



TEST REPORT IEC 60335-2-81 Safety of household and similar electrical appliances Part 2: Particular requirements for foot warmers and heating mats	
Report Number	68.110.20.0236.01
Date of issue	2020-12-09
Total number of pages	73
Applicant's name	Ningbo Kanghong Electrical Appliance Co., Ltd.
Address	Zonghan Development Area, 315301 Cixi City, Zhejiang Province, PEOPLE'S REPUBLIC OF CHINA
Test specification:	
Standard.....	IEC 60335-2-81:2002 (Second Edition) + A1:2007 + A2:2011 used in conjunction with IEC 60335-1:2010 (Fifth Edition)
Test procedure	TÜV SÜD mark and GS mark + CE-LVD
Non-standard test method.....	N/A
Test Report Form No.	IEC60335_2_81C
Test Report Form(s) Originator.....	IMQ S.p.A.
Master TRF	Dated 2014-05
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Test item description	Foot Warmer
Trade Mark	
Manufacturer	Same as applicant
Model/Type reference	FW210
Ratings	220-240V~, 50Hz, 100W



Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	Testing Laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Testing location/ address		Building 12&13, Zhiheng Wisdomland Business Park, Nantou Checkpoint Road 2, Nanshan District, 518052 Shenzhen, China
Tested by (name, function, signature)		Alice Liu Project Handler 
Approved by (name, function, signature) ..		Scott Long Designated Reviewer
<hr/>		
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<hr/>		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name + signature).....		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
<hr/>		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
Supervised by (name, function, signature) :		

<p>List of Attachments:</p> <p>Attachment No.1:</p> <p>7 pages of European Group Differences and National Differences according to EN 60335-2-81:2003 + A1:2007 + A2:2012 used in conjunction with EN 60335-1:2012 and EN 62233:2008.</p> <p>Attachment No.2:</p> <p>23 pages of additional amendment for A11:2014, A13:2017, A1:2019, A14:2019, A2:2019 to EN 60335-1:2012.</p> <p>Attachment No. 3:</p> <p>2 pages of PAH risk assessment report according to AfPS GS 2019:01 PAK</p> <p>Attachment No. 4:</p> <p>5 pages of photo documentation</p>	
<p>Summary of testing:</p>	
<p>EN 60335-2-81:2003 + A1:2007 + A2:2012</p> <p>EN 60335-1:2012 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019</p> <p>EN 62233:2008</p> <p>AfPS GS 2019:01 PAK</p> <p>BS EN 60335-2-81:2003 + A1:2007 + A2:2012</p> <p>BS EN 60335-1: 2012 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019</p> <p>BS EN 62233:2008</p> <p>The submitted samples were found to comply with the above specification.</p>	<p>Testing location:</p> <p>TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch</p> <p>Building 12&13, Zhiheng Wisdomland Business Park, Nantou Checkpoint Road 2, Nanshan District, 518052 Shenzhen, China</p>
<p>Summary of compliance with National Differences:</p> <p>The submitted samples were found to comply with European Group Differences and National Differences of German, United Kingdom, Italy and Switzerland.</p> <p>Remark: Refer to Attachment No.1 and No.2 for European Group and the National Differences evaluated.</p>	

Copy of marking plate:

Ningbo Kanghong Electrical Appliance Co., Ltd.
 FW210 220-240V~ 50Hz 100W

Do not use if wet.
 Do not use with a helpless person, an infant or a person insensitive to heat.
 Used only with Non detachable controller KS6-45/90.
 Clean Foot Warmer as per user manual.
 Made in China
 Nicht nass benutzen. Nicht bei hilflosen Menschen, Kleinkindern oder hitzeunempfindlichen Personen verwenden. Verwendung nur mit dem abnehmbaren Controller KS6-45/90. Nur wie in der Anleitung beschrieben reinigen.

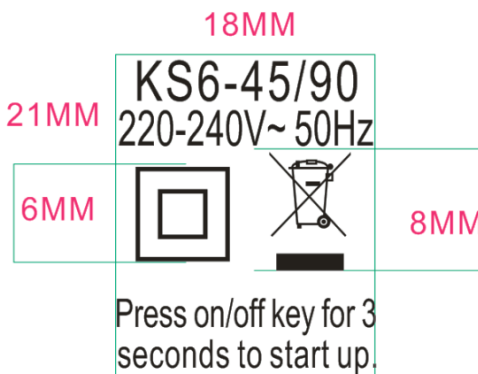
IPX1

Zonghan Development Area, 315301 Cixi City, Zhejiang Province, PEOPLE'S REPUBLIC OF CHINA

Importer: xxxx
 Address: xxxx

Rating label for flexible part: (size: 100 mm x 155 mm)

Location: Firstly printed to textile by silk-screen then sewed to textile parts.




Rating label for controller

Location: The rating label will be printed on enclosure by silkscreen.

Note: When the appliance will be exported to Switzerland, the GS mark must be removed.

Test item particulars:	
Classification of installation and use	: Portable
Supply connection	: Flexible power cord fitted with a plug
Protection class	: Class II
Degree of protection.....	: IPX1 (for foot warmer); IPX0 (for controller)
Possible test case verdicts:	
- test case does not apply to the test object.....	: N/A
- test object does meet the requirement	: P (Pass)
- test object does not meet the requirement	: F (Fail)
Testing:	
Date of receipt of test item	: 2020-10-19
Date (s) of performance of tests	: 2020-10-19 to 2020-12-04
General remarks:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</p> <p>- According to the German product safety law (ProdSG), the name and address of manufacturer (an EU-based importer or authorized representative if the manufacturer is not based in EU) shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.</p> <p>- According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market. The manufacturer/Importer have to ensure the appliance conforms to EMC Directive 2014/30/EU.</p> <p>- The manufacturer/ Importer has to ensure the appliance placing on the EU market conforms to the applicable EU directives which provide the affixing of the CE marking, such as LVD, EMC, RoHS, ErP, and so on.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-1:	
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
Name and address of factory (ies)..... : Same as applicant	
General product information:	
- Foot warmer with non-detachable controller for household and indoor use only.	

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		—
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
6	CLASSIFICATION		—
6.1	Appliances shall be class II or class III : (IEC 60335-2-81)	Class II	P
6.2	Protection against harmful ingress of water		P
	Appliance at least IPX1:..... : (IEC 60335-2-81)	IPX1 (for foot warmer)	P
	Switches in the supply cord may be IPX0..... : (IEC 60335-2-81)	IPX0 (for controller)	P
7	MARKING AND INSTRUCTIONS		—
7.1	Rated voltage or voltage range (V) :	220-240	P
	Symbol for nature of supply, or :	~	P
	Rated frequency (Hz) :	50	P
	Rated power input (W), or..... :	100	P
	Rated current (A) :		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark :	 Trademark: “ 康虹 ”	P
	Model or type reference :	FW210	P
	Symbol IEC 60417-5172, for class II appliances		P
	IP number, other than IPX0 :	IPX1 (for foot warmer); IPX0 (for controller)	P
	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		N/A
	Different rated values marked with the values separated by an oblique stroke		N/A

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible		N/A
	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		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		P
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N/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)		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		P
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means..... :	By words, symbols and figures	P
	This applies also to switches which are part of a control		P
	If figures are used, the off position indicated by the figure 0		N/A

IEC 60335-2-81			
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		N/A
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	The instructions state that:		P
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	- children being supervised not to play with the appliance		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A
	it is a battery-operated appliance, the battery being charged outside the appliance		N/A
	The instructions state the substance of the following:		P
	The appliance is not to be used if there are signs of damage (IEC 60335-2-81)		P
	The appliance is not to be used for warming animals (IEC 60335-2-81)		P
	Details regarding laundering or cleaning (IEC 60335-2-81)		P
	The instructions for foot warmers state that outdoor shoes must be removed before use (IEC 60335-2-81)		P
	The instructions for heating mats state that the appliance has to be repaired or replaced if the cover is worn. They shall explain how such wear can be observed (IEC 60335-2-81)		N/A
	The instructions for foot warmers incorporating an appliance inlet state that the cord set must be disconnected from the supply and from the appliance after preheating (IEC 60335-2-81)		N/A
7.12.1	Sufficient details for installation supplied		P
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N/A

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N/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		N/A
7.12.4	Instructions for built-in appliances:		N/A
	- dimensions of space		N/A
	- dimensions and position of supporting and fixing		N/A
	- minimum distances between parts and surrounding structure		N/A
	- 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		N/A
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N/A
7.12.8	Instructions for appliances connected to the water mains:		N/A
	- max. inlet water pressure (Pa)..... :		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		P
7.14	Marking clearly legible and durable, rubbing test as specified		P

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		P
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N/A
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A
8	PROTECTION AGAINST ACCESS TO LIVE PARTS		—
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		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
	Use of test probe B of IEC 61032 through openings, with a force of 20N: 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		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		N/A
8.1.4	Accessible part not considered live if:		N/A

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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		N/A
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0.7 mA		N/A
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		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		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		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9	STARTING OF MOTOR-OPERATED APPLIANCES		—
	Requirements and tests are specified in part 2 when necessary		N/A
10	POWER INPUT AND CURRENT		—
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1 . :	(see appended table)	P
	Test 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		P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2..... :		N/A

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated current is related to the arithmetic mean value of the range		N/A
10.101	Power input of appliances incorporating heating elements with PTC characteristics significantly decreases with an increase in temperature (IEC 60335-2-81)		N/A
11	HEATING		—
11.1	No excessive temperatures in normal use		P
11.2	Appliances are placed as near as possible to one wall of the test corner and away from the other wall (IEC 60335-2-81)	Placed as near as possible to one wall of the test corner and away from the other wall	P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless:		N/A
	the windings are non-uniform or it is difficult to make the necessary connections		N/A
	Thermocouples attached to the small blackened disks are also used for measuring the temperature rise of the surface of the appliance (IEC 60335-2-81)		P
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) :	$1,15 \times (240/230)^2 \times 100 = 125,2W$	P
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V)..... :		N/A
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	Appliances are operated until steady conditions are established (IEC 60335-2-81)		P
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 :	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N/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		N/A
	Protective devices do not operate, except		P

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
	When polyvinyl chloride is used for insulating heating elements, the temperature rise of the insulation not exceed 80 K (IEC 60335-2-81)		P
	The temperature rise of surfaces likely to be in contact with the user's feet not exceed 40 K (IEC 60335-2-81)		P
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		—
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times the rated power input (W)..... :	$1,15 \times (240/230)^2 \times 100 = 125,2W$	P
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V)		N/A
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
13.2	For class 0, class II and class III appliances, leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	For other appliances, a low impedance ammeter may be used		N/A
	When testing the top surface of heating mats, the dimension of the metal foil are 300 mm x 150 mm (IEC 60335-2-81)		N/A
	Foot warmers are also tested with the inside surface completely covered with metal foil (IEC 60335-2-81)		P
	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		—
	Appliances withstand the transient over-voltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6..... :		N/A
	No flashover during the test, unless		N/A

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N/A
15	MOISTURE RESISTANCE		—
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		P
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		P
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529	IPX1 (for foot warmer)	P
	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		N/A
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		P
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	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

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	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		N/A
	Humidity test for 48 h in a humidity cabinet	25°C; 93% R.H.	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		—
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
	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).....	1,06 × 240 = 254,4V	P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by $\sqrt{3}$ (V)		N/A

IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
	When testing the top surface of heating mats, the dimension of the metal foil are 300 mm x 150 mm (IEC 60335-2-81)		N/A
	Foot warmers are also tested with the inside surface completely covered with metal foil (IEC 60335-2-81)		P
	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..... :		N/A
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..... :		N/A
	No breakdown during the tests		P
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		—
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use..... :		N/A
	Appliance supplied with 1.06 or 0.94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V)..... :		N/A
	Basic insulation is not short-circuited		N/A
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N/A
	Temperature of the winding not exceeding the value specified in table 8		N/A
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	ENDURANCE		—
	Requirements and tests are specified in part 2 when necessary		N/A
19	ABNORMAL OPERATION		—

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and		P
	if applicable, to the test of 19.5		N/A
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6		N/A
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		N/A
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		N/A
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N/A
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		P
	until steady conditions are established		P
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		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)	$0,85 \times (220/230)^2 \times 100 = 77,8W$	P
	Appliance covered partially or completely whichever is more unfavourable (IEC 60335-2-81)		P
	If the foot warmer has a flexible part that covers the user's legs, this part is folded onto the foot part before covering (IEC 60335-2-81)		P
	Plywood board placed on top of the polyether sheet covering foot warmers (IEC 60335-2-81)		P
19.3	Test of 19.2 repeated; test voltage (V), power input of 1.24 times rated power input (W)	$1,24 \times (240/230)^2 \times 100 = 135,0W$	P

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Clause	Requirement + Test	Result - Remark	Verdict
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		P
	Heating mats are tested without being covered by polystyrene block (IEC 60335-2-81)		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		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		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		N/A
	locking moving parts of other appliances		N/A
	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		N/A
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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)		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		N/A
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N/A
	restarting does not result in a hazard		P
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4		P
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		N/A
	During and after each test the following is checked:		P
	- the temperature of the windings do not exceed the values specified in table 8		N/A
	- the appliance complies with the conditions specified in 19.13		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		N/A
	- the base material of the printed circuit board withstands the test of Annex E		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

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Clause	Requirement + Test	Result - Remark	Verdict
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		N/A
	- 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		N/A
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		P
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		P
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless		N/A
	they comply with IEC 60384-14	C1, C4	P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits	RV1, ZD1, T2, Q1	P
	This fault condition is not applied between the two circuits of an optocoupler		N/A
	e) failure of triacs in the diode mode		N/A
	f) failure of microprocessors and integrated circuits	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		N/A
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		P
	a device that can be placed in the stand-by mode,		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	Unintentionally operation can't impair standard requirements	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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		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		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N/A
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N/A
	Earthed heating elements in class I appliances disconnected		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N/A
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N/A
	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		N/A
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		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)	Rated current: 2A; Measured current: 7,0A	P
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Temperature rises not exceeding the values shown in table 9..... :	(see appended table)	P
	The temperature rise of the insulation of heating elements shall not exceed 145 K (IEC 60335-2-81)	(see appended table)	P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		N/A
	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) :	1000	P
	- supplementary insulation (V) :	1750	P
	- reinforced insulation (V)..... :	3000	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		P
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		P
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		P
	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		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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
20	STABILITY AND MECHANICAL HAZARDS		—
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
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		P
	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		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		—
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J	(see appended table)	P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	The requirement is not applicable to textiles and similar materials forming the enclosure (IEC 60335-2-81)		P
21.101	The test is carried out 1 000 times at a rate of six times per min (IEC 60335-2-81)		P
	The test shall not result in:		P
	– damage to the enclosure or displacement of heating elements to such an extent that compliance with the standard is impaired		P
	– open-circuiting of heating elements or controls		P
	– breakage of more than 10 % of the strands of internal wiring		P
	– failure of constructional stitching, or breakage of glued or welded joints, to such an extent that compliance with the standard is impaired		P
21.102	The insulation of heating elements and internal wiring retains adequate flexibility and insulating characteristics throughout the life of the appliance (IEC 60335-2-81)		P
	Compliance is checked by the tests of 21.102.1 and by the tests of 21.102.2 and 21.102.3 when the insulation exceeds:		P
	– a temperature rise of 50 K during the test of Clause 11, or		N/A
	– a temperature rise of 110 K during the tests of Clause 19		N/A
21.102.1	The sample of heating element or internal wiring is attached to the equipment shown in Figure 102 (IEC 60335-2-81)		P
	The carrier moves over a distance of 1 m with a constant speed of approximately 0,33 m/s for 25 000 cycles		P
	The sample shall not break during the test		P
	Power input of heating elements with PTC characteristics, measured before and after the test, and power does not increase during the test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The sample is then immersed in water containing approximately 1 % NaCl. A d.c. voltage of approximately 500 V is applied between the conductor and the saline solution		P
	The insulation resistance is measured 1 min after immersion and shall be at least 1 MΩ		P
21.102.2	The conductors are pulled out from 12 samples of heating element or internal wiring. If this is not possible, the insulation is slit longitudinally, the conductor is removed and the insulation allowed to close (IEC 60335-2-81)		N/A
	Six of the samples are conditioned by suspending them vertically so that they hang freely in a heating cabinet at a temperature of 125 °C ± 2 °C for 336 h. The samples are removed from the cabinet and allowed to cool down to room temperature. When the material has stabilized, the length of the samples is measured and shall not be less than 90 % of the original length		N/A
	The elongation of each of the unconditioned samples shall not be less than 100 % and their tensile strength shall not be less than 8,75 MPa		N/A
	The average value of both the elongation and tensile strength of the conditioned samples shall be not less than 75 % of the average value determined for the unconditioned samples		N/A
21.102.3	A 10 mm length of insulation is removed from each end of 12 samples of heating element or internal wiring (IEC 60335-2-81)		N/A
	Six of the samples are wound in a close helix of six turns on a metal mandrel having a diameter approximately equal to the external diameter of the samples. Together with the remaining six samples, they are placed in a heating cabinet at a temperature of 125 °C ± 2 °C for 336 h. The samples are removed from the cabinet and allowed to cool down to room temperature		N/A
	When the material has stabilized, the other six samples are also wound on the mandrel in the same way		N/A
	The samples are unwound from the mandrel and inspection shall show that there are no visible cracks		N/A
21.103	Heating elements with PTC characteristics resistant to crushing (IEC 60335-2-81)		N/A
	Temperature of the heating element where the block has been applied shall not have increased by more than 10 K.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22	CONSTRUCTION		—
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IPX1 (for foot warmer)	P
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		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
	Single-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0.25 Nm		N/A
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		N/A
	rotating does not impair compliance with this standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1µF, the appliance being disconnected from the supply at the instant of voltage peak		P
	Voltage not exceeding 34 V (V) :	Max.: 16,0V	P
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N/A
	In case of doubt, test as described		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
	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:		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		P
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		P
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		P
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/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		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion		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		N/A
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported		N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N/A
	Insulating material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		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		P
	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		P
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		N/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		N/A
	the capacitors comply with 22.42		N/A
22.38	Capacitors not connected between the contacts of a 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		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A
	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		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/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		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		N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		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		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		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	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		N/A
22.101	Appliances shall be constructed so that heating elements and internal wiring are retained in their intended position (IEC 60335-2-81)		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Crossing of internal wiring shall be avoided as far as possible. When this is unavoidable, the wiring shall be secured in order to prevent any relative movement		P
22.102	There shall be no significant change in the position of the heating elements if the stitching retaining them in position is broken (IEC 60335-2-81)		P
22.103	The insulation of heating elements and internal wiring, except in class III appliances, shall be integral with the conductor (IEC 60335-2-81)		P
22.104	Heating mats, constructed so that exposure of insulation of heating element and internal wiring shall be readily observed (IEC 60335-2-81)		N/A
	Compliance is checked by inspection after removing other materials such as carpet pile		N/A
	Colours of the insulation, different from the colours of the other materials		N/A
23	INTERNAL WIRING		—
23.1	Wire ways 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		N/A
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use, or		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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N/A
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		N/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		N/A
23.8	Aluminium wires not used for internal wiring		P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		N/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		—
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components..... :	(see appended table)	P
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/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		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		N/A
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000		N/A
	If they have to be tested, they are tested according to Annex H		P
	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: 100 000 (IEC 60335-2-81)		N/A
	- temperature limiters: 1 000		N/A
	- self-resetting thermal cut-outs: 10 000 (IEC 60335-2-81)		N/A
	- voltage maintained non-self-resetting thermal cut-outs: 1 000		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- other non-self-resetting thermal cut-outs: 30		N/A
	- timers: 3 000		N/A
	- energy regulators: 10 000		N/A
	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		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		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		N/A
24.1.8	The relevant standard for thermal links is IEC 60691		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		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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		N/A
	the solder has a melting point of at least 230 °C		N/A
	Appliances may be fitted with switches in flexible cords (IEC 60335-2-81)		P
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/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		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly		N/A
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		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		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		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

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Clause	Requirement + Test	Result - Remark	Verdict
	- the capacitors are housed within a metallic or ceramic enclosure		N/A
	- 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		—
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		P
	- supply cord fitted with a plug,		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N/A
	- pins for insertion into socket-outlets		N/A
	Foot warmers not provided with an appliance inlet (IEC 60335-2-81)		P
	Unless intended to be connected to the supply during preheating only (IEC 60335-2-81)		N/A
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A
25.3	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		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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
	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)..... :		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:		P
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment (IEC 60335-2-81)		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		N/A
25.6	Plugs fitted with only one flexible cord		P
25.7	Supply cords, other than for class III appliances, being one of the following types:		P
	- rubber sheathed (at least 60245 IEC 53)		N/A
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- cross-linked polyvinyl chloride sheathed (at least 60245 IEC 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		P
	<ul style="list-style-type: none"> light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg 	H03VVH2-F	P
	<ul style="list-style-type: none"> ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances 		N/A
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<ul style="list-style-type: none"> heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg 		N/A
	<ul style="list-style-type: none"> heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances 		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 ²)	0,45A; 2x0,5mm ² or 2x0,75mm ²	P
25.9	Supply cords not in contact with sharp points or edges		P
25.10	Supply cord of class I appliances have a green/yellow core for earthing		N/A
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		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		N/A
25.13	Inlet openings so constructed as to prevent damage to the supply cord		P
	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		P
	Flexing test, as described:		P
	- applied force (N)	5	P
	- number of flexing	10 000	P
	The test does not result in:		P
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- breakage of more than 10% of the strands of any conductor		P
	- separation of the conductor from its terminal		P
	- loosening of any cord guard		P
	- damage to the cord or the cord guard		P
	- broken strands piercing the insulation and becoming accessible		P
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of supply cord, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) :	Max. 0,74 kg; 60 N; 0,1 Nm	P
	Pull force increased to 60 N (IEC 60335-2-81)		P
	Cord not damaged and max. 2 mm displacement of the cord		P
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		P
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		P
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		P
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
	- live parts not accessible during insertion or removal		N/A
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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:		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.		P
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		P
26	TERMINALS FOR EXTERNAL CONDUCTORS		—
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P
	Terminals only accessible after removal of a non-detachable cover, except		P
	for class III appliances that do not contain live parts		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
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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

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Clause	Requirement + Test	Result - Remark	Verdict
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm ²)		N/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		P
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		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		N/A
27	PROVISION FOR EARTHING		—
27.1	Accessible metal parts of Class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		N/A
	Earthing terminals and earthing contacts not connected to the neutral terminal		N/A
	Class 0, II and III appliances have no provision for earthing	Class II appliance	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

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Clause	Requirement + Test	Result - Remark	Verdict
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm ² , and		N/A
	do not provide earthing continuity between different parts of the appliance, 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
	Resistance not exceeding 0,1 Ω at the specified low-resistance test (Ω)		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

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Clause	Requirement + Test	Result - Remark	Verdict
28	SCREWS AND CONNECTIONS		—
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical 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		P
	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
	<ul style="list-style-type: none"> • 30.2.2 is applicable and that carry a current not exceeding 0,5 A 		N/A
	<ul style="list-style-type: none"> • 30.2.3 is applicable and that carry a current not exceeding 0,2 A 		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		—
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies..... :		N/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)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	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		P
	Lacquered conductors of windings considered to be bare conductors		N/A
	However, clearances at crossover points are not measured		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		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		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
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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	For controller	P
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3	For foot warmer	P
	The microenvironment is pollution degree 3 (IEC 60335-2-81)		P
	unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance (IEC 60335-2-81)		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
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17		N/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.....		N/A
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable		N/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

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Clause	Requirement + Test	Result - Remark	Verdict
	Table 2 of IEC 60664-4, as applicable..... :		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		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		N/A
	- 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
	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
	The requirement does not apply to the part containing heating elements (IEC 60335-2-81)		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		N/A
	Supplementary insulation consist of at least 2 layers		N/A
	Reinforced insulation consist of at least 3 layers		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N/A
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		—
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C)	(see appended table)	P
	Parts supporting live parts tested at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C)	(see appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)	Considered	N/A
	The test is not applied to enclosures that are likely to be flexed in normal use (IEC 60335-2-81)		P
	Parts of resilient plastic material are subjected to the pressure test of 24.1.3 of IEC 60320-1 instead of the ball pressure test of IEC 60695-10-2 (IEC 60335-2-81)		N/A
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
	The test is not carried out on textiles and similar materials forming the enclosure of foot warmers (IEC 60335-2-81)		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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		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		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
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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.....:	Soldered connections on PCB	P
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C		P
	Glow-wire applied to an interposed shielding material, if relevant		N/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 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to glow-wire test of IEC 60695-2-11		P
	The test severity is:		P
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		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"> • 775 °C, for connections carrying a current exceeding 0,2 A during normal operation 		N/A
	<ul style="list-style-type: none"> • 675 °C, for other connections 		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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
	- 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:		N/A
	- 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		N/A
	- 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
	The needle-flame test is not carried out on textile materials (IEC 60335-2-81)		N/A
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Test not applicable to conditions as specified.....:	PCB: V-0	P
30.101	Textiles and similar materials forming the enclosure of foot warmers shall be adequately resistant to ignition (IEC 60335-2-81)		P
	Spark ignition test results (s) (limit not less than 80 s average) (IEC 60335-2-81)		P
30.102	Insulation of heating elements and internal wiring, sufficient resistance to heat and fire (IEC 60335-2-81)		P
	Heating element and internal wiring, max. length (mm) damaged by fire (65 mm max.) (IEC 60335-2-81)		P
31	RESISTANCE TO RUSTING		—
	Relevant ferrous parts adequately protected against rusting		N/A
	Tests specified in part 2 when necessary		N/A
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		—
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		P
	Compliance is checked by the limits or tests specified in part 2, if relevant		N/A
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		N/A
	Requirements not applicable to the evaluated product.		—
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES		N/A
	Requirements not applicable to the evaluated product.		—
C	ANNEX C (NORMATIVE) AGEING TEST ON MOTORS		N/A
	Requirements not applicable to the evaluated product.		—
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS		N/A
	Requirements not applicable to the evaluated product.		—
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 ± 1 s		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
	Requirements not applicable to the evaluated product.		—
G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		N/A
	Requirements not applicable to the evaluated product.		—
H	ANNEX H (NORMATIVE) SWITCHES		—
	Switches comply with the following clauses of IEC 61058-1, as modified below:		P
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		P
	Before being tested, switches are operated 20 times without load		P
8	Marking and documentation		P
	Switches are not required to be marked		P
	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		P
	The tests may be carried out on a separate sample		P
15	Insulation resistance and dielectric strength		P
15.1	Not applicable		P
15.2	Not applicable		P

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Clause	Requirement + Test	Result - Remark	Verdict
15.3	Applicable for full disconnection and micro-disconnection		P
17	Endurance		P
	Compliance is checked on three separate appliances or switches		P
	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	6000 cycles	P
	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		P
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K).....	Max. 2,0K	P
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		P
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		P
I	ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE		N/A
	Requirements not applicable to the evaluated product.		—
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS		N/A
	Requirements not applicable to the evaluated product.		—
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		—
	The information on overvoltage categories is extracted from IEC 60664-1		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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		—
	Information for the determination of clearances and creepage distances		P
M	ANNEX M (NORMATIVE) POLLUTION DEGREE		—
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		P
	The microenvironment determines the effect of pollution on the insulation, taking into account the macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		P
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		P
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected	For controller	P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected	For foot warmer	P
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		—
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P
7	Test apparatus		P
7.3	Test solutions		P
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		P
10.1	Procedure		P
	The proof voltage is 100V, 175V, 400V or 600V...:	175V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report		P
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		P
O	ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30		—
	Description of tests for determination of resistance to heat and fire		P
P	ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES		N/A
	Requirements not applicable to the evaluated product.		—
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS		—
	Description of tests for appliances incorporating electronic circuits		P



IEC 60335-2-81			
Clause	Requirement + Test	Result - Remark	Verdict
R	ANNEX R (NORMATIVE) SOFTWARE EVALUATION		N/A
	Requirements not applicable to the evaluated product.		—

10.1	TABLE: Power input deviation					P
Input deviation of/at:	P rated (W)	P measured (W)	ΔP	Required ΔP	Remark	
220V, 50Hz	100	87,8	--	Ref.	—	
230V, 50Hz	100	92,1	-7,9%	$\pm 10\%$	—	
240V, 50Hz	100	98,1	--	Ref.	—	
Supplementary information: —						

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

11.8	TABLE: Heating test, thermocouples			P
	Test voltage (V)	259,0V $[1,15 \times (240/230)^2 \times 100 = 125,2W]$		—
	Ambient t1 (°C)	23,0		—
	Ambient t2 (°C)	24,9		—
Thermocouple locations		Max. temperature rise measured, ΔT (K)	Max. temperature rise limit, ΔT (K)	
Separation of power cord (input)		4,0	50	
Separation of power cord (output)		1,9	50	
PCB near T1; T130		12,8	T-25=105	
Ambient of X capacitor (C4); T100		7,8	T-25=75	
Ambient of switch terminal		10,3	Ref.	
Controller enclosure, inside		4,0	Ref.	
Controller enclosure, outside		3,6	60	
Enclosure of connection box, outside		10,4	60	
Switch knob		1,8	60	
Foot warmer surface contact to feet		18,9	40	
Heating element		39,0	80	
Test floor		10,4	65	
Test corner		5,1	65	
Supplementary information: —				

11.8	TABLE: Heating test, resistance method					N/A
	Test voltage (V)	—			—	
	Ambient, t ₁ (°C)	—			—	
	Ambient, t ₂ (°C)	—			—	
Temperature rise of winding		R ₁ (Ω)	R ₂ (Ω)	dT (K)	Max. dT (K)	Insulation class
Supplementary information: —						

13.2	TABLE: Leakage current			P
	Heating appliances: 1.15 x rated input	1,15x(240/230) ² x100 = 125,2W		—
	Motor-operated and combined appliances: 1.06 x rated voltage.....	—		—
Leakage current between		I (mA)	Max. allowed I (mA)	
L/N and foot warmer surface		0,02	0,35 peak	
L/N and controller enclosure		0,01	0,35 peak	
Supplementary information: —				

13.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
L/N and foot warmer surface		3000	No
L/N and controller enclosure		3000	No
Supplementary information: —			

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

16.2	TABLE: Leakage current			P
	Single phase appliances: 1.06 x rated voltage	1,06 x 240 = 254,4V		—
	Three phase appliances 1.06 x rated voltage divided by √3:	—		—
Leakage current between		I (mA)	Max. allowed I (mA)	
L/N and foot warmer surface		0,01	0,25	
L/N and controller enclosure		0,01	0,25	
Supplementary information: —				

16.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
L/N and foot warmer surface		3000	No
L/N and controller enclosure		3000	No
Supplementary information: —			

17	TABLE: Overload protection, temperature rise		N/A
Temperature rise of part/at:		dT (K)	Max. dT (K)
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)	Δ T (K)	T (°C)	Max. T (°C)
Supplementary information: —						

19	Abnormal operation conditions						P
Operational characteristics		YES/NO	Operational conditions				
Are there electronic circuits to control the appliance operation?		Yes	Normal operation				
Are there “off” or “stand-by” position?		Yes	Off position				
The unintended operation of the appliance results in dangerous malfunction?		No	N/A				
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	See table19.13	No hazards observed	N/A	N/A	N/A	N/A	P
19.3	See table19.13	No hazards observed	N/A	N/A	N/A	N/A	P
19.4	See table19.13	No hazards observed	N/A	N/A	N/A	N/A	P
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	See clause 19.11.2	No hazards observed	N/A	N/A	N/A	N/A	P
19.11.4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Supplementary information: —							

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

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

19.13	TABLE: Abnormal operation, temperature rises				P
Thermocouple locations		Δ T (K)		Max. dT (K)	
		19.2 / 19.3	19.4		
Separation of power cord		6,1	6,4	150	
Controller enclosure, inside		6,3	5,0	Ref.	
Foot warmer surface		35,5	23,0	Ref.	
Heating element		43,9	44,0	145	
Test floor		12,0	12,9	150	
Test corner		4,6	6,5	150	
Supplementary information: the most unfavourable test result was record.					

21.1	TABLE: Impact resistance			P
Impacts per surface	Surface tested	Impact energy (Nm)	Comments	
3	Controller enclosure	0,5	No damage	
3	Connection box enclosure	0,5	No damage	
Supplementary information: —				

24.1	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Power plug (for EU use only)	Ningbo Yaoda Electric Appliances Co., Ltd. / YaoJie	YJ01	AC 250V; 2,5A	DIN VDE 0620	VDE	
(Alternative)	Yuyao Jiadian Appliance Factory	YAD-1	AC 250V; 2,5A	DIN VDE 0620	VDE	
Power plug (for the United Kingdom use only)	Ningbo Qiaopu Electric Co., Ltd	D09	AC 250V; 3A; Non-rewirable plug	BS 1363-1	ASTA	
(Alternative)	Ningbo Yaoyao Electric Appliance Co., Ltd. / YaoJie	YJ-09	AC 250V; 3A; Non-rewirable plug	BS 1363-1	ASTA	
Power plug (for Italy use only)	Ningbo Qiaopu Electric Co., Ltd.	D07	AC 250V; 10A	CEI 23-50-II	IMQ	
Power plug (for Switzerland use only)	Ningbo Qiaopu Electric Co., Ltd.	D12	AC 250V; 10A	IEC 60884-1 SEV 1011	ESTI	
Power cord	Ningbo Yaoda Electric Appliances Co., Ltd.	H03VVH2-F	2x0,5mm ² or 2x0,75mm ²	EN 50525-2-11	VDE	
(Alternative)	Yuyao Jiadian Appliance Factory	H03VVH2-F	2x0,5mm ² or 2x0,75mm ²	EN 50525-2-11	VDE	
Interconnection cord	Ningbo Yaoda Electric Appliances Co., Ltd.	H03VV-F	3x0,5mm ² or 3x0,75mm ²	EN 50525-2-11	VDE	
(Alternative)	Yuyao Jiadian Appliance Factory	H03VV-F	3x0,5mm ² or 3x0,75mm ²	EN 50525-2-11	VDE	
Controller	Ningbo Kanghong Electrical Appliance Co., Ltd.	KS6-45/90	AC 220-240V; 50Hz	EN 60335-1 EN 60335-2-81	Tested with appliance	
Current Fuse	Suzhou Walter Electronic Co. Ltd.	ICP-Series	T2A; AC 250V; Rated making and breaking capacity: 35A	EN 60127-1 EN 60127-3	VDE	
(Alternative)	Suzhou Walter Electronic Co. Ltd.	FIP	F2A; AC 250V; Rated breaking capacity: 50A	EN 60127-1 EN 60127-3	VDE	

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alternative)	Shenzhen Lanson Electronics Co. Ltd.	3N - Serie(s)	T2A; AC 250V; Rated breaking capacity: 35A	EN 60127-1 EN 60127-3	VDE
(Alternative)	Shenzhen Lanson Electronics Co. Ltd.	Series 3JF2A250V	F2A; AC 250V; Rated breaking capacity: 35A	EN 60127-1 EN 60127-3	VDE
X2 capacitor (C1)	Shanghai Jiabao Pan Ocean Electron Co., Ltd.	MPX / X2	AC 275V; 0,22 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Jiangsu Xinghua Huayu Electronics Co., Ltd.	MPX - Series	AC 275V; 0,22 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Aid Electronic Corporation	MEX	AC 275V; 0,22 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Dain Electronics Co., Ltd.	MPX	AC 275V; 0,22 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Carli Electronics Co., Ltd.	MPX	AC 275V; 0,22 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Guangdong Fengming Electronic Tech. Co., Ltd.	MKP-X2	AC 275V; 0,22 μ F; X2; T85 or T105 or T110	EN 60384-14	VDE
X2 capacitor (C4)	Shanghai Jiabao Pan Ocean Electron Co., Ltd.	MPX / X2	AC 275V; 0,47 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Jiangsu Xinghua Huayu Electronics Co., Ltd.	MPX - Series	AC 275V; 0,47 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Aid Electronic Corporation	MEX	AC 275V; 0,47 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Dain Electronics Co., Ltd.	MPX	AC 275V; 0,47 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Carli Electronics Co., Ltd.	MPX	AC 275V; 0,47 μ F; X2; T100	EN 60384-14	VDE
(Alternative)	Guangdong Fengming Electronic Tech. Co., Ltd.	MKP-X2	AC 275V; 0,47 μ F; X2; T85 or T105 or T110	EN 60384-14	VDE
Varistor	Nanjing Jocol Electronics Technology Co., Ltd.	07D471	T85	EN 61051-1 EN 61051-2 EN 61051-2-2	TÜV Rheinland

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alternative)	Zhejiang Huang-Yan Sailing Electronics Co., Ltd.	MYG07K471	T85	EN 61051-1 EN 61051-2 EN 61051-2-2	VDE
(Alternative)	Shaanxi Huaxing Electronic Group Co., Ltd.	MYG20G07K471	T85	EN 61051-1 EN 61051-2 EN 61051-2-2	VDE
PCB (for controller and coupler)	JIANGSU KUNSHAN HONG YUN TONG MULTILAYER-PCB CO LTD	HYT-M	V-0; 130°C; Thickness:1,6mm	EN 60335-1 EN 60335-2-81	UL / Tested with appliance
(Alternative)	KINGBOARD LAMINATES HOLDINGS LTD	KB-5150	V-0; 130°C; Thickness:1,6mm	EN 60335-1 EN 60335-2-81	UL / Tested with appliance
Heating element	Shanghai Jianjian	RKv230-100/4.7	In: 44,68±5% Ω/m; Out: 3±5% Ω/m; (at 20°C); Length: 5m	EN 60335-1 EN 60335-2-81	Tested with appliance
Enclosure / switch knob of controller	CHI MEI CORPORATION	PA-757(+)	ABS; HB	EN 60335-1 EN 60335-2-81	UL / Tested with appliance
(Alternative)	IDEMITSU KOSAN CO LTD	(u)Y2200(+)(f2)	PC; V-0	EN 60335-1 EN 60335-2-81	UL / Tested with appliance
Lamp cover of controller	IDEMITSU KOSAN CO LTD	(u)Y2200(+)(f2)	PC; V-0	EN 60335-1 EN 60335-2-81	UL / Tested with appliance
Enclosure of connection box/ Material supporting pins of connection box	IDEMITSU KOSAN CO LTD	(u)Y2200(+)(f2)	PC; V-0	EN 60335-1 EN 60335-2-81	UL / Tested with appliance

Supplementary information:

- 1) Provided evidence ensures the agreed level of compliance. See OD-2039.
- 2) License available upon request.

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

29.1		TABLE: Clearances					P
		Overvoltage category			II		—
		Type of insulation:					
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark	
330	0,2* / 0,5 / 0,8**	—	—	—	—	N/A	
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	<u>1,5 / 2,0***</u>	6,1	7,4	—	4,3	P	
4 000	<u>3,0 / 3,5***</u>	—	—	6,3	—	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
 - Requirements not applicable to parts comply with clause 19.

29.2		TABLE: Creepage distances, basic, supplementary and reinforced insulation								P	
Working voltage (V)	Creepage distance (mm)										
	Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*)	B**)	S**)	R**)	Verdict
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9		—	—	N/A
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		N/A
250	0,56	1,25	1,8	<u>2,5</u>	3,2	3,6	<u>4,0</u>	X	—	—	P
250	0,56	1,25	1,8	<u>2,5</u>	3,2	3,6	<u>4,0</u>	—	X	—	P
250	1,12	2,5	3,6	<u>5,0</u>	6,4	7,2	<u>8,0</u>	—	—	X	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
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)							Verdict / Remark	
	Pollution degree								
	1	2			3				
		Material group			Material group				
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*		
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A	
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	N/A	
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A	
250	0,42	1,0	1,4	2,0	2,5	2,8	3,2	P	
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									

30.1	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm)		≤ 2,0		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Enclosure / switch knob of controller	CHI MEI CORPORATION	75	0,3	
(Alternative)	IDEMITSU KOSAN CO LTD	75	0,5	
Lamp cover of controller	IDEMITSU KOSAN CO LTD	75	0,5	
Enclosure of connection box/ Material supporting pins of connection box	IDEMITSU KOSAN CO LTD	125	0,9	
PCB	JIANGSU KUNSHAN HONG YUN TONG MULTILAYER-PCB CO LTD	125	0,3	
(Alternative)	KINGBOARD LAMINATES HOLDINGS LTD	125	0,6	
Supplementary information: —				

30.2	TABLE: Resistance to heat and fire - Glow wire tests						P	
Object/ Part No./ Material	Manufacturer / trademark	Glow wire test (GWT); (°C)						Verdict
		550	650		750		850	
			te	ti	te	ti		
Enclosure / switch knob of controller	CHI MEI CORPORATION	X	—	—	—	—	—	P
(Alternative)	IDEMITSU KOSAN CO LTD	X	—	—	—	—	—	P
Lamp cover of controller	IDEMITSU KOSAN CO LTD	X	—	—	—	—	—	P
Enclosure of connection box/ Material supporting pins of connection box	IDEMITSU KOSAN CO LTD	—	—	—	0	0	X	P
Object/ Part No./	Manufacturer /	Glow-wire flammability index (GWFI), °C				GW ignition temp. (GWIT), °C		Verdict

Material	trademark	550	650	750	850	675	775	
—	—	—	—	—	—	—	—	N/A
The test specimen passed the glow wire test (GWT) with no ignition $[(t_e - t_i) \leq 2s]$ (Yes/No) :								No
If no, then surrounding parts passed the needle-flame test of annex E (Yes/No)								Yes
The test specimen passed the test by virtue of most of the flaming material being withdrawn with the glow-wire (Yes/No)?..... :								N/A
Ignition of the specified layer placed underneath the test specimen (Yes/No)								No
Supplementary information: - 550 °C GWT not relevant (or applicable) to parts of material classified at least HB40 or if relevant HBF - The GWIT pre-selection option, the 850 °C GWFI pre-selection option, and the 850 °C GWT are not relevant (or applicable) for attended appliances								

30.2/30.4	TABLE: Needle- flame test (NFT)					N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Supplementary information: —						



**ATTACHMENT TO TEST REPORT IEC 60335-2-81
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**

Household and similar electrical appliances – Safety

Part 2-81: Particular requirements for foot warmers and heating mats

Differences according to:	EN 60335-2-81:2003 + A1:2007 + A2:2012 used in conjunction with EN 60335-1:2012 EN 62233:2008
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Attachment Form No.:	EU_GD_IEC60335_2_81C
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Attachment Originator:	IMQ S.p.A.
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Master Attachment:	2014-05
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IEC60335_2_81C - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict

CENELEC COMMON MODIFICATIONS			
6.1	Delete "class 0" and "class 01"		P
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N/A
7.10	Devices used to start/stop operational functions of the appliance distinguished from other manual devices by means of shape, size, surface texture, position, etc.	Deleted by EN 60335-1:2012/A2:2019	N/A
	An indication that the device has been operated is given by:		—
	<ul style="list-style-type: none"> a tactile feedback, or 		N/A
	<ul style="list-style-type: none"> an audible and visual feedback 		N/A
7.12	The instructions include the substance of 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
	- cleaning and user maintenance shall not be made by children without supervision		P
7.12.Z1	The specific instructions related to the safe operation of this appliance is collated together in the front section of the user instructions	Deleted by EN 60335-1:2012/A2:2019	N/A
	The height of the characters, measured on the capital letters, is at least 3 mm		N/A
	These instructions are also available in an alternative format, e.g. on a website		N/A
8.1.1	Also test probe 18 of EN 61032 is applied		P
	The appliance being in every possible position during the test		P
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		P
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		P
	parts intended to be removed for user maintenance are also not removed		P

IEC60335_2_81C - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
8.2	Compliance is checked by applying the test probes of EN 61032		P
	For built-in appliances and fixed appliances, the test probe B and probe 18 of EN 61032 are applied only after installation		N/A
11.8	Footnotes to "External enclosure of motor-operated appliances" to be taken into account	Deleted by EN 60335-1:2012/A1:2019	N/A
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N/A
20.2	When using the test probe similar to test probe B with a circular stop face, the accessories and detachable covers are removed		N/A
	Test probe 18 applied with a force of 2,5N on the appliance fully assembled		N/A
24.1	Components comply with the safety requirements specified in the relevant standards as far as they reasonably apply	Replaced by EN 60335-1:2012/A1:2019	N/A
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance.		N/A
	The requirements of 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 components		N/A
	Components that have not been previously tested or do not comply with the standard for the relevant component are tested according to the requirements of 30.2		N/A
	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:		N/A
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		N/A
	- the test report for the component states whether it complied with the standard for the relevant component with or without flame, flames not exceeding 2 s during the test are ignored		N/A
	Unless components have been previously tested and found to comply with the relevant standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A

IEC60335_2_81C - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		N/A
	Components that have not been separately tested and found to comply with the relevant standard, and		N/A
	components that are not marked or not used in accordance with their marking,		N/A
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		N/A
	Lamp holders and starter holders that have not been previously tested and found to comply with the relevant standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant standard under the conditions occurring in the appliance		N/A
	Where the relevant standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		N/A
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		N/A
	with connectors and appliance inlets complying with the standard sheets of IEC 60320-1,		N/A
	if direct supply to these parts from the supply mains gives rise to a hazard		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is EN 41003		N/A
	Compliance with Clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N/A
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	Replaced by EN 60335-1:2012/A2:2019	N/A
25.6	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, fitted with a plug complying with the following standard sheets of IEC/TR 60083:		N/A

IEC60335_2_81C - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	- for Class I appliances: standard sheet C2b, C3b or C4.....:	Deleted by EN 60335-1:2012/A14:2019	N/A
	- for Class II appliances: standard sheet C5 or C6		N/A
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors or when they are liable to be exposed to significant amount of ultraviolet radiation		N/A
	Halogen-free thermoplastic compound sheathed supply cords have properties at least those of:		N/A
	<ul style="list-style-type: none"> halogen-free thermoplastic compound sheathed cords (H03Z1Z1H2-F or H03Z1Z1-F), for appliances having a mass not exceeding 3 kg 	Deleted by EN 60335-1:2012/A2:2019	N/A
	<ul style="list-style-type: none"> halogen-free thermoplastic compound sheathed cords (H05Z1Z1H2-F or H05Z1Z1-F), for other appliances 	Deleted by EN 60335-1:2012/A2:2019	N/A
	Cross-linked halogen-free compound sheathed supply cords have properties at least those of cross-linked halogen-free compound sheathed cords (H07ZZ-F)	Deleted by EN 60335-1:2012/A2:2019	N/A
26.11	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
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		N/A
32	Compliance regarding electromagnetic fields is checked according to EN 50366 or EN 62233	EN 62233	P
Annex I, 19.I.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N/A
	The duration of the test is as specified in 19.7		N/A
ZA	ANNEX ZA (NORMATIVE) SPECIAL NATIONAL CONDITIONS		—
	Norway		—
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N/A
	Norway		—

IEC60335_2_81C - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N/A
	All CENELEC countries		—
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	Deleted by EN 60335-1:2012/A14:2019	N/A
	Ireland and United Kingdom		—
25.8	In the table, the lines for 10 A and 16 A are replaced by:		N/A
	> 10 and ≤ 13 1,25		N/A
	> 13 and ≤ 16 1,5		N/A
ZB	ANNEX ZB (INFORMATIVE) A-DEVIATIONS		—
	Ireland		—
25.6	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	Replaced by EN 60335-1:2012/A14:2019	N/A
	United Kingdom		—
25.6	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	Replaced by EN 60335-1:2012/A14:2019	N/A
ZC	ANNEX ZC (NORMATIVE) NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		—
	A list of referenced documents in this standard		P
ZD	ANNEX ZD (INFORMATIVE) IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS		—
	A table with IEC and CENELEC code designations for flexible cords		P
ZE	ANNEX ZE (INFORMATIVE) SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE		N/A
	Requirements not applicable to the evaluated product.		—

IEC60335_2_81C - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
ZF	ANNEX ZF (INFORMATIVE) CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD		—
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive)	LVD: 2014/35/EU	P
ZG	ANNEX ZG (NORMATIVE) UV APPLIANCES		N/A
	Requirements not applicable to the evaluated product.		—
ZZ	ANNEX ZZ (INFORMATIVE) COVERAGE OF ESSENTIAL REQUIREMENTS OF EC DIRECTIVES		—
	Description of the relation between this European standard and the LVD (Low Voltage Directive, 2006/95/EC) and the MD (Machinery Directive, 2006/42/EC)	LVD directive updated to 2014/35/EU	P

Annex EN 62233:2008			
EMF- ELECTROMAGNETICS FIELDS			
	The tested product also complies with the requirements of EN 62233:2008		P
	Limit100%	Measured max.: 0,5%	P

Amendment A11:2014 and A13:2017 to EN 60335-1:2012						
Clause	Requirement - Test	Result - Remark	Verdict			
7.14	In NOTE Z1, replace "IEC 82079-1" by "EN 82079-1"		N/A			
Annex ZF	In Table ZF.1 – List of standards under CLC/TC 61, replace line of EN 60335-2-38 by the following:		N/A			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 60%;">EN 60335-2-38, Commercial electric griddles and griddle grills</td> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 20%;">With moving parts</td> </tr> </table>	EN 60335-2-38, Commercial electric griddles and griddle grills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	With moving parts	
EN 60335-2-38, Commercial electric griddles and griddle grills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	With moving parts			
ZZA	ANNEX ZZA (INFORMATIVE) REALATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE SAFETY OBJECTIVES OF DIRECTIVE 2014/35/EU [2014 OJ L96] AIMED TO BE COVERED		—			
	This standard provides one means of conforming to safety objectives of Directive 2014/35/EU	2014/35/EU	P			
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZA.1 confers a presumption of conformity with the safety objectives of that Directive and associated EFTA regulations		P			
	Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the safety objectives		N/A			
ZZB	ANNEX ZZB (INFORMATIVE) REALATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE ESSENTIAL REQUIREMENTS OF DIRECTIVE 2006/42/EC AIMED TO BE COVERED		—			
	This standard provides one means of conforming to essential requirements of EU Directive 2006/42/EC		N/A			
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZB.1 confers a presumption of conformity with the essential requirements of that Directive and associated EFTA regulations		N/A			
	Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the essential health and safety requirements		N/A			

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
5.17	Replace the existing text by the following:		—
	Appliances powered by rechargeable batteries that are recharged in the appliance are tested in accordance with Annex B.		N/A
	Battery-operated appliances powered by batteries that are non-rechargeable or not recharged in the appliance are tested in accordance with Annex S.		N/A
7.1	Add the following new paragraph after Note 4:		—
	Class II appliances and class III appliances incorporating a functional earth shall be marked with the symbol IEC 60417-5018 (2011-07).		N/A
7.3	In Note 3, replace the text of the example by the following.		—
	EXAMPLE: 230 V /400 V 3N: The appliance is only suitable for the voltage values indicated, 230 V being for single-phase, a.c. operation and 400 V 3N for three-phase, a.c. with neutral operation (an appliance with terminals for both supplies).		N/A
7.4	Replace the requirement by the following:		—
	If the appliance can be adjusted for different rated voltages or rated frequencies, the voltage or the frequency to which the appliance is adjusted shall be clearly discernible. If frequent changes in voltage setting or frequency setting are not required, this requirement is considered to be met if the rated voltage or rated frequency to which the appliance is to be adjusted can be determined from a wiring diagram fixed to the appliance.		N/A
7.6	Replace [symbol ISO 7000-0434 (2004-01)] by [symbol ISO 7000-0434A (2004-01)].		N/A
7.8	Add the following to the first paragraph of the requirement:		—
	- Functional earthing terminals shall be indicated by symbol IEC 60417-5018 (2011-07).		N/A
7.12	Delete “for use” in the first paragraph and in the Note.		N/A
	Add the following after the existing last paragraph of the requirement:		—
	For appliances intended for use at altitudes exceeding 2 000 m, the maximum altitude of use shall be stated.		N/A
	The instructions for appliances incorporating a functional earth shall state the substance of the following:		—

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	This appliance incorporates an earth connection for functional purposes only.		N/A
7.12.1	Add the following text:		—
	For appliances marked with different rated voltages or different rated frequencies (separated by a /), instructions shall be included to indicate to the user or installer what action must be taken to adjust the appliance for operation at the required rated voltage or rated frequency.		N/A
7.15	Add the following:		—
	The symbol IEC 60417-5018 (2011-07) shall be placed next to the symbol IEC 60417-5172 (2003-02) or the symbol IEC 60417-5180 (2003-02) as appropriate.		N/A
8.1.1	Delete the Note.		N/A
10.1	Replace the penultimate paragraph of the test specification by the following:		—
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, then the power input is the maximum value that is exceeded for more than 10 % of the representative period. Otherwise the power input is taken as the arithmetic mean value.		N/A
10.2	Replace the penultimate paragraph of the test specification by the following:		—
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, then the current is the maximum value that is exceeded for more than 10 % of the representative period. Otherwise the current is taken as the arithmetic mean value.		N/A
11.8	Delete the second sentence of the first paragraph.		—
	Table 3 – Maximum normal temperature rises After the entry for pins of appliance inlets, add the following new entry: Pins of appliances for insertion into socket-outlets 45K Replace the second to last, third to last and fourth to last entries in Table 3		P
13.2	In the first paragraph, after “class II appliances” add “, class II constructions” and replace the second sentence by the following:		—

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	For class 0I appliances and class I appliances, C may be replaced by a low impedance ammeter responding to the rated frequency of the appliance.		N/A
	Replace the second paragraph by the following:		—
	The leakage current is measured between any pole of the supply and – accessible metal parts intended to be connected to protective earth, for class I appliances and class 0I appliances;		N/A
	– metal foil having an area not exceeding 20 cm × 10 cm which is in contact with accessible surfaces of insulating material and metal parts not intended to be connected to protective earth, for class 0 appliances, class II appliances, class II constructions and class III appliances.		P
	Replace the fourth paragraph by the following:		—
	For single-phase appliances, the measuring circuit is shown in the following figures:		—
	– if they are class II appliances or parts of class II construction, Figure 1;		P
	– if they are neither class II appliances nor parts of class II construction, Figure 2.		N/A
	Replace the sixth paragraph by the following:		—
	For three-phase with neutral (3N~) connected appliances, the measuring circuit is shown in the following figures:		—
	– if they are class II appliances or parts of class II construction, Figure 3;		N/A
	– if they are neither class II appliances nor parts of class II construction, Figure 4.		N/A
	Delete “For three-phase appliances,” from the first sentence of the seventh paragraph.		N/A
	Replace the third sentence of the seventh paragraph by the following:		—
	For three-phase without neutral (3~) connected appliances, the measuring circuit in Figure 3 or Figure 4 shall be used as applicable, but the neutral is not connected to the appliance.		N/A
	In the existing eighth paragraph, replace the first dashed item by the following:		—
	– for class II appliances and for parts of class II construction 0,35 mA peak		N/A

Amendment A1:2019 to EN 60335-1:2012													
Clause	Requirement - Test	Result - Remark	Verdict										
15.2	Replace the first paragraph of the test specification by the following:		—										
	Compliance is checked by the following test using a spillage solution comprising water containing approximately 1 % NaCl and 0,6 % rinsing agent.		N/A										
	Replace the fifth paragraph of the test specification by the following:		—										
	The liquid container of the appliance is completely filled with the solution and a further quantity equal to 15 % of the capacity of the container or 0,25 l, whichever is the greater, is poured in steadily over a period of 1 min.		N/A										
	Add the following new text as a penultimate paragraph:		—										
	<p>Any commercially available rinsing agent may be used, but if there is any doubt with regards to the test results, the rinsing agent shall have the following properties:</p> <ul style="list-style-type: none"> – viscosity, 17 mPa·s; – pH, 2,2 (1 % in water). <p>and its composition shall be</p> <table border="1" data-bbox="406 1153 1050 1279"> <thead> <tr> <th>Substance</th> <th>Parts by mass %</th> </tr> </thead> <tbody> <tr> <td>Plurafac ® LF 221²</td> <td>15,0</td> </tr> <tr> <td>Cumene sulfonate (40 % solution)</td> <td>11,5</td> </tr> <tr> <td>Citric acid (anhydrous)</td> <td>3,0</td> </tr> <tr> <td>Deionized water</td> <td>70,5</td> </tr> </tbody> </table>	Substance	Parts by mass %	Plurafac ® LF 221 ²	15,0	Cumene sulfonate (40 % solution)	11,5	Citric acid (anhydrous)	3,0	Deionized water	70,5		N/A
Substance	Parts by mass %												
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Citric acid (anhydrous)	3,0												
Deionized water	70,5												
16.2	Replace the first paragraph by the following:		—										
	<p>An a.c. test voltage is applied between live parts and</p> <ul style="list-style-type: none"> – accessible metal parts intended to be connected to protective earth, for class I appliances and class 0I appliances; – metal foil having an area not exceeding 20 cm × 10 cm which is in contact with accessible surfaces of insulating material and metal parts not intended to be connected to protective earth, for class 0 appliances, class II appliances, class II constructions and class III appliances. <p>In the fourth paragraph, replace the first dashed item by the following:</p> <ul style="list-style-type: none"> – for class II appliances and for parts of class II construction 0,25 mA 		P										
19.7	Add the following to the fourth paragraph.		—										

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	If the timer or programmer is an electronic type that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, it is considered to be a protective electronic circuit as well as a control that operates under the conditions of Clause 11.		N/A
19.11.4.4	Replace the first paragraph by the following:		—
	The power supply terminals of the appliance are subjected to voltage surges in accordance with IEC 61000-4-5, five positive impulses and five negative impulses being applied at the selected points. An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode, a generator having a source impedance of 2 Ω being used. An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling mode, a generator having a source impedance of 12 Ω being used.		N/A
22.5	In the requirement, replace “exceeding” by “equal to or greater than”.		—
	Add the following text after the existing last paragraph of the test specification. If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied one at a time to the appliance. The discharge test is then repeated three times and for each test, the voltage shall not exceed 34V.		N/A
22.32	Replace the words ‘Insulating material’ at the beginning of the 4th paragraph of the requirement by ‘Ceramic and similar porous material’ and combine this paragraph with the third paragraph of the requirement.		N/A
22.33	Add the following to the first sentence of the first paragraph of the requirement:		—
	“or unearthed metal parts that are separated from live parts by basic insulation only.”		N/A
22.35	In the second paragraph of the requirement add and cordless appliances after stationary appliances.		N/A
	Add the following note after the requirement:		—
	NOTE A cordless appliance is an appliance that is connected to the supply only when placed on its associated stand.		N/A


Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts shall have at least double insulation or reinforced insulation between live parts and the functionally earthed parts. Compliance is checked by inspection and test.		N/A
22.54	Button cells and batteries designated R1 shall not be accessible without the aid of a tool unless the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously. Compliance is checked by inspection and by manual test. NOTE Batteries are specified in IEC 60086-2.		N/A
23.5	Replace Note 2 by the following text.		—
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation. A single layer of internal wiring insulation does not provide reinforced insulation.		N/A
24.1	Components comply with the safety requirements specified in the relevant EN standards as far as they reasonably apply		P
	Motors are not required to comply with EN 60034-1, but tested as part of the appliance according to this standard		N/A
	Relays are tested as part of the appliance according to this standard		N/A
	Relays may be alternatively tested to EN 60730-1 and the additional requirements in EN 60335-1.		N/A
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance.		P
	Components may comply with the requirements for clearances and creepage distances for functional insulation as specified in the relevant component standard.		P
	The requirements of 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 components		P
	Components that have not been tested and shown to comply with the EN standard for the relevant component are tested according to the requirements of 30.2 of this standard.		P

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	Components that have been tested and shown to comply with the resistance to fire requirements in the EN standard for the relevant component need not be retested provided that:		—
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		N/A
	- the test report for the component states the values of t_e and t_i acc. to EN 60695-2-11		N/A
	If the above two conditions are not satisfied, the component is tested as part of the appliance.		P
	Power electronic converter circuits are not required to comply with EN 62477-1, but tested as part of the appliance according to this standard.		N/A
	Unless components have been tested and found to comply with the relevant EN standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9.		P
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant EN standard for the component are necessary other than those specified in 24.1.1 to 24.1.9.		P
	Components that have not been tested and found to comply with the relevant EN standard, and		P
	components that are not marked or not used in accordance with their marking,		N/A
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		P
	Lamp-holders and starter-holders that have not been tested and found to comply with the relevant EN standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant EN standard under the conditions occurring in the appliance.		N/A
	Where the relevant EN standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used.		N/A
	There are no additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of EN 60320-1 and EN 60309, unless they are specifically mentioned in the text of this standard.		N/A

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		P
	with connectors and appliance inlets complying with the standard sheets of EN 60320-1, if		N/A
	direct supply to these parts from the supply mains gives rise to a hazard		N/A
	For plugs used in CENELEC countries Annex ZH applies		P
24.1.2	Add the following text as a new first paragraph.		—
	The relevant standard for transformers in associated switch mode power supplies is Annex BB of IEC 61558-2-16. Clause 26 of IEC 61558-1 and Annex H of IEC 61558-1 are not applicable.		N/A
24.1.4	Add the following new paragraph:		—
	Thermal cut-outs of the capillary type shall comply with the requirements for type 2.K controls in IEC 60730-2-9.		N/A
24.1.5	In the second sentence of the first paragraph, add “class II” before “appliances”.		—
25.1	Replace the first dashed item of the requirement by the following:		—
	– supply cord fitted with a plug, the current rating and voltage rating of the plug being not less than the corresponding ratings of its associated appliance;		P
25.7	Delete the third dashed item in the first paragraph of the requirement.		—
25.10	Add the following as a new paragraph to the requirement.		—
	In multi-phase appliances, the colour of the neutral conductor of the supply cord, if any, shall be blue.		N/A
25.13	In the requirement, replace the second sentence by the following:		—
	If it is not evident from the construction of the appliance that the supply cord can be introduced without risk of damage, a non-detachable lining or non-detachable bushing shall be provided that complies with 29.3 for supplementary insulation.		N/A
25.15	Replace the second paragraph of the test specification by the following:		—

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	A mark is made on the cord at a distance of approximately 20 mm from the cord anchorage or other suitable point. The mark is made while the cord is subjected to a pull force of – 100 N, for fixed appliances regardless of the mass of the appliance; – the value as shown in Table 12, for other appliances.		N/A
25.20	Delete “insulated” and “additionally” from the requirement.		—
27.1	In the first paragraph of the requirement replace “an insulation fault” by “a failure of basic insulation”.		—
	Delete Note 1 and replace “Note 2” by “Note”.		—
	Replace the third paragraph by the following:		—
	Class 0 appliances, class II appliances and class III appliances shall have no provision for protective earthing. Class II appliances and class III appliances may incorporate an earth for functional purposes.		N/A
	Add the following paragraph to the requirement:		—
	These requirements are not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A
27.3	Add the following paragraph to the requirement:		—
	These requirements are not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A
27.4	Add the following paragraph to the requirement:		—
	These requirements are not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A
27.5	Add the following paragraph to the requirement:		—
	These requirements are not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A
	Replace existing Note 1 by the following as an addition to the existing second paragraph of the test specification. The test is carried out until steady conditions have been established.		N/A
	Renumber existing Note 3 as Note.		N/A
27.6	Add the following sentence to the requirement:		—
	This requirement is not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
28.2	In the second paragraph of the requirement, replace bullets with dashes in the two bulleted items.		N/A
29.1	Add the following as a new second paragraph of the requirement:		—
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 shall be increased according to the relevant multiplier values in Table A.2 of IEC 60664-1.		N/A
	Add the following to the existing second paragraph of the requirement:		—
	Or to appliances intended for use at altitudes exceeding 2 000 m.		N/A
	Delete Note 5.		N/A
	Table 17 – Minimum creepage distances for basic insulation Replace Note 1 by the following: Lacquered conductors of windings are considered to be bare conductors but creepage distances for basic insulation in other than a double insulation construction need not be greater than the associated clearance specified in Table 16 taking into account 29.1.1.		N/A
29.3	Replace the third dashed item by the following:		—
	– for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3 and for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	Add the following as the fourth dashed item of the test specification:		—
	– by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N/A
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE		—
7.1	Add the following:		—
	Appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery shall be marked with symbol IEC 60417-6181 (2013-03) and its type reference along with symbol ISO 7000-0790 (2004-01) or with the substance of the following: Use only with <model designation> supply unit		N/A

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
7.6	Add the following:		—
	 [symbol IEC 60417-6181 (2013-03)] detachable supply unit		N/A
7.12	Add the following:		—
	For appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery, the type reference of the detachable supply unit shall be stated along with the substance of the following:		—
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance.		N/A
	If the symbol for detachable supply unit is used, its meaning shall be explained.		N/A
7.15	Add the following:		—
	The type reference of the detachable supply unit shall be placed in close proximity to the symbol.		N/A
11.8	The temperature rise of the battery surface shall not exceed the temperature rise limit in the battery manufacturer's specification for the type of battery supplied. If no limit is specified, the temperature rise shall not exceed 20 K.		N/A
19.13	The battery shall not rupture or ignite.		N/A
H	ANNEX H (NORMATIVE) SWITCHES		—
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		P
	Replace the text by the following:		—
	Clause 20 is applicable to clearances across full disconnection and micro-disconnection. It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24.		P
S	ANNEX S (NORMATIVE) BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE		—
	The following modifications to this standard are applicable for battery-operated appliances where the batteries are either non-rechargeable (primary batteries), or		N/A
	rechargeable batteries (secondary batteries) that are not recharged in the appliance		N/A



Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
5.8.1	If the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity is applied		N/A
5.S.101	Appliances intended for use with a battery box are tested with the battery box supplied with the appliance or with the battery box recommended in the instructions		N/A
5.S.102	Appliances are tested as motor-operated appliances.		N/A
7.1	Appliances marked with the battery voltage (V) and the polarity of the terminals, unless		N/A
	the polarity is irrelevant		N/A
	Appliances also marked with:		N/A
	– name, trade mark or identification mark of the manufacturer or responsible vendor.....		N/A
	– model or type reference.....		N/A
	– IP number according to degree of protection against ingress of water, other than IPX0		N/A
	– type reference of battery or batteries.....		N/A
	If relevant, the positive terminal is indicated by the symbol IEC 60417-5005 and the negative terminal by the symbol IEC 60417-5006		N/A
	If appliances use more than one battery, they are marked to indicate correct polarity connection of the batteries		N/A
7.6	Additional symbols		N/A
7.12	The instructions contain the following, as applicable:		—
	– the types of batteries that may be used... ..		N/A
	– how to remove and insert the batteries		N/A
	– non-rechargeable batteries are not to be recharged		N/A
	– rechargeable batteries are to be removed from the appliance before being charged		N/A
	– different types of batteries or new and used batteries are not to be mixed		N/A
	– batteries are to be inserted with the correct polarity		N/A
	– exhausted batteries are to be removed from the appliance and safely disposed of		N/A
	– if the appliance is to be stored unused for a long period, the batteries are removed		N/A
	– the supply terminals are not to be short-circuited		N/A
11.5	Appliances are supplied with the most unfavourable supply voltage between		N/A

Amendment A1:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	– 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries		N/A
	– 0,75 and 1,0 times battery voltage, if the appliance is designed for use with rechargeable batteries only		N/A
	The values specified in Table S.101 for the internal resistance per cell of the battery is taken into account		N/A
19.1	The tests are carried out with the battery fully charged unless otherwise specified		N/A
19.13	The battery does not rupture or ignite		N/A
19.S.101	Appliances are supplied with the voltage specified in 11.5. The supply terminals having an indication of polarity are connected to the opposite polarity, unless		N/A
	such a connection is unlikely to occur due to the construction of the appliance		N/A
19.S.102	For appliances with provision for multiple batteries, one or more of the batteries are reversed and the appliance is operated, if reversal of batteries is allowed by the construction		N/A
25.5	The flexible leads or flexible cord used to connect an external battery or battery box in is connected to the appliance by a type X attachment		N/A
25.13	This requirement is not applicable to the flexible leads or flexible cord connecting external batteries or a battery box with an appliance		N/A
25.S.101	Appliances have suitable means for connection of the battery. If the type of battery is marked on the appliance, the means of connection is suitable for this type of battery		N/A
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or battery box are so located or shielded that there is no risk of accidental connection between supply terminals		N/A
30.2.3.2	There is no battery in the area of the vertical cylinder used for the consequential needle flame test, unless		N/A
	the battery is shielded by a barrier that meets the needle flame test of Annex E, or		N/A
	that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A

Amendment A14:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
8.1.1	Also test probe 18 of EN 61032 is applied.		P
8.1.3	Instead of test probe B, test probe 18 and test probe 13, for appliances other than those of class II, test probe 41 of IEC 61032 is applied with a force not exceeding 1 N to live parts of visibly glowing heating elements, all poles of which can be disconnected by a single switching action.		N/A
11.8	In Table 3 delete the footnotes of "External enclosure of motor-operated appliances, except handles held in normal use"		N/A
20.2	For appliances having dangerous moving parts, due to their working 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.		N/A
22.12	Other parts that are intended to be detached during use, maintenance or cleaning (examples are batteries, battery covers, lids, attachments, steam nozzles) are not considered as parts providing a similar function as handles, knobs, grips, levers.		N/A
22.17	The requirement is not applicable to built-in appliances		N/A
25.1	Plugs and pins for insertion into socket outlets follow the relevant standards sheets in Annex ZH.		P
25.25	Instead of IEC/TR 60083, dimensions of the pins and engagement face of plugs of appliances that are inserted into socket-outlets are in accordance with the dimensions of the relevant plug standard.		P
	NOTE Z1 Common plugs and socket-outlets types in CENELEC countries as shown in Annex ZH.		P
32	Compliance regarding electromagnetic fields is checked according to EN 62233	EN 62233	P
ZA	ANNEX ZA (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)		—
	Denmark, Sweden, Norway and Finland		—
7.12.8	The maximum inlet water pressure is at least 1,0 MPa :		N/A
	Denmark		—
22.47	The maximum inlet water pressure shall be at least 1,0 MPa		N/A
	Ireland and United Kingdom		—
25.8	In the table, replace the line ">10A and ≤16A" with:		N/A
	> 10 and ≤ 13 1,25 (1,0)b		N/A
	> 13 and ≤ 16 1,5 (1,0) b		N/A
ZB	ANNEX ZB (INFORMATIVE) A-DEVIATIONS		—



Amendment A14:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	Ireland		—
25.1 and 25.25	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		—
25.1 and 25.25	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.		P
	It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		P
ZC	ANNEX ZC (NORMATIVE) NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		—
	A list of documents referred to in the text of this standard in such a way that some or all of their content constitutes requirements of this document		P
ZH	ANNEX ZH (INFORMATIVE) Common plug and socket-outlet types in CENELEC countries		—
	In general, supply cords of single-phase appliances having a rated current not exceeding 16 A are fitted with a plug complying with the following standard sheets:		—
	- for class I appliances or class II appliances with functional earth, standard sheet EU2, EU3 or EU4:		N/A
	- for class II appliances, standard sheet EU5, EU6 or EU7..... :	EU5	P
	There are exemptions or differences in certain CENELEC countries		P
ZI	ANNEX ZI (INFORMATIVE) Information on the application of A11:2014 to EN 60335-1:2012 CENELEC CLC/TC 61(SEC)2096A		—
	Clarification of the application of parts 2 in conjunction with the 2002 or 2012 version of EN 60335-1		P

Amendment A2:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
5.10	Add the following as a new second paragraph:		—
	A class III construction part of the appliance is tested connected to its detachable power supply part taking into account the instructions provided with the appliance.		N/A
6.1	Add the following to the requirement as a new second paragraph:		—
	If an appliance consists of a part of class III construction and a detachable power supply part, the complete appliance is classified as a class I appliance or class II appliance in accordance with the classification applicable to its detachable power supply part.		N/A
7.1	Replace the last dashed item in the first paragraph by the following:		—
	symbol IEC 60417-5180 (2003-02), for class III appliances. This marking is not necessary for appliances operated only by batteries (primary batteries or secondary batteries recharged outside of the appliance) or appliances powered by rechargeable batteries recharged in the appliance.		N/A
	Add the following new subclause:		P
7.12.9	For each language, the instructions specified in 7.12 and from 7.12.1 to 7.12.8 shall appear together before any other instructions supplied with the appliance. Alternatively, these instructions may be supplied with the appliance separately from any functional use booklet. They may follow the description of the appliance that identifies parts, or follow the drawings/sketches common to the languages of the instructions.		P
	In addition, instructions shall also be available in an alternative format such as on a website or on request from the user in a format such as a DVD.		P
	Compliance is checked by inspection.		P
7.14	Add the following as new second paragraph to the requirement		N/A
	The signal words WARNING, CAUTION, DANGER if in the Latin alphabet shall be in uppercase having a height not less than		P
	– 3,5 mm for appliances normally used on the floor;		P
	– 2,0 mm for portable appliances with a printable surface of less than 10 cm ² ; and		N/A
	– 3,0 mm for other appliances.		N/A

Amendment A2:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	Uppercase letter of the text explaining the signal word shall be no smaller than 1,6 mm, with other letters according to the font size of the uppercase letter.		P
	Countries that do not use the Latin alphabet need to specify the minimum size of the script to be used taking into account what is specified for the Latin alphabet.		N/A
	Unless contrasting colours are used, moulded in, engraved, or stamped markings shall be either raised above or have a depth below the surface of at least 0,25 mm.		N/A
	Replace the first paragraph of the test specification by the following:		—
	Compliance is checked by inspection, by measurement and by rubbing the marking by hand for 15 s with a piece of cloth soaked with water and again for 15 s with a piece of cloth soaked with petroleum spirit. The petroleum spirit to be used for the test is aliphatic solvent hexane.		P
8.1.3	Replace the note by the following.		—
	If a single switching action is obtained by a switching device, the switching device shall provide full disconnection and the clearances for full disconnection specified in 20.1.5.3 of IEC 61058-1:2000 shall be obtained from Table 22 of IEC 61058-1:2000 using the next higher step for rated impulse withstand voltage.		N/A
	For appliances provided with a supply cord and without a switching device in their supply circuit, a single switching action may be obtained by the withdrawal of the plug from a socket-outlet.		N/A
	Compliance is checked by inspection and by manual test.		N/A
13.2	Replace the first paragraph by the following:		—
	The leakage current is measured by means of the circuit described in Figure 4 of IEC 60990:1999. For class 0I appliances and class I appliances, except parts of class II construction, C may be replaced by a low impedance ammeter responding to the rated frequency of the appliance.		P
19.1	Add the following to the penultimate paragraph of the test specification:		—
	If the control performs more than one function, only that aspect of the control under consideration is rendered inoperative. Other functions of the control may continue to operate normally.		N/A

Amendment A2:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
19.7	In the third paragraph of the test specification, replace "class P2" by "class S2 or S3".		N/A
19.11.3	Replace the text of the test specification but not the note, by the following.		—
	If the appliance incorporates a protective electronic circuit that operates to ensure compliance with Clause 19, the appliance is tested as follows:		N/A
	A fault as indicated in a) to g) of 19.11.2 shall be incorporated in the protective electronic circuit either before the appliance is started or at any point in time after the appliance is started so that the most unfavourable conditions of the test are applied.		N/A
	If the appliance is able to operate after the fault in the protective electronic circuit is incorporated, then the appliance is further tested as follows.		N/A
	For appliances for continuous operation the appliance is operated until steady conditions are reached. Then the relevant test of Clause 19 is repeated.		N/A
	Other appliances are operated for one cycle of operation. Then the relevant test of Clause 19 is repeated.		N/A
19.11.4.2	Replace the test specification but not the note, by the following:		—
	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3.		N/A
	The frequency ranges tested shall be:		N/A
	– 80 MHz to 1 000 MHz, test level 3;		N/A
	– 1,4 GHz to 2,0 GHz, test level 3;		N/A
	– 2,0 GHz to 2,7 GHz, test level 2.		N/A
22.5	Replace the requirement by the following:		—
	Appliances intended to be connected to the supply mains by means of a plug or pins for insertion into socket-outlets shall be constructed so that in normal use, when pins are touched, there is no risk of electric shock from charged capacitors having a rated capacitance equal to or greater than 0,1 μ F.		N/A
22.12	Replace the requirement by the following:		—

Amendment A2:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	Handles, knobs, grips, levers and parts providing a similar function shall be fixed in a reliable manner so that they will not work loose in normal use if loosening could result in a hazard, including a choking hazard. If these parts are used to indicate the position of switches or similar components, it shall not be possible to remove or fix them incorrectly if this could result in a hazard. The requirement concerning the choking hazard does not apply to appliances intended for commercial use.		P
	Add the following new paragraph to the test specification:		—
	If the part is removed and can be contained within the small parts cylinder in Figure 13, its loosening is considered to result in a choking hazard.		P
	Add the following new subclauses:		—
22.55	Devices that are operated by the user to stop the intended function of the appliance, if any, shall be distinguished from other manual devices by means of shape, or size, or surface texture, or position. This requirement concerning position does not preclude use of a push on push off switch.		P
	An indication when the device has been operated shall be given by:		P
	– tactile feedback from the actuator or tactile feedback from the appliance such as stopping of the vibration on the body of the appliance or of a part of it; or		N/A
	– reduction in heat output; or		N/A
	– audible and visible feedback.		P
	The sound of the motor or sound of an actuator switching from on to off is considered as an audible feedback. A switch with a stable off-position different from the on-position is considered visual and tactile feedback. The force feedback from the actuator when operating it is considered to be tactile feedback.		P
	Compliance is checked by inspection and by manual test.		P
22.56	Detachable power supply part shall be provided with the part of class III construction of the appliance.		N/A
22.57	The properties of non-metallic materials shall not degrade from exposure to UV-C radiation generated from UV sources provided for microbiological control within the appliance such that they no longer comply with this standard. This requirement does not apply to glass, ceramics or similar materials.		N/A

Amendment A2:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	Compliance is checked by the conditioning and tests of Annex T.		N/A
24.2	Replace the first dashed item of 24.2 by the following.		—
	– switches, automatic controls, power supplies and the like in flexible cords;		P
24.8	In the first dashed item of the second paragraph of the requirement replace “class of safety protection P2” by “class of safety protection S2 or S3”.		N/A
24.Z1	Type S2 and S3 capacitors according to EN 60252-1 are not required to undergo the testing as required by 30.2.2 and 30.2.3.1.		N/A
25.7	Add to the end of the dashed items:		—
	– Halogen-free, low smoke, thermoplastic insulated and sheathed		N/A
	Their properties should at least be those of:		N/A
	• Light duty halogen-free low smoke flexible cable (code designation 62821 IEC 101 for circular cable and code designation 62821 IEC 101f for flat cable);		N/A
	• Ordinary duty halogen-free, low smoke flexible cable (code designation 62821 IEC 102 for circular cable and code designation 62821 IEC 102f for flat cable).		N/A
25.10	Add the following to the requirement as a new third paragraph:		—
	Where additional neutral conductors are provided in the supply cord		N/A
	– other colours may be used for these additional neutral conductors;		N/A
	– all of the neutral conductors and line conductors shall be identified by marking using the alpha numeric notation specified in IEC 60445;		N/A
	– the supply cord shall be fitted to the appliance.		N/A
25.23	Add the following new dashed item to the requirement:		
	– for class III construction, interconnection cords of a class I appliance or class II appliance, the cross sectional areas of the conductors need not comply with 25.8 if the temperature of the cord insulation specified in Table 3 and Table 9 are not exceeded during the tests of Clause 11 and Clause 19, respectively.		N/A
Annex B–Appliances powered by rechargeable batteries that are recharged in the appliance			—
7.12	Replace the third paragraph and three dashed items by the following:		—
	Instructions for appliances containing non user-replaceable batteries shall state the substance of the following:		—

Amendment A2:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	This appliance contains batteries that are only replaceable by skilled persons.		N/A
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		—
	This appliance contains batteries that are non-replaceable.		N/A
Annex P – Guidance for the application of this standard to appliances used in warm damp equable climates			—
	Throughout the text of the annex including the title, replace “warm damp equable” by “tropical”.		N/A
	In the first two paragraphs of the annex, replace “WDaE” by “with symbol IEC 60417-6332 (2015-06)”		N/A
7.1	Replace “the letters WDaE” with “symbol IEC 60417-6332 (2015-06)”.		N/A
7.6	[symbol IEC 60417-6332 (2015-06)] tropical climate		N/A
7.12	Add the following new paragraph:		—
	If symbol IEC 60417-6332 (2015-06) is used, its meaning shall be explained.		N/A
Annex T-UV-C radiation effect on non-metallic materials			—
	Annex T provides requirements for non-metallic materials subject to direct or reflected UV-C radiation (100 nm to 280 nm) exposure and whose mechanical and electrical properties are relied upon for compliance with this standard. This annex does not apply to glass, ceramic and similar materials.		N/A
	The UV-C radiation effect on non-metallic materials is determined by measuring selected non-metallic material properties before and after UV-C radiation conditioning. The conditioning and tests are carried out on non-metallic material specimens prepared according to the relevant standard for the test method. The standards and compliance criteria for parts providing mechanical support or impact resistance are specified in Table T.1. The standard and compliance criteria for electrical insulation of internal wiring are specified in Table T.2.		N/A
	The conditioning apparatus and test procedure are as specified in ISO 4892-1 and ISO 4892-2, with the following modifications.		N/A
Modifications to ISO 4892-1:			—
5.1.6	The UV-C emitter shall be a low pressure mercury lamp with a quartz envelope having a continuous spectral irradiance of 10 W/m ² at 254 nm.		N/A

Amendment A2:2019 to EN 60335-1:2012			
Clause	Requirement - Test	Result - Remark	Verdict
	Subclause 5.1.6.1 and Table 1 are not applicable.		N/A
5.2.4	The black-panel temperature shall be 63 °C ± 3 °C.		N/A
5.3.1	Humidification of the chamber air is specified in part 2 when necessary.		N/A
9	This clause is not applicable.		N/A
Modifications to ISO 4892-2:			—
7.1	At least three test specimens of each non-metallic material providing mechanical support or impact resistance shall be exposed in each run to allow statistical evaluation of the results.		N/A
	Ten samples of the insulated internal wiring shall be exposed in each run. When the internal wiring is provided in more than one colour, the colour having the heaviest organic pigment loading is used.		N/A
	In determining the samples for testing, consideration should be given to samples coloured red or yellow which are known to have particular critical effects.		N/A
7.2	The specimens shall be attached to the specimen holders such that they are not subject to any applied stress.		N/A
7.3	Before placing the specimens in the test chamber, the apparatus shall be operating under the specified exposure conditions. It shall be programmed to operate continuously and the conditions shall be maintained throughout the exposure, keeping any interruptions to service the apparatus and to inspect the specimens to a minimum.		N/A
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h.		N/A
	If it is necessary to remove a test specimen for periodic inspection, care should be taken to avoid touching the exposed surface or altering it in any way.		N/A
7.4	If used, a radiometer shall be mounted and calibrated such that it measures the irradiance at the exposed surface of the test specimen.		N/A
7.5	The non-metallic material properties and test methods for parts providing mechanical support or impact resistance are specified in Table T.1.		N/A
	The non-metallic material properties and test method for electrical insulation of internal wiring are specified in Table T.2.		N/A
8	This clause is not applicable.		N/A



PAH risk assessment report according to AfPS GS 2019:01 PAK

Material list for PAH risk assessment according to AfPS GS 2019:01 PAK, only materials accessible without tools shall be listed.

Product Description: foot warmer

Material No.	Location / Function of the material	Supplier/ manufacture name	Type/ Model No. of the material	Category	Smell	Rigidity	Colour	Chem. test needed?	Evaluation result	Evidence attachment technical report No.
1.	Power plug (for EU use only)	Ningbo Yaoda Electric Appliances Co., Ltd.	YJ01	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> Soft <input type="checkbox"/> Flexible <input type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> black or dark-colored <input checked="" type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	TÜV SÜD 68.401.20.3274.01
2.	(Alternative)	Yuyao Jiadian Appliance Factory	YAD-1	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> Soft <input type="checkbox"/> Flexible <input type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> black or dark-colored <input checked="" type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	Intertek SHAH01247809
3.	Power cord	Ningbo Yaoda Electric Appliances Co., Ltd.	H03VVH2-F	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input type="checkbox"/> Soft <input checked="" type="checkbox"/> Flexible <input type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> black or dark-colored <input checked="" type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	SGS NGBML2004180002 / TÜV SÜD 68.401.20.3274.01
4.	(Alternative)	Yuyao Jiadian Appliance Factory	H03VVH2-F	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input type="checkbox"/> Soft <input checked="" type="checkbox"/> Flexible <input type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> black or dark-colored <input checked="" type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	Intertek SHAH01247809
5.	Interconnection cord	Ningbo Yaoda Electric Appliances Co., Ltd.	H03VV-F	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input type="checkbox"/> Soft <input checked="" type="checkbox"/> Flexible <input type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> black or dark-colored <input checked="" type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	SGS NGBML2004180002 / TÜV SÜD 68.401.20.3274.01
6.	(Alternative)	Yuyao Jiadian Appliance Factory	H03VV-F	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input type="checkbox"/> Soft <input checked="" type="checkbox"/> Flexible <input type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> black or dark-colored <input checked="" type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	Intertek SHAH01247809
7.	Enclosure / switch knob of controller	CHI MEI CORPORATION	PA-757(+)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input type="checkbox"/> Soft <input type="checkbox"/> Flexible <input checked="" type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> black or dark-colored <input checked="" type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	TÜV SÜD 68.401.20.3274.01
8.	(Alternative)	IDEMITSU KOSAN CO LTD	(u)Y2200(+)(f2)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input type="checkbox"/> Soft <input type="checkbox"/> Flexible <input checked="" type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> black or dark-colored <input checked="" type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	TÜV SÜD 68.401.20.3274.01
9.	Lamp cover of controller	IDEMITSU KOSAN CO LTD	(u)Y2200(+)(f2)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input type="checkbox"/> Soft <input type="checkbox"/> Flexible <input checked="" type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> black or dark-colored <input type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	TÜV SÜD 68.401.20.3274.01



Material No.	Location / Function of the material	Supplier/ manufacture name	Type/ Model No. of the material	Category	Smell	Rigidity	Colour	Chem. test needed?	Evaluation result	Evidence attachment technical report No.
10.	Enclosure of connection box	IDEMITSU KOSAN CO LTD	(u)Y2200(+)(f2)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3	<input type="checkbox"/> Soft <input type="checkbox"/> Flexible <input checked="" type="checkbox"/> Rigid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> black or dark-colored <input checked="" type="checkbox"/> white or light-colored	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed	TÜV SÜD 68.401.20.3274.01

Note: For the requirement of EK1 374-08e Rev2, the textile materials without significant smell, PAH proof is not necessary.

Photo documentation

Details of: Outlook view



Details of: Outlook view



Details of: Outlook view



Details of: Appliance connection box (non-detachable)



Photo documentation

Details of: Internal view of appliance connection box

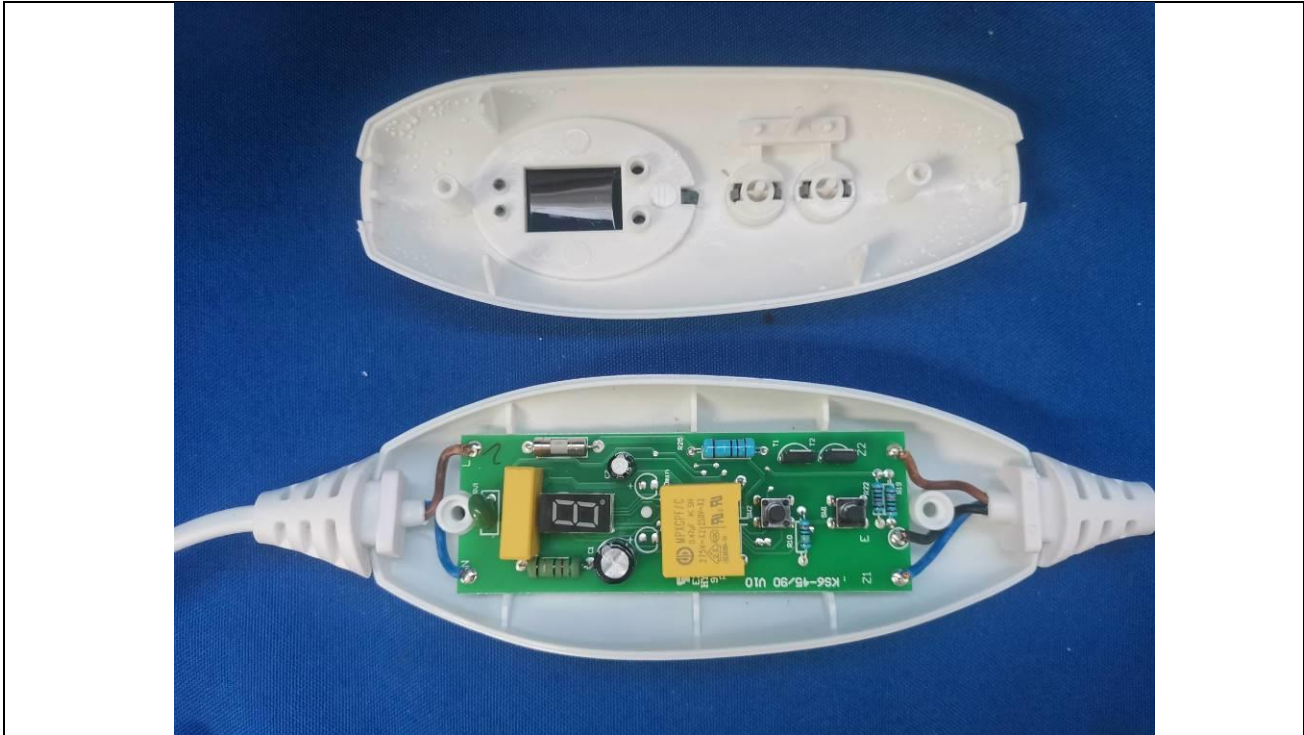


Details of: Outlook of controller



Photo documentation

Details of: Internal view of controller



Details of: PCB view of controller

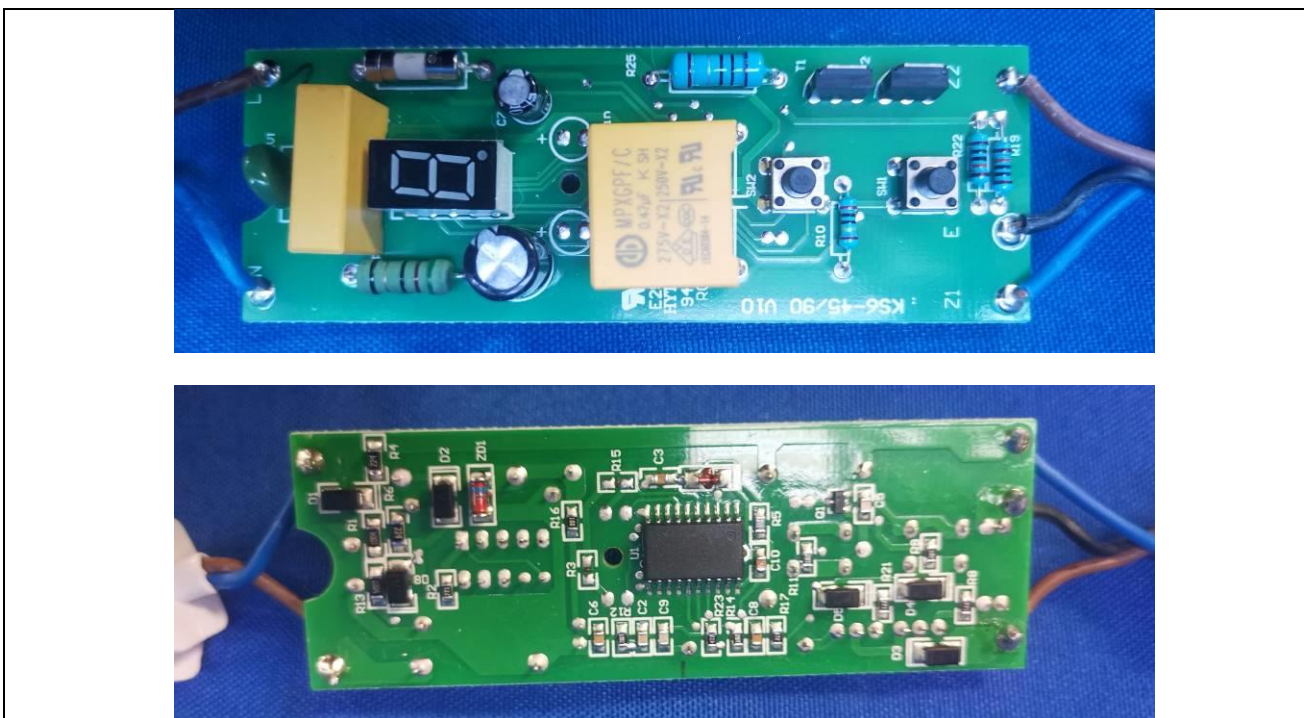


Photo documentation

Details of: Heating element arrangement view (fixed by means of seaming)

