LVD TEST REPORT

On Behalf of

Product Name:	Heat Pump
Trademark:	FINECO, FENECO
Model Number:	XD-BKR06YBP, XD-BKR015YBP, XD-BKR02YBP, XD-BKR03YBP, XD-BKR04YBP, XD-BKR045YBP, XD-BKR05YBP, XD-BKR01YBP, XD-BKR07YBP, XD-BKR08YBP, XD-BKR10YBP, XD-BKR12YBP;FI-02BPM,F1-03BPM,F1-04BPM,F1-05BPM,F1-06BPM,F1-08BPM, FI-10BPM,F1-12BPM,F1-15BPM;, XD-02BPM, XD-03BPM, XD-04BPM, XD-05BPM, XD-06BPM, XD-08BPM, XD-10BPM, XD-12BPM, XD-15BPM; FE-02BPM, FE-03BPM, FE-04BPM, FE-05BPM, FE-06BPM, FE-08BPM, FE-10BPM, FE-12BPM, FE-15BPM; XD-03BSPM, XD-04BSPM, XD-05BSPM, XD-06BSPM, XD-08BSPM, XD-10BSPM, XD-12BSPM, XD-15BSPM; FI-03BSPM, FI-04BSPM,F1-05BSPM, FI-06BSPM, FI-08BSPM, FI-10BSPM,F1-12BSPM, FI-15BSPM;FE-03BSPM, FE-04BSPM, FE-05BSPM, FE-06BSPM, FE-08BSPM, FE-10BSPM, FE-12BSPM, FE-15BSPM,0.8HP, 1HP, 1.5HP; XD-BWH025BP, XD-BWH03BP, XD-BWH05BP, XD-BWH06BP, XD-BWH08BP, XD-BWH10BP, XD-BWH15BP, XD-BWH20BP; XD-150L, XD-200L, XD-250L, XD-300L, XD-400L; FE-RA-15, FE-RC-15, FE-RB-10, FE-RA-25, FE-RA-35, FE-RC-35, FE-RC-50; XD-150LBP, XD-200LBP, XD-250LBP, XD-300LBP, XD-500LBP
Prepared For:	Guangdong Fineco New Energy Co.,Ltd.
Address:	No.2-5, Guihe Road, Ma She Village, Lishui Town, Nanhai District, Foshan City, Guangdong Province, China.
Prepared By:	Shenzhen Xunwei Testing Co., Ltd
Address:	301, Building 6, Xinhaosheng Industrial Park, Yonghe Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen City
Report No.:	XUNW-251374L

TEST REPORT

EN IEC 60335-1: 2023+ A11:2023

Household and similar electrical appliances – Safety – Part 1: General requirements

EN IEC 60335-2-40:2024+A11: 2024

Safety of household and similar electrical appliances

Part 2- 40: Particular requirements for electrical heat pumps, air conditioners and dehumidifiers

Report Reference No..... :	XUNW-251374L
Date of issue..... :	Aug. 28, 2025
Applicant's name..... :	Guangdong Fineco New Energy Co.,Ltd.
Address..... :	No.2-5, Guihe Road, Ma She Village, Lishui Town, Nanhai District, Foshan City, Guangdong Province, China.
Testing Laboratory Name ..... :	Shenzhen Xunwei Testing Co., Ltd
Address ..... :	301, Building 6, Xinhaosheng Industrial Park, Yonghe Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen City
Testing location ..... :	As above
Test specification:	
Standard..... :	EN IEC 60335-1: 2023+ A11:2023 & EN IEC 60335-2-40:2024+A11: 2024
Test procedure..... :	CE-LVD
Non-standard test method…….. :	N/A
Test item description..... :	Heat Pump
Trade Mark..... :	FINECO, FENECO
Model/Type reference..... :	XD-BKR06YBP
Manufacturer ..... :	Guangdong Fineco New Energy Co.,Ltd.
Address:	No.2-5, Guihe Road, Ma She Village, Lishui Town, Nanhai District, Foshan City, Guangdong Province, China.
Ratings..... :	AC 220-240V, 50/60Hz

Testing procedure and testing location

Laboratory name……	:	Shenzhen Xunwei Testing Co., Ltd
Testing location/address:	:	301, Building 6, Xinhaosheng Industrial Park, Yonghe Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen City
Testing procedure	:	TL ☒ RMT ☐ SMT ☐ WMT ☐ TMP ☐
Prepared by (Engineer)		Danny Luo
Reviewed By (Supervisor)	:	Rita Li

Test case verdicts:

Test case does not apply to the test object ……..: N(Not Applicable)

Test object does meet the requirement ……..: P(ass)

Test object does not meet the requirement ……...: F(ail)

Testing:

Date of receipt of test item ……. ……. ……...: Aug. 22, 2025

Date(s) of performance of test ……. ……. ……...: Aug. 22, 2025 - Aug. 28, 2025

General remarks:

This report shall not be reproduced except in full without the written approval of the testing laboratory.
The test results presented in this report relate only to the item tested.
”(see remark #)" refers to a remark appended to the report.
"(see Annex #)" refers to an annex appended to the report.
Throughout this report a point is used as the decimal separator.
This report shall not be altered, increase and deleted.
The results relate only to the items tested.

Copy of marking plate:

Heat Pump

Model : XD-BKR06YBP

Rating: AC 220-240V, 50/60Hz

Date for manufactured: 2025

Guangdong Fineco New Energy Co.,Ltd.
No.2-5, Guihe Road, Ma She Village, Lishui Town, Nanhai District,
Foshan City, Guangdong Province, China.

Made in China

Note: Due to the similar of rating label, only above label is listed.

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
5	**GENERAL CONDITIONS FOR THE TESTS**		--
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
6	**CLASSIFICATION**		--
6.1	Protection against electric shock: Class 0, 0I, I, II, III.....:	Class I	P
	Protection against harmful ingress of water		N
7	**MARKING AND INSTRUCTIONS**		--
7.1	Rated voltage or voltage range (V).....:	220-240V	P
	Symbol for nature of supply, or.....:	Complied, See Copy of marking plate	P
	Rated frequency (Hz).....:		N
	Rated power input (W), or.....:		P
	Rated current (A) .....:		P
	Manufacturer's or responsible vendor's name, trademark or identification mark.....:	Complied, See Copy of marking plate	P
	Model or type reference.....:	See Copy of marking plate	P
	Symbol IEC 60417-5172, for class II appliances		N
	IP number, other than IPX0.....:	IPX4	P
	Symbol IEC 60417-5180, for class III appliances, unless	Class I appliance	N
	the appliance is operated by batteries only, or		N
	for appliances powered by rechargeable batteries recharged in the appliance		N
	Symbol IEC 60417-5018, for Class III and Class IIII appliances incorporating a functional earth		N
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage		N
7.2	Warning for stationary appliances for multiple supply		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen	220-240V	P
	Different rated values marked with the values separated by an oblique stroke		P
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible.		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram.		N
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless	Marked	P
	the power input is related to the arithmetic mean value of the rated voltage range		N
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		P
7.6	Correct symbols use		P
	Symbol for nature of supply placed next to rated voltage	See copy of marking plate	P
	Symbol for class II appliances placed unlikely to be confused with other marking		P
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N
	correct mode of connection is obvious		P
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		N
	- marking of terminals exclusively for the neutral conductor (letter N)		N
	- marking of protective earthing terminals (symbol IEC 60417-5019)		N
	- marking of functional earthing terminals (symbol IEC 60417-5018)		N
	- marking not placed on removable parts		N
7.9	Marking or placing of switches which may cause a hazard		N
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means.....:		N
	This applies also to switches which are part of a control		N
	If figures are used, the off position indicated by the figure 0		N
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N
7.11	Indication for direction of adjustment of controls		N
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict

	The instructions state that:		P
	-the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	-children being supervised not to play with the appliance		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N
	it is a battery-operated appliance, the battery being charged outside the appliance		N
	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated.....:		N
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N
7.12.1	Sufficient details for installation supplied		N
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N
7.12.4	Instructions for built-in appliances:		N
	- dimensions of space		N
	- dimensions and position of supporting and fixing		N
	- minimum distances between parts and surrounding structure		N
	- minimum dimensions of ventilating openings and arrangement		N
	- connection to supply mains and interconnection of separate components		N
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	a switch complying with 24.3		N
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N
	Replacement cord instructions, type Y attachment		N
	Replacement cord instructions, type Z attachment		N
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N
7.12.8	Instructions for appliances connected to the water mains:		N
	-max. inlet water pressure (Pa)..... :		N
	-min. inlet water pressure, if necessary (Pa)..... :		N
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N
7.12.9	Instructions specified in 7.12 and from 7.12.1 to 7.12.8 appear together before any other instructions supplied with the appliance		P
	These instructions may be supplied with the appliance separately from any functional use booklet		P
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		N
	In addition, instructions are also available in an alternative format such as on a website or on request from the user in a format such as a DVD		N
	In addition, instructions are also available in an alternative format such as on a website or in a format such as a DVD..... :		N
7.13	Instructions and other texts in an official language	English	P
7.14	Marking clearly legible and durable, rubbing test as specified		P
	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified..... :		N
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm ..... :		N
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N
	contrasting colours are used		N
	Markings checked by inspection, measurement and rubbing test as specified		N
7.15	Markings on a main part	Marking on the enclosure.	P

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		N
	Symbol IEC 60417-5018 is placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		N
8.1	Adequate protection against accidental contact with live parts		N
8.1.1	Requirement applies for all positions, detachable parts removed		N
	Lamps behind a detachable cover not removed, if conditions met		N
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts	Test probe B not contact with live part	N
	Use of test probe B of IEC 61032 through openings, with a force of 20 N: no contact with live parts		N
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		N
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements.		N
	For a single switching action obtained by a switching device, requirements as specified		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	For appliances with a supply cord and without a switching device, the single switching action may be obtained by the withdrawal of the plug		N
8.1.4	Accessible part not considered live if:		N
	- safety extra-low a.c. voltage: peak value not exceeding 42,4 V		N
	- safety extra-low d.c. voltage: not exceeding 42,4 V		N
	- or separated from live parts by protective impedance		N
	If protective impedance: d.c. current not exceeding 2 mA, and		N
	a.c. peak value not exceeding 0,7 mA		N
	- for peak values over 42,4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N
	- for peak values over 15 kV, the energy in the discharge not exceeding 350 mJ		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		N
	- built-in appliances		N
	- fixed appliances		N
	- appliances delivered in separate units		N
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		N
	Only possible to touch parts separated from live parts by double or reinforced insulation		N
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		N
	Requirements and tests are specified in part 2 when necessary		N
10	**POWER INPUT AND CURRENT**		P
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1.....:	(see appended table)	P
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, the power input is the maximum value that is exceeded for more than 10 % of the representative period.		N
	Otherwise the power input is the arithmetic mean value		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		P
	the rated power input is related to the arithmetic mean value		N
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2.....:	(see appended table)	N
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period.		N
	Otherwise the current is the arithmetic mean value.		N
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N
	the rated current is related to the arithmetic mean value of the range		N
11	**HEATING**		P
11.1	No excessive temperatures in normal use		P
11.2	The appliance is held, placed or fixed in position as described.....:		P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		N
	the windings are non-uniform or it is difficult to make the necessary connections		N
11.4	Heating appliances operated under normal operation at 1,15 times rated power input (W) .....:		N
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage (V).....:		P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage (V).....:		N
11.7	Operation duration corresponding to the most unfavourable conditions of normal use		P
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 .....:	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	if there is doubt with regard to classification of insulation,		N
	tests of annex C are carried out		N
	Sealing compound does not flow out		P
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		P
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1,15 times the rated power input (W).....:		N
	Motor-operated appliances and combined appliances supplied at 1,06 times the rated voltage (V).....:	(see appended table)	N
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	The leakage current is measured by means of the circuit described in figure 4 of IEC 60990:1999		P
	For class 0I appliances and class I appliances, except parts of class II construction, C may be replaced by a low impedance ammeter		N
	Leakage current measurements.....:	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4.....:	(see appended table)	P
	No breakdown during the tests		P
14	**TRANSIENT OVERVOLTAGES**		N
	Appliances withstand the transient over-voltages to which they may be subjected		N
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6.....:	(see appended table)	N
	No flashover during the test, unless		N
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N
15	**MOISTURE RESISTANCE**		P
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IPX4	N
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		N
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529.....:	IPX4	P
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX0 appliances		P
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N
	Built-in appliances installed according to the instructions		N
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and		N
	for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		N
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and		N
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N
	Appliances with type X attachment fitted with a flexible cord as described		N
	Detachable parts subjected to the relevant treatment with the main part		N
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N
15.2	Spillage of liquid does not affect the electrical insulation		N
	Spillage solution comprising water containing approximately 1 % NaCl and 0,6 % rinsing agent		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Appliances with type X attachment fitted with a flexible cord as described		N
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N
	Detachable parts are removed		N
	Overfilling test with additional amount of water, over a period of 1 min (l).....:		N
	The appliance withstands the electric strength test of 16.3		N
	No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29		N
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		N
	Humidity test for 48 h in a humidity cabinet	RH: 93%, temperature: 25℃	P
	Reassembly of those parts that may have been removed		N
	The appliance withstands the tests of clause 16		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		P
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		P
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1,06 times rated voltage (V).....:	(see appended table)	P
	Three-phase appliances: test voltage 1,06 times rated voltage divided by √3 (V).....:		N
	Leakage current measurements.....:	(see appended table)	P
	Limit values doubled if:		N
	- all controls have an off position in all poles, or		N
	- the appliance has no control other than a thermal cut-out, or		N
	-all thermostats, temperature limiters and energy regulators do not have an off position, or		N
	- the appliance has radio interference filters		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	With the radio interference filters disconnected, the leakage current do not exceed limits specified..... :	(see appended table)	N
16.3	Electric strength tests according to table 7..... :	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified..... :	(see appended table)	P
	No breakdown during the tests		P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		N
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use..... :	(see appended table)	N
	Appliance supplied with 1,06 or 0,94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V)..... :		N
	Basic insulation is not short-circuited		N
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N
	Temperature of the winding not exceeding the value specified in table 8		N
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N
18	**ENDURANCE**		N
	Requirements and tests are specified in part 2 when necessary		N
19	**ABNORMAL OPERATION**		--
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe ..... :	(see appended table)	P
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		N
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and		N
	if applicable, to the test of 19.5		N
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6		N
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		N
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11	No relay used.	N
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		N
	until steady conditions are established		P
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		N
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0,85 times rated power input (W)..... :	No heating elements.	N
19.3	Test of 19.2 repeated; test voltage (V), power input of 1,24 times rated power input (W)..... :		N
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N
19.5	Test of 19.4 repeated on class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		N
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions	No PTC heating elements.	N
	The working voltage of the PTC heating element is increased by 5 % and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1,5 times working voltage or until the PTC heating element ruptures (V).....:		N
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or		P
	locking moving parts of other appliances		N
	Locked rotor, capacitors open-circuited one at a time		N
	Test repeated with capacitors short-circuited one at a time, unless		N
	the capacitor is of class S2 or S3 of IEC 60252-1		N
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed..... :		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	An electronic timer or programmer that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, is a protective electronic circuit.		N
	Other appliances supplied with rated voltage for a period as specified.....:		N
	Winding temperatures not exceeding values specified in table 8.....:	(see appended table)	N
19.8	Multi- phase motors operated at rated voltage with one phase disconnected		N
19.10	Series motor operated at 1,3 times rated voltage for 1 min (V).....:		N
	During the test, parts not being ejected from the appliance		N
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		P
	they comply with the conditions specified in 19.11.1		N
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N
	restarting does not result in a hazard		P
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand- by mode, subjected to the tests of 19.11.4		N
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse- link complying with IEC 60127, the test of 19.12 is carried out		P
	During and after each test the following is checked:		P
	- the temperature of the windings do not exceed the values specified in table 8		P
	- the appliance complies with the conditions specified in 19.13		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		P
	If a conductor of a printed board becomes open- circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		N
	- the base material of the printed circuit board withstands the test of annex E		N
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		N
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of other parts of the appliance does not rely on the correct functioning of the electronic circuit		N
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		P
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		P
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless		P
	they comply with IEC 60384-14		N
	d) short circuit of any two terminals of an electronic component, other than integrated circuits		P
	This fault condition is not applied between the two circuits of an optocoupler		N
	e) failure of triacs in the diode mode		N
	f) failure of microprocessors and integrated circuits		P
	g) failure of an electronic power switching device		N
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N
19.11.3	If the appliance incorporates a protective electronic circuit that operates to ensure compliance with clause 19, the appliance is tested as specified		N
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		N
	a device that can be placed in the stand-by mode,		N
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		N
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, the tests being carried out after the protective electronic circuit has operated, except that		N
	appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N
	Surge protective devices disconnected, unless		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	They incorporate spark gaps		N
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		N
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, at frequency ranges specified		N
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N
	An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode		N
	An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling		N
	Earthed heating elements in class I appliances disconnected		N
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N
	Appliances having a rated current exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60 s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate		N
	The appliance continues to operate normally, or		N
	requires a manual operation to restart		N
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)..... :		P
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts	Complied	P
	Temperature rises not exceeding the values shown in table 9..... :	(see appended table)	P

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict

	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		N
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		P
	-basic insulation (V)..... :		N
	-supplementary insulation (V)..... :	1750V	P
	-reinforced insulation (V)..... :	3000V	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		N
	Appliances tested with an electronic switch in the off position, or in the stand- by mode:		N
	- do not become operational, or		N
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		N
	- the lid or door does not move automatically to an open position when the interlock is released, and		N
	- the appliance does not start after the cycle in which the interlock was released		N
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short- circuited		N
	For a relay or contactor with more than one contact, all contacts are short- circuited at the same time		N
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short- circuited		N
	If more than one relay or contactor operates in clause 11, they are short- circuited in turn		N
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N
20	**STABILITY AND MECHANICAL HAZARDS**		N
20.1	Appliances having adequate stability		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		N
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		N
	Protective enclosures, guards and similar parts are non-detachable, and		N
	have adequate mechanical strength		N
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		N
	Not possible to touch dangerous moving parts with the test probe described		N
21	**MECHANICAL STRENGTH**		P
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J	(see appended table)	P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N
	If necessary, repetition of groups of three blows on a new sample		N
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		N
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N
22	**CONSTRUCTION**		P
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IPX4	N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
22.2	Stationary appliance: means to ensure all- pole disconnection from the supply being provided:		N
	- a supply cord fitted with a plug, or		N
	- a switch complying with 24.3, or		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N
	- an appliance inlet		N
	Singe- pole switches and single- pole protective devices for the disconnection of heating elements in single- phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N
22.3	Appliance provided with pins: no undue strain on socket- outlets		N
	Applied torque not exceeding 0,25 Nm		N
	Pull force of 50 N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1 mm		N
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating, unless		N
	rotating does not impair compliance with this standard		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket- outlets		N
22.5	No risk of electric shock when touching pins, for appliances having a capacitor with rated capacitance equal to or greater than 0,1 μF, the appliance being disconnected from the supply at the instant of voltage peak		P
	Voltage not exceeding 34 V (V).....:	Max. 4V	P
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied		N
	The discharge test is then repeated three times, voltage not exceeding 34 V (V)..... :		N
22.6	Electrical insulation not affected by condensing water or leaking liquid	No liquid used.	N
	Electrical insulation of class II appliances not affected if a hose ruptures or seal leaks		N
	In case of doubt, test as described		N
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam- producing devices	No device providing steam.	N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
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	No such parts.	N
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P
	the substance has adequate insulating properties		N
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:	No such thermal cut-outs.	N
	- a non-self-resetting thermal cut-out is required by the standard, and		N
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N
	they are voltage maintained		N
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts	Enclosure is fixed by screw.	P
	Obvious locked position of snap-in devices used for fixing such parts		N
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N
	Tests as described	50N pull & push, remain in position after test.	N
22.12	Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard	No such parts.	N
	Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard		N
	A choking hazard does not apply to appliances for commercial use		N
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded	No storage hooks used	N
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts	No automatic cord reels used	N
	Cord reel tested with 6000 operations, as specified		N
	Electric strength test of 16.3, voltage of 1000 V applied		N
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N
22.18	Current-carrying parts and other metal parts resistant to corrosion		N
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N
	constructed to prevent inappropriate replacement		N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		N
	material used is non-corrosive, non-hygroscopic and non-combustible		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless	No such material used.	P
	impregnated		N
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N
22.22	Appliances not containing asbestos	No asbestos included.	P
22.23	Oils containing polychlorinated biphenyl (PCB) not used	No oils used.	P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported	No heating elements.	N
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
22.28	Metal parts of class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation	No such metal parts.	N
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation	Not permanently connected.	N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or	Outer enclosure.	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
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N
	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts	No liquids used.	N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	unearthed metal parts separated from live parts by basic insulation only		N
	Electrodes not used for heating liquids		N
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N
	the reinforced insulation consists of at least 3 layers		N
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N
	the reinforced insulation consists of at least 3 layers		N
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless	No such parts.	N
	the shaft is not accessible when the part is removed		N
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation	No such parts.	N
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N
	This requirement does not apply to handles, levers and knobs on stationary appliances and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal.		N
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		N
	they are separated from live parts by double or reinforced insulation		N
22.37	Capacitors in class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N
	the capacitors comply with 22.42		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
22.38	Capacitors not connected between the contacts of a thermal cut-out		N
22.39	Lamp holders used only for the connection of lamps	No lamp holders	N
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N
22.41	No components, other than lamps, containing mercury	No component containing mercury.	P
22.42	Protective impedance consisting of at least two separate components		N
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N
	Resistors checked by the test of 14.1 a) in IEC 60065		N
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur	No such components	N
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use	No connected to water mains.	N
	No leakage from any part, including any inlet water hose		N
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N
	the appliance switches off automatically or can operate continuously without hazard		N
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N
	There is a visual indication showing that the appliance is adjusted for remote operation		N
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		N
	- continuously, or		N
	- automatically, or		N
	- remotely		N
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N
22.53	Class III appliances and Class IIII appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts.		N
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless		N
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously		N
22.55	Devices operated to stop the intended function of the appliance, if any, are be distinguished from other manual devices by means of shape, size, surface texture or position ..... :		N
	The requirement concerning position does not preclude use of a push on push off switch		N
	An indication when the device has been operated is given by:		N
	- tactile feedback from the actuator or from the appliance, or		N
	- reduction in heat output; or		N
	- audible and visible feedback		N
22.56	Detachable power supply part provided with the part of class III construction		N
22.57	The properties of non-metallic materials do not degrade from exposure to UV-C radiation, as specified in annex T		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	This requirement does not apply to glass, ceramics or similar materials		N
23	**INTERNAL WIRING**		P
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
	Wiring effectively prevented from coming into contact with moving parts		N
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N
	Beads inside flexible metal conduits contained within an insulating sleeve		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N
	Flexible metallic tubes not causing damage to insulation of conductors		N
	Open- coil springs not used		N
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	No damage after 10 000 flexings for conductors flexed during normal use, or		N
	100 flexings for conductors flexed during user maintenance		N
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N
	Not more than 10 % of the strands of any conductor broken, and		N
	not more than 30 % for wiring supplying circuits that consume no more than 15 W		N
23.4	Bare internal wiring sufficiently rigid and fixed		P
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation	2000V, 15 minutes, no breakdown	P
	For Class III construction, the requirements for supplementary insulation and reinforced insulation apply,		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.		N
	A single layer of internal wiring insulation does not provide reinforced insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		N
	be such that it can only be removed by breaking or cutting		N
23.7	The colour combination green/yellow only used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N
24	**COMPONENTS**		P
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components.....:	(see appended table)	P
	Motors not required to comply with IEC 60034-1, they are tested as part of the appliance		N
	Relays tested as part of the appliance, or		N
	alternatively acc. to IEC 60730-1, and meeting the additional requirements in IEC 60335-1		N
	The requirements of Clause 29 apply between live parts of components and accessible parts of the appliance		P
	Components can comply with the requirements for clearances and creepage distances for functional insulation in the relevant component standard		P
	30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections		P
	Components that have not been previously tested to comply with the IEC standard for the relevant component are tested according to the requirements of 30.2		P
	Components that have been previously tested to comply with the resistance to fire requirements in the IEC standard for the relevant component need not be retested provided the specified conditions are met		P

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	If these conditions are not satisfied, the component is tested as part of the appliance.		P
	Power electronic converter circuits not required to comply with IEC 62477-1, they are tested as part of the appliance		N
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		N
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14		N
	If the capacitors have to be tested, they are tested according to annex F		N
24.1.2	Transformers in associated switch mode power supplies comply with Annex BB of IEC 61558-2-16		N
	Safety isolating transformers complying with IEC 61558-2-6		N
	If they have to be tested, they are tested according to annex G		N
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000		N
	If they have to be tested, they are tested according to annex H		N
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	If the switch only operates a motor staring relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N
24.1.4	Automatic controls complying with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:		N
	-thermostats:..... 10 000		N
	-temperature limiters:.....1 000		N
	-self-resetting thermal cut-outs:.....300		N
	-voltage maintained non-self-resetting thermal cut-outs: 1 000		N
	-other non-self-resetting thermal cut-outs:..... 30		N
	-timers:..... 3 000		N
	-energy regulators:..... 10 000		N
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N
	Thermal motor protectors are tested in combination with their motor under the conditions specified in annex D		N
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX0		N
	Thermal cut-outs of the capillary type comply with the requirements for type 2.K controls in IEC 60730-2-9		N
24.1.5	Appliance couplers complying with IEC 60320-1		N
	However, for Class III appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N
	Interconnection couplers complying with IEC 60320-2-2		N
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N
24.1.8	The relevant standard for thermal links is IEC 60691		N
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of clause 19		N
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	They are also tested in accordance with clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance.....:		N
24.2	Appliances not fitted with:		P
	- switches, automatic controls, power supplies and the like in flexible cords;		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		N
	the solder has a melding point of at least 230 °C		N
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions	No such components.	N
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly	No such components.	N
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N
	In addition, the motors comply with the requirements of annex I		N
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770	No such components.	N
	They are supplied with the appliance		N
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		N
	One or more of the following conditions are to be met:		N
	- the capacitors are of class S2 or S3 according to IEC 60252-1		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict

	- the capacitors are housed within a metallic or ceramic enclosure		N
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of annex E		N
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		P
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		N
	- supply cord fitted with a plug, the current rating and voltage rating of the plug being not less than the corresponding ratings of its associated appliance		N
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N
	- pins for insertion into socket-outlets		P
25.2	Appliance not provided with more than one means of connection to the supply mains	Single supply	P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		N
	- a set of terminals allowing the connection of a flexible cord		N
	- a fitted supply cord		N
	-a set of supply leads accommodated in a suitable compartment		N
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm):		N
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N
25.5	Method for assembling the supply cord to the appliance:		N
	- type X attachment		N
	- type Y attachment		N
	- type Z attachment		N
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N
	For multi- phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N
25.6	Plugs fitted with only one flexible cord		N
25.7	Supply cords, other than for class III appliances, being one of the following types:		N
	- rubber sheathed (at least 60245 IEC 53)		N
	- polychloroprene sheathed (at least 60245 IEC 57)		N
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		N
	- light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		N
	- ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances		N
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		N
	- heat- resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N
	- heat- resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N
	- halogen- free, low smoke, thermoplastic insulated and sheathed		N
	- light duty halogen- free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable		N
	- Ordinary duty halogen- free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f(for flat cable		N
	Supply cords for class III appliances adequately insulated		N
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm²)..... :		N
	Supply cord of deep well pumps have a length of at least 3 m in excess of the maximum well depth, unless the deep well pump is provided with a coupling device having at least the same degree of protection as required for the pump.		N
25.9	Supply cords not in contact with sharp points or edges		N
25.10	Supply cord of class I appliances have a green/yellow core for earthing		N
	In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue.		N
	Where additional neutral conductors are provided in the supply cord:		N
	- other colours may be used for these additional neutral conductors;		N
	- all of the neutral conductors and line conductors are identified by marking using the alpha numeric notation specified in IEC 60445		N
	- the supply cord is fitted to the appliance		N
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		N
	the contact pressure is provided by spring terminals		N
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		N
25.13	Inlet openings so constructed as to prevent damage to the supply cord		N
	If it is not evident that the supply cord can be introduced without risk of damage, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N
	class 0, or		N
	a class III appliance not containing live parts		N
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N
	- applied force (N)..... :		N
	- number of flexings..... :		N
	The test does not result in:		N
	-short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict

	-breakage of more than 10 % of the strands of any conductor		N
	- separation of the conductor from its terminal		N
	- loosening of any cord guard		N
	- damage to the cord or the cord guard		N
	- broken strands piercing the insulation and becoming accessible		N
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		N
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		N
	Pull and torque test of supply cord:		N
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm).....:		N
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm).. :		N
	Pull and torque test of supply cord, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm).....:		N
	Cord not damaged and max. 2 mm displacement of the cord		N
25.16	Cord anchorages for type X attachments constructed and located so that:		N
	- replacement of the cord is easily possible		N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of supply cord		N
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N
	they are separated from accessible metal parts by supplementary insulation		N
	- the cord is not clamped by a metal screw which bears directly on the cord		N
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N
	it is part of a specially prepared cord		N
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N
	failure of the insulation of the cord does not make accessible metal parts live		N
	- for class II appliances they are of insulating material, or		N
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		N
25.18	Cord anchorages only accessible with the aid of a tool, or		N
	Constructed so that the cord can only be fitted with the aid of a tool		N
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N
	Tying the cord into a knot or tying the cord with string not used		N
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		N
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		N
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		N
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N
25.22	Appliance inlets:		N
	- live parts not accessible during insertion or removal		N
	Requirement not applicable to appliance inlets complying with IEC 60320- 1		N
	- connector can be inserted without difficulty		N
	- the appliance is not supported by the connector		N
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	the supply cord is unlikely to touch such metal parts		N
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N
	- the thickness of the insulation may be reduced		N
	- for class I or class II appliance with class III construction, the cross sectional areas of the conductors need not comply with 25.8 if specified conditions are met		N
	If necessary, electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		P
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		P
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		N
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		N
	Terminals only accessible after removal of a non-detachable cover, except		N
	for class III appliances that do not contain live parts		N
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N
26.2	Appliances with type X attachment and appliances for the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		N
	the connections are soldered		N
	Screws and nuts not used to fix any other component, except		N
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N
	Terminals fixed so that when the clamping means is tightened or loosened:		--
	- the terminal does not become loose		N
	- internal wiring is not subjected to stress		N
	- neither clearances nor creepage distances are reduced below the values in clause 29		N
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm)...:		N
	No deep or sharp indentations of the conductors		N
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		N
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N
	Stranded conductor test, 8 mm insulation removed		N
	No contact between live parts and accessible metal parts and,		N
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2)..... :		N
	If a specially prepared cord is used, terminals need only be suitable for that cord		N
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N
26.9	Terminals of the pillar type constructed and located as specified		N
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N
	conductors ends fitted with means suitable for screw terminals		N
	Pull test of 5 N to the connection		N
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		N
	For class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		N
27	**PROVISION FOR EARTHING**		N
27.1	Accessible metal parts of class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet	Class I appliance	P
	Earthing terminals and earthing contacts not connected to the neutral terminal		N
	Class 0, II and III appliances have no provision for protective earthing		N
	Class III appliances and Class IIII appliances can incorporate an earth for functional purposes		N
	Safety extra-low voltage circuits not earthed, unless		N
	protective extra-low voltage circuits		N
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		N
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm², and		N
	do not provide earthing continuity between different parts of the appliance, and		N
	conductors cannot be loosened without the aid of a tool		N
	Requirements not applicable to Class III appliances and Class IIII appliances that incorporate an earth for functional purposes		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		N
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N
	Requirements not applicable to Class III appliances and Class IIII appliances that incorporate an earth for functional purposes		N
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		N
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		N
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		N
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N
	Requirements not applicable to Class III appliances and Class IIII appliances that incorporate an earth for functional purposes		N
27.5	Low resistance of connection between earthing terminal and earthed metal parts		N
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		N
	Requirements not applicable to Class III appliances and Class IIII appliances that incorporate an earth for functional purposes		N
	Resistance not exceeding 0,1 Ω at the specified low-resistance test (Ω)..... :		N
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Requirements not applicable to Class III appliances and Class IIII appliances that incorporate an earth for functional purposes		N
28	**SCREWS AND CONNECTIONS**		N
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		N
	Screws not of soft metal liable to creep, such as zinc or aluminium		N
	Diameter of screws of insulating material min. 3 mm	No screw of insulating material.	N
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		N
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		N
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		N
	For screws and nuts; torque-test as specified in table 14..... :	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		N
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N
	This requirement does not apply to electrical connections in circuits of appliances for which:		N
	- 30.2.2 is applicable and that carry a current not exceeding 0,5 A		N
	- 30.2.3 is applicable and that carry a current not exceeding 0,2 A		N
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	- in normal use,		N
	- during user maintenance,		N
	- when replacing a supply cord having a type X attachment, or		N
	- during installation		N
	At least two screws being used for each connection providing earthing continuity, unless		N
	the screw forms a thread having a length of at least half the diameter of the screw		N
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N
	if an alternative earthing circuit is provided		N
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N
29	**CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION**		P
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies.....:		N
	The microenvironment is pollution degree 1 under type 1 protection		N
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N
	These values apply to functional, basic, supplementary and reinforced insulation..... :		N
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless.....:	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500 V and above are increased by 0,5 mm and the impulse voltage test is not applicable	(see appended table)	P
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 is increased according to the relevant multiplier values in Table A.2 of IEC 60664-1		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict

	Impulse voltage test is not applicable:		N
	- when the microenvironment is pollution degree 3, or		N
	- for basic insulation of class 0 and class 01 appliances		N
	- to appliances intended for use at altitudes exceeding 2 000 m		N
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable.....:	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N
	Lacquered conductors of windings considered to be bare conductors		N
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16..... :	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage..... :	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		N
29.1.4	Clearances for functional insulation are the largest values determined from:		P
	- table 16 based on the rated impulse voltage..... :	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N
	the microenvironment is pollution degree 3, or		N
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		P
	Lacquered conductors of windings considered to be bare conductors		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1 mm		N
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		--
	- table 16 based on the rated impulse voltage.....:		N
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160 % of the withstand voltage required for basic insulation		N
	If clearances for basic insulation are selected from clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree.....:	(see appended table)	P
	Pollution degree 2 applies, unless		P
	- precautions taken to protect the insulation; pollution degree 1		N
	- insulation subjected to conductive pollution; pollution degree 3		N
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		N
29.2.1	Creepage distances of basic insulation not less than specified in table 17..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17:		N
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14..... :		N
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or.:	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable..... :		N
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or .....:	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable..... :		N
29.2.4	Creepage distances of functional insulation not less than specified in table 18.....:	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18:		N
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		P
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, or		P
	- for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N
	- for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N
	- by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N
29.3.1	Supplementary insulation have a thickness of at least 1 mm		P
	Reinforced insulation have a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N
	Supplementary insulation consist of at least 2 layers		N
	Reinforced insulation consist of at least 3 layers		N
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N
	the electric strength test of 16.3		N
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19.....:		N
30	**RESISTANCE TO HEAT AND FIRE**		P
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		N
	parts of thermoplastic material providing supplementary or reinforced insulation		N
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C).....:	(see appended table)	P
	Parts supporting live parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C).....:	(see appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C).....:	(see appended table)	P
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		N
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		N
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		N
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N
	For base material of printed circuit boards, 30.2.4 applies		P
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550 °C	(see appended table)	P
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N
	the material is classified at least HB40 according to IEC 60695-11-10		N
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and		N
	parts of non-metallic material within a distance of 3 mm of such connections,		N
	subjected to the glow-wire test of IEC 60695-2-11		N
	The test severity is:		N
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N
	- 650 °C, for other connections		N
	Glow-wire applied to an interposed shielding material, if relevant		N
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least:		N
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N
	- 650 °C, for other connections		N
	The glow-wire test is also not carried out on small parts. These parts are to:		N
	- comprise material having a glow-wire flammability index of at least 750 °C, or 650 °C as appropriate, or		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	- comply with the needle-flame test of annex E, or		N
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10.....:		N
	Glow-wire test not applicable to conditions as specified:		N
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	The tests are not applicable to conditions as specified:		N
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C	(see appended table)	P
	Glow-wire applied to an interposed shielding material, if relevant		N
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3 mm,		P
	subjected to glow-wire test of IEC 60695-2-11	(see appended table)	P
	The test severity is:		P
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		P
	Glow-wire applied to an interposed shielding material, if relevant		N
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		N
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N
	- 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		N
	- 675 °C, for other connections		N
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N
	- 650 °C, for other connections		N
	The glow-wire test is also not carried out on small parts. These parts are to:		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- comply with the needle-flame test of annex E, or		N
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N
	The consequential needle-flame test of annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		N
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- small parts for which the needle-flame test of annex E was applied, or		N
	- small parts for which a material classification of V-0 or V-1 was applied		N
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		N
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N
	- parts shielded by a flame barrier that meets the needle-flame test of annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of annex E		N
	Test not applicable to conditions as specified..... :	V-0	P
31	**RESISTANCE TO RUSTING**		P
	Relevant ferrous parts adequately protected against rusting		P
	Tests specified in part 2 when necessary		N
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		P

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		P
	Compliance is checked by the limits or tests specified in part 2, if relevant		N
A	**ANNEX A (INFORMATIVE) ROUTINE TESTS**		N
	Description of routine tests to be carried out by the manufacturer		N
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES**		N
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N
	This annex does not apply to battery chargers		N
	Three forms of construction covered:		N
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance		N
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery		N
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit		N
3.1.9	Appliance operated under the following conditions:		N
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N
	- f 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
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N
	Appliances intending to be supplied from a detachable supply unit marked with symbol IEC 60417-6181 and its type reference along with symbol ISO 7000-0790 (2004-01), or		N
	use only with <model designation> supply unit .... :		N
7.6	Symbols 60417-5005 and IEC 60417-5006		N
7.12	The instructions give information regarding charging		N
	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N
	Details about how to remove batteries containing materials hazardous to the environment given		N
	Instructions for appliances containing non user-replaceable batteries state the substance of the following:		N
	This appliance contains batteries that are only replaceable by skilled persons		N
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		N
	This appliance contains batteries that are non-replaceable		N
	For appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery, the type reference of the detachable supply unit is stated along with the following:		N
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance		N
	If the symbol for detachable supply unit is used, its meaning is explained		N
7.15	Markings placed on the part of the appliance connected to the supply mains		N
	The type reference of the detachable supply unit is placed in close proximity to the symbol		N
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	If the appliance can be operated without batteries, double or reinforced insulation required		N
11.7	The battery is charged for the period stated in the instructions or 24 h.....:		N
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K).....:		N
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) .....:		N
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N
19.10	Not applicable		N
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N
19.13	The battery does not rupture or ignite		N
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		N
	- 100, if the mass of the part does not exceed 250 g (g):		N
	- 50, if the mass of the part exceeds 250 g.....:		N
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N
	For other parts, 30.2.2 applies		N
C	**ANNEX C (NORMATIVE) AGEING TEST ON MOTORS**		N
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Test conditions as specified		N
D	**ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS**		N
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		N
	Test conditions as specified		N
E	**ANNEX E (NORMATIVE) NEEDLE-FLAME TEST**		N
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		N
7	Severities		N
	The duration of application of the test flame is 30 s ± 1 s		N
9	Test procedure		N
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		N
9.2	The first paragraph does not apply		N
	If possible, the flame is applied at least 10 mm from a corner		N
9.3	The test is carried out on one specimen		N
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N
11	Evaluation of test results		N
	The duration of burning not exceeding 30 s		N
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N
F	**ANNEX F (NORMATIVE) CAPACITORS**		N
	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
1.5	Terms and definitions		N
1.5.3	Class X capacitors tested according to subclass X2		N
1.5.4	This subclause is applicable		N
1.6	Marking		N
	Items a) and b) are applicable		N
3.4	Approval testing		N
3.4.3.2	Table 3 is applicable as described		N
4.1	Visual examination and check of dimensions		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	This subclause is applicable		N
4.2	Electrical tests		N
4.2.1	This subclause is applicable		N
4.2.5	This subclause is applicable		N
4.2.5.2	Only table 11 is applicable		N
	Values for test A apply		N
	However, for capacitors in heating appliances the values for test B or C apply		N
4.12	Damp heat, steady state		N
	This subclause is applicable		N
	Only insulation resistance and voltage proof are checked		N
4.13	Impulse voltage		N
	This subclause is applicable		N
4.14	Endurance		N
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 are applicable		N
4.14.7	Only insulation resistance and voltage proof are checked		N
	No visible damage		N
4.17	Passive flammability test		N
	This subclause is applicable		N
4.18	Active flammability test		N
	This subclause is applicable		N
G	**ANNEX G (NORMATIVE)** **SAFETY ISOLATING TRANSFORMERS**		N
	The following modifications to this standard are applicable for safety isolating transformers:		N
7	Marking and instructions		N
7.1	Transformers for specific use marked with:		N
	- name, trademark or identification mark of the manufacturer or responsible vendor..... :		N
	- model or type reference.....:		N
17	Overload protection of transformers and associated circuits		N
	Fail- safe transformers comply with subclause 15.5 of IEC 61558- 1		N
22	Construction		N
	Subclauses 19.1 and 19.1.2 of IEC 61558- 2- 6 are applicable		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
29	Clearances, creepage distances and solid insulation		N
29.1, 29.2, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		N
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		N
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		N
H	**ANNEX H (NORMATIVE) SWITCHES**		N
	Switches comply with the following clauses of IEC 61058-1, as modified below:		N
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N
	Before being tested, switches are operated 20 times without load		N
8	Marking and documentation		N
	Switches are not required to be marked		N
	However, a switch that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N
13	Mechanism		N
	The tests may be carried out on a separate sample		N
15	Insulation resistance and dielectric strength		N
15.1	Not applicable		N
15.2	Not applicable		N
15.3	Applicable for full disconnection and micro-disconnection		N
17	Endurance		N
	Compliance is checked on three separate appliances or switches		N
	For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless		N
	otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335.....:		N
	Switches for operation under no load and which can be operated only by a tool, and		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	switches operated by hand that are interlocked so that they cannot be operated under load,		N
	are not subjected to the tests		N
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N
	The ambient temperature during the test is that occurring in the appliance during the test of clause 11 in IEC 60335- 1		N
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335- 1 (K).....:		N
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		N
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro- disconnection, as stated in table 24		N
	Clause 20 is applicable to clearances across full disconnection and micro-disconnection		N
	It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24		N
I	**ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE**		N
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N
8	Protection against access to live parts		N
8.1	Metal parts of the motor are considered to be bare live parts		N
11	Heating		N
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N
11.8	The temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N
16	Leakage current and electric strength		N
16.3	Insulation between live parts of the motor and its other metal parts is not subjected to the test		N
19	Abnormal operation		N
19.1	The tests of 19.7 to 19.9 are not carried out		N
19.I.101	Appliance operated at rated voltage with each of the following fault conditions:		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	-short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- short circuit of each diode of the rectifier		N
	- open circuit of the supply to the motor		N
	- open circuit of any parallel resistor, the motor being in operation		N
	Only one fault simulated at a time, the tests carried out consecutively		N
22	Construction		N
22.I.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N
	Compliance checked by the tests specified for double and reinforced insulation		N
J	**ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS**		N
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N
5.7	Conditioning of the test specimens		N
	When production samples are used, three samples of the printed circuit board are tested		N
5.7.1	Cold		N
	The test is carried out at -25 °C		N
5.7.3	Rapid change of temperature		N
	Severity 1 is specified		N
5.9	Additional tests		N
	This subclause is not applicable		N
K	**ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES**		P
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N
L	**ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES**		P
	Information for the determination of clearances and creepage distances		P
M	**ANNEX M (NORMATIVE) POLLUTION DEGREE**		P
	The information on pollution degrees is extracted from IEC 60664- 1		P
	Pollution		P
	The microenvironment determines the effect of pollution on the insulation, taking into account the macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		P
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		P
	- pollution degree 1: no pollution or only dry, non- conductive pollution occurs. The pollution has no influence		N
	- 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
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N
N	**ANNEX N (NORMATIVE) PROOF TRACKING TEST**		P
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P
7	Test apparatus		P
7.3	Test solutions		P
	Test solution A is used		P

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
10	Determination of proof tracking index (PTI)		P
10.1	Procedure		P
	The proof voltage is 100 V, 175 V, 400 V or 600 V:	175 V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25 V, the number of drops increased to 100		N
10.2	Report		N
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N
O	**ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF clause 30**		P
	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**		N
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150 V, intended to be used in countries having a warm damp equable climate and that are marked “with symbol IEC 60417-6332 (2015-06)		N
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150 V, intended to be used in countries having a warm damp equable climate and that are marked IEC 60417-6332 (2015-06), if liable to be connected to a supply mains that excludes the protective earthing conductor		N
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		N
7.1	The appliance marked with the letters IEC 60417-6332 (2015-06)		N
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA		N
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N
	If symbol IEC 60417-6332 (2015-06) is used, its meaning shall be explained.		N
11.8	The values of Table 3 are reduced by 15 K		N
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N
15.3	The value of t is 37 °C		N
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		N
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict

Q	**ANNEX Q (INFORMATIVE)** **SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS**		P
	Description of tests for appliances incorporating electronic circuits		P
R	**ANNEX R (NORMATIVE)** **SOFTWARE EVALUATION**		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N
R.1	Programmable electronic circuits using software		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N
R.2	Requirements for the architecture		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		N
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		N
	- single channel with periodic self-test and monitoring		N
	- dual channel (homogenous) with comparison		N
	- dual channel (diverse) with comparison		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		N
	- single channel with functional test		N
	- single channel with periodic self-test		N
	- dual channel without comparison		N
R.2.2	Measures to control faults/errors		N
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired		N
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N
R.2.2.7	Labels used for memory locations are unique		N
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N
R.3	Measures to avoid errors		N
R.3.1	General		N
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		N
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N
R.3.2	Specification		N
R.3.2.1	Software safety requirements:	Software Id:	N
	The specification of the software safety requirements includes the descriptions listed		N
R.3.2.2	Software architecture		N

EN IEC 60335-1			
Clause	Requirement – Test	Result - Remark	Verdict
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	N
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N
R.3.2.3	Module design and coding		N
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N
R.3.2.3.2	Software code is structured		N
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N
	The module specification is validated against the architecture specification by static analysis		N
R.3.3.3	Software validation		N
	The software is validated with reference to the requirements of the software safety requirements specification		N
	Compliance is checked by simulation of:		N
	- input signals present during normal operation		N
	- anticipated occurrences		N
	- undesired conditions requiring system action		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict

5	**GENERAL CONDITIONS FOR THE TESTS**		P
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
5.2	Tests of clause 21 carried out on separate samples. Tests of clauses 11, 19 and 21 require pressure measurements made at various points in refrigerating system (EN 60335-2-40)		P
	At least one additional specially prepared sample required for tests of annex FF (Leak simulation tests) (EN 60335-2-40)		N
	Temperatures on refrigerant piping measured during test of clause 11 (EN 60335-2-40)		N
5.6	Appropriate controls rendered inoperative during test (EN 60335-2-40)		P
5.7	Tests of clauses 10 and 11 carried out under most severe operating conditions within operating temperature range specified by manufacturer. Annex AA provide examples of such temperature conditions (EN 60335-2-40)		P
5.10	For split-package units, refrigerant lines installed in accordance with installation instructions (EN 60335-2-40)		N
	Length of pipe is between 5 m and 7,5 m. (EN 60335-2-40)		N
	Thermal insulation of refrigerant lines applied in accordance with installation instructions (EN 60335-2-40)		N
5.101	Motor-compressor subjected to relevant test of clause 19 of IEC 60335-2-34, unless (EN 60335-2-40)		N
	motor-compressor comply with that standard (EN 60335-2-40)		P
5.102	Motor-compressors tested and comply with IEC 60335-2-34 need not additionally tested for clause 21 (EN 60335-2-40)		N
6	**CLASSIFICATION**		P
6.1	Protection against electric shock: Class I, II, III (EN 60335-2-40).....:	Class I appliance	P
6.2	Protection against harmful ingress of water, IP degree in accordance with IEC 60529 (EN 60335-2-40)		P
	appliances or parts intended for outdoor use be at least IPX4 (EN 60335-2-40);		N
	appliances intended only for indoor use (excluding laundry rooms) be IPX0 (EN 60335-2-40);		P
	appliances intended to be used in laundry rooms be at least IPX1 (EN 60335-2-40).		N
6.101	Degree of accessibility (accessible/not accessible to the general public) (EN 60335-2-40)		N
7	**MARKING AND INSTRUCTIONS**		P
7.1	Rated voltage or voltage range (V).....:	AC 220-240V	P
	Symbol for nature of supply including number of phases, unless for single phase operation (EN 60335-2-40).....:		P
	Rated frequency (Hz).....:	50/60Hz	P
	Rated power input (W), or.....:		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Rated current (A) ..... :		N
	Manufacturer's or responsible vendor's name, trademark or identification mark..... :	See Label Marking	P
	Model or type reference..... :	See Label Marking	P
	Symbol IEC 60417-5172, for class II appliances	Class I appliance	N
	IP number, other than IPX0..... :	IPX4	P
	Symbol IEC 60417-5180, for class III appliances, unless	See Label Marking	P
	the appliance is operated by batteries only		N
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage		N
	Mass of refrigerant (EN 60335-2-40)..... :	9000BTU	P
	Refrigerant number in accordance with ANSI/ASHRAE 34 [ISO 817]..... :		P
	Refrigerant identification (EN 60335-2-40)..... :	R410A	P
	Permissible excessive operating pressure for sanitary hot water heat pumps (EN 60335-2-40).. :		N
	Maximum operating pressure for heat exchanger for hydronic fan coil/air handling units (EN 60335-2-40)..... :		N
	Maximum operating pressure for the refrigerant circuit; if the permissible excessive operating pressure for the suction and discharge side differ, a separate indication is required; (EN 60335-2-40)..... :		N
	Symbol for degree of protection against ingress of water, other than IPX0 (EN 60335-2-40)..... :		N
	Separate marking of appliances with all rated characteristics of supplementary heaters (EN 60335-2-40)..... :	IPX4	P
	Marking of direction of fluid flow (EN 60335-2-40)		N
	Flame symbol and instruction manual symbol of 7.6 visible when flammable refrigerant employed and following conditions exist (EN 60335-2-40):		N
	accessing parts expected to be subjected to maintenance or repair (EN 60335-2-40);		N
	observing appliance under sale or installed conditions (EN 60335-2-40);		N
	observing appliance packaging, if appliance charged with refrigerant (EN 60335-2-40).		N
	If a flammable refrigerant is used, the symbols for “read operator’s manual”, “operator’s manual; operating instructions” and “service indicator; read technical manual” (symbols ISO 7000-0790 (2004-01), ISO-7000-1641 (2004-01) and ISO 7000-1659 (2004-01)) shall be placed on the appliance in a location visible to the persons required to know the information. The perpendicular height shall be at least 10 mm. (EN 60335-2-40)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Additional warning symbol (flame symbol: W021 of ISO 7010) placed on nameplate of unit near declaration of refrigerant type and charge information. Perpendicular height be at least 10 mm, and symbol need not be in colour (EN 60335-2-40)		N
	When installed, the marking should be visible after removing a detachable part (EN 60335-2-40)		N
	Following warning also applied to appliance when flammable refrigerant employed. WARNING Appliance shall be installed, operated and stored in a room with a floor area larger than 'X' m² (only applies to appliances that are not fixed appliances) (EN 60335-2-40)		N
	Not fixed appliances, minimum room size X specified on appliance. X in marking determined in m² by procedure described in Clause GG.2 for unventilated areas and X in marking be 4 if refrigerant charge of appliance is less than m_1 (see GG.1.1) (EN 60335-2-40)		N
	Maximum allowable pressure for low- pressure side and high- pressure side marked on product (EN 60335-2-40)		P
	If not already visible when accessing service port and if service port provided, service port marked to identify type of refrigerant. If refrigerant is flammable, symbol B.3.2 of ISO 3864, be included, without specifying the colour (EN 60335-2-40)		N
7.2	Warning for stationary appliances for multiple supply		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen		N
	Different rated values marked with the values separated by an oblique stroke		N
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible		N
	Requirement met if frequent changes are not required and the rated voltage to which the appliance is to be adjusted is determined from a wiring diagram		N
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		P
	the power input is related to the arithmetic mean value of the rated voltage range		N
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		P
7.6	Correct symbols used		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Flammable refrigerant, warning symbol W021 of ISO 7010, including colour and format, permanently placed on appliance. Perpendicular height of triangle containing "Caution, risk of fire"symbol be at least 30 mm (EN 60335-2-40)		N
	Flammable refrigerant, symbol requiring reference to manual [ISO 7000-0790 (2004-01)], including colour and format, permanently placed on appliance (EN 60335-2-40/A1 corr.1)		N
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking		N
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N
	correct mode of connection is obvious		N
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		N
	- marking of terminals exclusively for the neutral conductor (letter N)		N
	- marking of protective earthing terminals (symbol IEC 60417-5019)		N
	- marking not placed on removable parts		N
7.9	Marking or placing of switches which may cause a hazard		N
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means.....:	built-in appliance	N
	This applies also to switches which are part of a control		N
	If figures are used, the off position indicated by the figure 0		N
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		N
	Appliances not accessible to general public, classification of clause 6.101 included (EN 60335-2-40)		N
	Appliances using flammable refrigerants, an installation, service and operation manual, either separate or combined manuals, provided and include information given in annex DD (EN 60335-2-40)		N
	The instructions state that:		P
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	- children being supervised not to play with the appliance		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N
	Instructions for class III appliances state that it must only be supplied at SELV, unless		P
	it is a battery- operated appliance, the battery being charged outside the appliance		N
7.12.1	Sufficient details for installation supplied		P
	For an appliance intended to be permanently connected to the water mains and not connected by a hose- set, this is stated		N
	Sufficient details for installation or maintenance supplied (EN 60335-2-40):		P
	that the appliance shall be installed in accordance with national wiring regulations (EN 60335-2-40);		P
	the dimensions of the space necessary for correct installation of the appliance including the minimum permissible distance to adjacent structures (EN 60335-2-40);		P
	for appliances with supplementary heaters, the minimum clearance from the appliance to combustible surfaces (EN 60335-2-40);		N
	a wiring diagram with a clear indication of the connections and wiring to external control devices and supply cord (EN 60335-2-40);		P
	the range of external static pressures at which the appliance was tested (add- on heat pumps and appliances with supplementary heaters only) (EN 60335-2-40);		N
	the method of connection to the appliance to the electrical supply and interconnection of separate components (EN 60335-2-40);		P
	indication of which parts of the appliance are suitable for outdoor use, if applicable (EN 60335-2-40);		N
	details of type and rating of fuses , or rating of circuit breakers; (EN 60335-2-40);		N
	details of supplementary heating elements that may be used in conjunction with the appliance, including fitting instructions either with the appliance or with the supplementary heater (EN 60335-2-40);		N
	maximum and minimum water or brine operating temperatures (EN 60335-2-40);		N
	maximum and minimum water or brine operating pressures (EN 60335-2-40).		N
	Open storage tanks of heat pumps for water heating, accompanied by an instruction sheet which state that the vent shall not be obstructed (EN 60335-2-40)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N
7.12.4	Instructions for built-in appliances:		N
	- dimensions of space	Fixed appliance	N
	- dimensions and position of supporting and fixing		N
	- minimum distances between parts and surrounding structure		N
	- minimum dimensions of ventilating openings and arrangement		N
	- connection to supply mains and interconnection of separate components		N
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N
	a switch complying with 24.3		N
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N
	Replacement cord instructions, type Y attachment		N
	Replacement cord instructions, type Z attachment		N
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		P
7.12.8	Instructions for appliances connected to the water mains:		N
	- max. inlet water pressure (Pa)..... :		N
	- min. inlet water pressure, if necessary (Pa)..... :		N
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N
7.13	Instructions and other texts in an official language		P
7.14	Marking clearly legible and durable, rubbing test as specified		P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		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
	Marking on panel allowed, provided panel in place for intended operation of appliance (EN 60335-2-40)		P
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N
7.101	Marking of fuses and overload protective devices, if replaceable (EN 60335-2-40):		N
	fuse rated current in amperes, type and rated voltage or (EN 60335-2-40)		N
	manufacturer and model of overload protective device (EN 60335-2-40)		N
7.102	Marking for connection with aluminium wire, if necessary (EN 60335-2-40)		N
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		P
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		N
	Use of test probe B of IEC 61032 through openings, with a force of 20 N: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		N
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements		N
8.1.4	Accessible part not considered live if:		P
	- safety extra-low a.c. voltage: peak value not exceeding 42,4 V		N
	- safety extra-low d.c. voltage: not exceeding 42,4 V		P
	- or separated from live parts by protective impedance		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	If protective impedance: d.c. current not exceeding 2 mA, and		N
	a.c. peak value not exceeding 0,7 mA		N
	- for peak values over 42,4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		N
	- built- in appliances		N
	- fixed appliances		N
	- appliances delivered in separate units		N
	As regards the products which have a dedicated installation panel or cover and which cannot be installed without them, compliance is checked according to 5.10 (after the installation as instructed in the installation manual). (EN 60335-2-40)		N
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		N
	Only possible to touch parts separated from live parts by double or reinforced insulation		N
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		N
	Requirements and tests are specified in part 2 when necessary		N
10	**POWER INPUT AND CURRENT**		P
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 carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N
	the rated power input is related to the arithmetic mean value		N
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
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N
	the rated current is related to the arithmetic mean value of the range		N
11	**HEATING**		P
11.1	No excessive temperatures in normal use (EN 60335-2-40)		N
	Compliance is checked by the tests of annex C, if (EN 60335-2-40):		N
	temperature of motor winding exceeds values shown in table 3 (EN 60335-2-40)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	there is doubt about classification of insulation system of the motor (EN 60335-2-40)		N
11.2	Placing and mounting of appliance (EN 60335-2-40):		P
	clearances to adjacent surfaces (EN 60335-2-40);		P
	flow rates for liquid source or sink equipment be minimum, except for fan coils where flow rates and liquid temperatures be maximum (EN 60335-2-40);		N
	static pressures (EN 60335-2-40);		N
	means of adjusting the flow, flow for tests be minimum obtainable (EN 60335-2-40);		N
	adjustable limit controls set at maximum cut-out setting and minimum differential (EN 60335-2-40).		N
	Appliances with supplementary heaters, use test casing of clause 11.9 (EN 60335-2-40)		N
11.2.1	Appliances with supplementary heaters, inlet duct connected to inlet air opening (EN 60335-2-40)		N
	Appliance that includes or has provision for supplementary heater is fitted with a metal outlet duct in accordance with Figure 101a) or Figure 101b), depending on the direction of the airflow. (EN 60335-2-40)		N
11.2.2	Ducted appliance without supplementary heaters, air outlet used (EN 60335-2-40)		P
11.3	Temperature rise determine by thermocouples or resistance method (EN 60335-2-40)		P
11.4	Test performed at supply voltage between 0,94 and 1,06 times the rated voltage (EN 60335-2-40)		P
	Heating elements energized at voltage which gives an electrical input of 1,15 times maximum rated power input (EN 60335-2-40)		P
11.5	Test conducted in heating mode and cooling mode, if both exist (EN 60335-2-40)		P
	All supplementary heating elements operative simultaneously (EN 60335-2-40)		N
11.6	Defrost test in most unfavourable conditions, if needed (EN 60335-2-40)		N
11.7	Appliances operated continuously until steady conditions except for defrost tests (EN 60335-2-40)		P
11.8	Temperatures not exceeding values of table 3 (EN 60335-2-40)	(See appended tables)	P
	Protective devices do not operate (EN 60335-2-40)		N
	Sealing compound not flowing out (EN 60335-2-40)		N
	Temperature of air in outlet duct not exceed 90 °C (EN 60335-2-40)		P
11.9	Test casing and installation of appliances in accordance with manufacturer’s instructions (EN 60335-2-40)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Glass fibre insulation for appliances without indication of minimum clearances according to manufacturer; thermocouple in contact with enclosure (EN 60335-2-40)		N
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		P
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1,15 times the rated power input (W):		N
	Motor-operated appliances and combined appliances supplied at 1,06 times the rated voltage (V):		P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N
13.2	For class 0, class II and class III appliances, leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	For other appliances, a low impedance ammeter may be used		N
	Leakage current measurements: (EN 60335-2-40)	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4:	(see appended table)	
	No breakdown during the tests		P
14	**TRANSIENT OVERVOLTAGES**		N
	Appliances withstand the transient over-voltages to which they may be subjected		N
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6:	(see appended table)	N
	No flashover during the test, unless		N
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N
15	**MOISTURE RESISTANCE**		P
15.1	Enclosure provides degree of moisture protection against ingress of water (rain, overflow from drain pan or defrosting), tests of clause 15.2, 15.3, 11.6 and 16) (EN 60335-2-40)		P
	Motor-compressor not operated and detachable parts removed during tests of clause 15.2 and 15.3 (EN 60335-2-40)		P
15.2	Tests in accordance with IEC 60529 in appliances other than IPX0, as specified (EN 60335-2-40)..... :	IP55	P
15.3	Drain pan filled to brim and subjected to continuous overflow and fan(s) switched on (EN 60335-2-40)		P
15.101	Spillage test as specified (EN 60335-2-40)		P
	After spillage completed, appliance withstand test of clause 16 (EN 60335-2-40)		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		P
16.1	Leakage current not excessive and electric strength adequate		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Protective impedance disconnected from live parts before carrying out the tests		N
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single- phase appliances: test voltage 1,06 times rated voltage (V):		P
	Three- phase appliances: test voltage 1,06 times rated voltage divided by √3 (V):		N
	Leakage current measurements ..... : (EN 60335-2-40)	(see appended table)	P
	Limit values doubled if:		N
	- all controls have an off position in all poles, or		N
	- the appliance has no control other than a thermal cut- out, or		N
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N
	- the appliance has radio interference filters		N
	With the radio interference filters disconnected, the leakage current do not exceed limits specified:	(see appended table)	N
16.3	Electric strength tests according to table 7:	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified ..... :	(see appended table)	P
	No breakdown during the tests		P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		N
	No excessive temperatures in transformer or associated circuits in event of short- circuits likely to occur in normal use:	(see appended table)	N
	Appliance supplied with 1,06 or 0,94 times rated voltage under the most unfavourable short- circuit or overload likely to occur in normal use (V):		N
	Basic insulation is not short- circuited		N
	Temperature rise of insulation of the conductors of safety extra- low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N
	Temperature of the winding not exceeding the value specified in table 8		N
	However, limits do not apply to fail- safe transformers complying with sub- clause 15.5 of IEC 61558- 1		N
18	**ENDURANCE**		N
	Requirements and tests are specified in part 2 when necessary		N
19	**ABNORMAL OPERATION**		P
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated.		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Failure of transfer medium flow, or of any control device, does not result in a hazard (EN 60335-2-40)		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe (electric shock, fire or mechanical hazard, dangerous malfunction)		N
	Appliances are subjected to the tests specified in 19.2 to 19.10, 19.101, 19.102 and 19.103, as applicable. (EN 60335-2-40)		N
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		N
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		N
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		P
	until steady conditions are established		P
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		P
19.2	Test of appliances with supplementary heaters (EN 60335-2-40)		N
19.3	Test at temperature permitting continuous operation of the motor-compressor and electric heating elements at same time (EN 60335-2-40)		P
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited	(see appended table)	N
	Test of appliance with any defect which expected during normal use (EN 60335-2-40)		N
19.5	Test of 19.4 repeated on class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		N
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N
	The working voltage of the PTC heating element is increased by 5 % and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1,5 times working voltage or until the PTC heating element ruptures (V).....		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
19.7	Test of appliance with motor rotors, other than motor- compressors and stationary circulation pumps in compliance with IEC 60335-2-51, operated for 15 days (360 h) or until protection device opens circuit (EN 60335-2-40)		P
	Insulation of motor windings (EN 60335-2-40)..... :		P
	Temperature of enclosure does not exceed (°C) (EN 60335-2-40)..... :		P
	Temperature of the windings does not exceed the values shown in the table 8; temperature (°C) (EN 60335-2-40)..... :		P
	Electric strength test as specified in 16.3, 72 h after the beginning of the test (EN 60335-2-40)		P
	At the end, leakage current between windings and enclosure does not exceed 2 mA (EN 60335-2-40)		P
	If the motor-compressor has not been type-tested against the requirements of IEC 60335- 2- 34, a sample is provided with the rotor locked and being filled with oil and refrigerant as intended. (EN 60335-2-40)		N
	Sample is subjected to the tests specified in 19.101, 19.102, 19.103 and 19.105 of IEC 60335- 2- 34:2012, if applicable, and complies with the requirements in 19.104 of IEC 60335- 2- 34:2012. (EN 60335-2-40)		N
19.8	Three phase motors other than motor compressors are operated under the conditions of Clause 11 at rated voltage or at the upper limit of the rated voltage range with one phase disconnected, until steady conditions are obtained or the protective device operates. (EN 60335-2-40)		N
19.10	Series motor operated at 1,3 times rated voltage for 1 min (V):		N
	During the test, parts not being ejected from the appliance		N
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		N
	they comply with the conditions specified in 19.11.1		N
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N
	restarting does not result in a hazard		N
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand- by mode, subjected to the tests of 19.11.4		N
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse- link complying with IEC 60127, the test of 19.12 is carried out		N
	During and after each test the following is checked:		—

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	- the temperature of the windings do not exceed the values specified in table 8		N
	- the appliance complies with the conditions specified in 19.13		N
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		—
	- the base material of the printed circuit board withstands the test of annex E		N
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		—
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of other parts of the appliance does not rely on the correct functioning of the electronic circuit		N
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		—
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		N
	b) open circuit at the terminals of any component		N
	c) short circuit of capacitors, unless		N
	they comply with IEC 60384-14		N
	d) short circuit of any two terminals of an electronic component, other than integrated circuits		N
	This fault condition is not applied between the two circuits of an optocoupler		N
	e) failure of triacs in the diode mode		N
	f) failure of microprocessors and integrated circuits		N
	g) failure of an electronic power switching device		N
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N
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 g) of 19.11.2		N
19.11.4	The first paragraph of Part 1 in not applicable for stand-by mode if unintentional operation does not cause any hazards. (EN 60335-2-40)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Appliances having a device with an off position obtained by electronic disconnection, or		N
	a device that can be placed in the stand-by mode,		N
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode.		N
	Appliances incorporating a protective electronic circuit are subjected to the tests of 19.11.4.1 to 19.11.4.7. (EN 60335-2-40)		N
	Tests are carried out after the protective electronic circuit has operated during the relevant tests of Clause 19 except 19.2, 19.6, 19.11.3, 19.102 and 19.103. (EN 60335-2-40)		N
	If the appliance incorporates more than one protective electronic circuit, each protective electronic circuit has to be tested individually with the appliance operated under normal operation at any temperature within the working range. (EN 60335-2-40)		N
	Components protected by a protective electronic, if engineering judgement gives evidence that the test in the final application will not lead to a hazardous condition. (EN 60335-2-40)		N
	Surge protective devices disconnected, unless		N
	they incorporate spark gaps		N
	For these tests, it may be necessary to provide specially prepared component samples, e.g. compressors with locked rotor. (EN 60335-2-40)		N
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		N
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		N
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N
	Earthed heating elements in class I appliances disconnected		N
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N
	Appliances having a rated current exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation at any temperature within the working range. After 60 s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate. (EN 60335-2-40)		N
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):		N
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9:	(see appended table)	P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		N
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		—
	- basic insulation (V).....:		N
	- supplementary insulation (V).....:		N
	- reinforced insulation (V)..... :		N
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		N
	The appliance does not undergo a dangerous malfunction, and		N
	no failure of protective electronic circuits, if the appliance is still operable		N
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		—
	- do not become operational, or		N
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		—
	- the lid or door does not move automatically to an open position when the interlock is released, and		N
	- the appliance does not start after the cycle in which the interlock was released		N
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		N
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short- circuited		N
	If more than one relay or contactor operates in clause 11, they are short- circuited in turn		N
	Locking in the "on" position of the main contacts of a contact intended for switching on and off the heating element(s) in normal use is considered to be a fault condition, unless the appliance is provided with at least two sets of contacts connected in series. (EN 60335-2-40)		N
	This condition is, for example, achieved by providing two contactors operating independently of each other or by providing one contactor having two independent armatures operating two independent sets of main contacts. (EN 60335-2-40)		N
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N
19.101	Test of appliance with heat transfer medium flow of the outdoor heat exchanger restricted or shut off when reaching steady conditions (EN 60335-2-40)		N
	Test of appliance with heat transfer flow of the indoor heat exchanger restricted or shut off when reaching steady conditions (EN 60335-2-40)		N
	Disconnection of motor common to both the outdoor and the indoor heat exchangers when reaching steady conditions (EN 60335-2-40)		N
19.102	Test of appliances using water as heat transfer medium (EN 60335-2-40)		N
19.103	Test of air to air appliances at rated voltage or at the upper limit of the rated voltage range. Dry- bulb temperature is 5 K below values specified by manufacturer (EN 60335-2-40)		N
	Test with the dry- bulb temperature 10 K over the values specified by manufacturer (EN 60335-2-40)		N
19.104	All appliances provided with supplementary heaters and free air discharge subjected to specified test in each mode of operation (EN 60335-2-40)		N
	During test temperature not exceed 150 °C but an overshoot of 25 °C is permitted during first hour (EN 60335-2-40)		N
	Thermal protective devices are allowed to operate. (EN 60335-2-40)		N
20	**STABILITY AND MECHANICAL HAZARDS**		P
20.1	Appliances having adequate stability		N
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non- detachable, and		P
	have adequate mechanical strength		P
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N
	Self- resetting thermal cut- outs and overcurrent protective devices not causing a hazard by unexpected closure		N
	Not possible to touch dangerous moving parts with the test probe described		P
21	**MECHANICAL STRENGTH**		P
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068- 2- 75, spring hammer test, with an impact energy of 0,5 J	0.5J, three blows, no damage	P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N
	If necessary, repetition of groups of three blows on a new sample		N
	Safety requirements specified in annex EE apply. Pressure test in annex EE applies to parts other than pressure vessels (EN 60335-2-40)		N
	Safety requirements of ISO 14903 apply (EN 60335-2-40)		N
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		N
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		N
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N
	Appliances using flammable refrigerants withstand the effects of vibration during transport. (EN 60335-2-40)		N
	Appliance is tested in its final packaging for transport and shall withstand a random vibration test according to ASTM D4728-01. (EN 60335-2-40)		N
	Compliance is checked as specified (EN 60335-2-40)		N
22	**CONSTRUCTION**		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IP55	P
22.2	Stationary appliance: means to ensure all- pole disconnection from the supply being provided:		N
	- a supply cord fitted with a plug, or		N
	- a switch complying with 24.3, or		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N
	- an appliance inlet		N
	Singe- pole switches and single- pole protective devices for the disconnection of heating elements in single- phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N
22.3	Appliance provided with pins: no undue strain on socket- outlets		N
	Applied torque not exceeding 0,25 Nm		N
	Pull force of 50 N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1 mm		N
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating, unless		N
	rotating does not impair compliance with this standard		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket- outlets		N
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1 μF, the appliance being disconnected from the supply at the instant of voltage peak		N
	Voltage not exceeding 34 V (V) ..... :		N
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of class II appliances not affected if a hose ruptures or seal leaks		N
	In case of doubt, test as described		N
	Electrical insulation not affected by snow penetration to appliance enclosure (EN 60335-2-40)		P
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam- producing devices		P
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

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		N
	the substance has adequate insulating properties		N
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N
	- a non-self-resetting thermal cut-out is required by the standard, and		N
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N
	they are voltage maintained		N
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N
	Tests as described		N
22.12	Handles, knobs etc. fixed in a reliable manner		N
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		N
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		N
	Cord reel tested with 6000 operations, as specified		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Electric strength test of 16.3, voltage of 1000 V applied		N
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N
22.18	Current-carrying parts and other metal parts resistant to corrosion		N
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N
	constructed to prevent inappropriate replacement		N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		N
	material used is non-corrosive, non-hygroscopic and non-combustible		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		N
	impregnated		N
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported to prevent contact with accessible metal parts nor give rise to a hazard in case of rupture or sagging (EN 60335-2-40)		N
	Bare heating elements not used with wood or wood composite enclosures. (EN 60335-2-40)		N
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
22.28	Metal parts of class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		N
	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

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		N
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		N
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		N
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N
	Insulating material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts		N
	Electrodes not used for heating liquids		N
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N
	the reinforced insulation consists of at least 3 layers		N
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N
	the reinforced insulation consists of at least 3 layers		N
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		N
	the shaft is not accessible when the part is removed		N
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N
	This requirement does not apply to handles, levers and knobs on stationary appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		N
	they are separated from live parts by double or reinforced insulation		N
22.37	Capacitors in class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N
	the capacitors comply with 22.42		N
22.38	Capacitors not connected between the contacts of a thermal cut-out		N
22.39	Lamp holders used only for the connection of lamps		N
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N
	Resistors checked by the test of 14.1 a) in IEC 60065		N
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		N
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N
	If the protective electronic circuit software is a part of the normal operation control, inspection of software shall be limited to relevant source code of safety controls or related software controls. (EN 60335-2-40)		N
	Alternative methods are used (EN 60335-2-40)		N
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N
	No leakage from any part, including any inlet water hose		N
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non- potable water		N
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N
	the appliance switches off automatically or can operate continuously without hazard		N
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N
	There is a visual indication showing that the appliance is adjusted for remote operation		N
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		N
	- continuously, or		N
	- automatically, or		N
	- remotely		N
22.52	Socket- outlets on appliances accessible to the user in accordance with the socket- outlet system used in the country in which the appliance is sold		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
22.101	Appliances intended to be fixed, securely fixed (EN 60335-2-40)		N
22.102.1	At least two thermal cut-outs in appliances with supplementary heating elements for air (first one be self-resetting and other non-self-resetting thermal cut-out) (EN 60335-2-40)		N
22.102.2	Appliances provided with supplementary heaters for water incorporate non-self-resetting thermal cut-out, providing all-pole disconnection that operates separately from water thermostats (EN 60335-2-40)		N
	However, for appliances intended to be connected to fixed wiring, the neutral conductor need not be disconnected (EN 60335-2-40)		N
22.102.3	Thermal cut-outs of capillary type open in event of leakage from capillary tube (EN 60335-2-40)		N
22.103	Non-self-resetting cut-outs independent of other control devices (EN 60335-2-40)		N
22.104	Containers of sanitary hot water heat pumps withstand twice permissible operating pressure in closed containers (EN 60335-2-40) or		N
	0,15 MPa in open containers (EN 60335-2-40)		N
	without leakage or rupture (EN 60335-2-40)		N
22.105	Air or vapour cushion in closed containers not exceeding 10 % (EN 60335-2-40)		N
22.106	Pressure relief devices operating at 0,1 MPa over permissible operating pressure (EN 60335-2-40)		N
22.107	Water outlet systems of open containers free from obstruction causing over-pressure (EN 60335-2-40)		N
	Vented containers of sanitary hot water heat pumps always open to the atmosphere through appropriate aperture (EN 60335-2-40)		N
22.108	Not vented open containers subjected to test in accordance with clause 22.104 to vacuum of 33 kPa for 15 min (EN 60335-2-40)		N
	Container show no deformation which result in a hazard (EN 60335-2-40)		N
22.109	Replacement of non-self-resetting thermal cut-outs does not damage other connections (EN 60335-2-40)		N
22.110	Non-self-resetting thermal cut-outs operate without short-circuiting live parts of different potential and without causing contact between live parts and enclosure (EN 60335-2-40)		N
	Test repeated five times without blowing 3 A fuse which connects appliance to earth (EN 60335-2-40)		N
	Electric strength test as specified in clause 16.3 for supplementary heating elements (EN 60335-2-40)		N
22.111	Manual resetting of thermostats not necessary after power supply interruption (EN 60335-2-40)		N
22.112	Construction of refrigerating system comply with requirements of Section 3 of ISO 5149 (EN 60335-2-40)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
22.113	Flammable refrigerant used, refrigerant tubing protected or enclosed to avoid mechanical damage (EN 60335-2-40)		N
	Tubing protected to extent that it will not be handled or used for carrying during moving of product (EN 60335-2-40)		N
	Tubing located within confines of cabinet considered to be protected from mechanical damage (EN 60335-2-40)		N
22.114	Flammable refrigerant used, low temperature solder alloys, such as lead/tin alloys, not acceptable for pipe connections or any other refrigerant pressure containing purposes. (EN 60335-2-40)		N
22.115	Total refrigerant mass (M) of all refrigerating systems within appliance employing flammable refrigerants, not exceed m_3 defined in annex GG (EN 60335-2-40/A1)		N
22.116	Appliances using flammable refrigerants constructed that any leaked refrigerant not flow or stagnate so as to cause fire or explosion hazard in areas within appliance where electrical components, which could be a source of ignition and which could function under normal conditions or in event of leak, fitted (EN 60335-2-40/A1)		N
	Separate components, such as thermostats, which charged with less than 0,5 g of flammable gas not considered to cause fire or explosion hazard in event of leakage of gas within component itself (EN 60335-2-40/A1)		N
	All electrical components that could be a source of ignition and which could function under normal conditions or in the event of a leak, shall be located in an enclosure which satisfies the following: (EN 60335-2-40):		N
	comply with Clause 20 of IEC 60079- 15:2010 for restricted breathing enclosures suitable for use with group IIA gases or the refrigerant used. (EN 60335-2-40)		N
	not be located in an area where a potentially flammable gas mixture will accumulate as demonstrated by the test of Annex FF. Electrical components not located in an area where a potentially flammable gas mixture will accumulate as demonstrated by the test of Annex FF are not considered an ignition source. (EN 60335-2-40)		N
	Components and apparatus complying with Clause 8 to 19 of IEC 60079-15:2010, for group IIA gases or the refrigerant used or an applicable standard that makes electrical components suitable for use in Zone 2, 1 or 0 as defined IEC 60079-14 are not considered as a source of ignition. (EN 60335-2-40)		N
22.117	Temperatures on surfaces that exposed to leakage of flammable refrigerants not exceed auto- ignition temperature of refrigerant reduced by 100 K; some typical values given in annex BB (EN 60335-2-40/A1)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
22.118	Flammable refrigerant used, all appliances charged with refrigerant at manufacturing location or charged on site as recommended by manufacturer (EN 60335-2-40/A1)		N
	Part of appliance that charged on site, which requires brazing or welding in installation not shipped with flammable refrigerant charge. Joints made in installation between parts of refrigerating system, with at least one part charged, made in accordance with following (EN 60335-2-40/A1):		N
	A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts. A vacuum valve shall be provided to evacuate the interconnecting pipe and/or any uncharged refrigerating system part (EN 60335-2-40)		N
	Mechanical connectors used indoors shall comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be re-fabricated. (EN 60335-2-40)		N
	Refrigerant tubing shall be protected or enclosed to avoid damage (EN 60335-2-40)		N
	Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that may be displaced during normal operations shall be protected against mechanical damage (EN 60335-2-40)		N
23	**INTERNAL WIRING**		P
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well-rounded or provided with bushings		P
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N
	Beads inside flexible metal conduits contained within an insulating sleeve		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N
	Flexible metallic tubes not causing damage to insulation of conductors		N
	Open-coil springs not used		N
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	No damage after 10 000 flexings for conductors flexed during normal use, or		N
	100 flexings for conductors flexed during user maintenance		N
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Not more than 10 % of the strands of any conductor broken, and		N
	not more than 30 % for wiring supplying circuits that consume no more than 15 W		N
23.4	Bare internal wiring sufficiently rigid and fixed		N
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		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 clamping at both ends, or		N
	be such that it can only be removed by breaking or cutting		N
23.7	The colour combination green/yellow only used for earthing conductors		N
23.8	Aluminium wires not used for internal wiring		P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		N
	the contact pressure is provided by spring terminals		N
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N
24	**COMPONENTS**		P
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components ..... :	(see appended table)	P
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		P
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
	Motor-compressors not tested according to IEC 60335-2-34 (not necessary to meet all requirements of IEC 60335-2-34) (EN 60335-2-40)		P
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14		N
	If the capacitors have to be tested, they are tested according to annex F		N
24.1.2	Safety isolating transformers complying with IEC 61558-2-6		N
	If they have to be tested, they are tested according to annex G		N
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000		N
	If they have to be tested, they are tested according to annex H		N
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N
	If the switch only operates a motor staring relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N
24.1.4	Automatic controls complying with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:		N
	- thermostats:..... 10 000		N
	- temperature limiters:..... 1 000		N
	- self-resetting thermal cut-outs:.....300		N
	- voltage maintained non-self-resetting thermal cut-outs:..... 1 000		N
	- other non-self-resetting thermal cut-outs:.....30		N
	- timers:.....3 000		N
	- energy regulators:..... 10 000		N
	thermostats which control motor-compressor (EN 60335-2-40):.....100 000		N
	motor-compressor starting relays (EN 60335-2-40):.....100 000		N
	automatic thermal motor-protectors for hermetic and semi-hermetic type motor-compressors (not less than number of operations during locked rotor test) (EN 60335-2-40):..... min 2000		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	manual reset thermal motor-protectors for hermetic and semi-hermetic type motor-compressors (IEC/EN 60335-2-40):..... 50		N
	other automatic thermal motor-protectors (EN 60335-2-40):..... 2000		N
	other manual reset thermal motor-protectors (EN 60335-2-40):.....30		N
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N
	Thermal motor protectors are tested in combination with their motor under the conditions specified in annex D		N
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		N
24.1.5	Appliance couplers complying with IEC 60320-1		N
	However, for appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N
	Interconnection couplers complying with IEC 60320-2-2		N
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N
24.1.8	The relevant standard for thermal links is IEC 60691		N
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of clause 19		N
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		N
	They are also tested in accordance with clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance ..... :		N
24.2	Appliances not fitted with:		P
	- switches or automatic controls in flexible cords		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		P
	the solder has a melding point of at least 230 °C		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly		N
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N
	In addition, the motors comply with the requirements of annex I		N
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N
	They are supplied with the appliance		N
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		N
	One or more of the following conditions are to be met:		N
	- the capacitors are of class P2 according to IEC 60252-1		N
	- the capacitors are housed within a metallic or ceramic enclosure		N
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of annex E		N
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N
24.101	Replaceable parts of thermal control devices identified by marking (EN 60335-2-40)		N
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		N
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		N
	- supply cord fitted with a plug,		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N
	- pins for insertion into socket- outlets		N
	Supply cord fitted with plug provided, if (EN 60335-2-40):		N
	appliance only for indoor use (EN 60335-2-40),		N
	marked with rating of 25 A or less and (EN 60335-2-40)		N
	complies with code requirements of country where it will be used (EN 60335-2-40).		N
	Appliance inlet not allowed (EN 60335-2-40)		N
25.2	Appliance not provided with more than one means of connection to the supply mains		N
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		N
	- a set of terminals allowing the connection of a flexible cord		N
	- a fitted supply cord		N
	- a set of supply leads accommodated in a suitable compartment		N
	- a set of terminals for the connection of cables of fixed wiring, cross- sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N
	- a set of terminals and cable entries, conduit entries, knock- outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm):		N
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N
25.5	Method for assembling the supply cord to the appliance:		N
	- type X attachment		N
	- type Y attachment		N
	- type Z attachment, if allowed in relevant part 2		N
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N
25.6	Plugs fitted with only one flexible cord		N
25.7	Supply cords, other than for class III appliances, being one of the following types:		N
	- rubber sheathed (at least 60245 IEC 53)		N
	- polychloroprene sheathed (at least 60245 IEC 57)		N
	- cross-linked polyvinyl chloride sheathed (at least 60245 IEC 88)		N
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		N
	- light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		N
	- ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances		N
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		N
	- heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N
	- heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N
	Supply cords for class III appliances adequately insulated		N
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N
	Supply cords for outdoor use not lighter than polychloroprene sheathed flexible cord (60245 IEC 57) (EN 60335-2-40)		N
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm²) ..... :		N
25.9	Supply cords not in contact with sharp points or edges		N
25.10	Supply cord of class I appliances have a green/yellow core for earthing		N
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		N
	the contact pressure is provided by spring terminals		N
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		N
25.13	Inlet openings so constructed as to prevent damage to the supply cord		N
	If the enclosure at the inlet opening is not of insulating material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N
	class 0, or		N
	a class III appliance not containing live parts		N
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N
	Flexing test, as described:		N
	- applied force (N).....:		N
	- number of flexings.....:		N
	The test does not result in:		N
	- short- circuit between the conductors, such that the current exceeds a value of twice the rated current		N
	- breakage of more than 10 % of the strands of any conductor		N
	- separation of the conductor from its terminal		N
	- loosening of any cord guard		N
	- damage to the cord or the cord guard		N
	- broken strands piercing the insulation and becoming accessible		N
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		N
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		N
	Pull and torque test of supply cord, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) .....:		N
	Cord not damaged and max. 2 mm displacement of the cord		N
25.16	Cord anchorages for type X attachments constructed and located so that:		N
	- replacement of the cord is easily possible		N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of supply cord		N
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N
	they are separated from accessible metal parts by supplementary insulation		N
	- the cord is not clamped by a metal screw which bears directly on the cord		N
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N
	it is part of a specially prepared cord		N
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N
	failure of the insulation of the cord does not make accessible metal parts live		N
	- for class II appliances they are of insulating material, or		N
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		N
25.18	Cord anchorages only accessible with the aid of a tool, or		N
	Constructed so that the cord can only be fitted with the aid of a tool		N
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N
	Tying the cord into a knot or tying the cord with string not used		N
25.20	The insulated conductors of the supply cord for type Y and Z attachment additionally insulated from accessible metal parts		N
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		N
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		N
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N
25.22	Appliance inlets:		N
	- live parts not accessible during insertion or removal		N
	Requirement not applicable to appliance inlets complying with IEC 60320- 1		N
	- connector can be inserted without difficulty		N
	- the appliance is not supported by the connector		N
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N
	the supply cord is unlikely to touch such metal parts		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N
	- the thickness of the insulation may be reduced		N
	If necessary, electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		P
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, except		P
	for class III appliances that do not contain live parts		P
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N
26.2	Appliances with type X attachment and appliances for the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		P
	the connections are soldered		N
	Screws and nuts not used to fix any other component, except		P
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		P
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N
	Terminals fixed so that when the clamping means is tightened or loosened:		N
	- the terminal does not become loose		N
	- internal wiring is not subjected to stress		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	- neither clearances nor creepage distances are reduced below the values in clause 29		N
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999- 1, the torque applied being equal to two- thirds of the torque specified (Nm) ..... :		N
	No deep or sharp indentations of the conductors		N
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		P
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		P
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		P
	Stranded conductor test, 8 mm insulation removed		N
	No contact between live parts and accessible metal parts and,		P
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross- sectional area according to table 13; rated current (A); nominal cross- sectional area (mm²):		N
	If a specially prepared cord is used, terminals need only be suitable for that cord		N
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		P
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N
26.9	Terminals of the pillar type constructed and located as specified		N
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N
	conductors ends fitted with means suitable for screw terminals		N
	Pull test of 5 N to the connection		N
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		N
	For class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		N
27	**PROVISION FOR EARTHING**		N
27.1	Accessible metal parts of class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		N
	Earthing terminals and earthing contacts not connected to the neutral terminal		N
	Class 0, II and III appliances have no provision for earthing		N
	Safety extra-low voltage circuits not earthed, unless		N
	protective extra-low voltage circuits		N
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		N
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm², and		N
	do not provide earthing continuity between different parts of the appliance, and		N
	conductors cannot be loosened without the aid of a tool		N
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		N
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		N
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		N
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		N
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N
27.5	Low resistance of connection between earthing terminal and earthed metal parts		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		N
	Resistance not exceeding 0,1 at the specified low-resistance test ( ):		N
	If the ground continuity between system components meets the minimum values specified in 27.5, it is considered to meet the requirements without dedicated grounding conductors. (EN 60335-2-40)		N
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N
28	**SCREWS AND CONNECTIONS**		P
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
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		N
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		N
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		N
	For screws and nuts; torque-test as specified in table 14:	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		N
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N
	This requirement does not apply to electrical connections in circuits of appliances for which:		N
	- 30.2.2 is applicable and that carry a current not exceeding 0,5 A		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	- 30.2.3 is applicable and that carry a current not exceeding 0,2 A		N
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		N
	- in normal use,		N
	- during user maintenance,		N
	- when replacing a supply cord having a type X attachment, or		N
	- during installation		N
	At least two screws being used for each connection providing earthing continuity, unless		N
	the screw forms a thread having a length of at least half the diameter of the screw		N
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N
	if an alternative earthing circuit is provided		N
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N
29	**CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION**		P
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies:		N
	The microenvironment is pollution degree 1 under type 1 protection		N
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N
	These values apply to functional, basic, supplementary and reinforced insulation:		P
	For motor-compressor not complying with IEC 60335-2-34, additions and modifications as specified (EN 60335-2-40)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless:	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500 V and above are increased by 0,5 mm and the impulse voltage test is not applicable		N
	Impulse voltage test is not applicable:		P
	- when the microenvironment is pollution degree 3, or		N
	- for basic insulation of class 0 and class 01 appliances		N
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		N
	A force of 30 N is applied to accessible surfaces		N
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable ..... :	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N
	Lacquered conductors of windings considered to be bare conductors		N
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16 ..... :	(see appended table)	N
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage ..... :	(see appended table)	N
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		N
29.1.4	Clearances for functional insulation are the largest values determined from:		N
	- table 16 based on the rated impulse voltage.....:	(see appended table)	N
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N
	the microenvironment is pollution degree 3, or		N
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N
	Lacquered conductors of windings considered to be bare conductors		N
	However, clearances at crossover points are not measured		N
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		N
	- table 16 based on the rated impulse voltage.....:		N
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N
	If clearances for basic insulation are selected from clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree:	(see appended table)	P
	Pollution degree 2 applies, unless		P
	- precautions taken to protect the insulation; pollution degree 1		N
	- insulation subjected to conductive pollution; pollution degree 3		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	A force of 2 N is applied to bare conductors, other than heating elements		N
	A force of 30 N is applied to accessible surfaces		N
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		N
	Insulation located in airflow, pollution degree 3 unless (EN 60335-2-40)		N
	insulation enclosed or located so that unlikely to be exposed to pollution due to normal use (EN 60335-2-40)		N
29.2.1	Creepage distances of basic insulation not less than specified in table 17 ..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 ..... :		N
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14 ..... :		N
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or:	(see appended table)	N
	Table 2 of IEC 60664-4, as applicable:		
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or:	(see appended table)	N
	Table 2 of IEC 60664-4, as applicable:		N
29.2.4	Creepage distances of functional insulation not less than specified in table 18:	(see appended table)	N
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18:		N
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		N
	Compliance checked:		N
	- by measurement, in accordance with 29.3.1, or		N
	- by an electric strength test in accordance with 29.3.2, or		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	- by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N
29.3.1	Supplementary insulation have a thickness of at least 1 mm		N
	Reinforced insulation have a thickness of at least 2 mm		N
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N
	Supplementary insulation consist of at least 2 layers		N
	Reinforced insulation consist of at least 3 layers		N
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N
	the electric strength test of 16.3		N
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19 ..... :		N
30	**RESISTANCE TO HEAT AND FIRE**		P
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		N
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C):	(see appended table)	P
	Parts supporting live parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C):	(see appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C):	(see appended table)	N
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		P
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		P
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		N
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N
	For base material of printed circuit boards, 30.2.4 applies		N
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550 °C		P
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		P
	the material is classified at least HB40 according to IEC 60695-11-10		N
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	The tests are not applicable to conditions as specified ..... :		P
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C		P
	Glow-wire applied to an interposed shielding material, if relevant		N
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3 mm,		P
	subjected to glow-wire test of IEC 60695-2-11		P
	The test severity is:		P
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Glow-wire applied to an interposed shielding material, if relevant		N
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		N
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N
	- 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		N
	- 675 °C, for other connections		N
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N
	- 650 °C, for other connections		N
	The glow-wire test is also not carried out on small parts. These parts are to:		N
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- comply with the needle-flame test of annex E, or		N
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N
	The consequential needle-flame test of annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		N
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- small parts for which the needle-flame test of annex E was applied, or		N
	- small parts for which a material classification of V-0 or V-1 was applied		N
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		N
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N
	- parts shielded by a flame barrier that meets the needle-flame test of annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of annex E		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	Test not applicable to conditions as specified:		N
31	**RESISTANCE TO RUSTING**		N
	Relevant ferrous parts adequately protected against rusting		N
	Tests specified in part 2 when necessary		N
	Salt mist test of IEC 60068-2-52, severity 2 (EN 60335-2-40)		N
	Before test, coatings are scratched by means of a harden steel pin as specified (EN 60335-2-40)		N
	Five scratches made at least 5 mm apart and at least 5 mm from the edges (EN 60335-2-40)		N
	Appliance not deteriorated to such an extent that compliance with clause 8 and 27 is impaired (EN 60335-2-40)		N
	Coating not be broken and not loosened from the metal surface (EN 60335-2-40)		N
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		N
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		N
	Compliance is checked by the limits or tests specified in part 2, if relevant		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
A	**ANNEX A (INFORMATIVE) ROUTINE TESTS**		**N**
	Description of routine tests to be carried out by the manufacturer		N
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		**N**
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N
	Three forms of construction covered:		N
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance		N
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery		N
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit		N
	This annex does not apply to battery chargers		N
3.1.9	Appliance operated under the following conditions:		N
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
6.1	Mobile parts of automatic battery-powered cleaners shall be class II or class III (IEC 60335-2-2)		N
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N
	Appliances intending to be supplied from a detachable supply unit marked with symbol IEC 60417-6181 and its type reference along with symbol ISO 7000-0790 (2004-01), or		N
	use only with <model designation> supply unit:		N
	The mobile part of an automatic battery-powered cleaner shall be marked with the (IEC 60335-2-2)		N
	-name, trademark or identification mark of the manufacturer or responsible vendor		N
	-the model or type reference of the docking station with which the mobile part is intended to be used		N
7.6	Additional symbols		N
7.12	The instructions give information regarding charging		N
	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N
	Instructions for appliances containing non-user-replaceable batteries state the substance of the following:		N
	This appliance contains batteries that are only replaceable by skilled persons		N
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		N
	This appliance contains batteries that are non-replaceable		N
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance		N
	If the symbol for detachable supply unit is used, its meaning is explained		N
7.15	Markings placed on the part of the appliance connected to the supply mains		N
	The type reference of the detachable supply unit is placed in close proximity to the symbol		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N
	If the appliance can be operated without batteries, double or reinforced insulation required		N
11.7	The battery is charged for the period stated in the instructions or 24 h..... :		N
	For mobile parts of automatic battery-powered cleaners, the test ends when the cleaning operation is stopped due to the discharging of the battery .... (IEC 60335-2-2)		N
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K) :		N
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) ..... :	10.3K	N
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N
	Mobile parts of automatic battery-powered cleaners are subjected to the test of 19.7 while they are being supplied by their battery (IEC 60335-2-2)		N
19.7	On mobile parts of automatic battery-powered cleaners, the rotor is locked (IEC 60335-2-2)		N
19.10	Not applicable		N
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N
19.13	The battery does not rupture or ignite		N
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		N
	- 100, if the mass of the part does not exceed 250 g (g)..... :		N
	- 50, if the mass of the part exceeds 250 g..... :		N
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
21.201	Mobile parts of automatic battery-powered cleaners shall have sufficient mechanical strength (IEC 60335-2-2)		N
	An evenly distributed load of 60 kg is placed on top of the mobile part for 60 s		N
	- During this test, no short circuit shall occur		N
	-After the test, there shall be no visible damage that could impair compliance with this standard		N
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N
22.40	Mobile parts of automatic battery-powered cleaners shall be fitted with a switch to turn the appliance off (IEC 60335-2-2)		N
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of Subclause 19.11.4.1 and 19.11.4.2 have to be applied. During the tests, the motor which moves the mobile part shall not start.(IEC 60335-2-2)		N
22.201	Mobile parts of automatic battery-powered cleaners shall be equipped with (IEC 60335-2-2)		N
	- a device to stop movement within 1 s of accessible hazardous moving parts when they lose contact with the surface being cleaned		N
	- a device to protect the appliance from dropping off the cleaning surface (e.g. stairways,etc.). When the mobile part senses that it has reached a critical edge, it shall stop or reverse and move away from the edge of the cleaning surface and then continue to operate normally		N
	If compliance relies on the operation of an electronic circuit, the test is repeated under the following conditions applied separately: – the fault conditions in a) to g) of 19.11.2 applied one at a time to the electronic circuit; – the electromagnetic phenomena test of 19.11.4.1 and 19.11.4.2 applied to the appliance. If the electronic circuit is programmable, the software shall contain measures to control the fault/error conditions specified in Table R.1 and is evaluated in accordance with the relevant requirements of Annex R. (IEC 60335-2-2)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
22.202	When operating on a sloping surface, the speed of the mobile part shall not be excessive (IEC 60335-2-2)		N
	The speed of the mobile part is measured during the test of Clause 11		N
	The mobile part is then directed to move down a glass surface inclined at 10° to the horizontal and its speed is again measured. The measured speed shall not exceed the speed initially measured by more than 10 %		N
24.201	Thermal cut-outs and protective electronic circuits incorporated in automatic battery-powered cleaners for compliance with 19.7 shall be non-self-resetting (IEC 60335-2-2)		N
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N
	For other parts, 30.2.2 applies		N
	For automatic battery-powered cleaners, 30.2.3 is applicable (IEC 60335-2-2)		N
C	**ANNEX C (NORMATIVE) AGEING TEST ON MOTORS**		**N**
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N
	Test conditions as specified		N
	Modification in Table C.1:*p=2 000*(IEC 60335-2-2)		N
D	**ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS**		**N**
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		N
	Test conditions as specified		N
E	**ANNEX E (NORMATIVE) NEEDLE-FLAME TEST**		**N**
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
7	Severities		N
	The duration of application of the test flame is 30 s ± 1 s		N
9	Test procedure		N
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		N
9.2	The first paragraph does not apply		N
	If possible, the flame is applied at least 10 mm from a corner		N
9.3	The test is carried out on one specimen		N
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N
11	Evaluation of test results		N
	The duration of burning not exceeding 30 s		N
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N
F	**ANNEX F (NORMATIVE) CAPACITORS**		**N**
	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
1.5	Terms and definitions		N
1.5.3	Class X capacitors tested according to subclass X2		N
1.5.4	This subclause is applicable		N
1.6	Marking		N
	Items a) and b) are applicable		N
3.4	Approval testing		N
3.4.3.2	Table 3 is applicable as described		N
4.1	Visual examination and check of dimensions		N
	This subclause is applicable		N
4.2	Electrical tests		N
4.2.1	This subclause is applicable		N
4.2.5	This subclause is applicable		N
4.2.5.2	Only table 11 is applicable		N
	Values for test A apply		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	However, for capacitors in heating appliances the values for test B or C apply		N
4.12	Damp heat, steady state		N
	This subclause is applicable		N
	Only insulation resistance and voltage proof are checked		N
4.13	Impulse voltage		N
	This subclause is applicable		N
4.14	Endurance		N
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 are applicable		N
4.14.7	Only insulation resistance and voltage proof are checked		N
	No visible damage		N
4.17	Passive flammability test		N
	This subclause is applicable		N
4.18	Active flammability test		N
	This subclause is applicable		N
G	**ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS**		**N**
	The following modifications to this standard are applicable for safety isolating transformers:		N
7	Marking and instructions		N
7.1	Transformers for specific use marked with:		N
	-name, trademark or identification mark of the manufacturer or responsible vendor.....:		N
	-model or type reference..... :		N
17	Overload protection of transformers and associated circuits		N
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N
22	Construction		N
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		N
29	Clearances, creepage distances and solid insulation		N
29.1, 29.2, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		N
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		N
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		N
H	**ANNEX H (NORMATIVE) SWITCHES**		**N**
	Switches comply with the following clauses of IEC 61058-1, as modified below:		N
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N
	Before being tested, switches are operated 20 times without load		N
8	Marking and documentation		N
	Switches are not required to be marked		N
	However, a switch that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N
13	Mechanism		N
	The tests may be carried out on a separate sample		N
15	Insulation resistance and dielectric strength		N
15.1	Not applicable		N
15.2	Not applicable		N
15.3	Applicable for full disconnection and micro-disconnection		N
17	Endurance		N
	Compliance is checked on three separate appliances or switches		N
	For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless		N
	otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335..... :		N
	Switches for operation under no load and which can be operated only by a tool, and		N
	switches operated by hand that are interlocked so that they cannot be operated under load,		N
	are not subjected to the tests		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		N
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K)..... :		N
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		N
	clause 20 is applicable to clearances and creepage distances for functional insulation,		N
	It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N
I	**ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE**		**N**
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N
8	Protection against access to live parts		N
8.1	Metal parts of the motor are considered to be bare live parts		N
11	Heating		N
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N
11.8	The temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N
16	Leakage current and electric strength		N
16.3	Insulation between live parts of the motor and its other metal parts is not subjected to the test		N
19	Abnormal operation		N
19.1	The tests of 19.7 to 19.9 are not carried out		N
19.I.101	Appliance operated at rated voltage with each of the following fault conditions:		N
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- short circuit of each diode of the rectifier		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	- open circuit of the supply to the motor		N
	- open circuit of any parallel resistor, the motor being in operation		N
	Only one fault simulated at a time, the tests carried out consecutively		N
22	Construction		N
22.I.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N
	Compliance checked by the tests specified for double and reinforced insulation		N
J	**ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS**		**N**
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N
5.7	Conditioning of the test specimens		N
	When production samples are used, three samples of the printed circuit board are tested		N
5.7.1	Cold		N
	The test is carried out at -25 °C		N
5.7.3	Rapid change of temperature		N
	Severity 1 is specified		N
5.9	Additional tests		N
	This subclause is not applicable		N
K	**ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES**		**P**
	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		N
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N
L	**ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES**		**P**
	Information for the determination of clearances and creepage distances		P
M	**ANNEX M (NORMATIVE) POLLUTION DEGREE**		**P**
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		P
	The microenvironment determines the effect of pollution on the insulation, taking into account the macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		P
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		P
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		N
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		P
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict

N	**ANNEX N (NORMATIVE) PROOF TRACKING TEST**		**N**
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		N
7	Test apparatus		N
7.3	Test solutions		N
	Test solution A is used		N
10	Determination of proof tracking index (PTI)		N
10.1	Procedure		N
	The proof voltage is 100V, 175V, 400V or 600V... :		N
	The test is carried out on five specimens		N
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N
10.2	Report		N
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N

O	**ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		**P**
	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 TROPICAL CLIMATES**		**N**
	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		N
	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		N
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		N
7.1	The appliance marked with symbol IEC 60417-6332		N
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	The instructions state that the appliance is considered to be suitable for use in countries having a tropical climate, but may also be used in other countries		N
	If symbol IEC 60417-6332 is used, its meaning is explained		N
11.8	The values of Table 3 are reduced by 15 K		N
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N
15.3	The value of t is 37 °C		N
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		N
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N

Q	**ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS**	**N**
	Description of tests for appliances incorporating electronic circuits	N

R	**ANNEX R (NORMATIVE) SOFTWARE EVALUATION**		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N
R.1	Programmable electronic circuits using software		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N
R.2	Requirements for the architecture		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software- related faults/errors in safety- related data and safety- related segments of the software		N
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		N
	- single channel with periodic self- test and monitoring		N
	- dual channel (homogenous) with comparison		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
	- dual channel (diverse) with comparison		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		N
	- single channel with functional test		N
	- single channel with periodic self-test		N
	- dual channel without comparison		N
R.2.2	Measures to control faults/errors		N
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired		N
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N
R.2.2.7	Labels used for memory locations are unique		N
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
R.2.2.9	Software and safety- related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N
R.3	Measures to avoid errors		N
R.3.1	General		N
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		N
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N
R.3.2	Specification		N
R.3.2.1	Software safety requirements:	Software Id:	N
	The specification of the software safety requirements includes the descriptions listed		N
R.3.2.2	Software architecture		N
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time- based dependencies of sequences and data	Document ref. No:	N
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N
R.3.2.3	Module design and coding		N
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N
R.3.2.3.2	Software code is structured		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict

R.3.2.3.3	Coded software is validated against the module specification by static analysis		N
	The module specification is validated against the architecture specification by static analysis		N
R.3.3.3	Software validation		N
	The software is validated with reference to the requirements of the software safety requirements specification		N
	Compliance is checked by simulation of:		N
	- input signals present during normal operation		N
	- anticipated occurrences		N
	- undesired conditions requiring system action		N

TABLE R.1 [e] – GENERAL FAULT/ERROR CONDITIONS

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

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict

2 Interrupt handling and execution	No interrupt or too frequent interrupt	Functional test, or time- slot monitoring	H.2.16.5 H.2.18.10.4			
3 Clock	Wrong frequency (for quartz synchronized clock: harmonics/ sub- harmonics only)	Frequency monitoring, or time slot monitoring	H.2.18.10.1 H.2.18.10.4			
4. Memory 4.1 Invariable memory	All single bit faults	Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy	H.2.19.3.1 H.2.19.3.2 H.2.19.8.2			
4.2 Variable memory	DC fault	Periodic static memory test, or word protection with single bit redundancy	H.2.19.6 H.2.19.8.2			N
4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			N
5.1 VOID						N
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N
6 External communication	Hamming distance 3	Word protection with multi- bit redundancy, or CRC – single work, or Transfer redundancy, or Protocol test	H.2.19.8.1 H.2.19.4.1 H.2.18.2.2 H.2.18.14			N
6.1 VOID						N
6.2 VOID						N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict

6.3 Timing	Wrong point in time	Time-slot monitoring, or	H.2.18.10.4			N
		scheduled transmission	H.2.18.18			
		Time-slot and logical monitoring, or	H.2.18.10.3			
		comparison of redundant communication channels by either:				
		- reciprocal comparison	H.2.18.15			
		- independent hardware comparator	H.2.18.3			
	Wrong sequence	Logical monitoring, or	H.2.18.10.2			
		time-slot monitoring, or	H.2.18.10.4			
		Scheduled transmission	H.2.18.18			
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N
7.1 VOID						N
7.2 Analog I/O						N
7.2.1 A/D and D/A-converter	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			
7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N
8 VOID						N
9 Custom chips [d] e.g. ASIC, GAL, gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N

NOTE A Stuck-at fault model denotes a fault model representing an open circuit or a non-varying signal level. A DC fault model denotes a stuck-at fault model incorporating short circuit between signal lines.

[a] For fault/error assessment, some components are divided into their sub-functions.
[b] For each sub-function in the table, the Table R.2 measure will cover the software fault/error.
[c] Where more than one measure is given for a sub-function, these are alternatives.
[d] To be divided as necessary by the manufacturer into sub-functions.
[e] Table R.1 is applied according to the requirements of R.1 to R.2.2.9 inclusive.

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
AA	**ANNEX AA (INFORMATIVE) (EN 60335-2-40) EXAMPLES FOR OPERATING TEMPERATURES OF THE APPLIANCE**		**N**
BB	**ANNEX BB (NORMATIVE) (EN 60335-2-40) SELECTED INFORMATION ABOUT REFRIGERANTS**		**N**
CC	**ANNEX CC (INFORMATIVE) (EN 60335-2-40) TRANSPORTATION, MARKING AND STORAGE FOR UNITS THAT EMPLOY FLAMMABLE REFRIGERANTS**		**P**
CC.1	Transport of equipment containing flammable refrigerants (EN 60335-2-40)		N
CC.2	Marking of equipment using signs (EN 60335-2-40)		P
CC.3	Disposal of equipment using flammable refrigerants (EN 60335-2-40)		N
CC.4	Storage of equipment/appliances (EN 60335-2-40)		P
CC.5	Storage of packed (unsold) equipment (EN 60335-2-40)		P
DD	**ANNEX DD (NORMATIVE) (EN 60335-2-40) INSTRUCTION MANUAL FOR SERVICING REFRIGERANT CONTAINING APPLIANCES**		**P**
DD.1	Symbols (EN 60335-2-40)		P
DD.2.	Information in manual (EN 60335-2-40)		P
DD.2.1	General (EN 60335-2-40)		P
DD.2.2	Unventilated areas (EN 60335-2-40)		P
DD.2.3	Qualification of workers (EN 60335-2-40)		P
DD.3	Information on servicing (EN 60335-2-40)		P
DD3.1	Checks to the area (EN 60335-2-40)		P
DD.3.2	Work procedure (EN 60335-2-40)		N
DD.3.3	General work area (EN 60335-2-40)		P
DD.3.4	Checking for presence of refrigerant (EN 60335-2-40)		P
DD.3.5	Presence of fire extinguisher (EN 60335-2-40)		P
DD.3.6	No ignition sources (EN 60335-2-40)		P
DD.3.7	Ventilated area (EN 60335-2-40)		P
DD.3.8	Checks to the refrigeration equipment (EN 60335-2-40)		P
DD.3.9	Checks to electrical devices (EN 60335-2-40)		P
DD.4	Repairs to sealed components (EN 60335-2-40)		P
DD.5	Repair to intrinsically safe components (EN 60335-2-40)		P
DD.6	Cabling (EN 60335-2-40)		P

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
DD.7	Detection of flammable refrigerants (EN 60335-2-40)		P
DD.8	Leak detection methods (EN 60335-2-40)		P
DD.9	Removal and evacuation (EN 60335-2-40)		P
DD.10	Charging procedures (EN 60335-2-40)		P
DD.11	Decommissioning (EN 60335-2-40)		P
DD.12	Labelling (EN 60335-2-40)		P
DD.13	Recovery (EN 60335-2-40)		P
EE	**ANNEX EE (NORMATIVE) (EN 60335-2-40) PRESSURE TESTS**		**N**
EE.1	General (EN 60335-2-40)		N
EE.2	Pressure test value determined under testing carried out in clause 11 (EN 60335-2-40)		N
EE.3	Pressure test value determined under testing carried out in clause 19 (EN 60335-2-40)		N
EE.4	Pressure test value determined under testing carried out under standstill conditions (EN 60335-2-40)		N
EE.5	Fatigue test option for Clauses EE.1 and EE.4.1 (EN 60335-2-40)		N
FF	**ANNEX FF (NORMATIVE) (IEC/EN 60335-2-40) LEAK SIMULATION TESTS**		**N**
FF.1	General (EN 60335-2-40)		N
FF.2	Test methods (EN 60335-2-40)		N
GG	**ANNEX GG (NORMATIVE) (IEC/EN 60335-2-40) CHARGE LIMITS, VENTILATION REQUIREMENTS AND REQUIREMENTS FOR SECONDARY CIRCUITS**		**N**
GG.1	General (EN 60335-2-40)		N
GG.2	Requirements for charge limits in unventilated areas (EN 60335-2-40)		N
GG.3	Requirements for charge limits in areas with mechanical ventilation areas (EN 60335-2-40)		N
GG.4	Requirements for mechanical ventilation within the appliance enclosure (EN 60335-2-40)		N
GG.5	Requirements for mechanical ventilation for rooms complying with ISO 5149 (EN 60335-2-40)		N
GG.6	Requirements for refrigeration systems employing secondary heat exchangers (EN 60335-2-40)		N
GG.7	Additional testing (EN 60335-2-40)		N

EN IEC 60335-2-40			
Clause	Requirement – Test	Result - Remark	Verdict
GG.8	Non-fixed factory sealed single package units with a charge amount of $m_1 < M \leq 2 \times m_1$ (EN 60335-2-40)		N

10.1	TABLE: Power input deviation				N/A
Input deviation of/at:	**P rated (W)**	**P measured(W)**	**ΔP (W, %)**	**Required ΔP**	**Remark**
--	--	--	--	--	--
Supplementary information:					

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

11.8	TABLE: Heating test		P
	Test voltage (V).....:	1.06 x 240V =254.4V	—
	Ambient (°C).....:	24.4°C	—
Thermocouple locations	**Max. temperature rise measured, Δ T (K)**	**Max. temperature rise limit, Δ T (K)**	
Battery surface	13.9	Ref.	
Motor surface	2.9	Ref.	
PCB	12.4	105	
Plastic enclosure(internal)	5.1	Ref.	
Plastic enclosure(external)	4.2	50	
Test corner	3.1	65	
Supplementary information:			

11.8	TABLE: Heating test		P
	Test voltage (V).....:	240V	—
	Ambient (°C).....:	24.5°C	—
Thermocouple locations	**Max. temperature rise measured, Δ T (K)**	**Max. temperature rise limit, Δ T (K)**	
Battery surface	12.0	Ref.	
Motor surface	21.3	Ref.	
PCB	17.1	105	
Plastic enclosure(internal)	11.2	Ref.	
Plastic enclosure(external)	8.0	50	
Test corner	3.1	65	
Supplementary information:			

13.2	TABLE: Leakage current		P
	Heating appliances: 1,15 x rated input (W) ..... :	--	
	Motor-operated and combined appliances: 1,06 x rated voltage (V) ..... :	254.4V	

Leakage current between:	I (μA)	Max. allowed I (mA)
L/N – Enclosure	0.005 peak	0.35 peak
Supplementary information:		

13.3	TABLE: Dielectric Strength		P

Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Input and plastic enclosure (metal foil)	500	No
Supplementary information:		

16.2	TABLE: Leakage current		P
	Single phase appliances: 1,06 x rated voltage (V) ..... :	254.4V	
	Three phase appliances: 1,06 x rated voltage divided by 3 (V) ..... :	---	

Leakage current between:	I (μA)	Max. allowed I (mA)
L/N – Enclosure	0.001	0.25
Supplementary information:		

16.3	TABLE: Dielectric Strength		P

Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Input and plastic enclosure (metal foil)	500	No
Supplementary information:		

17	TABLE: Overload protection		N/A
	Test voltage (V)..... :		
	Ambient (°C)..... :		

Thermocouple locations	Max. temperature rise measured, ΔT (K)	Max. temperature rise limit, ΔT (K)
Supplementary information: No transformers or associated circuits		

17	**TABLE: Overload protection, resistance method**				**N/A**
	Test voltage (V)..... :				
	Ambient, t1 (°C)..... :				
	Ambient, t2 (°C)..... :				
Temperature of winding	**R1 (Ω)**	**R2 (Ω)**	**ΔT (K)**	**T (°C)**	**Max. T (°C)**
Supplementary information: No transformers or associated circuits					

19	**TABLE: Abnormal operation conditions**						**P**
Operational characteristics			**YES/NO**	**Operational conditions**			
Are there electronic circuits to control the appliance operation?			No				
Are there "off" or "stand-by" position?			No	Due to compliance to Clause 19.7 – all the electromagnetic phenomena tests are not required			
The unintended operation of the appliance results in dangerous malfunction?			No	Considered			
Sub-clause	**Operating conditions description**	**Test results description**	**PEC description**	**EMP 19.11.4**	**Software type required**	**19.11.3 PEC**	**Final result**
19.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.2	Components in fault conditions	No hazard	N.A	N.A	N.A	N.A	P
19.11.4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10X	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Supplementary information:							

19.7	TABLE: Abnormal operation, locked rotor/moving parts					P
	Test voltage (V)..... :			240V		
	Ambient, t1 (°C)..... :			22.0°C		
	Ambient, t2 (°C)..... :			22.1°C		
Temperature rise of winding	**R1 (Ω)**	**R2 (Ω)**	**ΔT (K)**	**T (°C)**	**Max. T (°C)**	
Winding of motor	--	--	33.1	54.1	225	
Supplementary information:						

19.9	TABLE: Abnormal operation, running overload					N/A
	Test voltage (V)..... :					
	Ambient, t1 (°C)..... :					
	Ambient, t2 (°C)..... :					
Temperature rise of winding	**R1 (Ω)**	**R2 (Ω)**	**ΔT (K)**	**T (°C)**	**Max. T (°C)**	
Supplementary information:						

19.13	TABLE: Abnormal operation, temperature rises	P
Thermocouple locations	**Max. temperature rise measured, ΔT (K)**	**Max. temperature rise limit, ΔT (K)**
Plastic enclosure	18.4	Ref.
Test corner	4.7	150
Supplementary information		

21.1	TABLE: Impact resistance			P
Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**	
3 blows by spring hammer	Plastic enclosure	0.5	No hazard observed, EUT left in equilibrium	
Supplementary information:				

28.1	TABLE: Threaded part torque test			N/A
Threaded part identification	**Diameter of thread (mm)**	**Column number (I, II, or III)**	**Applied torque (Nm)**	
Supplementary information:				

29.1	TABLE: Clearances						P
	Overvoltage category..... .... :			II			--
		Type of insulation:					
Rated impulse	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark	

voltage (V):						
330	0,2* / 0,5 / 0,8**	—	—	—	—	N/A
500	0,2* / 0,5 / 0,8**	—	—	—	P	P
Function insulation: Between positive pole and negative pole on PCB of the main part: 1.8mmBetween positive pole and negative pole of the charging station: 2.0mm						
800	0,2* / 0,5 / 0,8**	—	—	—	—	N/A
1 500	0,5 / 0,8** / 1,0***	—	—	—	—	N/A
2 500	1,5 / 2,0***	—	—	—	—	N/A
4 000	3,0 / 3,5***	—	—	—	—	N/A
6 000	5,5 / 6,0***	—	—	—	—	N/A
8 000	8,0 / 8,5***	—	—	—	—	N/A
10 000	11,0 / 11,5***	—	—	—	—	N/A
Supplementary information: *) For tracks on printed circuit boards if pollution degree 1 and 2 **) For pollution degree 3 ***) If the construction is affected by wear, distortion, movement of the parts or during assembly						

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										N/A
Working voltage (V)	Creepage distance (mm) Pollution degree										--
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*)	B**)	S**)	R**)	Verdict
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9				N/A
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9				N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8				N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4				N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4				N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8				N/A
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0				N/A
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0				N/A
250	1,12	2,5	3,6	5,0	6,4	7,2	8,0				N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3				N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3				N/A
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6				N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0				N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0				N/A
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0				N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0				N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0				N/A
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0				N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5				N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5				N/A
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0				N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0				N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0				N/A
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0				N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0				N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0				N/A
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0				N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0				N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0				N/A
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0				N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0				N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0				N/A
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0				N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0				N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0				N/A
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0				N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0				N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0				N/A

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

30.1	TABLE: Ball pressure test of thermoplastics		P
Allowed impression diameter (mm) ..... :		2mm	
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Enclosure/External insulating parts	PALRAM	75°C	0.7
Supplementary information:			

30.2	TABLE: Resistance to heat and fire - Glow wire tests							N/A
Object/ Part No./ Material	Manufacturer / trademark	Glow wire test (GWT); (°C)						
			te	ti	te	ti	850	550

30.2/30.2.4	TABLE: Needle-flame test (NFT)				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application oftest flame (ta); (s)	Ignition of specified layerYes/No	Duration of burning (tb)(s)	Verdict
Supplementary information: NFT not relevant (or applicable) for Parts of material classified as V-0 or V-1 NFT not relevant (or applicable) for Base material of PCBs classified as V-0 or if relevant VTM-0					

ATTACHMENT PHOTO DOCUMENTATION

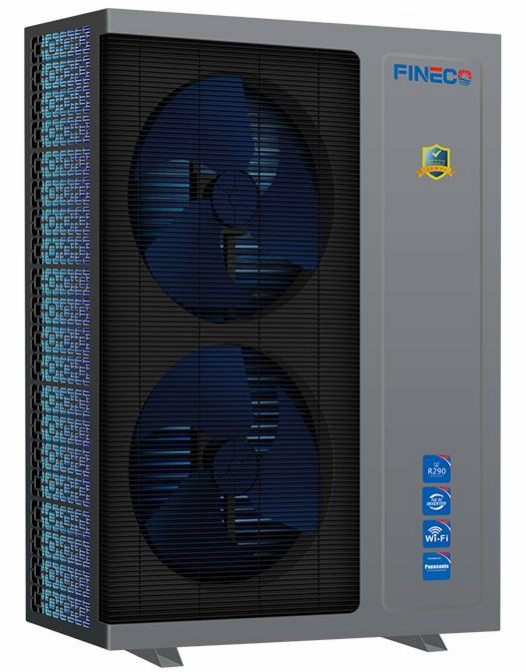

Photo 1

*** The end of report ***