Test Report issued under the responsibility of:

VDE

TEST REPORT
IEC 60335-2-24
Safety of household and similar electrical appliances
Part 2: Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers

Report reference No......:	210428-AS8-2
Date of issue .....:	2015-07-09
Total number of pages .....:	96
CB Testing Laboratory .....:	**VDE** Prüf- und Zertifizierungsinstitut GmbH **VDE** *Testing and Certification Institute*
Address .....:	Merianstrasse 28, 63069 Offenbach, Germany
Applicant's name .....:	Elco-e-Trade S.r.l.
Address .....:	Via G. Marconi 1; 20065 INZAGO MI; ITALIEN
Test specification:	
Standard .....:	☐ IEC 60335-2-24:2010 (Seventh Edition) + A1:2012 in conjunction with IEC 60335-1:2010 (Fifth Edition) ☒ EN 60335-2-24:2010 in conjunction with EN 60335-1:2012 DIN EN 60335-1 Ber.1 (VDE 0700-1 Ber.1):2014-04; EN 60335-1:2012/AC:2014 EN 60335-1:2012/A11:2014
Test procedure .....:	CB / CCA Scheme
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC60335_2_24N
Test Report Form(s) Originator .....:	Electrosuisse
Master TRF.....:	Dated 2012-08

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.

Test item description .....:	Fan for building-in, refrigerating units
Trade Mark .....:	ELCO
Manufacturer .....:	Elco-e-Trade S.r.l.; Via G. Marconi 1; 20065 INZAGO MI; ITALIEN
Model/Type reference .....:	VNT 5-13, VNT 11-20; VNT 16-25; VNT 18-30; VNT 12-20; GT16-E..; GT18-E..; GT12-E..; VNT 25-40; VNT 34-45
Ratings .....:	230 V 50/60 Hz; 35 W; 46 W; 65 W; 73 W; 46 W; 95 W; 120 W

Testing procedure and testing location:			
☒	**CB/CCA Testing Laboratory:**	**VDE** Prüf- und Zertifizierungsinstitut GmbH **VDE** *Testing and Certification Institute*	
Testing location/ address .....:		Merianstrasse 28, 63069 Offenbach, Germany	
☐	Associated CB Test Laboratory:	As above	
Testing location/ address .....:			
	Approved by (+ signature).....:	Albrecht Krah (authorization of test report)	
		Wolfgang Brauner	
☐	Testing procedure: TMP		
	Tested by (name + signature) ..... :		
	Approved by (+ signature).....:		
Testing location/ address .....:			
☐	Testing procedure: WMT		
	Tested by (name + signature) ..... :		
	Witnessed by (+ signature) .....:		
	Approved by (+ signature).....:		
Testing location/ address .....:			
☐	Testing procedure: SMT		
	Tested by (name + signature) ..... :		
	Approved by (+ signature).....:		
	Supervised by (+ signature) ..... :		
Testing location/ address .....:			
☐	Testing procedure: RMT		
	Tested by (name + signature) ..... :		
	Approved by (+ signature).....:		
	Supervised by (+ signature) ..... :		
Testing location/ address .....:			

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

Summary of testing:

Tests performed (name of test and test clause):	**Testing location**
See test report	VDE Testing and Certification Institute Merianstrasse 28, 63069 Offenbach , Germany

Summary of compliance with National Differences

List of countries addressed:

Germany

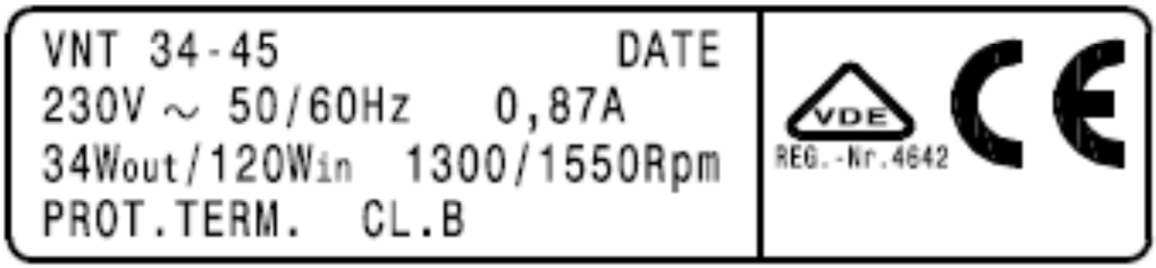
☐ The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)

Type Table

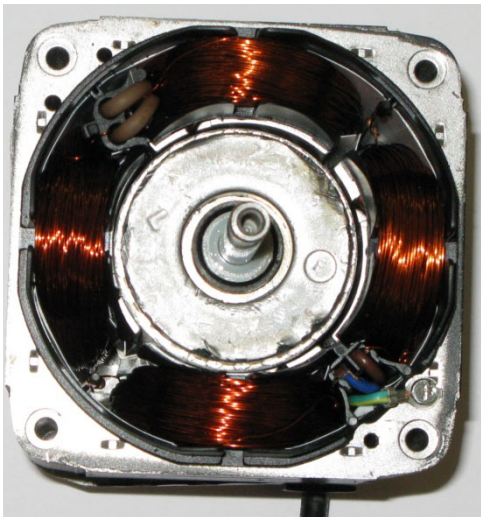
Type reference number (Elco-version)	Type reference number (Glems Technik-version)	Rated voltage	Rated power input
VNT 5-13	--	230 V 50/60 Hz	35 W
VNT 11-20	--	230 V 50/60 Hz	46 W
VNT 16-25	GT16E..*	230 V 50/60 Hz	65 W
VNT 18-30	GT18E..*	230 V 50/60 Hz	73 W
VNT 12-20	GT12E..*	230 V 50/60 Hz	46 W
VNT 25-40	--	230 V 50/60 Hz	95 W
VNT 34-45	--	230 V 50/60 Hz	120 W

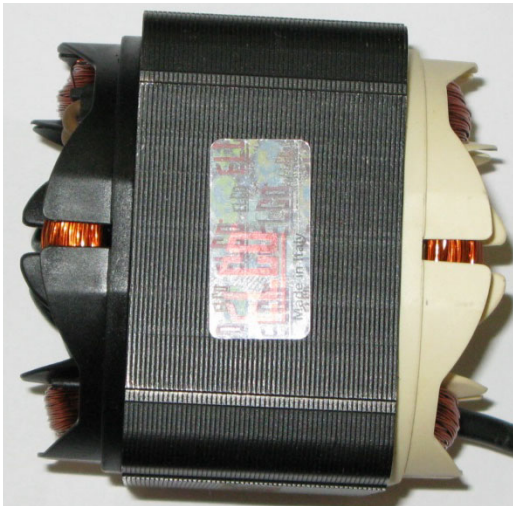
Copy of marking plate:

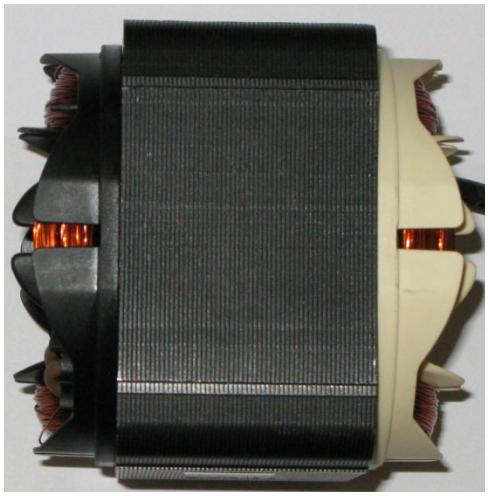
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Photographs:







Test item particulars ..... :	
Classification of installation and use ..... :	Built-in fan not intended for use within refrigerating appliances which use flammable refrigerants
Supply Connection ..... :	Internal connection only
..... :	
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 ..... :	2015-05-08
Date (s) of performance of tests ..... :	2015-05-11 … 2015-07-09

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☐ point is used as the decimal separator.

This TRF includes an appendix EMF containing the IEC/EN 62233 requirements (see below).

IEC 62233:2005 (1. Edition)
EN 62233:2008 (incl. Corr.1:2008)

Manufacturer's Declaration per sub-clause 6.2.5 of IECEE 02:

Elco-e-Trade S.r.l.; Via G. Marconi 1; 20065 INZAGO MI; ITALIENThe application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :

☐ Yes
☒ Not applicable

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :

Elco-e-Trade S.r.l.; Via G. Marconi 1; 20065 INZAGO MI; IT Italy / Reference 30003355

Hengli, Dongguan ELCO Motor Factory; Xincheng Industrial Zone; 523460 HENGLI TOWN, DONGGUAN; Guangdong; CN China / Reference 30015382

ELCO DO BRASIL LTDA; AVENIDA ARMANDO DE ANDRADE 549; 06754-210 TABOAO DA SERRA - SP; BR Brazil / Reference 30015469

IEC 60335-2-24			
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	Before starting the tests (IEC 60335-2-24:2010):		—
	- ice cream appliances are operated empty of rated voltage for 1 h		N/A
	- other compression-type appliances shall be operated at rated voltage for 24 h then switched off for 12 h		N/A
5.4	Tests are additionally carried out with all combinations of energy sources supplied simultaneously unless this is prevented by interlocking devices (IEC 60335-2-24:2010)		P
5.7	Tests according to sub-clause 10, 11,13 and sub cl. 19.103 at ambient temperature of (IEC 60335-2-24:2010)		—
	(23 ± 2) °C for ice-cream appliances		N/A
	(32 ± 1) °C Climatic class	SN ☐	N/A
	(32 ± 1) °C Climatic class	N ☐	N/A
	(38 ± 1) °C Climatic class	ST ☐	N/A
	(43 ± 1) °C Climatic class	T ☐	N/A
5.102	Compression-type appliances with heating systems and Peltier-type appliances are tested as combined appliances (IEC 60335-2-24:2010)		N/A
6	**CLASSIFICATION**		
6.1	Protection against electric shock: Class 0, 0I, I, II, III	Built-in fan with connection of earth wire	N/A
6.2	Protection against harmful ingress of water		N/A
6.101	Appliances, other than ice-cream appliances, shall be of one or more of the following climatic classes: SN, N, ST, T (IEC 60335-2-24:2010)		—
7	**MARKING AND INSTRUCTIONS**		
7.1	Rated voltage or voltage range (V):	230	P
	Nature of supply:	~	P
	Rated frequency (Hz):	50/60	P

	Rated power input (W):	35 (VNT 5-13); 46 (VNT 11-20); 65 (VNT 16-25); 73 (VNT 18-30); 46 (VNT 12-20); 95 (VNT 25-40); 120 (VNT 34-45); 65 (GT16E..*); 73 (GT18E..*); 46 (GT12E..*);	P
	Rated current (A):		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark:	**ELCO**	P
	Model or type reference:	VNT 5-13; VNT 11-20; VNT 16-25; VNT 18-30; VNT 12-20; VNT 25-40; VNT 34-45; GT16E..*; GT18E..*; GT12E..*	P
	Symbol 5172 of IEC 60417, for class II appliances		N/A
	IP number, other than IPX0:		N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only		N/A
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage		N/A
	Power input of heating systems, if greater than 100 W, (W) (IEC 60335-2-24:2010)		N/A
	Defrosting input, in W, if greater than the rated power input, (W) (IEC 60335-2-24:2010)		N/A
	Rated power input in Watts (IEC 60335-2-24:2010)		N/A
	Rated current in Amperes for compression-type appliances (IEC 60335-2-24:2010)		N/A
	Climatic class of the appliance (SN, N, ST or T) (IEC 60335-2-24:2010)		N/A
	Maximum rated input of lamps in Watts (IEC 60335-2-24:2010)		N/A
	Total mass of the refrigerant (IEC 60335-2-24:2010)		N/A
	For a single component refrigerant, at least one of the following (IEC 60335-2-24:2010):		—
	- the chemical name		N/A

	- the chemical formula		N/A
	- the refrigerant number		N/A
	For a blended refrigerant, at least one of the following (IEC 60335-2-24:2010):		—
	- the chemical name and nominal proportion of each of the components		N/A
	- the chemical formula and nominal proportion for each of the components		N/A
	- the refrigerant numbers and nominal proportion of each of the components		N/A
	- the refrigerant number of the refrigerant blend		N/A
	The chemical name or refrigerant number of the insulation blowing gas (IEC 60335-2-24:2010)		N/A
	Battery voltage for appliances which can be mains and battery operated (IEC 60335-2-24:2010)		N/A
	Max. power input for incorporated ice-maker, if greater than 100 W (IEC 60335-2-24:2010)		N/A
	Ice-makers shall be marked with the maximum permissible water level (IEC 60335-2-24:2010)		N/A
	Compression-type refrigerating systems appliance shall be marked with mass of the refrigerant for each separate refrigerant circuit (IEC 60335-2-24:2010)		N/A
	Compression-type appliances flammable which use refrigerants shall be marked the symbol Caution: risk of fire" (IEC 60335-2-24:2010)		N/A
	Appliances employing R-744 in a transcritical refrigeration system shall be marked with the substance of the following: (IEC 60335-2-24:2010)		—
	Warning: System contains refrigerant under high pressure. Do not tamper with the system. It must be serviced by qualified persons only.		N/A
	Appliances employing R-744 in a transcritical refrigeration system shall be marked with symbol ISO 7000 – 1701 (2004-01). (IEC 60335-2-24:2010)		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
	the power input is related to the arithmetic mean value of the rated voltage range		N/A

	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
	 Symbol IEC 60417-5005 (2002-10) Plus; positive polarity (IEC 60335-2-24:2010)		N/A
	Symbol IEC 60417-5006 (2002-10) Minus; negative polarity (IEC 60335-2-24:2010)		N/A
	 Symbol ISO 7010 W021 Caution: risk of fire (A1:12)		N/A
	Symbol ISO 7000–1701 (2004-01) Pressure (IEC 60335-2-24:2010)		N/A
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		—
	- marking of terminals exclusively for the neutral conductor (N)		N/A
	- marking of protective earthing terminals (symbol 5019 of IEC 60417)		N/A
	- marking not placed on removable parts		N/A
7.9	Marking or placing of switches which may cause a hazard		N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means		N/A
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N/A
	See Note (IEC 60335-2-24:2010)		N/A
7.11	Indication for direction of adjustment of controls		N/A
7.12	Instructions for safe use provided		N/A
	This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.		N/A
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A

	it is a battery-operated appliance, the battery being charged outside the appliance		N/A
	Instructions for refrigerating appliances and ice-makers for camping or similar use include the substance of the following (IEC 60335-2-24:2010):		—
	- suitable for camping use		N/A
	- the appliances connected to more than one source of energy		N/A
	- the appliances shall not be exposed to rain unless at least IPX4		N/A
	- for ice-makers not intended to be connected to the water supply WARNING: fill with potable water only		N/A
	For compression-type appliances which use flammable refrigerants, instructions shall include information pertaining to the installation, handling, servicing (IEC 60335-2-24:2010)		N/A
	For compression-type appliances that use flammable refrigerants shall additionally include the substance of the warnings listed below: (IEC 60335-2-24:2010)		N/A
	- WARNING – Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction (IEC 60335-2-24:2010)		N/A
	- WARNING – Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer (IEC 60335-2-24:2010)		N/A
	- WARNING – Do not damage the refrigerant circuit (IEC 60335-2-24:2010)		N/A
	- WARNING – Do not use electrical appliances inside the food storage compartments of the appliance, unless they are of the type recommended by the manufacturer (IEC 60335-2-24:2010)		N/A
	Appliances which use flammable insulation blowing gases, instructions shall include information regarding disposal of the appliance (IEC 60335-2-24:2010)		N/A
	Instructions for ice-cream appliances shall include ingredients and max. quantity of mixtures that can be used in the appliance (IEC 60335-2-24:2010)		N/A
	The instructions shall state the substance of the following (IEC 60335-2-24:2010)		—
	Do not store explosive substances such as aerosol cans with a flammable propellant in this appliance.		N/A
	If symbol ISO 7000–1701 (2004-01) is used, its meaning shall be explained.		N/A
	The instructions shall include the substance of the following (IEC 60335-2-24:2010)		—
	This appliance is intended to be used in household and similar applications (list)		N/A

7.12.1	Sufficient details for installation supplied		N/A
	The method for replacing illuminating lamps included (IEC 60335-2-24:2010), if the lamps can be replaced by the user (A1:12)		N/A
	Appliances designed for incorporating ice-makers, the types of ice-makers (IEC 60335-2-24:2010)		N/A
	Information on the installation of incorporated ice-makers as optional accessories (IEC 60335-2-24:2010)		N/A
	Incorporated ice-makers installed only by the manufacturer or its service agent (IEC 60335-2-24:2010)		N/A
	Ice makers intended to be connected to the water supply (IEC 60335-2-24:2010):		—
	WARNING: connect to potable water supply only (IEC 60335-2-24:2010)		N/A
	Instructions for fixed appliances shall include the following warning (IEC 60335-2-24:2010):		—
	WARNING: To avoid a hazard due to instability of the appliance, it must be fixed in accordance with the instructions (IEC 60335-2-24:2010)		N/A
	In appliances employing R-744 in a transcritical refrigeration system the instructions shall include the substance of the following (IEC 60335-2-24:2010) :		—
	WARNING: The refrigeration system is under high pressure. Do not tamper with it. Contact qualified service personal before disposal.		N/A
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions stating that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		—
	- dimensions of space		N/A
	- dimensions and position of supporting and fixing		N/A
	- minimum distances between parts and surrounding structure		N/A
	- minimum dimensions of ventilating openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- necessity to allow disconnection of the appliance from the supply after installation, unless the appliance incorporates a switch complying with 24.3		N/A
	Also applicable to fixed appliances (IEC 60335-2-24:2010)		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 appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N/A
7.12.7	The instructions for fixed appliances shall state how the appliance is to be fixed to its support		N/A
7.12.8	Instructions for appliances connected to the water mains:		—
	- max. inlet water pressure (Pa).....:		N/A
	- min. inlet water pressure, if necessary (Pa) .....:		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.13	Instructions and other texts in an official language		N/A
7.14	Marking clearly legible and durable, rubbing test as specified		P
	The height of the triangle in the symbol “Caution: risk of fire” shall be at least 15 mm (IEC 60335-2-24:2010)		N/A
	The height of the letters used for the marking of the type of flammable blowing insulation gas shall be at least 40 mm (A1:12)		N/A
7.15	Marking on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover	Built-in fan	N/A
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N/A
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		N/A
	Max. rated input of lamps discernible (IEC 60335-2-24:2010 + A1:12)		N/A
	Compression-type appliances the marking of the type of flammable refrigerant and of the flammable insulation blowing gas, as well as the symbol Caution: risk of fire, shall be visible when gaining access to the motor-compressors (IEC 60335-2-24:2010)		N/A

7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A
7.101	Appliances which can be battery operated the connection shall be indicated by the symbol “+” or the colour red and “-“ or black (IEC 60335-2-24:2010)		N/A
	The positive terminal shall be indicated by symbol IEC 60417-5005 (2002-10) and the negative terminal by symbol IEC 60417-5006 (2002-10). (IEC 60335-2-24:2010)		N/A
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		
8.1	Adequate protection against accidental contact with live parts	Built-in fan	N/A
8.1.1	Requirement applies for all positions, detachable parts removed		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032: no contact with live parts		N/A
	Removal of lamps: protection against contact with live parts (IEC 60335-2-24:2010)		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		N/A
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N/A
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032: no contact with live parts of visible glowing heating elements		N/A
8.1.4	Accessible part not considered live if:		—
	- safety extra-low a.c. voltage: peak value not exceeding 42,4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42,4 V		N/A
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0,7 mA		N/A
	- for peak values over 42,4 V up to and including 450 V, capacitance not exceeding 0,1 µF		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 µC		N/A
	- for voltages having a peak value over 15 kV, the energy in the discharge shall not exceed 350 mJ.		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		—
	- built-in appliances		N/A

	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		N/A
	Only possible to touch parts separated from live parts by double or reinforced insulation		N/A
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		
	Not applicable (IEC 60335-2-24:2010)		—
10	**POWER INPUT AND CURRENT**		
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1	(see appended table)	P
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless the rated power input is related to the arithmetic mean value		N/A
	Appliances being operated under normal operation, user adjustable temperature controls are set to give the lowest temperature (IEC 60335-2-24:2010)		N/A
	The power input stabilized, steady conditions established (IEC 60335-2-24:2010)		N/A
	A period between the making and the breaking of the temperature control, or highest and lowest values of power input measured excluding starting power input but including the power input of the incorporated ice-maker, if any (IEC 60335-2-24:2010)		N/A
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2	(see appended table)	N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless the rated current is related to the arithmetic mean value of the range		N/A
	The appliance being operated under normal operation, user adjustable temperature controls are set to give the lowest temperature (IEC 60335-2-24:2010)		N/A
	The appliance is operated for 1 h. The max. value of the current averaged over any 5 min period is obtained. The interval shall not exceed 30 s. Starting after 1 min (IEC 60335-2-24:2010)		N/A
10.101	The power input of the defrosting system, deviation shown in table 1 (IEC 60335-2-24:2010)		N/A
10.102	The power input of any heating system, deviation shown in table 1 (IEC 60335-2-24:2010)		N/A

11	**HEATING**		
11.1	No excessive temperatures in normal use		P
	If the winding temperatures of motor-compressors exceed the values given in table 101, compliance is checked by the test of 11.101 (IEC 60335-2-24:2010)		N/A
	The winding temperatures of motor-compressors conforming IEC 60335-2-34 (incl. annex AA) are not measured (IEC 60335-2-24:2010)		N/A
11.2	Placing and mounting of appliance as described (IEC 60335-2-24:2010)		N/A
	- according to instructions for installation		N/A
	- in a test corner		N/A
	- test enclosure		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		P
11.4	Heating appliances operated under normal operation at 1,15 times rated power input:		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage:		P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage:		N/A
11.7	The appliances is operated until steady conditions are established (IEC 60335-2-24:2010)	Built-in fan	P
11.8	Temperature rises not exceeding values in table 3	(see appended tables)	P
	During the test protective devices do not operate (IEC 60335-2-24:2010)		N/A
	During the test sealing compound doesn't flow out (IEC 60335-2-24:2010)		P
	During the test temperatures are monitored conti-nuously (IEC 60335-2-24:2010)		P
	For (SN) and (N) class, the temperature rises not exceeding values in table 3 (IEC 60335-2-24:2010)		N/A
	For (ST) and (T) class, the temperature rises not exceeding values in table 3 reduced by 7 K (IEC 60335-2-24:2010)		N/A
	For motor-compressors not conforming to IEC 60335-2-34 (incl. its annex AA), the temperatures of (IEC 60335-2-24:2010)		—
	- housings of motor-compressors and		N/A
	- windings of motor-compressors		N/A

	shall not exceed the values given in Table 101		N/A
	For motor-compressors conforming to IEC 60335-2-34 (including its annex AA), the temperatures are not measured (IEC 60335-2-24:2010)		N/A
	The temperature rise of the external enclosure of motor-operated appliances not applicable for: (IEC 60335-2-24:2010)		—
	- built-in appliances		N/A
	- other appliances (distance from a wall ≤ 75 mm)		N/A
	- max. temperature rises specified in table 101		N/A
	The temperature of ballast windings and their associated wiring shall not exceed the values specified in 12.4 of IEC 60598-1, when measured under the conditions stated (IEC 60335-2-24:2010)		N/A
11.101	If the temperatures exceed the limits, the test is carried out again (IEC 60335-2-24:2010):		—
	- winding temperatures at the end of a running cycle not higher than the limits given in table 101		N/A
11.102	Any defrosting system, temperature rises don't exceed the values given in 11.8 (IEC 60335-2-24:2010)		N/A
	Manual defrosting (IEC 60335-2-24:2010)		N/A
	Automatic defrosting (IEC 60335-2-24:2010)		N/A
11.103	Heating systems, other than defrosting, temperature rises don't exceed the values given in 11.8 (IEC 60335-2-24:2010)		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 (W) .....:		N/A
	Motor-operated appliances and combined appliances supplied at 1,06 times rated voltage (V) .....:		P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
	The test of 13.2 does not apply to battery circuit (IEC 60335-2-24:2010)		N/A
13.2	Leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	Leakage current measurements and limits (IEC 60335-2-24:2010)	(see appended table)	P
13.3	Electric strength tests according to table 4	(see appended table)	P
	No breakdown during the tests		P
	The test voltage for reinforced insulation is applied between separate circuits for battery operation and mains supply operation (IEC 60335-2-24:2010)		N/A

14	**TRANSIENT OVERVOLTAGES**		
	Appliances withstand the transient over-voltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6.....:		N/A
	No flashover during the test, unless		N/A
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N/A
15	**MOISTURE RESISTANCE**		
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		N/A
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529:		N/A
	Water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains are subjected to the test specified for IPX7 appliances.		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
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A

	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and		N/A
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts subjected to the relevant treatment with the main part		N/A
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N/A
15.2	Spillage of liquid does not affect the electrical insulation		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts 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
	Lamp covers are not removed (IEC 60335-2-24:2010)		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
15.101	Spillage of liquid from inside does not affect their electrical insulation (IEC 60335-2-24:2010)		N/A
	The relevant tests of 15.102, 15.103 and 15.104. are carried out (IEC 60335-2-24:2010)		N/A
15.102	The apparatus shown in figure 101 is filled with water containing 1 % NaCl and 0,6 % of acid rinsing agent (IEC 60335-2-24:2010)		N/A
15.103	Appliances, other than built-in appliances, ice-makers and ice-cream appliances, are tilted at an angle of up to 2° (IEC 60335-2-24:2010)		N/A
	Test with 0,5 l water containing 1 % NaCl and 0,6 % of acid rinsing agent over the top of the appliance (IEC 60335-2-24:2010)		N/A

15.104	Ice-makers which are directly connected to the water supply, is filled with water as in normal use. The inlet valve is then held open for 1 min (IEC 60335-2-24:2010)		N/A
15.105	Operation of a defrosting system does not affect the electrical insulation of defrost heating elements (IEC 60335-2-24:2010)		N/A
	If the water is in contact with the defrost heating element or its insulation, test of 22.102 is carried out (IEC 60335-2-24:2010)		N/A
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
	The test of 16.2 does not apply to battery circuits (IEC 60335-2-24:2010)		N/A
16.2	Single-phase appliances: test voltage 1,06 times rated voltage (V) ..... :		P
	Three-phase appliances: test voltage 1,06 times rated voltage divided by √3 (V) ..... :		N/A
	Leakage current measurements	(see appended table)	P
	Limits for class 0I appliances and the various types of class I appliances (IEC 60335-2-24:2010)	(see appended table)	N/A
16.3	Electric strength tests according to table 7	(see appended table)	P
	No breakdown during the tests		P
	The test voltage specified in Table 7 for reinforced insulation is applied between separate circuits for battery operation and mains supply operation (IEC 60335-2-24:2010)		N/A
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use		N/A
	Appliance supplied with 1,06 or 0,94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied:		N/A
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N/A
	Temperature of the winding not exceeding the value specified in table 8,		N/A
	however limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A

18	**ENDURANCE**		
	Not applicable (IEC 60335-2-24:2010)		—
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		N/A
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		N/A
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		N/A
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N/A
	Subclauses 19.2 and 19.3 do not apply to heating systems (IEC 60335-2-24:2010)		N/A
	Motor compressors not conforming to IEC 60335-2-34 are subjected to the tests specified in IEC 60335-2-34 19.101, 19.102 and 19.104 (IEC 60335-2-24:2010)		N/A
	Fan motors of ice-cream appliances are not subject to the locked-rotor test specified in annex AA (IEC 60335-2-24:2010)		N/A
19.2	Test of appliances with heating elements with restricted heat dissipation, power input of 0,85 times rated power input		N/A
19.3	Test of 19.2 repeated, 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
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances		P
	Locked rotor, capacitors open-circuited one at a time unless they are of class P2 of IEC 60252-1		N/A
	The test is repeated with the capacitors short-circuited one at a time, unless they are of class P2 of IEC 60252-1		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed		N/A
	Other appliances supplied with rated voltage for a period as specified	Until steady conditions	P
	Winding temperatures not exceeding values specified in table 8	(see appended table)	P
	Fan motors of ice-cream appliances are tested for 5 min (IEC 60335-2-24:2010)		N/A
19.8	Three-phase motors operated at rated voltage with one phase disconnected		N/A
	Three-phase motor compressors operated at rated voltage with one phase disconnected, unless complying with IEC 60335-2-34 (IEC 60335-2-24:2010)		N/A
19.9	Not applicable (IEC 60335-2-24:2010)		—
19.10	Series motor operated at 1,3 times rated voltage for 1 min		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1		N/A
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless restarting does not result in a hazard		N/A
	Appliances having a device with an off position obtained by electronic disconnection, or a switch that can place the appliance in a stand-by mode, are subjected to the tests of 19.11.4		N/A
19.11.1	Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet both of the following conditions:		—
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A

	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		N/A
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in cl. 11, but supplied at rated voltage, the duration of the tests as specified:		—
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29		N/A
	b) open circuit at the terminals of any component		N/A
	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 microprocessors and integrated circuits		N/A
	g) failure of an electronic power switching device		N/A
	Low-power circuits are short circuited		N/A
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to f) of 19.11.2		N/A
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or a device that can be placed in the stand-by mode, are subjected to the tests of 19.11.4.1 to 19.11.4.7		N/A
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7		N/A
	Surge protective devices disconnected, unless they incorporate spark gaps		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N/A
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N/A
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N/A

	Appliances having a rated current exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N/A
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate		N/A
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
	After the tests, and when the appliance has cooled to approximately room temperature, compliance with clause 8 shall not be impaired and the appliance shall comply with 20.2 if it can still be operated		N/A
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		—
	- basic insulation		P
	- supplementary insulation		N/A
	- reinforced insulation		N/A
	Temperature rises not exceeding the values shown in table 7 or 150 °C for housing of motor-compressors (IEC 60335-2-24:2010)		N/A
	The appliance does not undergo a dangerous malfunction, and no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode, not become operational, or if they become operational, not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
	Conditions for interlocks of lids or doors		N/A
	The temperature of the housing of motor-compressors other than those which comply with IEC 60335-2-34 is determined at the end of the test period and shall not exceed 150 °C (IEC 60335-2-24:2010)		N/A

19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		N/A
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N/A
19.101	Heating systems dimensioned and located properly and comply with 19.13 during and after the test (IEC 60335-2-24:2010)		N/A
19.102	Ice-makers and ice-cream appliances so constructed that they do not cause any risk and comply with 19.13 during and after the tests (IEC 60335-2-24:2010)		N/A
19.103	Appliances intended for camping and similar use tested on an inclined support (5°) and comply with 19.13 during and after the test (IEC 60335-2-24:2010)		N/A
19.104	Illuminating equipment shall not cause a fire hazard under abnormal operating conditions (IEC 60335-2-24:2010)		N/A
	Test as specified (IEC 60335-2-24:2010)		N/A
	Illuminating equipment having discharge lamps is operated under the fault conditions specified in items a), d) and e) of 12.5.1 of IEC 60598-1, the appliance being supplied at rated voltage until temperature stabilisation of the measured parts (IEC 60335-2-24:2010)		N/A
	During and after the test, the appliance shall comply with 19.13 (IEC 60335-2-24:2010)		N/A
	The temperature of ballast windings and their associated wiring shall not exceed the values specified in 12.5 of IEC 60598-1 when measured under the conditions specified (IEC 60335-2-24:2010)		N/A
19.105	Appliances intended for battery operation properly constructed and comply with 19.13 during and after the test (IEC 60335-2-24:2010)		N/A
20	**STABILITY AND MECHANICAL HAZARDS**		
20.1	Adequate stability	Built-in fan	N/A
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		N/A
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
	Ice-cream appliances shall have adequate stability (IEC 60335-2-24:2010)		N/A

20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		N/A
	Protective enclosures, guards and similar parts are non-detachable		N/A
	Adequate mechanical strength and fixing of protective enclosures		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure		N/A
	Not possible to touch dangerous moving parts with test probe		N/A
20.101	Refrigeration appliances and ice-makers shall have adequate stability. Tests according to 20.102, 20.103 and 20.104 (IEC 60335-2-24:2010)		N/A
	This requirement does not apply to built-in appliances (IEC 60335-2-24:2010)		N/A
20.102	Tests with weights as described		N/A
	Test with door opened to 90° (IEC 60335-2-24:2010)		N/A
	Test with door opened to 180° or to the limit of door stop (IEC 60335-2-24:2010)		N/A
20.103	Test with one of the drawers is pulled to the most onerous out position (IEC 60335-2-24:2010)		N/A
	Test with two drawers are pulled to the most onerous out position (IEC 60335-2-24:2010)		N/A
20.104	Test with sliding drawers accessible without opening a door (IEC 60335-2-24:2010)		N/A
	Doors shelves are loaded as specified in 20.102 and opened 90° (IEC 60335-2-24:2010)		N/A
21	**MECHANICAL STRENGTH**		
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling	Built-in fan	N/A
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J		N/A
	The appliance shows no damage impairing compliance with this standard, and compliance with 8.1, 15.1 and clause 29 not impaired		N/A
	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
	Covers of lamps within the appliance are considered likely to be damaged in normal use. Lamps are not tested (IEC 60335-2-24:2010)		N/A

21.2	Accessible parts of solid insulation shall have sufficient strength to prevent Penetration by sharp implements		N/A
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		N/A
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N/A
21.101	Appliances for camping or similar use tested against the effects of dropping and vibration as specified (IEC 60335-2-24:2010)		N/A
21.102	Lamps are protected against mechanical shocks (IEC 60335-2-24:2010)		N/A
22	**CONSTRUCTION**		
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled		N/A
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		—
	- a supply cord fitted with a plug, or		N/A
	- a switch complying with 24.3, or		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N/A
	- an appliance inlet		N/A
	Single-pole switches and single-pole protective devices that disconnect heating elements from the supply mains in single-phase, permanently connected class 0I appliances and class I appliances shall be connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0,25 Nm		N/A
	Pull force of 50 N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1 mm		N/A
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating, unless rotating does not impair compliance with the standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1 µF, the appliance being disconnected from the supply at the instant of voltage peak		N/A

	Voltage not exceeding 34 V		N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A
	Electrical insulation of class II appliances not affected in case of a hose rupture or seal leak		N/A
	Thermostats are not in contact with the evaporator unless they are adequately protected (IEC 60335-2-24:2010)		N/A
	Fluids don't flow along parts such as stems and tubes of thermostats (IEC 60335-2-24:2010)		N/A
22.7	Compression-type appliances, including protective enclosures of a protected cooling system, using flammable refrigerants shall withstand (IEC 60335-2-24:2010)		—
	- a pressure of 3,5 times the saturated vapour pressure (70 °C)		N/A
	- a pressure of 5 times the saturated vapour pressure (20 °C)		N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N/A
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless the substance has adequate insulating properties		N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		N/A
	Obvious locked position of snap-in devices used for fixing such parts		N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		N/A
22.12	Handles, knobs etc. fixed in a reliable manner		N/A

	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N/A
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		N/A
	No exposed pointed ends of self-tapping screws etc., liable to be touched by the user in normal use or during user maintenance		N/A
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 refrigeration appliances and ice-makers (IEC 60335-2-24:2010)		—
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
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		N/A
22.24	Bare heating elements adequately supported		N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N/A
22.26	The insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N/A

22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation		N/A
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		N/A
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		N/A
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		N/A
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		N/A
	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
	Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
22.33	Conductive liquids that are or may become accessible in normal use 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, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation		N/A
	the reinforced insulation consists of at least 3 layers		N/A

	Air layer not used as basic or supplementary insulation		N/A
	Heating conductors having only one layer of insulation are not in direct contact with water or ice during normal use (IEC 60335-2-24:2010)		N/A
	NOTE : Frozen water is regarded as a conducting liquid (IEC 60335-2-24:2010)		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		N/A
22.35	If these handles, levers and knobs are of metal and if their shafts or fixings are likely to become live in the event of a failure of basic insulation, they shall be adequately covered by insulating material or their accessible parts shall be 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 and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N/A
	the capacitors comply with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		N/A
22.39	Lamp holders used only for the connection of lamps		N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N/A
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		N/A
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A

	Resistors according 14.1 a) of IEC 60065; Y-Capacitors according IEC 60384-14		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances shall not have an enclosure that is shaped or decorated like a toy		N/A
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	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless the appliance switches off automatically or can operate continuously without hazard		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N/A
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode There is a visual indication showing that the appliance is adjusted for remote operation		N/A
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N/A
22.101	Lampholders properly fixed (IEC 60335-2-24:2010)		N/A
	NOTE: Normal use includes replacement of lamps (IEC 60335-2-24:2010)		N/A
	Test with torque of (IEC 60335-2-24:2010):		N/A
	Lampholders for a fluorescent lamp shall comply with the test of 4.4.4 i) in IEC 60598-1 (IEC 60335-2-24:2010)		N/A

22.102	Insulated wire heaters and their joints protected against entry of water (IEC 60335-2-24:2010)		N/A
	3 heating elements: 24 h immersion in water with 1 % NaCl; electric strength test between heating conductor and water (1250 V 15 min) (IEC 60335-2-24:2010)		N/A
22.103	Appliances employing a transcritical refrigeration system shall in the high pressure side of the refrigeration system include a pressure relief device on the compressor or between the compressor and the gas cooler. There shall be no shut off devices or other components except piping between the compressor and the pressure relief device, which could introduce a pressure drop. (IEC 60335-2-24:2010)		N/A
	Pressure relief device installed as described (IEC 60335-2-24:2010)		N/A
	Test of pressure relief device as described (IEC 60335-2-24:2010)		N/A
22.104	Appliances with two or more temperature control devices controlling the same motor-compressor don't cause undue operation of the thermal motor-protector (IEC 60335-2-24:2010)		N/A
	The test is carried out separately with each combination of control devices (IEC 60335-2-24:2010)		N/A
22.105	Appliances which can also be battery operated, the battery circuit is insulated from live parts by double insulation or reinforced insulation (IEC 60335-2-24:2010)		N/A
	It is not possible to touch live parts when making the connections to the battery (IEC 60335-2-24:2010)		N/A
	Specified for double insulation or reinforced insulation (IEC 60335-2-24:2010)		N/A
22.106	The mass of refrigerant (flammable refrigerant) shall not exceed 150 g (IEC 60335-2-24:2010)		N/A
22.107	Compression-type appliances with a protected cooling system and which use flammable refrigerants shall be constructed to avoid any fire or explosion hazard, in the event of leakage of the cooling system (IEC 60335-2-24:2010)		N/A
22.107.1	A leakage is simulated at the most critical point of the cooling system (method as specified) (IEC 60335-2-24:2010)		N/A
	Measured as specified		N/A
	The measured value shall not exceed 75 % LEL of the refrigerant (table 102) and shall not exceed 50 % LEL for a period exceeding 5 min. (IEC 60335-2-24:2010)		N/A

22.107.2	All accessible surfaces of protected cooling system components, are scratched using the tool whose tip is shown in figure 102 (IEC 60335-2-24:2010)		N/A
	The tool is applied using the following parameters (IEC 60335-2-24:2010):		—
	- force at right angles to the surface to be tested 35 N + 3 N		N/A
	- force parallel to the surface to be tested 250 N		N/A
	The appropriate part shall withstand the test of 22.7 reduced by 50 % (IEC 60335-2-24:2010)		N/A
22.107.3	If aluminium having a purity of less than 99,5 % according to ISO 209 is used in a protected cooling system that is embedded in thermal insulation, a sample of the cooling system is subjected to the salt mist test of IEC 60068-2-11 for a test duration of 48 h. (IEC 60335-2-24:2010)		N/A
22.108	Compression-type appliances with unprotected cooling systems and which use flammable refrigerants, any electrical apparatus other than non-self-resetting protective devices, shall be tested and found to comply with the requirements in annex CC for group IIA gases or the refrigerant used (IEC 60335-2-24:2010)		N/A
	Refrigerant leakage into food storage shall not result in an explosive atmosphere outside the food storage compartment in areas where electrical apparatus are mounted, except in those areas which contain only non-self-resetting protective devices, necessary for compliance with the requirements in annex CC for group IIA gases or the refrigerant used (IEC 60335-2-24:2010)		N/A
	The measured value shall not exceed 75 % LEL of the refrigerant (table 102) and shall not exceed 50 % LEL for a period exceeding 5 min (IEC 60335-2-24:2010)		N/A
22.109	Compression-type appliance which use flammable refrigerants shall be constructed so that leaked refrigerant will not stagnate so as to cause a fire hazard in areas outside the food storage compartments where the appliance's electrical components, other than non-self-resetting protective devices necessary for compliance with clause 19, are fitted (IEC 60335-2-24:2010)		N/A
	Unless the electrical components comply least with the requirements in annex CC for group IIA gases or the refrigerant used (IEC 60335-2-24:2010)		N/A
	Test: A quantity equal to 50 % + 1,5 g of the refrigerant charge is injected into the considered area (IEC 60335-2-24:2010)		N/A
	The measured value shall not exceed 75 % LEL of the refrigerant (table 102) and shall not exceed 50 % LEL for a period exceeding 5 min (IEC 60335-2-24:2010)		N/A

22.110	Temperatures on surfaces be exposed to leakage of flammable refrigerants shall not exceed the ignition temperature (table 102) reduced by 100 K (IEC 60335-2-24:2010)		N/A
22.111	In compression-type appliances which use flammable refrigerant: Prevention from galvanic coupling in contact points between uncoated aluminium and copper pipes (or similar metals) by positive means such as the use of insulated sleeving or spacers. (IEC 60335-2-24:2010)		N/A
22.112	Doors and lids of compartments in appliances with a free space shall be capable of being opened from the inside (IEC 60335-2-24:2010)		N/A
	The door shall open before the force exceeds 70 N (IEC 60335-2-24:2010)		N/A
22.113	Drawers which are only accessible after openings a door or lid shall not contain a free space (IEC 60335-2-24:2010)		N/A
22.114	Drawers which are accessible without opening a door and which contain a free space shall have an opening in their rear wall and be capable of being opened from the inside (IEC 60335-2-24:2010)		N/A
	The drawers shall open before the force exceeds 70 N (IEC 60335-2-24:2010)		N/A
22.115	Appliances for household use which contain compartments with a free space any door or drawer shall not be fitted with a self-latching lock (IEC 60335-2-24:2010)		N/A
	Key operated locks shall require two independent movements to actuate the lock or be of a type that automatically ejects the key when unlocked (IEC 60335-2-24:2010)		N/A
22.116	Accessible glass panels with an area having any two orthogonal dimensions exceeding 75 mm shall be either made from glass that shatters into small pieces when broken or be made from glass that has enhanced mechanical strength. (IEC 60335-2-24:2010)		N/A
	Tested as described – small pieces (IEC 60335-2-24:2010)		N/A
	Tested as described – glass don't brooks or cracks (IEC 60335-2-24:2010)		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		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	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
	Open-coil springs not used. NOTE : It does not apply to external conductors (IEC 60335-2-24:2010)		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 clamping at both ends, or be such that it can only be removed by breaking or cutting		N/A
23.7	The colour combination green/yellow used only for earthing conductors		N/A
23.8	Aluminium wires not used for internal wiring		P
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N/A
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A
24	**COMPONENTS**		
24.1	Components comply with safety requirements in relevant IEC standards		N/A
	List of components	(see appendix components)	N/A
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A

	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
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		N/A
	Motor-compressors are not required to be separately tested according to (IEC 60335-2-34) nor are they required to meet the requirements of (IEC 60335-2-34) if they meet the requirements of this standard (IEC 60335-2-24:2010)		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		N/A
	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		N/A
	tested according to annex H		N/A
	The number of operations for other switches (IEC 60335-2-24:2010):		—
	- quick-freeze switches:		N/A
	- manual and semi-automatic defrost switches		N/A
	- door switches		N/A
	- on/off switches		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N/A
	If the switch only operates a motor staring relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N/A
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2		N/A
	The number of cycles of operation being:		—
	- thermostats: 10 000		N/A
	- temperature limiters: 1 000		N/A
	- self-resetting thermal cut-outs: 300		N/A
	- voltage maintained non-self-resetting thermal cut-outs: 1 000		N/A

	- other non-self-resetting thermal cut-outs: 30		N/A
	- timers:.....3 000		N/A
	- energy regulators:.....10 000		N/A
	- self-resetting thermal cut-outs which may influence the test results of 19.101 and which are not short-circuited during this test:.....100 000 (IEC 60335-2-24:2010)		N/A
	- thermostats which control the motor-compressor: .....100 000 (IEC 60335-2-24:2010)		N/A
	- motor-compressor starting relays: .....100 000 (IEC 60335-2-24:2010)		N/A
	- automatic thermal motor-protectors for motor-compressors of the hermetic and semi-hermetic type: (IEC 60335-2-24:2010)	the number of operations during the locked-rotor test (but minimum 2000)	N/A
	- manual reset thermal motor-protectors for motor-compressors of the hermetic and semi-hermetic type:.....50 (IEC 60335-2-24:2010)		N/A
	- other automatic thermal motor-protectors: except for fan-motors:.....2 000 (IEC 60335-2-24:2010)		N/A
	- other manual test thermal motor protectors: .....30 (IEC 60335-2-24:2010)		N/A
	- for pressure relief devices of the bursting disc type, three separate samples of the appropriate parts of the refrigeration system are tested and the bursting disc shall operate in the same way for each sample tested: .....1 (IEC 60335-2-24:2010)		N/A
	- electrical pressure relief devices for automatic operation: .....30 000 (IEC 60335-2-24:2010)		N/A
	- electrical pressure relief devices for manual reset: .....300 (IEC 60335-2-24:2010)		N/A
	Electrical pressure relief devices comply with IEC 60730-2-6 and with listed additional requirements (IEC 60335-2-24:2010)		N/A
	Requirement for mechanical pressure relief devices (IEC 60335-2-24:2010)		N/A
	Testing of pressure relief devices of the bursting disc type with the appliance if not certified (IEC 60335-2-24:2010). Marking of devices as mentioned (A1:12)		N/A
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N/A

	Thermal motor protectors are tested in combination with their motor under the conditions specified in annex D		N/A
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		N/A
24.1.5	Appliance couplers complying with IEC 60320-1		N/A
	However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N/A
	The relevant standard for interconnection couplers is IEC 60320-2-2		N/A
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	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		N/A
24.1.8	The relevant standard for thermal links is IEC 60691. Thermal links that do not comply with IEC 60691 are considered to be an intentionally weak part for the purposes of clause 19		N/A
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance They are also tested in accordance with clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance		N/A
24.2	No switches or automatic controls in flexible cords		N/A
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		N/A
	No thermal cut-outs that can be reset by soldering		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A
	Appliances for camping or similar use (IEC 60335-2-24:2010):		—
	Voltage selection switches used in appliances for camping or similar use shall have a contact separation in all poles that provide full disconnection from the supply under overvoltage category III conditions		N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A

24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly		N/A
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N/A
	For starting capacitors, the voltage across the capacitors shall not exceed 1,3 times the rated voltage of the capacitor at $1,1xU_n$ (IEC 60335-2-24:2010)		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N/A
	In addition, the motors are complying with the requirements of annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains, complying with IEC 61770 and supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		N/A
	One or more of the following conditions are to be met:		—
	- class P2 according to IEC 60252-1		N/A
	- housed within a metallic or ceramic enclosure		N/A
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N/A
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of annex E		N/A
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N/A
24.101	Lampholders shall be of the insulated type (IEC 60335-2-24:2010)		N/A
24.102	The discharge capacity of the pressure relief device shall be such that it is able to release an adequate amount of refrigerant so that the pressure during the release of the refrigerant does not increase beyond the pressure setting of the pressure relief device even if the compressor is operating (IEC 60335-2-24:2010)		N/A
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		
	Motor-compressors with facilities for connecting a supply cord, complying with the appropriate requirements of IEC 60 335-2-34 are not subjects to the following tests (IEC 60335-2-24:2010)		N/A

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		N/A
	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
	Mains-operated appliances provided with not more than one means of connection to the supply unless (IEC 60335-2-24:2010)		N/A
	- the appliance consists of two or more completely independent units built together in one enclosure (IEC 60335-2-24:2010)		N/A
	- the relevant circuits are adequately insulated from each other (IEC 60335-2-24:2010)		N/A
	Appliances which can be both mains and battery operated shall be provided with a separate means for connection (IEC 60335-2-24:2010)		N/A
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		—
	- a set of terminals allowing the connection of a flexible cord		N/A
	- a fitted supply cord		N/A
	- a set of supply leads accommodated in a suitable compartment		N/A
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimensions according to table 10		N/A

	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N/A
25.5	Method for assemble supply cord with the appliance:		—
	- type X attachment		N/A
	- type Y attachment		N/A
	- type Z attachment, if allowed in part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N/A
25.6	Plugs fitted with only one flexible cord		N/A
25.7	Supply cord shall be one of the following types:		—
	- Rubber sheathed (60245 IEC 53)		N/A
	- Polychloroprene sheathed (60245 IEC 57)		N/A
	- Cross-linked polyvinyl chloride sheathed. (60245 IEC 88)		N/A
	Appliance supply cord other than SELV power supply not lighter than (IEC 60335-2-24:2010):		—
	- light polyvinyl chloride sheathed cord (60227 IEC 52)		N/A
	Supply cords for class III appliances adequately insulated (test as described)		N/A
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N/A
25.8	Nominal cross-sectional area of supply cords 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	Supply cord of class I appliances have a green/yellow core for earthing		N/A
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		N/A
	the contact pressure is provided by spring terminals		N/A
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		N/A
25.13	Inlet openings so constructed as to prevent damage to the supply cord		N/A
	If the enclosure at the inlet opening is not of insulating material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A

	class 0, or class III appliance not containing live parts		N/A
	Does not apply to flexible leads used to connected an appliance to a SELV power supply (IEC 60335-2-24:2010)		N/A
25.14	Supply cords adequately protected against excessive flexing		N/A
	Flexing test:		—
	- applied force (N):		N/A
	- number of flexings:		N/A
	The test does not result in:		—
	- short circuit between the conductors		N/A
	- breakage of more than 10 % of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage, within the meaning of the standard, to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		N/A
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		N/A
	Pull and torque test of supply cord, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) .....:		N/A
	Cord not damaged and max. 2 mm displacement of the cord		N/A
25.16	Cord anchorages for type X attachments constructed and located so that:		—
	- replacement of the cord is easily possible		N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N/A

	- screws which have to be operated when replacing the cord do not fix any other component, if applicable		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
25.17	Adequate cord anchorages for type Y and Z attachment		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
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 (not applicable if complying with IEC 60320-1)		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- 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
	Interconnection cord for battery operated appliances (IEC 60335-2-24:2010)		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/TR 60083		N/A
25.101	Appliances which can be battery operated shall have suitable means for connection of the battery (IEC 60335-2-24:2010)		N/A
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		
	This clause of part 1 is not applicable to those parts of motor-compressors with facilities for connecting a supply cord and complying with IEC 60335-2-34 (IEC 60335-2-24:2010)		N/A
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		N/A
	Terminals only accessible after removal of a non-detachable cover, except		N/A
	for class III appliances that do not contain live parts		N/A
	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		N/A
26.2	Appliances with type X attachment and appliances for the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		N/A
	Screws and nuts serve only to clamp supply conductors, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		N/A
	Terminals fixed so that when the clamping means is tightened or loosened:		—
	- the terminal does not loosen		N/A
	- internal wiring is not subjected to stress		N/A
	- clearances and creepage distances are not reduced below the values in 29		N/A

	Compliance is 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.		N/A
26.4	Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2):		N/A
	Terminals only suitable for a specially prepared cord		N/A
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless 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
	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection between live parts and accessible metal parts, between battery supply terminals if any (IEC 60335-2-24:2010)		N/A

27	**PROVISION FOR EARTHING**		
	Compliance is not checked on parts related to motor-compressors if the motor-compressor complies with IEC 60335-2-34 (IEC 60335-2-24:2010)		N/A
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	Earth connection of iron core	P
	Earthing terminals not connected to neutral terminal		N/A
	Class 0, II and III appliance have no provision for earthing		P
	Safety extra-low voltage circuits not earthed, unless protective extra-low voltage circuits		N/A
27.2	Clamping means adequately secured against accidental loosening	Earth connection of iron core	P
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm², and		N/A
	do not provide earthing continuity between different parts of the appliance and		N/A
	conductors cannot be loosened without the aid of a tool		N/A
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		N/A
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N/A
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		N/A
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		N/A
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In 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		N/A

	Resistance not exceeding 0,1 Ω at the specified low-resistance test	0,05 Ω	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand held appliances		N/A
	They may be used 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
28	**SCREWS AND CONNECTIONS**		
	Compliance is not checked on parts related to motor-compressors if the motor-compressor complies with IEC 60335-2-34 (IEC 60335-2-24:2010)		N/A
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses	Built-in fan	N/A
	Screws not of soft metal liable to creep, such as zinc or aluminium		N/A
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screw into metal		N/A
	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)	N/A
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		P
	This requirement does not apply to electrical connections in circuits of appliances for which:		—
	- 30.2.2 is applicable and that carry a current not exceeding 0,5 A		N/A
	- 30.2.3 is applicable and that carry a current not exceeding 0,2 A		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A

	Thread-cutting (self-tapping) screws and thread rolling screws shall only be used for electrical connections if they generate a full form standard machine screw thread. However, thread-cutting (self-tapping) screws shall not be used if they are likely to be operated by the user or installer		N/A
	Thread-cutting, thread rolling and space-threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection		N/A
	At least two screws must be used for each connection providing earthing continuity unless the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity (except earthing screws if at least two)		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion		P
29	**CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION**		
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on PCB to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies. pollution degree 1 under type 1 protection. The spacing between the conductors is not less than the values specified in Table 1 of IEC 60664-3 for type 2 protection		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 for basic insulation and functional insulation they comply with the impulse voltage test of clause 14	(see appended table)	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 1500 V and above are increased by 0,5 mm and the impulse voltage test is not applicable		N/A
	The impulse voltage test is not applicable when the microenvironment is pollution degree 3 or for basic insulation of class 0 appliances and class 0I appliances		N/A
	Appliances are in overvoltage category II		P
	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

	The values of Table 16, or the impulse voltage test of clause 14, are applicable		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		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		N/A
29.1.4	Clearances for functional insulation are the largest values determined from:		—
	- table 16 based on the rated impulse voltage		P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless the microenvironment is pollution degree 3, or the distances can be affected by wear, distortion, movement of the parts or during assembly		N/A
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1 mm		N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		—
	- table 16 based on the rated impulse voltage		N/A
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160 % of the withstand voltage required for basic insulation		N/A

	If clearances for basic insulation are selected from clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	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		N/A
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree		P
	Pollution degree 2 applies, unless		N/A
	precautions taken to protect the insulation; pollution degree 1		N/A
	insulation subjected to conductive pollution; pollution degree 3		P
	Compliance is checked by inspection and measurements as specified		P
	Insulation in refrigeration appliances and ice-makers is in pollution degree 3 and shall have a CTI value of 250 unless the insulation to be protected to pollution by condensation (IEC 60335-2-24:2010). N/A for functional insulation if working voltage< 50 V (A1:12)		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17		N/A
	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, or		N/A
	Table 2 of IEC 60664-4, as applicable		N/A
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17, or		N/A
	Table 2 of IEC 60664-4, as applicable		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18		P

	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18		N/A
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
29.3	Supplementary insulation and reinforced insulation shall have adequate thickness, or have a sufficient number of layers, to withstand the electrical stresses		N/A
	Compliance checked:		—
	- by measurement, in accordance with 29.3.1, or		N/A
	- by an electric strength test in accordance with 29.3.2, or		N/A
	- by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N/A
29.3.1	The thickness of the insulation shall be at least:		—
	- 1 mm for supplementary insulation; - 2 mm for reinforced insulation.	(supplementary insulation)	N/A
29.3.2	Each layer of material shall withstand the electric strength test of 16.3 for supplementary insulation.		N/A
	2 layers minimum for supplementary insulation and 3 layers minimum for reinforced insulation		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N/A
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19		N/A
30	**RESISTANCE TO HEAT AND FIRE**		
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	thermoplastic material providing supplementary or reinforced insulation,		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2	(see appended table)	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		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		P
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25 °C plus the maximum temperature rise determined during clause 19, if higher		N/A
	Not applied to parts of motor-compressor if complies with IEC60335-2-34 (IEC 60335-2-24:2010)		N/A
	Accessible parts within the storage compartment 65 °C (IEC 60335-2-24:2010)		N/A
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire	(see appended table)	P
	Not applied to parts of motor-compressor if complies with IEC60335-2-34 with no ignition (IEC 60335-2-24:2010)		N/A
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		N/A
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		N/A
30.2.1	Glow-wire test of IEC 60695-2-11 at 550 °C, unless		P
	the material is classified as having a GWFI according to IEC 60695-2-12 of at least 550 C, or		N/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N/A
30.2.2	Not applicable (IEC 60335-2-24:2010)		—
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	Test not applicable to conditions as specified		N/A
30.2.3.1	Parts of insulating material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of insulating material within a distance of 3 mm,		P
	having a glow-wire flammability index of at least 850 °C according to IEC 60695-2-12		P
30.2.3.2	Parts of insulating material supporting current-carrying connections, and		P
	parts of non-metallic material, within a distance of 3 mm,		P

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

	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to needle-flame test (NFT) of annex E		N/A
	Test not applicable to conditions as specified		N/A
31	**RESISTANCE TO RUSTING**		
	Relevant ferrous parts adequately protected against rusting		P
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		
	Not applicable (IEC 60335-2-24:2010)		—
A	**ANNEX A (INFORMATIVE)** **ROUTINE TESTS**		
	Description of routine tests to be carried out by the manufacturer		P
AA	**ANNEX AA, (NORMATIVE) LOCKED-ROTOR TEST OF FAN MOTORS (IEC 60335-2-24:2010)**		
	The winding of a fan motor does not reach excessive temperatures if the motor locks or fails to start	(see appended table)	P
	The motor is supplied at rated voltage according to supply circuit fig. AA.1.		P
	Tests as described		P
B	**ANNEX B (NORMATIVE)** **APPLIANCES POWERED BY RECHARGEABLE BATTERIES**		
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	This annex does not apply to battery chargers		N/A
3.1.9	Appliance operated under the following conditions:		—
	-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
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N/A
7.12	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period described		N/A
19.1	Appliances subjected to tests of 19.101, 19.102 and 19.103		N/A
19.10	Not applicable		N/A
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N/A
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 of IEC 68-2-32		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-32, the number of falls being:		—

	- 100, the mass of part does not exceed 250 g		N/A
	- 50, the mass of part exceeds 250 g		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
BB	**ANNEX BB (NORMATIVE)** **METHOD FOR ACCUMULATION OF FROST**		
	Description of method for accumulation of frost		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
	This annex does not apply to motor-compressors (IEC 60335-2-24:2010)		N/A
CC	**ANNEX CC (NORMATIVE)** **NON-SPARKING "N" ELECTRICAL APPARATUS**		
	Where reference is made to IEC 60079-15, the following clauses are applicable as modified below (IEC 60335-2-24:2010)		—
11	Supplementary requirements for non-sparking luminaires (A1:12)		—
	All of subclauses of clause 11 are applicable, except 11.2.4.1, 11.2.4.5, 11.2.5, 11.2.6, 11.2.7, 11.3.4, 11.3.5, 11.3.6 and 11.4 (A1:12)		N/A
16	General supplementary requirements for apparatus producing arcs, sparks or hot surfaces (A1:12)		N/A
17	Supplementary requirements for enclosed-break devices and non-incendive components producing arcs, sparks or hot surfaces (A1:12)		N/A
18	Supplementary requirements for hermetically sealed devices producing arcs, sparks or hot surfaces (A1:12)		N/A
19	Supplementary requirements for sealed devices producing arcs, sparks or hot surfaces (A1:12)		—
	All of the subclauses of clause 19 are applicable, except 19.1 and 19.6, which are replaced by the following (A1:12)		N/A
19.1	Non-metallic materials (A1:12)		—

	Seals are tested using 22.5. However if the device is tested in the appliance, then 22.5.1 and 22.5.2 are not applicable (A1:12)		N/A
	After the tests of clause 19 in IEC 60335-2-24, by inspection, no damage that could impair the type of protection shall be evident (A1:12)		N/A
19.6	Type tests (A1:12)		—
	The type tests described in 22.5 shall be performed where relevant (A1:12)		N/A
20	Supplementary requirements for restricted-breathing enclosures protecting apparatus producing arcs, sparks or hot surfaces (A1:12)		N/A
D	**ANNEX D (NORMATIVE)** **THERMAL MOTOR PROTECTORS**		
	Applicable to protected motors for unattended use, test of 19.7 carried out on a separate sample according to the specification		N/A
	This annex does not apply to motor-compressors or condenser fan motors (IEC 60335-2-24:2010)		N/A
	Test conditions as specified		N/A
E	**ANNEX E (NORMATIVE)** **NEEDLE-FLAME TEST**		
	Needle-flame test carried out in accordance with IEC 60695-2-2, with the following modifications:		—
7	Severities		—
	The duration of application of the test flame is 30 s ± 1 s		N/A
9	Test procedure		—
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1		N/A
9.2	The first paragraph does not apply		N/A
	If possible, the flame is applied at least 10 mm from a corner		N/A
9.3	The test is carried out on one specimen		N/A
	If the specimen does not withstand the test, the test may be repeated on two further specimens, both withstanding the test		N/A
11	Evaluation of test results		—
	The duration of burning not exceeding 30 s		N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N/A

F	**ANNEX F (NORMATIVE)** **CAPACITORS**		**N/A**
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		N/A
1.5	Terminology		—
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		—
	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		N/A

G	**ANNEX G (NORMATIVE)** **SAFETY ISOLATING TRANSFORMERS**		**N/A**
	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		N/A
H	**ANNEX H (NORMATIVE)** **SWITCHES**		
	Switches comply with the following clauses of IEC 61058-1, as modified:		—
	-The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	-Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		—
	Switches are not required to be marked		N/A
	However, switches that can be tested separately from the appliance marked with the manufacturer’s name or trade mark and the type reference		N/A
13	Mechanism		—
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		—
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		—
	Compliance is checked on three separate appliances or switches		N/A

	For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		N/A
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N/A
	Subclause 17.2.5.2 is not applicable		N/A
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable. The ambient temperature during the test is that occurring in the appliance during the test of clause 11 in IEC60335-1, as specified in footnote b of Table 3		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		—
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N/A
I	**ANNEX I (NORMATIVE)** **MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE**		
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N/A
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.I.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.I.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A
J	**ANNEX J (NORMATIVE)** **COATED PRINTED CIRCUIT BOARDS**		
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N/A
K	**ANNEX K (NORMATIVE)** **OVERVOLTAGE CATEGORIES**		
	The information on overvoltage categories is extracted from IEC 60664-1		P
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
N	**ANNEX N (NORMATIVE)** **PROOF TRACKING TEST**		
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P
	Test apparatus		—
7.3	Test solutions		—
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		—
10.1	The proof voltage is 100 V, 175 V, 400 V or 600 V:	250 V (UL File E41938: E I DuPont Type reference FR70G25V0: CTI2)	P
	The last paragraph of clause 3 applies		P

	The test is carried out on five specimens		P
	In case of doubt, a material is considered to have a PTI of the specified value if it withstands the test at a voltage equal to the proof voltage reduced by 25 V, the number of drops being increased to 100.		P
10.2	The report shall state if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		P
O	**ANNEX O (INFORMATIVE)** **SELECTION AND SEQUENCE OF THE TESTS OF clause 30**		
	Description of tests for determination of resistance to heat and fire		P
P	**ANNEX P (INFORMATIVE)** **GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES**		
	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 150 V, 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		—
5.7	The ambient temperature of the tests of clause 10, 11 and 13 is 43 °C ± 1 °C. See Subclause 5.7 (IEC 60335-2-24:2010)		N/A
7.1	The appliance marked with the letters WDaE		N/A
7.12	The instructions shall state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA.		N/A
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N/A
11.8	The values of Table 3 are reduced by 15 K		N/A
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
15.3	The value of t is 37 °C		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	**ANNEX Q (INFORMATIVE)** **SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS**		
	Description of tests for appliances incorporating electronic circuits		—

R	**ANNEX R (NORMATIVE)** **SOFTWARE EVALUATION**		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N/A
R.1	Programmable electronic circuits using software		—
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N/A
R.2	Requirements for the architecture		—
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		N/A
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		—
	- single channel with periodic self-test and monitoring		N/A
	- dual channel (homogenous) with comparison		N/A
	- dual channel (diverse) with comparison		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		—
	- single channel with functional test		N/A
	- single channel with periodic self-test		N/A
	- dual channel without comparison		N/A
R.2.2	Measures to control faults/errors		—
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N/A
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N/A
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N/A

R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N/A
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired		N/A
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N/A
R.2.2.7	Labels used for memory locations are unique		N/A
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N/A
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N/A
R.3	Measures to avoid errors		—
R.3.1	General		—
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		—
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N/A
R.3.2	Specification		—
R.3.2.1	Software safety requirements:	Software Id:	N/A
	The specification of the software safety requirements includes the descriptions listed		N/A
R.3.2.2	Software architecture		—
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	N/A

R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N/A
R.3.2.3	Module design and coding		—
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N/A
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N/A
R.3.2.3.2	Software code is structured		N/A
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N/A
	The module specification is validated against the architecture specification by static analysis		N/A
R.3.3.3	Software validation		—
	The software is validated with reference to the requirements of the software safety requirements specification		N/A
	Compliance is checked by simulation of:		N/A
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

TABLE R.1 – GENERAL FAULT/ERROR CONDITIONS						
Component [1)]	Fault/error	Acceptable measures [2) 3)]	Definitions	Document reference for applied measure	Document reference for applied test	Ver-dict
1 CPU 1.1 Registers	Stuck at	Functional test, or periodic self-test using either: - static memory test, or - word protection with single bit redundancy	H.2.16.5 H.2.16.6 H.2.19.6 H.2.19.8.2			N/A
1.2 VOID						N/A
1.3 Programme counter	Stuck at	Functional test, or Periodic self-test, or Independent time-slot monitoring, or Logical monitoring of the programme sequence	H.2.16.5 H.2.16.6 H.2.18.10.4 H.2.18.10.2			N/A
2 Interrupt handling and execution	No interrupt or too frequent interrupt	Functional test, or time-slot monitoring	H.2.16.5 H.2.18.10.4			N/A
3 Clock	Wrong frequency (for quartz synchronized clock: harmonics/ sub-harmonics only)	Frequency monitoring, or time slot monitoring	H.2.18.10.1 H.2.18.10.4			N/A
4. Memory 4.1 Invariable memory	All single bit faults	Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy	H.2.19.3.1 H.2.19.3.2 H.2.19.8.2			N/A
4.2 Variable memory	DC fault	Periodic static memory test, or word protection with single bit redundancy	H.2.19.6 H.2.19.8.2			N/A
4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A

TABLE R.1 – GENERAL FAULT/ERROR CONDITIONS						
Component [1)]	Fault/error	Acceptable measures [2) 3)]	Definitions	Document reference for applied measure	Document reference for applied test	Ver-dict
5 Internal data path	Stuck at DC fault	Word protection with single bit redundancy Comparison of redundant CPUs by either: - reciprocal comparison - independent hardware comparator	H.2.19.8.2 H.2.18.15 H.2.18.3			N/A
5.1 VOID						N/A
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
6 External communication	Hamming distance 3	Word protection with multi-bit redundancy, or CRC – single work, or Transfer redundancy, or Protocol test	H.2.19.8.1 H.2.19.4.1 H.2.18.2.2 H.2.18.14			N/A
6.1 VOID						N/A
6.2 VOID						N/A
6.3 Timing	Wrong point in time Wrong sequence	Time-slot monitoring, or scheduled transmission Time-slot and logical monitoring, or Comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator Logical monitoring, or time-slot monitoring, or Scheduled transmission (same options as for wrong point in time)	H.2.18.10.4 H.2.18.18 H.2.18.10.3 H.2.18.15 H.2.18.3 H.2.18.10.2 H.2.18.10.4 H.2.18.18			N/A
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check Comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator	H.2.18.13 H.2.18.15 H.2.18.3			N/A

TABLE R.1 – GENERAL FAULT/ERROR CONDITIONS

Component [1)]	Fault/error	Acceptable measures [2) 3)]	Definitions	Document reference for applied measure	Document reference for applied test	Ver-dict
7.1 VOID						N/A
7.2 Analog I/O 7.2.1 A/D and D/A-converter	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N/A
8 VOID						N/A
9 Custom chips [4)] e.g. ASIC, GAL, Gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N/A

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

[1)] For fault/error assessment, some components are divided into their sub-functions.

[2)] For each sub-function in the table, the Table R.2 measure will cover the software fault/error.

[3)] Where more than one measure is given for a sub-function, these are alternatives.

[4)] To be divided as necessary by the manufacturer into sub-functions.

10.1	TABLE: Power Input Deviation				P
Input deviation of/at:	P rated (W)	P measured (W)	Δ P	Required Δ P	Remark
Type reference VNT 5-13	35	33,7	-1,3	+7,0	P
Type reference VNT 11-20	46	37	-9	+9,2	P
Type reference VNT 16-25	65	46,7	-18,3	+13,0	P
Type reference VNT 18-30	73	64	-9	+14,6	P
Type reference VNT 12-20	46	52	+6	+9,2	P
Type reference VNT 34-45	120	105	-15	+24	P
Supplementary information:					

10.2	TABLE: Current Deviation				N/A
Input deviation of/at:	I rated (A)	I measured (A)	Δ I	Required Δ I	Remark
Supplementary information:					

11.8	TABLE: Heating test, thermocouples		—
	Test voltage (V).....:		—
	Ambient (°C).....:		—
Thermocouple locations	Δ T (K)	Max. Δ T (K)	
Supplementary information:			

11.8	TABLE: Heating test, resistance method		—
	Test voltage (V) .....:	243,8	—
	Ambient, t_1 (°C) .....:	23	—
	Ambient, t_2 (°C) .....:	23	—

Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	Δ T (K)	Max. Δ T (K)	Insulation class
Type reference VNT 18-30	68,4	83,2	56	95	130 (B)
Type reference VNT 12-20	151,3	201,9	85	95	130 (B)
Type reference VNT 34-45	34,6	44,5	74	95	

Supplementary information:					

13.2	TABLE: Leakage current		P
	Heating appliances: 1.15 x rated input (V):	--	—
	Motor-operated and combined appliances: 1.06 x rated voltage (V):	243,8	—

Leakage current between	I (mA)	Max. allowed I (mA)
accessible metal parts and N	<0,1	0,75
accessible metal parts and L	<0,1	0,75
Other accessible metal parts and N	--	--
Other accessible metal parts and L	--	--
L1/L2/L3 (Switches a,b and c in ON position)	--	--
L1 (Switch a is opened)	--	--
L2 (Switch b is opened)	--	--
L3 (Switch c is opened)	--	--

13.3	TABLE: Electric strength	P

Test voltage applied between:	Voltage (V)	Breakdown (Yes/No)
live parts and accessible parts over basic insulation	1000	No
Supplementary information:		

14	TABLE: Transient overvoltages	N/A

Clearance between:	Cl (mm)	Required Cl (mm)	Rated impulse voltage (V)	Impulse test voltage (V)	Flashover (Yes/No)
Supplementary information:					

16.2	TABLE: Leakage current		P
	Single phase appliances: 1,06 x rated voltage .... :		—
	Three phase appliances 1,06 x rated voltage divided by √3: ..... :		—
Leakage current between		I (mA)	Max. allowed I (mA)
accessible metal parts and N		<0,2	0,75
accessible metal parts and L		<0,2	0,75
Supplementary information:			

16.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
live parts and accessible parts over basic insulation		1250	No
Supplementary information:			

17	TABLE: Overload protection, thermocouple measurements		N/A
Temperature rise of part/at:		ΔT (K)	Max. ΔT (K)
Supplementary information:			

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

19.7	TABLE: Abnormal operation, locked rotor/moving parts				P
	Test voltage (V).....:		230		—
	Ambient, t_1 (°C).....:		23		—
	Ambient, t_2 (°C).....:		23		—
Temperature of winding	R_1 (Ω)	R_2 (Ω)	ΔT (K)	T (°C)	Max. T (°C)
Type reference VNT 5-13	258,8	412,0	152	175	225

Type reference VNT 18-30	64,4	95,9	126	149	225
Type reference VNT 12-20	152,4	235,9	141	164	225
Type reference VNT 34-45	34,7	54,5	145	168	225
supplementary information:					

19.11.3	Abnormal operation conditions			P
Operational characteristics		YES/NO	Operational conditions	
Are there electronic circuits to control the appliance operation?			No	
Are there “off” or “stand-by” position?			No	
The unintended operation of the appliance results in dangerous malfunction?			No	

Sub-clause	Operating conditions description	Test results description	PEC description	EMP 19.11.4	Software type required	19.11.3 PEC	Final result
19.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.7	See table 19.7	See table 19.7	--	--	--	--	P
19.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10X	N/A	N/A	N/A	N/A	N/A	N/A	N/A
supplementary information:							

19.13	TABLE: Abnormal operation, temperature rises	N/A

Thermocouple locations	T (°C)	Max. T (°C)

supplementary information:

24.1	TABLE: Components information	P

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1])
Thermal cut-out	KLIXON	17AM..	AC 250 V 150°C	EN 60730	ENEC
Thermal cut-out (alternative use)	Jiangsu	17 AM	AC 250 V 150°C	EN 60730	DE (VDE)
Thermal cut-out (alternative use)	BTK	BM 1	AC 250 V 150°C	EN 60730	DE (VDE)

Supplementary information:

[1]) Provided evidence ensures the agreed level of compliance. See OD-CB2039.

28.1	TABLE: Threaded part torque test (not to be manipulated by users)	N/A

Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)

supplementary information:

29.1	TABLE: Clearances		P
	Overvoltage category..... :		—

		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark
330	0,2* / 0,5 / 0,8**					N/A
500	0,2* / 0,5 / 0,8**					N/A
800	0,2* / 0,5 / 0,8**					N/A
1 500	0,5 / 0,8** / 1,0***					N/A
2 500	1,5 / 2,0***	X			X	P
4 000	3,0 / 3,5***					N/A
6 000	5,5 / 6,0***					N/A
8 000	8,0 / 8,5***					N/A
10 000	11,0 / 11,5***					N/A

Supplementary information:

*) For tracks on printed circuit boards if pollution degree 1 and 2
**) For pollution degree 3
***) If the construction is affected by wear, distortion, movement of the parts or during assembly

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

29.2	**TABLE: Creepage distances, basic, supplementary and reinforced insulation**										P
Working voltage (V)	Creepage distance (mm) Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*)	B**)	S**)	R**)	Verdict
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	N/A
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N/A
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	N/A
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	N/A
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	N/A
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	N/A
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—		—	N/A
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—		N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	N/A
>10000 and ≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		N/A
Supplementary information: *) Material group IIIb is allowed if the working voltage does not exceed 50 V **) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation											

29.2	**TABLE: Creepage distances, functional insulation**							P
Working voltage (V)	Creepage distance (mm) Pollution degree							
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*)	Verdict / Remark
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	N/A
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	2,0	2,5	2,8	**3,2**	P
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A
Supplementary information: *) Material group IIIb is allowed if the working voltage does not exceed 50 V								

30	**TABLE: Resistance to heat and fire**																			
Object/ part No.	Manufacturer / trademark	Type/ model	Ball pressure test °C				Glow wire test (GWT) °C					Glow-wire flammability index (GWFI) °C				Glow-wire ignition temp. (GWIT) °C		Needle - flame test (NFT)	Verdict
			75	125	cl. 11 +40	cl. 19 +25	550	650		750		850	550	650	750	850	675	775		
								te	ti	te	ti									
Bobbin material (all versions)	E I DuPont	FR70G25V0		X												960		850	V-0	P
Slot liner	E I DuPont	Mylar					X													P

Supplementary information:

[1] Parts of material classified at least HB40 or if relevant HBF
[2] Parts of material classified as V-0 or V-1
[3] Flame persisting longer than 2 s (= te – ti) need only be reported for unattended appliances
[4] Surrounding parts subjected to the needle-flame test of annex E
[5] Base material classified as V-0 or if relevant VTM-0
[6] The GWIT pre-selection option, the 850 °C GWFI pre-selection option, and the 850 °C GWT are not applicable for attended appliances

IEC 60335-2-24					
AA	TABLE: locked-rotor test of fan motors, windings temperature limit measurements				P
	Ambient, t1 (°C):		23		—
	Ambient, t2 (°C):		23		—
	test voltage (V) :		230		—
temperature limit T of winding:	R_1 (Ω)	R_2 (Ω)	T °C)	required T (°C)	insulation class
Type reference VNT 5-13	258,8	412,0	175	225	130 (B)
Type reference VNT 18-30	64,4	95,9	149	225	130 (B)
Type reference VNT 12-20	152,4	235,9	164	225	130 (B)
Type reference VNT 34-45	34,7	54,5	168	225	130 (B)

	TABLE: electric strength measurements		P
test voltage applied between:	test voltage (V)	breakdown Yes / No	
live parts and accessible parts over basic insulation	1250	No	

	TABLE: leakage current measurements		P
	a voltage equal to twice the rated voltage (V) :		—
leakage current I between :	I (mA)	required I (mA)	
live parts and accessible parts over basic insulation	<0,1	2	

EN 60335-1, EN 60335-2-24			
Clause	Requirement – Test	Result – Remark	Verdict
	Group/CENELEC Common Differences to IEC 60335-1, IEC 60335-2-24		—
6.1	Delete “class 0” and “class 01”		N/A
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered	Built-in fan with rated voltage 230 V	P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N/A
7.10	Devices used to start/stop operational functions of the appliance distinguished from other manual devices by means of shape, size, surface texture, position, etc.		N/A
	An indication that the device has been operated is given by:		—
	- a tactile feedback, or		N/A
	- an audible and visual feedback		N/A
7.12	An indication that the device has been operated is given by:		—
	- this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved		N/A
	- children shall not play with the appliance		N/A
	- cleaning and user maintenance shall not be made by children without supervision		N/A
7.12.Z1	The specific instructions related to the safe operation of this appliance is collated together in the front section of the user instructions	Built-in fan	N/A
	The height of the characters, measured on the capital letters, is at least 3 mm		N/A
	These instructions are also available in an alternative format, e.g. on a website		N/A
8.1.1	Also test probe 18 of EN 61032 is applied	Built-in fan	N/A
	The appliance being in every possible position during the test		N/A
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		N/A
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		N/A
	parts intended to be removed for user maintenance are also not removed		N/A
8.2	Compliance is checked by applying the test probes of EN 61032	Built-in fan	N/A
	For built-in appliances and fixed appliances, the test probe B and probe 18 of EN 61032 are applied only after installation		N/A

EN 60335-1, EN 60335-2-24			
Clause	Requirement – Test	Result – Remark	Verdict
11.8	Footnotes to “External enclosure of motor-operated appliances” to be taken into account		N/A
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N/A
20.2	When using the test probe similar to test probe B with a circular stop face, the accessories and detachable covers are removed		N/A
	Test probe 18 applied with a force of 2,5 N on the appliance fully assembled		N/A
24.1	Components comply with the safety requirements specified in the relevant standards as far as they reasonably apply		N/A
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance.		N/A
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		N/A
	Components that have not been previously tested or do not comply with the standard for the relevant component are tested according to the requirements of 30.2		N/A
	Components that have been previously tested and shown to comply with the resistance to fire requirements in the standard for the relevant component need not be retested provided that:		—
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		N/A
	- the test report for the component states whether it complied with the standard for the relevant component with or without flame, flames not exceeding 2 s during the test are ignored		N/A
	Unless components have been previously tested and found to comply with the relevant standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		N/A
	Components that have not been separately tested and found to comply with the relevant standard, and		N/A
	components that are not marked or not used in accordance with their marking,		N/A
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		N/A

EN 60335-1, EN 60335-2-24			
Clause	Requirement – Test	Result – Remark	Verdict
	Lamp holders and starter holders that have not been previously tested and found to comply with the relevant standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant standard under the conditions occurring in the appliance		N/A
	Where the relevant standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		N/A
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		N/A
	with connectors and appliance inlets complying with the standard sheets of IEC 60320-1,		N/A
	if direct supply to these parts from the supply mains gives rise to a hazard		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is EN 41003	Built-in fan	N/A
	Compliance with Clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N/A
24.Z1	For motor running capacitors (IEC 60252-1 type P2) with a metallic enclosure having an overpressure fuse the flame testing of internal plastic parts supporting current carrying connections as required in 30.2.2 and 30.2.3.1 is not necessary		N/A
25.6	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, fitted with a plug complying with the following standard sheets of IEC/TR 60083:		—
	- for Class I appliances: standard sheet C2b, C3b or C4	Built-in fan	N/A
	- for Class II appliances: standard sheet C5 or C6		N/A
25.7	Their properties shall be at least those of ordinary tough rubber sheathed cords (60245IEC53). Not for outdoors or for ultraviolet radiation		N/A
26.11	Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position unless they are held in place near the terminals independently of the solder		N/A

29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		N/A
32	Compliance regarding electromagnetic fields is checked according to EN 50366 or EN 62233		N/A
Annex I, 19.I.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N/A
	The duration of the test is as specified in 19.7		N/A

ZA	**ANNEX ZA** (NORMATIVE) **SPECIAL NATIONAL CONDITIONS**	—

	Norway		
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N/A
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N/A

	All CENELEC countries		
25.6 and 25.25	Information concerning National plug and socket-outlets is available from the CENELEC website. Normative national requirements concerning plug and socket-outlets are shown in the relevant National standard		N/A

	Ireland and United Kingdom		
25.8	In the table, the lines for 10 A and 16 A are replaced by:		—
	> 10 and ≤ 13 1,25		N/A
	> 13 and ≤ 16 1,5		N/A

ZB	**ANNEX ZB** (INFORMATIVE) **A-DEVIATIONS**	—

	Ireland		
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N/A

	United Kingdom		
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		N/A

ZC	**ANNEX ZC** (NORMATIVE) **NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**		—
	A list of referenced documents in this standard		P

ZD	**ANNEX ZD** (INFORMATIVE) **IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS**		—
	A table with IEC and CENELEC code designations for flexible cords		N/A

ZE	**ANNEX ZE (INFORMATIVE)** **SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE**		—
	Specific additional requirements for appliances and machines intended for commercial use.		N/A

ZF	**ANNEX ZF (INFORMATIVE)** **CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD**		—
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive)		N/A

ZG	**ANNEX ZG** (NORMATIVE) **UV APPLIANCES**		—
	The following modifications to this standard apply to appliances having UV emitters		N/A
	This annex is not applicable to appliances covered by the scopes of IEC 60335-2-27, IEC 60335-2-59 or IEC 60335-2-109		N/A
7.12.ZG	The instructions for appliances incorporating UVC emitters include the substance of the following: WARNING — This appliance contains a UV emitter. Do not stare at the light source		N/A
32	For appliances incorporating UV emitters the manufacturer delivers a declaration providing evidence that the plastic material exposed to the radiation is UV resistant		N/A

ZZ	**ANNEX ZZ** (INFORMATIVE) **COVERAGE OF ESSENTIAL REQUIREMENTS OF EC DIRECTIVES**		—
	Description of the relation between this European standard and the LVD (Low Voltage Directive, 2006/95/EC) and the MD (Machinery Directive, 2006/42/EC)		N/A

EN 60335-1:2012/A11			
Clause	Requirement - Test	Result - Remark	Verdict
7.14	In note Z1, replace IEC 82079-1with EN 82079-1. (EN 60335-1:2012/A11)		
ZA	**ANNEX ZF** (INFORMATIVE) (EN 60335-1:2012/A11) **CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD**		—
Table ZF.1	List of standards under CLC/TC 61 (EN 60335-1:2012/A11)		

Standard reference	To be listed under LVD (2006/95/EC)	To be listed under MD (2006/42/EC)
EN 60335-2-38, Commercial electric griddles and griddle grills	☒	☒ With moving parts

TABLE 24.1 APPENDIX TO SUB-CL. 24.1	**2011**
Relationship of DIN VDE-Standards with international and national standards for components which will be used in conjunction with VDE 0700-1 – EN 60335-1 – IEC 60335-1	
Capacitors:	
1)	AC motor capacitors (General – Performance, testing and rating – Safety requirements): DIN EN 60252-1 (VDE 0560 part 8), including valid Amendments = IEC/EN 60252-1, including valid Amendments
1a)	Motor start capacitors: like 1) in conjunction with DIN EN 60252-2 (VDE 0560 part 82), including valid Amendments = IEC/EN 60252-2, including valid Amendments
2)	Fixed capacitors for use in electronic equipment (Generic specification): DIN EN 60384-14 (VDE 0565-1), including valid Amendments = IEC/EN 60384-1, including valid Amendments
2a)	Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Radio interference capacitors): like 2) in conjunction with DIN EN 60384-14 (VDE 0565-1-1), including valid Amendments = IEC/EN 60384-14, including valid Amendments
3)	Capacitors for microwave ovens (General): DIN EN 61270-1 (VDE 0560 part 22) = IEC/EN 61270-1, including valid Amendments
Connecting devices:	
4)	Appliance couplers for household and similar general purposes (General requirements): DIN EN 60320-1 (VDE 0625-1), including valid Amendments = IEC/EN 60320-1, including valid Amendments
4a)	Sewing machine couplers: like 4) in conjunction with DIN EN 60320-2-1 (VDE 0625 part 2-1), including valid Amendments = IEC/EN 60320-2-1, including valid Amendments
4b)	Interconnection couplers for household and similar equipment: like 4) in conjunction with DIN EN 60320-2-2 (VDE 0625 part 2-2), including valid amendments = IEC/EN 60320-2-2, including valid amendments
4c)	Appliance couplers with a degree of protection higher than IPX0: like 4) in conjunction with DIN EN 60320-2-3 (VDE 0625-2-3), including valid Amendments = IEC/EN 60320-2-3, including valid Amendments
4d)	Appliance couplers dependent on appliances weight for engagement: like 4) in conjunction with DIN EN 60320-2-4 (VDE 0625-2-4), including valid Amendments = IEC/EN 60320-2-4, including valid Amendments
5)	Connecting devices for low-voltage circuits for household and similar purposes (General requirements): DIN EN 60998-1 (VDE 0613 part 1), including valid Amendments = EN 60998-1, including valid Amendments = IEC 60998-1,modified, including valid Amendments
5a)	Connecting devices as separate entities with screw-type clamping units: like 5) in conjunction with DIN EN 60998-2-1 (VDE 0613 part 2-1) = EN 60998-2-1, including valid Amendments = IEC 60998-2-1, modified, including valid Amendments
5b)	Connecting devices as separate entities with screwless-type clamping units: like 5) in conjunction with DIN EN 60998 2-2 (VDE 0613 part 2-2), including valid Amendments = EN 60998-2-2, including valid Amendments = IEC 60998-2-2, modified, including valid Amendments

5c)	Connecting devices as separate entities with insulation-piercing clamping units: like 5) in conjunction with DIN EN 60998 2-3 (VDE 0613 part 2-3), including valid Amendments = EN 60998-2-3, including valid Amendments = IEC 60998-2-3, modified, including valid Amendments
5d)	Twist-on connecting devices: like 5) in conjunction with DIN EN 60998 2-4 (VDE 0613 2-4), including valid Amendments = EN 60998-2-4, including valid Amendments = IEC 60998-2-4, modified, including valid Amendments
6)	Flat quick-connect terminations for electrical copper conductors – Safety requirements: DIN EN 61210 (VDE 0613 part 6), including valid Amendments = EN 61210, including valid Amendments = IEC 61210, modified, including valid Amendments
7)	Connectors: DIN EN 61984 (VDE 0627), including valid Amendments = IEC/EN 61984, including valid Amendments
Controls, thermal protectors, timer and time switches, valves, motor-starting relays:	
8)	Automatic electrical controls for household and similar use (General requirements): DIN EN 60730-1 (VDE 0631-1), including valid Amendments = EN 60730-1, including valid Amendments = IEC 60730-1, modified, including valid Amendments
8a)	Thermal motor protectors: like 8) in conjunction with DIN EN 60730-2-2 (VDE 0631-2-2), including valid Amendments = EN 60730-2-2, including valid Amendments = IEC 60730-2-2, modified, including valid Amendments
8b)	Thermal protectors for tubular fluorescent lamps: like 8) in conjunction with DIN EN 60730-2-3 (VDE 0631-2-3), including valid Amendments = EN 60730-2-3, including valid Amendments = IEC 60730-2-3, modified, including valid Amendments
8c)	Thermal motor protectors for motor-compressors of hermetic and semi-hermetic type: like 8) in conjunction with DIN EN 60730-2-4 (VDE 0631 part 2-4), including valid Amendments = EN 60730-2-4, including valid Amendments = IEC 60730-2-4, modified, including valid Amendments
8d)	Automatic electrical burner control systems: like 8) in conjunction with DIN EN 60730-2-5 (VDE 0631-2-5), including valid Amendments = EN 60730-2-5, including valid Amendments = IEC 60730-2-5, modified, including valid Amendments
8e)	Automatic electrical pressure sensing controls including mechanical requirements: like 8) in conjunction with DIN EN 60730-2-6 (VDE 0631-2-6), including valid Amendments = EN 60730-2-6, including valid Amendments = IEC 60730-2-6, modified, including valid Amendments
8f)	Timer and time switches: like 8) in conjunction with DIN EN 60730-2-7 (VDE 0631 part 2-7), including valid Amendments = EN 60730-2-7, including valid Amendments = IEC 60730-2-7, modified, including valid Amendments
8g)	Electrically operated water valves, including mechanical requirements: like 8) in conjunction with DIN EN 60730-2-8 (VDE 0631 part 2-8), including valid Amendments = EN 60730-2-8, including valid Amendments = IEC 60730-2-8, modified, including valid Amendments

8h)	Temperature sensing controls: like 8) in conjunction with DIN EN 60730-2-9 (VDE 0631-2-9), including valid Amendments = EN 60730-2-9, including valid Amendments = IEC 60730-2-9, modified, including valid Amendments
8i)	Motor-starting relays: like 8) in conjunction with DIN EN 60730-2-10 (VDE 0631-2-10), including valid Amendments =IEC/EN 60730-2-10, including valid Amendments
8j)	Energy regulators: like 8) in conjunction with DIN EN 60730-2-11 (VDE 0631-2-11), including valid Amendments = IEC/EN 60730-2-11, including valid Amendments
8k)	Electrically operated door locks: like 8) in conjunction with DIN EN 60730-2-12 (VDE 0631-2-12), including valid Amendments = EN 60730-2-12, including valid Amendments = IEC 60730-2-12, modified, including valid Amendments
8l)	Humidity sensing controls: like 8) in conjunction with DIN EN 60730-2-13 (VDE 0631-2-13), including valid Amendments = EN 60730-2-13, including valid Amendments = IEC 60730-2-13, modified, including valid Amendments
8m)	Electric actuators: like 8) in conjunction with DIN EN 60730-2-14 (VDE 0631-2-14), including valid Amendments = EN 60730-2-14, including valid Amendments = IEC 60730-2-14, modified, including valid Amendments
8n)	Automatic electrical water level sensing controls of the float or electrode-ensor type used in boiler applications: like 8) in conjunction with DIN EN 60730-2-15 (VDE 0631 parts 2-15), including valid Amendments =IEC/EN 60730-2-15, including valid Amendments
8o)	Automatic electrical water level controls of the float type for household and similar applications: like 8) in conjunction with DIN EN 60730-2-16 (VDE 0631-2-16), including valid Amendments = EN 60730-2-16, including valid Amendments = IEC 60730-2-16, modified, including valid Amendments
8p)	Automatic electrical water and air flow sensing controls, including mechanical requirements: like 8) in conjunction with DIN EN 60730-2-18 (VDE 0631part 2-18), including valid Amendments =IEC/EN 60730-2-18, including valid Amendments
8q)	Electrically operated oil valves, including mechanical requirements: like 8) in conjunction with DIN EN 60730-2-19 (VDE 0631-2-19), including valid Amendments =IEC/EN 60730-2-19, including valid Amendments
9)	Ignition devices: DIN EN 60335-1 (VDE 0700-1), including valid Amendments = EN 60335-1, including valid Amendments = IEC 60335-1, modified, including valid Amendments DIN EN 60335-2-102 (VDE 0700-102), including valid Amendments = EN 60335-2-102, including valid Amendments = IEC 60335-2-102, modified, including valid Amendments alternative like 8) in conjunction with 8d)
Cords, internal wirings:	

10)	Cords and internal wirings: Polyvinyl chloride insulated cables DIN VDE 0281 = HD 21 No relations to IEC-standards IEC 60227 IEC 52 = H03VV-F IEC 60227 IEC 53 = H05VV-F IEC 60227 IEC 56 = H03V2V2-F IEC 60227 IEC 57 = H05V2V2-F Rubber insulated cables DIN VDE 0282 = HD 22 No relations to IEC-standards IEC 60245 IEC 53 = H05RR-F IEC 60245 IEC 57 = H05RN-F
Electromagnetic interference suppression:	
11)	Fixed inductors for electromagnetic interference suppression (Sectional specification) (Radio interference suppression chokes): DIN EN 60938-2 (VDE 0565-2-1), including valid Amendments = IEC/EN 60938-2, including valid Amendments
12)	Passive filter units for electromagnetic interference suppression (Sectional specification: Passive filter units for which safety tests are appropriate - Test methods and general requirements): DIN EN 60939-2 (VDE 0565 -3-1), including valid Amendments = IEC/EN 60939-2, including valid Amendments
Links, fuse-links, fuse-holders, thermal-links:	
13)	Miniature fuses (Definitions for miniature fuses and general requirements for miniature fuse-links): DIN EN 60127-1(VDE 0820- 1), including valid Amendments = IEC/EN 60127-1, including valid Amendments
13a)	Cartridge fuse-links: like 13) in conjunction with DIN EN 60127-2 (VDE 0820 part 2), including valid Amendments = IEC/EN 60127-2, including valid Amendments
13b)	Sub-miniature fuse-links: like 13) in conjunction with DIN EN 60127-3 (VDE 0820 part 3), including valid Amendments = IEC/EN 60127-3, including valid Amendments
13c)	Universal modular fuse-links (UMF) - Through-hole and surface mount types: like 13) in conjunction with DIN EN 60127-4 (VDE 0820-4), including valid Amendments = IEC/EN 60127-4, including valid Amendments
13d)	Fuse-holders for miniature fuse-links: like 13) in conjunction with DIN EN 60127-6 (VDE 0820 part 6), including valid Amendments = IEC/EN 60127-6, including valid Amendments
14)	Thermal-links – Requirements and application guide: DIN VDE 0821 = IEC/EN 60691, including valid Amendments
Lamps, lampholders, leds:	
15)	Edison screw lampholders: DIN EN 60238 (VDE 0616-1), including valid Amendments = IEC/EN 60238, including valid Amendments
16)	Lampholders for tubular fluorescent lamps and starterholders: DIN EN 60400 (VDE 0616-3), including valid Amendments = IEC/EN 60400, including valid Amendments
17)	Luminaries (General requirements and tests): DIN EN 60598-1 (VDE 0711-1), including valid Amendments = EN 60598-1, including valid Amendments = IEC 60598-1, modified, including valid Amendments

18)	Miscellaneous lampholders (General requirements and tests): DIN EN 60838-1 (VDE 0616-5), including valid Amendments = IEC/EN 60838-1, including valid Amendments
18a)	Section 1: Lampholders S14: like 18) in conjunction with DIN EN 60838-2-1 (VDE 0616-4), including valid Amendments = IEC/EN 60838-2-1, including valid Amendments
18b)	Connectors for LED-modules: like 18) in conjunction with DIN EN 60838-2-2 (VDE 0616-6), including valid Amendments = IEC/EN 60838-2-2, including valid Amendments
19)	Bayonet lampholders: DIN EN 61184 (VDE 0616-2), including valid Amendments = IEC/EN 61184, including valid Amendments
20)	Signal lamps: VDE 0710 part 1 in conjunction with VDE 0710 part 11 No relations to international standards
21)	Photobiological safety of lamps and lamp systems: DIN EN 62471 (VDE 0837-471), including valid Amendments = EN 62471, including valid Amendments = IEC 62471, including valid Amendments
Plugs, socket-outlets:	
22)	Plugs and socket-outlets for domestic and similar general use standardized in the member countries of IEC: IEC/TR 60083
22a)	For Germany like 22) in conjunction with Socket-outlets: DIN 49440 parts 1, 3, 5, 6 DIN 49445 DIN 49447 Plugs: DIN 49441 part 1 DIN 49440 part 2 DIN 49406 part 1 DIN VDE 0620 parts 101 (EN 50075), like 25) DIN 49464 DIN 49446 DIN 49448
23)	Plugs, socket-outlets and couplers for industrial purposes (General requirements): DIN EN 60309-1 (VDE 0623-1), including valid Amendments = IEC/EN 60309-1, including valid Amendments
23a)	Dimensional interchangeability requirements for pin and contact-tube accessories: like 23) in conjunction with DIN EN 60309-2 (VDE 0623-2), including valid Amendments = IEC/EN 60309-2, including valid Amendments
23b)	Switched socket-outlets and connectors with or without interlock: like 23) in conjunction with DIN EN 60309-4 (VDE 0623-3), including valid Amendments = EN 60309-4, including valid Amendments = IEC 60309-4, modified, including valid Amendments
24)	Plugs and socket-outlets for household and similar purposes (General requirements) DIN VDE 0620-1 (VDE 0620-1), including valid Amendments No relations to IEC-standards
25)	Flat non-wirable two pole plugs, 2,5 A 250 V, with cord, for the connection of class-II-equipment for household and similar purposes: DIN VDE 0620 part 101 = EN 50075, including valid Amendments No relations to IEC-standards
26)	Plugs and socket-outlets for household and similar purposes (General requirements): IEC 60884-1, including valid Amendments

26a) Fused plugs: like 26) in conjunction with IEC 60884-2-1, including valid Amendments
26b) Socket-outlets for appliances: like 26) in conjunction with IEC 60884-2-2, including valid Amendments
26c) Switched socket-outlets without interlock for fixed installations: like 26) in conjunction with IEC 60884-2-3, including valid Amendments
26d) Plugs and socket-outlets for SELV: like 26) in conjunction with IEC 60884-2-4, including valid Amendments
26e) Adaptors: like 26) in conjunction with IEC 60884-2-5, including valid Amendments
26f) Switched socket-outlets with interlock for fixed electrical installations: like 26) in conjunction with IEC 60884-2-6, including valid Amendments
Protective impedance:
27) Audio; video and similar electronic apparatus – Safety requirements: DIN EN 60065 (VDE 0860), including valid Amendments = EN 60065, including valid Amendments = IEC 60065, modified, including valid Amendments
Relays, contactors, motor-starters, solid-state relays, (motor-starting relays see controls):
28) Low-voltage switchgear and controlgear (General rules): DIN EN 60947-1 (VDE 0660-100), including valid Amendments = IEC/EN 60947-1, including valid Amendments
28a) Contactors and motor-starters – Electromechanical contactors and motor-starters: like 28) in conjunction with DIN EN 60947-4-1 (VDE 0660-102), including valid Amendments = IEC/EN 60947-4-1, including valid Amendments
29) Electromechanical elementary relays (General requirements): DIN EN 61810-1 (VDE 0435-201), including valid Amendments = IEC/EN 61810-1, including valid Amendments
29a) Reliability: like 29) in conjunction with DIN EN 61810-2 (VDE 0435-120), including valid Amendments = IEC/EN 61810-2, including valid Amendments
30) Solid-state relays: DIN EN 62314 (VDE 0435-202), including valid Amendments = IEC/EN 62314, including valid Amendments
Semiconductors:
31) Discrete Semiconductor devices and integrated circuits (Optoelectronic devices - Essential ratings and characteristics): DIN EN 60747-5-2 (VDE 0884 part 2), including valid Amendments = IEC/EN 60747-5-2, including valid Amendments
Switches:
32) Switches for appliances (General requirements): DIN EN 61058-1 (VDE 0630-1), including valid Amendments = EN 61058-1, including valid Amendments = IEC 61058-1, modified, including valid Amendments
33) Electronic switches: DIN VDE 0630 part 12 No relations to international standards
Thermistors (PTCs):
34) Thermistors - Directly heated positive temperature coefficient (Generic specification) : IEC 60738-1, including valid Amendments

34a) Thermistors - Directly heated positive step-function temperature coefficient (Blank detail specification - Current limiting application - Assessment level EZ): like 34) in conjunction with IEC 60738-1-1, including valid Amendments
34b) Thermistors - Directly heated positive step-function temperature coefficient (Blank detail specification - Heating element application - Assessment level EZ): like 34) in conjunction with IEC 60738-1-2, including valid Amendments
34c) Thermistors - Directly heated positive step-function temperature coefficient (Blank detail specification - Inrush current application - Assessment level EZ): like 34) in conjunction with IEC 60738-1-3, including valid Amendments
34d) Thermistors - Directly heated positive step-function temperature coefficient (Blank detail specification – Sensing application - Assessment level EZ): like 34) in conjunction with IEC 60738-1-4, including valid Amendments
Transformers (switch mode power supply units, small reactors):
35) Safety of power transformers, power supplies, reactor and similar products (General requirements and tests) DIN EN 61558-1 (VDE 0570-1), including valid Amendments = IEC/EN 61558-1, including valid Amendments
35a) Separating transformers and power supplies incorporating separating transformers for general applications: like 35) in conjunction with DIN EN 61558-2-1 (VDE 0570-2-1), including valid Amendments = IEC/EN 61558-2-1, including valid Amendments
35b) Ignition transformers for gas and oil burners: like 35) in conjunction with DIN EN 61558-2-3 (VDE 0570 part 2-3), including valid Amendments = IEC/EN 61558-2-3, including valid Amendments
35c) Isolating transformers and power supply units incorporating isolating transformers: like 35) in conjunction with DIN EN 61558-2-4 (VDE 0570-2-4), including valid Amendments = IEC/EN 61558-2-4, including valid Amendments
35d) Shaver transformers and shaver supply units: like 35) in conjunction with DIN EN 61558-2-5 (VDE 0570 part 2-5), including valid Amendments = IEC/EN 61558-2-5, including valid Amendments
35e) Safety isolating transformers and power supply units incorporating safety isolating transformers: like 35) in conjunction with DIN EN 61558-2-6 (VDE 0570-2-6), including valid Amendments = IEC/EN 61558-2-6, including valid Amendments
35f) Switch mode power supply units and transformers for switch mode power supply units: like 35) in conjunction with DIN EN 61558-2-16 (VDE 0570-2-16), including valid Amendments = IEC/EN 61558-2-16, including valid Amendments
35g) Small reactors: like 35) in conjunction with DIN EN 61558-2-20 (VDE 0570 part 2-20), including valid Amendments = IEC/EN 61558-2-20, including valid Amendments
Varistors:
36) Varistors for use in electronic equipment (Generic specification): IEC/EN 61051-1, including valid Amendments Sectional specification for surge suppression varistors: IEC 61051-2, including valid Amendments Blank detail specification for zinc oxide surge suppression varistors – Assessment level E: IEC 61051-2-2, including valid Amendments

	List of the applied measurement instruments and testing means					
Clause:	Inventory-No.	Instrument	Type	Manufacturer	Calibration Date	
					Last	Due
29	2040248	MESSSCHIEBER	560-128	MITUTOYO	2013-07-12	2015-07-10
27.5	1500008	SCHUTZLEITERPRUEFGERAET	90-2A	ELABO	2014-10-27	2015-10-27

Appendix EMF	IEC/EN 62233			N/A
Table No.	**TEST: Evaluation of the magnetic fields**			
Method	According to the type of appliances, the highest measured value using a magnetic field sensor shall be taken, taking independent field sources into account.			—
	Method 5.5.2 ☐	Method 5.5.3 ☐	Method 5.5.4 ☐	—
Applied Limit	ICNIRP Guidelines ☐	IEEE Std. C95.6:2002 ☐		—

Identification of the appliance	Type of apparatus	---
	Rated Voltage	---
	Rated Frequency	---
Parameters required prior to the test	Laboratory Ambient Temperature	25 °C ± 10 °C
	Supply Voltage	(Rated Voltage ± 2 %) V
	Supply Frequency	(Rated Frequency ± 2 %) Hz
Parameters recorded during the test	Laboratory Ambient Temperature	°C
	Supply Voltage	V
	Supply Frequency	Hz
Operating Mode		

Method 5.5.4

Cl.	Requirement – Test	Result	Verdict
5.5.4.1	The reference level decreases with a limited gradient		N/A
5.5.4.1.1	The magnetic flux density during an unweighted broadband measurement		N/A
	All harmonic currents with amplitudes		N/A
5.5.4.1.2	The magnetic flux density at the mains frequency		N/A
	The magnetic flux density during an unweighted broadband measurement		N/A
	All harmonic currents with amplitudes		N/A
5.5.4.2	Constant reference level		N/A
5.5.4.2.1	The magnetic flux density during an unweighted broadband measurement		N/A
5.5.4.2.2	The magnetic flux density at the mains frequency		N/A
	The magnetic flux density during an unweighted broadband measurement		N/A

Method 5.5.2 or Method 5.5.3

Measuring Positions	Measuring Distance	Coupling Factor	Measurement Uncertainty
			---

Frequency (kHz)	Limit (%)	Measured Maximum Value (%)
0.01 to 400	100	---

Supplementary information:

The measured maximum value in this table may be weighted with the coupling factor if applicable, and the measurement uncertainty is applied if the measured result is more than 75 % of the limit.