



Ref. Certif. No.

HU-000624

IEC SYSTEM FOR MUTUAL RECOGNITION OF
TEST CERTIFICATES FOR ELECTRICAL
EQUIPMENT (IECEE) CB SCHEMESYSTEME CEI D'ACCEPTATION MUTUELLE DE
CERTIFICATS D'ESSAIS DES EQUIPEMENTS
ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE

CERTIFICAT D'ESSAI OC

Product
Produit

Room heaters

Name and address of the applicant
Nom et adresse du demandeurVentilation Systems JSC
1, Mikhaila Kotzubinskogo St.,
Kiev UA-01030, UkraineName and address of the manufacturer
Nom et adresse du fabricantVentilation Systems JSC
1, Mikhaila Kotzubinskogo St.,
Kiev UA-01030, UkraineName and address of the factory
Nom et adresse de l'usineVentilation Systems JSC
36, 40-Richchya Zhovtnya Str.
Boyarka 08150, Kiev Region, UkraineNote: When more than one factory, please report on page 2
Note: Lorsque il y plus d'une usine, veuillez utiliser la 2^{eme} pageRatings and principal characteristics
Valeurs nominales et caractéristiques principales230V AC 50Hz; 1.86, 2.46, 2.5, 3.5, 3.6kW;
Class I; IP22Trademark (if any)
Marque de fabrique (si elle existe)

VENTS

Modell / Type Ref.
Ref. de typeVENTS VPA 100-1,8-1 VENTS VPA 125-2,4-1
VENTS VPA 150-2,4-1 VENTS VPA 150-3,4-1
VENTS VPA 200-3,4-1Additional information (if necessary may also be
reported on page 2)
Les informations complémentaires (si nécessaire,
peuvent être indiqués sur la 2^{eme} pageThe products were also tested to and found to be in
conformity with EN 50366:2003 + A1A sample of the product was tested and found to be in
conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à la

PUBLICATION	EDITION
IEC 60335-2-30:2002 (ed. 4) + A1 + A2	
IEC 60335-1:2001 (ed. 4) + A1 + A2	
EU Group Differences	
EU Special National Conditions of DE	

As shown in the Test Report Ref. No. which forms
part of this Certificate
Comme indiqué dans le Rapport d'essais numéro de
référence qui constitue partie de ce Certificat

28207268 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de CertificationHungarian Institute for Testing and Certification of
Electrical Equipment Ltd. (MEEI Kft.)
H-1132 Budapest, Váci út 48/A-B
www.meei.hu

Date: 2009-04-01

Signature:

Janos SZUCS





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HU-000625

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Boyarka 08150, Kiev Region, UkraineNote: When more than one factory, please report on page 2
Note: Lorsque il y a plus d'une usine, veuillez utiliser la 2^{ème} pageRatings and principal characteristics
Valeurs nominales et caractéristiques principales3x400V AC 50Hz; 3.61, 5.2, 5.3, 6.1, 6.2, 6.6, 9.2,
9.3kW;
Class I; IP22Trademark (if any)
Marque de fabrique (si elle existe)

VENTS

Modell / Type Ref.
Ref. de type

VENTS VPA 150-5,1-3	VENTS VPA 150-6,0-3
VENTS VPA 200-5,1-3	VENTS VPA 200-6,0-3
VENTS VPA 250-3,6-3	VENTS VPA 250-6,0-3
VENTS VPA 250-9,0-3	VENTS VPA 315-6,0-3
VENTS VPA 315-9,0-3	VENTS VPA-1 315-6,0-3
VENTS VPA-1 315-9,0-3	

Additional information (if necessary may also be
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Les informations complémentaires (si nécessaire,
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H-1132 Budapest, Váci út 48/A-B
www.meei.hu

Date: 2009-04-01

Signature:

Janos SZUCS



TEST REPORT
IEC/EN 60 335-2-30
Safety of household and similar electrical appliances
Part 2: Particular requirements for room heaters

Report Reference No.: 28207268 001
 Date of issue: 25-02-2009
 Total number of pages.....: 93

CB/CCA Testing Laboratory : MEEI Kft. member of TÜV Rheinland Group
 Address.....: H-1132 Budapest, Váci út 48/a-b., Hungary



Applicant's name: Ventilation Systems JSC
 Address.....: 1, Mikhaïla Kotzubinskïego St., Kiev, UA-01030, Ukraine

Test specification: Standard: IEC 60335-2-30:2002 + A1: 2004 + A2: 2007
 IEC 60335-1:2001 (incl. Corrigendum 1:2002) + A1: 2004 + A2: 2006 (incl. Corrigendum 1:2006) and/or
 EN 60335-2-30:2003 + A1:2004 + A2:2007
 EN 60335-1:2002 + A1:2004 + A11:2004 + A12:2006 + A2:2006 + A13: 2008 (added in attachment)
 EN 50366:2003 + A1:2006

Test procedure.....: CB / CCA
 Non-standard test method.: N/A

Test Report Form No.: IECEN60335_2_30E
 Test Report Form(s) Originator.: VDE
 Master TRF: Dated 2007-06

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If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

If this Test Report Form is used by non-CCA members, the reference to the CCA Procedure shall be removed.

This report is not valid as a CCA Test Report unless signed by an approved CCA Testing Laboratory and appended to a CCA Test Certificate issued by an NCB in accordance with CCA

Test item description.....: Room heaters
 Trade Mark: VENTS
 Manufacturer.....: Ventilation Systems JSC; 1, Mikhaïla Kotzubinskïego St., Kiev, UA-01030, Ukraine
 Model/Type reference: VENTS VPA x yyy zz w
 Ratings.....: 230 V: 1,8 – 3,4 kW; 3x400 V: 5,1 - 9 kW; class I. For details see 'model list' on page 4

Testing procedure and testing location:	
<input type="checkbox"/> CB/CCA Testing Laboratory:	MEEI Kft. member of TÜV Rheinland Group
Testing location/ address.....:	H-1132 Budapest, Váci út 48/a-b., Hungary
<input type="checkbox"/> Associated CB Laboratory:	
Testing location/ address.....:	
Tested by (name + signature).....:	Ferenc Horvát 
Approved by (+ signature).....:	Zoltán Zsákai 
<input type="checkbox"/> Testing procedure: TMP	
Tested by (name + signature).....:	
Approved by (+ signature).....:	
Testing location/ address.....:	
<input type="checkbox"/> Testing procedure: WMT	
Tested by (name + signature).....:	
Witnessed by (+ signature).....:	
Approved by (+ signature).....:	
Testing location/ address.....:	
<input type="checkbox"/> Testing procedure: SMT	
Tested by (name + signature).....:	
Approved by (+ signature).....:	
Supervised by (+ signature).....:	
Testing location/ address.....:	
<input type="checkbox"/> Testing procedure: RMT	
Tested by (name + signature).....:	
Approved by (+ signature).....:	
Supervised by (+ signature).....:	
Testing location/ address.....:	

Summary of testing: Tests were conducted on models VENTS VPA 125-2,4-1; VENTS VPA 200-6,0-3; VENTS1 VPA-1 315-9,0-3.

During the documentation check the English User's Manual was evaluated.

Factory location: 36, 40-Richchya Zhovtnya Str. Boyarka 08150, Kiev Region, Ukraine.

The Attachment 1 contains European group differences and national differences (DE): Differences according to: EN 60335-2-30:2003 + A1:2004 + A2:2007 used in conjunction with EN 60335-1:2002 + A11:2004 + A1:2004 + A12:2006 + A2:2006 + A13:2008 and EN 50366:2003 + A1:2006

Attachments: 1: Standard amendments TRF (7 pages)
2: Measuring equipment list (1 page)

This Test Report consists of two parts:

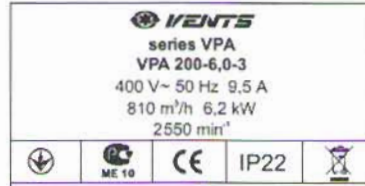
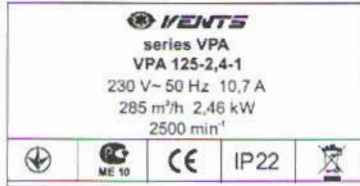
- first part contains requirements of IEC 60335-2-30:2002 + A1: 2004 + A2: 2007; IEC 60335-1:2001 (incl. Corrigendum 1:2002) + A1: 2004 +A2: 2006 (incl. Corrigendum 1:2006) EN 60335-2-30:2003 + A1:2004 + A2:2007 EN 60335-1:2002 + A1:2004 + A11:2004 + A12:2006 + A2:2006 EN 50366:2003 + A1:2006
- second part (1. attachment) contains the differences according to EN 60335-2-30:2003 + A1:2004 + A2:2007; EN 60335-1:2002 + A11:2004 + A1:2004 + A12:2006 + A2:2006 + A13:2008; EN 50366:2003 + A1:2006

Tests performed (name of test and test clause):-

Testing location:

MEEI Kft. member of TÜV Rheinland Group
H-1132 Budapest, Váci út 48/a-b, Hungary

Summary of compliance with National Differences: We tested according to DE National Differences and the appliances complied with the differences.

Copy of marking plate

Model list, technical data:

Type	Rated voltage [V]	Rated power [kW]	IP protection
VENTS VPA 100-1,8-1	230	1,86	IP 22
VENTS VPA 125-2,4-1	230	2,46	
VENTS VPA 150-2,4-1	230	2,5	
VENTS VPA 150-3,4-1	230	3,5	
VENTS VPA 150-5,1-3	3x400	5,2	
VENTS VPA 150-6,0-3	3x400	6,1	
VENTS VPA 200-3,4-1	230	3,6	
VENTS VPA 200-5,1-3	3x400	5,3	
VENTS VPA 200-6,0-3	3x400	6,2	
VENTS VPA 250-3,6-3	3x400	3,61	
VENTS VPA 250-6,0-3	3x400	6,2	
VENTS VPA 250-9,0-3	3x400	9,2	
VENTS VPA 315-6,0-3	3x400	6,2	
VENTS VPA 315-9,0-3	3x400	9,2	
VENTS VPA-1 315-6,0-3	3x400	6,6	
VENTS VPA-1 315-9,0-3	3x400	9,3	

Test item particulars	
Classification of installation and use	Class I
Supply Connection	Permanent connection, supply cord is not provided
.....	-
.....	-
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	07-08-2008
Date (s) of performance of tests	07-08-2008 – 24-03-2009
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.	
Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a comma is used as the decimal separator.	
General product information:	
The room heaters are designed for domestic and similar purposes and for continuous operation.	
Meaning of characters in type references:	
VENTS VPA - x yyz w	
- 'VENTS':	trade mark
- 'VPA-x':	unit type: monoblock air handling unit (x can be empty or 1)
- 'yyz':	connecting branch pipes diameter [mm]. It can be: 100, 125, 150, 200, 250, 315
- 'z':	power of heating elements [kW]. It can be: 1,8; 2,4; 3,4; 3,6; 5,1; 6,0; 9,0;
- 'w':	number of supply voltage phases. It can be: 1; 3.

IEC/EN 60335-2-30			
Clause	Requirement - Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		
	Tests performed according to cl. 5, e.g. nature of supply, sequence of testing, etc.		P
5.3	The appliance used for tests of clause 19 is also used for tests of 22.24. The tests of 22.24 are carried out after tests of Clause 29. (IEC/EN 60335-2-30)		P
5.6	Thermostat sensitive to the room air temperature, are short-circuited. If the thermostat can be set so that it does not cycle, it is not short-circuited. (IEC/EN 60335-2-30)		P
5.10	Heaters intended to be installed adjacent to each other are installed in accordance with instruction. (IEC/EN 60335-2-30)		N/A
5.101	Heaters to be used as both portable and fixed appliance are subjected to tests applicable to both types of appliances. (IEC/EN 60335-2-30)		N/A
5.102	If heater is a combination of two or more types, it is subjected to tests relevant for each type unless the tests for one type cover the other. (IEC/EN 60335-2-30)		N/A
6	CLASSIFICATION		
6.1	Protection against electric shock: Class 0, 0I, I, II, III	Class I	P
6.2	Protection against harmful ingress of water	IP 22	P
	Heaters for use in greenhouses or building sites shall be at least IPX4 : (IEC/EN 60335-2-30)	-	N/A
7	MARKING AND INSTRUCTIONS		
7.1	Rated voltage or voltage range (V)..... :	230; 3x400;	P
	Single-phase appliances to be connected to the supply mains: 230 V covered (EN 60335-1)		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered (EN 60335-1)		N/A
	Nature of supply	~	P
	Rated frequency (Hz)..... :	50	P
	Rated power input (W)..... :	2,46 k; 6,2 k; 9,3 k;	P

Clause	Requirement - Test	Result - Remark	Verdict
	Rated current (A)		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark.....	VENTS	N/A
	Model or type reference.....	VENTS VPA 125-2,4-1; VENTS VPA 200-6,0-3; VENTS1 VPA-1 315-9,0-3. (details on page 4)	P
	Symbol 5172 of IEC 60417, for Class II appliances		N/A
	IP number, other than IPX0.....	IP 22	P
	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. (IEC/EN 60335-1/A1)		N/A
	Heaters to be filled with liquid by user shall be marked with the maximum and minimum liquid levels. (IEC/EN 60335-2-30)		N/A
	Heaters shall be marked with symbol IEC 60417-5641(DB:2002-10) combined with the prohibition sign of ISO 3864-1, or (IEC/EN 60335-2-30/A2)		N/A
	With the substance: "WARNING: Do not cover" (IEC/EN 60335-2-30/A1, IEC/EN 60335-2-30/A2)		N/A
	Heaters having a fireguard that is intended to be removed for transportation or storage shall be marked to state that the heater must not be operated without this guard in place (IEC/EN 60335-2-30)		N/A
	Ceiling mounted heat lamp appliances marked with maximum rated wattage and type of each lamp (IEC/EN 60335-2-30/A2)		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
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible		N/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	the power input is related to the arithmetic mean value of the rated voltage range (IEC/EN 60335-1/A2)		N/A
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		
	- marking of terminals exclusively for the neutral conductor (N)		P
	- marking of protective earthing terminals (symbol 5019 of IEC 60417)		P
	- marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard		N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means.....:	Remote control (signed functions and numbers); switch: 0 OFF 1 ON	P
	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
	Instructions for heaters marked with "Do not cover" symbol, shall include an explanation for its meaning (IEC/EN 60335-2-30/A1)		N/A
	Instruction for heaters marked "Do not cover" or with "Do not cover" symbol shall include: WARNING – In order to avoid overheating, do not cover the heater (IEC/EN 60335-2-30/A1)		N/A
	Instruction for heaters with heating elements in direct contact with accessible panels made of glass, ceramic or similar material shall state the heater must not be used if glass is damaged. (IEC/EN 60335-2-30/A2)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	Instruction for visibly glowing radiant heaters other than for mounting at high level, shall include: " Do not use this heater with a programmer, timer, separate remote-control system or any other device that switches the heater on automatically, since a fire risk exist if the heater is covered or positioned incorrectly." (IEC/EN 60335-2-30/A2)		N/A
	Instruction for visibly glowing radiant heaters with fireguards which can be partly removed without a tool, shall include: (IEC/EN 60335-2-30)		
	- the fireguard of this heater is intended to prevent direct access to heating elements and must be in place when the heater is in use".		N/A
	- the fireguard does not give full protection for young children and for infirm persons."		N/A
	Instruction for portable heaters shall include: "Do not use this heater in the immediate surroundings of a bath, a shower or a swimming pool". (IEC/EN 60335-2-30)		N/A
	Instructions shall be provided for cleaning the reflector of visibly glowing radiant heater (IEC/EN 60335-2-30)		N/A
	Instructions shall be provided for replacing the lamps of fuel-effect heaters (IEC/EN 60335-2-30)		N/A
	Instructions for oil-filled radiators shall include the substance of the following: (IEC/EN 60335-2-30)		
	- this heater is filled with a precise quantity of special oil. Repairs requiring opening of the oil container are only to be made by the manufacture or his service agent who should be contacted if there is an oil leak		N/A
	- regulations concerning the disposal of oil when scrapping the appliance have to be followed".		N/A
	The instructions state that (IEC/EN 60335-1/A2):		N/A
	- the appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	- children being supervised not to play with the appliance		P
	Instructions for ceiling mounted heat lamp appliances including removal of covers if applicable. (IEC/EN 60335-2-30/A2)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
7.12.1	Sufficient details for installation supplied		P
	The instruction for installation for heaters intended to be fixed by screw or other means shall give details on the method of fixing. (IEC/EN 60335-2-30)		P
	The instruction for stationary visibly glowing radiant heaters and ceiling mounted heat lamp appliances shall warn about the possible danger of installation close to curtains and other combustible materials. (IEC/EN 60335-2-30/A2)		N/A
	The instructions for heaters for mounting at high level shall state that the heater must be installed at least 1,8 m above the floor. (IEC/EN 60335-2-30)		N/A
	The instruction for fixed heater used in bathroom shall state that the heater is to be installed so that switches and other controls be touched by person in the bath or shower. (IEC/EN 60335-2-30)		N/A
	If roller or feet are delivered separately with the heater, the instructions shall state how they have to be fixed to the heater. (IEC/EN 60335-2-30)		N/A
	The instructions for heaters installed in wardrobes or ceilings shall give details for proper installation in a wardrobe or in the ceiling. (IEC/EN 60335-2-30/A2)		N/A
	Installation instructions for ceiling mounted heat lamp appliances recessed into a ceiling space or cavity shall include the substance of the following: (IEC/EN 60335-2-30/A2)		
	- the appliance shall, under no circumstances, be covered with insulating material or similar material.		N/A
	- regulations concerning the discharge of air have to be fulfilled.		N/A
	- joists, beams and rafters shall not be cut or notched to install the appliance.		N/A
	The installation instructions for heaters for mounting under church benches shall state the following: (IEC/EN 60335-2-30/A2)		
	- that the heater is intended for installation under benches that are fixed in position;		N/A
	- the minimum distance between the underside of the installed heater and the floor;		N/A
	- the minimum distances of the relevant surfaces of the heaters to the front and rear edge of the underside of the bench which shall be not less than 50 mm.		N/A

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 stating that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		
	- dimensions of space		N/A
	- dimensions and position of supporting means		N/A
	- distances between parts and surrounding structure		N/A
	- dimensions of ventilation openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- disconnection the appliance after installation, by the accessible plug or a switch in the fixed wiring in accordance with the wiring rules, unless (IEC/EN 60335-1/A1)		N/A
	a switch complying with 24.3 (IEC/EN 60335-1/A1)		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		N/A
	Replacement cord instructions, type Z attachment		N/A
7.12.6	Caution in the instructions for heating appliances with a non-self-resetting thermal cut-out (IEC/EN 60335-1/A1)		N/A
7.12.7	Instructions for fixed appliances shall state how the appliance is to be fixed to its support (IEC/EN 60335-1/A1)		N/A
7.12.8	Instructions for appliances connected to the water mains shall state (IEC/EN 60335-1/A1)		
	- the maximum inlet water pressure, (Pa): -		N/A
	- the minimum inlet water pressure if this is necessary (Pa).....: -		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	Instructions for appliances connected to the water mains by detachable hose-sets shall be state that: (IEC/EN 60335-1/A1)		
	- new hose-sets supplied with the appliance are to be used		N/A
	- old hose-sets should not be used		N/A
7.13	Instructions and other texts in an official language	English language	P
7.14	Marking clearly legible and durable		P
	For heaters of high level, indication of different positions of switch visible from a distance of 1 m. (IEC/EN 60335-2-30)		N/A
	The marking concerning covering shall be visible after the heater has been installed. It shall not be placed on the back of portable heaters. (IEC/EN 60335-2-30)		N/A
	The markings concerning removable fireguard shall be visible before fitting the fireguard (IEC/EN 60335-2-30)		N/A
	The height of the "Do not cover" symbol shall be at least 15 mm. (IEC/EN 60335-2-30/A1)		N/A
	6 mm height of the words relating to the maximum rated wattage and type of heat lamp (IEC/EN 60335-2-30/A2)		N/A
7.15	Marking on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For portable heaters not placed on the bottom or on the back of (IEC/EN 60335-2-30/A2)		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		P
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P

Clause	Requirement - Test	Result - Remark	Verdict
	For ceiling mounted heat lamp appliances, the marking relating to the maximum rated wattage and type of heat lamp shall be visible when replacing a lamp in accordance with the instructions. (IEC/EN 60335-2-30/A2)		N/A
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
	Requirement not apply to live parts of screw-type or bayonet-type lampholders incorporated in ceiling mounted heat lamp appliances that are accessible only when the heat lamp is extracted. (IEC/EN 60335-2-30/A2)		N/A
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032: no contact with live parts		P
	Detachable fireguards are not removed, if their removal requires the use of a tool. (IEC/EN 60335-2-30)		N/A
8.1.2	Use of test probe 13 of IEC 61032 through openings in class 0 appliances and class II appliances/ constructions: no contact with live parts		P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N/A
8.1.4	Accessible part not considered live if:		
	- safety extra-low a.c. voltage: peak value not exceeding 42,4 V		P
	- safety extra-low d.c. voltage: not exceeding 42,4 V		P
	- 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

Clause	Requirement - Test	Result - Remark	Verdict
	- for peak values over 42,4 V up to and including 450 V, capacitance not exceeding 0,1 μ F		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μ C		N/A
	-for peak values over 15 kV, the energy in the discharge not exceeding 350 mJ (IEC/EN 60335-1/A2)		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		
	- built-in appliances		N/A
	- fixed appliances		P
	- appliances delivered in separate units		N/A
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	Protection is adequate after the installation according the User's Manual by the pipes	P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
	During user maintenance and after the removal of detachable parts during replacement of heat lamps, the basic insulation of internal wiring may be touched provided it is electrically equivalent to the insulation of cords complying with IEC 60227 or IEC 60245. (IEC/EN 60335-2-30/A2)		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 for an appliance with one or more rated voltage ranges (IEC/EN 60335-1/A2)		N/A
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2	(See appended table)	P
	Test for an appliance with one or more rated voltage ranges (IEC/EN 60335-1/A2)		N/A
11	HEATING		
11.1	No excessive temperatures in normal use		P
11.2	Placing and mounting of appliance in the test corner as described (IEC/EN 60335-2-30)		P

Clause	Requirement - Test	Result - Remark	Verdict
	Placing and mounting of heaters for mounting under benches as described (IEC/EN 60335-2-30/A2)		N/A
	Temperature rise of automatic cord reel (IEC/EN 60335-2-30/A2)		N/A
	Temperature rise of stored part for cord storage devices, other than automatic cord reels (IEC/EN 60335-2-30/A2)		N/A
	Placing and mounting of ceiling mounted heat lamp appliances as described (IEC/EN 60335-2-30/A2)		N/A
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		P
	the windings makes it difficult to make the necessary connections		N/A
	Temperature rise of felt pad is determined by thermocouples with disks of cooper. (IEC/EN 60335-2-30)		N/A
11.4	Heating appliances and heating elements operated under normal operation at 1,15 times rated power input	2830; 7130; 10700 W	P
	If the temperature rise limits are exceeded in appliances incorporating motors, transformers or electronic circuits and the power input is lower than the rated power input, the test is repeated with the appliance supplied at 1,06 times rated voltage. (IEC/EN 60335-2-30)		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage . . (IEC/EN 60335-2-30)		N/A
11.6	Combined appliances are tested as heating appliances (IEC/EN 60335-2-30)		P
11.7	Appliances operated until steady conditions are established (IEC/EN 60335-2-30)		P
11.8	Temperature rises not exceeding values in table 3	(See appended table)	P
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4 (IEC/EN 60335-1/A1)		N/A
	Sealing compound does not flow out		P

Clause	Requirement - Test	Result - Remark	Verdict
	Temperature rises of surfaces of heaters shall not exceeding values in Table 101 (IEC/EN 60335-2-30, IEC/EN 60335-2-30/A2)		P
	For heaters intended to be fixed under benches, the temperature rise of surfaces accessible to the test rod shall not exceed the limits specified in Table 3 for parts that are held for short periods only (IEC/EN 60335-2-30)		N/A
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times rated power input.....:	-	N/A
	Motor-operated appliances and combined appliances supplied at 1,06 times rated voltage.....:	243,8 V; 424 V;	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
13.2	Leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	Leakage current measurements	(See appended table)	P
13.3	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 overvoltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6	(See appended table)	N/A
	No flashover during the test, unless of functional insulation		N/A
	In case of flashover of functional insulation, the appliance complies with clause 19 with the clearance short circuited		N/A
15	MOISTURE RESISTANCE		
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		P

Clause	Requirement - Test	Result - Remark	Verdict
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		P
	No trace of water on insulation which can result in a reduction of clearances and creepage distances below values specified in clause 29		P
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529.....:	IP X2	P
	Water valves containing in external hoses for connection of an appliance to the water mains, subjected to the tested as specified for IPX7 appliances (IEC/EN 60335-1/A1)		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N/A
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For 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		N/A
	However, 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
	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 (IEC/EN 60335-1/A1)		N/A
	For IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min (IEC/EN 60335-1/A1)		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts tested as specified		P

Clause	Requirement - Test	Result - Remark	Verdict
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 removed		N/A
	Overfilling test with additional amount of water, over a period of 1 min (l)..... :	-	N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Humidity test for 48 h in a humidity cabinet		P
	The appliance withstands the tests of clause 16		P
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
16.2	Single-phase appliances: test voltage 1,06 times rated voltage..... :	243,8 V	P
	Three-phase appliances: test voltage 1,06 times rated voltage divided by $\sqrt{3}$:	244,7 V	P
	Leakage current measurements	(See appended table)	P
16.3	Electric strength tests according to table 7	(See appended table)	P
	No breakdown during the tests		P
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use	(See appended table)	P
	Appliance supplied with 1,06 or 0,94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied..... :	243,8 V	P

Clause	Requirement - Test	Result - Remark	Verdict
	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		P
	Temperature of the winding not exceeding the value specified in table 8,		P
	however limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
19	ABNORMAL OPERATION		
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11 (IEC/EN 60335-1/A2)		P
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input	-	N/A
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input	-	N/A
19.4	Test conditions as in cl. 11, any control limiting the temperature during tests of cl. 11 short-circuited	-	N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the elements sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A
	The working voltage of the PTC heating element is increased by 5 % and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1,5 times working voltage or until the PTC heating element ruptures		N/A

Clause	Requirement - Test	Result - Remark	Verdict
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1		P
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.3 and 19.11.4 (IEC/EN 60335-1/A1)		N/A
	Appliances having a switch with an off position obtained by electronic disconnection, or a switch placing the appliance in a stand-by mode, subjected to the tests of 19.11.4 (IEC/EN 60335-1/A1)		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 (IEC/EN 60335-1/A2)		N/A
19.11.1	Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet both of the following conditions:		
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		P
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		P
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in cl. 11, but supplied at rated voltage, the duration of the tests as specified:		
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29		N/A
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless they comply with IEC 60384-14		N/A
	d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler		N/A
	e) failure of triacs in the diode mode		N/A
	f) failure of an integrated circuit (IEC/EN 60335-1/A1)		N/A
	g) failure of an electronic power switching device (IEC/EN 60335-1/A2)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to f) of 19.11.2		N/A
	During and after each test the following is checked:		
	- the temperature rise of the windings do not exceed the values specified in table 8		N/A
	- the appliance complies with the conditions specified in 19.13		N/A
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met:		
	- the material of the printed circuit board withstands the burning test of annex E		N/A
	- any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl. 29		N/A
	- the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged		N/A
19.11.4	Appliances having a switch with an off position obtained by electronic disconnection, or (IEC/EN 60335-1/A1)		N/A
	a switch that can be placed in the stand-by mode, (IEC/EN 60335-1/A1)		N/A
	subjected to the tests of 19.11.4.1 to 19.11.4.7 (IEC/EN 60335-1/A1)		N/A
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, except that (IEC/EN 60335-1/A1)		N/A
	Appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena. (IEC/EN 60335-1/A1)		N/A
	Appliances having a device with an off position obtained by electronic disconnection, or		N/A
	a device that can be placed in the stand-by mode,		N/A
	subjected to the tests of 19.11.4.1 to 19.11.4.7 (IEC/EN 60335-1/A2)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4 (IEC/EN 60335-1/A1)		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3 (IEC/EN 60335-1/A1)		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 (IEC/EN 60335-1/A1)		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 (IEC/EN 60335-1/A1)		N/A
19.11.4.6	The appliance is subjected to voltage dips and interruptions in accordance with IEC 61000-4-11 (IEC/EN 60335-1/A1)		N/A
	The appliance is subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11 (IEC/EN 60335-1/A2)		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 reduces to a level such that the appliance ceases to respond or a programmable component cease to operate (IEC/EN 60335-1/A2)		P
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A).....:	-	N/A
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9	(See appended table)	P
	Enclosures not deformed to such an extent that compliance with cl. 8 is impaired		P

Clause	Requirement - Test	Result - Remark	Verdict
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		
	- basic insulation	1000 V	P
	- supplementary insulation.....	-	N/A
	- reinforced insulation.....	3000 V	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstanding the electric strength test of 16.3. the test voltage being twice the working voltage (IEC/EN 60335-1/A2)		P
	The appliance does not undergo a dangerous malfunction, and (IEC/EN 60335-1/A1)		P
	no failure of protective electronic circuits, if the appliance is still operable (IEC/EN 60335-1/A1)		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode (IEC/EN 60335-1/A2) :		N/A
	- 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
	Appliances tested with an electronic switch in the off position or in the stand-by mode, do not become operational (IEC/EN 6033-1/A1)		N/A
19.14	Appliances operated under the conditions of Clause 11. Contactors or relays contacts operating under the conditions of clause 11 short-circuited (IEC/EN 60335-1/A2)		N/A
19.101	Appliance operated at 1,24 times rated input with thermal controls short-circuited as specified. (IEC/EN 60335-2-30)		P
19.102	Circular and similar portable heater in most unfavourable position at 1,24 times rated input. (IEC/EN 60335-2-30)		N/A
19.103	Tests specified for heaters other than for mounted at high level, visibly glowing radiant heaters and portable fan heaters: (IEC/EN 60335-2-30)		
	- are operated with appliance covered		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	- maximum temperature rise of strips shall not exceed 150 K, overshoot of 25 K allowed during first hour.		N/A
19.104	Built-in heaters: special conditions as specified. (IEC/EN 60335-2-30)		N/A
	Maximum temperature rise of strips shall not exceed 150 K, overshoot of 25 K allowed during first hour.		N/A
19.105	Heaters having a liquid container to be filled by the user: tests specified in Clause 11 with the container empty. (IEC/EN 60335-2-30)		N/A
19.106	Fan heaters: tests of Clause 11 with the rotor locked and the supply voltage equal to the rated voltage. (IEC/EN 60335-2-30)		P
	Insulation of motor windings. : (IEC/EN 60335-2-30)		P
	Temperature of the windings does not exceed the values shown in the table 8; temperature (°C): (IEC/EN 60335-2-30)	61; 56; 86;	P
19.107	Fan heaters with an enclosure which is of non-metallic material tested with motor and heating element supplied separately (IEC/EN 60335-2-30)		N/A
19.108	Portable fan heaters: tests specified in Clause 11 at 1,15 times rated input. Test made with a sheet of paper for 4 h. (IEC/EN 60335-2-30)		N/A
19.109	Portable fan heaters tested with air stream directed against wall at 1,15 times rated input and with thermal controls short-circuited as specified. (IEC/EN 60335-2-30)		N/A
	Maximum temperature rise on the wall does not exceed 150 K		N/A
19.110	Portable visibly glowing radiant heater tested at 1.15 times rated input, with radiation directed against a wall (IEC/EN 60335-2-30)		N/A
	Maximum temperature rise on the wall does not exceed 70 K.		N/A
19.111	Visibly glowing radiant heater at rated input with a piece of flannelette in close contact with the fireguard. The flannelette does not smoulder or ignite within 10 s (IEC/EN 60335-2-30)		N/A
	The flannelette does not smoulder or ignite within 10 s		N/A

Clause	Requirement - Test	Result - Remark	Verdict
19.112	Portable heater tested in overturned position on a wooden surface covered with cotton gauze, at 1.15 times rated input. Neither cotton gauze nor wooden surface ignite or smoulder during the test. (IEC/EN 60335-2-30)		N/A
	Temperature of surface of oil-filled radiators shall be at least 40 K of boiling-point of the oil.		N/A
	No deformation of container, no leakage of oil or emission of flames		N/A
19.113	Fan heaters with a non-metallic enclosure: test specified in Clause 11, except that all self-resetting thermal cut-outs and thermostats are inoperative and the fan motor is stalled (IEC/EN 60335-2-30)		N/A
19.114	A quantity of oil is drained from the container (IEC/EN 60335-2-30)		N/A
	Test specified in Clause 11 but at rated power input.		N/A
	Temperature of surface of container shall be at least 40 K of boiling-point of the oil.		N/A
19.115	Ceiling mounted heat lamp appliances operated as specified in Clause 11 but with the highest rated wattage heat lamps fitted as allowed by the construction. (IEC/EN 60335-2-30/A2)		N/A
20	STABILITY AND MECHANICAL HAZARDS		
20.1	Adequate stability		N/A
	Portable heater placed on an inclined plane of 15° (IEC/EN 60335-2-30)		N/A
	Test placed on a horizontal plane with 5 N applied to the top (IEC/EN 60335-2-30)		N/A
	The appliance shall not overturn (IEC/EN 60335-2-30)		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non-detachable		P
	Adequate mechanical strength and fixing of protective enclosures		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure		P
	Not possible to touch dangerous moving parts with test probe		P

Clause	Requirement - Test	Result - Remark	Verdict
21	MECHANICAL STRENGTH		
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying blows to the appliance in accordance with test Ehb of IEC 60068-2-75, spring hammer test, impact energy 0,5 J (IEC/EN 60335-1/A1)		P
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
	The requirement is not applicable to the glass envelopes of heat lamps incorporated in ceiling mounted heat lamp appliances. (IEC/EN 60335-2-30/A2)		N/A
	For appliances with heating elements in direct contact with accessible panels made of glass, ceramic or similar material : applied to the panel a force of 2 J (IEC/EN 60335-2-30/A2)		N/A
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements (IEC/EN 60335-1/A1)		N/A
	The insulation is tested as specified, unless (IEC/EN 60335-1/A1)		N/A
	the thickness of supplementary insulation is at least 1 mm and reinforced insulation is at least 2 mm (IEC/EN 60335-1/A1)		P
21.101	For visibly glowing radiant heaters: mass 5 kg placed for 1 min on central part of the fireguard (IEC/EN 60335-2-30)		N/A
21.102	Test for heaters having a part fixed to the wall and other part hinged to it. (IEC/EN 60335-2-30)		N/A
	After the test, compliance with 8.1 and Clause 29.1 shall not be impaired.		N/A
21.103	The suspension means of panel heater for ceiling mounting shall have adequate strength (IEC/EN 60335-2-30)		N/A
22	CONSTRUCTION		
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled		P

Clause	Requirement - Test	Result - Remark	Verdict
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		
	- a supply cord fitted with a plug		N/A
	- a switch complying with 24.3		P
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N/A
	- an appliance inlet		N/A
	Single-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase permanently connected class I appliances, connected in the phase conductor		N/A
	Single-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor (IEC/EN 60335-1/A2)		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0,25 Nm		N/A
	Pull force of 50 N to each pin after the appliance has been placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1 mm		N/A
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating unless rotating does not impair compliance with the standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching the pins of the plug, the appliance being disconnected from the supply at the instant of voltage peak. (IEC/EN 60335-1/A1)		N/A
	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 (IEC/EN 60335-1/A2)		N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N/A

Clause	Requirement - Test	Result - Remark	Verdict
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices		N/A
	Appliances containing liquid shall be constructed so that they withstand the pressure likely to occur during use. (IEC/EN 60335-2-30)		N/A
	There shall be no leakage of liquid (IEC/EN 60335-2-30)		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		P
	Adequate insulating properties of oil or grease to which insulation is exposed		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 (IEC/EN 60335-1/A1)		N/A
	Non-self resetting thermal motor protectors have a trip-free action, unless (IEC/EN 60335-1/A1)		N/A
	they are voltage maintained (IEC/EN 60335-1/A1)		N/A
	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		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		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		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 etc., liable to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
	Not applicable to rollers or feet prevent overheating of walls or floor if the appliance meets the requirement of clause 19 without these parts in place. (IEC/EN 60335-2-30/A2)		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		N/A
	Compliance is checked by inspection and, if necessary, by appropriate test		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements (IEC/EN 60335-1/A2)		N/A
22.22	Appliances not containing asbestos		P

Clause	Requirement - Test	Result - Remark	Verdict
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported to prevent contact with accessible metal parts in case of rupture or sagging (IEC/EN 60335-2-30)		N/A
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N/A
22.26	The insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		P
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		N/A
	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	Clearances and creepage distances over supplementary and reinforced insulation not reduced below values specified in clause 29 as a result of wear		P
	Clearances and creepage distances between live parts and accessible parts not reduced below values for supplementary insulation, if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
	Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation (IEC/EN 60335-1/A2)		N/A
22.33	Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact with basic or reinforced insulation		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		P
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation (IEC/EN 60335-1/A2)		N/A
	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault		N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of an insulation fault, they 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 either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders used only for the connection of lamps		N/A
	For replaceable heat lamps in ceiling mounted heat lamp appliances, ceramic insulating parts of lampholders are used. (IEC/EN 60335-2-30/A2)		N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N/A
	Unless the appliance can operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch. The actuating member of the switch being easily visible and accessible (IEC/EN 60335-1/A2)		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances are not allowed to have an enclosure that is shaped and decorated so that the appliance is likely to be treated as a toy by children		P
	Appliances shall not have an enclosure that is shaped or decorated like a toy (IEC/EN 60335-1/A2)		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.4 due to deformation as a result of an external force applied to the enclosure		N/A
22.46	Software used in protective electronic circuits is software class B or C: (IEC/EN 60335-1/A1)		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use (IEC/EN 60335-1/A1)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	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 (EN 60335-1/A1)		N/A
22.49	For remote operation, the duration of operation shall be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard (IEC/EN 60335-1/A2)		P
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation ((IEC/EN 60335-1/A2))		P
22.51	A control on the appliance being manually adjusted to the setting for remote operation before the appliance can be operated in this mode (IEC/EN 60335-1/A2)		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation (IEC/EN 60335-1/A2))		N/A
	Manual setting and visual indication not necessary on appliances that can operate as follows, without giving rise to a hazard (IEC/EN 60335-1/A2) :		N/A
	- operate continuously,		N/A
	- operate automatically, or		N/A
	- be operated 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 (IEC/EN 60335-1/A2)		N/A
22.101	Heater other than heaters for mounting at high level shall be guarded in order to prevent contact with heating elements (IEC/EN 60335-2-30)	Protection is adequate after the installation according the User's Manual by the pipes	P
	Use of test probe 41 of IEC 61032: no contact with heating elements (IEC/EN 60335-2-30)	Protection is adequate after the installation according the User's Manual by the pipes	P
	Specification about fireguard openings and its immediate surround: (IEC/EN 60335-2-30)		
	length: 12 mm < L < 126 mm		N/A
	width: 20 mm < W < 53 mm		N/A

Clause	Requirement - Test	Result - Remark	Verdict
22.102	Fireguards shall have a total open area not less than 50% of surface area of the fireguard. (IEC/EN 60335-2-30)		N/A
22.103	Fireguards not completely removable without a tool (IEC/EN 60335-2-30)		N/A
22.104	Appliance for wall mounting shall be constructed so that they can be securely fixed to a wall (IEC/EN 60335-2-30)		P
22.105	Accessible panels made of glass, ceramic or similar material in direct contact with heating element shall withstand thermal shock (IEC/EN 60335-2-30/A2)		N/A
22.106	Portable appliance shall not have openings on the underside that would allow small items to penetrate and touch live parts. (IEC/EN 60335-2-30)		N/A
22.107	Visibly glowing radiant heaters for wall-mounting or for ceiling-mounting: after fixation to its support, no change of the direction without the aid of a tool. (IEC/EN 60335-2-30)		N/A
22.108	Visibly glowing radiant heaters not provided with means which automatically energise a heating element. (IEC/EN 60335-2-30)		N/A
22.109	Disconnection of supply by a switch in the off position not rely on electronic components (IEC/EN 60335-2-30)		N/A
22.110	For heaters intended to be mounted under church benches, metal surfaces accessible to the 75 mm diameter test rod shall have a non-metallic coating with a thickness (μm) of at least 50 μm . (IEC/EN 60335-2-30/A2)	-	N/A
23	INTERNAL WIRING		
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well rounded or provided with bushings		P
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A

Clause	Requirement - Test	Result - Remark	Verdict
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use or 100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test, 1000 V between live parts and accessible metal parts		N/A
23.4	Bare internal wiring sufficiently rigid and fixed		N/A
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		P
	No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		N/A
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by positive means		P
23.7	The colour combination green/yellow used only for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless		P
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		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) (IEC/EN 60335-1/A1)		N/A
24	COMPONENTS		
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components	(See appended table)	P
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.6		P

Clause	Requirement - Test	Result - Remark	Verdict
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		N/A
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.9 (IEC 60335-1/A2: 2006)		P
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard (IEC 60335-1/A2: 2006)		N/A
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14, or		N/A
	tested according to annex F		N/A
24.1.2	Safety isolating transformers complying with IEC 61558-2-6, or		P
	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, or		P
	tested according to annex H		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test (IEC/EN 60335-1/A1)		N/A
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being:		
	- thermostats: 10 000	electronic	P
	- thermostats of liquid-filled radiators operating during to the test of Clause 11: (IEC/EN 60335-2-30) 100 000		N/A
	- temperature limiters: 1 000		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	- timers: 3 000		P
	- energy regulators: 10 000		N/A
	- self-resetting thermal cut-outs: (IEC/EN 60335-2-30) 10 000		P
	- voltage maintained non-self-resetting thermal cut-outs: (IEC/EN 60335-1/A1) 1 000		N/A
	- other non-self-resetting thermal cut-outs: (IEC/EN 60335-1/A1) 30		P
	- non-self-resetting thermal cut-outs operating during to the test of 19.112 (IEC/EN 60335-2-30) 300		N/A
	- other non-self-resetting thermal cut-outs (IEC/EN 60335-2-30) 1 000		N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D (IEC/EN 60335-1/A1)		P
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7 (IEC/EN 60335-1/A1)		N/A
24.1.5	Appliance couplers complying with IEC 60320-1		N/A
	However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N/A
	Interconnection couplers complying with IEC 60320-2-2 (IEC/EN 60335-1/A1)		N/A
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151 (IEC/EN 60335-1/A2)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
24.1.8	The relevant standard for thermal links is IEC 60691. Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19 (IEC/EN 60335-1/A2)		N/A
24.1.9	Relays, other than motor starting relays, tested as part of the appliance (IEC/EN 60335-1/A2)		N/A
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of operations in 24.1.4 selected according to the relay function in the appliance..... : (IEC/EN 60335-1/A2)		N/A
24.2	No switches or automatic controls in flexible cords		P
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	No thermal cut-outs that can be reset by soldering		P
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions		P
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly		P
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		P
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42V.		N/A
	In addition, the motors are complying with the requirements of Annex I		N/A
24.7	Hose-sets for connection of appliances to the water mains, complying with IEC 61770 and supplied with the appliance (IEC/EN 60335-1/A1)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
24.101	Devices incorporated in oil-filled radiators in order to comply with 19.114 shall not be self-resetting (IEC/EN 60335-2-30)		N/A
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		
	- supply cord fitted with a plug		N/A
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance		N/A
	- pins for insertion into socket-outlets		N/A
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A
25.3	Connection of supply conductors for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support		P
	Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.6		N/A
	Appliance provided with a set of terminals allowing the connection of a flexible cord		P
	Appliance provided with a set of supply leads accommodated in a suitable compartment		N/A
	Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit		P
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimensions according to table 10		P
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29		P
25.5	Method for assemble supply cord with the appliance:		

Clause	Requirement - Test	Result - Remark	Verdict
	- type X attachment		N/A
	- type Y attachment		N/A
	- type Z attachment		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
25.6	Plugs fitted with only one flexible cord		N/A
	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 60083:75 (EN 60335-1)		
	- for Class I appliances: standard sheet C2b, C3b or C4	-	N/A
	- for Class II appliances: standard sheet C5 or C6 ...		N/A
25.7	Supply cords being one of the following types (IEC/EN 60335-1/A2):		N/A
	- rubber sheathed (at least 60245 IEC 53)		N/A
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- cross-linked polyvinyl chloride sheathed (at least 60245 IEC 87)		N/A
	Polyvinyl chloride sheathed: Not used if they are likely to touch metal parts having a temperature rise exceeding 75K during the test of Clause 11.		N/A
	- light polyvinyl chloride sheathed cord (at least 60227 IEC 52), appliances not exceeding 3 kg		N/A
	- ordinary polyvinyl chloride sheathed cord (at least 60227 IEC 53), other appliances		N/A
	Heat resistant polyvinyl chloride sheathed: Not used for type X attachment other than specially prepared cords.		N/A
	- Heat-resistant light polyvinyl chloride sheathed cord (at least 60227 IEC 56), appliances not exceeding 3 kg		N/A
	- heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), other appliances		N/A
	Supply cord not lighter than:		
	- braided cord (60245 IEC 51)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	- ordinary tough rubber sheathed cord (60245 IEC 53)		N/A
	- ordinary polychloroprene sheathed flexible cord (60245 IEC 57) (EN 60335-1/A1)		N/A
	- light polyvinyl chloride sheathed cord (60227 IEC 52) regardless mass of appliance		N/A
	- flat twin tinsel cord (60227 IEC 41)		N/A
	- ordinary polyvinyl chloride sheathed cord (60227 IEC 53), appliance exceeding 3 kg		N/A
	Supply cords having high flexibility, not lighter than: (IEC/EN 60335-1)		
	- rubber insulated and sheathed cord (60245 IEC 86)		N/A
	- rubber insulated, crosslinked PVC sheathed cord (60245 IEC 87)		N/A
	- crosslinked PVC insulated and sheathed cord (60245 IEC 88)		N/A
	Temperature rise of external metal parts exceeding 75 K, PVC cord not used, unless		N/A
	appliance so constructed that the supply cord is not likely to touch external metal parts in normal use, or		N/A
	the supply cord is appropriate for higher temperatures, type Y or type Z attachment used		N/A
	Portable heater to be used in greenhouse shall not be lighter than ordinary polychloroprene sheathed flexible cord (IEC/EN 60335-2-30)		N/A
	Heaters for building sites shall not be lighter than heavy polychloroprene sheathed flexible cord (60245 IEC 65) (IEC/EN 60335-2-30)		N/A
25.8	Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm ²).....:	-	N/A
25.9	Supply cord not in contact with sharp points or edges		N/A
25.10	Green/yellow core for earthing purposes in Class I appliance		N/A
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless		N/A
	clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		N/A
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		N/A

Clause	Requirement - Test	Result - Remark	Verdict
25.13	Inlet opening so shaped as to prevent damage to the supply cord		P
	Unless the enclosure at the inlet opening is of insulation material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless		N/A
	the appliance is class 0		N/A
25.14	Supply cords adequately protected against excessive flexing		N/A
	Flexing test:		
	- applied force (N)		
	- number of flexings	-	N/A
	The test does not result in:		
	- short circuit between the conductors		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage, within the meaning of the standard, to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of supply cord, values shown in table 10: pull (N); torque (not on automatic cord reel) (Nm)	100 N; 0,35 Nm	P
	Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals		P
	Creepage distances and clearances not reduced below values specified in 29.1		P

Clause	Requirement - Test	Result - Remark	Verdict
25.16	Cord anchorages for type X attachments constructed and located so that:		
	- replacement of the cord is easily possible		N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
25.17	Adequate cord anchorages for type Y and Z attachment		N/A
25.18	Cord anchorages only accessible with the aid of a tool, or		N/A
	so constructed that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		N/A

Clause	Requirement - Test	Result - Remark	Verdict
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage to the conductors when fitting the cover, no contact with accessible metal parts if a conductor becomes loose, etc.		N/A
	For portable appliances, the uninsulated end of a conductor prevented from any contact with accessible metal parts, unless the end of the cord is such that the conductors are unlikely to slip free		N/A
25.22	Appliance inlet:		
	- live parts not accessible during insertion or removal		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- is not for cold conditions if temp. rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins compatible with the dimensions of the relevant socket-outlet. Dimensions of pins and engagement face in accordance with the relevant plug in IEC 60083		N/A
26	TERMINALS FOR EXTERNAL CONDUCTORS		
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P
	Terminals only accessible after removal of a non-detachable cover		P
	However, 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 (IEC/EN 60335-1/A1)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
26.2	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		P
	Screws and nuts serve only to clamp supply conductors, except		P
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N/A
	Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		P
	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		
	- the terminal does not loosen		P
	- internal wiring is not subjected to stress		P
	- clearances and creepage distances are not reduced below the values in 29		P
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified. Nominal diameter of thread (mm); screw category; torque (Nm)..... : (IEC/EN 60335-1/A2):	3,25 mm; III; 0,53 Nm	P
26.4	Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out		P
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm ²)	10,7A; 4 mm ² 9,5 A; 2,5 mm ² 14 A; 4 mm ²	P
	Terminals only suitable for a specially prepared cord		N/A
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other		P
26.9	Terminals of the pillar type constructed and located as specified		P
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment: soldered, welded, crimped and similar connections may be used		N/A
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, clearances and creepage distances satisfactory 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 contact of the appliance inlet		P
	Earthing terminals not connected to neutral terminal		P
	Class 0, II and III appliance have no provision for earthing		N/A
	Safety extra-low voltage circuits not earthed, unless protective extra-low voltage circuits		P
27.2	Clamping means adequately secured against accidental loosening		P

Clause	Requirement - Test	Result - Remark	Verdict
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm ² , and		N/A
	do not provide earthing continuity between different parts of the appliance		N/A
	Conductors cannot be loosened without the aid of a tool		P
27.3	For detachable parts that are plugged into another part of the appliance, and having an earth connection, the earth connection made before and separated after current-carrying connections when removing the part (IEC/EN 60335-1/A1)		N/A
	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N/A
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		P
	Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure		P
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 µm		P
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		P
	In case of aluminium alloys precautions taken to avoid risk of corrosion		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided that clearances of basic insulation are based on the rated voltage of the appliance		P
	Resistance not exceeding 0,1 Ω at the specified low-resistance test		P
27.6	The printed conductors of printed circuit boards shall not be used to provide earthing continuity in hand-held appliances. (IEC/EN 60335-1/A2)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit (IEC/EN 60335-1/A2)		N/A
	The printed conductors of printed circuit boards not used to provide earthing continuity in hand held appliances		N/A
	They may be used in other appliances if:		
	- at least two tracks are used with independent soldering points and the appliance complies with requirements of 27.5 for each circuit		N/A
	- the material of the printed circuit board complies with IEC 60249-2-4 or IEC 60249-2-5		N/A
28	SCREWS AND CONNECTIONS		
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screw into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A
	Type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation		N/A
	For screws and nuts; test as specified	(See appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated		P

Clause	Requirement - Test	Result - Remark	Verdict
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0,5 A		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread (IEC/EN 60335-1/A2)		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer (IEC/EN 60335-1/A2)		N/A
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection (IEC/EN 60335-1/A2):		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 (IEC/EN 60335-1/A2)		N/A
	Thread-cutting (self-tapping) screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Such screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action		N/A
	Thread-cutting and space-threaded screws may be used in connections providing earthing continuity, provided unnecessary to disturb the connection and at least two screws are used for each connection		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		P
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion		N/A

Clause	Requirement - Test	Result - Remark	Verdict
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type A) or to provide basic insulation (Type B), annex J applies (IEC/EN 60335-1/A1)		N/A
	The microenvironment is pollution degree 1 under Type A coating (IEC/EN 60335-1/A1)		N/A
	No creepage distance or clearance requirements under Type B coating (IEC/EN 60335-1/A1)		N/A
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies (IEC/EN 60335-1/A2)		N/A
	The microenvironment is pollution degree 1 under Type 1 coating (IEC/EN 60335-1/A2)		N/A
	No clearance or creepage distance requirements under Type 2 coating (IEC/EN 60335-1/A2)		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless (IEC/EN 60335-1/A1)		P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14 (IEC/EN 60335-1/A1)		N/A
	However, if the construction is affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable (IEC/EN 60335-1/A1)		N/A
	Impulse voltage test not applicable: (IEC/EN 60335-1/A1)		
	- when the microenvironment is pollution degree 3		N/A
	- for basic insulation of class 0 and class 01 appliances		N/A
	Appliances are in overvoltage category II		P
	Clearances less than specified in table 16 not allowed for basic insulation of class 0 and class 01 appliances,		N/A
	or if pollution degree 3 is applicable		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	Compliance is checked by inspection and measurements as specified		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors (IEC/EN 60335-1/A1)		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16		N/A
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage		P
29.1.4	For functional insulation, the values of table 16 are applicable, unless		P
	the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors (IEC/EN 60335-1/A1)		P
	However, clearances at crossover points are not measured (IEC/EN 60335-1/A1)		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltage than rated voltage, the voltage used for determining clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the working voltage and the peak value of the rated voltage		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation based on the working voltage used as the rated voltage in table 15		P
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree		P

Clause	Requirement - Test	Result - Remark	Verdict
	Pollution degree 2 applies, unless		P
	precautions taken to protect the insulation; pollution degree 1		N/A
	insulation subjected to conductive pollution; pollution degree 3		N/A
	Compliance is checked by inspection and measurements as specified		P
	Fan heaters, pollution degree 3 (IEC/EN 60335-2-30)		N/A
	Insulation enclosed or located so that unlikely to be exposed to pollution due to normal use (IEC/EN 60335-2-30)		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17		P
	For pollution degree 1, creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14		N/A
29.2.2	Creepage distances of supplementary insulation at least as specified for basic insulation in table 17		N/A
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17		P
29.2.4	Creepage distances of functional insulation not less than specified in table 18		P
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
29.3	Supplementary and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses (IEC/EN 60335-1/A1)		P
	Compliance checked by: (IEC/EN 60335-1/A1)		
	- measurement, in accordance with 29.3.1, or		P
	- an electric strength test in accordance with 29.3.2, or		N/A
	- an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3		N/A
	for accessible reinforced insulation consisting of a single layer, measurement in accordance with 29.3.Z1. EN 60335-1/A12		P

Clause	Requirement - Test	Result - Remark	Verdict
29.3.Z1	If accessible reinforced insulation consists of a single layer, the thickness of this layer shall comply with Table Z1 EN 60335-1/A12		N/A
29.3.1	Supplementary insulation having a thickness of at least 1 mm (IEC/EN 60335-1/A1)		N/A
	Reinforced insulation having a thickness of at least 2 mm (IEC/EN 60335-1/A1)		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation (IEC/EN 60335-1/A1)		N/A
	Supplementary insulation consisting of at least 2 layers (IEC/EN 60335-1/A1)		N/A
	Reinforced insulation consisting of at least 3 layers (IEC/EN 60335-1/A1)		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by (IEC/EN 60335-1/A1)		N/A
	the electric strength test of 16.3 (IEC/EN 60335-1/A1)		N/A
	If the temperature rise during the tests of Clause 19 does not exceed the value specified in Table 3, the test of IEC 60068-2-2 is not carried out (IEC/EN 60335-1/A1)		N/A
30	RESISTANCE TO HEAT AND FIRE		
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	thermoplastic material providing supplementary or reinforced insulation,		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts: at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C).....:	75	P
	Parts supporting live parts: at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125°C, whichever is the higher; temperature (°C).....:	125	P
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25°C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C).....:	75	P

Clause	Requirement - Test	Result - Remark	Verdict
30.2	Parts of non-metallic material adequately resistant to ignition and spread of fire (IEC/EN 60335-1/A2)		P
	This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance (IEC/EN 60335-1/A2)		P
	Compliance checked by the test of 30.2.1. In addition (IEC/EN 60335-1/A2) :		P
	- attended appliances, 30.2.2 applies		N/A
	- unattended appliances, 30.2.3 applies		P
	Appliances for remote operation, 30.2.3 applies		N/A
	Base material of printed circuit board, 30.2.4 applies		P
30.2.1	Glow-wire test of IEC 60695-2-11 at 550 °C, unless		N/A
	the material is classified at least HB40 according to IEC 60695-11-10 (IEC/EN 60335-1/A2)		N/A
	Parts for which the glow-wire test cannot be carried out meet the requirements in ISO9772 for category HBF material (IEC/EN 60335-1/A2)		N/A
	Glow-wire test at 650 °C on enclosures (IEC/EN 60335-2-30)		P
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and parts of non-metallic material within a distance of 3mm of such connections, are subjected to the glow-wire test of IEC 60695-2-11 (IEC/EN 60335-1/A2)		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least (IEC/EN 60335-1/A2) :		N/A
	-750°C, for connections carrying a current exceeding 0,5A during normal operation		N/A
	-650°C, for other connections		N/A
	Test as specified for an interposed shielding material		N/A
	When the glow-wire test of IEC 60695-2-11 is carried out, the temperatures are (IEC/EN 60335-1/A2):		N/A
	-750°C, for connections carrying a current exceeding 0,5A during normal operation		N/A
	-650°C, for other connections		N/A
	Test not applicable to conditions as specified		N/A

Clause	Requirement - Test	Result - Remark	Verdict
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2 (IEC/EN 60335-1/A2)		P
	Tests not applicable to conditions as specified (IEC/EN 60335-1/A2)		N/A
30.2.3.1	Parts of insulating material supporting connections carrying a current exceeding 0.2A during normal operation, and		P
	parts of insulating material within a distance of 3 mm,		N/A
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850°C (IEC/EN 60335-1/A2)		P
	Glow-wire test not carried out on parts of material classified as having a glow-wire flammability index of at least 850°C according to IEC 60695-2-12 (IEC/EN 60335-1/A2)		N/A
	Glow-wire test not carried out on small parts that comply with the needle-flame test of Annex E or on small parts of material classified as V-0 or V-1 according to IEC 60695-11-10 (IEC/EN 60335-1/A2)		N/A
	Test as specified for an interposed shielding material (IEC/EN 60335-1/A2)		N/A
30.2.3.2	Parts of insulating material supporting current-carrying connections, and		P
	parts of insulating material within a distance of 3 mm,		N/A
	subjected to glow-wire test of IEC 60695-2-11 (IEC/EN 60335-1/A2)		P
	Test not carried out on material having a glow-wire ignition temperature according to IEC 60695-2-13 of at least (IEC/EN 60335-1/A2) :		N/A
	-775°C, for connections carrying a current exceeding 0,2A during normal operation		N/A
	-675°C, for other connections		N/A
	When the glow-wire test of IEC 60695-2-11 is carried out, the temperatures are:		N/A
	-750°C, for connections carrying a current exceeding 0,2A during normal operation		P
	-650°C, for other connections		P
	Parts that during the test produce a flame persisting longer than 2 s, tested as specified (IEC/EN 60335-1/A2)		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless		N/A
	the material is classified as V-0 or V-1 according to IEC 60695-11-10 (IEC/EN 60335-1/A2)		N/A
	Glow-wire test of IEC 60695-2-11, the temperature being:		
	- 750°C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650°C, for other connections		P
	Parts that during the test produce a flame persisting longer than 2 s, tested as specified		N/A
	If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless		N/A
	the material is classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to needle-flame test of annex E (IEC/EN 60335-1/A2)		P
	Test not applicable to conditions as specified (IEC 60335-1/A2: 2006)		N/A
30.101	Non-metal parts enclosure of fan heater have to be resistant to fire; needle-burning test (Appendix F) (IEC/EN 60335-2-30)		N/A
	This test is not carried out on fan heaters also intended to be operated at maximum heat output with the fan switched off. (IEC/EN 60335-2-30/A2)		N/A
31	RESISTANCE TO RUSTING		
	Relevant ferrous parts adequately protected against rusting		P
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		
	Appliance shall not emit harmful radiation, present a toxic or similar hazard due to their operation in normal use (IEC/EN 60335-1/A2)		P
	Relevant tests specified in part 2, if necessary (IEC/EN 60335-1/A2)		P
	Appliance does not emit harmful radiation		P
	Appliance does not present a toxic or similar hazard		P

Clause	Requirement - Test	Result - Remark	Verdict
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		
	Description of routine tests to be carried out by the manufacturer		N/A
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES		
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	This annex does not apply to battery chargers		N/A
3.1.9	Appliance operated under the following conditions:		
	-the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	-the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A
	If the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N/A
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N/A
7.12	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A

Clause	Requirement - Test	Result - Remark	Verdict
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period described		N/A
19.1	Appliances subjected to tests of 19.101, 19.102 and 19.103		N/A
19.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.102	Short-circuiting of the terminals of the battery, being fully charged, for appliances having batteries that can be removed without the aid of a tool		N/A
19.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
21.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 of IEC 60068-2-32		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-32, the number of falls being:		
	- 100, the mass of part does not exceed 250 g		N/A
	- 50, the mass of part exceeds 250 g		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
C	ANNEX C (NORMATIVE) AGEING TEST ON MOTORS		
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N/A

Clause	Requirement - Test	Result - Remark	Verdict
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS		
	Applicable to appliances having motors that incorporate thermal motor protectors		P
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST (IEC/EN 60335-1/A2)		
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		P
7	Severities		P
	The duration of application of the test flame is 30 s ± 1 s		P
9	Test procedure		P
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1		P
9.2	The first paragraph does not apply		P
	If possible, the flame is applied at least 10 mm from a corner		P
9.3	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		P
	The duration of burning not exceeding 30 s		N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P
F	ANNEX F (NORMATIVE) CAPACITORS		
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		N/A
1.5	Terminology		
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A

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

Clause	Requirement - Test	Result - Remark	Verdict
G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		
	The following modifications to this standard are applicable for safety isolating transformers:		N/A
7	Marking and instructions		
7.1	Transformers for specific use marked with:		
	-name, trademark or identification mark of the manufacturer or responsible vendor		N/A
	-model or type reference		N/A
17	Overload protection of transformers and associated circuits		
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		N/A
29	Clearances, creepage distances and solid insulation		
29.1, 29.2 and 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply (Corrigendum 1/EN 60335-1/A11)		N/A
H	ANNEX H (NORMATIVE) SWITCHES		
	Switches comply with the following clauses of IEC 61058-1, as modified:		
	- The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		P
	- Before being tested, switches are operated 20 times without load		P
8	Marking and documentation		
	Switches are not required to be marked		P
	However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		P

Clause	Requirement - Test	Result - Remark	Verdict
13	Mechanism		
	The tests may be carried out on a separate sample		P
15	Insulation resistance and dielectric strength		
15.1	Not applicable		P
15.2	Not applicable		P
15.3	Applicable for full disconnection and micro-disconnection		P
17	Endurance		
	Compliance is checked on three separate appliances or switches		P
	For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		P
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable (IEC/EN 60335-1/A1)		P
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1 (IEC/EN 60335-1/A1)		P
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1		P
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		P
I	ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE		
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N/A

Clause	Requirement - Test	Result - Remark	Verdict
8	Protection against access to live parts		
8.1	Metal parts of the motor are considered to be bare live parts		N/A
11	Heating		
11.3	Temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	Temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N/A
16	Leakage current and electric strength		
16.3	Insulation between live parts of the motor and its other metal parts not subjected to the test		N/A
19	Abnormal operation		
19.1	The tests of 19.7 to 19.9 not carried out		N/A
19.101	Appliance operated at rated voltage with each of the following fault conditions:		
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N/A
	- short circuit of each diode of the rectifier		N/A
	- open circuit of the supply to the motor		N/A
	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		
22.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS (IEC/EN 60335-1/A2)		

Clause	Requirement - Test	Result - Remark	Verdict
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N/A
5.7	Conditioning of the test specimens		
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		
	The test is carried out at -25°C		N/A
5.7.3	Rapid change of temperature		
	Severity 1 is specified		N/A
5.9	Additional tests		
	This subclause is not applicable		N/A
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		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

Clause	Requirement - Test	Result - Remark	Verdict
L	ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES		
	Sequences for the determination of clearances and creepage distances		P
M	ANNEX M (NORMATIVE) POLLUTION DEGREE		
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		
	The microenvironment determines the effect of pollution on the insulation, taking into account the microenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		N/A
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		N/A

Clause	Requirement - Test	Result - Remark	Verdict
7	Test apparatus (IEC/EN 60335-1/A1)		N/A
7.3	Test solutions (IEC/EN 60335-1/A1)		
	Test solution A is used		N/A
10	Determination of proof tracking index (PTI) (IEC/EN 60335-1/A1)		
10.1	Procedure (IEC/EN 60335-1/A1)		
	The proof voltage is 100V, 175V, 400V or 600V.....:		N/A
	The last paragraph of Clause 3 applies		N/A
	The test is carried out on five specimens		N/A
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report (IEC/EN 60335-1/A1)		
	The report stating if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N/A
O	ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30		
	Description of tests for determination of resistance to heat and fire		N/A
P	ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES		
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE		
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		
5	General conditions for the tests		
5.7	The ambient temperature for the tests of Clauses 11 and 13 is 40 ⁺³ / ₀		N/A
7	Marking and instructions		

Clause	Requirement - Test	Result - Remark	Verdict
7.1	The appliance marked with the letters WdaE		N/A
7.12	The instructions state that the appliance is to be supplied through a RCD having a rated residual operating current not exceeding 30 mA		N/A
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N/A
11	Heating		
11.8	The values of Table 3 are reduced by 15 K		N/A
13	Leakage current and electric strength at operating temperature		
13.2	The leakage current for class I appliances not exceeding 0,5 Ma		N/A
15	Moisture resistance		
15.3	The value of t is 37 °C		N/A
16	Leakage current and electric strength		
16.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
19	Abnormal operation		
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS (IEC/EN 60335-1/A1)		
	Description of tests for appliances incorporating electronic circuits		N/A
R	ANNEX R (NORMATIVE) SOFTWARE EVALUATION (IEC/EN 60335-1/A1)		
	Software evaluated in accordance with the following clauses of Annex H of IEC 60730-1, as modified		
H.2	Definitions		
	Only definitions H.2.16 to H.2.20 applicable		N/A

Clause	Requirement - Test	Result - Remark	Verdict
H.7	Information		
	Only footnotes 12) to 18) of Table 7.2, as modified, applicable		N/A
H.11.12	Controls using software		
	All the subclauses of H.11.12, as modified, except H.11.12.6 and H.11.12.6.1, applicable		N/A
H.11.12.7	Delete text		N/A
H.11.12.7.1	For appliances using software class C having a single channel with self-test and monitoring structure, the manufacturer provides the measures necessary to address the fault/errors in safety related segments and data		N/A
H.11.12.8	Software fault/error detection occurs before compliance with 19.13 of IEC 60335-1 is impaired		N/A
H.11.12.8.1	Replace text		N/A
H.11.12.13	Software and safety related hardware under its control initializes and terminates before compliance with 19.13 of IEC 60335-1 is impaired		N/A

ANNEX EMF

	The Tested product also complies to the requirements of EN 50366:2003 + A1:2006		
VPA-1 315-9,0-3	Limit 100% The appliance operated in continuous mode	Measured max. : 2,503 %	P

National Differences for (country name) and/or Group Differences			
ZA	ANNEX ZA (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN 60335-1)		
7.12	DENMARK: Requirements regarding marking tag of power supply cord and connection of earthing wire for class I appliances delivered without a plug		N/A
19.5	NORWAY: The test is also applicable to appliances intended to be permanently connected to fixed wiring		N/A
22.2	FRANCE, NORWAY: 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
25.3	FRANCE: Fixed heaters shall be appliances intended to be permanently connected to fixed wiring (EN 60335-2-30)		N/A
25.6	BELGIUM, FRANCE, SPAIN, UNITED KINGDOM: Plugs according to standard sheet C2b not allowed		N/A
	AUSTRIA, FINLAND, GERMANY, ICELAND, IRELAND, ITALY, LUXEMBOURG, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM: Plugs according to standard sheet C3b not allowed		N/A
	DENMARK: Supply cords of single-phase portable appliances having a rated current not exceeding 13 A provided with a plug according to the following:		N/A
	Class I appliances: Section 107-2-D1, ed.3 1998, Standard Sheet DK 2-1a		N/A
	For appliances covered by a Part 2 of EN 60335, also plugs in accordance with Section 107-2-D1, ed. 3, 1998, Standard Sheet C2b, C3b or C4 are allowed		N/A
	Class II appliances: Section 107-2-D1, ed.3 1998, Standard Sheet C1b, C5, C6, DKA 2-1a and DKA 2-1b		N/A
	Stationary single-phase appliances, having a rated current not exceeding 13 A, and provided with a supply cord and a plug, the plug is in accordance with the requirements above		N/A
	Multi-phase appliances and single-phase appliances having a rated current exceeding 13 A, and provided with a supply cord and a plug, the plug is in accordance with the requirements below:		N/A
	Class I appliances: Section 107-2-D1, Standard Sheet DK 6-1a / EN 60309-2, Standard Sheet 2-II, 2-IV		N/A

	Class II appliances: Section 107-2-D1, Standard Sheet DK 6-1a / EN 60309-2, Standard Sheet 2-II, 2-IV, the earthing contact not being connected		N/A
	The current for the plug not exceeding the values specified; standard sheet (no.); current (A)		N/A
	IRELAND: Only plugs according to Standard Sheets B2 and C5 allowed (see also Annex ZB)		N/A
	ITALY: Only plugs listed in CENELEC Report R0BT-005:2001 allowed		N/A
	SPAIN: For appliances for household use, only the following plugs are allowed:		N/A
	according to UNE 20315: ESC 10-1b, C2b, C4, C6 or ESB 25-5b		N/A
	according to UNE-EN 50075		N/A
	SWITZERLAND: supply cords of portable household and similar electrical appliances having a rated current not exceeding 10 A, provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:		N/A
	SEV 6532-2.1991, plug type 15, 3P+N+PE, 250/400 V, 10 A		N/A
	SEV 6533-2.1991, plug type 11, L+N, 250 V, 10 A		N/A
	SEV 6534-2.1991 plug type 12, L+N+PE, 250 V, 10 A		N/A
	UNITED KINGDOM: Only plugs according to Standard Sheets B2 and C5 allowed (see also Annex ZB)		N/A
25.8	IRELAND, UNITED KINGDOM: replacement of figures (rated current/cross-sectional area) in the table		N/A
ZB	ANNEX ZB (INFORMATIVE) A-DEVIATIONS (EN 60335-1)		
4	SWITZERLAND: Information about batteries with carbon-zinc and alkali-manganese		N/A
7.1	ITALY: The voltage is 220 V/380 V		N/A
11.8	FRANCE: For fixed heaters, other than those for mounting at high level, the limit is 115 K for metallic air-outlet grilles and their immediate surrounds (EN 60335-2-30)		N/A
25.6	IRELAND: These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances.		N/A

	UNITED KINGDOM: These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and standard sheet C5 to be fitted to shavers and toothbrushes.		N/A
29.3	GERMANY: Third dashed item not applicable for appliances where the insulation is accessible. Additional measures, such as a multi-layered insulation or adequate thickness, taken.		N/A
ZC	ANNEX ZC TO EN 60335-1/A2, EN 60335-2-30/A2 (INFORMATIVE)		
	Normative references to international publications with their corresponding European publications		N/A

10.1	TABLE: Power input deviation					
Input deviation of/at:	P rated (W)	P measured (W)	Dp	Required Dp	Remark	
VPA 125-2,4-1	2,46 k	2,31 k	- 6,1 %	+ 5/-10 %		
VPA 200-6,0-3	6,2 k	6,1 k	- 1,6 %	+ 5/-10 %		
VPA-1 315-9,0-3	9,3 k	9,1 k	- 2,2 %	+ 5/-10 %		

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

11.8	TABLE: Heating test, thermocouples					
	Test voltage (V)	246; 3x445			—	
	Ambient (°C)	25			—	
Thermocouple locations	dT (K)	(°C)	Max. dT (K)	Max. (°C)		
VPA 125-2,4-1						
PCB	9	-	120	-		
Terminal	13		60			
Switch	16		30			
Capacitor (motor)	10		20			
Internal wiring	11		50			
Enclosure of transformer (S15)	24		85			
Plastic enclosure	15		60			
Terminal for heating element	18		60			
VPA 200-6,0-3						
PCB	16	-	120	-		
Terminal	17		60			
Switch	18		30			
Capacitor (motor)	2		20			
Internal wiring	21		50			
Enclosure of transformer (S15)	30		85			

Plastic enclosure	15		60	
Terminal for heating element	17		60	
VPA-1 315-9,0-3				
PCB	21	-	120	-
Terminal	20		60	
Switch	16		30	
Capacitor (motor)	12		20	
Internal wiring	27		50	
Enclosure of transformer (S15)	42		85	
Plastic enclosure	15		60	
Terminal for heating element	17		60	

11.8	TABLE: Heating test, resistance method							
	Test voltage (V)..... :			246; 3x445		—		
	Ambient, t1 (°C)..... :			25		—		
	Ambient, t2 (°C)..... :			25		—		
Temperature rise of winding		R ₁ (Ω)	R ₂ (Ω)	dT (K)	(°C)	Max. dT (K)	Max. (°C)	Insulation class
VPA 125-2,4-1								
Main winding (fan)		208	232	29,9		95		130
Auxiliary winding (fan)		361	398	28,6		95		130
Control transformer								
230 V winding		8,8	9,7	26,5		95		130
190 V winding		7,7	8,6	32,3		95		130
160 V winding		7,0	7,8	33,5		95		130
Safety transformer (S15)								
primary		221	242	24,6		95		130
secondary		0,94	1,10	46,2		95		130
VPA 200-6,0-3								
Main winding (fan)		69,8	76,3	30,1		95		
Auxiliary winding (fan)		75,0	82,7	35,6		95		130
Control transformer								
230 V winding		8,83	9,65	24,0		95		130
190 V winding		7,65	8,40	25,4		95		130
160 V winding		6,88	7,59	23,2		95		130

Safety transformer (S15)						
primary	223	239	18,6		95	130
secondary	0,97	1,17	53,1		95	135
VPA-1 315-9,0-3						
Main winding (fan)	32,8	36,5	29,3		95	130
Auxiliary winding (fan)	37,0	41,0	28,0		95	130
Control transformer						
230 V winding	8,82	9,66	24,7		95	130
190 V winding	7,67	8,41	25,0		95	130
160 V winding	6,87	7,54	25,3		95	130
Safety transformer (S15)						
primary	225	243	20,7		95	130
secondary	0,92	1,12	56,1		95	130

13.2	TABLE: Leakage current		
	Heating appliances: 1.15 x rated input.....:	4083 W; 26,47 kW	—
	Motor-operated and combined appliances: 1,06 x rated voltage	-	—
Leakage current between		I (mA)	Max. allowed I (mA)
VPA 125-2,4-1			
Between live parts and metal enclosure		0,15	1,85
Between live parts and plastic enclosure wrapped by metal foil		0,08	0,25
VPA 200-6,0-3			
Between live parts and metal enclosure		0,20	4,65
Between live parts and plastic enclosure wrapped by metal foil		0,14	0,25
VPA-1 315-9,0-3			
Between live parts and metal enclosure		0,21	5,0
Between live parts and plastic enclosure wrapped by metal foil		0,14	0,25

13.3	TABLE: Electric strength		
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
VPA 125-2,4-1			
Between live parts and metal enclosure		1000	No
Between live parts and plastic enclosure wrapped by metal foil		3000	No
Between live parts and SELV circuit		3000	No
VPA 200-6,0-3			

Between live parts and metal enclosure	1000	No
Between live parts and plastic enclosure wrapped by metal foil	3000	No
Between live parts and SELV circuit	3000	No
VPA-1 315-9,0-3		
Between live parts and metal enclosure	1000	No
Between live parts and plastic enclosure wrapped by metal foil	3000	No
Between live parts and SELV circuit	3000	No
supplementary information:-		

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

16.2	TABLE: Leakage current		
	Single phase appliances: 1,06 x rated voltage.....:	243,8;	—
	Three phase appliances 1,06 x rated voltage divided by $\sqrt{3}$:	244,8	—
Leakage current between		I (mA)	Max. allowed I (mA)
VPA 125-2,4-1			
Between live parts and metal enclosure		0,13	1,85
Between live parts and plastic enclosure wrapped by metal foil		0,10	0,25
VPA 200-6,0-3			
Between live parts and metal enclosure		0,15	4,65
Between live parts and plastic enclosure wrapped by metal foil		0,06	0,25
VPA-1 315-9,0-3			
Between live parts and metal enclosure		0,17	5,0
Between live parts and plastic enclosure wrapped by metal foil		0,11	0,25

16.3	TABLE: Electric strength	
Test voltage applied between:	Voltage (V)	Breakdown (Yes/No)
VPA 125-2,4-1		
Between live parts and metal enclosure		No
Between live parts and plastic enclosure wrapped by metal foil		No
Between live parts and SELV circuit		No

VPA 200-6,0-3		
Between live parts and metal enclosure	1250	No
Between live parts and plastic enclosure wrapped by metal foil	3000	No
Between live parts and SELV circuit	3000	No
VPA-1 315-9,0-3		
Between live parts and metal enclosure		
Between live parts and plastic enclosure wrapped by metal foil		
Between live parts and SELV circuit		

17	TABLE: Overload protection, temperature rise		
Temperature rise of part/at:		dT (K)	Max. dT (K)
Safety transformer (S15): No considerable temperature rising. Fuse link immediately operated.		-	200

19.13	TABLE: Abnormal operation, temperature rises			
Thermocouple locations	dT (K)	(°C)	Max. dT (K)	Max. (°C)
Plastic enclosure	18		according to clause 30.1	
Test corner	26		150	

24.1	TABLE: Components				
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity
VPA 100-1,8-1					
Fan	EBM PAPST	R2E 190- AO26-05	230V~ 50Hz 0.26A 58W B	EN 60335	Tested in the appliance
Motor protector of fan engine	Termik	as part of the Fan		EN 60335	Tested in the appliance
Capacitor		CBB60E3205 J450	2µF 450V	EN 60252	VDE*
Heating element	Backer OBR	Typ 2955	230 V 600 W	EN 60335	Tested in the appliance
Thermal cut-out auto	HengFeng	KSD 020	250 V~ 10 A 50	EN 60730	TÜV
Thermal cut-out manual	HengFeng	KSD 020	250 V~ 10 A 90	EN 60730	TÜV
Switch	SALZER	SA20	400V~ 20A	EN 60335	Tested in the appliance

Control transformer	Tianjin Carel Tech	Autotransformer 2A	230 V 2 A	EN 60335	Tested in the appliance
Contractor	GANZ KK	DIL—K11	400V 32A 21kW	EN 60335	Tested in the appliance
Safety transformer	BN Chuang Si Fang Electronic Co. Ltd.	S15-F148	230 V, 50/60 Hz, 15 VA	EN 61558-2-6	ETS*
Relay	Xiamen Hongfa E. Co.	JQX-115F/012-1ZS3	250 V 24 V		VDE*
Relay	Fujitsu	FTR-F3AA012E-HA	230V~ 5A (12Vcoil)		VDE*
Opto-coupler	FAIRCHILD	H11AA814	5300 V; 10 ¹¹ Ω	EN 60335	Tested in the appliance
Opto simistor	Element-Preobrazovatel Ltd	MFTCO 7/17-25-8-4 Y2	1000V~ 63A	EN 60335	Tested in the appliance
Control box	VENTS	300*300*132 280*340*150		EN 60335	Tested in the appliance
Sensor (Thermistor)	VISHAY	NTC 2% 2381 64064103	R25=10kOm 0,5W	EN 60335	Tested in the appliance
Terminal	AWG	434	450 V; 10 [□]	EN 60335	Tested in the appliance
VPA 125-2.4-1					
Fan	EBM PAPST	R2E 190-AO26-05	230V~ 50Hz 0.26A 58W B	EN 60335	Tested in the appliance
Motor protector of fan engine	Termik	as part of the Fan		EN 60335	Tested in the appliance
capacitor		CBB60E3205 J450	2μF 450V	EN 60252	VDE*
heating element	Backer OBR	Typ 3402	230 V 800 W	EN 60335	Tested in the appliance
Thermal cut-out auto	HengFeng	KSD 020	250 V~ 10 A 50	EN 60730	TÜV
Thermal cut-out manual	HengFeng	KSD 020	250 V~ 10 A 90	EN 60730	TÜV
Switch	SALZER	SA20	400V~ 20A	EN 60335	Tested in the appliance
Control transformer	Tianjin Carel Tech	Autotransformer 2A	230 V 2 A	EN 60335	Tested in the appliance
Contractor	Ganz KK	DIL—K11-10	400 V 32A 21kW	EN 60335	Tested in the appliance
Safety transformer	BN Chuang Si Fang Electronic Co. Ltd.	S15-F148	230 V, 50/60 Hz, 15 VA	EN 61558-2-6	ETS
Relay	Xiamen Hongfa E. Co.	JQX-15F/012-1ZS3	250 V 24 V		VDE*
Relay	Fujitsu	FTR-F3AA012E-HA	230V~ 5A (12Vcoil)		VDE*

Opto-coupler	FAIRCHILD	H11AA814	5300 V; 10 ¹¹ Ω	EN 60335	Tested in the appliance
Opto simistor	Element-Preobrazovatel Ltd	MFTCO 7/17-25-8-4 Y2	1000V~ 63A	EN 60335	Tested in the appliance
Control box	VENTS	300*300*132		EN 60335	Tested in the appliance
Sensor (Thermistor)	VISHAY	NTC 2% 2381 64064103	R ₂₅ =10 kΩ 0,5 W	EN 60335	Tested in the appliance
Terminal	AWG	434	450 V; 10 [□]	EN 60335	Tested in the appliance
VPA 150-2.4-1					
Fan	ebm papst	R2E 220-AB06-05	230V~ 50Hz 0.38A 85W B	EN 60335	Tested in the appliance
Heating element	Backer OBR	Typ 3403	230 V 1200 W	EN 60335	Tested in the appliance
Motor protector of fan engine	Termik	as part of the Fan		EN 60335	Tested in the appliance
Capacitor		CBB60E3255 J450	2.5μF 450V	EN 60252	Tested in the appliance
Thermal cut-out auto	HengFeng	KSD 020	250 V~ 10 A 50	EN 60730	TÜV
Thermal cut-out manual	HengFeng	KSD 020	250 V~ 10 A 90	EN 60730	TÜV
Switch	SALZER	SA20	400V~ 20A	EN 60335	Tested in the appliance
Control transformer	Tianjin Carel Tech	Autotransformer 2A	230 V 2 A	EN 60335	Tested in the appliance
Contractor	GANZ KK	DIL—K11-10	400 V 32A 21kW	EN 60335	Tested in the appliance
Safety transformer	BN Chuang Si Fang Electronic Co. Ltd.	S15-F148	230 V, 50/60 Hz, 15 VA	EN 61558-2-6	ETS
Relay	Xiamen Hongfa E. Co.	JQX-115F/012-1ZS3	250 V 24 V		VDE*
Relay	Fujitsu	FTR-F3AA012E-HA	230V~ 5A (12Vcoil)		VDE*
Opto-coupler	FAIRCHILD	H11AA814	5300 V; 1011 Ω	EN 60335	Tested in the appliance
Opto simistor	Element-Preobrazovatel Ltd	MFTCO 7/17-25-8-4 Y2	1000V~ 63A	EN 60335	Tested in the appliance
Sensor (Thermistor)	VISHAY	NTC 2% 2381 64064103	R ₂₅ =10 kΩ 0,5 W	EN 60335	Tested in the appliance
Terminal	AWG	434	450 V; 10 ₋	EN 60335	Tested in the appliance
Control box	VENTS	300*300*132		EN 60335	Tested in the appliance

VPA 200-3.4-1					
Fan	ebm papst	R2E 250-AV65-01	230V~ 50Hz 0.51A 115W B	EN 60335	Tested in the appliance
Heating element	Backer OBR	Typ 3483	230 V 1700 W	EN 60335	Tested in the appliance
Motor protector of fan engine	Termik	as part of the fan		EN 60335	Tested in the appliance
Capacitor		CBB60E3405 J450	4µF 450V	EN 60252	VDE*
Thermal cut-out auto	HengFeng	KSD 020	250 V~ 10 A 50	EN 60730	TÜV
Thermal cut-out manual	HengFeng	KSD 020	250 V~ 10 A 90	EN 60730	TÜV
Switch	SALZER	SA20	400V~ 20A	EN 60335	Tested in the appliance
Control transformer	Tianjin Carel Tech	Autotransformer 2A	230 V 2 A	EN 60335	Tested in the appliance
Contractor	GANZ KK	DIL—K11-10	400 V 32A 21kW	EN 60335	Tested in the appliance
Safety transformer	BN Chuang Si Fang Electronic Co. Ltd.	S15-F148	50/60 Hz, 15 VA	EN 61558-2-6	ETS*
Relay	Xiamen Hongfa E. Co.	JQX-115F/012-1ZS3	250 V 24 V		VDE*
Relay	Fujitsu	FTR-F3AA012E-HA	230V~ 5A (12Vcoil)		VDE*
Opto-coupler	FAIRCHILD	H11AA814	5300 V; 1011 Ω	EN 60335	Tested in the appliance
Sensor (Thermistor)	VISHAY	NTC 2% 2381 64064103	R25=10kOm 0,5W	EN 60335	Tested in the appliance
Opto simistor	Element-Preobrazovatel Ltd	МГТСО 7/17-25-8-4 Y2	1000V~ 63A	EN 60335	Tested in the appliance
Terminal	AWG	434	450 V; 10_	EN 60335	Tested in the appliance
Control box	VENTS	300*300*132		EN 60335	Tested in the appliance
VPA 200-6,0-3					
Fan	EBM PAPST	R2E 250-AS47-05	230 V; 50 Hz, 0,7 A 155 W; B	EN 60335	Tested in the appliance
Heating element	Backer OBR	3409	230 V; 1200 W	EN 60335	Tested in the appliance
Motor protector of fan engine	Termik	as part of the fan		EN 60335	Tested in the appliance
Capacitor		CBB60E3405 J450	4µF 450V	EN 60252	VDE*
Thermal cut-out auto	HengFeng	KSD 020	250 V~ 10 A 50	EN 60730	TÜV
Thermal cut-out manual	HengFeng	KSD 020	250 V~ 10 A 90	EN 60730	TÜV

Switch	SALZER	SAA40	400V~ 40A	EN 60335	Tested in the appliance
Control transformer	Tianjin Carel Tech	Autotransformer 2A	230 V 2 A	EN 60335	Tested in the appliance
Contractor	GANZ KK	DIL—K11-10	400 V 32A 21kW	EN 60335	Tested in the appliance
Safety transformer	BN Chuang Si Fang Electronic Co. Ltd.	S15-F148	50/60 Hz, 15 VA	EN 61558-2-6	ETS*
Relay	Xiamen Hongfa E. Co.	JQX-115F/012-1ZS3	250 V 24 V		VDE*
Relay	Fujitsu	FTR-F3AA012E-HA	230V~ 5A (12Vcoil)		VDE*
Opto-coupler	FAIRCHILD	H11AA814	5300 V; 1011 Ω	EN 60335	Tested in the appliance
Sensor (Thermistor)	VISHAY	NTC 2% 2381 64064103	R25=10kOm 0,5W	EN 60335	Tested in the appliance
Opto simistor	Element-Preobrazovatel Ltd	MГТСО 7/17-25-8-4 Y2	1000V~ 63A	EN 60335	Tested in the appliance
Terminal	AWG	434	450 V; 10_	EN 60335	Tested in the appliance
Control box	VENTS	300*300*132		EN 60335	Tested in the appliance
VPA 250-3.6-3					
Fan	ebm papst	R2E 250-AS47-05	230V~ 50Hz 0.70A 155W B	EN 60335	Tested in the appliance
Heating element	Backer OBR	Typ 3409	230 V 1200 W	EN 60335	Tested in the appliance
Motor protector of fan engine	Termik	as part of the Fan		EN 60335	Tested in the appliance
Capacitor		CBB60E3505 J450	5μF 450V	EN 60252	VDE*
Thermal cut-out auto	HengFeng	KSD 020	250 V~ 10 A 50	EN 60730	TÜV
Thermal cut-out manual	HengFeng	KSD 020	250 V~ 10 A 90	EN 60730	TÜV
Switch	SALZER	SA20	400V~ 20A	EN 60335	Tested in the appliance
Control transformer	Tianjin Carel Tech	Autotransformer 2A	230 V 2 A	EN 60335	Tested in the appliance
Safety transformer	BN Chuang Si Fang Electronic Co. Ltd.	S15-F148	230 V, 50/60 Hz, 15 VA	EN 61558-2-6	ETS*
Relay	Xiamen Hongfa E. Co.	JQX-115F/012-1ZS3	250 V 24 V		VDE*
Relay	Fujitsu	FTR-F3AA012E-HA	230V~ 5A (12Vcoil)		VDE*

Opto-coupler	FAIRCHILD	H11AA814	5300 V; 1011 Ω	EN 60335	Tested in the appliance
Opto simistor	Element- Preobrazovatel Ltd	MFTCO 7/17- 25-8-4 Y2	1000V~ 63A	EN 60335	Tested in the appliance
Contractor	GANZ KK	DIL—K11-10	400V 32A 21kW	EN 60335	Tested in the appliance
Sensor (Thermistor)	VISAY	NTC 2% 2381 64064103	R25=10kOm 0,5W	EN 60335	Tested in the appliance
Terminal	AWG	434	450 V; 10_	EN 60335	Tested in the appliance
Control box	VENTS	300*300*132		EN 60335	Tested in the appliance
VPA 315-9.0-3					
Fan	VENTS	VKMS 315	230V~ 50Hz 235 W	EN 60335	Tested in the appliance
Heating element	BACKER OBR	3410	230 V	EN 60335	Tested in the appliance
Motor protector of fan engine	Termik	as part of the fan		EN 60335	Tested in the appliance
Capacitor	CONIS	MKPZ	8 μF 450 V	EN 60335	Tested in the appliance
Thermal cut-out auto	HengFeng	KSD 020	250 V~ 10 A 50	EN 60730	TÜV
Thermal cut-out manual	HengFeng	KSD 020	250 V~ 10 A 90	EN 60730	TÜV
Switch	Salzer	SA32	400V~ 15 kW	EN 60335	Tested in the appliance
Control transformer	Tianjin Carel Tech	Autotransform er 2A	230 V 2 A	EN 60335	Tested in the appliance
Contractor	GANZ KK	DIL—K11-10	400 V 32A 21kW	EN 60335	Tested in the appliance
Safety transformer	BN Chuang Si Fang Electronic Co. Ltd.	S15-F148	230 V, 50/60 Hz, 15 VA	EN 61558-2-6	ETS*
Relay	Xiamen Hongfa E. Co.	JQX- 115F/012- 1ZS3	250 V 24 V		VDE*
Relay	Fujitsu	FTR- F3AA012E- HA	230V~ 5A (12Vcoil)		VDE*
Opto-coupler	FAIRCHILD	H11AA814	5300 V; 1011 Ω	EN 60335	Tested in the appliance
Opto simistor	Element- Preobrazovatel Ltd	MFTCO 7/17- 25-8-4 Y2	1000V~ 63A	EN 60335	Tested in the appliance
Sensor (Thermistor)	VISHAY	NTC 2% 2381 64064103	R25=10kOm 0,5W	EN 60335	Tested in the appliance
Terminal	AWG	434	450 V; 10_	EN 60335	Tested in the appliance
Control box	VENTS	300*300*132		EN 60335	Tested in the appliance

¹⁾ An asterisk indicates a mark which assures the agreed level of surveillance

28.1	TABLE: Threaded part torque test			
Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)	
electrical connection	3,38	II	0,8	
supplementary information:-				

29.1	TABLE: Clearances					
	Overvoltage category.... :	II			—	
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic	Functional	Supplementary	Reinforced	Verdict / Remark
330	0,5		>0,6			P
500	0,5					
800	0,5					
1500	1,0					
2500	2,0	>2,2	>2,2			P
4000	3,5				>3,6	P
6000	6,0					
8000	8,5					
10000	11,5					
supplementary information:-						

29.2 TABLE: Creepage distances, basic, supplementary and reinforced insulation												
Working voltage (V)	Creepage distance (mm) Pollution degree							Type of insulation				Verdict
	1	2			3							
	Material group			Material group								
	I	II	IIIa/IIIb	I	II	IIIa/IIIb	B*)	S*)	R*)			
≤50	0,2	0,6	0,9	<u>1,2</u>	1,5	1,7	1,9		—	—	P	
≤50	0,2	0,6	0,9	1,2	1,5	1,7	1,9	—		—		
≤50	0,4	1,2	1,8	2,4	3,0	3,4	3,8	—	—			
>50 and ≤125	0,3	0,8	1,1	1,5	1,9	2,1	2,4		—	—		
>50 and ≤125	0,3	0,8	1,1	1,5	1,9	2,1	2,4	—		—		
>50 and ≤125	0,6	1,6	2,2	3,0	3,8	4,2	4,8	—	—			
>125 and ≤250	0,6	1,3	1,8	<u>2,5</u>	3,2	3,6	4,0		—	—	P	
>125 and ≤250	0,6	1,3	1,8	2,5	3,2	3,6	4,0	—		—		
>125 and ≤250	1,2	2,6	3,6	<u>5,0</u>	6,4	7,2	8,0	—	—		P	
>250 and ≤400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—		
>250 and ≤400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—		
>250 and ≤400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—			
>400 and ≤500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—		
>400 and ≤500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—		
>400 and ≤500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—			
>500 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—		
>500 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—		
>500 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—			
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—		
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—		
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—			
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—		
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—		
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—			
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—		
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—		
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—			
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—		

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										
Working voltage (V)	Creepage distance (mm) Pollution degree							Type of insulation			Verdict
	1	2			3			B ^{*)}	S ^{*)}	R ^{*)}	
	Material group			Material group							
	I	II	IIIa/IIIb	I	II	IIIa/IIIb					
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—		—	
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—		
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	
>10000 and ≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		

^{*)}, B=Basic, S=Supplementary and R=Reinforced

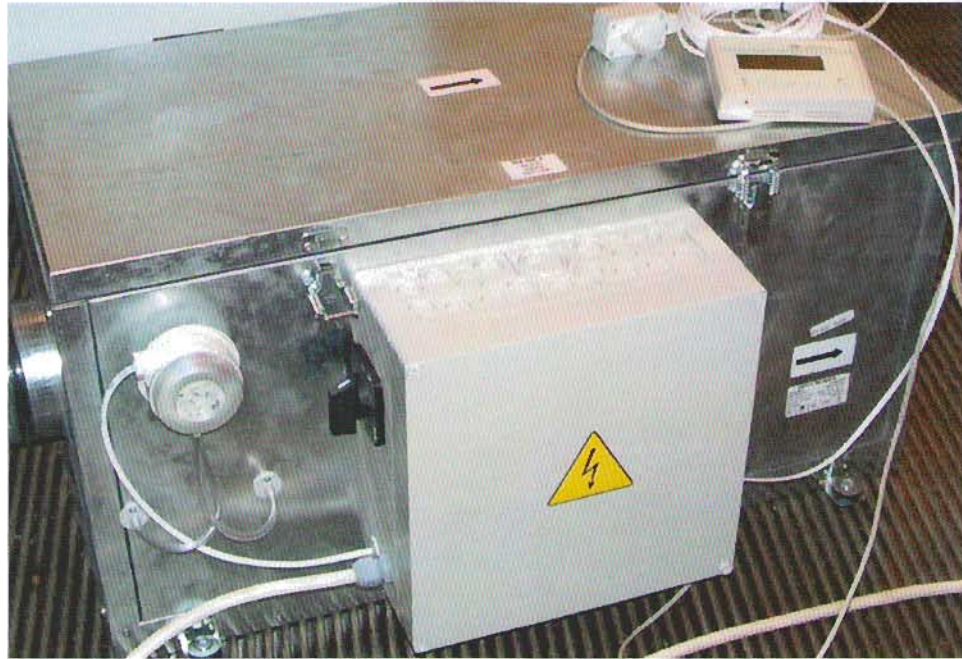
29.2		TABLE: Creepage distances, functional insulation							
Working voltage (V)	Creepage distance (mm) Pollution degree							Verdict / Remark	
	1	2			3				
	Material group			Material group					
	I	II	IIIa/IIIb	I	II	IIIa/IIIb			
≤50	0,2	0,6	0,8	<u>1,1</u>	1,4	1,6	1,8	P	
>50 and ≤125	0,3	0,7	1,0	1,4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

TABLE 30 RESISTANCE TO HEAT, FIRE AND TRACKING (appended table)

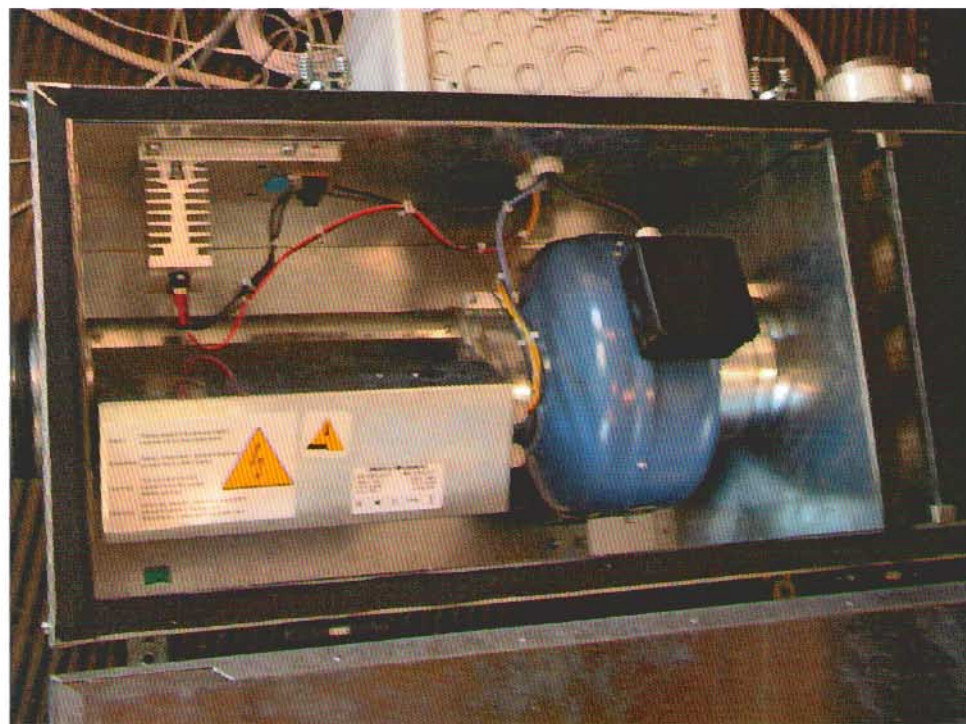
Component	Manufacturer	Type	Ball pressure test				Tracking test [CTI/ PTI]	Glow wire test					Needle- flame test	Verdict	
			75°C	cl. 11 +40°C	125°C	cl. 19 +25°C		GWT 550°C	GWT 650°C	GWT 750°C	GWFI 850°C	GWIT			
Terminal	AWG	434			x							x			P
Switch	SALZER	SA32, 40			x							x			P
Enclosure			x												P
PCB														x	P

1) surrounding parts are subjected to the needle-flame test of Annex E

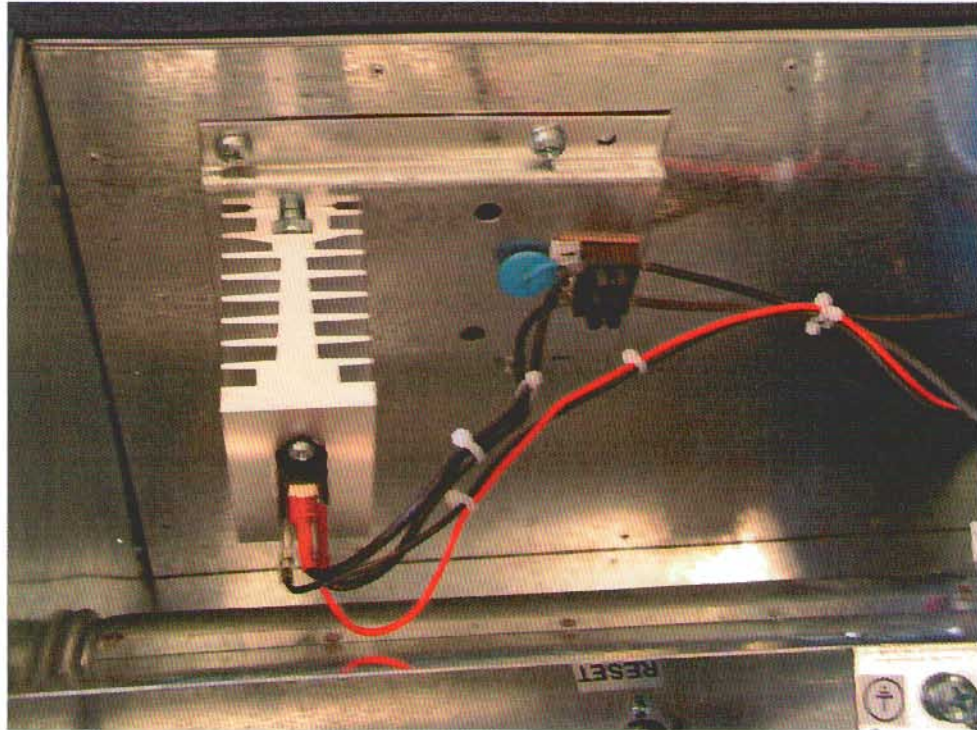
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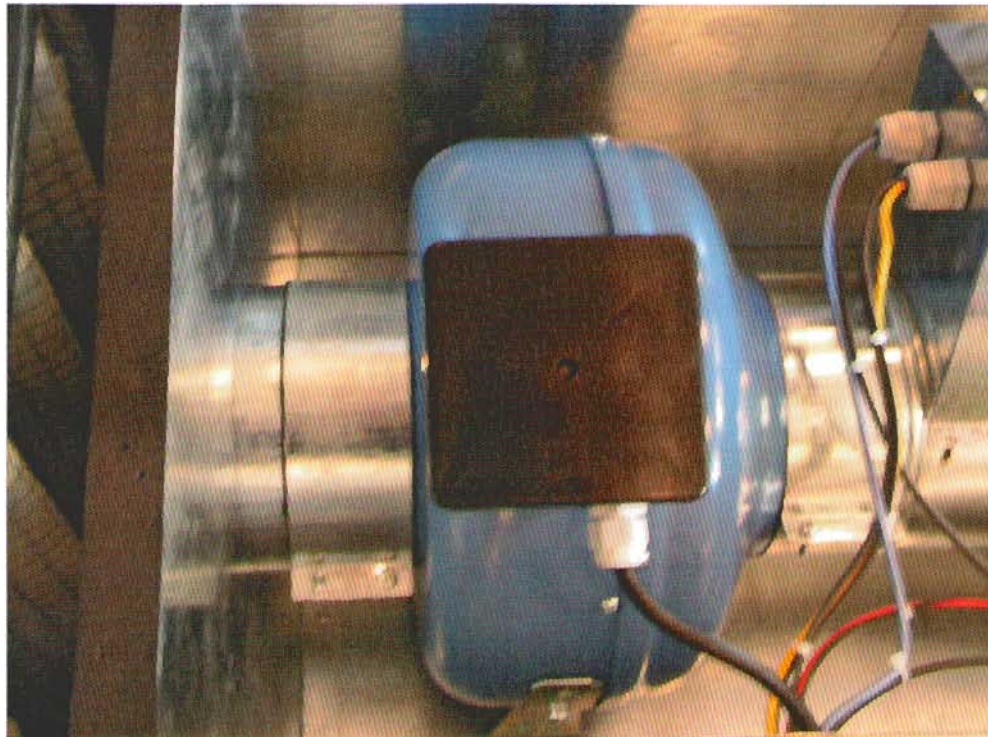
VENTS VPA 125-2,4-1



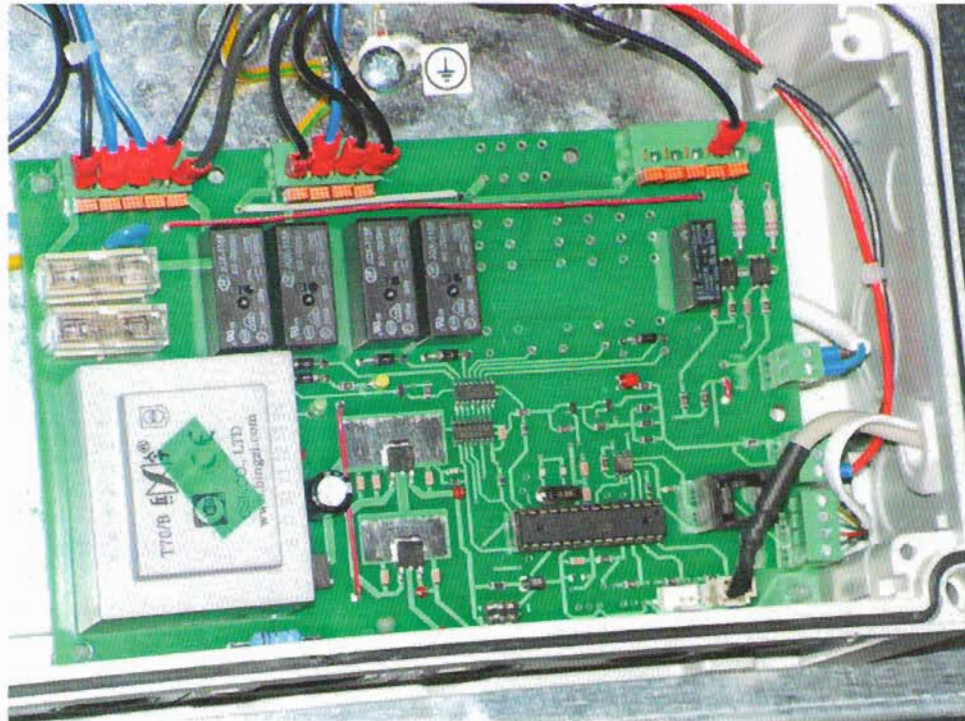
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VENTS VPA 125-2,4-1



VENTS VPA 125-2,4-1



VENTS VPA 125-2,4-1 PCB



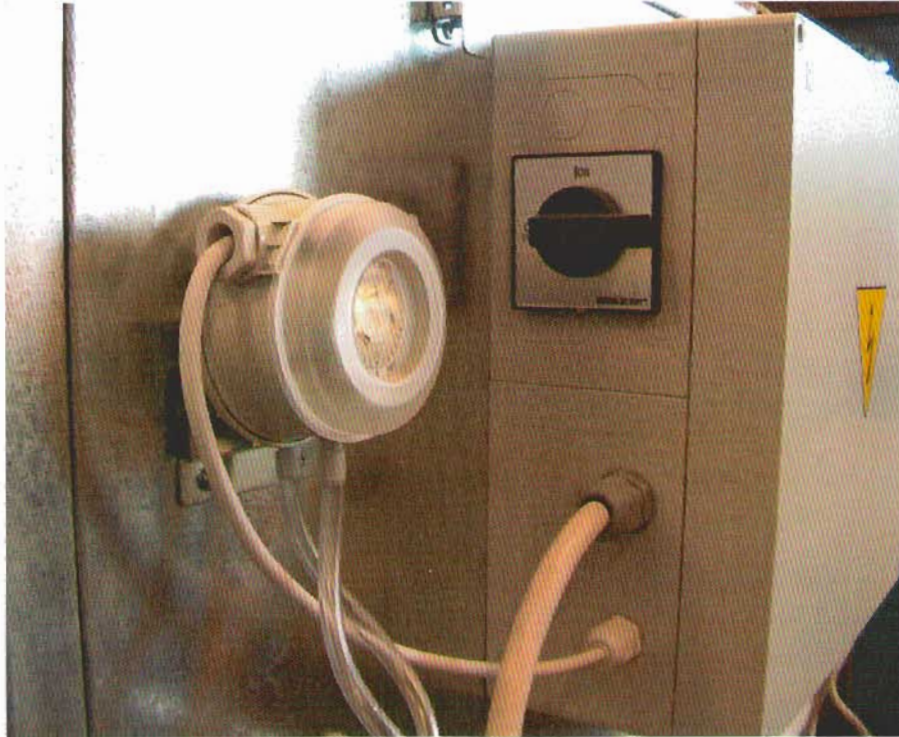
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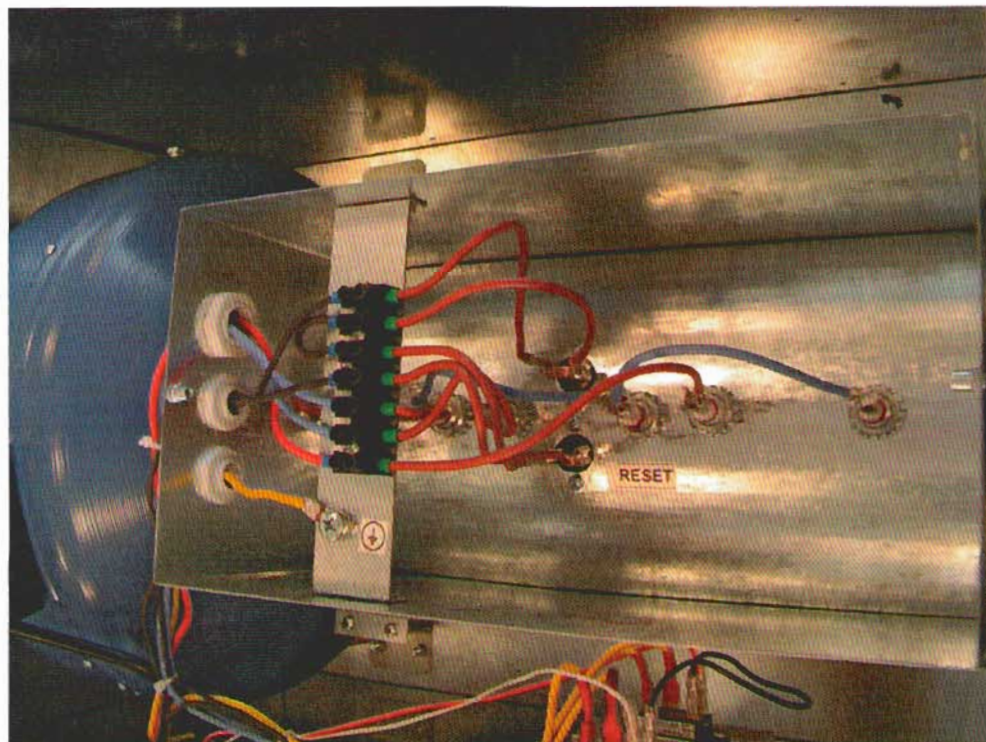
VENTS VPA 200-6,0-3



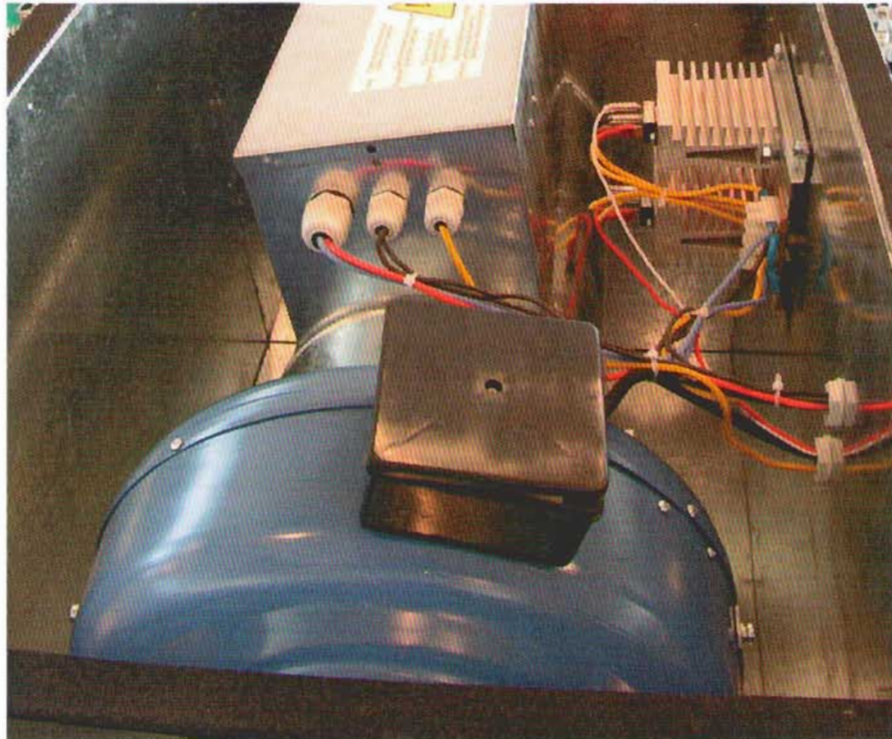
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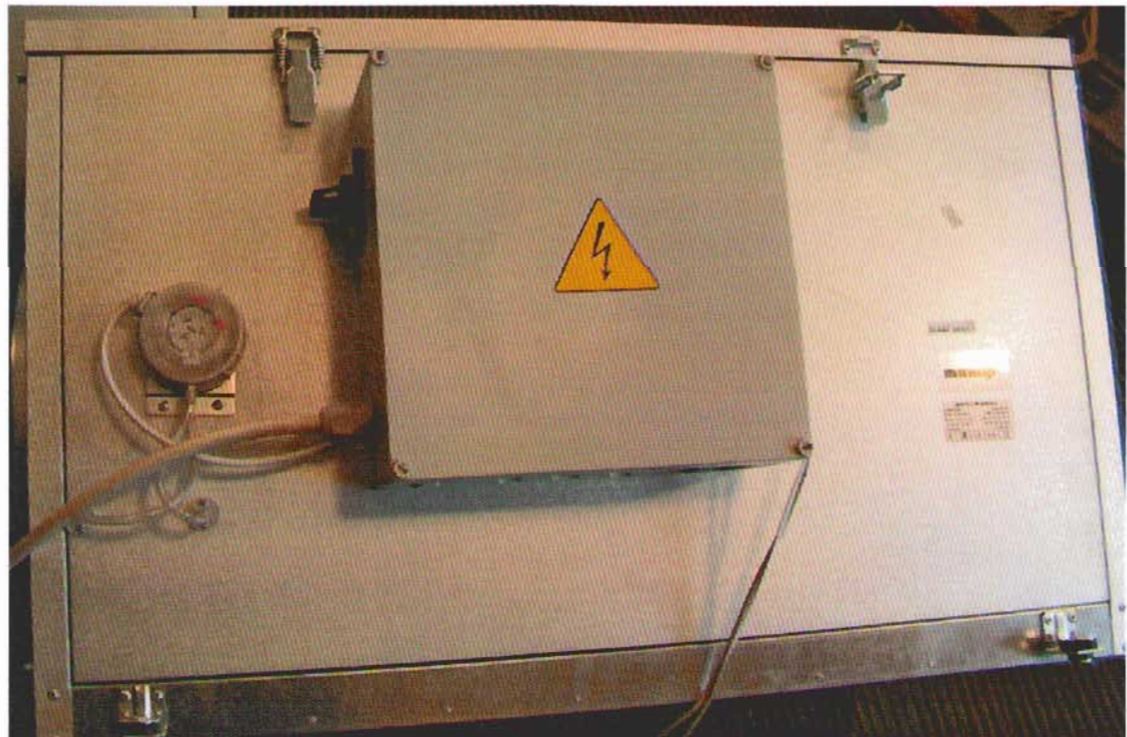
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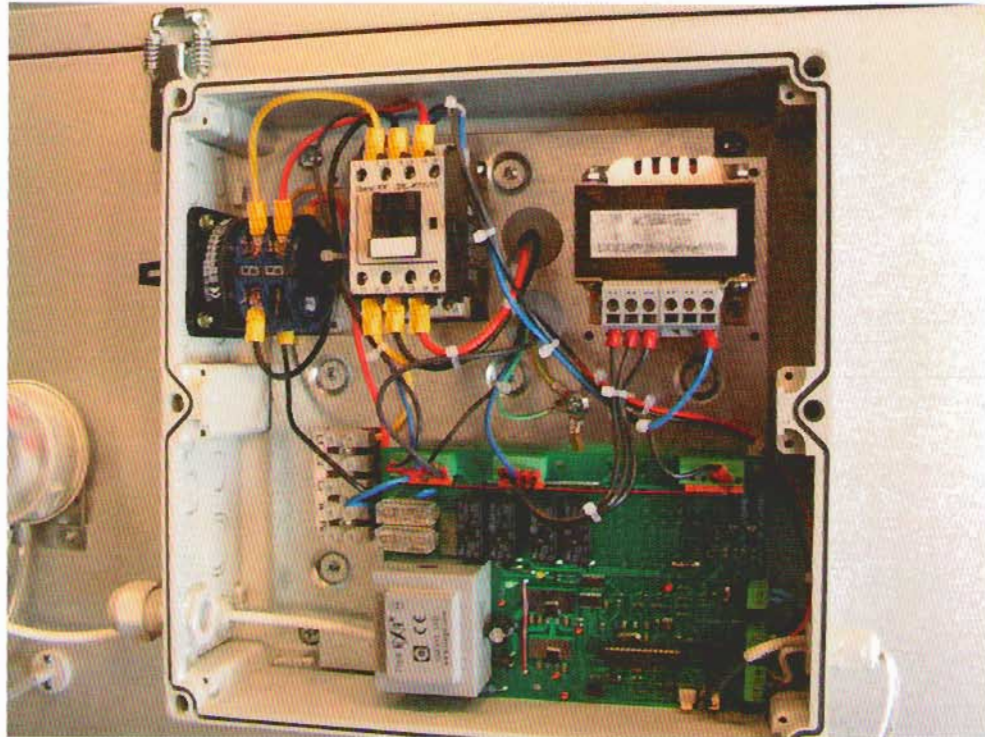
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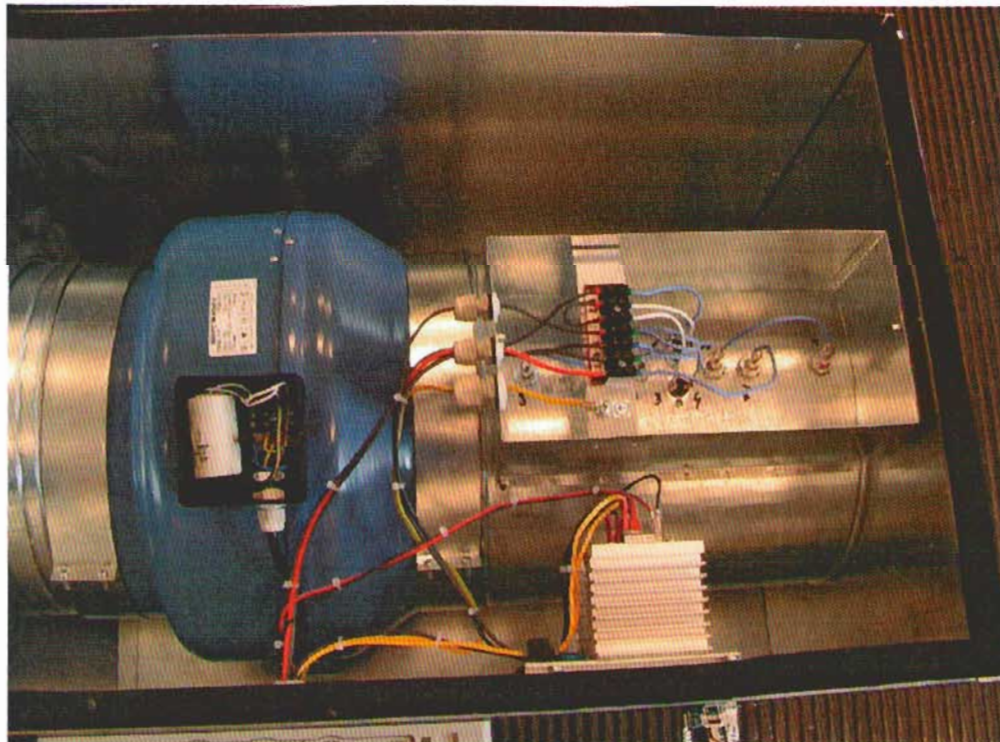
VENTS VPA 200-6,0-3



VENTS VPA 315-9,0-3



VENTS VPA 315-9,0-3



VENTS VPA 315-9,0-3

IEC60335_2_30 – ATTACHMENT 1			
Clause	Requirement + Test	Result - Remark	Verdict

**ATTACHMENT TO TEST REPORT IEC 60335-2-30 & IEC 60335-2-43
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**

Household and similar electrical appliances – Safety –

Part 2: Particular requirements for room heaters, clothes dryers and towel rails .

Differences according to	EN 60335-2-30:2003 + A1:2004 + A2:2007 and EN 60335-2-43:2003 + A1:2006 used in conjunction with EN 60335-1:2002 + A11:2004 + A1:2004 + A12:2006 + A2:2006 +A13:2008 and EN 50366:2003 + A1:2006
Attachment Form No.	EU_GD_IEC60335_2_30&43C
Attachment Originator	LCIE
Master Attachment	Date (2008-11)
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EN 50366			
Clause	Requirement + Test	Result - Remark	Verdict
EMF- ELECTROMAGNETICS FIELDS			
	The Tested product also complies to the requirements of EN 50366:2003 + A1:2006		
VPA-1 315-9,0-3	Limit 100% The appliance operated in continuous mode	Measured max. : 2,503 %	P

IEC60335_2_30 – ATTACHMENT 1			
Clause	Requirement + Test	Result - Remark	Verdict
	CENELEC COMMON MODIFICATIONS (EN)		
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		P
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standards for the telecommunication interface circuitry in the appliance are EN 41003 and EN 60950-1:2006, Subclause 6.3 (A:13)		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 60083:1975:		N/A
	- for Class I appliances: standard sheet C2b, C3b or C4	-	N/A
	- for Class II appliances: standard sheet C5 or C6..:	-	N/A
25.7	Additional type of supply cord:		
	- ordinary polychloroprene sheathed flexible cord (60245 IEC 57)		N/A
25.7	Supply cords having high flexibility, not lighter than:		N/A
	- rubber insulated and sheathed cord (60245 IEC 86)		N/A
	- rubber insulated, crosslinked PVC sheathed cord (60245 IEC 87)		N/A
	- crosslinked PVC insulated and sheathed cord (60245 IEC 88)		N/A
29.3	The third dashed item replaced 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 reinforced insulation consisting of a single layer, measurement in accordance with 29.3.Z1		P
29.3.Z1	For accessible reinforced insulation consisting of a single layer, the thickness of the layer complies with table Z1; rated voltage (V); overvoltage category; thickness (mm).....:	230 V; II; 3,8 mm	P

IEC60335_2_30 – ATTACHMENT 1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex ZA	ANNEX ZA (NORMATIVE) SPECIAL NATIONAL CONDITIONS		
Austria			
25.6	Plugs according to standard sheet C3b not allowed		N/A
Belgium			
25.6	Plugs according to standard sheet C2b not allowed		N/A
Denmark			
7.12	Requirements regarding marking tag of power supply cord and connection of earthing wire for class I appliances delivered without a plug		N/A
25.6	Supply cords of single-phase portable appliances having a rated current not exceeding 13 A provided with a plug according to the following:		N/A
	Class I appliances: Section 107-2-D1, ed.3 1998, Standard Sheet DK 2-1a		N/A
	For appliances covered by a Part 2 of EN 60335, also plugs in accordance with Section 107-2-D1, ed. 3, 1998, Standard Sheet C2b, C3b or C4 are allowed		N/A
	Class II appliances: Section 107-2-D1, ed.3 1998, Standard Sheet C1b, C5, C6, DKA 2-1a and DKA 2-1b		N/A
	Stationary single-phase appliances, having a rated current not exceeding 13 A, and provided with a supply cord and a plug, the plug is in accordance with the requirements above		N/A
	Multi-phase appliances and single-phase appliances having a rated current exceeding 13 A, and provided with a supply cord and a plug, the plug is in accordance with the requirements below:		N/A
	Class I appliances: Section 107-2-D1, Standard Sheet DK 6-1a / EN 60309-2, Standard Sheet 2-II, 2-IV		N/A
	Class II appliances: Section 107-2-D1, Standard Sheet DK 6-1a / EN 60309-2, Standard Sheet 2-II, 2-IV, the earthing contact not being connected		N/A
	The current for the plug not exceeding the values specified; standard sheet (no.); current (A)	-	N/A
Finland			

IEC60335_2_30 – ATTACHMENT 1			
Clause	Requirement + Test	Result - Remark	Verdict
25.6	Plugs according to standard sheet C3b not allowed		N/A
France			
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
25.3	Fixed heaters shall be appliances intended to be permanently connected to fixed wiring		N/A
25.6	Plugs according to standard sheet C2b not allowed		N/A
Germany			
25.6	Plugs according to standard sheet C3b not allowed		
29.3	Third dashed item not applicable for appliances where the insulation is accessible. Additional measures, such as a multi-layered insulation or adequate thickness, taken.		N/A
Iceland			
25.6	Plugs according to standard sheet C3b not allowed		N/A
Ireland			
25.6	Plugs according to standard sheet C3b not allowed		N/A
25.6	Only plugs according to Standard Sheets B2 and C5 allowed		N/A
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances.		N/A
25.8	Replacement of figures (rated current/cross-sectional area) in the table		N/A
Italy			
7.1	The voltage is 220 V/380 V		N/A
25.6	Plugs according to standard sheet C3b not allowed		N/A
25.6	Only plugs listed in CENELEC Report R0BT-005:2001 allowed		N/A
Luxembourg			
25.6	Plugs according to standard sheet C3b not allowed		N/A
Netherlands			

IEC60335_2_30 – ATTACHMENT 1			
Clause	Requirement + Test	Result - Remark	Verdict
25.6	Plugs according to standard sheet C3b not allowed		N/A

Norway			
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N/A
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
25.6	Plugs according to standard sheet C3b not allowed		N/A
Portugal			
25.6	Plugs according to standard sheet C3b not allowed		N/A
Spain			
25.6	Plugs according to standard sheet C2b not allowed		N/A
25.6	Plugs according to standard sheet C3b not allowed		N/A
25.6	For appliances for household use, only the following plugs are allowed:		N/A
	according to UNE 20315: ESC 10-1b, C2b, C4, C6 or ESB 25-5b		N/A
	according to UNE-EN 50075		N/A
Sweden			
25.6	Plugs according to standard sheet C3b not allowed		N/A
Switzerland			

IEC60335_2_30 – ATTACHMENT 1			
Clause	Requirement + Test	Result - Remark	Verdict
4	Information about batteries with carbon-zinc and alkali-manganese		N/A
25.6	Plugs according to standard sheet C3b not allowed		N/A
25.6	Supply cords of portable household and similar electrical appliances having a rated current not exceeding 10 A, provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:		N/A
	SEV 6532-2.1991, plug type 15, 3P+N+PE, 250/400 V, 10 A		N/A
	SEV 6533-2.1991, plug type 11, L+N, 250 V, 10 A		N/A
	SEV 6534-2.1991 plug type 12, L+N+PE, 250 V, 10 A		N/A

IEC60335_2_30 – ATTACHMENT 1			
Clause	Requirement + Test	Result - Remark	Verdict

United Kingdom			
25.6	Plugs according to standard sheet C2b not allowed		N/A
25.6	Plugs according to standard sheet C3b not allowed		N/A
25.6	Only plugs according to Standard Sheets B2 and C5 allowed		N/A
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and standard sheet C5 to be fitted to shavers and toothbrushes.		N/A
25.8	Replacement of figures (rated current/cross-sectional area) in the table		N/A

Annex ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		
SWITZERLAND			
4	Information about batteries		N/A
ITALY			
7.1	The voltage is 220/380 V		N/A
SPAIN			
7.1	The voltages are 127 V/220 V and 220 V/380 V		N/A
FRANCE			
11.8	: For fixed heaters, other than those for mounting at high level, the limit is 115 K for metallic air-outlet grilles and their immediate surrounds.		N/A
IRELAND / UNITED KINGDOM			
25.6	: Regulations concerning plugs to be fitted to domestic appliances		N/A
GERMANY			
29.3	29.3 not apply to appliances when insulation is accessible	The third dashed item does not apply	N/A

