



Test Report issued under the responsibility of:

**Intertek**

**TEST REPORT**  
**IEC 60335-1**  
**Safety of household and similar electrical appliances**

**Report Number .....** 130300480SHA-001

**Date of issue .....** 2013-05-10

**Total number of pages.....** 135

**Applicant's name.....** GlobTek, Inc.

**Address .....** 186 Veterans Dr. Northvale, NJ 07647 USA

**Test specification:**

**Standard .....** IEC 60335-1:2010 (Fifth Edition)  
Including group differences for CENELEC and national differences for  
Germany, United Kingdom, Australia and United States.

**Test procedure .....** CB Scheme

**Non-standard test method.....** N/A

**Test Report Form No.....** IEC60335\_1R

**Test Report Form(s) Originator.....** Nemko AS

**Master TRF .....** Dated 2012-03

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<b>Test item description .....</b>	Power supply (Limited use for House Hold products only)
<b>Trade Mark .....</b>	GlobTek
<b>Manufacturer.....</b>	Same as applicant
<b>Model/Type reference .....</b>	GTM43033-*** The 1st “**” denote the rated output wattage designation, which can be “01” to “06”, with interval of 1. The 2nd “**” denote the standard rated output voltage designation, which can be “03”, “04”, “06”, “12”, “15”, “18”, “24” or “36”. The last “**” is optional deviation, subtracted from standard output voltage, which can be “-0,1” to “-11,9” with interval of 0,1, or blank to indicate no voltage different. The last “***” together denote the output voltage, with a range of 3 - 36 volts. (See below tabel for detailed models)
<b>Ratings .....</b>	Class II, Input: 100-240V~, 50-60Hz, 0,3A; Output: 3-36VDC, Max 6W

Model	Voltage	Max. current	Max. power
GTM43033-*03	3V	2A	6W
GTM43033-*04*	3,1-4V	1,94A	6W
GTM43033-*06*	4,1-6V	1,46A	6W
GTM43033-*12*	6,1-12V	0,98A	6W
GTM43033-*15*	12,1-15V	0,50A	6W
GTM43033-*18*	15,1-18V	0,40A	6W
GTM43033-*24*	18,1-24V	0,33A	6W
GTM43033-*36*	24,1-36V	0,25A	6W

Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Intertek Testing Services Shanghai.
Testing location/ address.....:		Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China
<input type="checkbox"/>	Associated CB Laboratory:	
Testing location/ address.....:		
Tested by (name + signature) .....		Edward Pei
Approved by (name + signature) ..		Will Wang
<input type="checkbox"/>	Testing procedure: TMP	
Testing location/ address.....:		
Tested by (name + signature) .....		
Approved by (name + signature) ..		
<input type="checkbox"/>	Testing procedure: WMT	
Testing location/ address.....:		
Tested by (name + signature) .....		
Witnessed by (name + signature) ..		
Approved by (name + signature) ..		
<input type="checkbox"/>	Testing procedure: SMT	
Testing location/ address.....:		
Tested by (name + signature) .....		
Approved by (name + signature) ..		
Supervised by (name + signature) :		
<input type="checkbox"/>	Testing procedure: RMT	
Testing location/ address.....:		
Tested by (name + signature) .....		
Approved by (name + signature) ..		
Supervised by (name + signature) :		

**List of Attachments (including a total number of pages in each attachment):**

ANNEX 1: COMMON MODIFICATIONS FOR EN60335-1: 2012 (group differences for CENELEC and national differences for Germany, United Kingdom, Australia and United States.), from page 71 to page 77, total 7 pages.

Appendix no. 1: Integral Plug Test For EU Plug, from page 107 to page 110, total 4 pages.

Appendix no. 2: Integral Plug Test For BS Plug, from page 111 to page 117, total 7 pages.

Appendix no. 3: Integral Plug Test For SAA Plug, from page 118 to page 120, total 3 pages.

Appendix no. 4: Integral Plug Test For US Plug, page 121, total 1 page.

Appendix no. 5: Photos, from page 122 to page 135, total 13 pages.

**Summary of testing:****Tests performed (name of test and test clause):**

Marking Durability Test	7.14
Protection against Access to Live Parts	8.1.1 & 8.1.2 & 8.1.3
User Accessible Voltage and Current Test, Working voltage test	8.1.4& 22.42
Power Input/ Output Current	10.1 & 10.2 & 10.101 & 10.102
Heating Test	11.8
Leakage Current Test	13.2
Electric Strength Test	13.3
Humidity Test	15.3
Leakage Current Test	16.2
Electric Strength Test	16.3
Overload/ Short-Circuit Test	17
Abnormal Operation –Fault Conditions of Electronic Circuit	19.11& 19.12
Abnormal Operation of Battery Charger	19.101& 19.102& 19.103& 19.14
Stability Test	20.1
Mechanical Strength	21.1
Strength of Accessible Parts of Solid Insulation	21.2
Undue Strain Test on Socket-Outlet	22.3
Plug Discharge Test	22.5
Insulation of Internal Wiring Test	23.5
Creepage Distance and Clearance	29
Ball Pressure Test	30.1
Glow Wire Test	30.2.1 & 30.2.3
Integral Plug Test	Appendix no. 1 to no. 4

**Testing location:**

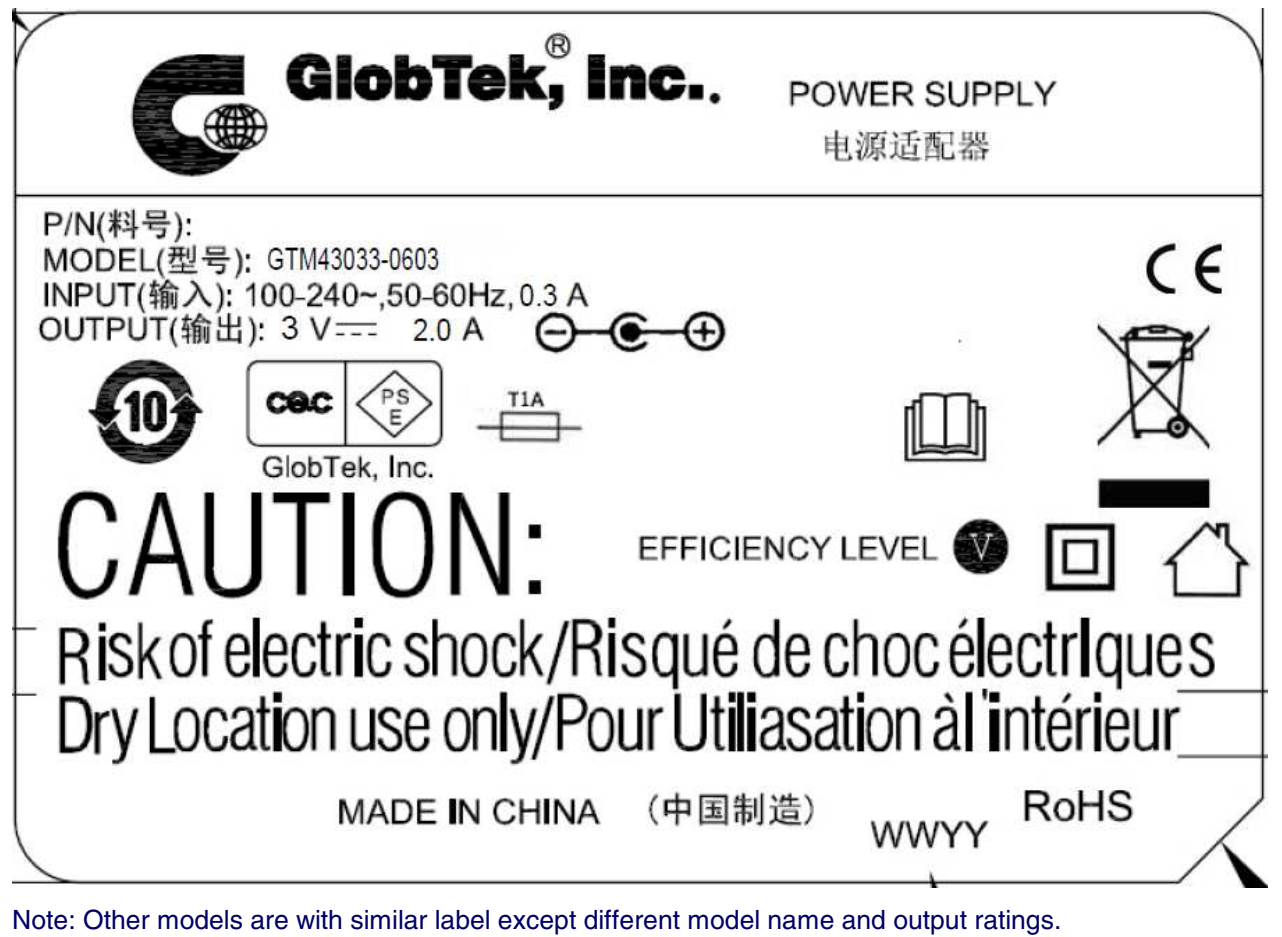
Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China

**Summary of compliance with National Differences****List of countries addressed:**

Group differences for CENELEC and national differences for Germany, United Kingdom, Australia and United States are considered.

## Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



<b>Test item particulars .....</b> :	
<b>Classification of installation and use .....</b>	Class II and for indoor use only
<b>Supply Connection.....</b>	Direct plug-in
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....	N/A
- test object does meet the requirement .....	P (Pass)
- test object does not meet the requirement.....	F (Fail)
<b>Testing .....</b>	
<b>Date of receipt of test item .....</b>	2013-03-11
<b>Date (s) of performance of tests.....</b>	2013-03-11 to 2013-04-11
<b>General remarks:</b> The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator. Model GTM43033-0636, GTM43033-0603 and GTM43033-0612-3.0 are tested as typical models. Once the relevant part 2 is published, the original certificate and test report needs to be recalled and retesting done for the part 2.	
<b>Manufacturer's Declaration per sub-clause 6.2.5 of IEC60335-1:</b> The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable	
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies).....</b>	1. GlobTek ( Suzhou) Co., Ltd Building 4, No. 76 JinLing East Road, Suzhou Industrial Park, Suzhou, JiangSu, 215021, China  2. GlobTek, Inc. 186 Veterans Dr. Northvale, NJ 07647 USA

**General product information:**


The products are power supplies limited use for household only.

Transformers used in all models are with same construction. The turns of secondary winding may be added or reduced according different output voltage.

All models have same PCB, but some non-critical components may be adjusted according different output voltage. The parameters of these components depend on output voltage.

The maximum current density is GTM43033-0603. So GTM43033-0603 and GTM43033-0636 is the typical model.

The products are not intended to use in environment which altitude exceed 5000m.

IEC 60335-1			
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
6	CLASSIFICATION		P
6.1	Protection against electric shock: Class 0, 0I, I, II, III.....:	Class II	P
6.2	Protection against harmful ingress of water	IPX0	N/A
7	MARKING AND INSTRUCTIONS		P
7.1	Rated voltage or voltage range (V).....:	100-240V	P
	Symbol for nature of supply, or.....:	~	P
	Rated frequency (Hz) .....	50-60Hz	P
	Rated power input (W), or .....		N/A
	Rated current (A) .....	0,3A	P
	Manufacturer's or responsible vendor's name, trademark or identification mark.....:	GlobTek	P
	Model or type reference.....:	GTM43033-***	P
	Symbol IEC 60417-5172, for class II appliances		P
	IP number, other than IPX0.....:	IPX0	N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only		N/A
	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/A
7.2	Warning for stationary appliances for multiple supply		N/A
	Warning placed in vicinity of terminal cover		N/A
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen	Supply voltage and frequency	P
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible	Not adjustable	N/A



IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	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/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless	Only one rated voltage range	N/A
	the power input is related to the arithmetic mean value of the rated voltage range		N/A
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking	Class II	P
	Units of physical quantities and their symbols according to international standardized system	No such symbols for physical quantities	N/A
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless	No requirement for connection diagram	N/A
	correct mode of connection is obvious		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		N/A
	- marking of terminals exclusively for the neutral conductor (letter N)	No such terminals	N/A
	- marking of protective earthing terminals (symbol IEC 60417-5019)		N/A
	- marking not placed on removable parts		N/A
7.9	Marking or placing of switches which may cause a hazard	No switch	N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means .....	No switch	N/A
	This applies also to switches which are part of a control		N/A
	If figures are used, the off position indicated by the figure 0		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N/A
7.11	Indication for direction of adjustment of controls	No adjustment controls	N/A
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance	No maintenance required	N/A
	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	Class II	N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless	Class II	N/A
	it is a battery-operated appliance, the battery being charged outside the appliance	Not battery-operated appliance	N/A
7.12.1	Sufficient details for installation supplied	No requirement for installation	N/A
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N/A
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules	Portable appliances	N/A
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	Not for fixed wiring	N/A
7.12.4	Instructions for built-in appliances:		N/A
	- dimensions of space	Not for built-in use	N/A
	- dimensions and position of supporting and fixing		N/A
	- minimum distances between parts and surrounding structure		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	- minimum dimensions of ventilating openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		P
	Replacement cord instructions, type Z attachment		N/A
7.12.6	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	No non-self-resetting thermal cut-out	N/A
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed	Not fixed appliances	N/A
7.12.8	Instructions for appliances connected to the water mains:		N/A
	- max. inlet water pressure (Pa) .....:	Not for connecting to water mains	N/A
	- min. inlet water pressure, if necessary (Pa) .....:		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.13	Instructions and other texts in an official language	English	P
7.14	Marking clearly legible and durable, rubbing test as specified		P
7.15	Markings on a main part	On the enclosure	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	No removable cover without tools	N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation	Portable appliances	N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions	Portable appliances	N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	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	No switches and controls	N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link	No replaceable thermal link or fuse link	N/A
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	No removable lamps	N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032, with a force not exceeding 1 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	Class II	P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N/A
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements	Class II	N/A
8.1.4	Accessible part not considered live if:		P
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42.4 V	Max output voltage: 36,27VDC (For GTM43033-0636)	P
	- or separated from live parts by protective impedance		P
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0.7 mA	Max 0,049 mA (For GTM43033-0603)	P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 $\mu$ F	0,0005 $\mu$ F (For GTM43033-0636)	P
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 $\mu$ C		N/A
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		N/A
	- built-in appliances	No installation or assembly required	N/A
	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
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	Class II	P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9	STARTING OF MOTOR-OPERATED APPLIANCES		N/A
	Requirements and tests are specified in part 2 when necessary		N/A
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 ...:		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated power input is related to the arithmetic mean value		N/A
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2 .....:	(see appended table)	P
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless	100-240VAC	P
	the rated current is related to the arithmetic mean value of the range		N/A
11	HEATING		P
11.1	No excessive temperatures in normal use		P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
11.2	The appliance is held, placed or fixed in position as described .....	Plugged into socket in wall	P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless	Switching transformer	N/A
	the windings are non-uniform or it is difficult to make the necessary connections		P
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) .....		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V) .....	106V and 254,4V	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V) .....		N/A
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	No motor	N/A
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	Sealing compound does not flow out	No sealing compound	N/A
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
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/A
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V) .....	254,4V	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
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	Class II	P
	For other appliances, a low impedance ammeter may be used		N/A
	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/A
	Appliances withstand the transient over-voltages to which they may be subjected	No transient overvoltage	N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6 .....	(see appended table)	N/A
	No flashover during the test, unless		N/A
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N/A
15	MOISTURE RESISTANCE		P
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IPX0	N/A
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529.....	IPX0	N/A
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test	Not hand-held appliance	N/A
	Built-in appliances installed according to the instructions	Not built-in appliances	N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board	For insertion into socket-outlets	P
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N/A
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and		N/A
	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/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	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/A
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts subjected to the relevant treatment with the main part		N/A
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N/A
15.2	Spillage of liquid does not affect the electrical insulation		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts are removed		N/A
	Overfilling test with additional amount of water, over a period of 1 min (l).....:		N/A
	The appliance withstands the electric strength test of 16.3		N/A



IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		P
	Humidity test for 48 h in a humidity cabinet	Temp.: 22°C, R.H.: 93%	P
	Reassembly of those parts that may have been removed		N/A
	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) .....	254,4V	P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by $\sqrt{3}$ (V) .....		N/A
	Leakage current measurements .....	(see appended table)	P
	Limit values doubled if:		N/A
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A
	With the radio interference filters disconnected, the leakage current do not exceed limits specified.....	(see appended table)	P
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		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		P
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use .....	(see appended table)	P
	Appliance supplied with 1.06 or 0.94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V).....	254,4 V, maximum input: 11,3W, 0,18A (GTM43033-0636)	P
	Basic insulation is not short-circuited		P
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K	Max.Temperature rise of internal output wire: 3K	P
	Temperature of the winding not exceeding the value specified in table 8	Max.Temperature of the winding: 96°C	P
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	ENDURANCE		N/A
	Requirements and tests are specified in part 2 when necessary		N/A
19	ABNORMAL OPERATION		P
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	No heating elements	N/A
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and	No such control	N/A
	if applicable, to the test of 19.5		N/A
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6	No PTC heating elements	N/A
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable	No motor	N/A
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P

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 contactors or relays	N/A
	Appliances incorporating voltage selector switches subjected to the test of 19.15	No voltage selector switches	N/A
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		N/A
	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	No heating element or intentionally weak part	N/A
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 element	N/A
19.3	Test of 19.2 repeated; test voltage (V), power input of 1.24 times rated power input (W) .....		N/A
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath	No such component	N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions	No PTC heating elements	N/A
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures (V).....		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or	No rotor	N/A
	locking moving parts of other appliances		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Locked rotor, capacitors open-circuited one at a time		N/A
	Test repeated with capacitors short-circuited one at a time, unless		N/A
	capacitor is of class P2 of IEC 60252-1		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed.....:		N/A
	Other appliances supplied with rated voltage for a period as specified.....:		N/A
	Winding temperatures not exceeding values specified in table 8.....:		N/A
19.8	Multi-phase motors operated at rated voltage with one phase disconnected	No motor	N/A
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously	No motor	N/A
	Motor-operated and combined appliances for which 30.2.3 is applicable and that use overload protective devices relying on electronic circuits to protect the motor windings, are also subjected to the test		N/A
	Winding temperatures not exceeding values as specified .....		N/A
19.10	Series motor operated at 1.3 times rated voltage for 1 min (V) .....	No motor	N/A
	During the test, parts not being ejected from the appliance		N/A
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		P
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless	No such component	N/A
	restarting does not result in a hazard		N/A
	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	No such switch	N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	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	No higher temperature	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/A
	- the base material of the printed circuit board withstands the test of Annex E	No open of conductor of a printed board	N/A
	- 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/A
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:		P
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of other parts of the appliance does not rely on the correct functioning of the electronic circuit		P
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	Evaluated	P
	c) short circuit of capacitors, unless	Short-circuit C1, C2	P
	they comply with IEC 60384-14	Y capacitors	P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits	Short-circuit D7	P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	This fault condition is not applied between the two circuits of an optocoupler		P
	e) failure of triacs in the diode mode		N/A
	f) failure of microprocessors and integrated circuits	Failure U1	P
	g) failure of an electronic power switching device		N/A
	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/A
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		P
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		N/A
	a device that can be placed in the stand-by mode,		N/A
	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/A
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, the tests being carried out after the protective electronic circuit has operated, except that		P
	appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N/A
	Surge protective devices disconnected, unless	No surge protective devices	N/A
	They incorporate spark gaps		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		P
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		P
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		P
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Earthed heating elements in class I appliances disconnected	No heating elements	N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		P
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		P
	Appliances having a rated current exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		P
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate	No programmable component	N/A
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		N/A
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A).....:	Measured current: 10A min. Rated fuse current: 1A max	P
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9 .....	No higher temperature	P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		P
	- basic insulation (V) .....	1250V	P
	- supplementary insulation (V).....	1750V	P
	- reinforced insulation (V) .....	3000V	P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		P
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		N/A
	- do not become operational, or	No electronic switch	N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
	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/A
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A
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	No contact or relay.	N/A
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N/A
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		N/A
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N/A
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	No mains voltage selector switch	N/A
20	STABILITY AND MECHANICAL HAZARDS		P
20.1	Appliances having adequate stability		P
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		P



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Clause	Requirement - Test	Result - Remark	Verdict
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	No moving part	N/A
	Protective enclosures, guards and similar parts are non-detachable, and		N/A
	have adequate mechanical strength		N/A
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		N/A
	Not possible to touch dangerous moving parts with the test probe described		N/A
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		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/A
	If necessary, repetition of groups of three blows on a new sample		N/A
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		P
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		P
22	CONSTRUCTION		P

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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	IPX0	N/A
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		N/A
	- a supply cord fitted with a plug, or	Not stationary appliance	N/A
	- a switch complying with 24.3, or		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N/A
	- an appliance inlet		N/A
	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/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		P
	Applied torque not exceeding 0.25 Nm	Max 0,061 Nm (for equipped with BS plug)	P
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		P
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		P
	rotating does not impair compliance with this standard		P
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets	Not for heating liquids	N/A
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak	No X capacitor	P
	Voltage not exceeding 34 V (V).....:	0V measured	P
22.6	Electrical insulation not affected by condensing water or leaking liquid	No liquid	N/A
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	In case of doubt, test as described		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N/A
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless	No such substances used	N/A
	the substance has adequate insulating properties		N/A
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 thermal cut-outs	N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		N/A
22.12	Handles, knobs etc. fixed in a reliable manner	No handles and knobs	N/A
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only	No handles	N/A
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 such hooks	N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts	No cord reels	N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner	No spacers	N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion	Output connector	P
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		P
	material used is non-corrosive, non-hygroscopic and non-combustible		P
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless	No such substances used	P
	impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements	No heating element	N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used	No oil used	P

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Clause	Requirement - Test	Result - Remark	Verdict
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/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A
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/A
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	Class II	N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation	Two Y capacitors in series	P
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N/A
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	No fixed wiring	N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation	No ceramic or similar material or beads	N/A
	Insulating material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation	No heating conductor	N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
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 conductive liquids	N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless	No knobs, handles, levers	N/A
	the shaft is not accessible when the part is removed		N/A
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 knobs, handles, levers	N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	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/A
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A
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	No handles	N/A
	they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless	No such capacitor	P
	the capacitors comply with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out	No thermal cut-out	N/A
22.39	Lamp holders used only for the connection of lamps		N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N/A
	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	Not for remote operation	N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components	Two Y-capacitors in series	P
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited	One Y-capacitor short-circuit: max 0,05 mA peak (For GTM43033-0636)	P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Resistors checked by the test of 14.1 a) in IEC 60065		N/A
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14	Approved Y capacitors	P
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
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	No programmable protective electronic circuits	N/A
	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/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use	Not for connecting to the water mains	N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water	Not for connecting to the water mains	N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless	No remote operation function	N/A
	the appliance switches off automatically or can operate continuously without hazard		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation	No remote operation function	N/A
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	No remote operation function	N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A



IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		N/A
	- continuously, or		N/A
	- automatically, or		N/A
	- remotely		N/A
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	No socket-outlet on the appliance	N/A
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/A
	Wiring effectively prevented from coming into contact with moving parts	No moving parts	N/A
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges	No beads	N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress	No movable conductors	N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use, or		N/A
	100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N/A
	Not more than 10% of the strands of any conductor broken, and		N/A
	not more than 30% for wiring supplying circuits that consume no more than 15W		N/A
23.4	Bare internal wiring sufficiently rigid and fixed	No bare internal wiring	N/A

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Clause	Requirement - Test	Result - Remark	Verdict
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	Glue used as supplementary fixed means	N/A
	be such that it can only be removed by breaking or cutting		N/A
23.7	The colour combination green/yellow only used for earthing conductors	Class II	N/A
23.8	Aluminium wires not used for internal wiring	No aluminium wires	P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless	No stranded conductors	N/A
	the contact pressure is provided by spring terminals		N/A
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/A
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	Transformer is tested according to annex G	P
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P

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Clause	Requirement - Test	Result - Remark	Verdict
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard	No lampholder or starterholder	N/A
	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	Certified Y capacitor	P
	If the capacitors have to be tested, they are tested according to Annex F		N/A
24.1.2	Safety isolating transformers complying with IEC 61558-2-6		N/A
	If they have to be tested, they are tested according to Annex G		P
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000	No switch	N/A
	If they have to be tested, they are tested according to Annex H		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N/A
	If the switch only operates a motor starting 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/A
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/A
	- thermostats: 10 000	No automatic control	N/A
	- temperature limiters: 1 000		N/A
	- self-resetting thermal cut-outs: 300		N/A
	- voltage maintained non-self-resetting thermal cut-outs: 1 000		N/A
	- other non-self-resetting thermal cut-outs: 30		N/A
	- timers: 3 000		N/A
	- energy regulators: 10 000		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D		N/A
	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/A
24.1.5	Appliance couplers complying with IEC 60320-1	No appliance couplers	N/A
	However, for appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N/A
	Interconnection couplers complying with IEC 60320-2-2		N/A
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable	No lamp holders	N/A
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	Not for remote operation	N/A
24.1.8	The relevant standard for thermal links is IEC 60691	No thermal links	N/A
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19		N/A
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance	No contactors or relays	N/A
	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/A
24.2	Appliances not fitted with:		P
	- switches or automatic controls in flexible cords	No switch	P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance	No such device	P

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Clause	Requirement - Test	Result - Remark	Verdict
	- thermal cut-outs that can be reset by soldering, unless	No thermal cut-out	P
	the solder has a melting point of at least 230 °C		N/A
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 switch	N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1	No plug and socket-outlets for extra-low voltage circuits	N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly	No motor	N/A
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V	No motor	N/A
	In addition, the motors comply with the requirements of Annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770	No hose-sets	N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A
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	No motor running capacitors	N/A
	One or more of the following conditions are to be met:		N/A
	- the capacitors are of class P2 according to IEC 60252-1		N/A
	- the capacitors are housed within a metallic or ceramic enclosure		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N/A
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of Annex E		N/A
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N/A
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:		P
	- supply cord fitted with a plug,		N/A
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N/A
	- pins for insertion into socket-outlets	Direct plug-in	P
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown	Portable appliance	N/A
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
	- a set of terminals allowing the connection of a flexible cord	Not for permanently connecting to fixed wiring	N/A
	- a fitted supply cord		N/A
	- a set of supply leads accommodated in a suitable compartment		N/A
	- 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
	- 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/A

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Clause	Requirement - Test	Result - Remark	Verdict
	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/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm) .....	Not for permanently connecting to fixed wiring	N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N/A
25.5	Method for assembling the supply cord to the appliance:		N/A
	- type X attachment	Direct plug-in	N/A
	- type Y attachment		N/A
	- type Z attachment, if allowed in relevant part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
	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	Single-phase	N/A
25.6	Plugs fitted with only one flexible cord		N/A
25.7	Supply cords, other than for class III appliances, being one of the following types:		N/A
	- rubber sheathed (at least 60245 IEC 53)	Direct plug-in	N/A
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- cross-linked polyvinyl chloride sheathed (at least 60245 IEC 88)		N/A
	- 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/A
	<ul style="list-style-type: none"> <li>light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances</li> </ul>		N/A
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		N/A
	<ul style="list-style-type: none"> <li>heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg</li> </ul>		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	<ul style="list-style-type: none"> <li>heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances</li> </ul>		N/A
	Supply cords for class III appliances adequately insulated		N/A
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N/A
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm <sup>2</sup> ).....:		N/A
25.9	Supply cords not in contact with sharp points or edges		N/A
25.10	Supply cord of class I appliances have a green/yellow core for earthing	Class II	N/A
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless	Not subject to contact pressure	N/A
	the contact pressure is provided by spring terminals		N/A
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure	Not for moulding	N/A
25.13	Inlet openings so constructed as to prevent damage to the supply cord	No supply cord	N/A
	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/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N/A
	Flexing test, as described:		N/A
	- applied force (N).....:		N/A
	- number of flexings.....:		N/A
	The test does not result in:		N/A
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N/A
	- breakage of more than 10% of the strands of any conductor		N/A



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Clause	Requirement - Test	Result - Remark	Verdict
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
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/A
	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/A
	Pull and torque test of supply cord, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm).....:		N/A
	Cord not damaged and max. 2 mm displacement of the cord		N/A
25.16	Cord anchorages for type X attachments constructed and located so that:		N/A
	- replacement of the cord is easily possible		N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of supply cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N/A
	they are separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N/A
	it is part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N/A
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N/A
	failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for class II appliances they are of insulating material, or		N/A
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		N/A
25.18	Cord anchorages only accessible with the aid of a tool, or		N/A
	Constructed so that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	The insulated conductors of the supply cord for type Y and Z attachment additionally insulated from accessible metal parts		N/A
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		N/A
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		N/A
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N/A
	- 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/A
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N/A
25.22	Appliance inlets:		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	- live parts not accessible during insertion or removal	No appliance inlet	N/A
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except that:	Output cord	P
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		P
	- the thickness of the insulation may be reduced		P
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		P
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
26	TERMINALS FOR EXTERNAL CONDUCTORS		P
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		N/A
	Terminals only accessible after removal of a non-detachable cover, except		N/A
	for class III appliances that do not contain live parts		N/A
	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/A
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/A

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Clause	Requirement - Test	Result - Remark	Verdict
	the connections are soldered		N/A
	Screws and nuts not used to fix any other component, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A
	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/A
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/A
	Terminals fixed so that when the clamping means is tightened or loosened:		N/A
	- the terminal does not become loose		N/A
	- internal wiring is not subjected to stress		N/A
	- neither clearances nor creepage distances are reduced below the values in clause 29		N/A
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm) .....		N/A
	No deep or sharp indentations of the conductors		N/A
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/A
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	No contact between live parts and accessible metal parts and,		N/A
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection 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 <sup>2</sup> ).....:		N/A
	If a specially prepared cord is used, terminals need only be suitable for that cord		N/A
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/A
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N/A
	conductors ends fitted with means suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		N/A
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone	Output conductors are fixed by glue in addition to the soldering	P
	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		P
27	PROVISION FOR EARTHING		P
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 II	N/A
	Earthing terminals and earthing contacts not connected to the neutral terminal		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Class 0, II and III appliances have no provision for earthing		P
	Safety extra-low voltage circuits not earthed, unless		N/A
	protective extra-low voltage circuits		N/A
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		N/A
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm <sup>2</sup> , and		N/A
	do not provide earthing continuity between different parts of the appliance, and		N/A
	conductors cannot be loosened without the aid of a tool		N/A
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/A
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N/A
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/A
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		N/A
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In 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/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		N/A
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Resistance not exceeding 0,1 $\Omega$ at the specified low-resistance test ( $\Omega$ ).....:		N/A
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N/A
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
28	SCREWS AND CONNECTIONS		N/A
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses	No screws	N/A
	Screws not of soft metal liable to creep, such as zinc or aluminium		N/A
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		N/A
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A
	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/A
	For screws and nuts; torque-test as specified in table 14.....:		N/A
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/A
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N/A
	This requirement does not apply to electrical connections in circuits of appliances for which:		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	<ul style="list-style-type: none"> <li>30.2.2 is applicable and that carry a current not exceeding 0,5 A</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>30.2.3 is applicable and that carry a current not exceeding 0,2 A</li> </ul>		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N/A
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		N/A
	- in normal use,		N/A
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		N/A
	the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N/A
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N/A
	if an alternative earthing circuit is provided		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N/A
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		P
	Clearances, creepage distances and solid insulation withstand electrical stress		P



IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies .....	No coating	N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	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/A
	These values apply to functional, basic, supplementary and reinforced insulation.....		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless .....	(see appended table) Altitude 5000m is considered.	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N/A
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		N/A
	Impulse voltage test is not applicable:		N/A
	- when the microenvironment is pollution degree 3, or		N/A
	- for basic insulation of class 0 and class 01 appliances		N/A
	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/A
	Lacquered conductors of windings considered to be bare conductors		P

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Clause	Requirement - Test	Result - Remark	Verdict
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16:	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage .....	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		P
29.1.4	Clearances for functional insulation are the largest values determined from:		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/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		P
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless	1,5 mm is the largest	P
	the microenvironment is pollution degree 3, or		N/A
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N/A
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited	The components and circuits after current fuse	P
	Lacquered conductors of windings considered to be bare conductors	Magnet wires is treated as bare conductors	P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm	No PTC heating elements	N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		N/A
	- table 16 based on the rated impulse voltage.....:	Working voltage is not higher than rated voltage	N/A
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	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/A
	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/A
	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/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N/A
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/A
	- insulation subjected to conductive pollution; pollution degree 3		N/A
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17 .....	(see appended table)	P

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Clause	Requirement - Test	Result - Remark	Verdict
	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.....:	0,156mm according table 2 of IEC60664-4, not exceeding the values in table 17	N/A
	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 .....	Creepage distance is bigger than clearance distance	P
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 .....	0,156mm according table 2 of IEC60664-4, not exceeding the values in table 17	N/A
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 .....	0,312mm according table 2 of IEC60664-4, not exceeding the values in table 17	N/A
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.....:	0,156mm according table 2 of IEC60664-4, not exceeding the values in table 18	N/A
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		P
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
	- by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	- 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/A
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		P
	Supplementary insulation consist of at least 2 layers		P
	Reinforced insulation consist of at least 3 layers		P
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		P
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19.....:		N/A
30	RESISTANCE TO HEAT AND FIRE		P
30.1	External parts of non-metallic material,	Enclosure, blade holder, output connector	P
	parts supporting live parts, and	PCB and bobbin	P
	parts of thermoplastic material providing supplementary or reinforced insulation	Enclosure	P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C).....:	Enclosure (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).....:	Blade holder, PCB and bobbin (see appended table)	P

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Clause	Requirement - Test	Result - Remark	Verdict
	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) .....	Test temperature 75°C for plastic cover, 125°C for PCB and bobbin are highest. (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:		P
	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/A
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies	Not for remote operation	N/A
	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	Enclosure: no ignition. (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/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N/A
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and		N/A
	parts of non-metallic material within a distance of 3mm of such connections,		N/A
	subjected to the glow-wire test of IEC 60695-2-11		N/A
	The test severity is:		N/A
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C, or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10.....:		N/A
	Glow-wire test not applicable to conditions as specified .....		N/A
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 .....	connections on small components on printed circuit boards	P
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and	Bobbin, output connector	P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,	Blade holder	P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C	Parts for fixing pins tested at 750°C Bobbin, output connector, 850 °C: no ignition. (see appended table)	P
	Glow-wire applied to an interposed shielding material, if relevant		P
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		P
30.2.3.2	Parts of non-metallic material supporting connections, and	Bobbin, output connector	P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	parts of non-metallic material within a distance of 3mm,	Blade holder	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	Bobbin, output connector, 850°C no ignition.	P
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	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
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N/A
	<ul style="list-style-type: none"> <li>775 °C, for connections carrying a current exceeding 0,2 A during normal operation</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>675 °C, for other connections</li> </ul>		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		N/A
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
	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/A
	- 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/A



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Clause	Requirement - Test	Result - Remark	Verdict
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts for which the needle-flame test of Annex E was applied, or		N/A
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		P
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or	PCB: V-0	P
	- 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/A
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E		N/A
	Test not applicable to conditions as specified .....	V-0	P
31	RESISTANCE TO RUSTING		P
	Relevant ferrous parts adequately protected against rusting	Output connector galvanized.	P
	Tests specified in part 2 when necessary		N/A
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		N/A
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		N/A
	Compliance is checked by the limits or tests specified in part 2, if relevant	No part 2 specified	N/A
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		N/A
	Description of routine tests to be carried out by the manufacturer		N/A
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	This annex does not apply to battery chargers		N/A
3.1.9	Appliance operated under the following conditions:		N/A
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N/A
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N/A
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N/A
7.6	Symbols 60417-5005 and IEC 60417-5006		N/A
7.12	The instructions give information regarding charging		N/A
	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period stated in the instructions or 24 h .....		N/A
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N/A
19.10	Not applicable		N/A
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
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/A
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/A
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N/A
	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/A
	- 100, if the mass of the part does not exceed 250 g (g) .....		N/A
	- 50, if the mass of the part exceeds 250 g .....		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
C	ANNEX C (NORMATIVE) AGEING TEST ON MOTORS		N/A
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Test conditions as specified		N/A
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS		N/A
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		N/A
	Test conditions as specified		N/A
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST		N/A
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		N/A
7	Severities		N/A
	The duration of application of the test flame is 30 s $\pm$ 1 s		N/A
9	Test procedure		N/A
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/A
9.2	The first paragraph does not apply		N/A
	If possible, the flame is applied at least 10 mm from a corner		N/A
9.3	The test is carried out on one specimen		N/A
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		N/A
	The duration of burning not exceeding 30 s		N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N/A
F	ANNEX F (NORMATIVE) CAPACITORS		N/A
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		N/A
1.5	Terms and definitions		N/A
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		N/A

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

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Clause	Requirement - Test	Result - Remark	Verdict
	-name, trademark or identification mark of the manufacturer or responsible vendor.....:		N/A
	-model or type reference .....		N/A
17	Overload protection of transformers and associated circuits		N/A
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		P
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		P
29	Clearances, creepage distances and solid insulation		P
29.1, 29.2, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		P
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		P
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		P
	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		P
H	ANNEX H (NORMATIVE) SWITCHES		N/A
	Switches comply with the following clauses of IEC 61058-1, as modified below:		N/A
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		N/A
	Switches are not required to be marked		N/A
	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/A
13	Mechanism		N/A
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		N/A

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

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Clause	Requirement - Test	Result - Remark	Verdict
11	Heating		N/A
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
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/A
16	Leakage current and electric strength		N/A
16.3	Insulation between live parts of the motor and its other metal parts is not subjected to the test		N/A
19	Abnormal operation		N/A
19.1	The tests of 19.7 to 19.9 are not carried out		N/A
19.1.101	Appliance operated at rated voltage with each of the following fault conditions:		N/A
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N/A
	- short circuit of each diode of the rectifier		N/A
	- open circuit of the supply to the motor		N/A
	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		N/A
22.1.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS		N/A
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N/A
5.7	Conditioning of the test specimens		N/A
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		N/A
	The test is carried out at -25 °C		N/A



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Clause	Requirement - Test	Result - Remark	Verdict
5.7.3	Rapid change of temperature		N/A
	Severity 1 is specified		N/A
5.9	Additional tests		N/A
	This subclause is not applicable		N/A
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/A
	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/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A
	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/A
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

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Clause	Requirement - Test	Result - Remark	Verdict
	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/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		N/A
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		N/A
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		N/A
7	Test apparatus		N/A
7.3	Test solutions		N/A
	Test solution A is used		N/A
10	Determination of proof tracking index (PTI)		N/A
10.1	Procedure		N/A
	The proof voltage is 100V, 175V, 400V or 600V ...:		N/A
	The test is carried out on five specimens		N/A
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report		N/A
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
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/A
	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/A
	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/A
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		N/A
7.1	The appliance marked with the letters WdaE		N/A
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA		N/A
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N/A
11.8	The values of Table 3 are reduced by 15 K		N/A
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
15.3	The value of t is 37 °C		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS		N/A
	Description of tests for appliances incorporating electronic circuits		N/A
R	ANNEX R (NORMATIVE) SOFTWARE EVALUATION		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	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/A
R.1	Programmable electronic circuits using software		N/A
	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/A
R.2	Requirements for the architecture		N/A
	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/A
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/A
	- single channel with periodic self-test and monitoring		N/A
	- dual channel (homogenous) with comparison		N/A
	- dual channel (diverse) with comparison		N/A
	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/A
	- single channel with functional test		N/A
	- single channel with periodic self-test		N/A
	- dual channel without comparison		N/A
R.2.2	Measures to control faults/errors		N/A
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/A
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/A

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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/A
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/A
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/A
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N/A
R.2.2.7	Labels used for memory locations are unique		N/A
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N/A
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N/A
R.3	Measures to avoid errors		N/A
R.3.1	General		N/A
	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/A
	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/A
R.3.2	Specification		N/A
R.3.2.1	Software safety requirements:	Software Id:	N/A
	The specification of the software safety requirements includes the descriptions listed		N/A
R.3.2.2	Software architecture		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
R.3.2.2.1	<p>The specification of the software architecture includes the aspects listed</p> <ul style="list-style-type: none"> <li>- techniques and measures to control software faults/errors (refer to R.2.2);</li> <li>- interactions between hardware and software;</li> <li>- partitioning into modules and their allocation to the specified safety functions;</li> <li>- hierarchy and call structure of the modules (control flow);</li> <li>- interrupt handling;</li> <li>- data flow and restrictions on data access;</li> <li>- architecture and storage of data;</li> <li>- time-based dependencies of sequences and data</li> </ul>	Document ref. No:	N/A
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N/A
R.3.2.3	Module design and coding		N/A
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N/A
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N/A
R.3.2.3.2	Software code is structured		N/A
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N/A
	The module specification is validated against the architecture specification by static analysis		N/A
R.3.3.3	Software validation		N/A
	The software is validated with reference to the requirements of the software safety requirements specification		N/A
	Compliance is checked by simulation of:		N/A
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

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Clause	Requirement - Test	Result - Remark	Verdict

ANNEX 1: COMMON MODIFICATIONS FOR EN60335-1: 2012 (group differences for CENELEC and national differences for Germany, United Kingdom, Australia and United States.)			
6	Classification		P
6.1	Delete "class 0" and "class 0I".		P
7	Marking and instructions		P
7.1	Add: The marking of rated voltage or rated voltage range, for appliances intended to be connected to the supply mains, shall cover: - 230 V for single-phase appliances; - 400 V for multi-phase appliances.	230V included	P
7.10	Add : Devices used to start/stop operational functions of the appliance, if any, shall be distinguished from other manual devices.	No start/stop operational device	N/A
	An indication that the device has been operated shall be given by:		N/A
	-A tactile feedback or		N/A
	-An audible and visual feedback		N/A
	A selector switch with an off-position clearly identifiable is allowed.	No selector switch with off position	N/A
	An ON/OFF switch, if any, is considered a suitable device to stop operational functions.	No ON/OFF switch	N/A
	A plug is not considered a suitable device to stop operational functions, as it can be difficult to be reached by vulnerable persons.	Plug is not used as stop functions	N/A
7.12	Replace the 3 <sup>rd</sup> , 4 <sup>th</sup> and 5 <sup>th</sup> paragraph by the following		P
	- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.		P
	Children shall not play with the appliance.		P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Cleaning and user maintenance shall not be made by children without supervision.		P
7.12.Z1	Add the following new subclause before 7.12.1		P
	The specific instructions related to the safe operation of this appliance shall be collated together in the front section of the user instructions.		P
	The height of the characters, measured on the capital letters, shall be at least 3 mm.		P
	These instructions shall also be available in an alternative format, e.g. on a website		P
7.14	Add: NOTE Z1 For the evaluation of legibility and clarity of safety warnings guidance can be found in IEC 62079.		P
8	Protection against access to live parts		P
8.1.1	Replace the 3 <sup>rd</sup> paragraph by the following: Use of test probe B of and probe 18 of EN 61032, with a force not exceeding 1 N: no contact with live parts		P
11	Heating		P
11.8	Delete the second sentence of the first paragraph: However, if the temperature rise of the motor winding exceeds the value specified in table 3 or if there is doubt with regard to the temperature classification of the insulation of the motor, the tests of annex C are carried out.	No motor	N/A
	Replace in Table 3 the row “External enclosure of motor-operated appliances, except handles held in normal use”		P
15	Moisture resistance		P
15.1.2	Add the following after the second paragraph:		N/A
	Appliances with an automatic cord reel are tested with the cord in the most unfavourable position in such a way that the reeling of the wet cord may affect electrical insulation during operation. The cord shall not be dried before reeling.	No automatic cord reel	N/A
20	Stability and mechanical hazards		P



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Clause	Requirement - Test	Result - Remark	Verdict
20.2	Replace NOTE 1 by the following requirement: For appliances having dangerous movable parts, due to their main function, e.g. the needle of a sewing machine, tools of kitchen machines or the blade of an electrical knife, full protection is not possible for performing their intended use.	No moving part	N/A
22	Construction		P
	Added: Hazard includes ingestion or a choking hazard for vulnerable people.	No handles and knobs	N/A
24	Components		P
24.1	Components shall comply with the safety requirements specified in the relevant standards as far as they reasonably apply.		P
	List of components..... :	(see appended table)	P
	Clause 29 of this standard apply between live parts of components and accessible parts of the appliance, unless otherwise specified		P
	Clause 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside		P
	Components that have not been previously tested or do not comply with the standard for the relevant component are tested according to the requirement of 30.2.		P
	Components that have been previously tested and shown to comply with the resistance to fire requirements in the standard for the relevant component need not be retested provided that:	PCB	P
	– the severity specified in the component standard is not less than the severity specified in 30.2 of this standard,		P
	and –unless the preselection alternative is used, the test report for the component states whether it complied with the standard for the relevant component with or without flame. Flames existing for a cumulative time not exceeding 2 s during the test are ignored.		P
	If the above two conditions are not satisfied, the component is tested as part of the appliance.		P

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Clause	Requirement - Test	Result - Remark	Verdict
	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	Transformer is tested according to annex G	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 standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders that have not being tested and found to comply with the relevant standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant standard.	No lampholder or starterholder	N/A
	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
	Plugs and socket-outlets and other connecting devices of interconnection cords shall not be 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, if direct supply to these parts from the supply mains could give rise to a hazard.		P
24.1.3	Add NOTE Z1 For this test a thermostat or timer that is operating the relay or contactor is considered to be a switch.		N/A
24.1.7	Replaced by: If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is EN 41003.	Not for remote operation	N/A
	Compliance with Clause 8 of this standard shall not be impaired by connecting the appliance to a device covered by EN 41003.		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
24.Z1	For motor running capacitors (IEC 60252-1 type P2) with a metallic enclosure having an overpressure fuse the flame testing of internal plastic parts supporting current carrying connections as required in 30.2.2 and 30.2.3.1 is not necessary.	No motor running capacitors	N/A
25	Supply connection and external flexible cords		N/A
25.6	Add: Supply cords of single-phase portable appliance shaving a rated current not exceeding 16 A shall be fitted with a plug complying with the following standard sheets of IEC/TR 60083.	Direct plug-in	N/A
	–for class I appliances standard sheet C2b, C3b or C4;		N/A
	–for class II appliances standard sheet C5 or C6.		N/A
25.7	Add the following text after the last dash and before the paragraph regarding “Supply cords for class III appliances”:		N/A
	Halogen-free thermoplastic compound sheathed.		N/A
	<ul style="list-style-type: none"> <li>halogen-free thermoplastic compound sheathed cords (code designation H03Z1Z1H2-F, H03Z1Z1-F), for appliances having a mass not exceeding 3 kg;</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>halogen-free thermoplastic compound sheathed cords (code designation H05Z1Z1H2-F or H05Z1Z1-F), for other appliances;</li> </ul>		N/A
	Cross-linked halogen-free compound sheathed.		N/A
	<ul style="list-style-type: none"> <li>cross-linked halogen-free compound sheathed cords (code designation H07ZZ-F)</li> </ul>		N/A
26	Terminals for external conductors		N/A
26.11	Add: Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position unless they are held in place near the terminals independently of the solder		N/A
29	Clearances, creepage distances and solid insulation		P
29.3.Z1	Appliance shall be constructed so that if there is a possibility of damaging the insulation during installation, the insulation shall withstand the scratch and penetration test of 21.2.	No installation required	N/A

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Clause	Requirement - Test	Result - Remark	Verdict
32	Radiation, toxicity and similar hazards		N/A
	Add: Compliance regarding electromagnetic fields is checked according to EN 50366 or EN 62233.	No part 2 specified	N/A
I	Annex I (normative) Motors having basic insulation that is inadequate for the rated voltage of the appliance		N/A
19.1.101	The appliance is supplied at rated voltage and operated under normal operation with each of the following fault conditions		N/A
	When any of the fault conditions are simulated, the duration of the test is as specified in 19.7.		N/A
ZA	Annex ZA (normative) Special national conditions		P
19.5	Norway: The test is also applicable to appliances intended to be permanently connected to fixed wiring.		N/A
22.2	Norway: The second paragraph of this subclause that deals with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system.		N/A
25.6 and 25.25	Information concerning National plug and socket-outlets is available from the CENELEC website. Normative national requirements concerning plug and socket-outlets are shown in the relevant National standard.		P
25.8	Ireland and United Kingdom: In the table, replace the line for 10 A and 16 A by: > 10 and ≤13 1,25 > 13 and ≤16 1,5	No supply cord	N/A
ZB	Annex ZB (informative) A-deviations		P
25.6	Ireland (Statutory Instrument No. 525 of 1997) These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S.401:1997, or equivalent, to be fitted to domestic appliances.		N/A
	United Kingdom(Statutory Instrument 1994 No 1768) These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes.		P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
ZC	Annex ZC (normative) Normative references to international publications with their corresponding European publications		P
	This Standard incorporates provisions from the publications listed		P
ZD	ANNEX ZD (INFORMATIVE) IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS		N/A
	A list of code designations for different types of flexible cords		N/A
ZE	ANNEX ZE (INFORMATIVE) SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE		N/A
	Modifications to this standard are applicable for appliances and machines intended for commercial use.		N/A
ZF	ANNEX ZF (INFORMATIVE) CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD		N/A
	Table ZF1 listed the standards under CENELEC/TC 61 with their allocation under LVD or MD		N/A
ZG	Annex ZG (normative) UV appliances		N/A
	Modifications to this standard apply to appliances having UV emitters		N/A
ZZ	ANNEX ZZ (INFORMATIVE) COVERAGE OF ESSENTIAL REQUIREMENTS OF EC DIRECTIVES		N/A
	The standard covers all relevant essential requirements as given in the EC Directives 2006/95/EC and 2006/42/EC.		N/A

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

TABLE R.1 – GENERAL FAULT/ERROR CONDITIONS						
Component <sup>1)</sup>	Fault/error	Acceptable measures <sup>2) 3)</sup>	Definitions	Document reference for applied measure	Document reference for applied test	Verdict
1 CPU						N/A
1.1 Registers	Stuck at	Functional test, or periodic self-test using either: <ul style="list-style-type: none"> <li>- static memory test, or</li> <li>- word protection with single bit redundancy</li> </ul>	H.2.16.5 H.2.16.6 H.2.19.6 H.2.19.8.2			
1.2 VOID						N/A
1.3 Programme counter	Stuck at	Functional test, or Periodic self-test, or Independent time-slot monitoring, or Logical monitoring of the programme sequence	H.2.16.5 H.2.16.6 H.2.18.10.4 H.2.18.10.2			N/A
2 Interrupt handling and execution	No interrupt or too frequent interrupt	Functional test, or time-slot monitoring	H.2.16.5 H.2.18.10.4			N/A
3 Clock	Wrong frequency (for quartz synchronized clock: harmonics/sub-harmonics only)	Frequency monitoring, or time slot monitoring	H.2.18.10.1 H.2.18.10.4			N/A

IEC 60335-1						
Clause	Requirement - Test		Result - Remark			Verdict
4. Memory						N/A
4.1 Invariable memory	All single bit faults	Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy	H.2.19.3.1 H.2.19.3.2 H.2.19.8.2			N/A
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/A
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/A
5 Internal data path	Stuck at DC fault	Word protection with single bit redundancy  Comparison of redundant CPUs by either: - reciprocal comparison - independent hardware comparator	H.2.19.8.2  H.2.18.15 H.2.18.3			N/A
5.1 VOID						N/A
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
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/A
6.1 VOID						N/A
6.2 VOID						N/A

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Clause	Requirement - Test			Result - Remark		Verdict
6.3 Timing	Wrong point in time	Time-slot monitoring, or scheduled transmission	H.2.18.10.4			N/A
		Time-slot and logical monitoring, or	H.2.18.18			
		Comparison of redundant communication channels by either:	H.2.18.10.3			
		- reciprocal comparison				
		- independent hardware comparator	H.2.18.15			
	Wrong sequence	Logical monitoring, or	H.2.18.3			
		time-slot monitoring, or	H.2.18.10.2			
		Scheduled transmission				
		(same options as for wrong point in time)	H.2.18.10.4			
			H.2.18.18			
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
		Comparison of redundant communication channels by either:				
		- reciprocal comparison	H.2.18.15			
		- independent hardware comparator	H.2.18.3			
7.1 VOID						N/A
7.2 Analog I/O	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.2.1 A/D and D/A-converter						
7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N/A
8 VOID						N/A



IEC 60335-1						
Clause	Requirement - Test			Result - Remark		Verdict
9 Custom chips <sup>4)</sup> e.g. ASIC, GAL, Gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N/A
<p>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.</p> <p><sup>1)</sup> For fault/error assessment, some components are divided into their sub-functions.</p> <p><sup>2)</sup> For each sub-function in the table, the Table R.2 measure will cover the software fault/error.</p> <p><sup>3)</sup> Where more than one measure is given for a sub-function, these are alternatives.</p> <p><sup>4)</sup> To be divided as necessary by the manufacturer into sub-functions.</p>						

IEC 60335-1					
Clause	Requirement - Test			Result - Remark	Verdict
10.1	TABLE: Power input deviation				N/A
Input deviation of/at:	P rated (W)	P measured (W)	dP (W, %)	Required dP (W, %)	Remark
Supplementary information:					

10.2	TABLE: Current deviation					P
Current deviation of/at:	I rated (A)	I measured (A)	dI (A, %)	Required dI (A, %)	Remark	
GTM43033-0636 at 60Hz	0,3	0,126 / 0,062	-57,9 / -79,4	+20	P	
GTM43033-0603 at 60Hz	0,3	0,139 / 0,069	-53,4 / -76,9	+20	P	
GTM43033-0636 at 50Hz	0,3	0,126 / 0,062	-57,9 / -79,4	+20	P	
GTM43033-0603 at 50Hz	0,3	0,139 / 0,069	-53,4 / -76,9	+20	P	
Supplementary information: Figures shown above are corresponding to rated supply voltage of 100 Va.c and 240 Va.c respectively.						

11.8	TABLE: Heating test, thermocouple measurements		P
	Test voltage (V) .....	106 / 254,4V	—
	Ambient (°C) .....	24	—
Thermocouple locations		Max. temperature rise measured, dT (K)	Max.temperature rise limit, dT (K)
For GTM43033-0636			
External enclosure	13/13		75
Inside enclosure	18 / 17		For ball pressure
Table support	5/3		65
Output cord	2/1		55 (T80)
Winding	40/40		85
Core	41/41		For ball pressure
Y capacitor CY1	21/24		60 (T85)
PCB	26/22		105 (T130)
Supplementary information:			

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

11.8	<b>TABLE: Heating test, thermocouple measurements (continued)</b>		P
	Test voltage (V) .....	106 / 254,4V	—
	Ambient (°C) .....	24	—
Thermocouple locations		Max. temperature rise measured, dT (K)	Max.temperature rise limit, dT (K)
For GTM43033-0603			
External enclosure		18/17	75
Inside enclosure		28 / 26	For ball pressure
Table support		34/2	65
Output cord		5/5	55 (T80)
Winding		58/54	85
Core		54/50	For ball pressure
PCB		35/25	105 (T130)
Supplementary information:			

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

11.8	<b>TABLE: Heating test, resistance method</b>					N/A
	Test voltage (V) .....					—
	Ambient, t1 (°C) .....					—
	Ambient, t2 (°C) .....					—
Temperature rise of winding		R1 (Ω)	R2 (Ω)	dT (K)	Max. dT (K)	Insulation class
Supplementary information:						

13.2	TABLE: Leakage current			P
	Heating appliances: 1.15 x rated input (W).....:	N/A		—
	Motor-operated and combined appliances: 1.06 x rated voltage (V).....:	254,4V 60Hz		—
Leakage current between		I (mA)	Max. allowed I (mA)	
Live parts and accessible parts		Max 0,003	0,25	
Supplementary information: Protective impedance and radio interference filters are disconnected before carrying out the tests.				

13.3	TABLE: Electric strength			P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)	
Live parts and live parts to the mid point of two Y capacitor		1000	No	
Basic insulation and accessible metal parts (or metal foil)		1750	No	
Live parts and output circuit and enclosure		3000	No	
Supplementary information:				

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

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

<b>16.2</b>	<b>TABLE: Leakage current</b>		<b>P</b>
	Single phase appliances: 1.06 x rated voltage (V) .....	254,4V	—
	Three phase appliances 1.06 x rated voltage divided by $\sqrt{3}$ (V) .....	N/A	—
Leakage current between		I (mA)	Max. allowed I (mA)
Live parts and accessible parts		Max 0,004	0,25
Supplementary information: Protective impedance and radio interference filters are disconnected before carrying out the tests.			

<b>16.3</b>	<b>TABLE: Electric strength</b>		<b>P</b>
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
Live parts and live parts to the mid point of two Y capacitor		1250	No
Basic insulation and accessible metal parts (or metal foil)		1750	No
Live parts and output circuit and enclosure		3000	No
Supplementary information:			

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

17	<b>TABLE: Overload protection, thermocouple measurements</b>		P
Temperature rise of part/at:		dT (K)	Max. dT (K)
GTM43033-0636			
Output cord		2	70
Winding		60	200
GTM43033-0603			
Output cord		9	70
Winding		74	200
Supplementary information:			

17	TABLE: Overload protection, resistance method					N/A
	Test voltage (V) .....					—
	Ambient, t1 (°C) .....					—
	Ambient, t2 (°C) .....					—
Temperature of winding		R1 (Ω)	R2 (Ω)	dT (K)	T (°C)	Max. T (°C)
Supplementary information:						

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

<b>19</b>	<b>Abnormal operation conditions</b>						<b>P</b>
Operational characteristics		YES/NO	Operational conditions				
Are there electronic circuits to control the appliance operation?		NO					
Are there "off" or "stand-by" position?		NO					
The unintended operation of the appliance results in dangerous malfunction?		NO					
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	Full load	Fuse or electronic circuit protection	U1 and other components	Pass	N.A	YES	Pass
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:							

<b>19.7</b>	<b>TABLE: Abnormal operation, locked rotor/moving parts</b>						N/A
	Test voltage (V) .....						—
	Ambient, t1 (°C) .....						—
	Ambient, t2 (°C) .....						—
Temperature of winding		R1 (Ω)	R2 (Ω)	dT (K)	T (°C)	Max. T (°C)	

IEC 60335-1					
Clause	Requirement - Test			Result - Remark	Verdict
Supplementary information:					

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

19.13	TABLE: Abnormal operation, temperature rises		P
Thermocouple locations	Max. temperature rise measured, dT (K)	Max.temperature rise limit, dT (K)	
N/A	N/A	N/A	
Supplementary information: Unit was protected, no higher temperature.			



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

24.1	TABLE: Components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>	
Enclosure	SABIC INNOVATIVE PLASTICS B V	SE1X (UL E45329)	PPE+PS, V-1, 105°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	SABIC INNOVATIVE PLASTICS B V	C2950 (UL E45329)	PC/ABS, V-0, 75°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	SABIC INNOVATIVE PLASTICS B V	CX7211, EXCY0098 (UL E45329)	PC/ABS, V-0, 5VB, 90°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	TEIJIN CHEMICALS LTD	LN-1250P, LN-1250G (UL E50075)	PC, V-0, 115°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	CHI MEI CORPORATION	PA-765A (UL E56070)	ABS, V-1, 80°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	CHI MEI CORPORATION	PC-540 (UL E56070)	ABS, V-1, 80°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Blade holder	SABIC INNOVATIVE PLASTICS B V	SE1X (UL E45329)	PPE+PS, V-1, 105°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	SABIC INNOVATIVE PLASTICS B V	C2950 (UL E45329)	PC/ABS, V-0, 75°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	SABIC INNOVATIVE PLASTICS B V	CX7211, EXCY0098 (UL E45329)	PC/ABS, V-0, 5VB, 90°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	TEIJIN CHEMICALS LTD	LN-1250P, LN-1250G (UL E50075)	PC, V-0, 115°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	CHI MEI CORPORATION	PA-765A (UL E56070)	ABS, V-1, 80°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	
Alt. use	CHI MEI CORPORATION	PC-540 (UL E56070)	ABS, V-1, 80°C, min thickness: 2,0mm	IEC 60335-1	Tested with appliance	

IEC 60335-1					
Clause	Requirement - Test			Result - Remark	Verdict
Output cord	DONGGUAN YUE YANG WIRE & CABLE CO LTD	1185 / 2464 / 2468	Min. 24AWG (not for France), 300V, 80°C (UL E230810)	IEC 60335-1	Tested with appliance
Alt. use	YONG HAO ELECTRICAL INDUSTRY CO LTD	1185 / 2464 / 2468	Min. 24AWG (not for France), 300V, 80°C (UL E240426)	IEC 60335-1	Tested with appliance
Alt. use	DONGGUAN GUNEETAL WIRE & CABLE CO LTD	1185 / 2464 / 2468	Min. 24AWG (not for France), 300V, 80°C (UL E204204)	IEC 60335-1	Tested with appliance
Alt. use	HIP TAI ELECTRIC WIRE CO	1185 / 2464 / 2468	Min. 24AWG (not for France), 300V, 80°C (UL E225804)	IEC 60335-1	Tested with appliance
Alt. use	KUNSHAN NEW ZHICHENG ELECTRONICS TECHNOLOGIES CO LTD	1185 / 2464 / 2468	Min. 24AWG (not for France), 300V, 80°C (UL E237831)	IEC 60335-1	Tested with appliance
Alt. use	SHENG YU ENTERPRISE CO LTD	2464 / 2468	Min. 24AWG (not for France), 300V, 80°C (UL E219726)	IEC 60335-1	Tested with appliance
Alt. use	SUZHOU HONGMENG ELECTRONIC CO LTD	1185 / 2464 / 2468	Min. 24AWG (not for France), 300V, 80°C (UL E315421)	IEC 60335-1	Tested with appliance
Alt. use	ZHUANG SHAN CHUAN ELECTRICAL PRODUCTS (KUNSHAN) CO LTD	1185 / 2464 / 2468	Min. 24AWG (not for France), 300V, 80°C (UL E333601)	IEC 60335-1	Tested with appliance
Alt. use	YONG HAO ELECTRICAL INDUSTRY CO LTD	SPT-1 / SPT-2	Min. 24AWG (not for France), 300V, 105°C (UL E310072)	IEC 60335-1	Tested with appliance
Alt. use	JHI WEI ELECTRIC WIRE & CABLE CO LTD	SPT-1 / SPT-2	Min. 24AWG (not for France), 300V, 105°C (UL E157718)	IEC 60335-1	Tested with appliance

IEC 60335-1					
Clause	Requirement - Test			Result - Remark	Verdict
Alt. use	ZHUANG SHAN CHUAN ELECTRICAL PRODUCTS (KUNSHAN) CO LTD	SPT-1 / SPT-2	Min. 24AWG (not for France), 300V, 105°C (UL E333536)	IEC 60335-1	Tested with appliance
PCB	TECHNI TECHNOLOGY LTD	T2A / T2B / T4 (UL E154355)	V-0, 130°C, min thickness: 1,6mm	IEC 60335-1	Tested with appliance
Alt. use	DONGGUAN HE TONG ELECTRONICS CO LTD	CEM1 (UL E243157)	V-0, 130°C, min thickness: 1,6mm	IEC 60335-1	Tested with appliance
Alt. use	CHEERFUL ELECTRONIC (HK) LTD	03 / 03A (UL E199724)	V-0, 130°C, min thickness: 1,6mm	IEC 60335-1	Tested with appliance
Alt. use	DONGGUAN DAYSUN ELECTRONIC CO LTD	DS2 (UL E251754)	V-0, 130°C, min thickness: 1,6mm	IEC 60335-1	Tested with appliance
Alt. use	SUZHOU CITY YILIHUA ELECTRONICS CO LTD	YLH-1 (UL E251781)	V-0, 130°C, min thickness: 1,6mm	IEC 60335-1	Tested with appliance
Alt. use	SHANGHAI AREX PRECISION ELECTRONIC CO LTD	02V0 (UL E186016)	V-0, 130°C, min thickness: 1,6mm	IEC 60335-1	Tested with appliance
Alt. use	BRITE PLUS ELECTRONICS (SUZHOU) CO LTD	DKV0-3A (UL E177671)	V-0, 130°C, min thickness: 1,6mm	IEC 60335-1	Tested with appliance
Current fuse (F1, F2)	Conquer Electronics Co., Ltd.	MST series	T1AL250V	IEC 60127-1 IEC 60127-3	VDE/ 40017118
Alt. use	Ever Island Electric Co., Ltd. And Walter Electric	2010	T1AL250V	IEC 60127-1 IEC 60127-3	VDE/ 40018781
Alt. use	Bel Fuse Ltd.	RST-Serie(s)	T1AL250V	IEC 60127-1 IEC 60127-3	VDE/ 40011144
Alt. use	Cooper Bussmann LLC	SS-5	T1AL250V	IEC 60127-1 IEC 60127-3	VDE/ 40015513

IEC 60335-1					
Clause	Requirement - Test			Result - Remark	Verdict
Alt. use	Walter Electronic Co. Ltd.	ICP-Series	T1AL250V	IEC 60127-1 IEC 60127-3	VDE/ 40012824
Alt. use	Das & Sons International Ltd.	385 T Serie(s)	T1AL250V	IEC 60127-1 IEC 60127-3	VDE/ 40008524
Alt. use	Shenzhen Lanson Electronics	SMT T1A250V	T1AL250V	IEC 60127-1 IEC 60127-3	VDE/ 40012592
Y capacitor (CY1, CY2, optional)	TDK-EPC Corporation, Capacitors Group Circuit Devices Business Group	CD	Y1, 250V, max 1000pF, 25/085/21/B	IEC/EN 60384-14	VDE/ 138526
Alt. use	Success Electronics Co., Ltd.	SE, SB	Y1, 250V, max 1000pF, 30/125/56/C	IEC/EN 60384-14	VDE/ 40008996
Alt. use	Murata Mfg. Co., Ltd.	KX	Y1, 250V, max 1000pF, 25/125/21/B	IEC/EN 60384-14	VDE/ 40002831
Alt. use	Walsin Technology Corp.	AH	Y1, 250V, max 1000pF, 25/125/21/C	IEC/EN 60384-14	VDE/ 40001804
Alt. use	JYA-NAY Co., Ltd.	JN	Y1, 250V, max 1000pF, 25/125/21/C	IEC/EN 60384-14	VDE/ 40001831
Alt. use	Haohua Electronic Co.	CT 7	Y1, 250V, max 1000pF, 30/125/56/C	IEC/EN 60384-14	VDE/ 40003902
Alt. use	Hongzhi Enterprises Ltd	Y	Y1, 250V, max 1000pF, 25/085/31	IEC/EN 60384-14	VDE/ 40004354
Alt. use	Jerro Electronics Corp.	JX-series	Y1, 250V, max 1000pF, 20/125/21	IEC/EN 60384-14	VDE/ 40032158
Optocoupler (U2)	Everlight Electronics Co., Ltd.	EL817	Insulation voltage: 850Vp Transient overvoltage: 6000Vp Cr/Cl>=7,6mm 55/110/21	EN 60747-5-5	VDE/ 132249

IEC 60335-1					
Clause	Requirement - Test		Result - Remark		Verdict
Alt. use	Bright Led Electronics Corp.	BPC 817 B	Insulation voltage: 850Vp Transient overvoltage: 5000Vp Cr>Cl>=7,6mm 30/100/21	EN 60747-5-2	VDE/ 40007240
Alt. use	Lite-On Technology Corp.	LTV-817	Insulation voltage: 850V; Transient overvoltage: 6000V Cr>Cl>=7,6mm; 30/110/21	EN60747-5-2	VDE 40015248
Alt. use	Sharp	PC-817	Insulation voltage: 890V; Transient overvoltage: 9000V Cr>Cl>=7,6mm 30/100/21	IEC/EN60747-5-2	VDE 40008087
Alt. use	Cosmo Electronics Corp.	K1010, KP1010	Insulation voltage: 890V; Transient overvoltage: 6000V; CTI175; Cr>Cl>=7,6mm 55/100/21	EN60747-5-2	VDE 101347
Transformer (T1)	/GlobTek/ BOAM/ ZhongTong	XF00852	Class A, for model with 3-3.9V output	IEC 60335-1	Tested with appliance
Transformer (T1)	/GlobTek/ BOAM/ ZhongTong	XF00857	Class A, for model with 4-8.9V output	IEC 60335-1	Tested with appliance
Transformer (T1)	/GlobTek/ BOAM/ ZhongTong	XF00853	Class A, for model with 9-15V output	IEC 60335-1	Tested with appliance
Transformer (T1)	/GlobTek/ BOAM/ ZhongTong	XF00862	Class A, for model with 15.1-35.9V output	IEC 60335-1	Tested with appliance
Transformer (T1)	/GlobTek/ BOAM/ ZhongTong	XF00850	Class A, for model with 36V output	IEC 60335-1	Tested with appliance
Triple insulated wire	Great Leoflon Industrial Co., Ltd.	TRW (B) Serie(s)	Class B, reinforced insulation	IEC 60950-1	VDE/ 136581
Alt. use	COSMOLINK CO. Ltd.	TIW-M Serie(s)	Class B, reinforced insulation	IEC 60950-1	VDE/ 138053

IEC 60335-1					
Clause	Requirement - Test		Result - Remark		Verdict
Alt. use	Furukawa Electric Co., Ltd. Electronics & Automotive Systems Company Global Business Development Division	TEX-E	Class B, reinforced insulation	IEC 60950-1	VDE/006735
Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U (UL E201757)	MW28-C, 130°C	IEC 60335-1	Tested with appliance
Alt. use	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWS/U (UL E201757)	MW75-C, 130°C	IEC 60335-1	Tested with appliance
Alt. use	CHENG DU SOUTH-WEST ELECTRIC CO.,LTD	2UEW (UL E178366)	MW75#, 130°C	IEC 60335-1	Tested with appliance
Alt. use	JUNG SHING WIRE CO LTD	UEW-4 (UL E174837)	MW75C, 130°C	IEC 60335-1	Tested with appliance
Alt. use	JUNG SHING WIRE CO LTD	UEY-2 (UL E174837)	MW28-C, 130°C	IEC 60335-1	Tested with appliance
Alt. use	JIANGSU HONGLIU MAGNET WIRE TECHNOLOGY CO LTD	2UEW/130 (UL E335065)	MW75-C, 130°C	IEC 60335-1	Tested with appliance
Alt. use	CHANGZHOU DAYANG WIRE & CABLE CO LTD	2UEW/130 (UL E158909)	MW75-C, 130°C	IEC 60335-1	Tested with appliance
Alt. use	WUXI JUFENG COMPOUND LINE CO LTD	2UEWB (UL E206882)	MW75#, 130°C	IEC 60335-1	Tested with appliance
Alt. use	JIANGSU DARTONG M & E CO LTD	UEW (UL E237377)	MW 75-C, 130°C	IEC 60335-1	Tested with appliance
Alt. use	SHANDONG SAINT ELECTRIC CO LTD	UEW/130 (UL E194410)	MW75#, 130°C	IEC 60335-1	Tested with appliance

IEC 60335-1					
Clause	Requirement - Test			Result - Remark	Verdict
Alt. use	ZHEJIANG LANGLI ELECTRIC EQUIPMENTS CO LTD	UEW (UL E222214)	MW 79#, 130°C	IEC 60335-1	Tested with appliance
Bobbin	CHANG CHUN PLASTICS CO LTD	T375J T375HF (UL E59481)	V-0, 150°C, min thickness: 0,45mm	IEC 60335-1	Tested with appliance
Alt. use	SUMITOMO BAKELITE CO LTD	PM-9820 (UL E41429)	V-0, 150°C, min thickness: 0,45mm	IEC 60335-1	Tested with appliance
Alt. use	HITACHI CHEMICAL CO LTD	CP-J-8800 (UL E42956)	V-0, 150°C, min thickness: 0,45mm	IEC 60335-1	Tested with appliance
Insulating tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1 / 1350T-1 (UL E17385)	130°C	IEC 60335-1	Tested with appliance
Alt. use	BONDTEC PACIFIC CO LTD	370S (UL E175868)	130°C	IEC 60335-1	Tested with appliance
Alt. use	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ, CT (UL E165111)	130°C	IEC 60335-1	Tested with appliance
Alt. use	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A (UL E246950)	130°C	IEC 60335-1	Tested with appliance
Alt. use	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX (UL E24680)	130°C	IEC 60335-1	Tested with appliance
Varistor (MOV1, optional)	Joyin Co., Ltd.	7N471K / 10N471K / 14N471K	Max continuous voltage: 300VAC, max peak current: 1200A / 2500A / 4500A, 40/85/56	IEC 61051-1; IEC 61051-2; IEC 61051-2-2	VDE/ 005937
Alt. use	Centra Science Corp.	CNR- 07D471K / CNR- 10D471K / CNR- 14D471K	Max continuous voltage: 300VAC, max peak current: 1200A / 2500A / 4500A, 40/085/56	IEC 61051-1; IEC 61051-2; IEC 61051-2-2	VDE/ 40008220

IEC 60335-1					
Clause	Requirement - Test			Result - Remark	Verdict
Alt. use	Thinking Electronic Industrial Co., Ltd.	TVR07471 / TVR10471 / TVR14471	Max continuous voltage: 300VAC, max peak current: 1200A / 2500A / 4500A, 40/85/56	IEC 61051-1; IEC 61051-2; IEC 61051-2-2	VDE/ 005944
Alt. use	Success Electronics Co., Ltd.	SVR07D471K / SVR10D471K / SVR14D471K	Max continuous voltage: 300VAC, max peak current: 1200A / 2500A / 4500A, 40/85/56	IEC 61051-1; IEC 61051-2; IEC 61051-2-2	VDE/ 123677
Alt. use	Ceramate Techn. Co., Ltd.	GNR07D471K / GNR10D471K / GND14D471K	Max continuous voltage: 300VAC, max peak current: 1200A / 2500A / 4500A, 40/85/56	IEC 61051-1; IEC 61051-2; IEC 61051-2-2	VDE/ 40021606
Alt. use	Brightking (Shenzhen) Co., Ltd.	07D471K / 10D471K / 14D471K	Max continuous voltage: 300VAC, max peak current: 500A / 1000A / 2000A, 40/85/56	IEC 61051-1; IEC 61051-2; IEC 61051-2-2	VDE/ 40027827
Alt. use	Hongzhi	HEL-07D471K HEL-10D471K HEL-14D471K	Max continuous voltage: 300VAC, max peak current: 500A / 1000A / 2000A, 40/85/56	IEC 61051-1; IEC 61051-2; IEC 61051-2-2	VDE 40008621
Alt. use	New Future	07D471K 10D471K, 14D471K	Max continuous voltage: 300VAC, max peak current: 500A / 1750A / 2000A, 40/85/56	IEC 61051-1; IEC 61051-2; IEC 61051-2-2	VDE 40030322
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					



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

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:					

<b>29.1</b>	<b>TABLE: Clearances</b>					P
	Overvoltage category ..... : II					—
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark
330	0,2* / 0,5 / 0,8**	—	—	—	x	P
500	0,2* / 0,5 / 0,8**	—	—	—	—	N/A
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***	x	x	—	x	P
4 000	3,0 / 3,5***	—	—	x	—	P
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						
Altitude 5000m is considered, the correction factor of 1.49 is multiplied based on above values..						

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

IEC 60335-1											
Clause	Requirement - Test							Result - Remark			Verdict
≤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	<u>2,5</u>	3,2	3,6	4,0	×	—	—	P
250	0,56	1,25	1,8	<u>2,5</u>	3,2	3,6	4,0	—	×	—	P
250	1,12	2,5	3,6	<u>5,0</u>	6,4	7,2	8,0	—	—	×	P
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

IEC 60335-1											
Clause	Requirement - Test							Result - Remark			Verdict
>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											

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							
	1	2		3				
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*)	Verdict / Remark

IEC 60335-1								
Clause	Requirement - Test				Result - Remark			Verdict
≤10	0,08	0,4	0,4	<u>0,4</u>	1,0	1,0	1,0	<b>P</b>
50	0,16	0,56	0,8	<u>1,1</u>	1,4	1,6	1,8	<b>P</b>
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	<u>2,0</u>	2,5	2,8	3,2	<b>P</b>
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A
Supplementary information:								
*) Material group IIIb is allowed if the working voltage does not exceed 50 V								

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

30	TABLE: Resistance to heat and fire																			
Object/ part No.	Manufacture r / trademark	Type/ model	Ball pressure test ℃				Glow wire test (GWT) ℃					Glow-wire flammability index (GWFI) ℃				Glow- wire ignition temp. (GWIT) ℃		Needle - flame test (NFT)	Verdict	
			75	125	cl. 11 +40	cl. 19 +25	550	650		750		850	550	650	750	850	675	775		
								te	ti	te	ti									
Enclosure	SABIC	SE1X	1,1	-	-	-	NI	-	-	-	-	-	-	-	-	-	-	-	-	Pass
Enclosure	SABIC	C2950	1,4	-	-	-	NI	-	-	-	-	-	-	-	-	-	-	-	-	Pass
Enclosure	SABIC	CX7211	1,2	-	-	-	NI	-	-	-	-	-	-	-	-	-	-	-	-	Pass
Enclosure	SABIC	EXCY0098	1,2	-	-	-	NI	-	-	-	-	-	-	-	-	-	-	-	-	Pass
Enclosure	Tejin	LN-1250P	1,0	-	-	-	NI	-	-	-	-	-	-	-	-	-	-	-	-	Pass
Enclosure	Tejin	LN-1250G	1,4	-	-	-	NI	-	-	-	-	-	-	-	-	-	-	-	-	Pass
Enclosure	CHI MEI	PA-765A	1,4	-	-	-	NI	-	-	-	-	-	-	-	-	-	-	-	-	Pass
Blade holder	SABIC	SE1X	-	1,6	-	-	-	-	-	NI	NI	-	-	-	-	-	-	-	-	Pass

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

30	TABLE: Resistance to heat and fire																		
Object/ part No.	Manufacture r / trademark	Type/ model	Ball pressure test ℃				Glow wire test (GWT) ℃				Glow-wire flammability index (GWFI) ℃				Glow- wire ignition temp. (GWIT) ℃		Needle - flame test (NFT)	Verdict	
			75	125	cl. 11 +40	cl. 19 +25	550	650		750		850	550	650	750	850	675	775	
								te	ti	te	ti								

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

Blade holder	SABIC	C2950	-	1,8	-	-	-	-	-	NI	NI	-	-	-	-	-	-	-	Pass
Blade holder	SABIC	CX7211	-	1,6	-	-	-	-	-	NI	NI	-	-	-	-	-	-	-	Pass
Blade holder	SABIC	EXCY0098	-	1,6	-	-	-	-	-	NI	NI	-	-	-	-	-	-	-	Pass
Blade holder	Tejin	LN-1250P	-	1,4	-	-	-	-	-	NI	NI	-	-	-	-	-	-	-	Pass
Blade holder	Tejin	LN-1250G	-	1,6	-	-	-	-	-	NI	NI	-	-	-	-	-	-	-	Pass
Blade holder	CHI MEI	PA-765A	-	1,8	-	-	-	-	-	NI	NI	-	-	-	-	-	-	-	Pass
Blade holder	CHI MEI	PC-540	-	1,8	-	-	-	-	-	NI	NI	-	-	-	-	-	-	-	Pass

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

30	TABLE: Resistance to heat and fire (continued)																		
Object/ part No.	Manufacture r / trademark	Type/ model	Ball pressure test ℃				Glow wire test (GWT) ℃				Glow-wire flammability index (GWFI) ℃				Glow- wire ignition temp. (GWIT) ℃		Needle - flame test (NFT)	Verdict	
			75	125	cl. 11 +40	cl. 19 +25	550	650		750		850	550	650	750	850	675	775	
								te	ti	te	ti								



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

Bobbin	Chang Chun	T375J	-	1,0	-	-	-	-	-	-	-	NI	-	-	-	-	-	-	-	Pass
Bobbin	Chang Chun	T375HF	-	1,0	-	-	-	-	-	-	-	NI	-	-	-	-	-	-	-	Pass
Bobbin	Sumitomo	PM-9820	-	1,0	-	-	-	-	-	-	-	NI	-	-	-	-	-	-	-	Pass
Bobbin	HITACHI	CP-J-8800	-	1,0	-	-	-	-	-	-	-	NI	-	-	-	-	-	-	-	Pass
PCB	Techni	T2A	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass
PCB	Techni	T2B	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass
PCB	Techni	T4	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass
PCB	HE TONG	CEM1	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass
PCB	CHEERFUL	03	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass
PCB	CHEERFUL	03A	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass
PCB	DAYSUN	DS2	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass
PCB	YILIHUA	YLH-1	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass

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

30	TABLE: Resistance to heat and fire (continued)																			
Object/ part No.	Manufacture r / trademark	Type/ model	Ball pressure test ℃				Glow wire test (GWT) ℃					Glow-wire flammability index (GWFI) ℃				Glow- wire ignition temp. (GWIT) ℃		Needle - flame test (NFT)	Verdict	
			75	125	cl. 11 +40	cl. 19 +25	550	650		750		850	550	650	750	850	675	775		
								te	ti	te	ti									
PCB	AREX	02V0	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass
PCB	BRITE	DKV0-3A	-	0,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pass
Output connector	-	-	-	-	-	-	-	-	-	-	-	NI	-	-	-	-	-	-	-	Pass
Supplementary information:																				
1) Parts of material classified at least HB40 or if relevant HBF																				
2) Parts of material classified as V-0 or V-1																				
3) Flame persisting longer than 2 s (= te – ti) need only be reported for unattended appliances																				
4) Surrounding parts subjected to the needle-flame test of annex E																				
5) Base material classified as V-0 or if relevant VTM-0																				
6) The GWIT pre-selection option, the 850 ℃ GWFI pre-selection option, and the 850 ℃ GWT are not appli cable for attended appliances																				
7) NI means no ignition.																				

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

**Appendix no. 1 Equipment combined with two-pole plug (Class II)**

Supplementary tests on plug portion according to EN 50075:1990

**1. Dimensions (Clause 7 of EN 50075)**

Plugs shall comply with standard size. (Standard sheet 1) P

**2. Protection Against Electric Shock (Clause 8 of EN 50075)**

2.1 Live parts of plugs with the exception of the bare metal parts of the pins, shall not be accessible. (Clause 8.1 of EN 50075) P

2.2 It shall not be possible to make connection between a pin of a plug and a live socket contact of a socket-outlet while the other pin is an accessible. (Clause 8.2 of EN 50075) P

2.3 External parts of plugs, with the exception of pins, shall be of insulating material. (Clause 8.3 of EN 50075) P

**3. Construction (Clause 9 of EN 50075)**

3.1 The plug cannot be opened by hand or by using a general purpose tool. (Clause 9.1 of EN 50075) P

3.2 Pins of plugs shall be solid and shall have adequate mechanical strength. (Clause 9.3 of EN 50075) P

3.3 Pins of plugs shall be locked against rotation and adequately fixed into the body of the plug. (Clause 9.4 of EN 50075) P

3.4 Plugs shall be provided with soldered, crimped or equally effective permanent connection. (Clause 9.5 of EN 50075) P

3.5 Plug shall be shaped in such a way and made of such a material that they can easily be withdrawn by hand from a socket-outlet. (by gripping the medical power supply's enclosure, Clause 9.6 of EN 50075) P

**4. Resistance to Humidity (Clause 10 of EN 50075)** N/A

The integrated pins were tested together with the medical power supply. (See test report for medical power supply)

**5. Insulation Resistance and Electric Strength (Clause 11 of EN 50075)** N/A

(See test report for medical power supply)

**6. Mechanical Strength (Clause 13 of EN 50075)**

Plug shall have adequate mechanical strength to withstand the stresses imposed during use. P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
6.1	The plugs are pressed between two flat surfaces with a force of 150N for 5min. 15min after removal of the force, the plug shall not show such deformation as would result in undue alteration of the dimensions which ensure safety. (Clause 13.1 of EN 50075)		P
6.2	The plug is tested in a tumbling barrel. (Clause 13.2 of EN 50075, fall number is shown in test report for medical power supply) After the test, the plug shall show no damage within the meaning of this standard, in particular: --- no part shall become detached or loosened. --- the pin shall not turn when a torque of 0.4Nm is applied. Note: A section of the pin is square constructed for preventing the rotation.		P
6.3	The pins is held in a suitable clamp in such a position that the straight part of a steel wire (D=1+-0.02mm, U-shaped) rests on the plug pin. The plug is caused to move backwards and forwards, so that the wire rubs along the pin. The number of the movements is 20 000, and the rate of the operation is 25 movements per min. (Clause 13.3 of EN 50075)		P
	After the test, the pin show no damage which may effect safety or impair the further use of the plug, in particular, the insulating sleeve shall not have punctured or rucked up.		P
6.4	A pull force of 40N is applied for 60s on each pin in turn in the direction of the longitudinal axis of the pin. The pull is applied 60min after the plug has been placed in a heating cabinet of 70°C. After the plug cooling down to ambient temperature, any pin shall not have displaced in the body of the plug more than 1mm. (Clause 13.4 of EN 50075)		P
7.	<b>Resistance to Heat and to Ageing (Clause 14 of EN 50075)</b>		P
8.	<b>Current-carrying Parts and Connections (Clause 15 of EN 50075)</b>		
8.1	Connection, electrical and mechanical, shall withstand the mechanical stresses occurring in normal use, and electrical connections shall be designed that contact pressure is not transmitted through insulating material. (Clause 15.1 & 15.2 of EN 50075)		P
8.2	Current-carrying parts shall be of copper or an alloy containing at least 58% of copper. (Clause 15.3 of EN 50075)		P
9.	<b>Creepage Distance, Clearances, and Distances Through Insulation (Clause 16 of EN 50075)</b>		P
10.	<b>Resistance of Insulating Material to Abnormal Heat and to fire (Clause 17 of EN 50075)</b>		P

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

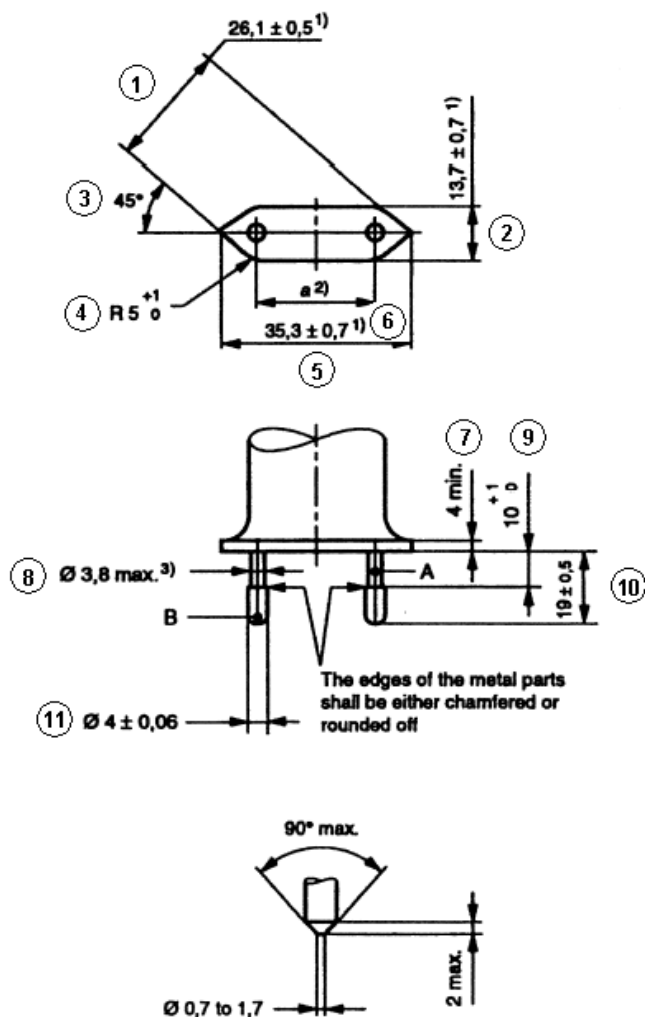
**Dimensions of integral plug**

	DIMENSIONS Checked by means of measurement according to EN50075 Standard sheet 1	P
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Position	Requirement (mm)	Measured (mm)	Verdict
1	25,6 – 26,6	25,84	P
2	13 – 14,4	13,98	P
3	45°	45°	P
4	R5 – 6	R5,4	P
5	34,6 – 36	35,09	P
6	18-19,2 in the plane of the engagement face	18,15	P
	17-18 at the ends of the pins	17,55	P
7	4min	-	N/A
8	φ3,8max	φ3,42	P
9	10-11	10,05	P
10	18,5 – 19,5	19,12	P
11	φ3,94 - φ4,06	φ3,98	P
	Deminsions of position 1, 2 and 3 shall not be exceeded within a distance of 18mm from the engagement face of the plug	19,15	P
	The edges of the metal parts shall be either chamfered or rounded off	Rounded off	P

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

EN50075: 1990 Standard sheet 1



Alternative for end of pins

A. Insulating collar  
B. Metal pin

**Dimensions in millimetres**

<sup>1)</sup> These dimensions shall not be exceeded within a distance of 18 mm from the engagement face of the plug.

<sup>2)</sup> Dimension *a* is:

18 mm to 19,2 mm in the plane of the engagement face;

17 mm to 18 mm at the ends of the pins.

<sup>3)</sup> This dimension may be increased to 4 mm within a distance of 4 mm from the engagement face of the plug.

Pin ends shall be rounded, or conical as shown in detail sketch.

The sketches are not intended to govern design except as regards the dimensions shown.

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

**Appendix no. 2 Equipment combined with BS-plug**

**Supplementary tests on plug portion according to BS1363: Part 3 + Amd 9543 + Amd 14225 + Amd 14540 + Amd 17437 + Amd A4**

Clause	Requirement - Test	Result-Remark	Verdict
12.1	Dimensions (Checked according to figure 4)	See appendix no. 1 & 2	P
12.2	Outline of plug shall not exceed the dimension shown in Figure 4 for a distance of not less than 6.35 mm from the engagement surface	8.90 mm	P
	Pin disposition, length and body outline shall be checked by use of the gauge shown in Figure 5		P
12.3	L/N pin was more than 9.5 mm from the periphery of the plug measured along the engagement surface	9.60 mm	P
12.7	The base and cover of rewirable plugs shall be adaptor plugs having the cover fixed by screws shall be firmly secured to each other, It shall not be possible to remove the cover unless the adaptor is completely withdrawn from the socket-outlet. Fixing screws shall be captive. The test is carried out using apparatus similar to that shown in Figure 6		N/A
12.9	After the temperature rise test (clause 16). Use test probe 11 of BS EN 61032:1998 is applied a force 30 -5/0 N.  During and after the test, it was not possible to touch the live parts		P
12.11	Adaptor plug pins shall be constructed of brass, except for sleeves of pins as specified in 12.18		P
	All exposed surfaces of the adaptor plug pins shall be smooth and free from burrs or sharp edges and other irregularities which could cause damage or excessive wear to corresponding socket contacts or shutters		P
	Those surfaces of the non-solid adaptor plug pins which are visible when the adaptor is correctly assembled shall be free of apertures		P
	All seams and joints of non-solid adaptor plug pins shall be closed over their entire length		P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
Clause	Requirement - Test	Result-Remark	Verdict
	For solid pins, conformity shall be checked by 12.11.4.1		P
	For non-solid pins, compliance shall be checked by 12.11.4.2		N/A
	Adaptors with non-solid pins shall not cause excessive wear to socket contacts or shutters of socket-outlets in accordance with BS 1363-2:1995		N/A
	Adaptor plug pins shall have adequate mechanical strength to ensure that they cannot be distorted by twisting. Apply a torque $1\text{N.m} \pm 10\%$ for $60 \pm 5/0$ S. After each pin has been separately twisted, the plug was fit the gauge in fig. 5. Repeated with opposite direction		P
12.13	Adaptors shall be so designed that when fully assembled the pins are adequately retained in position such that there is no likelihood of them becoming detached from the adaptor during normal use		P
	Each pin is subjected for $60 \pm 5/0$ S to a pull of $100 \pm 2/0$ N without jerks in the direction of the major axis. The plug is mounted using the steel plate shown in fig.7. The apparatus is placed within an oven and the pull is applied at least 1 h after the plug body has attained the test temperature of $70^\circ\text{C} \pm 5^\circ\text{C}$ while maintained at this temperature. After the test, the plug pin shall fit into the gauge and comply with 12.2.1		P
12.14	The degree of flexibility of mounting of the plug pins or the angular movement of the pins in the base shall be not greater than $3^\circ 30'$ . See fig. 8		P
	Test procedure refers to standard. During each test, the declination from the horizontal measured on the scale was not exceed $3^\circ 30'$ and comply with 12.2.1		P



IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
12.18	Live and neutral adaptor plug pins shall be fitted with insulating sleeves. See fig.4. Sleeves shall not fitted to any earthing adaptor plug pin		P
12.19.3	Abrasion test – 10 000 times in each direction(20 000 movements) at a rate of 25 movements to 30 movements per min. (fig. 9) After the test, the sleeve shall show no damage and also shall not have been penetrated or creased, satisfy the tests in 12.19.2		P
13.10	The total mass of the equipment with all specified connectors shall not exceed 800 g. The torque exerted on a socket shall not exceed 0.7 N • m. The test apparatus as Figure 37	Compliance with the main standard	N/A
	Additional: Products with torque exceeding 0.25Nm do not comply with the main standard hence full compliance with the main standard cannot be claimed		N/A
<b>Additional test for ISODs according to BS1363: Part 1 + Amd 9541 + Amd 14539 + Amd 17435 + Amd A4</b>			
12.9.1	All exposed surfaces of plug pins shall be smooth and free from burrs or sharp edges and other irregularities which could cause damage or excessive wear to corresponding socket contacts or shutters		P
12.9.4	Apply a force of 1100 -10/0N at a rate not exceeding 10 mm/min. After this test the plug should fit the gauge to fig. 5		P
	Apply a force of 400 +10/0N at a rate $10 \pm 2$ mm/min. Deflection shall not exceed 1.5 mm. After this test the plug should fit the gauge to fig. 5		P

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
12.9.6	ISODs shall have adequate mechanical strength to ensure that they cannot be distorted by twisting. Apply a torque $1\text{N.m} \pm 10\%$ for $60 \pm 5/0$ S. After each pin has been separately twisted, the plug shall fit the gauge in fig. 5. Repeated with opposite direction		P

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

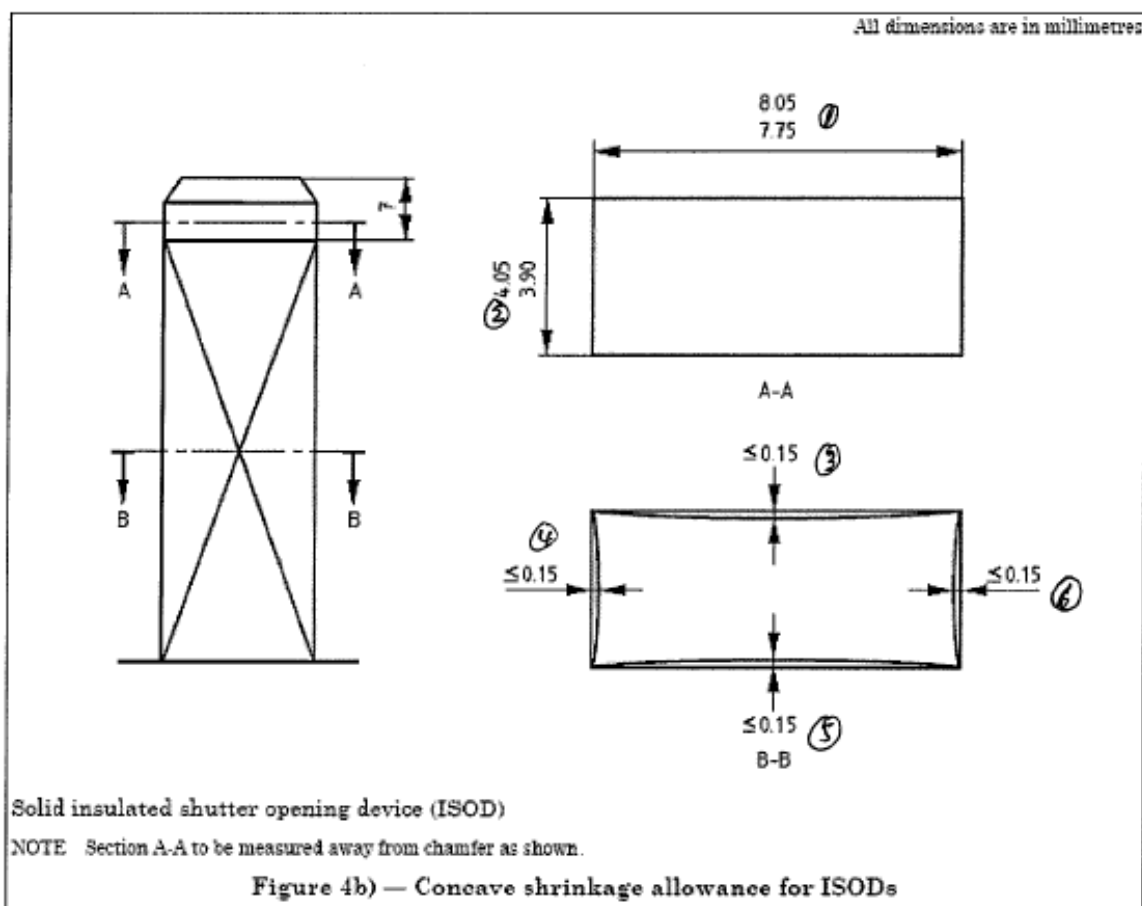
	Dimensions Checked by means of measurement according to BS1363-3 Fig. 4 (see appendix no. 2)		
Position	Requirement (mm)	Measured (mm)	Verdict
1.	25,37max	24.02	P
2.	25,37max	24.02	P
3.	R15min	Measured by guage	P
4.	R9,5min	9.60	P
5.	R9,5min	9.60	P
6.	11,05-11,18	11.12	P
7.	11,05-11,18	11.12	P
8.	34,6max	30.50	P
9.	22,23-23,23	22.60	P
10.	1,35-1,85	1.55	P
11.	7,80-8,05	8.03	P
12.	58°-62° inclusive	60°	P
13.	3,90-4,05	3.99	P
14.	9,2max	8.88	P
15.	17,2-18,2	18.05	P
16.	9,5max	9.17	P
17.	22,10-22,36	22.21	P
18.	6,22-6,48	6.26	P
19.	3,90-4,05	4.03	P
20.	6,22-6,48	6.26	P
21.	1,35-1,85	1.81	P
22.	3,90-4,05	3.98	P
23.	1,2-2,0	1.24	P
24.	R0,1-R1,0	R0.55	P
25.	60 °-80 ° inclusive	68 °	P
Outline of the plug not exceed the dimension shown in figure 4 at least 6,35mm from the engagement surface		8.90	P



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

**Concave shrinkable allowance for ISODs**

	Dimensions Checked by means of measurement according to BS1363-1 Fig. 4b		
Position	Requirement (mm)	Measured (mm)	Verdict
1.	7,75-8,05	8.03	P
2.	3,90-4,05	3.99	P
3.	$\leq 0,15$	0.01	P
4.	$\leq 0,15$	0.01	P
5.	$\leq 0,15$	0.01	P
6.	$\leq 0,15$	0.01	P



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

### Appendix no. 3 Equipment's combined with plug.

The Australian plug was tested according to Annex J of AS/NZS 3112:2011+A1:2012:

Clause	Requirement – Test	Remark	Verdict
<b>2.2</b>	PLUG PINS		P
2.2.1	MATERIAL FOR PINS: - Copper alloy containing at least 58% copper for parts made from cold rolled sheet		P
2.2.2	ASSEMBLY OF PINS - Assembled in factory and non-rewirable		P
2.2.3	FORM OF PIN		P
2.2.4*	INSULATION OF PLUG PINS - live parts of insulated pins plug are not exposed when plug is partially or fully engaged with the associated socket.		P
2.3	INSULATING MATERIALS		P
2.3.1	GENERAL		P
2.3.2	PLUG BODY - Consisting of PBT which has properties not inferior to those specified in AS 3121 for insulating mouldings having a temperature class of 80°C		P
2.3.3	PLUG COVER - Consisting of PVC which has properties not inferior to those specified in AS 3121 for insulating mouldings having a temperature class of 60°C		P
<b>2.8</b>	RATINGS AND DIMENSIONS OF LOW VOLTAGE PLUGS - Comply with Figure 2.1 (c), rated 10A 250V~. - Distance between live pin and edge of plug moulding more than 9 mm		P
<b>2.9</b>	INTERNAL CONNECTIONS -No earthing connection		N/A
<b>2.10</b>	ARRANGEMENT OF EARTHING CONNECTIONS -No earthing connection		N/A
<b>2.12</b>	<b>MARKING</b> (No marking is applicable for the integral plug portion. See markings for transformer)		N/A

IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict
Clause	Requirement – Test	Remark	Verdict
2.12.6	CONFIGURATION OF PLUGS - Figure 2.1 (c), the pin configuration is neutral and active in a clockwise direction		P
<b>2.13</b>	<b>TESTS ON PLUGS</b>		P
2.13.3	HIGH VOLTAGE TEST		P
2.13.7	TUMBLING BARREL TEST		P
2.13.8	TEMPERATURE RISE TEST		P
2.13.9	SECUREMENT OF PLUG		P
2.13.9.1	MOVEMENT OF PINS		P
2.13.9.2	FIXING OF PINS		P
2.13.13	ADDITIONAL TESTS ON THE INSULATION MATERIAL OF INSULATED PIN PLUGS		P

INSULATING MATERIALS TEST IN ACCORDANCE WITH AS/NZS 3121: 2002			
7.1	General		P
7.2	Resistance to heat test The moulding shall be placed in an oven and maintained for 6 h at the temperature appropriate to its class (see Clause 5) plus 10°C. The temperature of the oven during this period shall not vary by more than $\pm 5^\circ\text{C}$ . The moulding shall show no physical or chemical change likely to impair the safety of the equipment of which it forms a part.		P
7.3	Water absorption test The complete moulding shall be immersed in water at $20^\circ\text{C} \pm 5^\circ\text{C}$ for 48 h. The moulding shall not swell, delaminate, warp or show any physical change to a degree that would be liable to impair the safety of the equipment of which it forms a part.		P
7.4	Resistance to white spirit test Sample shall be immersed in white spirit at room temperature for 2 min. The moulding shall not blister, warp or show any physical or chemical change to a degree that would be liable to impair the safety of the equipment of which it forms a part.		P

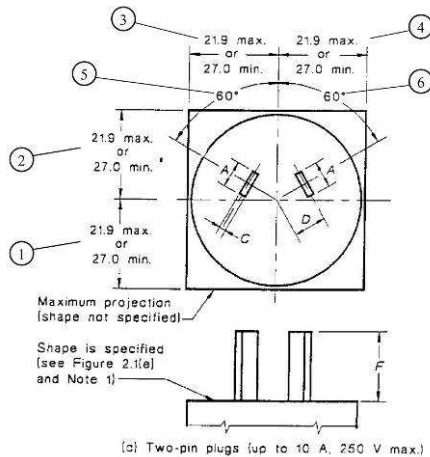
IEC 60335-1			
Clause	Requirement - Test	Result - Remark	Verdict

AS/NZS 3112:2011+A1:2012

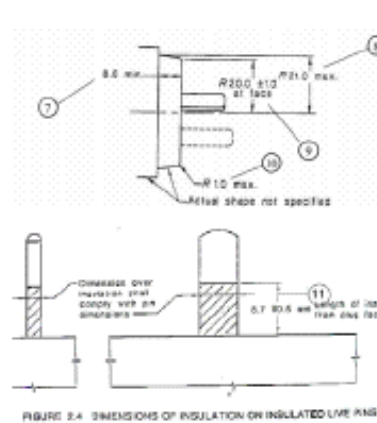
**CHECKING OF DIMENSIONS**

Dimensions checked by gauge and measurement

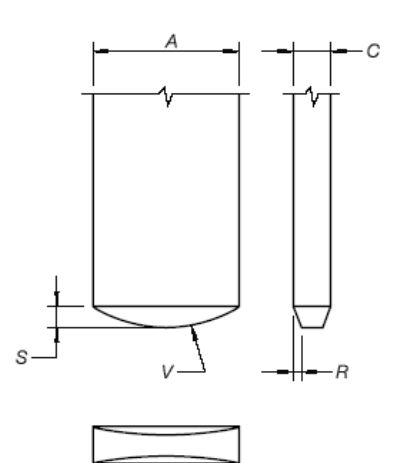
Standard sheet Figure 2.1 (c)



Standard sheet Figure 2.1 (e)



Standard sheet Figure 2.1 (h)



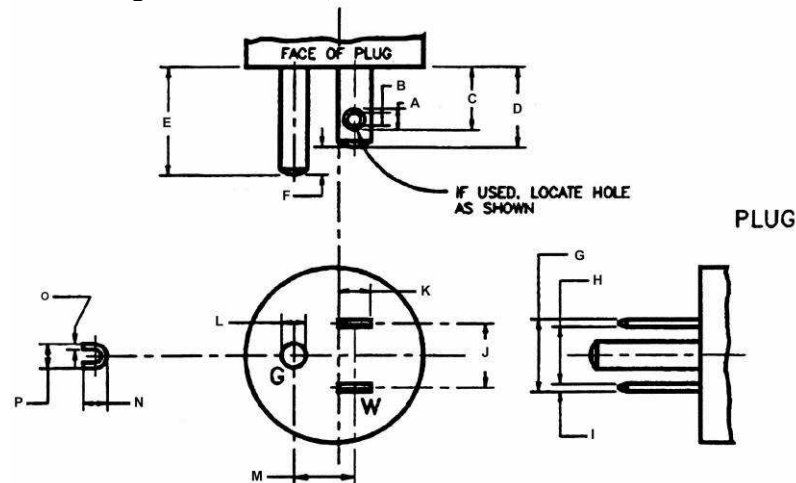
Position	Required (mm)	By Measurement (mm)	By the gauge shown in Figure A1
A	6.35±0.15	6.35	-
B	6.35±0.15	-	-
C	1.63 <sup>+0.15</sup> <sub>-0.05</sub>	1.62	-
D	7.92	-	OK
E	10.31	-	OK
F	17.06±0.4	17.17	-
G	19.94±0.8	-	-
R	0.35±0.05	0.32	-
S	0.90±0.10	0.84	-
T	≥0.60	-	-
V	6	-	OK
1	21.9 max. or 27.0 min.	21.14	-
2	21.9 max. or 27.0 min.	21.14	-
3	21.9 max. or 27.0 min.	62.88	-
4	21.9 max. or 27.0 min.	20.65	-
5	60°	-	OK
6	60°	-	OK
7	8.6 min.	12.15	-
8	21.0 max.	20.75	-
9	20.0±1.0	20.61	-
10	1.0 max	0.34	-
11	8.7±0.5	8.95	-



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

#### Appendix no. 4 Equipment's combined with plug.

The US 1-15P plug was tested according to NEMA WD6-2002 and UL 498, 15th Edition Dated March 30, 2012 including revisions through November 16, 2012:



Symbol	Requirement inch (mm)	Measured (mm)		Symbol	Requirement inch (mm)	Measured (mm)
A	0.125 (3.18)	3.17		I	$0.065 (1.65) \geq I \geq 0.055 (1.40)$	1.48
B	0.156 (3.96)	3.88		J	$0.505 (12.82) \geq J \geq 0.495 (12.57)$	12.76
C	$0.546 (13.76) \geq C \geq 0.537 (13.00)$	13.03		K	$0.260 (6.60) \geq K \geq 0.240 (6.10)$	6.28
D	$(18.24) \geq D \geq 0.625 (15.88)$	17.10		L	$0.190 (4.82) \geq L \geq 0.184 (4.67)$	N/A
E	$E \leq 0.843 (21.41)$	N/A		M	$0.473 (12.01) \geq M \geq 0.463 (11.76)$	N/A
F	$F \geq 0.125 (3.18)$	N/A		N	$0.190 (4.82) \geq N \geq 0.184 (4.67)$	N/A
G	$G \leq 0.575 (14.60)$	14.24		O	$O \geq 0.038^{(1)} (0.96)$	N/A
					$O \geq 0.027^{(1)} (0.68)$	N/A
H	$H \geq 0.425 (10.80)$	11.23		P	$0.190 (4.82) \geq P \geq 0.184 (4.67)$	N/A
Perimeter faces to the plug blades shall not be less than 7.9 mm from any point of either blade						12.39

1) 0.038<sup>1)</sup> (0.96) min is used on U shape, and 0.027<sup>1)</sup> (0.68) is used on tubular shape.