unfavourable conditions of normal use		P
11.8	Temperature rises not exceeding values in table 3	(see appended tables)	P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	Temperature rise limit not applied to switches or controls tested in accordance with the conditions occurring in the appliance. (IEC 60335-1/A1)		N/A
	Protective devices do not operate		P
	Components in protective electronic circuits are allowed to operate if they are tested for the number of cycles of operation specified in 24.1.4 (IEC 60335-1/A1)		N/A
	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 (IEC 60335-1/A1)		N/A
	In appliances incorporating heating element the water temperature at the inlet of the bath or spa not exceed 50 °C (IEC 60335-2-60)		P

13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1,15 times rated power input..... :		N/A
	Motor-operated appliances and combined appliances supplied at 1,06 times rated voltage..... :		P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	Leakage current measured by means of the circuit described in figure 4 of IEC 60990		N/A
	Leakage current measurements	(see appended table)	P
13.3	Electric strength tests according to table 4 (IEC 60335-1/A1).	(see appended table)	P
	No breakdown during the tests		P

14	TRANSIENT OVERVOLTAGES		
	Appliances withstand the transient overvoltages to which they may be subjected		N/A
	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/A
	No flashover during the test, unless of functional insulation		N/A
	In case of flashover of functional insulation, the appliance complies with clause 19 with the clearance short circuited		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

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 and creepage distances below values specified in clause 29		P
	Traces of water on insulation in components operating at safety extra-low voltage not exceeding 12 V are ignored (IEC 60335-2-60)		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529		N/A
	Water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains are subjected to the test specified for IPX7 appliances. (IEC 60335-1/A1)		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N/A
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube		N/A
	For IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min (IEC 60335-1/A1)		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts tested as specified		N/A
	Whirlpool bath and whirlpool spas are tested without side panels fitted unless they are integral part of the appliance (IEC 60335-2-60)		N/A
15.2	Spillage of liquid does not affect the electrical insulation		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts removed		N/A
	Overfilling test with additional amount of water, over a period of 1 min (l)..... :		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Humidity test for 48 h in a humidity cabinet		P
	The appliance withstands the tests of clause 16		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/A
16.2	Single-phase appliances: test voltage 1,06 times rated voltage..... :	233,2 V	P
	Three-phase appliances: test voltage 1,06 times rated voltage divided by $\sqrt{3}$:		N/A
	Leakage current measurements	(see appended table)	P
16.3	Electric strength tests according to table 7	(see appended table)	N/A
	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 and the most unfavourable short-circuit or overload likely to occur in normal use applied..... :		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/A
	Temperature of the winding not exceeding the value specified in table 8,	Winding class not specified; clause 19.13 has been carried out after the test	P
	however limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	Test repeated with chlorinator cells loaded so that the current is 95 % of the lowest current that cause a protective device to operate. (IEC60335-2-60:2002/)		N/A
	Test continued until steady conditions are established (IEC60335-2-60:2002)		N/A

18	ENDURANCE		
	This clause of Part 1 is not applicable (IEC 60335-2-60)		N/A

19	ABNORMAL OPERATION		
19.1	The risk of fire or mechanical damage 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 contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11 (IEC 60335-1/A2)		N/A
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input		P
	Appliances in which water is circulated, bath or spa is filled and operated, after which it is switched off and the bath emptied (IE C60335-2-60)		N/A
	Heating elements are then switched on (IEC 60335-2-60)		N/A
	The pump being operated or at rest whichever more unfavourable (IEC 60335-2-60)		N/A
	Appliances in which air is circulated, air inlets and outlets are blocked (IEC 60335-2-60)		N/A
	Heating elements are then switched on (IEC 60335-2-60)		N/A
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input		P
19.4	Test conditions as in cl. 11, any control limiting the temperature during tests of cl. 11 short-circuited		N/A
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 elements sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	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/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A
	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		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances		P
	Locked rotor, motor capacitors open-circuited or short-circuited, if required		N/A
	Locked rotor, capacitors open-circuited one at a time		N/A
	Test repeated with capacitors short-circuited one at a time, if required		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed		P
	Other appliances supplied with rated voltage for a period as specified		N/A
	Winding temperatures not exceeding values specified in table 8	(see appended table)	P
	The test is carried out with the bath or spa filled as specified for normal operation. (IEC 60335-2-60)		P
19.8	Three-phase motors operated at rated voltage with one phase disconnected		N/A
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N/A
	Winding temperatures not exceeding values as specified	(see appended table)	N/A
19.10	Series motor operated at 1,3 times rated voltage for 1 min..... :		P
	During the test, parts not being ejected from the appliance		P
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 they comply with the conditions specified in 19.11.1		P
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.3 and 19.11.4 (IEC 60335-1/A2)		N/A
	Appliances having a switch with an off position obtained by electronic disconnection, or a switch that can place the appliance in a stand-by mode, are subjected to the tests of 19.11.4 (IEC 60335-1/A1)		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8 (IEC 60335-1/A2)		N/A
19.11.1	Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet 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/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		N/A
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in cl. 11, but supplied at rated voltage, the duration of the tests as specified:		
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29		N/A
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless they comply with IEC 60384-14		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler		P
	e) failure of triacs in the diode mode		P
	f) failure of an integrated circuit		P
	g) failure of an electronic power switching device		P
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to f) of 19.11.2		N/A
	During and after each test the following is checked:		
	- the temperature rise 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/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met:		
	- the material of the printed circuit board withstands the burning test of annex E		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	- any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl. 29		N/A
	- the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged		N/A
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or (IEC 60335-1/A2)		N/A
	a device that can be placed in the stand-by mode, (IEC 60335-1/A2)		P
	subjected to the tests of 19.11.4.1 to 19.11.4.7 (IEC 60335-1/A2)	Not possible unsafe operation (see OSM/HA 401)	N/A
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, except that (IEC 60335-1/A1)		N/A
	Appliances that are operated for 30 s or 5 min during the test of 19.7 not subjected to the tests for electromagnetic phenomena (IEC 60335-1/A1)		N/A
	Surge arresters disconnected, unless they incorporate spark gaps (IEC 60335-1/A1)		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4 being applicable. Ten discharges having a positive polarity and ten discharges having a negative polarity are applied at each preselected point (IEC 60335-1/A1)		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3 being applicable (IEC 60335-1/A1)		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4 (IEC 60335-1/A1)		N/A
19.11.4.4	The power supply terminals of the appliance are subjected to voltage surges in accordance with IEC 61000-4-5 (IEC 60335-1/A1)		N/A
	Earthed heating elements in class I appliances are disconnected (IEC 60335-1/A1)		N/A
	Test repeated at a level that is 95 % of the flashover voltage (IEC 60335-1/A1)		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6 (IEC 60335-1/A1)		N/A
19.11.4.6	The appliance is subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11 (IEC 60335-1/A2)		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13 (IEC 60335-1/A1)		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduces to a level such that the appliance ceases to respond or a programmable component cease to operate. (IEC 60335-1/A2)		N/A
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)..... :	Measured current: ∞ Rated current fuse-link: 6,3 A	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
	Enclosures not deformed to such an extent that compliance with cl. 8 is impaired		P
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		
	- basic insulation		P
	- supplementary insulation		P
	- reinforced insulation.....		P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstanding the electric strength test of 16.3. the test voltage being twice the working voltage (IEC 60335-1/A2)		P
	The appliance does not undergo a dangerous malfunction, and (IEC 60335-1/A1)		P
	no failure of protective electronic circuits, if the appliance is still operable (IEC 60335-1/A1)		N/A
	Appliance tested with an electronic switch in off position, or in stand-by mode:		
	do not become operational or (IEC 60335-1/A2)		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4 (IEC 60335-1/A2)		N/A
	The temperature at the inlet of whirlpool bath that have provision for water heating and whirlpool spas not exceed 55 °C when measured in accordance with clause 11. (IEC 60335-2-60)		P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
19.14	Appliances operated under the conditions of Clause 11. Contactors or relays contacts operating under the conditions of clause 11 short-circuited (IEC 60335-1/A2)		N/A

20	STABILITY AND MECHANICAL HAZARDS		
20.1	Adequate stability		N/A
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		N/A
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
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		P
	Adequate mechanical strength and fixing of protective enclosures		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure		P
	Not possible to touch dangerous moving parts with test probe		P

21	MECHANICAL STRENGTH		
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	No damage after three blows applied to various parts of the enclosure, impact energy $0,5 \pm 0,04$ J		P
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
	Whirlpool spas not intended for indoor use only, subjected to the impact test. (IEC 60335-2-60)		N/A
	The appliance has been maintained at a temperature of -10 °C for 24 h. (IEC 60335-2-60)		N/A
	If the appliance is too large for the conditioning room, parts of the appliance are tested separately. (IEC 60335-2-60)		N/A
	The impact test is carried out immediately after the conditioning without reassembly. (IEC 60335-2-60)		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	For water containers that provide protection against access to live parts, the value of the impact energy is 1 J.		N/A
21.2	Accessible parts of solid insulation have sufficient strength to prevent penetration by sharp implements (IEC 60335-1/A1)		N/A
	Test as specified, unless		P
	thickness of at least 1 mm for supplementary insulation and at least 2 mm for reinforced insulation		P

22	CONSTRUCTION		
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled		N/A
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		
	- a supply cord fitted with a plug		P
	- a switch complying with 24.3		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N/A
	- an appliance inlet		N/A
	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 (IEC 60335-1/A2)		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0,25 Nm		N/A
	Pull force of 50 N to each pin after the appliance has been placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating unless rotating does not impair compliance with the standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1 μ F, the appliance being disconnected from the supply at the instant of voltage peak (IEC 60335-1/A2)		P
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices		N/A
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/A
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		N/A
	Adequate insulating properties of oil or grease to which insulation is exposed		N/A
22.10	Voltage-maintained non-self-resetting thermal cut-outs is not reset by an automatic switching device incorporated in the appliance (IEC 60335-1/A1)		N/A
	Non-self-resetting thermal motor protectors have a trip-free action unless they are voltage maintained (IEC 60335-1/A1)		N/A
	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N/A
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/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		N/A
22.12	Handles, knobs etc. fixed in a reliable manner		N/A
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N/A
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	No exposed pointed ends of self tapping screws etc., liable 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/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		N/A
	Compliance is checked by inspection and, if necessary, by appropriate test		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements (IEC 60335-1/A2)		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported		P
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		P
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N/A
22.26	The insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
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/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
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/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	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		N/A
22.31	Clearances and creepage distances over supplementary and reinforced insulation not reduced below values specified in clause 29 as a result of wear		N/A
	Clearances and creepage distances between live parts and accessible parts not reduced below values for supplementary insulation, if wires, screws etc. become loose		N/A
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		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/A
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
	Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation (IEC 60335-1/A2)		N/A
22.33	Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact with basic or reinforced insulation		P
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation		N/A
	Conductive liquid in direct contact with live parts supplied at safety extra low voltage not exceeding 12 V. (IEC 60335-2-60/A1)		N/A
	Components accessible to the user in the bath or spa supplied at safety extra-low voltage not exceeding 12 V (IEC 60335-2-60/A1)		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		N/A
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation (IEC 60335-1/A2)		N/A
	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 (IEC 60335-1/A2)		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances other than those of electrical components, provided they are either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42		P
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N/A
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/A
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/A
	Unless the appliance can operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch. The actuating member of the switch being easily visible and accessible. (IEC 60335-1/A2)	Appliance can operate without giving rise to a hazard	N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
22.44	Appliances shall not have an enclosure that is shaped or decorated like a toy (IEC 60335-1/A2)		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.4 due to deformation as a result of an external force applied to the enclosure		N/A
22.46	Software used in protective electronic circuits is: (IEC 60335-1/A1)	<input type="checkbox"/> Class B <input type="checkbox"/> Class C	N/A
22.47	Appliances intended to be connected to the water mains withstand the water pressure in normal use (IEC 60335-1/A1)		N/A
22.48	Appliances intended to be connected to the water mains constructed to prevent backsiphonage of non-potable water into the water mains (IEC 60335-1/A1)		N/A
	Compliance checked by the relevant tests of IEC 61770 (IEC 60335-1/A1)		N/A
22.49	For remote operation, the duration of operation shall be set before the appliance can be started, unless (IEC 60335-1/A2)		N/A
	the appliance switches off automatically or can operate continuously without hazard (IEC 60335-1/A2)		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation (IEC 60335-1/A2)		N/A
22.51	A control on the appliance being manually adjusted to the setting for remote operation before the appliance can be operated in this mode (IEC 60335-1/A2)		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation (IEC 60335-1/A2)		N/A
	Manual setting and visual indication not necessary on appliances that can operate as follows, without giving rise to a hazard: (IEC 60335-1/A2)		
	- operate continuously,		N/A
	- operate automatically, or		N/A
	- be operated remotely		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
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 (IEC 60335-1/A2)		N/A
22.101	Appliances in which air is circulated shall be constructed so that water cannot penetrate into the motor and come into contact with live parts or basic insulation (IEC 60335-2-60)		P
22.102	Whirlpool baths constructed that the quantity of water which remains not exceed 0,5 l or 0,2% of the capacity (IEC 60335-2-60/A1)		N/A
22.103	Whirlpool baths and whirlpool spas constructed that hair cannot be drawn into apertures (IEC 60335-2-60/A1)		N/A
22.104	Portable appliances shall be constructed to prevent a hazard resulting from objects penetrating the bottom surface. (IEC 60335-2-60/A1)		N/A
22.105	Whirlpool spas incorporating a water filtration system in order that the required level of water purity can be achieved. (IEC 60335-2-60/A1)		N/A

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		N/A
	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 or corners		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use or 100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test, 1000 V between live parts and accessible metal parts		N/A
23.4	Bare internal wiring sufficiently rigid and fixed		P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		P
	No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by positive means		P
23.7	The colour combination green/yellow used only for earthing conductors		N/A
23.8	Aluminium wires not used for internal wiring		P
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless		N/A
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		N/A
23.10	Insulation and sheath of internal wiring in external hoses for the connection to the water mains at least equivalent to light polyvinyl chloride sheathed flexible cord (60227 IEC 52) (IEC 60335-1/A1)		N/A

24	COMPONENTS		
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components	(see appended table)	P
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.6		P
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders 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 (IEC 60335-1/A2)		N/A
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, or		P
	tested according to annex F		N/A
24.1.2	Safety isolating transformers complying with IEC 61558-2-6, or		N/A
	tested according to annex G		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000, or		N/A
	tested according to annex H		N/A
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being:		
	- thermostats: 10 000		N/A
	- temperature limiters: 1 000		N/A
	- self-resetting thermal cut-outs: 300		P
	- voltage maintained non-self-resetting thermal cut-outs (60335-1/A1): 1000		N/A
	- other non-self-resetting thermal cut-outs 30		N/A
	- timers: 3 000		N/A
	- energy regulators: 10 000		N/A
	Thermal motor protectors tested in combination with their motor under the conditions specified in Annex D (IEC 60335-1/A1)		P
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, degree of protection provided by enclosures declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7 (IEC 60335-1/A1)		N/A
24.1.5	Appliance couplers complying with IEC 60320-1		N/A
	Interconnection couplers complying with IEC 60320-2-2 (IEC 60335-1/A1)		N/A
	However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N/A
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151 (IEC 60335-1/A2)		N/A
24.1.8	The relevant standard for thermal links is IEC 60691. Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19 (IEC 60335-1/A2)		N/A
24.1.9	Relays, other than motor starting relays, tested as part of the appliance (IEC 60335-1/A2)		N/A
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of operations in 24.1.4 selected according to the relay function in the appliance : (IEC 60335-1/A2)		N/A
24.2	No switches or automatic controls in flexible cords		P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	No thermal cut-outs that can be reset by soldering		P
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly		N/A
	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/A
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 42V.		N/A
	In addition, the motors are complying with the requirements of Annex I		N/A
24.7	Hose-sets for the connection to the water mains complying with IEC 61770 (IEC 60335-1/A1)		N/A
	Hose-sets supplied with the appliance (IEC 60335-1/A1)		N/A
24.101	Thermal cut-outs incorporated in appliances for compliance with 19.4 not self resetting		N/A
24.102	Class III appliances provided with a safety isolating transformer classified at least IPX4		N/A

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		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance		N/A
	- pins for insertion into socket-outlets		N/A
	Class I appliances shall only be provided with means for permanent connection to fixed wiring (IEC 60335-2-60)		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
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/A
25.3	Connection of supply conductors for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support		N/A
	Appliance provided with a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6		N/A
	Appliance provided with a set of terminals allowing the connection of a flexible cord		N/A
	Appliance provided with a set of supply leads accommodated in a suitable compartment		N/A
	Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimensions according to table 10		P
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29		P
25.5	Method for assemble supply cord with the appliance:		
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
25.6	Plugs fitted with only one flexible cord		P
25.7	Supply cords being one of the following types: (IEC 60335-1/A2)		
	- rubber sheathed (at least 60245 IEC 53)		N/A
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- cross-linked polyvinyl chloride sheathed (at least 60245 IEC 87)		N/A
	Polyvinyl chloride sheathed: Not used if they are likely to touch metal parts having a temperature rise exceeding 75K during the test of Clause 11. (IEC 60335-1/A2)		
	- light polyvinyl chloride sheathed cord (at least 60227 IEC 52), appliances not exceeding 3 kg		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- ordinary polyvinyl chloride sheathed cord (at least 60227 IEC 53), other appliances		P
	Heat resistant polyvinyl chloride sheathed: Not used for type X attachment other than specially prepared cords. (IEC 60335-1/A2)		N/A
	- Heat-resistant light polyvinyl chloride sheathed cord (at least 60227 IEC 56), appliances not exceeding 3 kg		N/A
	- heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), other appliances		N/A
25.8	Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm ²)..... :	2,5A ; 2 x 0,75 mm ²	P
25.9	Supply cord not in contact with sharp points or edges		P
25.10	Green/yellow core for earthing purposes in Class I appliance		N/A
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless		N/A
	clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		N/A
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		N/A
25.13	Inlet opening so shaped as to prevent damage to the supply cord		P
	Unless the enclosure at the inlet opening is of insulating material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless		N/A
	the appliance is class 0		N/A
25.14	Supply cords adequately protected against excessive flexing		N/A
	Flexing test:		
	- applied force (N)		N/A
	- number of flexings		N/A
	The test does not result in:		
	- short circuit between the conductors		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage, within the meaning of the standard, to the cord or the cord guard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	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, values shown in table 12: pull (N); torque (not on automatic cord reel) (Nm)		P
	Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals		P
	Creepage distances and clearances not reduced below values specified in 29.1		P
25.16	Cord anchorages for type X attachments constructed and located so that:		
	- replacement of the cord is easily possible		N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, if applicable		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
25.17	Adequate cord anchorages for type Y and Z attachment		P
25.18	Cord anchorages only accessible with the aid of a tool, or		N/A
	so constructed that the cord can only be fitted with the aid of a tool		P
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		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, no risk of damage to the conductors when fitting the cover, no contact with accessible metal parts if a conductor becomes loose, etc.		N/A
	For portable appliances, the uninsulated end of a conductor prevented from any contact with accessible metal parts, unless the end of the cord is such that the conductors are unlikely to slip free		N/A
25.22	Appliance inlet:		
	- live parts not accessible during insertion or removal		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- is not for cold conditions if temp. rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins compatible with the dimensions of the relevant socket-outlet. Dimensions of pins and engagement face in accordance with the relevant plug in IEC 60083		N/A

26	TERMINALS FOR EXTERNAL CONDUCTORS		
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P
	Terminals only accessible after removal of a non-detachable cover		P
	Earthing terminals accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection (IEC 60335-1/A1)		N/A
26.2	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Screws and nuts serve only to clamp supply conductors, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N/A
	Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		N/A
	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		
	- the terminal does not loosen		N/A
	- internal wiring is not subjected to stress		N/A
	- clearances and creepage distances are not reduced below the values in 29		N/A
	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. Nominal diameter of thread (mm); screw category; torque (Nm) :		N/A
26.4	Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out		N/A
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/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm ²) :		N/A
	Terminals only suitable for a specially prepared cord		N/A
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other		P
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment: soldered, welded, crimped and similar connections may be used		P
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		P
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free	Conductors positioned by screw terminals	P

27	PROVISION FOR EARTHING		
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal or contact of the appliance inlet		N/A
	Earthing terminals not connected to neutral terminal		N/A
	Class 0, II and III appliance have no provision for earthing		P
	Safety extra-low voltage circuits not earthed, unless protective extra-low voltage circuits		N/A
27.2	Clamping means adequately secured against accidental loosening		N/A
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm ² , and		N/A
	do not provide earthing continuity between different parts of the appliance		N/A
	Conductors cannot be loosened without the aid of a tool		N/A
	Class I appliances provided with a terminal for the connection of external equipotential bonding conductors (IEC 60335-2-60)		N/A
27.3	For detachable parts, earth connection made and separated before the current-carrying connections (IEC 60335-1/A1)		N/A
	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		N/A
	Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure		N/A
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 µm		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In case of aluminium alloys precautions taken to avoid risk of corrosion		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		N/A
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided that clearances of basic insulation are based on the rated voltage of the appliance		N/A
	Resistance not exceeding 0,1 Ω at the specified low-resistance test		N/A
27.6	The printed conductors of printed circuit boards shall not be used to provide earthing continuity in hand-held appliances. (IEC 60335-1/A2)		N/A
	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 (IEC 60335-1/A2)		N/A

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		P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		P
	Screws used for electrical connections or connections providing earthing continuity screw into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 can impair basic insulation		N/A
	For screws and nuts; test as specified	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated		P
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0,5 A		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread (IEC 60335-1/A2)		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer (IEC 60335-1/A2)		N/A
	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: (IEC 60335-1/A2)		
	- in normal use,		N/A
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless (IEC 60335-1/A2)		N/A
	the screw forms a thread having a length of at least half the diameter of the screw (IEC 60335-1/A2)		N/A
	Thread-cutting and space-threaded screws may be used in connections providing earthing continuity, provided unnecessary to disturb the connection and at least two screws are used for each connection		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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..... : (IEC 60335-1/A2)		N/A
	The microenvironment is pollution degree 1 under Type 1 coating (IEC 60335-1/A2)		N/A
	No clearance or creepage distance requirements under Type 2 coating (IEC 60335-1/A2)		N/A
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/A
	However, if the construction is 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		N/A
	Impulse voltage test not applicable:		
	- for basic insulation of class 0 and class 01 appliances		N/A
	Appliances are in overvoltage category II		P
	Clearances less than specified in table 16 not allowed for basic insulation of class 0 and class 01 appliances,		N/A
	or if pollution degree 3 is applicable		N/A
	Compliance is checked by inspection and measurements as specified		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings assumed 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, but using the next higher step for rated impulse voltage	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
29.1.4	For functional insulation, the values of table 16 are applicable, unless		P
	the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Clearances at crossover points of lacquered conductors not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1 mm		N/A
	Lacquered conductors of windings assumed to be bare conductors		P
29.1.5	Appliances having higher working voltage than rated voltage, the voltage used for determining clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the working voltage and the peak value of the rated voltage		P
	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/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation based on the working voltage used as the rated voltage in table 15		P
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree		P
	Pollution degree 3 applies, unless (IEC 60335-2-60)		N/A
	Pollution degree 2		P
	Pollution degree 1		N/A
	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
	Except for pollution degree 1, 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/A
29.2.2	Creepage distances of supplementary insulation at least as specified for basic insulation in table 17	(see appended table)	P
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17	(see appended table)	P
29.2.4	Creepage distances of functional insulation not less than specified in table 18	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
29.3	Supplementary and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses (IEC 60335-1/A2):		P
	Compliance checked by:		
	- measurement, in accordance with 29.3.1, or		P
	- an electric strength test in accordance with 29.3.2, or		N/A
	- an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3 (EN 60335-1/A12):		N/A
29.3.1	Supplementary insulation having a thickness of at least 1 mm		P
	Reinforced insulation having 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/A
	Supplementary insulation consisting of at least 2 layers		N/A
	Reinforced insulation consisting of at least 3 layers		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	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		P

30	RESISTANCE TO HEAT AND FIRE		
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	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: 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: 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

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Clause	Requirement + Test	Result - Remark	Verdict
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)	(see appended table)	N/A
30.2	Parts of non-metallic material adequately resistant to ignition and spread of fire (IEC 60335-1/A2)		P
	This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance (IEC 60335-1/A2)		P
	Compliance checked by the test of 30.2.1. In addition: (IEC 60335-1/A2)		P
	- attended appliances, 30.2.2 applies		N/A
	- unattended appliances, 30.2.3 applies		P
	Appliances for remote operation, 30.2.3 applies		N/A
	Base material of printed circuit board, 30.2.4 applies		N/A
30.2.1	Glow-wire test of IEC 60695-2-11 at 550 °C, unless		P
	the material is classified at least HB40 according to IEC 60695-11-10		P
	Parts for which the glow-wire test cannot be carried out meet the requirements in ISO9772 for category HBF material		N/A
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and parts of non-metallic material within a distance of 3mm of such connections, are subjected to the glow-wire test of IEC 60695-2-11. (IEC 60335-1/A2)		N/A
	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: (IEC 60335-1/A2)		
	- 750°C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650°C, for other connections		N/A
	Test as specified for an interposed shielding material		N/A
	When the glow-wire test of IEC 60695-2-11 is carried out, the temperatures are: (IEC 60335-1/A2)		
	-750°C, for connections carrying a current exceeding 0,5A during normal operation		N/A
	-650°C, for other connections		N/A
	Test not applicable to conditions as specified		N/A
	Test not applicable to conditions as specified (IEC 60335-2-60)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	Test not applicable to conditions as specified		P
30.2.3.1	Parts of insulating material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material within a distance of 3mm, (IEC 60335-1/A2)		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850°C (IEC 60335-1/A2)		P
	Glow-wire test not carried out on parts of material classified as having a glow-wire flammability index of at least 850°C according to IEC 60695-2-12 (IEC 60335-1/A2)		N/A
	Glow-wire test not carried out on small parts that comply with the needle-flame test of Annex E or on small parts of material classified as V-0 or V-1 according to IEC 60695-11-10 (IEC 60335-1/A2)		N/A
	Test as specified for an interposed shielding material		N/A
30.2.3.2	Parts of non-metallic material supporting current-carrying connections, and (IEC 60335-1/A2)		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to glow-wire test of IEC 60695-2-11		P
	Test not carried out on material having a glow-wire ignition temperature according to IEC 60695-2-13 of at least: (IEC 60335-1/A2)		N/A
	-775°C, for connections carrying a current exceeding 0,2A during normal operation		N/A
	-675°C, for other connections		N/A
	When the glow-wire test of IEC 60695-2-11 is carried out, the temperatures are:		
	750°C, for connections carrying a current exceeding 0,2 A during normal operation		P
	650°C, for other connections		P
	Parts that during the test produce a flame persisting longer than 2 s, tested as specified		P
	If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless		P
	the material is classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to needle-flame test of annex E		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Test not applicable to conditions as specified		N/A
31	RESISTANCE TO RUSTING		
	Relevant ferrous parts adequately protected against rusting		P
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		
	Appliance shall not emit harmful radiation, present a toxic or similar hazard due to their operation in normal use (IEC 60335-1/A2)		P
	Relevant tests specified in part 2, if necessary (IEC 60335-1/A2)		N/A
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		
	Description of routine tests to be carried out by the manufacturer		P
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES		
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	This annex does not apply to battery chargers		N/A
3.1.9	Appliance operated under the following conditions:		N/A
	-the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	-the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-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/A
	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/A
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N/A
7.12	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
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/A
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period described		N/A
19.1	Appliances subjected to tests of 19.101, 19.102 and 19.103		N/A
19.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.102	Short-circuiting of the terminals of the battery, being fully charged, for appliances having batteries that can be removed without the aid of a tool		N/A
19.103	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/A
21.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 of IEC 68-2-32		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-32, the number of falls being:		
	- 100, the mass of part does not exceed 250 g		N/A
	- 50, the mass of part exceeds 250 g		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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/A
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS		
	Applicable to appliances having motors that incorporate thermal motor protectors		P
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST (IEC 60335-1/A2)		
	Needle-flame test carried out in accordance with IEC 60695-2-2, with the following modifications:		P
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 further specimens, both withstanding the test		P
11	Evaluation of test results		
	The duration of burning not exceeding 30 s		N/A
	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:		N/A
1.5	Terminology		
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
1.6	Marking		
	Items a) and b) are applicable		N/A
3.4	Approval testing		
3.4.3.2	Table II is applicable as described		N/A
4.1	Visual examination and check of dimensions		
	This subclause is applicable		N/A
4.2	Electrical tests		
4.2.1	This subclause is applicable		N/A
4.2.5	This subclause is applicable		N/A
4.2.5.2	Only table IX is applicable		N/A
	Values for test A apply		N/A
	However, for capacitors in heating appliances the values for test B or C apply		N/A
4.12	Damp heat, steady state		
	This subclause is applicable		N/A
	Only insulation resistance and voltage proof are checked		
4.13	Impulse voltage		
	This subclause is applicable		N/A
4.14	Endurance		
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	Visual examination, no visible damage		N/A
4.17	Passive flammability test		
	This subclause is applicable		N/A
4.18	Active flammability test		
	This subclause is applicable		N/A

G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		
	The following modifications to this standard are applicable for safety isolating transformers:		
7	Marking and instructions		
7.1	Transformers for specific use marked with:		
	-name, trademark or identification mark of the manufacturer or responsible vendor		N/A
	-model or type reference		N/A
17	Overload protection of transformers and associated circuits		

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		N/A
29	Clearances, creepage distances and solid insulation		
29.1, 29.2 and 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		N/A

H	ANNEX H (NORMATIVE) SWITCHES		
	Switches comply with the following clauses of IEC 61058-1, as modified:		
	-The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	-Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		
	Switches are not required to be marked		N/A
	However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		N/A
	The tests may be carried out on a separate sample		
15	Insulation resistance and dielectric strength		N/A
15.1	Not applicable		
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		N/A
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N/A
	Subclauses 17.2 and 17.2.5.2 are not applicable (IEC 60335-1/A1)		N/A
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1 (IEC 60335-1:2001/A1)		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N/A

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/A
11	Heating		
11.3	Temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	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/A
16	Leakage current and electric strength		
16.3	Insulation between live parts of the motor and its other metal parts not subjected to the test		N/A
19	Abnormal operation		
19.1	The tests of 19.7 to 19.9 not carried out		N/A
19.101	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/A
	- short circuit of each diode of the rectifier		N/A
	- open circuit of the supply to the motor		N/A
	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		
22.101	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/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Compliance checked by the tests specified for double and reinforced insulation		N/A
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS (IEC 60335-1/A2)		
	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/A
5.7.1	Cold		
	The test is carried out at -25°C		N/A
5.7.3	Rapid change of temperature		
	Severity 1 is specified		N/A
5.9	Additional tests		
	This subclause is not applicable		N/A
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		
	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		P
	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		P
	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		P
	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		P
L	ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES		
	Sequences for the determination of clearances and creepage distances		P

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Clause	Requirement + Test	Result - Remark	Verdict

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 microenvironment		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/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		N/A
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A

N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P
7	Test apparatus		
7.3	Test solutions		
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		
10.1	Procedure		
	Voltage is 100 V, 175 V, 400 V or 600 V..... :	175 V	P
	Last paragraph of clause 3 applies		P
	The test is carried out on five specimens		P

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Clause	Requirement + Test	Result - Remark	Verdict
	In case of doubt, additional test with voltage reduced by 25 V, the number of drops increased to 100		P
10.2	Report		
	The report stating if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		P
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 (IEC 60335-1:2001/A1)		
	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		
5	General conditions for the tests		
5.7	The ambient temperature for the tests of Clauses 11 and 13 is $40^{+3}/_0$ °C		N/A
7	Marking and instructions		
7.1	The appliance marked with the letters WDaE		N/A
7.12	The instructions state that the appliance is to be supplied through a RCD having a rated residual operating current not exceeding 30 mA		N/A
	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/A
11	Heating		
11.8	The values of Table 3 are reduced by 15 K		N/A
13	Leakage current and electric strength at operating temperature		
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
15	Moisture resistance		
15.3	The value of t is 37 °C		N/A
16	Leakage current and electric strength		
16.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
19	Abnormal operation		
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS (IEC 60335-1/A1)		
	Description of tests for appliances incorporating electronic circuits		P
R	ANNEX Q (INFORMATIVE) SOFTWARE EVALUATION (IEC 60335-1/A1)		
	Software evaluated in accordance with the following clauses of Annex H of IEC 60730-1, as modified		
H.2	Definitions		
	Only definitions H.2.16 to H.2.20 applicable		N/A
H.7	Information		
	Only footnotes 12) to 18) of Table 7.2, as modified, applicable		N/A
H.11.12	Controls using software		
	All the subclauses of H.11.12, as modified, except H.11.12.6 and H.11.12.6.1, applicable		N/A
H.11.12.7	Delete text		N/A
H.11.12.7.1	For appliances using software class C having a single channel with self-test and monitoring structure, the manufacturer provides the measures necessary to address the fault/errors in safety related segments and data		N/A
H.11.12.8	Software fault/error detection occurs before compliance with 19.13 of IEC 60335-1 is impaired		N/A
H.11.12.8.1	Replace text		N/A
H.11.12.13	Software and safety related hardware under its control initializes and terminates before compliance with 19.13 of IEC 60335-1 is impaired		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX EMF			
	The Tested product also complies to the requirements of IEC 62233:2005		
	Limit 100%	Measured max. :3.....%	P

IEC 60335-2-60						
Clause	Requirement + Test			Result - Remark	Verdict	
10.1	TABLE: Power input deviation				P	
	Input deviation of/at:	P rated (W)	P measured (W)	dP	Required dP	Remark
	220 V, 60 Hz (*)	550	551	+0,18%; +1W	+15%; +82,5W	P
Note : (*) Max speed and all the functions setted						

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

11.8	TABLE: Heating test, resistance method				P
	Test voltage (V)	233,2 V; 60 Hz		—	
	Ambient, t ₁ (°C)	25		—	
	Ambient, t ₂ (°C)	25		—	
	Thermocouple locations	dT (K)	Max. dT (K)		
	Core separation of supply cable	16	50		
	Internal wiring in PVC	8	50		
	Internal wiring of heating element	2	65		
	Transformer (class 105)	7	65		
	Surface of capacitor	8	50		
	Printed circuit of main board	13	120		
	Printed circuit of LED board	17	120		
	Ambient of heating element self resetting thermal cut out	12	125		
	Surface of motor	23	60		
	Internal part of the housing	17	See cl.30		
	External part of the housing	9	60		
	Windings of motor (*)	32	85		
	Wood	5	40		
	Water temperature	10	25		
(*) Value obtained with thermocouples method					

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

11.8	TABLE: Heating test, resistance method					N/A
	Test voltage (V)					—
	Ambient, t_1 (°C)					—
	Ambient, t_2 (°C)					—
	Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class

13.2	TABLE: Leakage current					P
	Heating appliances: 1,15 x rated input					—
	Motor-operated and combined appliances: 1,06 x rated voltage			233,2 V; 60 Hz		—
	Leakage current between			I (mA)	Max. allowed I (mA)	
	Live parts and accessible parts over supplementary insulation			0,02	0,25	
	Live parts and accessible parts over reinforced insulation			0,02	0,25	

13.3	TABLE: Electric strength					P
	Test voltage applied between:			Voltage (V)	Breakdown (Yes/No)	
	Live parts and accessible parts over supplementary insulation			1750	No	
	Live parts and accessible parts over reinforced insulation			3000	No	

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

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

16.2	TABLE: Leakage current		P
	Single phase appliances: 1,06 x rated voltage	233,2 V; 60 Hz	—
	Three phase appliances 1,06 x rated voltage divided by $\sqrt{3}$:		—
Leakage current between		I (mA)	Max. allowed I (mA)
Live parts and accessible parts over supplementary insulation		0,02	0,25
Live parts and accessible parts over reinforced insulation		0,02	0,25

16.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
Live parts and accessible parts over supplementary insulation		1750	No
Live parts and accessible parts over reinforced insulation		3000	No

17	TABLE: Overload protection, temperature rise		N/A
Temperature rise of part/at:		dT (K)	Max. dT (K)
Transformer		35	175

19.7	TABLE: Abnormal operation, locked rotor/moving parts				P	
	Test voltage (V)	220 V; 60 Hz		—		
	Ambient, t_1 (°C)	25		—		
	Ambient, t_2 (°C)	25		—		
Temperature of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	T (°C)	Max. T (°C)
Motor		---	---	---	160 (*)	225

(*) Supplementary information: values measured with thermocouples method

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Clause	Requirement + Test	Result - Remark	Verdict

19.9	TABLE: Abnormal operation, running overload				N/A	
	Test voltage (V)				—	
	Ambient, t ₁ (°C)				—	
	Ambient, t ₂ (°C)				—	
	Temperature of winding	R ₁ (Ω)	R ₂ (Ω)	dT (K)	T (°C)	Max. T (°C)

19.11.2	TABLE: Abnormal operation, fault conditions of electronic circuits				P
	Electronic circuit.....	Main control board			—
	Manufacturer	Givitech			—
	Type	GSCEIDEL-B			—
	At rated voltage (V).....	220 V			—
	Component tested	Short circuit	Open circuit	Remark-measured	Verdict
	VR1	X		F1 opens . No hazard.	P
	Q7	X		Heating element fully energized until self resetting thermal cut out opens. No hazard	P
	Q6	X		Motor fully energized. No hazard	P
	Q1	X		Ozonator energized. No hazard	P

19.13	TABLE: Abnormal operation, temperature rises				P
	Thermocouple locations	dT (K)		Max. dT (K)	
	Supply cable	25 (*)		150 (*)	
	Floor	25 (*)		150 (*)	
	Wall	25 (*)		150 (*)	
Supplementary information: (*) Value refers to temperature in Celsius degrees					

24.1	TABLE: Components					P
	Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity
	Supply cord with:	ICC	H05VV-F	2 x 0,75 mm ²	60227 IEC 53	HAR
	Plug	RC	A18	250 V; 2,5 A	IEC 60884	IMQ
	Pump with:	Ametek	069402032	230 V~; class B 550W	IEC 60335-1	Checked in the appliance

IEC 60335-2-60					
Clause	Requirement + Test			Result - Remark	Verdict
Self resetting thermal cut out	Sensata	7AM 213 A5	240 V; 5A	IEC 60730-1 IEC 60730-2-9	ENEC 05
Heating element with:	Freitech	3RMFT100223	230V 800W	IEC 60335-1	Checked in the appliance
Self resetting thermal cut out	Sensata	MA 10	12A ; 250V	IEC 60730-1 IEC 60730-2-9	ENEC 05
Ozone generator	Microfox	OZOGEN ROSA MF109080.	12Vdc 8W Output: 4 kV 50 Hz	IEC 60335-1	Checked in the appliance
Electronic board with:	Givitech	GSCEIDEL-B	230 V; 50/60 Hz	IEC 60335-1	Checked in the appliance
Fuse	Bussmann	T6,3AL250V	6,3 A; 250 V	IEC 60127-1	VDE
Fuse holder	Littelfuse	LFH series	6,3 A; 250 V	IEC 60127-6	VDE
Capacitor (n.3)	Arcotronics	R46	0,22 µF; 275 V AC	IEC 60384-14	VDE
Capacitor	Arcotronics	R46	0,1 µF; 275 V AC	IEC 60384-14	VDE
Capacitor	Arcotronics	R46	1 nF; 275 V AC	IEC 60384-14	VDE
Transformer	Midcom	31985-LF1	100-400VDC 100kHz; 12VDC 2A	IEC 60335-1	Checked in the appliance
Led PCB	Seoul semiconductor	SFT825N-S	30 mA / chip; Red 81 mW / chip; Green 120 mW /chip; Blue 114 mW / chip	IEC 62471	KTL
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. (alt.) Alternative component					

28.1	TABLE: Threaded part torque test			P
Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)	
Terminals	2,1	II	0,4	
Enclosure	3,5	II	0,8	

IEC 60335-2-60						
Clause	Requirement + Test	Result - Remark				Verdict
29.1	TABLE: Clearances					P
	Overvoltage category.	II				—
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic	Functional	Supplementary	Reinforced	Verdict / Remark
330	0,2* / 0,5 / 0,8**					
500	0,2* / 0,5 / 0,8**					
800	0,2* / 0,5 / 0,8**					
1 500	0,5 / 0,8** / 1,0***					
2 500	1,5 / 2,0***	1,5	1,5	1,5		P
4 000	3,0 / 3,5***				3,0	P
6 000	5,5 / 6,0***					
8 000	8,0 / 8,5***					
10 000	11,0 / 11,5***					
*) 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							Type of insulation			Verdict
	1	2			3						
		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		—	—	
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	2,5	—	—	P
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	—	2,5	—	P
250	1,12	2,5	3,6	5,0	6,4	7,2	8,0	—	—	5,0	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	

IEC 60335-2-60											
Clause	Requirement + Test							Result - Remark			Verdict
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
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—	64,0	P
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							Verdict / Remark
	1	2			3			
	Material group			Material group				
	I	II	IIIa/IIIb	I	II	IIIa/IIIb		
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	

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

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

30	TABLE: Resistance to heat and fire																	P	
Part no./ Object	Manufacturer / Trademark	Type / Model	Ball pressure test °C				Glow wire test (GWT) °C				Glow-wire flammability index (GWFI) °C				Glow-wire Ignition test (GWIT) °C		Needle flame test (NFT)	Verdict	
			75	125	cl. 11 + 40	cl.19 + 25	550	650		750		850	550	650	750	850			675
							te	ti	te	ti									
External non-metallic parts			P		P (if > 75°C)														P
External non-metallic parts (used as supplementary or reinforced insulation)			P		P (if > 75°C)														P
Insulating material retaining live parts in position				P	P (if > 125°C)														P
Insulating material retaining live parts in position (used as supplementary or reinforced insulation)				P	P (if > 125°C)														P
Parts of non –metallic material							P												P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

30	TABLE: Resistance to heat and fire																	P	
Part no./ Object	Manufacturer / Trademark	Type / Model	Ball pressure test °C				Glow wire test (GWT) °C				Glow-wire flammability index (GWFI) °C				Glow-wire Ignition test (GWIT) °C		Needle flame test (NFT)	Verdict	
			75	125	cl. 11 + 40	cl.19 + 25	550	650		750		850	550	650	750	850			675
Insulating material supporting current carrying connections or within 3 mm from such connections (I < 0,2 A)								P	P										P
Insulating material supporting current carrying connections or within 3 mm from such connections (I >= 0,2 A)										P	P								P
Insulating material supporting current carrying connections or within 3 mm from such connections (I >= 0,2 A)												P							P
Small parts																		P	P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

30	TABLE: Resistance to heat and fire																	P		
Part no./ Object	Manufacturer / Trademark	Type / Model	Ball pressure test °C				Glow wire test (GWT) °C				Glow-wire flammability index (GWFI) °C				Glow-wire Ignition test (GWIT) °C		Needle flame test (NFT)	Verdict		
			75	125	cl. 11 + 40	cl.19 + 25	550	650		750		850	550	650	750	850			675	775
								te	ti	te	ti									
Parts above the insulating material supporting current carrying connections or within 3 mm from such connections (I >= 0,2 A) within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm (if flame persisting longer than 2 s (= te – ti) during GWT)																			P	P
PCB																			P	P
<p>1) Parts of material classified at least HB40 or if relevant HBF</p> <p>2) Parts of material classified as V-0 or V-1</p> <p>3) Flame persisting longer than 2 s (= te – ti) need only be reported for unattended appliances</p> <p>4) Surrounding parts subjected to the needle-flame test of annex E</p> <p>5) Base material classified as V-0 or if relevant VTM-0</p> <p>6) The GWIT pre-selection option, the 850°C GWFI pre-selection option, and the 850°C GWT are not applicable for attended appliances</p>																				

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 1 - IEC 60335-1 with KOREAN Deviations.			
No Deviations for particular standard IEC 60335-2-24			
K60335-2-24	<p>Additional plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirements (KSC 3800 and 3805) for all IEC Standards</p> <ol style="list-style-type: none"> 1) Voltage rating National supply voltages are 110V, 220V and 380V 2) Frequency Only appliances having supply frequency of 60Hz or a frequency range including 60Hz are accepted 3) Instruction and marking Instruction manuals and markings related safety, including nameplate shall be in Korean or graphical symbol in accordance with IEC Publication 60417. More details are available from KTL (c/o KTL) on request. <p>The apparatus shall comply with the relevant CISPR requirements</p>	220V; 60Hz	P

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2 – Pictures of the appliance**Front view**

TRF No. IEC60335_2_60G

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

Rear view



View of the internal components

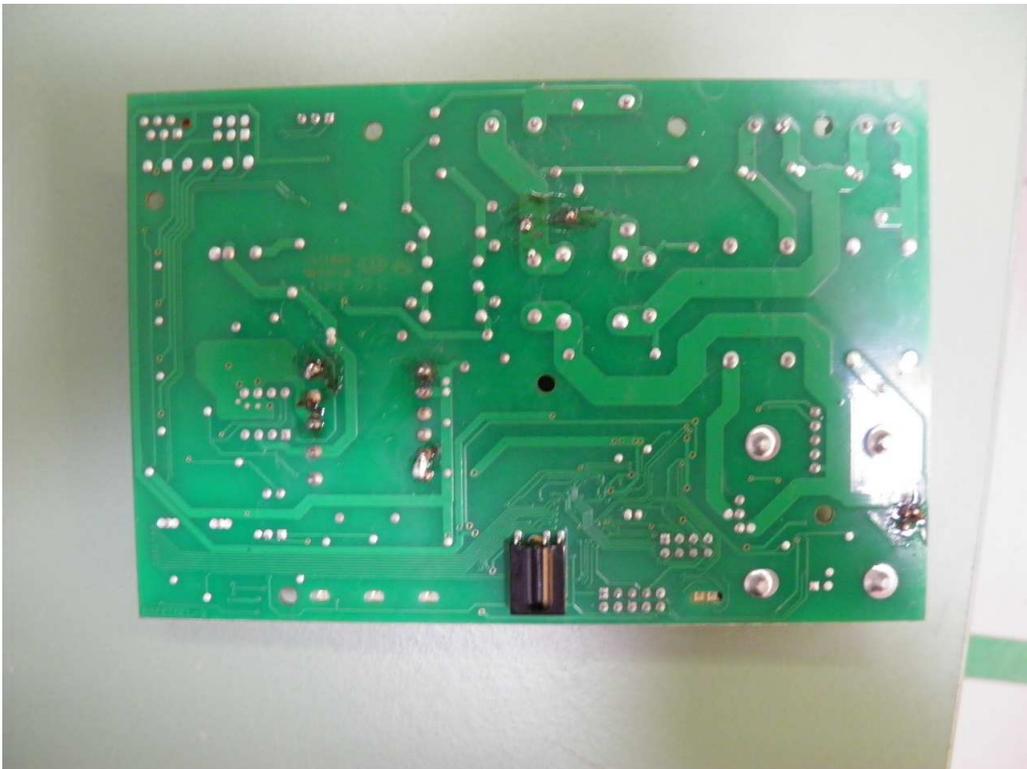


IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

Motor + ozonator



Main PCB front



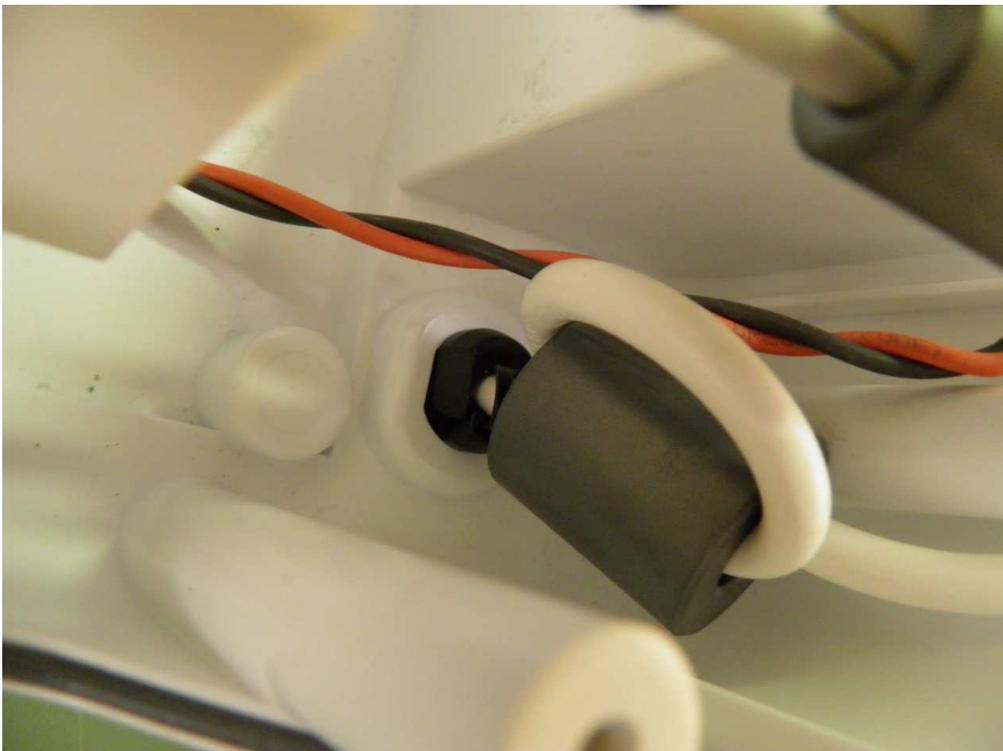
IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

Main PCB rear**Led PCB****Motor label**

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict



Ozone generator



Cable gland

TRF No. IEC60335_2_60G

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict



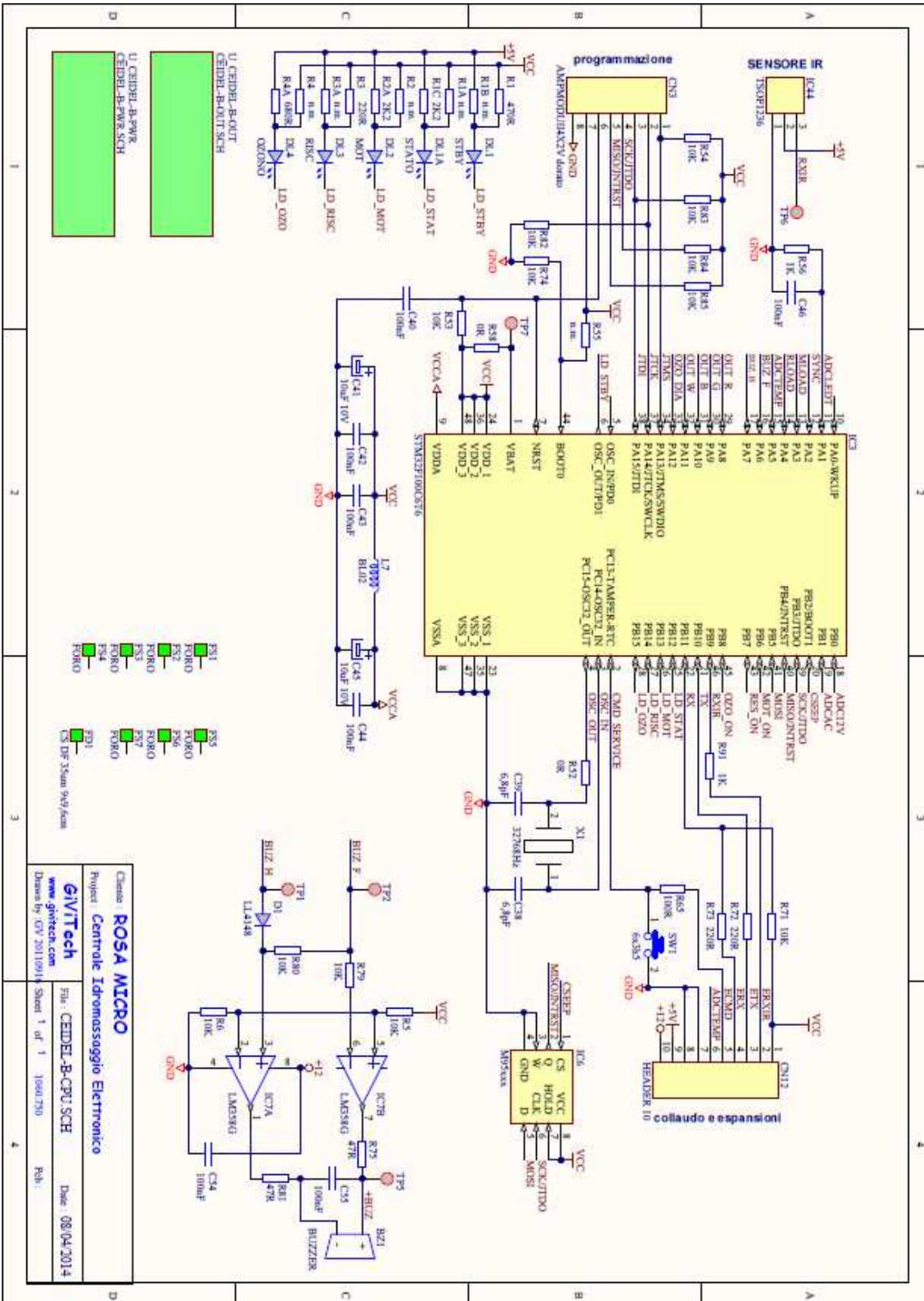
Cover of blower output



View of the remote control

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

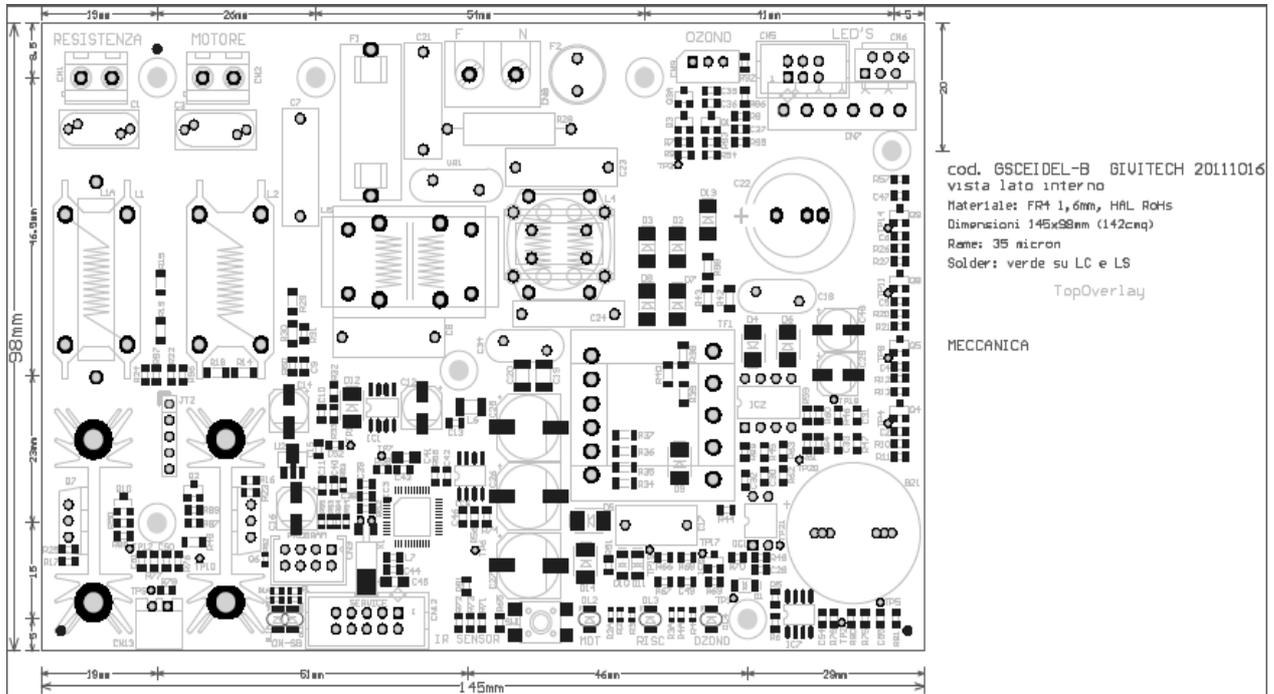
ANNEX 3 – Electrical scheme



IEC 60335-2-60

Clause	Requirement + Test	Result - Remark	Verdict
1		<p>20110423 Note per versione 110V:- -fare CS con rame 70microm; -montare dissipatori 150mm; -ID motore dev'essere 330uH/6A (TISCI 00508) -fuso SMD dev'essere 170A -VR dev'essere 150Vac</p>	
1			

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict



IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 4 – Additional requirements to standards IEC 60335-2-23:2003 + A1:2005 + A2:2012

5	GENERAL CONDITIONS FOR THE TESTS		
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc		P

6	CLASSIFICATION		
6.1	Protection against electric shock (IEC 60335-2-23):		
	- Hairdryers, curling irons, curling combs, facial saunas and other steam-producing or spray-producing appliances be class II or III (IEC 60335-2-23)	Hair dryer Class II appliance	P
	However, fixed hairdryers intended to be permanently connected to fixed wiring, helmet-type hairdryers for hairdressers and steam-producing or spray-producing appliances for hairdressers be class I (IEC 60335-2-23).....		N/A
6.2	Protection against harmful ingress of water	IPX0	N/A

7	MARKING AND INSTRUCTIONS		
7.12.1	Installation instructions for fixed hairdryers intended for use in bathrooms include substance of the following: This hairdryer must be fixed out of reach of a person taking a bath or shower. (IEC 60335-2-23)	Fixed appliance Term "hair dryer" substituted by term "appliance"	P

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

11	HEATING		
11.4	Heating appliances and heating elements operated under normal operation at 1,15 times rated power input (W)	632,5 W	P
11.6	Combined appliances operated as heating appliances (IEC 60335-2-23)		P
11.7	Appliances incorporating timer operated in cycles until steady conditions established. Each cycle consists of maximum operating time of timer (min) followed by rest period of 5 s (IEC 60335-2-23).....		N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
11.8	Temperature rises not exceeding values in table 3 (IEC 60335-1/A2)	(See appended table)	P
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in clause 24.1.4 (IEC 60335-1/A1)		N/A
	Sealing compound does not flow out		P
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1,15 times rated power input (W)		P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	Leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	Leakage current measurements	(See appended table)	P
13.3	Appliance is disconnected from supply (IEC 60335-1/A1)		P
	Electric strength tests according to table 4 (IEC 60335-1/A1)	(See appended table)	P
	No breakdown during tests (IEC 60335-1/A1)		P
19	ABNORMAL OPERATION		
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input (W)	467,5 W; 187 V	P
	Restricted heat dissipation is obtained as follows (IEC 60335-2-23):		
	- motors disconnected (IEC 60335-2-23);		P
19.3	Test of clause 19.2 repeated; test voltage (V): power input of 1,24 times rated power input (W)	682 W; 272,2 V	P
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or (IEC 60335-1/A2)		N/A
	a device that can be placed in the stand-by mode, (IEC 60335-1/A2)		P
	subjected to the tests of 19.11.4.1 to 19.11.4.7 (IEC 60335-1/A2)	Not possible unsafe operation for fixed hair dryer	N/A

IEC 60335-2-60			
Clause	Requirement + Test	Result - Remark	Verdict
19.101	Hairdryers operated as specified in clause 11 until steady conditions established (IEC 60335-2-23/A1)		P
	Voltage at terminals of motor reduced until running speed of motor is just sufficient to prevent thermal cut-out from operating, power input to heating element being maintained at 1,15 times rated power input (IEC 60335-2-23/A1)		P
	Voltage is decreased at (IEC 60335-2-23/A1)		
	- 5 V/min, for motors with working voltage exceeding 30 V (IEC 60335-2-23/A1).		P
	Appliance operated until steady conditions established (IEC 60335-2-23/A1)		P
30	RESISTANCE TO HEAT AND FIRE		
	Hand dryers and hairdryers, temperature rises occurring during tests of clause 19 not taken into account (IEC 60335-2-23)		P